

Wood Pellet Fuel & Fires

A Clean, Renewable Carbon-neutral Alternative for Heating

Presented by Ken Barnes

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Wood Pellet Fuel



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Wood Pellet Fuel (cont.)

Pellets are made from highly compressed sawdust

- "Concentrated" fuel
- 100% wood; no additives (e.g. binders)
- Very low water content
- Easy to store (sold in 20 Kg bags)
- Easy to handle & load into fire

Wood Pellet Fuel (cont.)

Plentiful Availability

- Few legal uses for mill sawdust
- Majority (vast quantity) currently goes to landfill

Wood Pellet Fuel (cont.)

Great Green Credentials -- help to save the Planet

- Made from a waste product with few other uses
- Sawdust from mills using sustainably managed plantation wood
- Carbon Neutral
- Sustainable fuel source
- Reduces "dirty fuel" usage

Wood Pellet Fuel (cont.)

Distributed Fuel Source Potential

- Sawmills with waste sawdust distributed around much of Australia
- Wood pellet production and bagging can be installed (and performed) on a 10-tonne truck; transportation costs/emissions can be minimized by matching pellet production to demand locations

Wood Pellet Fuel (cont.)

Advantages compared to wood logs:

- Guaranteed low moisture content
- Very little ash
- Virtually no smoke, particulates and smell from flue
- Very easy handling & storage
- No need to open fire door to add fuel
- Environmentally friendly

Wood Pellet Fire



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Wood Pellet Fire (cont.)

1. Fuel hopper
2. Auger casing and delivery tube
3. Auger motor
4. Convection fan
5. Combustion air duct
6. Combustion Air Control Damper



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Wood Pellet Fire (cont.)

1. Fuel hopper
2. Convection fan
3. Combustion air duct
4. Exhaust Fan
5. 100/75 mm Coaxial Flue



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Wood Pellet Fire (cont.)

1. Fire Pot
2. Pellet Delivery Tube
3. Heat Exchanger Tubes & Hot Air Outlet



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Wood Pellet Fire (cont.)

1. Fire Pot
2. Pellet Delivery Tube
3. Ash Pan (Partially withdrawn)



Wood Pellet Fire (cont.)

Top view with
hopper cover lifted
showing fuel in
hopper



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Wood Pellet Fire (cont.)

Very high efficiency (up to 90%)

- Perfect air to fuel ratio
- Up to twice as efficient as a slow combustion heater
- Over 6 times (yes, 600%) more efficient than an open fire!
- Highest efficiency when it really matters -- at low to medium heat output settings
- Heat exchanger and convection fan distribute heat in room
- High heat output (over 10 KW equivalent) to get room up to temperature fast

Wood Pellet Fire (cont.)

Automated fast lighting

- Meaningful heat output in 5~10 minutes

Clean, complete fuel burn

- Only 0.6 g/Kg of particulate emissions -- 85% less than the Australian Standard for wood heaters
- No dangerous particulates in flue exhaust
- Very little ash

Wood Pellet Fire (cont.)

Convenient

- Hopper holds fuel for approx. 24 Hrs burn time (normal setting), 35 Hrs at minimum setting

Easy Installation

- Small diameter coaxial flue (100/75 mm)
- Free-standing or Insert

Wood Pellet Fire (cont.)

Safe

- Very low flue temperature (max. heat extraction into room!)
- Low case temperature
- No risk of hot embers falling on floor if door opened
- Dust-free performance attractive to allergy sufferers
- Smoke-free exhaust is neighbour and environment-friendly

Wood Pellet Fire (cont.)

Very cost competitive with gas log fires

Lower installation costs

- Small diameter flue
- No gas line to be installed
- Modest Hearth code requirements

Running costs

- Lower than logs or bottle gas – with environment-friendly bonus!

So Good -- Why So Few?

- Only approx. 500 pellet fires in VIC (More in Tasmania)
- Cheap & plentiful dirty conventional fuels and fires
- Lack of general awareness of environmental impact
- Inadequate political support for environmental protection (especially compared to protection offered to Big Coal)
- Weak environmental product standards (e.g. compare with NZ)

So Good -- Why So Few? (cont.)

Opportunity Knocks! And some Good News

- Small number of installed pellet fires today combined with market potential represents a big opportunity to improve our environmental performance
- 27 manufacturers of pellet fires worldwide
- Pellet fires are now outselling (and replacing) wood log fires -- but there's a long way to go!
- When wood pellet fires were invented in 1928 they were all about convenience and comfort. No one cared that they were also carbon-neutral with low emissions and a near perfect fuel to air ratio. Now we do -- the time for pellet fires has arrived!

Sustainability
Festival,
Federation
Square

Feb 2007



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Energy
Innovation
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