

Safe operation of wood fuelled heat plant

Wood fuelled heat plant are designed to be operated in a safe manner and the safety features will differ for specific brands. Anyone operating heat plant must be made conversant with the safety features before they are allowed to undertake any action relating to the operation of the plant. Owners of heat plant should maintain a register which shows the training and refresher training of any person working on the plant. This includes anyone de-ashing, adding fuel etc. Of particular concern is anyone brought in as a relief operator at times when the regular operator is not available.

The biggest risk is of course the high temperature and pressure of the heat transfer medium but the fuel handling and de-ashing can also be dangerous if not undertaken properly.

Boiler de-ashing

Modern plant will have automatic features so that operators do not need to do anything manually and thus risky. Most older boiler plant, especially in the timber and sawmill industry, are not sufficiently automated and often get manually de-ashed so care should be taken with them.

Due to the inconsistency of wood fuels (size, moisture, etc.), the higher amount of gas it's producing when exposed to temperatures $>300^{\circ}\text{C}$ these boiler plant can become a real "blackbox" open for surprises whenever you're opening the doors for de-ashing. For this reason almost all modern boilers have automatic feeding and de-ashing systems and some even a service and maintenance switches/programme which ensures certain conditions within the fire box in the event has to open the furnace door.

Under the health and safety legislation all plant owners must have sufficient procedures (such as training and inspection) in place to protect their employees. – Where a furnace door has to be opened for de-ashing there should be signs saying "fire may blow back".

Pressure and temperature

All heat plant equipment will have pressure and temperature gauges. Operators should check these everytime they visit the boiler room. Operator manuals should be nearby and easily available (even for an unattended school boiler where the operator may have limited technical knowledge of boiler operation.

The pressure and temperature relief valves on the equipment are extremely important and the operator should check these regularly. The operator should know what to look for and know the danger signs. Explosions have occurred (Orewa College) when the operator has wrongly read the signs that pressure is building up.

Fuel handling

Fuel dust can be explosive as well as a hazard to the operator's breathing. Care should always be taken when opening a fuel store that the dust is safe.