Energy Efficiency Guides

No.1- Central Heating Boilers

When installing a new or a replacement boiler, the range and choice of boilers can be overwhelming, as such this guide may be of some assistance to allow you to make a more informed decision before installing a boiler at your property.

The Energy Saving Trust web site also provides guidance about central heating boilers - www.energysavingtrust.org.uk/scotland (heating & hot water / replacing my boiler pages).

It may also be useful to confirm with the Energy Saving Trust if there is any grant assistance available by way of the *Energy Assistance Package* or via the *Boiler Scrappage Scheme* (please note that Terms & Conditions do apply).

Combination Boilers

Combination boilers provide your heating and hot water without having hot water stored in a cylinder tank.

The "combi boiler" provides hot water "on demand" (i.e. without drawing hot water from a storage tank). As such, you do not use a large amount of energy to heat up a full tank of water. Combination boilers are (generally) wall mounted in the kitchen or in a cupboard.

Advantages of Combination Boilers

- They are suitable for smaller properties;
- Hot water is delivered "on demand";
- They often cost less to install than conventional boilers and can be less disruptive at the time of installation (as no long pipe runs to storage tanks are necessary);
- The space that the hot water tank and cold water header tank would have occupied (or occupy) can be utilised for a different purpose (i.e. storage).

Disadvantages of Combination Boilers

- The hot water delivery rate can be slower (this is subject to the "size/ rating" of the boiler to provide the required litres of hot water per minute, as well as the "pressure" in the cold water mains pipe).
- Diminished flow rate may occur - should more than 1 tap be used at the same time.
- An electric immersion heater cannot be installed as a back up.
- Installation costs can be more expensive (old tank / pipe-work removal)

Condensing Boilers

A condensing boiler is the most energy efficient type of boiler currently available and can convert some 93% of fuel into heat, as opposed to the 78% achieved by conventional "combi" boilers.

They are manufactured in a number of types and finish, and can be fitted to your existing system as easily as any other boiler. Condensing boilers can cost more than conventional boilers, but can be more effective in larger houses where higher initial costs can be recouped by savings on fuel bills.

How a Condensing Boiler Works:

Condensing boilers have been designed to extract more heat (from fuel) than is possible using a conventional combi boiler. This increase in efficiency is obtained by reducing the heat of the flue gases from approximately 300C to 50C, condensing out vapours produced during the combustion process, and releasing "latent" heat that would otherwise escape with the flue gases.

Condensing boilers use either an extra large heat exchanger or a second heat exchanger to "re-use" the heat not recovered by the main heat exchanger.

Condensing "Combination" Boilers

These boilers extract heat from the waste flue gases by allowing the vapour in the gases to condense in the boiler. They also operate without a hot water cylinder and therefore are far more energy efficient than a non-condensing "combi" or a standard condensing boiler. They are generally slightly more expensive than a conventional boiler, but due to improved efficiency, lower fuel bills can be achieved.

Remember ! If your current boiler is over 12 years old it is likely only to be operating at an efficiency rating of 65%. This means that for every £1 spent on fuel, only 65p is effectively being used to heat your home and 35p wasted in the production of exhaust hot air. With some modern boilers being around 90% efficient – that's an improvement of 25% on an old boiler.

Condensing boilers are not difficult to install as the only real difference is that a small waste pipe requires to be fitted into the properties waste water pipe system (similar to an overflow drain). Condensing boilers also produce a "pluming effect" from the flue terminal. As such the flue requires to be located to avoid a nuisance to the neighbours and away from window and patio areas.

Should you have any questions regarding energy efficiency or wish further information, please contact

East Renfrewshire Council Energy Efficiency & Carbon Reduction Unit **0141 577 8529**	Home Energy Scotland **0808 828 2282**

Please Note: Whist care was taken to ensure that the advice contained in this document is accurate; it cannot replace expert advice. It is intended as a guide only and the Council cannot accept any responsibility for any damage or loss incurred by an individual relying on the accuracy of the information.