

WATER SERVICES

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WATER SUPPLY OPERATION SYSTEM

PNEUMATIC BOOSTING

- In the pneumatic boosting system, a cushion of air under pressure is maintained in the top of a pressure vessel
- When a tap is opened the air is able to expand by forcing the water out of the cylinder and through the pipe work
- This process can continue until the water level drops to a predetermined point, when the pumps will be switched on to raise the level again
- Drinking water is drawn off from the pressure vessel, although the drinking water can be supplied direct to lower floors where the mains pressure is sufficient



HIGH RISE BUILDING- BOOSTED COLD **SYSTEM**

- For medium and high rise buildings there is often insufficient mains pressure to supply water directly to the upper floor
- Boosting by pumps from a break tank is therefore usually necessary and several more of these tanks may be required as the building rises-depending on the pump capacity
- A break pressure cistern is also required on the down services to limit the head or pressure on the lower fitting to max of 30m (approx. 30kPa)
- Drink water header pipe or storage vessel supplies drinking water to the upper floors
- As this empties and the water reaches a predetermined low level, the pipe line switch engages the duty pump
- A float switch in the break tank protects the pump

HIGH RISE BUILDING- BOOSTED COLD **SYSTEM**

- As an alternative to the drinking water header pipe. An auto-pneumatic cylinder may be used
- Compressed air in the cylinder forces water up to the float valves and drinking water outlets on the upper floor
- As the cylinder empties a low pressure switch engage the duty pump
- When the pump has replenished the cylinder, a high pressure switch disengages the pump
- In the time some air is absorbed by the water
- As this occurs, a float switch detects the high water level in the cylinder and activities on air compressor to regulate the correct number of air
- Break pressure cisterns may be supplied either from the storage cistern at roof level or from the rising main

**BACKFLOW PROTECTION SECONDARY
BACKFLOW PROTECTION**

BACKFLOW/ BACK SIPHONAGE **PREVENTION**

Domestic Sanitary Appliances

- All drinkable water supplies must be protected against pollution by back siphonage
- Protection is effected by leaving sufficient space or air gap between the lowest point of the control device
- There must be an air gap between tap discharge and the appliance spill over level

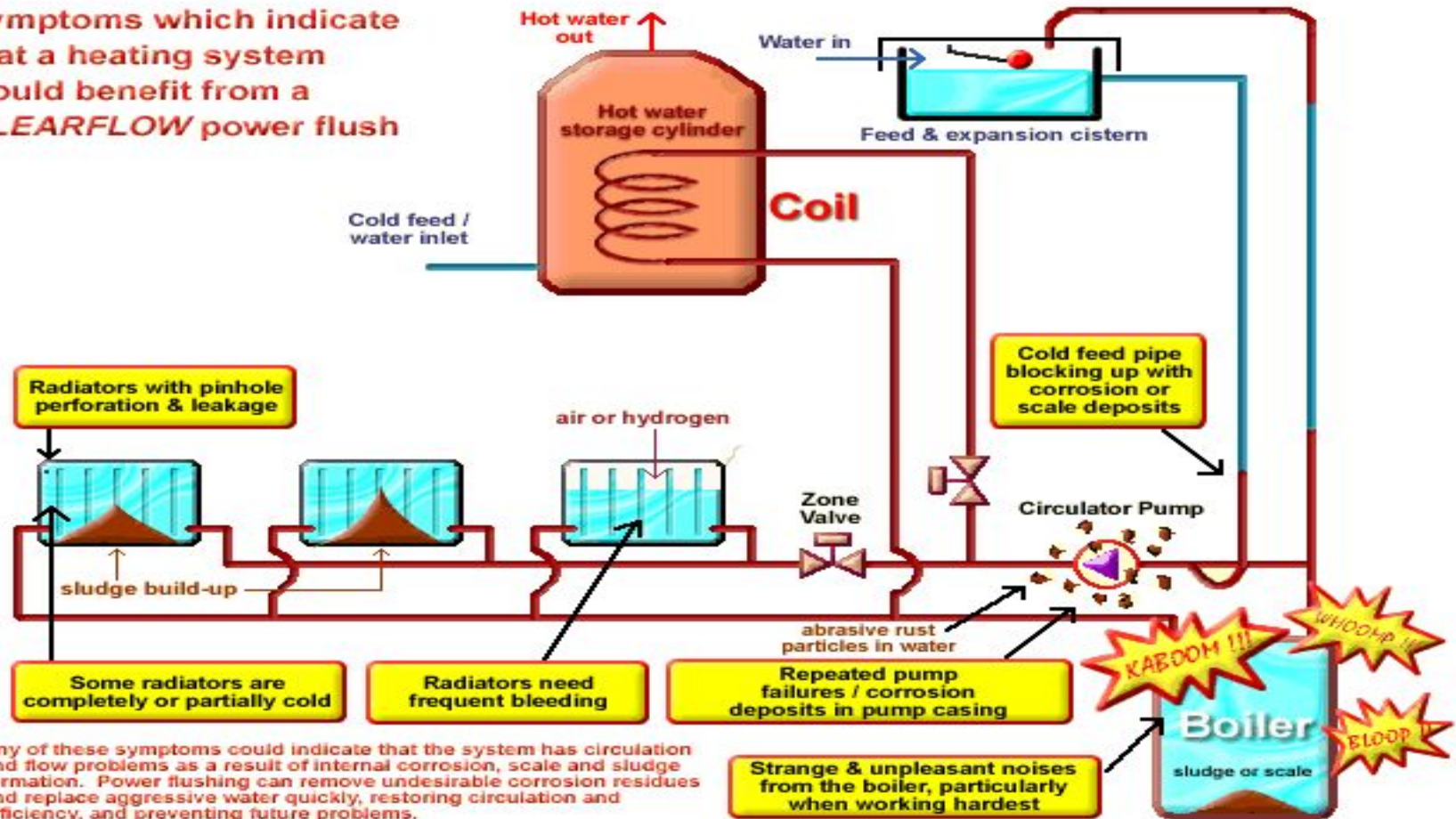
DELAYED ACTION FLOAT VALVE

- If normal float valve are used to regulate cistern water supply from an auto-pneumatic cylinder and pump activity will be frequent and uneconomic
- Therefore, to regulate activity and deliveries to the cistern, a delayed action float valve mechanism is fitted to the storage cistern

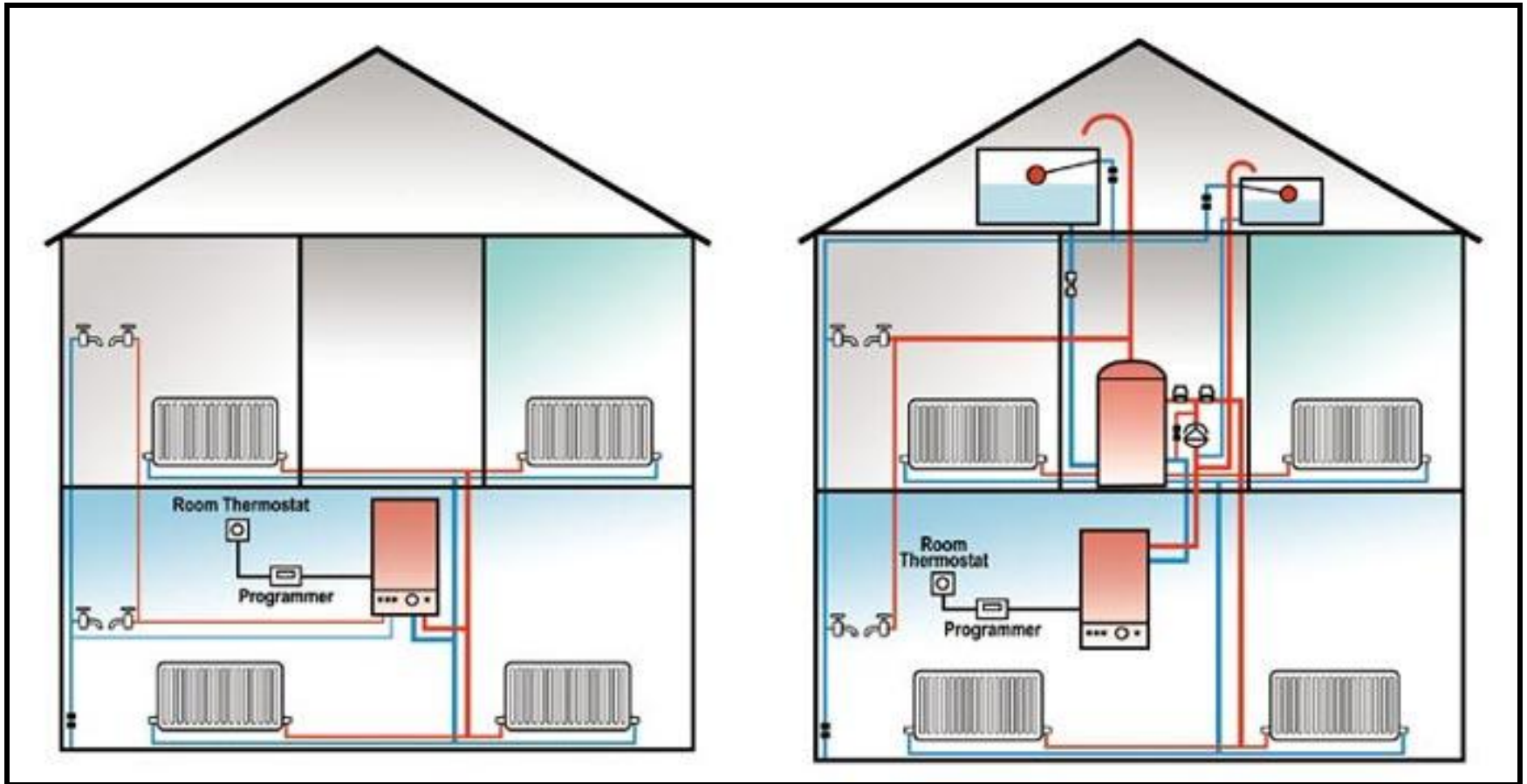
HOT WATER SERVICES

A CENTRAL HEATING SYSTEM

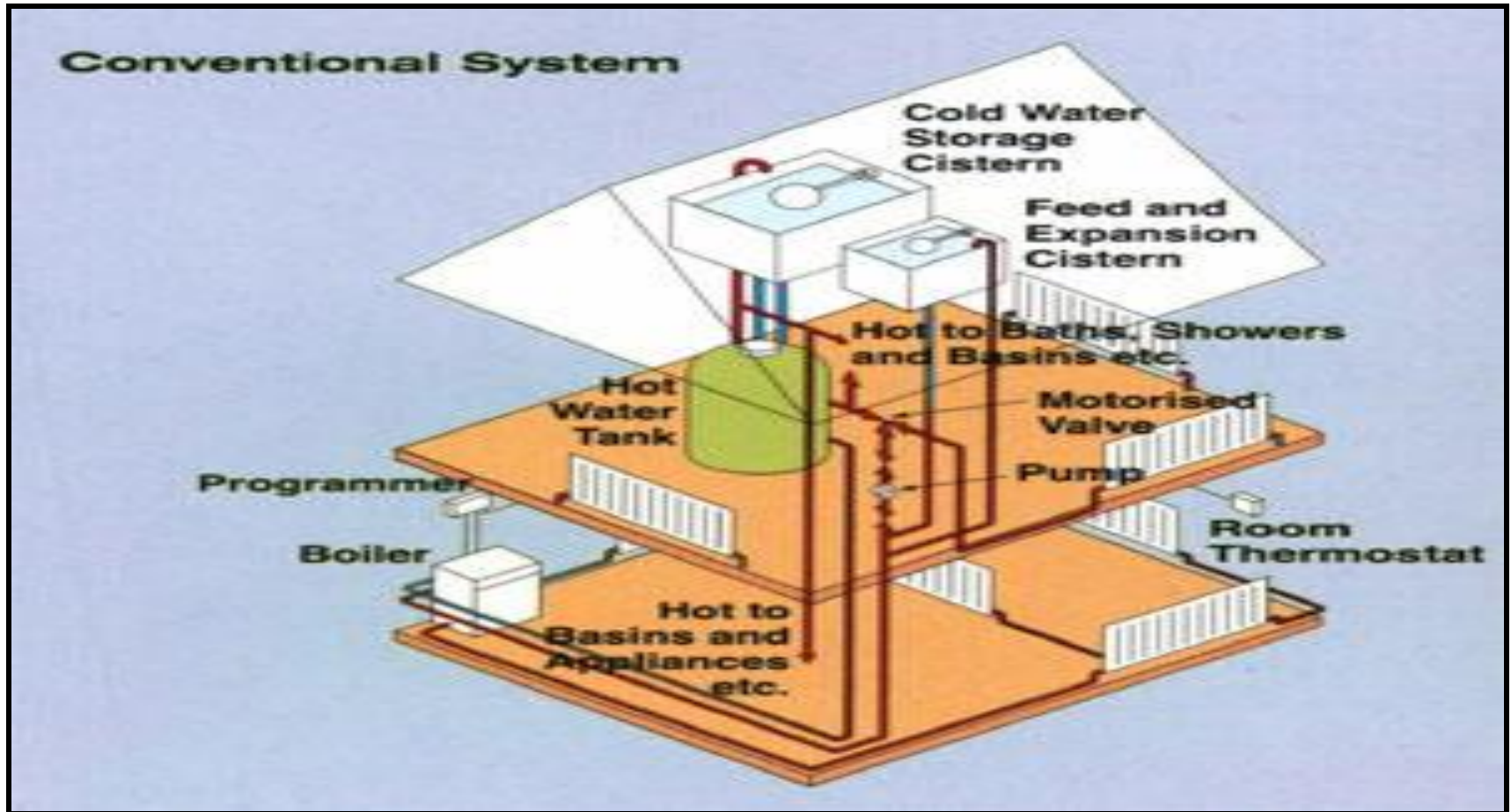
Symptoms which indicate that a heating system would benefit from a **CLEARFLOW** power flush



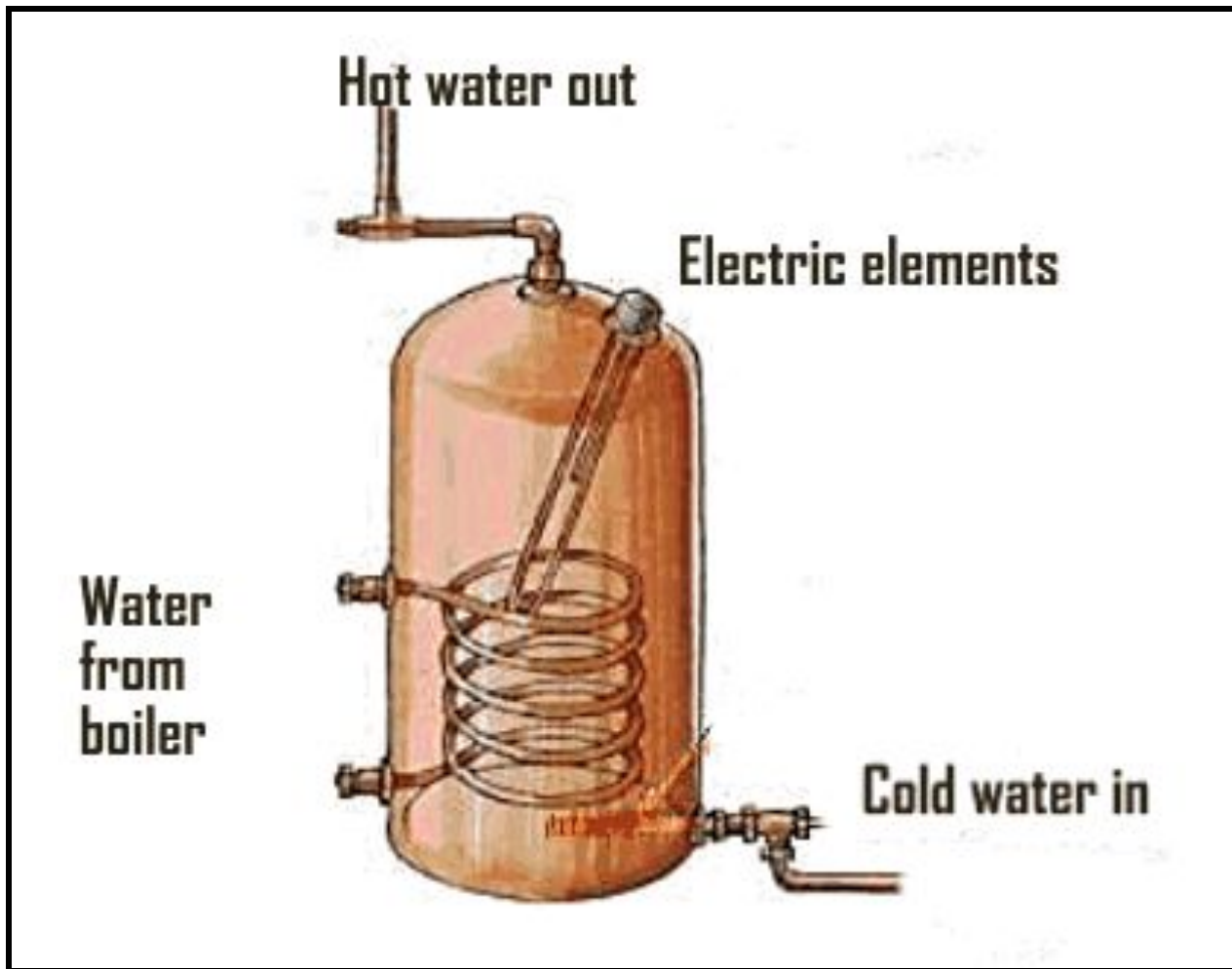
DIRECT CENTRAL HEATING



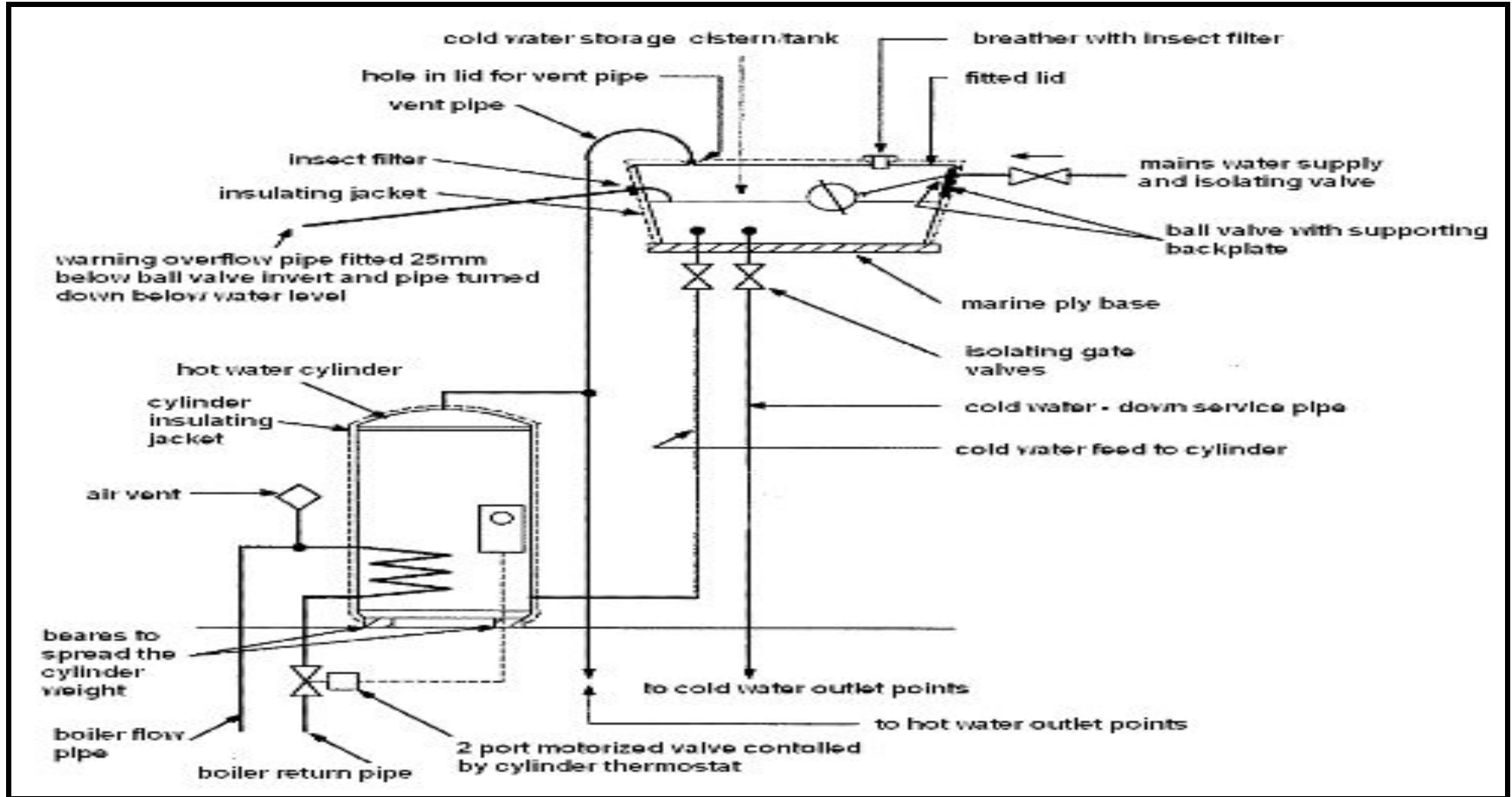
CONVENTIONAL SYSTEM



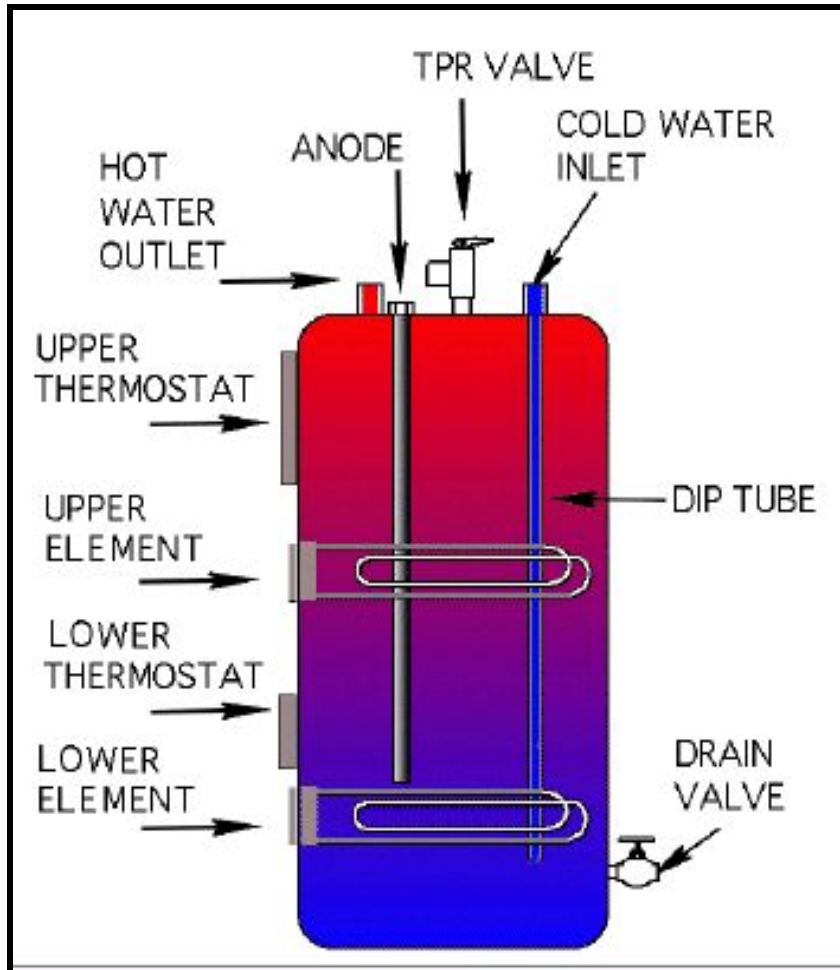
HOT WATER CYLINDERS



INDIRECT CENTRAL HEATING

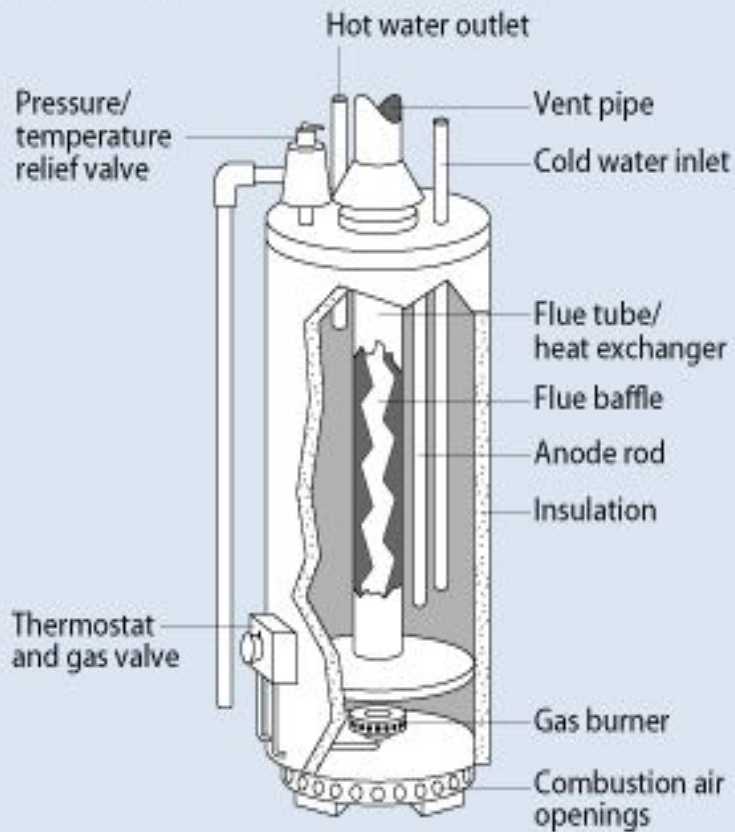


INDIVIDUAL SYSTEM 1: ELECTRICAL WATER HEATER

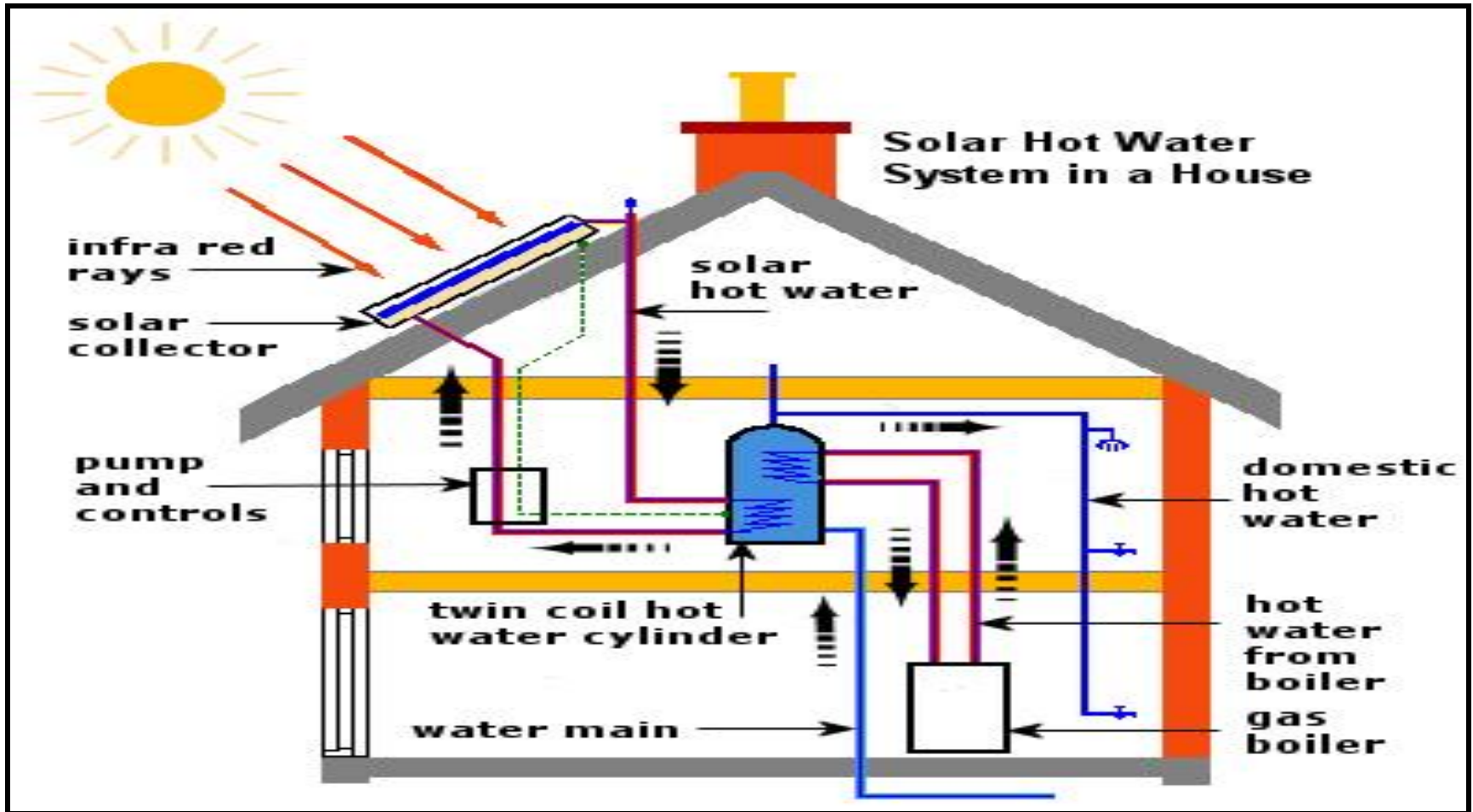


INDIVIDUAL SYSTEM 2: GAS WATER HEATER

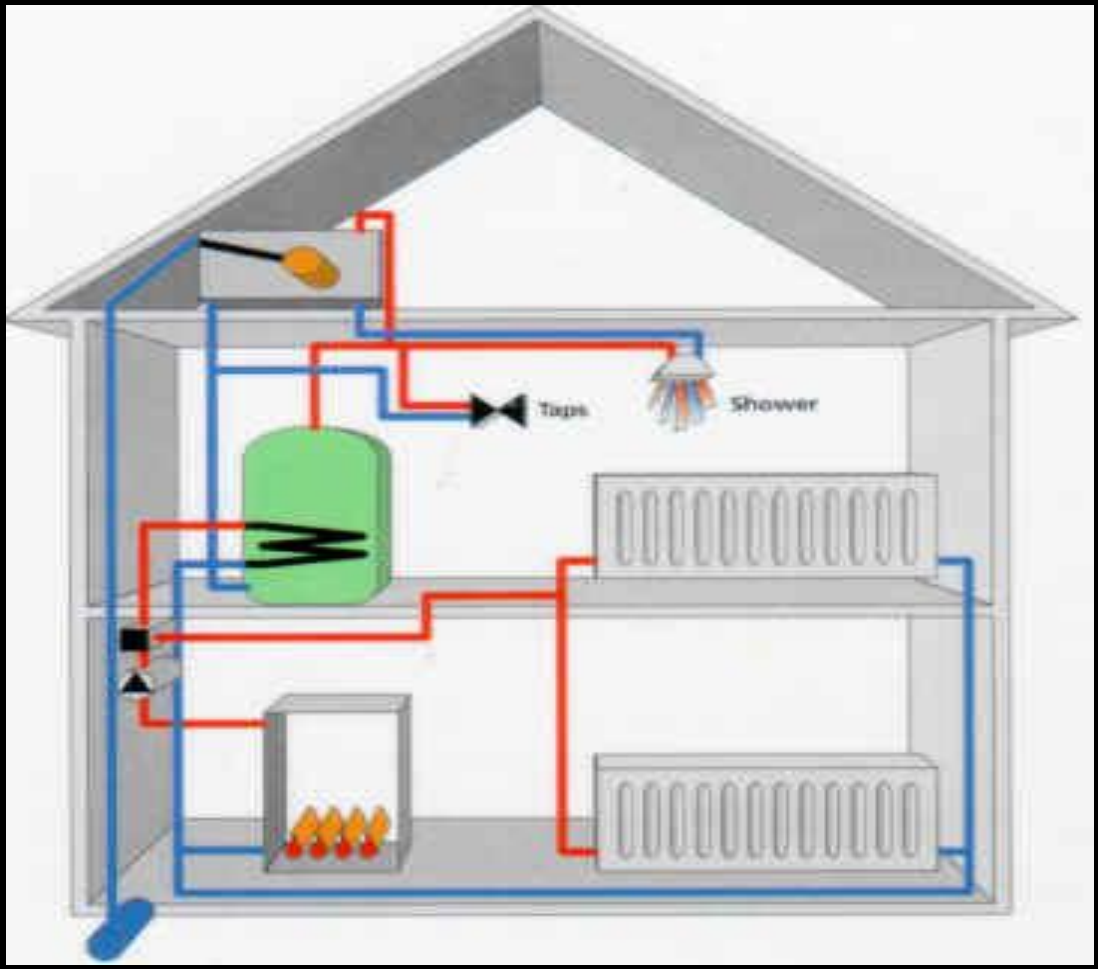
Storage Water Heater

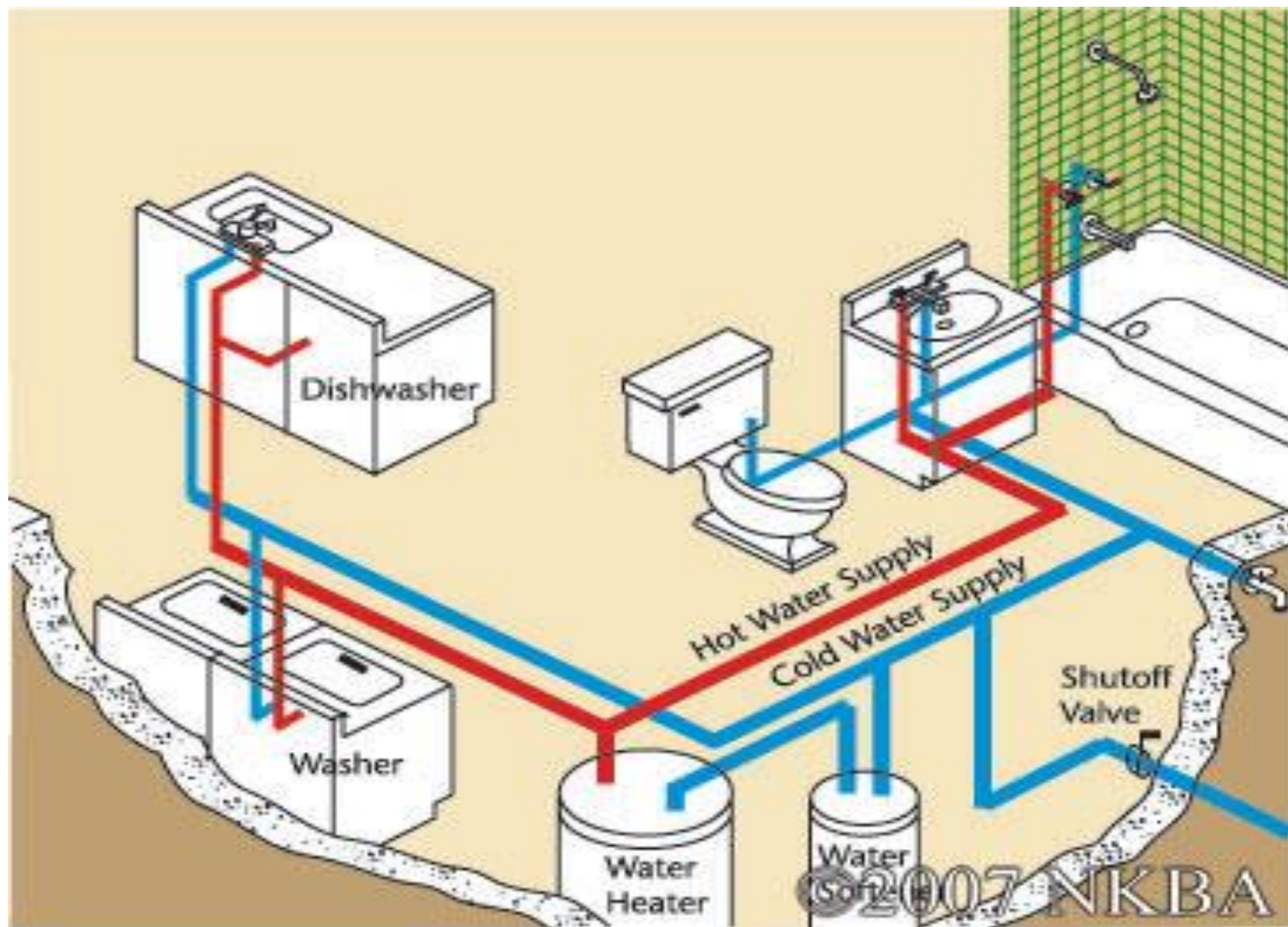


SOLAR HOT WATER SYSTEM IN HOUSE



UNPRESSURISED HOT & COLD
WATER PLUMBING WITH SHOWER
BATH





THE END