Wood burning stove installation

The fireplace and chimney were in bad condition. This meant that a major restoration would be required to return the fireplace to use as a conventional fire. The biggest problem was the chimney, which was no longer capable of safely containing hot combustion gases. The hearth itself had been damaged and modified to take a decorative Victorian fireplace. Behind this was an accumulation of rubble, some of which had been placed there to support the Victorian fireplace and some from the chimney. The early Victorian stone surround was in good condition but was covered with several layers of paint. Figure 1 shows the stone surround and modern badly constructed hearth and rubble fill.

Figure 1. The original fireplace and rubble fill.

After the fireplace was cleared, a concrete base was laid and the new hearth built using reclaimed bricks. The reclaimed bricks were handmade circa.1800 and sourced from a reclamation yard at a cost of £1 each. The type of brick bond chosen for the construction of the hearth was a variation of Old English Bond, commonly known as

Modified English Bond or English Garden Bond. This style was common in the period the house was built. English Garden Bond consists of rows of headers placed every fourth course as opposed to alternate courses as with Old English Bond. The mortar used in the construction of the hearth was a soft lime rich, cement, lime, sharp sand mortar mix with the ratio 1:3:9.

Figure 2. The new hearth and stripped fire surround.

Figure 2 shows the completed hearth with concrete base and stripped stone surround. Once the brickwork was complete, the metal work was installed to support the register plate. A frame was produced and fixed to the top of the hearth. The register plate can then be bolted to this frame. Importantly, the register plate can be removed to gain access to the chimney for maintenance.

Figure 3 shows the register plate frame installed into the hearth. It is also possible to see the new steel lintel, fitted during the construction of the hearth.

Figure 3. The register plate frame.

Figure 4 show the register plate in situ, bolted to the register plate frame. The plate itself was made from 4mm thick high quality laser cut steel, which could take the heat without warping and contain any further rubble falling from the chimney.

Figure 4. The register plate fitted into the hearth.

Figure 5 shows the finished fireplace with the hearth stones in place. The hearth stones were reclaimed York slabs, which are used extensively in period homes as flooring.

Figure 5. The finished fireplace.

Due to the state of the chimney and because a modern multi-fuel stove was to be fitted, a chimney liner was required to contain the flue gases. The liner system chosen was a flexible double skin one piece stainless steel liner. The stainless steel liner was constructed from 904 grade stainless steel. This grade of liner is normally used in situations where the liner will be subject to very high temperatures or heavy condensate formation. To further protect the chimney walls from the higher flue gas temperatures generated by all modern multi-fuel stoves, the liner was fitted with insulation. The insulation chosen was Chimwrap, a woven glass blanket that fits around the liner. The main advantage to using Chimwrap is that it only 12mm thick. This was

particularly important in this case as the chimney was quite narrow towards the top.

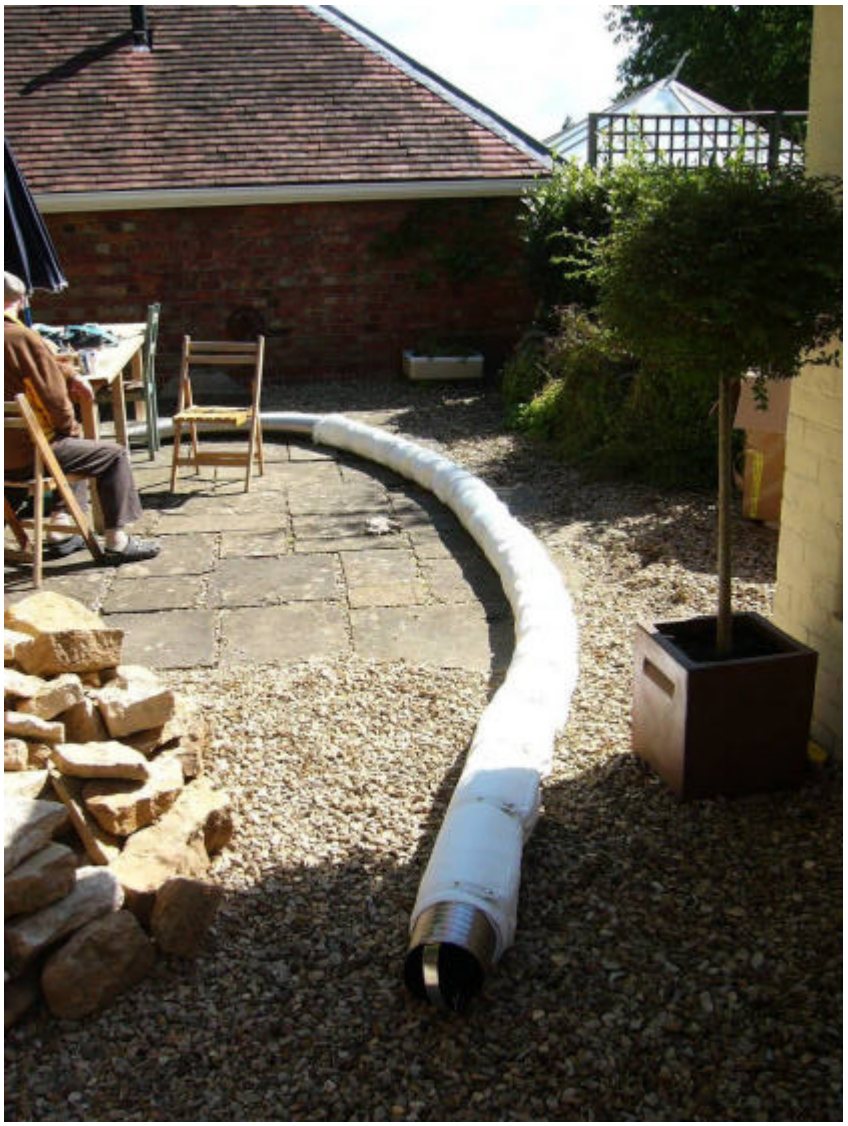

Figure 6. The flexible stainless liner and Chimwrap insulation.

Figure 6 shows the completed liner and Chimwrap insulation prior to installation into the chimney. The insulation material was secured to the liner with stainless steel ties at 300mm intervals along its length.

The chimney brick work needed attention prior to the insertion of the liner and top closing plate. When this was complete the liner was pulled up the chimney.

Figure 7. Chimney brickwork

The liner and insulation being positioned prior to being pulled up into the chimney.

Figure 8. Liner being pulled up the chimney

Once the liner and insulation had been inserted into the chimney, the 8 mm thick steel top closing plate was installed. In this installation the top closing plate was the main support for the liner and insulation. An alternative method uses a thinner top closing plate and requires the clamp to be held by the masonry of the chimney. The stainless steel clamp was then fitted to secure the uppermost part of the liner in place. The top closing plate also had provision for the main chimney vent.

Figure 9. The top closing plate incorporating the chimney vent

The vent allows heat and condensation that can build up in the main part of the chimney to escape. A similar vent is normally provided in the register plate. The subsequent flow of air keeps the chimney cool and free from condensation. In most installations the chimney vent is drilled into the side of the chimney stack. However, due to the listed status of the property, the vent was incorporated into the top closing plate. A galvanised pipe was then inserted in to the vent hole to take the vent above the cement cap and any standing water that may accumulate inside the chimney pot.

Figure 10 shows the completed fireplace with a 5kW Clearview Pioneer clean burning multi-fuel stove fitted.

Figure 10. Clearview stove.

Part of any installation is the provision of a chimney and hearth notice plate. The notice plate contains information relating to the performance capabilities of the hearth, fireplace and flue. The notice itself should be located in an unobtrusive but obvious place, such as next to the hearth or electricity consumer unit.

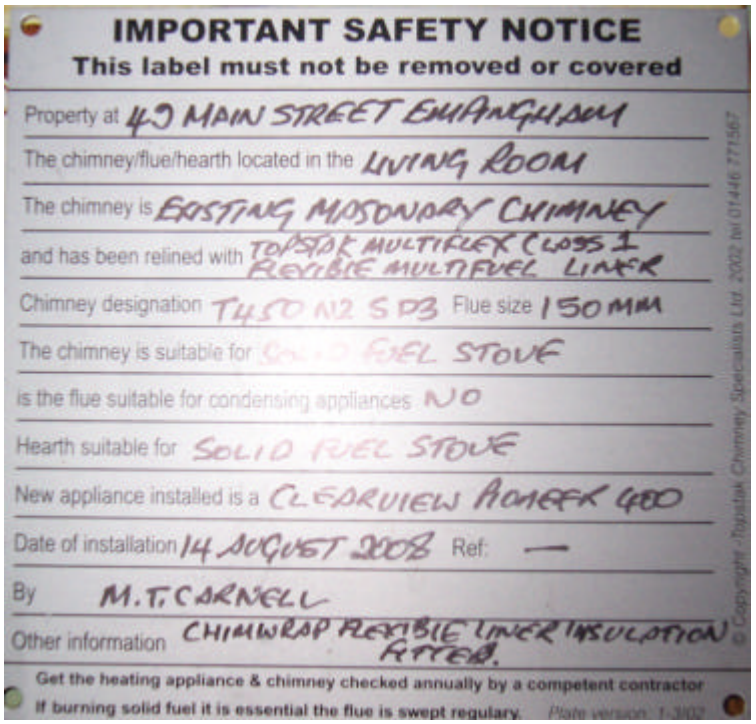

Figure 11. Notice plate.