



# A GUIDE

to your energy efficient home



**NORWICH**  
City Council

# Introduction

## Welcome to your new home.

This guide will help you understand everything you need to know about your new energy efficient home and how to get the best from it.

We've tried to answer all the most common questions and limit the jargon wherever possible. If there's anything you don't understand or something we've not covered then please don't hesitate to ask.

You don't have to read this cover to cover right now but it will provide you with a good overview and act as a handy guide for you to refer back to.

## What is Passivhaus?

Your home has been constructed to a building standard known as 'Passivhaus'.

This is the highest certifiable standard of energy efficiency, resulting in ultra-low energy buildings that need very little fuel for heating or cooling.

Properties built to Passivhaus standard typically feature extra thick insulation, triple-glazed windows and doors, and a special vent system which allows clean air into the home, without letting out the heat.

Using the heat generated within the home, through day-to-day activities, means you can dramatically reduce your heating bills.

This is great news for both tenants and the environment.

A lack of draughts, high indoor air quality and even temperatures throughout the home also create more comfortable living conditions, compared with older properties.

## How does a Passivhaus save energy?

Homes built to this standard are carefully designed to balance the heat lost through the windows, walls and roof, with heat gained from the sun and the occupants' daily activities.

Boiling the kettle, using the toaster, running a bath, all generate heat, as do our bodies and the sun shining on our windows.

The extra thick insulation, triple glazed windows and special airtight design help keep the heat in. As does the special ventilation system, which



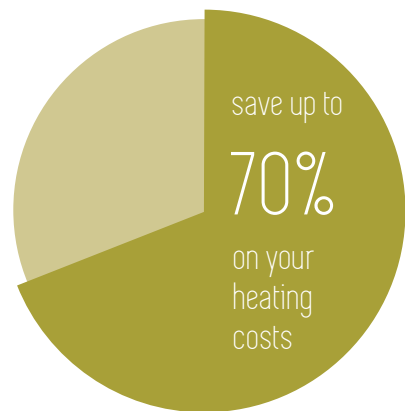
changes the air inside, without allowing the heat to escape.

compared to the average UK home, heated to 21degrees, using a modern gas combi boiler.

## How much money will it save me?

This will vary greatly depending on where you lived previously, the type of heating you had and how you used it, and how closely you follow the guidance for living in your new Passivhaus.

The heating costs in a Passivhaus can be up to 70 per cent cheaper



\*vs a standard home

## How is my home different to a standard property?

A Passivhaus:

- is cheaper to heat
- is more airtight
- is designed to use energy from the sun
- has a special ventilation system that provides fresh air without letting out heat
- goes above and beyond the normal standards required in UK Building regulations
- is designed and constructed with much greater attention to detail to create a much higher standard of energy efficiency and comfort.

## What's MVHR?

MVHR is the technical name for the special ventilation system that gives you a constant supply of fresh air to your rooms all year round. It stands for 'Mechanical Ventilation with Heat Recovery' and is a key feature of your Passivhaus.

It works by extracting the stale air from warm rooms such as kitchens and bathrooms, whilst drawing in fresh outside air. A heat exchanger transfers the warmth from the stale air into the fresh.

## What are all the vents for?

You will notice some air vents, positioned reasonably high in your walls, or in the ceiling. You will find them in your kitchen and bathroom and also in your

bedrooms and living room. They are part of your MVHR (ventilation system) and will either be taking out the stale air (kitchens and bathrooms) or providing fresh air (living rooms and bedrooms).

**You should not block or remove them**, as they are an important feature of your home. They have been carefully designed and placed to provide you with all the fresh air you need and to maintain the energy balance of the house.

## Can I switch off the MVHR if I go away on holiday?

Most MVHR units have a holiday mode that means that a minimal amount of ventilation is provided whilst you are away.



## What's 'Summer bypass' mode?

Summer bypass mode is where the heat exchanger part of your MVHR system is shut down during the warmer months when you would normally switch off your heating. This should happen automatically as the outside air temperature rises.

## Do I need to do anything to make my MVHR go into summer bypass?

It will depend on what type your MVHR system is. Most systems do it automatically but some might need a manual prompt. Your MVHR user manual will explain this and we will talk you through everything when you move in.

## Will the air be stuffy?

The ventilation system will provide your home with a constant supply of fresh air and will not be stuffy at all. You can open your windows if you prefer, but it really isn't necessary.

Your rooms will contain significantly less CO<sup>2</sup> than in a traditional home, creating a better environment for both sleep and study.



The air is also filtered to remove harmful particles which are known to be the cause of respiratory disease and ailments such as asthma and eczema.

## Can I breathe if the ventilation system is turned off?

Yes, you can still breathe if your MVHR system is switched off. While Passivhaus standards are greatly improved in terms of airtightness compared to standard building methods, outside air still gets in.

## How does 'heat recovery' actually work?

The heat exchanger in the ventilation system takes the stale air out of the building and replaces it with fresh air. Around 90% of the heat is taken out of the stale

air and transferred into the fresh air. It's powered by a small motor, which is incredibly efficient and plays a large part in the energy savings you can achieve.

## How will my air filters get changed?

We will contact you every six months to arrange to change your filters. It is important you allow our contractors access to change the filters otherwise they can become blocked and won't work effectively.

## When is the best time for my filters to be changed?

The end of summer is a good time for the filters to be changed. This is when they are more likely to be clogged with dust from outside summer activities.





It's also just before the heat exchanger is switched on and energy savings become possible.

Your MVHR unit should inform you whenever the filters need changing. If this happens before we've booked your filter change please report it at [www.norwich.gov.uk/repairs](http://www.norwich.gov.uk/repairs) or call us on 0344 980 3333.

## How warm should my home be?

A Passivhaus is designed and built to hold a steady comfortable temperature of 21 degrees at all times.

If you leave your windows or doors open in the winter you will need to use additional heating, which will cost you more money.

## How is my home heated?

Your house is mainly heated by the sun. Further heat is generated from using your appliances and even from your own body heat.

Any additional heat needed to keep the property at 21 degrees is generally provided by a gas boiler and one or two small radiators or a heated towel rail, or the boost setting on the ventilation system.

Air source heat pumps or direct electric are also sometimes used.

A boiler or heat pump is still needed to provide hot water.

## How do I control the temperature?

The temperature is controlled by a thermostat in the normal way. It can be turned up or down as you would expect but will obviously use more energy and cost you more, the higher you set it.



## Will I get cold?

You should be thermally comfortable at all times. All internal surfaces, including windows, should hold a temperature of 17 degrees, even in the coldest winter months.

You should also get an even temperature, floor to ceiling, throughout every room.

## How do I save energy?

- Keeping your windows and doors closed during the winter months will limit the additional energy required to heat your home and will also save you money.
- Keeping curtains and blinds open in the winter months will also help you gain extra heat from the sun.
- Have your filters regularly cleaned and changed. We will



contact you every six months to arrange this. It is important you allow our contractors access to change the filters otherwise they can become blocked and won't work effectively.

- You can make further savings by using low energy light bulbs and A+ rated appliances.

## What about moisture?

The ventilation system is designed to extract moisture from the air and will work harder when high levels

of moisture are present, such as when cooking or showering.

The airtight layer also prevents any moisture from moving into the structure of the building.

## What's an airtight layer?

Every Passivhaus features an airtight layer that prevents heat from escaping. It can be around the external walls and windows, buried within the wall cavity or sealed from the inside.

It is useful for you to know where it is in your home and what it's made of, so that you don't damage it accidentally.

## Can I hang things on the walls?

You will need to be careful when hanging things or puncturing any

surface that is against an outside wall, to avoid damaging to the airtight layer.

Check with your housing officer before you hang anything, to understand where the airtight layer is in the wall and whether you need to use any special hooks for hanging.

You can hang whatever you like on any internal partition walls

– it's just the ones against the exterior to be mindful of.

If you do think you've damaged the airtight layer please report it to us at [www.norwich.gov.uk/repairs](http://www.norwich.gov.uk/repairs) or call us on 0344 980 3333.

If it's a nail, for example, it might be ok initially, whilst the nail is still in the wall, but will ultimately lead to heat loss and higher energy bills, unless it's fixed, so please report it.



## Can I do anything to stop overheating?

Your home has been designed to keep overheating to a minimum but in summer it can sometimes get warm. There are a number of things that you can do:

- Keep curtains and blinds closed in the day to keep the heat out.
- Open your windows during the evening to encourage ventilation and a good flow of fresh air.

In reality, if it's 28 degrees outside, you are still going to be warm, as you would in any house.

## Can I open my windows?

Yes. It's fine to open your windows in the summer if you wish, it will just affect your indoor air quality. During the winter months you should try to keep windows closed to keep the heat in.

## Do I need to put the fan on when I cook or shower?

Your ventilation system should already be set up to manage normal daily activity in your kitchen and bathroom. If you're cooking for a prolonged period or it's hotter than you might like, try using the system's 'boost' mode.

## Will I still have energy bills?

Yes. You will still have an energy bill, as you will still be using energy for your hot water, appliances and lighting.

## Do I have to use A+ rated appliances?

No, not at all, but it's worth considering whenever you upgrade any white goods



or appliances. Not only will you save on energy but you will also reduce the heat that the appliance gives off. Your home has been designed based on the use of A+ rated appliances so if you're using a lot of electronics with poor energy performance you might find you warm up.

### Can I have a cat flap?

No, not unless you use a Passivhaus Certified one, which can be costly. Otherwise your cat will need to use a litter tray.

### Further information

Our website features a brief video entitled 'Passivhaus in 90 seconds' if you want to learn more about how your home works. Just go to [www.norwich.gov.uk/passivhaus](http://www.norwich.gov.uk/passivhaus)

The Passivhaus Trust may also be a useful resource [www.passivhaustrust.org.uk](http://www.passivhaustrust.org.uk)

### Support

You can always speak to your neighbourhood housing team about any questions you may have.

It may also be worth considering setting a group with your neighbours (possibly on social media) so that you can share tips and ideas, and support each other.

# Contact

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