

Abbey Fireplaces

----- **KNOW YOUR WOOD** -----
 (Forestry Commission Of Victoria)

FIREWOOD DENSITY IN RELATION TO HEAT OUTPUT.

Basically the denser the firewood the more B.t.us. (megajoules) it can produce moisture content and mass are relative.

Australian hardwoods such as Grey Box, Mallee Roots and Black Box have a very high density and burn exceptionally well.

Dry Box Wood has 2 ¼ times the density of Pine so double the volume of Pine is required to provide the same amount of heat. The rate of burning is inversely related to density, so to maintain a Pine fire, double the amount of stoking is required to produce the same heat output as with Box Wood.

As an example to show how different firewoods can affect the performance of a heater, consider that dry Grey Box will produce around 85% more heat than the same volume of wet Radiata Pine.

The following chart will give a good indication of heat output from various common firewoods.

TABLE 1: FIREWOOD SPECIES AND THEIR PROPERTIES

Firewood Species (Botanical and common names)	Forest Type	Heat Available Per Unit Volume (%)	Density (Air Dry) lb/ft2 kg/m2	Splitting	Ignitability	Coals	Sparks	Availability
<i>Eucalyptus spp.</i> Mallee Roots	Mallee	100	N/A	Difficult	Poor	Excellent	Few	Limited
<i>Casuarina spp.</i> Belah, Buloke	Mallee Box-Ironbark	100	70 1121	Good	Poor	Excellent	Few	Limited
<i>Eucalyptus microcarpa</i> Grey Box	Box -Ironbark	100	70 1121	Difficult	Poor	Excellent	Few	Good
<i>Eucalyptus Laryiflorens</i> Black Box	Box-Ironbark	100	69 1005	Difficult	Poor	Excellent	Few	Limited
<i>Eucalyptus sideroxylon</i> Red Ironbark	Box-Ironbark	97	69 1005	Difficult	Poor	Excellent	Few	Good
<i>Eucalyptus melliodora</i> Yellow Box	Box-Ironbark	91	65 1041	Difficult	Poor	Excellent	Few	Good
<i>Eucalyptus Polyanthemus</i> Red Box	Box-Ironbark	91	67 1073	Difficult	Poor	Excellent	Few	Good
<i>Eucalyptus Leucoxylon</i> Yellow Gum	Box-Ironbark	90	62 993	Difficult	Poor	Excellent	Few	Good
<i>Eucalyptus camalduldensis</i> River Red Gum	River Red Gum	80	56 897	Difficult	Poor	Excellent	Moderate	Good
<i>Eucalyptus globulus</i> Blue Gum	Foothill	80	61 977	Fair	Fair	Good	Few	Good
<i>Eucalyptus macrorhyncha</i> Red Stringybark	Foothill	72	54 865	Good	Good	Good	Few	Good
<i>Eucalyptus radiata</i> Narrow Leafed Peppermint	Foothill	68	50 801	Excellent	Good	Good	Few	Good
<i>Eucalyptus obliqua</i> Messmate	Foothill	68	45 721	Good	Good	Good	Few	Good
<i>Eucalyptus regnans</i> Mountain Ash	Mountain	53	42 673	Excellent	Excellent	Fair	Moderate	Good
<i>Callitris columellaris</i> White Cypress Pine	Box-Ironbark	60	42 673	Good	Excellent	Poor	Many	Limited
<i>Pinus Radiata</i> Radiata Pine	Foothill Plantations	45	32 512	Fair	Excellent	Poor	Many	Good