

Heating and Insulation

It's that time of the year again with Winter almost upon us and everybody is anxiously trying to get their boiler serviced before the cold spell sets in. Many of us who pass the winter months in Tuscany know all about heating costs. Italy has no natural resources making fuel costs among the highest in the world. Combine this with an old charming house, little or no insulation and you have a delightful bill to contend with!

Unlike colder Nordic countries where the main consideration is how to heat a house, in Tuscany many forget that we also need to think about the summer months and how to keep the house cool and comfortable. Those who have experienced sleepless nights in stifling heat will know exactly what I'm talking about!

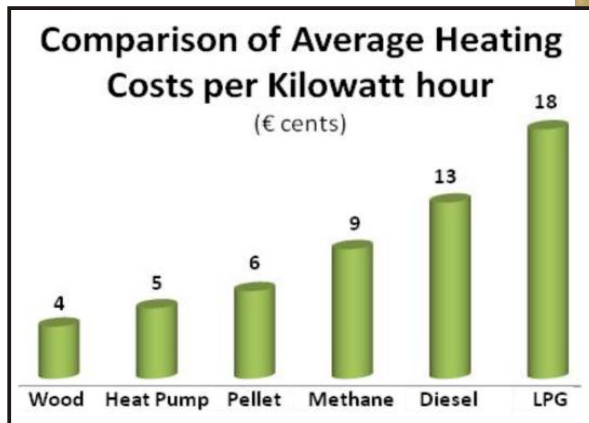
The three fundamental questions that you need to answer when selecting a fuel and boiler are:

1. How much will this boiler/heating system cost to install?
2. Can I save money by using one fuel source as opposed to another?
3. How much effort or hassle is involved in handling and maintenance?

Now let's take a brief look at each of the alternative options available in Tuscany.

Wood (*legna*) is by far the cheapest heating solution, offering us a fascinating and romantic natural flame. You'll need plenty of covered space close by for annual storage and there's a lot of handling with moving wood, topping up and cleaning the burner. For those who spend a considerable amount of time at home, it can be the ideal solution. Selecting a burner with a back boiler model will give us the added benefit of domestic hot water and heating. Annual cleaning of the flue is critical to ensure efficiency and avoid chimney fires caused by built-up resin and soot.

Pellet burners/boilers have evolved significantly over the past 10 years with a vast choice of models to suit all tastes and pockets. Pellets can be purchased in 15 kg bags. It often makes sense to bulk buy off season to get the best deals. Pellets are relatively clean but basic burners will require frequent vacuuming and topping up. More costly models can be self cleaning and have larger hoppers or automatic feeding system. Living room burners can be pretty, but when you go for a back boiler version they start to get bulky like a fridge, so keep an eye on the dimensions. Good quality pellets tend to reduce cleaning and maintenance providing more heat.



Methane (*metano*) or town gas is a middle-of-the-road option price-wise if you are lucky and have a supply running by your front door. For most Italians, methane doubles up for cooking purposes given the prohibitive costs of electricity. Gas-fired boilers are very common with an enormous range to choose from and are perfect for heating and domestic hot water. From a maintenance perspective, they can literally be forgotten about other than annual servicing. By law, gas appliances require natural ventilation. Those greater than 35 kw undergo a much more stringent and costly annual service.

Diesel (*gasolio*) boilers tend to be less popular compared to 25 years ago when diesel was cheaper so make sure that the model that you select has servicing in your area. You will need a tank meaning a garden although sometimes you can locate them in the cellar. Diesel prices are high and the fumes are very polluting for the atmosphere.

LPG (Liquid Petroleum Gas /GPL) is eye-wateringly expensive and requires a garden and minimum distances for locating a buried tank or above-ground tank. The gas itself has a high calorific value (propane/butane mix), meaning that you get lots of heat per unit of energy. The boilers are gas-fired like methane resulting in little handling and maintenance other than annual servicing. You obviously have the added advantage of a gas source for cooking purposes but also the hassle of organizing programmed fills for the gas tank. Local prices for LPG can vary enormously so shop around and always negotiate the best price per litre.

Heat Pumps (*pompe di calore*) are relatively new on the scene in Italy and are rapidly becoming the future of heating. They work on the relationship between pressure and heat energy. Just think about an aerosol spray releasing pressure, making the container unusually cool. With this principal, highly efficient heat pumps can manage to convert 1 kw of electricity into 4 kw of heat energy. They are almost maintenance free



and easy and safe to operate. In fact, new tariffs have been recently introduced to dramatically reduce electricity costs by about 30% to 50% for homes using efficient heat pumps. Geothermal heat pump solutions tend to require significant capital outlay making air-source version a more attractive choice.

Heat pumps are optimized when the heating temperature is around 35°C which normally means under-floor heating solution.

Solar panels complement most heating systems and are a great way to get free domestic hot water for at least 6 months of the year. This means that your boiler can rest between April and October apart from the occasional top-up to the hot water storage on cloudy days. Dimensioning of such panels and storage is based on hot water usage. Calculate a minimum of 50 litres to 75 litres per person per day.

Finally, it's impossible to talk about heating without addressing insulation (*isolamento termico*) as they go like hand in glove. Insulation is all about controlling heat loss which is the starting point when designing any heating system. An average house without insulation or double glazing will lose about 30% through the roof, 25% through the walls, 13% through the windows and doors, 10% through floors and the rest in draughts and cold bridges. Many of the older properties in Tuscany have little or no insulation and owners tend to get a shock during the colder winter months, usually from November to March. In restoring an old house, make sure that you at least insulate the roof. This alone will knock about 25% off your heating bill. Before you invest more money in insulation, estimate your winter usage of the property. If this is limited to 10 days around Christmas then you're better off using the same money for solar panels to get free hot water for the warmer months of the year.

David Collins, an engineer by profession, has lived and worked in Tuscany for over 20 years. He manages Our Toscana providing house surveys, plans & permits and undertakes all kinds of restoration projects throughout Tuscany. David lives near Lucca with his Italian wife and two children.

david@ourtoscana.com
www.ourtoscana.com