

Neo wood heater blog

Your fire needs air and temperature

April 2020

The Neo wood heater is the latest in advancement in wood heating technology.

Since wood heaters have become the main stream heating, there have been a consistent drive to make wood heaters burn less, burn cleaner, produce less smoke, burn longer : all this is achieved in the Neo wood heater range.

Pacific Energy first made wood heaters back in 1974, they started with a focus on how to make fire burn cleaner.

The way to do this, is to focus on the fire first - not the heat.

By increasing the temperature the fire burns at, and having the air the fire needs to burn supplied at a higher temperature, you can increase the performance of fire.

The Neo wood heater uses pre heated air coming in to the fire box : this air comes in at three different points.

First, one third of the air is used for the air wash that goes over the glass to keep it clear of soot, and clean to see through.

The air wash is pre-heated to 300+oC that goes over the glass to give you the cleanest glass you will see on any wood heater

Secondly, is the bellows : inside the firebox, directly under the door opening is bellows

What this does is introduces hot air directly into your fire's coals to give them a real boost.

Most wood heaters only have air coming in at the top of the fire, this means you are left with the logs/coals starved of oxygen and leaving your fire with dead, unburnt coals when the fire goes out

Not the Neo wood heater, the bellows ensure your fire is charged with air : its like burning a fire on an old fashion grate and ashtray : fast to get going, making your fire easy to light.

Thirdly is what Pacific Energy Neo is all about, the baffle.

All wood heaters use "secondary air" technology. What this is : by introducing extremely hot air into the smoke your fire produces, you can re-ignite the smoke (which is un- burnt fuel)

This re-ignition does a number of things

- it gives you more heat : the additional flames you get from this re-ignition is heat you would not have got.

- it reduces the smoke : reducing emissions for greenhouse gasses is the worlds number one long term issue, and wood heaters do produce smoke that does enter the atmosphere : by re burning the smoke, turning it into flames, you are significantly reducing the emissions

In the 1970's and 1980's when the wood heater boom took off, there was no real focus here, and for every 1kG of wood you burnt in your heater made in the 1970's and 1980's you produced up to 50gms of emissions in to the atmosphere

In the 1990's and 2000's, the introduction of secondary burn made a massive difference, heaters started to produce less smoke : down form 50gms per 1kG of wood - to 5gmrs per igk of wood you burnt

The Neo only produced 1.0Grms of emissions per 1Kg of Wood you burn

How they do this is significantly increasing the temperature of the secondly air. Where traditional wood heaters have a round 25mm stainless (or sometimes steel) tube with holes under the baffle

This 25mm round tube has air passing through it, and being directly over your fire, it gets hot - the heat heats the air and when it comes out of the holes, this hot air ignites the smoke - creating a secondary burn

The difference is in the NEO wood heaters, rather than a small 25mm tube : the entire top baffle is the secondary air.

The baffle is 900% larger than a single 25mm air tube : thus this significant surface area increases the temperature of the air passing though this from a traditional 250+oC to over 800+oC

This significant air temperature entering the un burnt smoke ignites the smoke to create an extraordinary increased secondary burn.

Not only is it impressive to see, its actually doing some amazing stuff.

Its re burning more smoke than other heaters, turning this into more heat : the 82% efficiency is almost 30% more heat using the same amount of wood than most other heaters.

This increased efficiency means you now burn less wood, up to 3 tons of wood less per year.

And because this extra heat is coming from the re-ignition of the smoke, you are burning significantly less wood.

The construction of Pacific Energy's baffle is 304grade Stainless Steel : it comes with a 10year warranty (no other heater warrants their baffles for more than 12 months...)