

# APPENDIX 9: Kitchens

The kitchen is often the place where most energy can be saved. There are a few things that can be done in any kitchen, no matter the size. The following are some top tips for kitchen energy use.



## LIGHTING

Like any other room in your building, it is important that the lighting is efficient. This includes purchasing the best light bulbs, and making sure that they are only on when they are needed. This can be achieved using passive infrared sensors (PIR).

## GAS HOB

Gas hobs are much less carbon intensive than electric hobs which run off the mains. It is also easier to control a gas hob, as they do not need time to heat up or cool down. This allows you to use the hob in an efficient manner.

## HOB USE

It is important to use the hob in an efficient manner. This includes ensuring that pans have lids on them, and that rings are only on when they are being used. Make sure that you only use as much water as you need, which should be just enough to cover what you are boiling.

## Layout

Keep hot things away from cold things in the kitchen. Having a fridge right next to an oven will make the fridge work harder to stay cool when the oven is hot. In large kitchens, it is good practice to have a warm zone and a cold zone, with preparation areas in between the two. The cold zone has all of the refrigeration in it, and the warm zone has ovens, hobs and grills.

## WATER

When cooking, only use as much water as you need. This will save water, and reduce the amount of energy needed to heat water to boiling point.

- **TAPS**

There will be taps in the kitchen. Make sure that these are not left on unnecessarily. It is also very important that they do not drip. Any leaks should be fixed as soon as possible, as they will only get worse with time.

If it is a hot tap that is dripping, this wastes water and energy, as the energy used to heat the water is also wasted.

- **HEATING**

If a lot of hot water is used in food or drink, it is often more efficient to use a dedicated water boiler. However, it is a common problem that these are left on when they are not needed.



Coffee machines with water boilers are often left on overnight, which means that they are boiling water unnecessarily for many hours. Ensure that any water heaters are kept to appropriate schedules. A timer plug can achieve this with minimal effort.

### PAN LIDS

Make sure that when a pan can have a lid on it, the pan does have a lid on it!

### REFRIGERATION

Fridges can be set to different temperatures. Different types of refrigeration have different controls and different temperature requirements. However, freezers should never be colder than  $-18^{\circ}\text{C}$ , and fridges should never be colder than  $3^{\circ}\text{C}$ . Bottle coolers can be as warm as  $10^{\circ}\text{C}$  without the drinks becoming too warm.

Small domestic fridges with a scale of 1 to 7 (where 7 is the coldest) should normally be set to 3 or 4. Bottle coolers are only required when the drinks need to be cool. The drinks will not go off if they are allowed to warm up. If the fridge will be unused for a period of 2 days or more, it should be turned off. The bottles will stay cool for a long time so long as the fridge door is kept shut.

Beer cellars can be kept at around  $13^{\circ}\text{C}$ .

### ADDITIONAL TECHNOLOGIES

The CoolTube beer cooling system can reduce the cost of cooling beer that is on tap. For more information see [Appendix 3 and 4 – Cooling and Ventilation](#).

The eCube is a small device which can be placed inside a fridge to help to regulate the refrigeration cycles. When a fridge door is opened, cold air escapes, and warm air from the kitchen enters. This makes the fridge thermostat believe that the fridge is warmer than it is – the food and drink inside does not warm up as quickly as air! So the eCube sits next to the thermostat, and acts like a food substance. It will warm up and cool down at the same rate as the food in that is being chilled, so the refrigeration cycles will only occur when it is necessary.

Using the same reasoning as the eCube, it is a good idea to keep refrigerators full when they are in use. This means there is less air in the fridge that can escape when the door is opened. Bottles of cold water can be used to effectively fill up empty fridges. If bottled water is kept in the fridge, the high specific heat capacity of the water will also help to keep the contents of your fridge cold in the event of a power cut.

If there are two half empty fridges, it is better to put all the food together and turn the empty fridge off. If you always have a large amount of stock in fridges, it is better to have one large fridge than two smaller ones.

### AWARENESS

See Appendix 8 – Behaviour Change for ideas about environmental awareness. As a start for your kitchen, you could use stickers on switches, such as light switches and temperature controls to remind kitchen users of the best ways to use the equipment, and have training sessions for staff on the importance of energy efficiency.

**Remember; it's better - off!**



## VENTILATION

Extractor fans help to keep the air in the kitchen healthy. Good ventilation can ensure that the kitchen receives fresh air without losing too much heat when it is cold outside.

Ventilation can be connected to air quality sensors. These make sure that the ventilation is only in use when the air is not clean. Extractor fans are frequently left on over night in kitchens. This is not necessary, as they are likely to have extracted all of the poor quality air only a short time after the close of the kitchen. The use of timers or air quality sensors will ensure that the extractor fans are only in use when they are needed.

