

The Burning Issue

Why wood?

Wood is the most prolific worldwide, solar embedded, carbon sequestered energy source which is renewable in a human lifetime, it will provide energy when the sun is not shining and the wind is not blowing, when the outside temperature is above or way below freezing and when the electricity is not coming out of that little hole in the wall. If the abundant, worldwide timber resource is managed correctly it is the most sustainable, environmentally safe, renewable, resource we have and it has sustained mankind for centuries, providing us with warmth for the space we live in, warm water to clean with and the ability to cook food.

With the discovery of more energy intensive and easily transportable fossil fuels, wood was relegated to a lowly place in the order of preference and although it is bulky to transport

Using Wood as fuel

A number of things should be considered when using wood for heating. An understanding of the various types of fuel wood that is available including its advantages and limitations, and it is essential to know how to light and maintain a good fire.

Fuel wood ranges from soft woods like pine, to hardwoods like manuka. But whatever wood is chosen, the key to a successful fire is to ensure the fuel is as 'Dry', or as 'Seasoned', as possible.

Green wood can hold up to its own weight in moisture and sap and it takes time to get rid of this.

While surface water does not really matter because that will evaporate quickly, it is important to reduce the sap levels within the cell structure of the wood itself. Softwoods will season quite quickly, in about 6 to 12 months, but it can take for 18 months to 2 years for hardwoods such as manuka to dry to an acceptable level.

Gathering and stacking wood in the open air over the summer period is advantageous because the warmth of the sun and good air circulation will automatically evaporate some of the sap. When the wood gets wet from seasonal rain, the rain water replaces sap and because water is more quickly evaporated, the fuel dries faster.

it is the safest, it does not need a specially built pipeline, suddenly explode or cause devastating marine pollution and with almost no refining can be used in its raw state. The closer it is used to the place where it has grown makes this an even more environmentally friendly product.

Burning wood releases significantly less CO₂ per kWh than burning the same quantity of fossil fuels. Logs, chips and pellets produce 0.025 kg. of CO₂ per kWh against gas at 0.194 kg., oil at 0.265 kg. and coal at 0.291 kg., it is still also significantly cheaper per kW of output than any fossil fuel particularly if the wood is free, we have yet to find a source of free oil, gas or electricity.

The supply of wood for heating and cooking now and in the future is an issue we all need to be aware of as ultimately it will become once again a primary resource and not a token fashion statement.

However simply because a piece of wood is dry on the outside, it doesn't mean that it is dry enough to burn. Conversely, even if the outside is wet, if it is seasoned properly, it will often burn beautifully!

The drier the wood, the cleaner the burn, the less likely is creosote formation and unburnt smoke being exhausted from the flue.

If you are starting with green or even partially seasoned wood fuel, there are a few steps to take to ensure that it will be just right when you come to burn it!

Most woods make suitable fuel, pine is common and good its high resin content and loose cellular structure means it burns faster than some others, so be prepared to make more trips to the wood shed. Macarocarpa and gum are also excellent fuels although macarocarpa tends to spit and spark more than a lot of other fuels and in some appliances this may cause servicing problems because of fly ash.

It is suggest avoiding native timber for fuel, unless it becomes available through demolition or natural attrition. Manuka though, is considered a nuisance timber in some areas of New Zealand, and could be used for fuel. It is indeed good fuel - provided it is dry - but remember, drying manuka will take a long time. Look for the radial cracks at the end of the logs!

3 ways to determine dry fuel

- ✓ Knock two pieces of seemingly dry wood together. If it "rings" rather than "thuds" it is likely to be dry.
- ✓ Look for radial splits at the end of a piece of wood. These are a sure way to identify dry wood.
- ✓ Place a piece of timber on a good fire base. If three sides are burning within 15 minutes, the fuel can be considered to be "dry."

A few extra tips:

- Split larger logs, so that the largest surface area of the internal wood is exposed to the atmosphere.
- Stack the wood loosely, on bearers, with the ends facing a prevailing wind.
- Cover with a plastic sheet on a light frame to create a warm house effect, with the sides open to the prevailing breeze so it can flow freely through your stack
- Do not use it until it is fully seasoned
- Do not stack rotten wood - it has very little useful heat in it!
- Leave the bark on split wood - it helps to provide natural protection from rain.