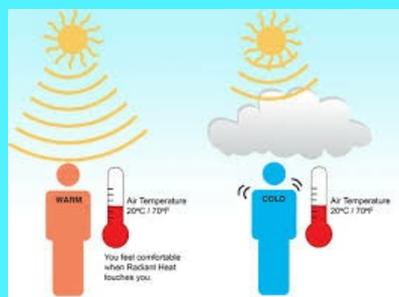


The Future of Heating

RADIANT HEAT!

or HOT air?



As we move more towards renewable energy, and traditional energy sources become scarcer and more difficult to extract, what is the future for domestic heating? We are convinced it is electric, as wind farms, solar power and eventually tidal energy become more and more mainstream.

Electric heating, traditionally considered expensive, with fan heaters, convector heaters and storage heaters, all tending to produce hot air, most of which sits around the ceiling where its not wanted. The secret of economic electric heating is radiant heat.



Radiant heat, just like the heat from the sun, your open fire or wood burning stove, doesn't just heat up the ceiling but heats objects in its

path, which then indirectly heat the air. Much more efficient, the more our heating solutions move towards radiant heat production the less energy is required to heat the room

All our heating at ElSCO, relies mainly on radiant heat. Our most popular, the German Chamotte clay core heaters,



usually require about half the power of storage heaters, produce

some convected heat but the big plus is the radiant heat from the large surface area which is not only economic, but a very comfortable heat.

Taking the radiant heat aspect even further we have what's called Far Infrared. Here all the heat produced is radiant heat. Far Infrared is exactly like the heat from the sun, it doesn't heat air directly. It can pass through a vacuum (as in space) and when it hits an object it causes the



molecules to vibrate faster producing heat. These objects could be people, walls, furniture and when they heat up they become very low powered emitters of Far Infrared as well. So air heats up eventually, but it is indirectly. It has been proven that people feel warm at much lower air temperatures using Far Infrared heating than with



convected heat. Just think of those skiers sunbathing on top of the snow covered mountain!

Far Infrared heaters do not glow, the electromagnetic radiation produced is outside the visible spectrum. They are very flat and

can be hung on a wall. So many Far Infrared heaters are designed to look like pictures or mirrors. Apart from using relatively low amounts of energy they don't take up any floor space so are ideal for the smaller rooms where space is perhaps at a premium. Using a high end thermostat control (just like all our heaters) controllability is not an issue and heat is only produced as and when it is required. Also as there is minimal air movement, these heaters tend to be appreciated by airborne allergy sufferers

Objects have more thermal mass than air so if a door or window is opened to cold air then the heat doesn't all rush out. There is also a school of thought that insulation is not as important with Far infrared as there is not the same requirement to keep the air warm.

So here at ElSCO Heating we believe that the use of radiant heat is the future of modern



electric heating. This, combined with controllability which is lacking in many established heating products. If you happen to have a wind generator or solar panels, then even better!

ROUGH HEATER COMPARISON OF RELATIVE POWER REQUIREMENT

STORAGE HEATERS V. GERMAN CHAMOTTE CLAY CORE V. FAR INFRARED

Storage Heaters

There are various ways of working out the size of a storage heater for a given room size . This is a simplified way which is used by many electricians . It can be found here www.denmans.co.uk/info_storage_heating.html

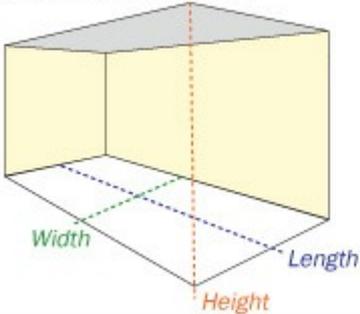
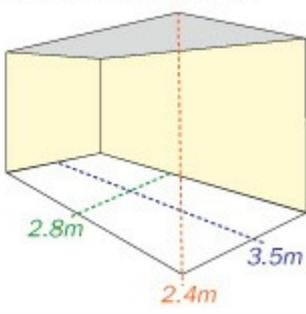
Below is taken from the Denmans website

Guide to Storage Heating

Firstly, measure the room in metres (width, length & height).

Multiply the width x length x height.

Then multiply this number by 0.12, and this will give you the approximate required kW. In this Example 2.8KW

<p>Firstly, measure the room in metres (width, length & height).</p> 	<p>Multiply the width x length x height. Then multiply this number by 0.12, and this will give you the approximate required kW.</p> <p>EXAMPLE: $2.8 (W) \times 3.5 (L) \times 2.4 (H) = 23.52$ $23.52 \times 0.12 = 2.8224$ Result rounded to nearest decimal place: 2.8kW</p> <p>You need a heater with a rating of around 2.8kW, or several heaters with a total combined rating of around 2.8kW.</p>	
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Our German Clay Core Heaters

The standard formulae we use allowing for a fairly average level of insulation based on the same room volume as above 23.52m³ gives a power requirement of 1.0KW (see www.elsco.co.uk/sizes.html)

Our Far Infrared Heaters

Most suppliers based in England work on a figure of 25Watts per m³ when calculating power requirement. This gives a power requirement, again using the example at the top of the page of 23.52m³ of 0.58 Kilowatts. We generally work on a figure of 30 watts per m³ to be on the safe side which gives a figure of 0.70 Kilowatts p (see www.scottishinfraredheating.co.uk/calculations.html)

Conclusion

The above figures demonstrate quite well how the power requirement to heat a room of a given size reduces as we move from convected heat (as with the storage heater) to partial convection but more radiant heat (as with our Elti German Chamotte clay core heaters) and then onto Far Infrared which is totally radiant heat. 2.8 Kilowatt to 700 Watts is a big reduction! These figures will vary as different criteria and formulae may be used by different companies, but it does highlight how radiant heat can reduce your energy consumption. Radiant heat is also considered less harsh with health benefits and less air movement than raw convected heat.

Energy Costs night Storage tariffs

Some people may think the cheaper cost of electricity for night storage heaters negates the benefits of the lower power requirement of our German heaters. This is not the case as can be seen on this download. (Page 2) www.elsco.co.uk/heater%20benefits%20summary%202014%20mark2.pdf

Controllability is also a key factor in the energy efficiency of all our heaters which we haven't considered here.