

# Home Energy Guide

## Kirkleatham Phase 3

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## 1. Introduction

This Home Energy Guide for your new home has been provided by Vistry North East. The guide is intended to help you better understand the energy systems within your home to help you stay warm in the winter and cool in hot weather, while keeping your bills as low as possible. It is important however that this document does not replace manufacturers' instructions for these systems which should always be followed.

New homes in England are being designed and built to use less energy and to emit lower quantities of greenhouse gases (including carbon dioxide) than existing homes. In addition to being well-insulated and less draughty (when compared to older homes), they may now also include systems that were uncommon in earlier homes, including how they are ventilated. This guide gives advice on topics with which you may be unfamiliar compared with your experiences in previous homes. It covers the following topics:

- ventilation,
- heating and domestic hot water,
- staying cool in hot weather.

Alongside this guide, the original manufacturers' operating and maintenance instructions have been provided to you separately. Contact details for recommended professional installers should also be given to you for use in emergencies and to ask them carry out normal maintenance. Some owners / occupants may choose to carry out simple but important routine maintenance tasks for themselves, such as cleaning dust and debris from air inlets and outlets, changing air filters, and bleeding radiators (in line with manufacturer's instructions). These simple actions will help to ensure energy use is kept to a minimum and systems operate effectively.

## 2. Ventilation

Ventilation in your home is provided for three reasons: The first is to supply fresh air for the occupants. The second is to help to ensure good indoor air quality, which needs removal of enough moisture, odours, and other indoor pollutants. The third purpose is to help to maintain good thermal comfort; ventilation air flows help heat to mix from different sources, so it circulates throughout your home, especially from the central heating system during cold periods. The different parts of the ventilation system work together to allow fresh air to through throughout your home. During hot weather periods, ventilation can remove excess heat from your home - See the 'Staying Cool in Hot Weather' section below for guidance about this.

Poor levels of ventilation along with excess moisture in the indoor air can contribute to mould growth, so it is important to use the ventilation provided to keep your home 'fresh' and to remove moisture at source, particularly from shower rooms, bathrooms and kitchens. To limit excess moisture in the indoor air and condensation in your home, the following tips may be helpful:

- avoid drying clothes indoors, especially on radiators;
- if you have one, make sure your tumble dryer's venting duct leads outside (unless it is a self-condensing dryer);
- reduce moist air spreading around your home by using local extract fans keeping internal doors closed when cooking, bathing, or showering.

### **Mechanical extract ventilation:**

Ventilation in your home has been provided using continuous mechanical extract ventilation from shower rooms, bathrooms and kitchens, with trickle vents in most window frames, and openable windows. Trickle vents are small openings fitted within all window frames except for in shower rooms, bathrooms and kitchens. When open, these allow background ventilation air flows to help to maintain good indoor air quality. Continuous mechanical extract ventilation from shower rooms, bathrooms and kitchens (sometimes via a non-recirculating cooker hood) provides background ventilation air flows to remove moisture, odours, and other indoor pollutants from your home, with fresh air supplied through trickle vents. This type of system is intended to run continuously using fans powered by electricity and should only be switched off if they are being worked on by a professional installer. Each fan can also be switched to boost mode to temporarily increase the ventilation air flows when needed. Opening windows allow for additional ventilation when needed. To allow air to circulate around your home you may have noticed that all the doors have gaps underneath them - Do not block these gaps as it will stop air flowing between rooms to those with extract fans and between trickle vents.

## Building Regulations Part L, F and O – England

Some practical tips on using ventilation provisions in your home are listed below:

- When fitted in your home, trickle vents should be open to provide background ventilation. Trickle vents can be closed to limit cold draughts at certain times, or within rooms you are not using and heating, but remember to open them again at other times. Permanently closing trickle vents could over time contribute to your home becoming unhealthy and damp. Openings in trickle vents should be cleaned at least once per year to ensure air can flow freely through them, including internal grilles if these are present.
- Do not permanently turn off mechanical ventilation systems. If you feel draughts when these types of system are running, first of all check if boost mode has been left turned on, and if needed change this back to normal mode. If you permanently turn off mechanical ventilation systems, your home will be poorly ventilated, high moisture levels may cause mould growth or timber rot, and you will potentially expose the occupants of your home to harmful levels of indoor air pollutants.
- Use boost mode for mechanical extract ventilation to rapidly remove excess moisture or odours. If your system does not have an automatic boost period (auto off), remember to turn off boost mode when this is no longer needed. Prolonged use of boost mode is likely to be noisy, could cause draughts, and will use more electricity than is necessary.
- If fitted in your home, continuously running mechanical ventilation systems are intended to be quiet when running. To limit increases in noise from the system over time, ensure the system is regularly maintained by a professional installer according to the manufacturer's instructions.
- The filter within a cooker extract hood must be changed regularly according to the manufacturer's instructions. After long-term use, grease and other deposits from cooking can block such filters causing poor performance and increased energy use. Routine cleaning of the initial wire grease filter will help keep the hood extractor operating efficiently. Check the manufacturer's instructions, but this is normally done by just including the filter with your washing up.

### 3. Heating and Hot Water Systems

To live comfortably in your home, you need two forms of heat. The first is hot tap water, which is also known as 'domestic hot water' and is needed all year round. The amount of hot tap water your home needs however is entirely dependent on the behaviour of the people living there. The second is space heating (with heat provided via radiators or underfloor heating for example), which is only needed when your home is feeling cold. As we now build new homes in England to lose far less heat to the outside than before, far less space heating is required. Until the weather becomes really cold, the heat given off by appliances, electrical equipment, lighting, heat gains from the sun and the people in your home may balance the heat it loses to the outside, meaning the space heating system may not need to come on. Space heating is normally delivered by a central heating system.

#### Wet Central Heating Systems

Your new dwelling is provided with a wet central heating system heated by an air source heat pump located outside of your home. Domestic hot water for taps and appliances is provided by the hot water cylinder. This is heated by the air source heat pump, but also has an electric immersion heater backup.

The heating system uses radiators to circulate heat around your home.

**Radiators:** As your home is built to lose far less heat than you may have been used to, you may notice that the radiators may be less hot to the touch. Running radiators warm rather than hot helps keep your home running efficiently. As the weather becomes colder the length of time the heating system operates for may become longer. This is more efficient than turning up the temperature and running for short periods, especially if your home has a heat pump system (see below).

Corrosion and scale build-up in a wet central heating system can decrease its efficiency making it more expensive to run, increase the risk of component failures and shorten the life of the system. The system installed in your home helps to prevent these. Some practical tips about these issues to discuss with your professional installer during routine maintenance, repairs, or system replacement are listed below:

- Before fitting a new replacement heat pump, the wet central heating system in your home should be thoroughly cleaned and flushed by your professional installer. During final filling of the system, a chemical water treatment formulation should be added by them to control corrosion and the formation of scale and sludge in the heating system pipework. Your installer should also refer to the boiler or heat pump manufacturer's instructions for appropriate treatment products and special requirements for individual models.

## Building Regulations Part L, F and O – England

### Heat Pumps

Heat pumps are electrically-powered devices that move heat from one place at one temperature, to another place at a different temperature using special gases. (They are different from traditional boilers or direct electric heating, and supply heat in a very different way.) For many years, almost every home has contained a heat pump installed as part of a fridge - A heat pump moves heat from inside the fridge to outside the fridge. This makes the inside of the fridge colder, and the element on its back warmer. Using a heat pump to heat a home is similar, except it takes heat from outside the home and moves it inside.

Whereas the efficiency of gas boilers is generally tolerant to how they are run, heat pumps need to be set up and used carefully to avoid being inefficient. However, as heat pumps are powered by electricity, and this is increasingly being generated renewably, heat pumps are key to reducing our reliance on fossil fuels in England for heating homes. A heat pump can also deliver heat more efficiently than direct electric heating (for example immersion or storage heaters), which can make the running cost similar to a gas boiler.

There are two sorts of heat pump normally used for heating homes: air source or ground source. An air source heat pump (ASHP) usually contains all parts of the heat pump in an outdoor box, called a mono block system. This takes heat out of the air outside and uses it to circulate hot water into your home. The other kind, a ground source heat pump, takes heat out of the ground via long pipes either laid in the soil or placed in deep holes sunk near your home. Both sorts normally put heat into a hot water cylinder and space heating system inside your home.

ASHPs work most efficiently when they are running reasonably continuously, instead of regularly switching them on and off. For efficient use, the ASHP should not be switched off completely to control the indoor temperature in your home. Instead time should be spent setting up the system for long run times and then the system left to operate by itself. You can set the thermostat(s) to a lower temperature when your home is unoccupied. For example, if you normally set the thermostat to 20°C for when you are at home during the day, this could be lowered to 15°C at other times, such as when your home is unoccupied. In modern, well-insulated homes, the indoor temperature will remain reasonably constant even while the central heating system is not running. Modern smart thermostat systems may also learn how long it takes your home to warm up, so in colder weather these may ask the heating system to come on early so your home is warm for the time you have asked. Some practical tips about the ASHP in your home are listed below:

- If fitted in your home, an ASHP is intended to be quiet when running. To limit increases in noise from the ASHP over time, ensure it is regularly maintained by a professional installer according to the manufacturer's instructions.
- Regularly clean away leaves and other debris from the air intake and outlet located on the outdoor unit outside your home. If the air inlet or outlet becomes blocked, the ASHP will not work efficiently, it will use more electricity than is necessary, and it may even not provide enough heat to your home.
- Ask a professional installer to change any air filters on the outdoor unit regularly according to the manufacturer's instructions.

### 5. Staying Cool in Hot Weather

NHS England cautions that prolonged periods of extremely hot weather pose serious health risks. Further, they warn that excessive exposure to high temperatures can kill - Those most at risk include older people, very young children and people with certain pre-existing medical conditions. For guidance about this, please consult the following website, which includes advice on protecting yourself and your dependents:

<https://www.nhs.uk/live-well/healthy-body/heatwave-how-to-cope-in-hot-weather/>

During everyday living, you can take certain steps to reduce indoor temperatures during periods of hot weather to improve your comfort by using the built-in features of your home. This advice will also help to reduce health risks from high temperatures, but in addition you will need to follow the guidance given by NHS England on protecting yourself and your dependents.

There are several ways you can help to keep your home cool, and generally these can be combined. They include limiting heat from the sun entering your home through glazed windows, limiting heat from electrical appliances and devices, and electric lighting in your home, as well as increasing ventilation air flows using external doors and windows, mechanical ventilation or extract fans, and opening internal doors (except fire doors).

At all times, the following measures may be used to cool your home and its contents:

- If you can safely and securely leave any windows open overnight, doing so will allow ventilation to cool down your home and its contents using cooler night-time air.
- If possible, open internal doors (except fire doors), including overnight and when your home is empty. This will allow ventilation air to flow freely through your home.
- Electrical appliances and devices generate heat while they are in use, and this can increase indoor temperatures. If possible, turn them off at the wall socket when they are not needed, as even standby mode creates a small amount of heat.
- If it is safe to do so, turn off electric lighting in spaces where it is not needed. Even modern energy efficient lighting generates some heat while in use, and this can increase indoor temperatures.
- If there are blinds, shutters, sun covers or awnings fitted on the outside of your home, these should be used throughout the day to protect against too much heat from the sun entering your home. Indoor blinds or curtains can also be used, although they are not quite as effective at preventing heat from the sun entering your home. Whether inside or outside, shading should not block window openings from allowing ventilation air to flow through your home.
- If there are trickle vents fitted in window frames, open all of them and leave these open throughout the hot weather period, including overnight and when your home is empty. (Trickle vents are small openable purpose-provided openings fitted within the window frames in your home.)

## Building Regulations Part L, F and O – England

At times of the day when the outdoor air is cooler than the air indoors (often in the late evening and overnight, but also when a building is already overheating), the following measures may be helpful:

- If safe and secure to do so, external doors, windows and other ventilation openings should be opened during the cool of early morning to allow stored heat to escape from your home and its contents - Openings on different walls allow cross-flow ventilation, and openings at different heights increase ventilation air flows, including openings on different storeys. If sash windows are fitted, open these so there is an opening gap both at the top and bottom of each opening light (or other windows designs that allow this).
- If your home has mechanical ventilation that runs continuously, make sure this is working normally at all times, including overnight and when your home is empty. You can use 'boost mode' to temporarily increase ventilation air flows at any time.

At times of the day when the outdoor air is warmer than the air indoors, windows and other ventilation openings should not be completely closed, rather instead their openings should be reduced to allow lower background ventilation air flows. External doors should be closed, but internal doors (except fire doors) should be left open. This should help to keep rooms reasonably cool while still allowing adequate ventilation air flows for good indoor air quality. (Sufficient removal of moisture, odours, and other indoor pollutants is needed for good indoor air quality.) Mechanical ventilation or local extract fans should not be used to boost ventilation air flows if the outdoor air becomes warmer than the indoor air, except if needed for other normal indoor air quality reasons.

You can check the indoor and outdoor air temperatures using an ordinary thermometer, with the sensing bulb positioned in the free air, preferably away from hot or cold surfaces, and shaded from direct sunlight - It takes a few minutes for thermometers to show the correct reading. (This approach will not work for 'infrared thermometers' though, which generally measure temperatures of surfaces, not air temperatures.)