

Fitting a stove to an un-lined chimney

If you have elected not to have your chimney relined before fitting a stove need to be aware of the following benefits of re-lining your flue (chimney):

If you re-line your chimney:

- *Safer; Prevention of carbon monoxide leaking into the house (the first and foremost consideration)*
- *You will use less fuel*
- *Your stove will burn hotter*
- *There is less chance of the glass sooting up*
- *The stove will need the controls adjusting less often*
- *Less chance of a chimney fire*
- *More thorough sweeping is possible*
- *Less chance of smoking back into the room*
- *Stops further corrosion of the chimney structure*

You may ask how can re-lining my flue result in all these benefits as my chimney works perfectly well already?

It's very simple; without a chimney an open fire or stove will not work, the chimney effectively sucks air through the fire, therefore the better the suck (draw), the better the fire/ stove will work.

With an open fire you need a large chimney due to the massive amounts of oxygen used and vast amounts of smoke produced. It will often draw well by virtue of the massive heat loss up the chimney, the heat in the chimney is critical to how well it draws and with an open fire you may well be producing 15kw of energy, of which 2kw is going to the room, while the remaining 13kw is being used to heat the flue. A stove on the other hand may have an efficiency in excess of 80% in that case you may produce 6kw of which 5kw will heat the room and only 1kw will be heating the flue.

In order to keep the flue hot we do 2 things, firstly we make it smaller, and secondly we insulate it. This results in the flue getting hotter, heating up more quickly and remaining hot for a longer period.

The benefits of this are:

- With a warm flue, the air supply can be restricted more and still enjoy a good draw, reducing the air supply will dramatically lengthen burn times and therefore reduce fuel usage.
- By drawing in less air, the fuel is cooled less by the combustion air it therefore burns hotter and more efficiently, at this higher temperature gasses and smoke which would otherwise go up the flue get burnt therefore generation more energy out of the fuel.
- The constant draw on a warm flue will mean the controls can be set without the need to introduce more air for longer periods. This is less likely on an un-insulated flue. If the flue stops drawing as it cools, then the stove will stop burning properly and start smouldering, producing lots of smoke, and therefore could soot the glass up.
- The perfect cylinder of a relined flue makes it excellent for effective removal of soot when sweeping. Furthermore the warm flue carries deposits out of the chimney rather than them attaching to the side of the flue. A cold flue will produce tar and creosote as the deposits condensate on the side of the cold surface, a warm flue will therefore reduce the chance of a chimney fire dramatically.
- A cold flue will draw poorly, but if insulated, it will draw immediately the fire is lit therefore reducing chance of smoking into the room.
- An old existing chimney is likely to have holes or gaps in it, this will not only dramatically reduce the draw on the chimney but can result in smoke and therefore highly poisonous carbon monoxide to leak into other parts of the house or into an adjoining property. *Every year many people are harmed by incorrectly installed heating appliances, approximately 2,000 people in the UK every year have a heart attack from carbon monoxide poisoning, so the risks are very real and need to be taken seriously.*
- A cold flue will cause condensates in the flues gases to condensate onto the chimney wall resulting in acid formation, corrosion and possibly tar solutions running back down to where the stove is fitted into the chimney.

Re-lining where clay liners are in-situ: Although safety issues and relative volume of the flue is less of an issue, these chimneys pose other potential issues. Firstly the cold liners can result in the flue not pulling properly, spilling smoke into the room. In addition the vitrified clay does not absorb the water produced during combustion and can result in tarry water running onto the stove.

We recognise that re-lining a chimney is not cheap and many people operate a stove successfully without re-lining, but most manufacturers recommend that their stoves are fitted to a properly sized, insulated chimney and we would also strongly recommend it ourselves **DO IT RIGHT FIRST TIME!**