

# PLANNING AND POSITIONING OF PIPEWORK

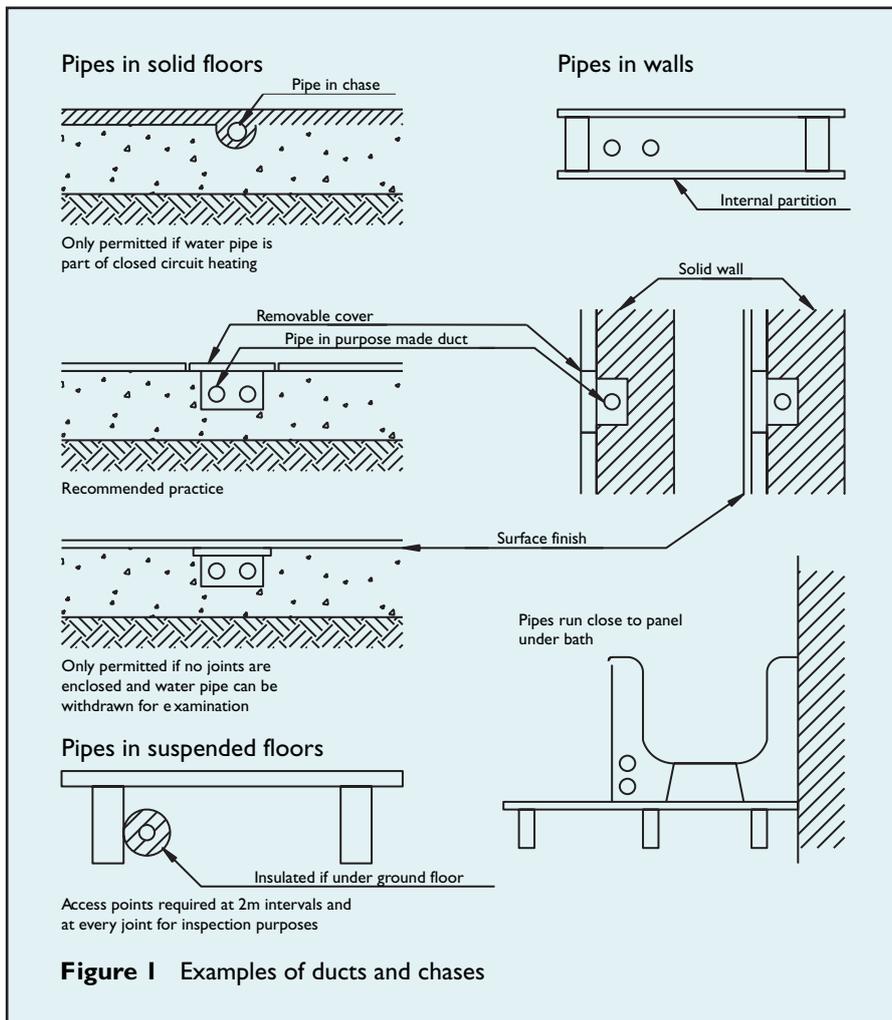
When deciding on the most suitable location for pipe runs the designer / installer will have to take into account the wishes of the client for a reliable, quality installation, usually with (at least in domestic situations) minimum amounts of tube visible, and that the work is carried out at minimum cost.

These wishes will have to be balanced against the requirements of the various standards and statutes that govern our work, such as the Water Regulations or the Gas Safety (Installation and Use) Regulations. The

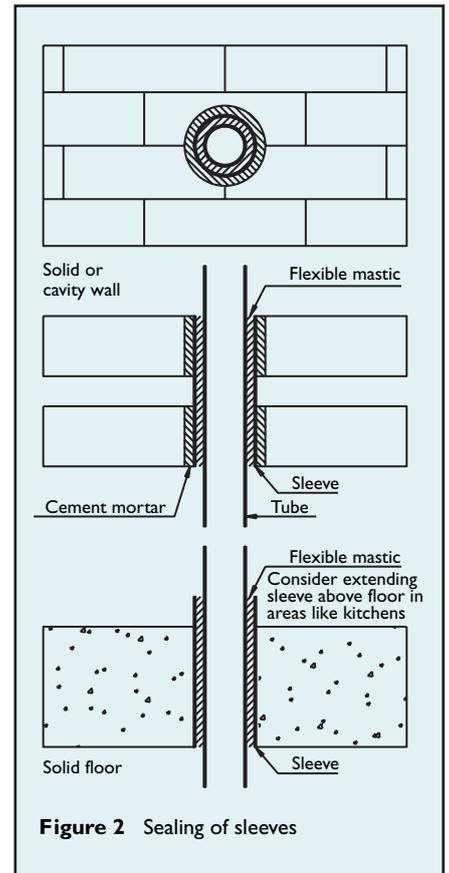
competent installer will also take the trouble to make the work as neat and visually pleasing as possible with even spacings for tube supports and even gaps between different lines and with the tube fixed plumb and level or laid to the correct fall.

## Regulations and Standards

These demand that tube is installed so that it is reasonably accessible for inspection and testing as well as maintenance and repair. They also prohibit the installation of tube in situations where there is a danger of



**Figure 1** Examples of ducts and chases



damage or of leaks failing to be discovered. Damage could be either to the structure, through weakening or by reducing its fire resistance; or the tube, by movement; or its contents, by contamination.

The customers' demands that minimum amounts of tube are visible means that hidden pipework often has to be installed in chases and ducts and typical details of recommended practice for water services are illustrated in Figure 1.

The basic principles behind the design of chases and ducts are that: any leaks, however unlikely, will become apparent, and in the case of gas services, that a dangerous build-up of gas/air mixture cannot develop; where a leak could remain undetected for long periods more particular care has to be

taken, for example, where pipes are installed under ground-floor level; where continuous flooring is used, such as flooring chipboard, properly formed openings with covers that are easily removable should be provided at changes of direction, including tees; where pipes have to be insulated then they should be insulated in accordance with laid down standards.

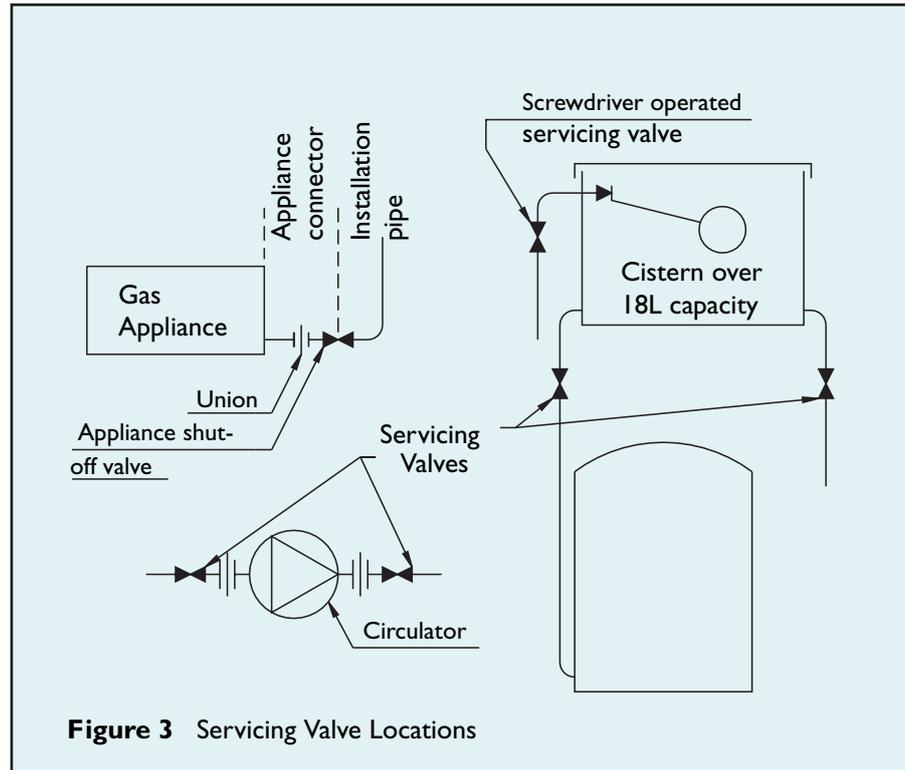
### Sleeving

Where tube passes through brick or block walls or solid floors it should be sleeved. When installing copper tube in these situations it is normal practice to use another piece of copper tube as the sleeve. For tubes up to 80mm diameter the internal bore of the sleeve should be at least 6mm larger than the outside diameter of the tube. For tubes over 80mm diameter the sleeve bore should be at least 25mm greater. It is important to ensure that the sleeve is correctly built into the structure and the annular gap between the sleeve and the tube is concentric and that at least one end of the gap between the tube and sleeve is sealed with approved mastic. This should permit the tube to move whilst at the same time maintaining the fire resistant properties of the structure and preventing water, gas or vermin passing through the gap. See Figure 2 for details.

### Servicing and appliance shut-off valves

Where regular maintenance of equipment and fittings has to take place the regulations require that servicing valves are fitted, this is both to facilitate maintenance and to reduce the loss of water when draining down. Obviously, these must be readily accessible for operation. Screwdriver operated servicing valves are required on service pipes feeding float operated valves such as in WC cisterns and storage cisterns. Servicing valves must also be installed on cistern fed supplies if the cistern is over 18 litres capacity. On combination cylinder units it is not normally possible to fit the servicing valve between the cistern and cylinder. In this case the servicing valve is required on the outlet pipe(s) from the cylinder. Using servicing valves with swivel outlets will enable easy disconnection on water services.

An appliance shut-off valve is required on the inlet to gas appliances.



**Figure 3** Servicing Valve Locations

This is usually a plug cock with a union to enable disconnection for servicing. Make sure you install these the correct way round, with the union on the outlet and always remember to cap or plug the outlet when it is disconnected!

### Use of plastic coated copper tube

Where gas pipes or closed circuit central heating pipes are to be buried in solid floors it makes sense to use plastic coated copper tube. This is available in half-hard temper straight lengths as well as soft coiled. The plastic coating gives a degree of insulation as well as protecting the tube. Use yellow ochre coloured plastic coated tube for gas and green or blue for water as an aid to tube identification.