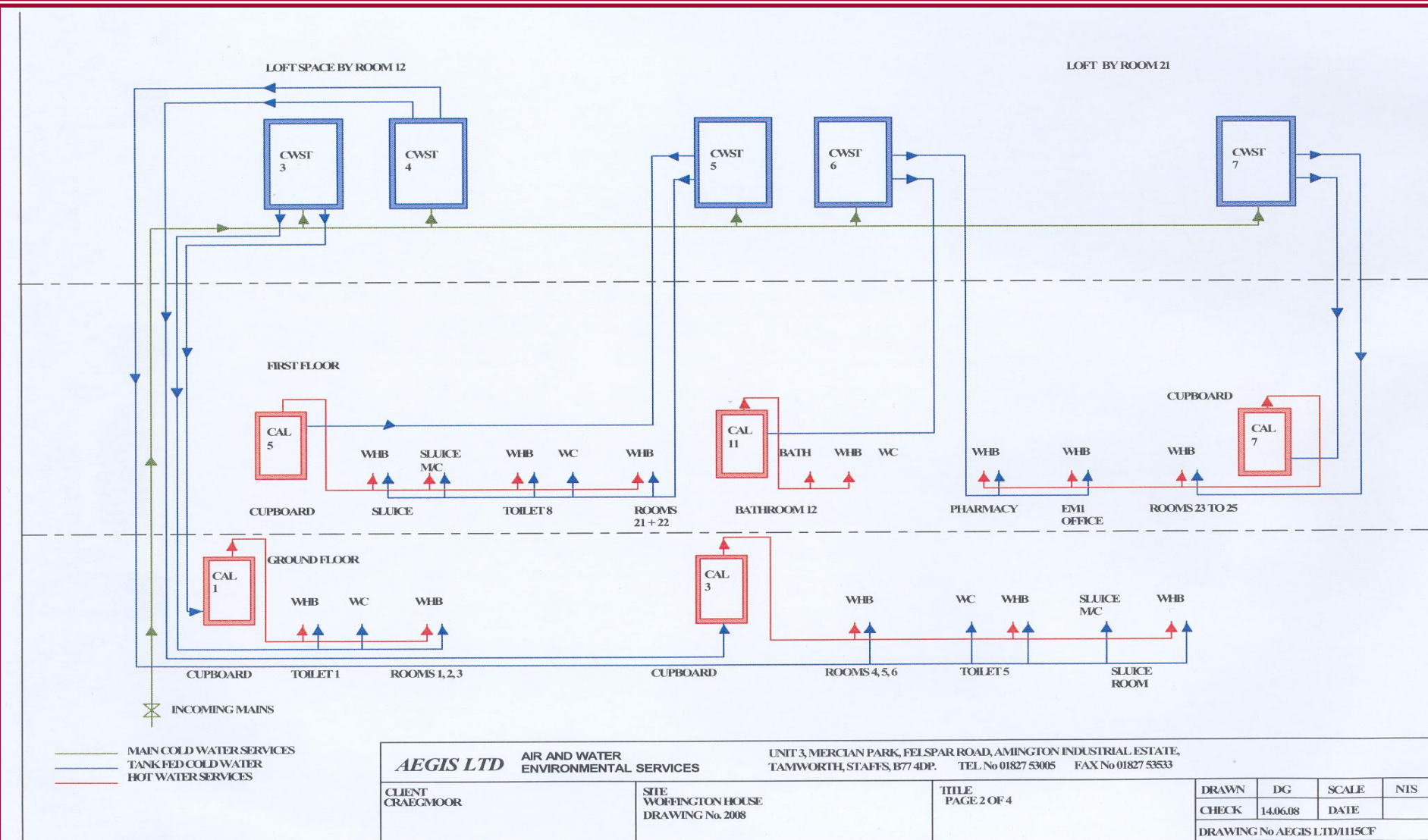


Risk Assessment should include:

- the management responsibilities and name of the responsible person;
- an assessment & comprehensive schematic (where complex) of the system;
- details of precautions taken including:
 - the control method/s – inspection / monitoring and maintenance programme (eg checking the system is kept clean;
- records of operation, monitoring and remedial work;
- population exposed and risk

Example of a good schematic



Methods of control of legionella in hot and cold water systems

- temperature regime;
- biocide treatments;
- ionisation treatment;
- ozone; and
- UV treatments

Temperature parameters



70°C- rapid kill to 100%

60°C -90% killed in 2 minutes

50 °C -90% killed in 2 hours

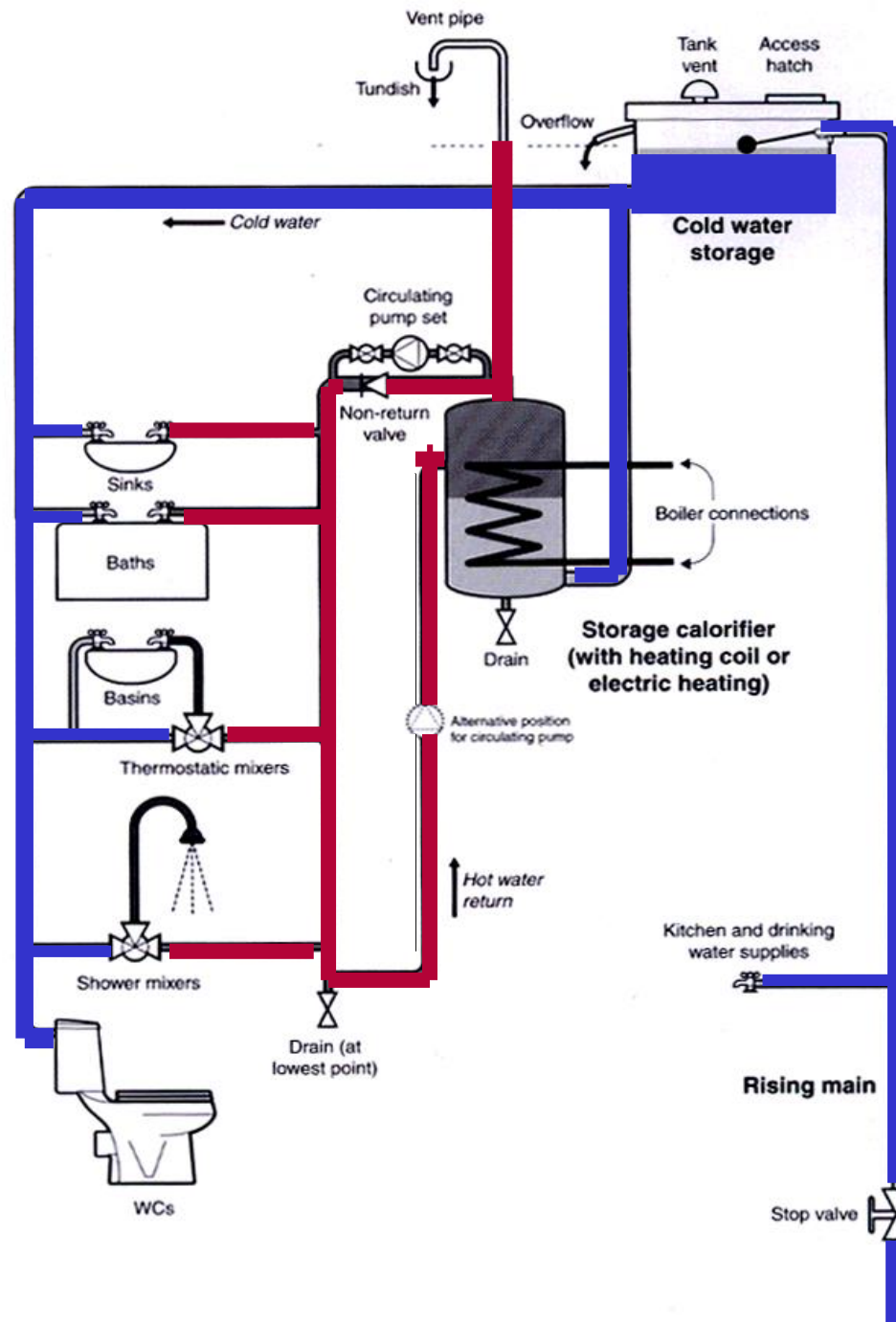
45 °C

Bacteria

20 °C bacteria remains dormant
but viable

Avoid temperatures in range 20-50 degrees Celsius

H&CW System

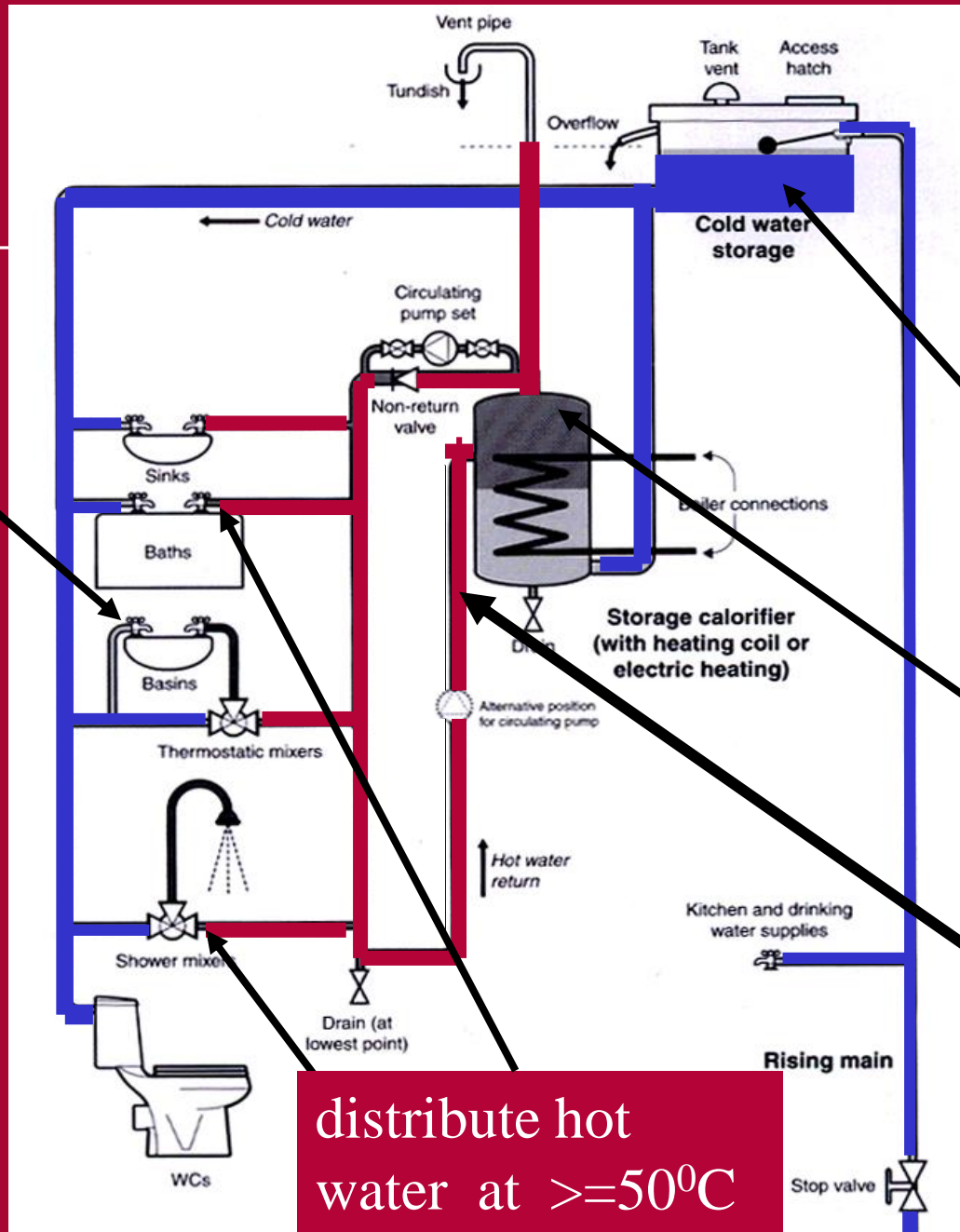


Overview of Temp controls



Distribute cold water at $<20^{\circ}\text{C}$

Note – Hot water should achieve 50°C within 1 minute & cold should achieve less than 20°C within 2 minutes at sentinel outlets



Store cold water at $<20^{\circ}\text{C}$

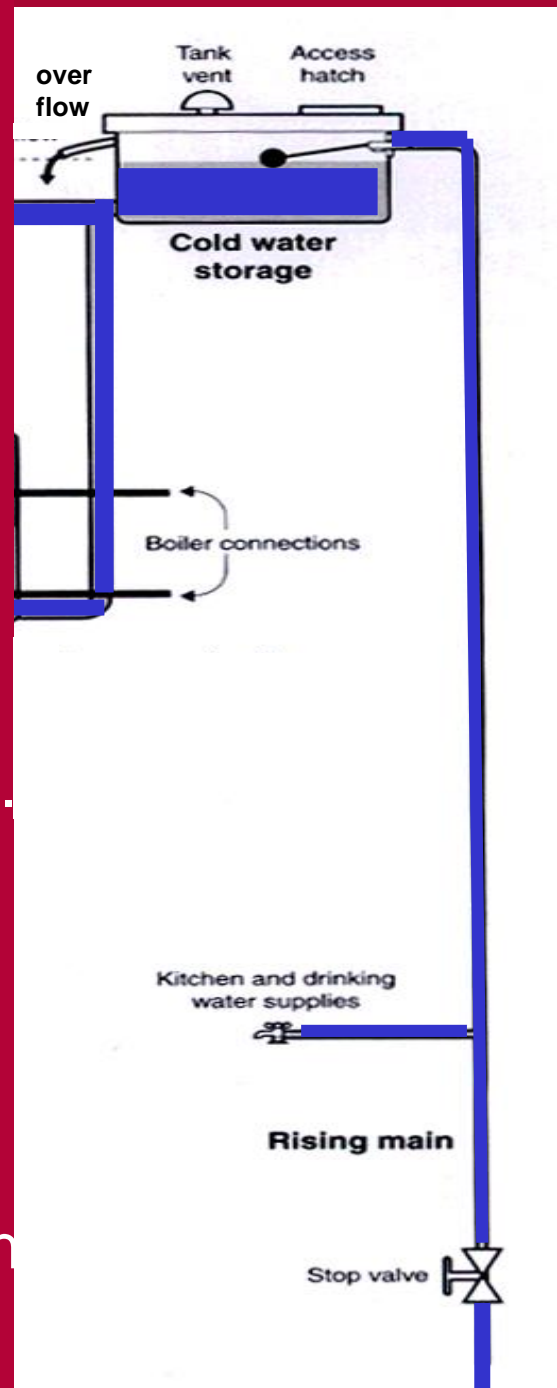
Store hot water $\geq 60^{\circ}\text{C}$

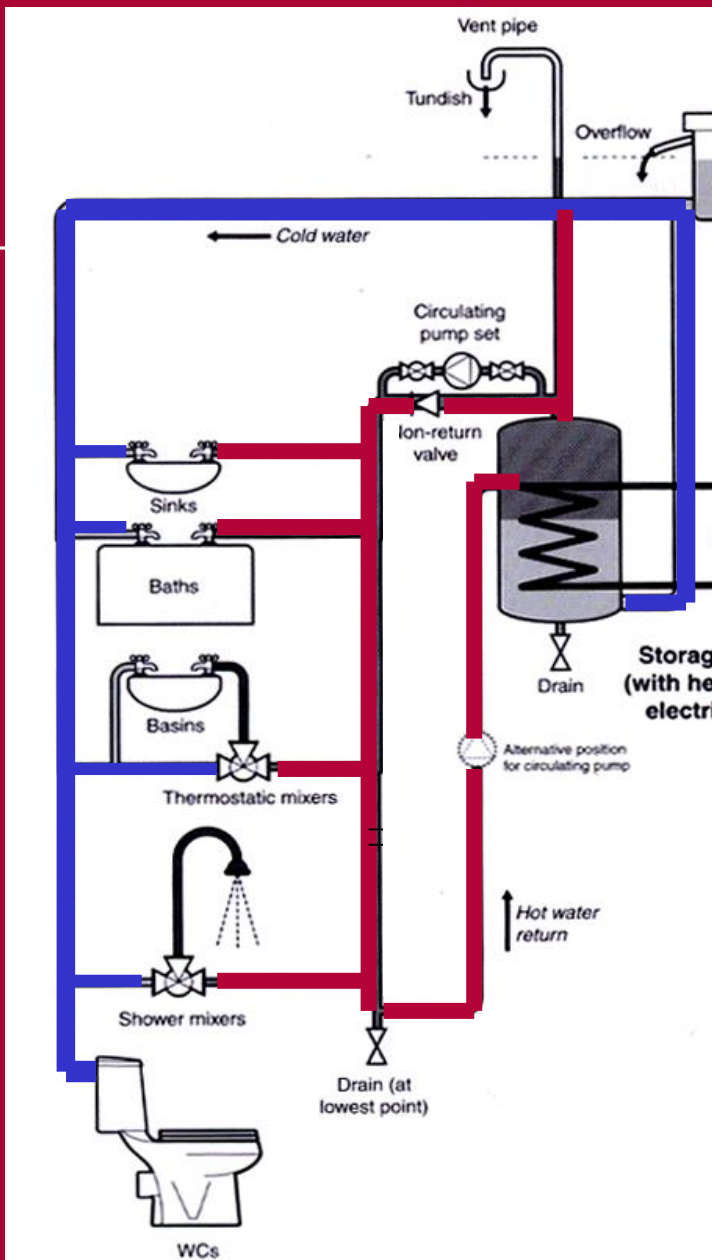
Return water $\geq 50^{\circ}\text{C}$

distribute hot water at $\geq 50^{\circ}\text{C}$

COLD WATER TANK

- The incoming and storage temperature of the cold water <math><20^{\circ}\text{C}</math>.
- The tank should be:
 - sized to supply one day's water usage;
 - should be sited in a cool place;
 - should be thermally insulated to protect from extremes of heat; and
 - should possess a tight fitting lid and a vent.
- The water over flow pipe and vent should be fitted with an insect screen;
- The water surface should be clean and free of any debris or contamination



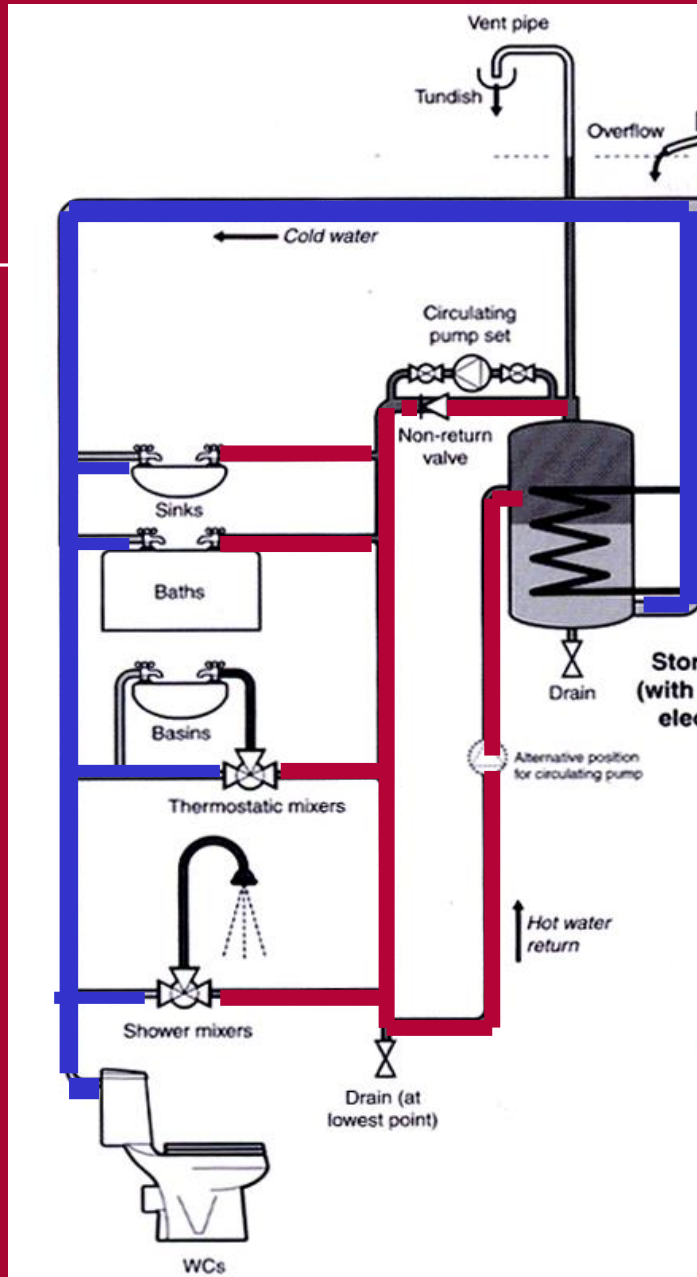


The hot water cylinder should:

- be sized to provide water needed for a day's usage;
- be insulated;
- deliver outgoing water at a temperature of at least 60°C and return water of at least 50°C
- be fitted with a drain valve

- The vent pipe should preferably not drain to the cold water tank.

- Large cylinders should be fitted with a shunt pump to mix the water and heat the whole volume to at least 60°C for at least one hour each day



Water distribution :

- Hot water should reach at least 50°C within 1 minute of running outlet;
- Cold water should be less than 20°C within 2 minutes of running outlet;
- Temperatures should be measured monthly at the sentinel outlets

(where TMVs are fitted the temperature of the pipe work at the inlet to the TMVs should be measured eg using a surface probe thermometer)