

Safety Requirements Relating to Appliances

WARNING:- Always ensure that the correct type of Regulator is used to supply your appliance. It's pressure rating and type of gas must match the values on the appliance's data badge.

LPG appliances are clean-burning, efficient, and require the minimum of servicing. Gas is the friendliest fuel to the environment, due to the lack of impurities and because of it's efficiency, it's low level of combustion products for the same amount of

energy output - if you think electricity is clean, it requires considerably more fuel to be burned at the generating station for the equivalent amount of energy that gas gives you. There are a few points you should bear in mind for the safe and efficient use of LPG, however. Please be aware that most of these points apply to all fuels, not just LPG!

All fuel-burning equipment needs air in which to burn its fuel - this is called combustion air. The equipment will also need air to keep it cool if it is located in a cupboard or compartment - requirements for cooling air can be found in Flogas Installation Guidelines, a copy of which is available on request, but since compartment installations are relatively uncommon, cooling air will not be covered further here. In relation to combustion air, gas appliances can be divided into three main groups - (a) room sealed, where the appliance draws its air from the outside and discharges its combustion products (exhaust) to the outside, (b) open-flued, where it draws its combustion air from the room in which it is located but expels its exhaust to the outside, and (c) unflued appliances, which both draws its combustion air from the room in which it is located and expels its combustion products into the room.

Room-sealed appliances do not require ventilation and provided they are installed correctly and are not damaged, can be located safely virtually anywhere without concern (apart from cooling air if in compartments).

Open-flued appliances should not be located in bedrooms, bathrooms or garages. They require air for combustion, so generally the room in which they are located must be ventilated to the outside - otherwise, they will gradually use the Oxygen in the room, and once the level of Oxygen reduces, they may start to produce Carbon Monoxide, a poisonous and invisible gas. If there is insufficient ventilation, then not enough air comes in to the room to replace the air used by the appliance (which is discharged via its flue after it has been burned with the gas) - after a while, they start to produce Carbon Monoxide due to the lack of Oxygen, and at roughly the same time, the exhaust stops going up the flue, as it cannot overcome the suction in the room. While the suction stops the exhaust going up the flue, the suction is not great enough that it is noticeable, but nevertheless poisonous Carbon Monoxide will start to accumulate in the room.

Unflued appliances are typically cabinet heaters, cookers, and some instantaneous water heaters. Cabinet heaters (such as Super-Sers) that are less than approximately ten years old usually have automatic cut-outs that shut them down if the room has insufficient ventilation, so they are quite safe to operate. This device is called an Atmospheric Analyser, and provided it is not interfered with or adjusted, it should provide trouble-free service. You should, however, provide ventilation (such as by opening a window) when using cabinet heaters, and also when using other unflued appliances such as cookers or instantaneous water heaters. Instantaneous water heaters should not be left running continuously for long periods. None of these appliances should be located in bedrooms, bathrooms or garages. The appliances (in common with all appliances) come with instructions which clearly specify how they should be ventilated and used.

Accordingly, apart from room-sealed appliances in a room, your appliance needs ventilation. This situation is even more critical if the room has aluminium windows or weather-stripped windows, as it will be virtually air-tight.

For Decorative Fuel-Effect Fires (the gas fires that look like a real coal fire), you need a 100 square centimetre vent. For all other open-flued appliances, the vent area needs to be approximately 5 square centimetres for every 1 KW of the appliance's input rating (e.g. 50 square centimetres for a 10 kW appliance). The input rating is marked on the appliance, or else you can find out from the appliance distributor. Add the ratings of all fuel-burning appliances in the room (e.g. oil) in calculating this figure. Ventilation requirements are greater if you have an extractor fan in the same or a connected room as the room in which the appliances are located. Note the area given is the "free" area of the vent, i.e. the total area of the "holes" - the overall size of the vent will be significantly greater than the free area. The vent should be at high level, must not be adjustable, and must be to the outside.

If your flue or chimney is suffering from downdraught (or you suspect it is), which will cause dangerous exhaust to be blown back into the room, a serviceman can carry out a smoke test. This test is not perfect, however, in that some flues only suffer from downdraught when the wind blows from a particular direction. The most common cause is that the flue terminal is not above the highest point of the roof. Accordingly, if you suspect a problem, have it checked out professionally.

Hoses should be inspected regularly for cracks, damage, deterioration or wear. They should be replaced in any event once they are five years old. They are generally marked with the year of manufacture, but otherwise will be marked "Replace before 199X" or similar. Ensure replacement hoses are suitable for LPG and of the correct quality & standard. Hoses must NEVER be routed across the back of a cooker or be exposed to heat.

In relation to cabinet heaters, note that they should never be moved when lit. Never position the heater close to materials, such as curtains, soft furnishings, chairs, etc. Also, examine the plaques (the bricks from which the flame comes) and have them repaired immediately if a plaque is cracked, damaged or loose, or if the sealing cement around the brick is deteriorating.

Many of these requirements have changed over the years, so older (and not-so-old) installations may need upgrading. For further information on these subjects, consult the Flogas Installation Guidelines or the relevant Irish Standards. Flogas also have a comprehensive guide available on the selection, installation and use of the wide range of types of gas fires that are available.

“CE” MARKED APPLIANCES

From the 1st January 1996, all new gas appliances must carry the “CE” mark, with Ireland specified as one of the countries of destination (this will usually be located on the data plate on the appliance). This is due to Ireland implementing an EEC Directive called the Gas Appliance Directive. The “CE” mark is currently most commonly seen on children’s toys. This lays down relatively uniform European requirements relating to safety and instructions associated with gas appliances. The only appliances that do not require the CE mark are industrial process equipment on industrial premises - in effect, this is only very specialised industrial equipment such as glass-making equipment. All domestic appliances and the vast majority of non-domestic equipment must have the CE mark - industrial equipment such as catering equipment, factory heating, and water heating all require the CE mark.

While it will be an offence to sell, import, etc., non-CE marked appliances, it will also be an offence for someone to connect a non-CE marked appliance to a gas supply after the 1st January 1996. The implication of this is important - if you purchase a non-CE marked appliance BEFORE the 1st January 1996 but don’t INSTALL it until after the 1st January 1996, no-one can connect it to a gas supply and so the appliance is effectively unusable! Note that there is expected to be a certain amount of confusion in relation to this issue, so appliances without the CE mark may well be inadvertently offered for sale.

Another major complication involved is that (in general) you cannot bring in an appliance from another country, even from Northern Ireland, UNLESS IT IS “CE” MARKED SPECIFICALLY FOR IRELAND (which will be unlikely). Also note that an appliance “CE” marked for the United Kingdom is not automatically certified for Ireland - the requirements are somewhat different.

ADDITIONAL INFORMATION FOR DOMESTIC CENTRAL HEATING USERS

To get the best out of your system, you should become familiar with the various controls that are available and what effect each one has on the system. Proper operation of these controls ensures the most efficient and most economical performance that your system can deliver.

THE BOILER THERMOSTAT

The function of a boiler is quite straightforward - it just heats up the water which is then pumped through the radiators and usually through a heating coil in your hot water cylinder.

All boilers have a thermostat which controls the temperature of the water in the radiators, and most of these are adjustable. This thermostat is always located on the boiler itself (the instructions that come with the boiler will show where it is if you can't find it). Running the system with the boiler thermostat at it's maximum setting is normally only required in very cold weather, and leaving it in this position all year wastes fuel. Some boilers have a high and low setting only (try running it at the low position first), others have an adjusting knob marked with different settings (start by running it in the middle position). If it is set too low on a cold day, then no matter how long the system is running, it will not heat up the house sufficiently - again this is only likely on very cold days.

If the boiler thermostat is the only control on your system, then you will need to adjust it frequently and turn the boiler and possibly individual radiators off when the rooms get to the temperature you desire.

It is quite normal for the boiler to go on and off as your system is heating up - all that is happening is that once the radiators reach the temperature set up on this boiler thermostat, the boiler will cut out. The radiators will then start to cool, and the boiler thermostat will cut in again and fire up the boiler. The boiler will continue cutting in and out like this until the system and the house are warmed up. After that, it will cut in and out (less frequently) when the house cools down.

On boilers with a pilot light, there is the possibility that the pilot light will go out, though this should be very infrequent (if at all). Instructions for re-lighting the pilot light will usually be found inside the door or cover on the boiler, and also in the boiler manufacturer's instructions.

THE ROOM THERMOSTAT

Not all installations have one fitted, but to run the system economically, we would always recommend having one fitted by your plumber or electrician. It is not on the boiler, but on the wall of the living room or hallway (usually), and has an adjusting knob with various temperatures marked on it. The setting most people prefer is 20 degrees Centigrade (70 degrees Fahrenheit).

The room thermostat will turn off the boiler when the room it is in reaches the temperature you have set it at. Without a room thermostat, the boiler will keep the radiators hot all the time, and the rooms will get hotter and hotter, until the rooms get so hot that you HAVE to turn the boiler off! Without a room thermostat, you may be wasting a lot of fuel...

One situation arises where a room thermostat won't control the temperature of the system - it arises when the radiator in the room the thermostat is located in is turned off. Because the radiator is off, this room will never heat up to the temperature set on

the room thermostat, so it will keep the boiler running all the time (the boiler will actually go on and off on it's own thermostat, but it will keep the radiators on all the time). Again this wastes a lot of fuel.

One important point to note about a room thermostat is that it is controlling the temperature of the room that it is located in, which may or may very well not result in a comfortable temperature in the other rooms in the house. The valves on the radiators in the other rooms need to be adjusted to bring them to the temperature that suits you (turning the valve clockwise closes the valve). If one of the rooms is too hot, turn down that radiator, and visa-versa. You may need to turn down the radiator in the room in which the thermostat is located if the other rooms in the house are too cold. Please remember that adjusting the radiator valve will not have any immediate effect on the temperature of that room - it may take hours before the system stabilises at the new setting, particularly if the boiler has been on for some time. It is probably best to adjust any radiators you are not happy with once a day, until it is to your liking.

If you are suspicious of whether the room thermostat is operating correctly, you can test it easily - a thermometer on the wall beside the thermostat should read the same as the setting on the thermostat once the room warms up. If it turns out to be inaccurate (which is unlikely), it may be possible to adjust it as some have an internal adjustment mechanism, but due to the danger of electrical shock, only have this done by your plumber or electrician.

RADIATOR THERMOSTATS

These are fitted instead of the normal on/off knob on the radiator, and can be fitted to existing or new radiators. They operate like a room thermostat, in that you set them for the temperature you require in the room, and they control the flow of water through the radiator to achieve this. You don't need one in a room where there is a room thermostat, and in fact many systems will not operate correctly if all the radiators have radiator thermostats, unless a by-pass is fitted to the boiler. Because of this, often one radiator is left with no thermostat.

THE CYLINDER THERMOSTAT

This is located on the hot water cylinder, and controls the final temperature of the water when all the water is heated up. It does not affect how long it takes to heat it up, except insofar as the higher the temperature, the longer it takes, and so once set to the temperature you require, it never requires any further adjustment. The lower the setting, the greater the savings. Without a cylinder thermostat fitted, the water will heat up until it reaches the temperature set up on the boiler thermostat, which will probably

be too high. Two points worth noting here are firstly, that you should have the system set up so that the hot water and the radiators can be operated separately - either by hand valves, or by a switch connected to electrical motorised valves. The second point is that you must have a lagging jacket fitted to the cylinder - the amount of fuel wasted otherwise is just too much.

One problem that can arise with a cylinder thermostat is that if the temperature set on the boiler thermostat is BELOW that set on the cylinder thermostat, the water will only reach the lower (boiler) temperature. This is a particular problem on hot water priority systems, where the system or boiler is designed in such a way that if you want both hot water and room heating at the same time, the system will heat the hot water first and won't start heating the rooms until the water has reached the temperature on the cylinder thermostat. If the boiler thermostat is set below the cylinder thermostat, it will never get the water hot enough to satisfy the cylinder thermostat and so it will never switch to heating the rooms. The solution is to increase the boiler thermostat setting or reduce the cylinder thermostat setting.

The highest setting on some cylinder thermostats may be so high that even with the boiler on it's maximum setting, it cannot heat the water that hot, so you may not be able to set the cylinder thermostat at or near it's maximum. From a practical point of view, such a high setting is definitely excessive and should not be used, and could give rise to scalding.

FROST THERMOSTAT

Not many systems are fitted with one of these - they are particularly relevant where you are not occupying the house in winter, or if you think you might get cut off from the house if there is heavy snow! Basically, they will turn on the heating system if the temperature in the house drops below their set temperature (often four degrees Centigrade, which is 40 degrees Fahrenheit), and so hopefully prevent water pipes freezing. Many room thermostats are marked with a "frost protection" setting, and while a room thermostat will function perfectly well as a frost thermostat, the difference is that the wiring and controls will not LET an ordinary room thermostat function as a frost thermostat - the frost thermostat must NOT be controlled by the timeclock or any other switches, and the system must have the radiators on and not the hot water cylinder, through the use of motorised valves controlled by the frost thermostat if necessary. Therefore a frost thermostat is often in addition to the usual room thermostat. Where real protection is needed, such as in summer houses and where the boiler is in a separate, external boilerhouse, the wiring of the system must be very carefully thought out and ideally the system set up so that the frost protection is fully automatic.

THE TIMECLOCK

There are a wide variety of timeclocks available, from relatively simple ones, to modern electronic ones, which are relatively cheap (around 60). Again your plumber or electrician can fit one. The better ones can be set to come on for either one or two time periods which may be different for the different days of the week (usually one for the morning and one for the evening), and an “override” button may be incorporated if you want the heat on or off outside those times, without having to interfere with the times previously set up. Most can control the radiators and hot water separately, if your system has electrical motorised valves. They ensure you do not leave the heating on all night, apart from everything else! A timeclock invariably cuts down on running costs since no matter how careful someone is, they will inevitably forget on occasion to turn the system off.