



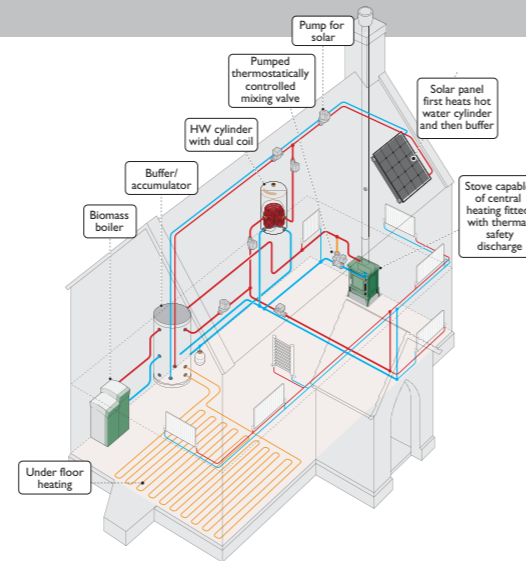
### The Chimney

The chimney plays an important role in the heating system because an efficient heating appliance requires a well and consistently insulated chimney to perform efficiently. Chimneys are available in a range of materials. Clay and concrete liner systems require insulation to be fitted at the time of installation. Prefabricated chimney systems in stainless steel, pumice and clay include the insulation as part of the system. Stainless steel tends to be used in existing houses because it is light-weight and does not require a specially constructed foundation. A new chimney can be easily installed in a house that does not have one and an existing chimney can be relined with flexible stainless steel to create a suitably sized flue for a stove. Further information on chimneys & flues can be found on the BFCMA (British Flue & Chimney Manufacturers Association) web site [www.feta.co.uk/bfcma](http://www.feta.co.uk/bfcma)



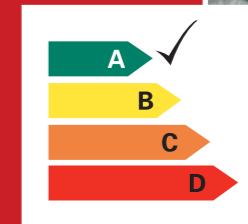
### Linked Heating Systems

We believe that the new regulations will lead to the growth in link-up systems, where the wood burning stove and the boiler will be linked together.



### Ventilation

The level of ventilation is critical in an energy efficient house. The air-tightness of the house can have a significant impact on the house's energy rating. Having spent time and money heating the air in a room the last thing you want to do is to allow that air to escape. An open fire and most room open gas heaters operate with a chimney of 200mm internal diameter. In the SAP calculation a 200mm diameter chimney is deemed to lose 20 cubic metres of air every hour. The ventilation loss from a chimney with a smaller diameter is half this rate at 10cm<sup>3</sup>. Most stoves operate on a flue of 150mm internal diameter. A closed loop stove and chimney system, in which the new generation of stoves take the combustion air directly from outside the house will reduce the air loss from the room to virtually zero.



*Be Energy Efficient  
and Carbon Friendly with*

# Wood Burning Stoves...

### More Information

Independent test results on stoves and advice on stove installations can be found on the HETAS web site [www.hetas.co.uk](http://www.hetas.co.uk)

The Stove Industry Alliance (SIA) is an alliance of manufacturers, distributors, advisory/test bodies and other interested parties who sell stoves, chimney products & fuel. The Alliance was created to explain the environmental benefits of wood burning stoves. Further information on this and on stoves in general can be obtained at

[www.stoveindustryalliance.com](http://www.stoveindustryalliance.com)

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The purpose of this leaflet is to introduce you to the increased environmental benefits of using wood burning stoves for space and water heating:

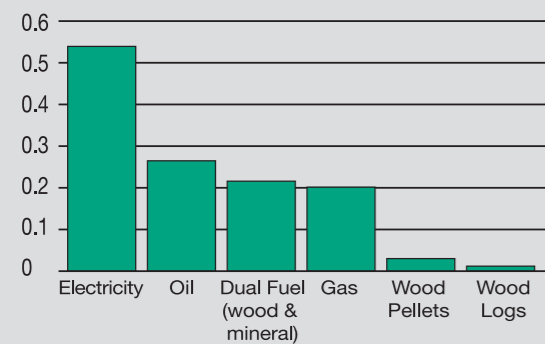
- Low CO<sub>2</sub> output
- Efficient & Adaptable Heating
- Primary & Secondary Heating
- Lower Fuel Costs
- Suitable for New & Existing Houses

Wood burning stoves can help you meet the current and future energy efficiency requirements.

### Wood Logs as Fuel

Wood is one of the most environmentally friendly fuels that can be used. It is a renewable energy and virtually carbon neutral. The natural cycle of planting and harvesting trees has created a sustainable process that will provide carbon neutral fuel into the future. CO<sub>2</sub> is taken out of the atmosphere by growing trees at the same time as it is released by the combustion of the previous harvest. To reflect this closed loop CO<sub>2</sub> cycle the carbon factor for wood logs has been significantly reduced in the new SAP2009 to 0.008kg of carbon per kwatt compared with 0.198kg for gas, 0.274kg for oil and 0.517kg for electricity.

CO<sub>2</sub> Emissions (Kg/KWh)



### New Houses

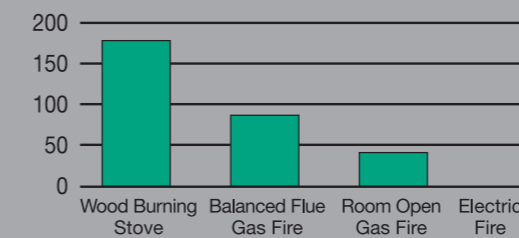
The new Document L, which came into effect in October 2010, increases the role a wood burning stove can play in the overall heating of a house. Under the old version of Document L a stove could only be used as a room heater and contribute a maximum of 10% to the heating of the house. With the new Document L a wood burning stove can be used as primary heating and be responsible for up to 100% of the house

### Existing Houses

The benefit of installing a wood burning stove in an existing house can be considerable. Replacing an open fire, room open gas effect fire or an electric appliance with a wood burning stove will significantly reduce the house's carbon output. An electric fire is the most carbon intensive option. The graph below shows the carbon savings per year using different secondary heating appliances compared with an electric fire. As you can see a wood burning stove is by far the best option. Nearly 200kg of carbon can be saved per year simply by switching from an electric fire to a wood burning stove.

The increased efficiency of a wood burning stove with 70%+ efficiency compared to an open fire at 32% and a room open gas effect fire at 55% will make a noticeable difference to fuel economy and warmth in the house. Existing properties with chimneys can benefit from the reduction in the air loss rate by reducing the chimney diameter from 200mm to a flue of 150mm internal diameter suitable for most stoves. This will also eliminate the drafts caused by an open fire drawing air from the room.

Carbon Savings compared with an Electric Heater



### Stoves as Secondary Heating

Although the new SAP 2009 no longer requires secondary heating (room heaters) to be specified, many people choose to have a room heater to provide heating when the outside temperatures don't justify the use of the central heating system or to create a focal point in a living room.

Until now, the most popular forms of secondary heating have been open fires or room open gas effect fires. Neither room heater is particularly efficient. An open fire has an efficiency of 32% and a room open gas effect fire in the region of 55%. The low efficiency with the carbon content of the fuel increasingly makes these options difficult to install in an energy efficient house. A wood burning stove ticks all the energy efficiency & carbon saving boxes. The average efficiency of a modern efficient stove is in excess of 70% with the more efficient stoves achieving 80% plus. This level of efficiency combined with the low CO<sub>2</sub> output makes wood burning stoves very environmentally friendly. When secondary heating is specified it accounts for 10% of the overall heating of the house, if the house is on the gas main and 20% if the house is in an area without natural gas.

### Stoves as Primary Heating

One of the most significant developments in Document L is the ability to use a wood burning stove as primary heating so long as the stove can heat more than one room. The new SAP 2009, which will apply initially to new homes, caters for the specification of more than one source of primary heating. A typical example could be 2 primary heating systems consisting of a condensing boiler, heat pump or pellet boiler, with a linked stove system responsible for heating the living rooms. This will allow a wood burning stove to provide a significant contribution to the renewable energy sources of the house, while providing house owners with the aesthetic feel they want their house to have. An oil boiler, for example, will struggle to meet the carbon output requirements of SAP and will need to rely on other features of the house to meet the SAP requirements. The low level of CO<sub>2</sub> produced by burning wood makes a wood burning stove an ideal and affordable method of doing this.

### Understanding Document L and SAP

SAP is the Standard Assessment Procedure used to calculate the overall energy efficiency and carbon output of a house. The program produces a single value for the energy efficiency of the house and for the amount of CO<sub>2</sub> given out. The energy efficiency and CO<sub>2</sub> output of the components of the house are combined to produce an overall result for the house. A more efficient or less carbon intensive component can be used to compensate for a less efficient/more carbon intensive one. This method of 'carbon trading' within the house means that a less carbon intensive appliance like a wood burning stove can be used to compensate for a more carbon intensive appliance. The new version of Document L and SAP, SAP2009 currently applies to new houses. SAP2005, introduced with the revised Document L in 2006 is still applicable with existing houses. SAP2009 is expected to be extended to existing houses shortly.

