Factsheet

HEATING AND HOT WATER

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First things first!

Before carrying out any major changes such as installing a new central heating system or replacing an old boiler, make sure that your home is really well insulated (see fact-sheet 2). Not only will this reduce your fuel bills year-on-year, but your initial costs will be lower as you will be able to use a smaller boiler, radiators and pipe work etc.

Which type of new system?

If you have two or more bedrooms and you want heating and hot water throughout your home, then an oil or gas-fired central heating system will normally be the most efficient and comfortable option. For smaller homes, or where you only want to heat one or two rooms, and where you use little hot water, then individual room heaters plus an "instantaneous" or "point of use" hot water heater may be the best approach.

Should I upgrade?

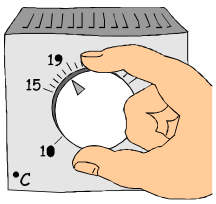
Generally speaking, the older your system, the less likely you are to have:

- A fully-pumped system
- A high-efficiency boiler
- Radiators and hot water controlled independently
- Energy-saving electronic controls - digital time switches, programmable or optimising room thermostats, Summer/Winter/Holiday facilities
- Thermostatic radiator valves, etc.

… and you will gain from improving your system, both financially and improved comfort.

Some basic advice

- Don't block off radiators. Using radiators to dry washing is an expensive way of doing it - as well as running the whole central heating system just to dry some washing, it can cause some problems of damp and wallpaper peeling. If you can't hang your washing out to dry, consider a tumble drier (the gas ones are particularly economical to use).



Reflective foil can be fitted to the back of radiators to cut down the amount of heat lost through the wall. You *could* use ordinary kitchen foil, but the purpose-made foil is much better and will pay for itself in 1-2 years normally.

- Turn down the radiators in any rooms not in use.
- Turn down your heating thermostat as much as you can whilst still feeling comfortable. Every 1ºC you reduce it by will save about 10% on your heating bills. Similarly, if you can have your heating 'ON' an hour less each day you can make significant savings. But don't overdo either of these if you are elderly or if you have health problems.
- Use modern, electronic controls. Good controls regulate your heating and hot water system to provide just enough heat, just when you need it, and no more.
- Ensure your hot water cylinder is really well insulated - with a jacket at least 80mm (3") thick. This will cost 12.7 euros or so but will pay for itself in about 4 months. Similarly, insulate all hot pipes (heating and hot water) - this costs about 51c per metre DIY.
- Take showers rather than baths. A shower uses about one-fifth as much water and fuel as a bath. If you don't have a shower cubicle, consider buying a shower attachment for the bath taps - about 12.7 euros, but will repay you in around 6 months.

Boilers

A boiler 15-20 years old may only be around 65-70% efficient, whereas a modern high-efficiency boiler will be 75-80%, and a condensing boiler 90-95%. Therefore, you could potentially reduce your heating bills by up to 40% just by replacing an old, inefficient boiler with a new condensing boiler.
Modern boilers tend to be smaller, lighter, quieter and better looking. The best have "electronic ignition" which means there is no pilot light to keep blowing out on windy days. The flues are very small and can be routed long distances so there are more possible places to put the boiler. Boilers

can include pumps and controls built-in. They can also include "sealed-system equipment" which replaces the old Feed & Expansion tank (so you can remove it, complete with all it's pipe work etc.).
A condensing boiler is the most efficient type of gas boiler currently available. They look the same as a normal boiler but incorporate additional heat exchangers to squeeze every last drop of heat from the burnt gas. Because of this, the flue gases come out cool and wet - with a characteristic "plume" at times.
Gas fired high-efficiency and condensing boilers can also be obtained as "combination" boilers ("combi") which provide all your hot water requirements as well as doing the central heating. No hot water is stored - it is heated up instantaneously within the boiler, so there is an unlimited supply of it. The old hot water cylinder, the tank, and all of the associated pipe work are not used anymore, so you can remove it all (and reclaim the airing cupboard if you want some extra space). Because all hot water is at mains pressure it can normally be run in 15mm pipe work everywhere, and gives a good, powerful shower without the need for any booster pumps.

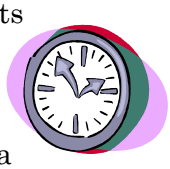
Old systems can easily be converted to a combination boiler system, and if the combi also has "sealed-system equipment" you can get rid of *all* your old tanks, cylinder and associated pipe work etc. (thus reducing maintenance and the risk of pipes freezing in the roof space as well).

Hot Water

All good quality, modern central heating systems will heat the hot water cylinder (if there is one) via a "fully-pumped" circuit, but older systems may be of the "gravity" type. A gravity system normally relies on the boiler thermostat to control the hot water temperature - this is wasteful of energy, is slow to reheat, and can lead to scalding risks. Where feasible, consider upgrading to a fully-pumped system incorporating a cylinder thermostat and motorised valve.

Controls

A time switch (or "time clock") controls the *times* when a heating system operates, but not it's *temperature*. Conversely, a thermostat controls *temperature* but not the *times*. So systems will normally need both. Older systems may have both, but the time switches and thermostats may not be very accurate, and therefore not very effective in conserving energy. A modern electronic room thermostat is capable of controlling to within ½ºC and a digital time switch will be accurate to a few seconds.



A programmable room thermostat is even more advanced. It combines the functions of a room thermostat and time switch in one, but also allows you to set different temperatures at different times of the day (usually up to 6 different settings per day). The 7-day versions also permit different settings for weekdays and weekends.
If you would like to update your controls, but don't want to do any re-wiring, many controls can now be obtained as "wireless" units which are battery-operated and use short-range radio signals.
Whatever your controls, ensure they are set as accurately as possible. Normally you can set the heating to come 'ON' 30-minutes before you get up, and to go 'OFF' 30-minutes before you go to bed. Set the hot water thermostat no higher than needed - around 50-60ºC is normal.
Check the position of your main heating thermostat Don't site your thermostat in a cold, draughty place, either near a source of heat or a warm room. Improved controls will typically pay for themselves in 2-3 years.

Thermostatic Radiator Valves (TRV's)

A radiator can be fitted with a TRV for about 19 euros. A TRV senses the room temperature and turns the radiator up or down to maintain the desired temperature. TRV's can be fitted to most radiators, and are especially useful in rooms, which could occasionally overheat, but on some systems you cannot fit a TVR to *every* radiator (so check with your installer first). You should not fit a TVR in a room which has your main heating thermostat.

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