

PLUMBING MAINTENANCE

COURSE 740: 3 DAYS: Max 4 Candidates

Estates departments responsible for the upkeep of the services of buildings used as office blocks, hospitals and universities etc, often seek to improve the department's overall effectiveness by extending the range of skills possessed by their maintenance personnel. This course is specifically designed to provide non-mechanical specialists with the skills needed to carry out first-line mechanical maintenance on low pressure hot water (LPHW) heating systems, hot and cold water services, and drainage systems – together with associated pipe-work, pumps, valves and other ancillary equipment.

PARTICIPANTS

Estates or maintenance personnel of all kinds will benefit from this course. No prior knowledge is assumed.

COURSE PRESENTATION

The emphasis throughout is on the practical application of skills necessary to deal effectively with first-line maintenance tasks. Comprehensive course notes are provided.



COURSE OBJECTIVES

On completion of the course, participants will be able to

- apply safe working practices and meet relevant regulative requirements when working with mechanical building services
- understand different types of LPHW system
- diagnose faults on LPHW systems
- carry out bending of copper tube
- correctly assemble and tighten compression joints
- correctly fabricate soldered pipe-work joints
- remove and replace radiators, radiator valves and taps
- dismantle thermostatic mixer units and replace defective parts
- correctly recharge pressure vessels
- make joints in PVC soil piping using either solvent or 'O' ring type joints.

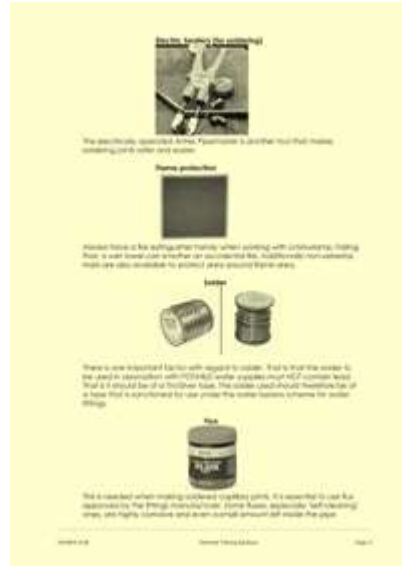
Successful completion of the course leads to the award of Technical Training Solutions Certificate of Competence 740: Maintenance of Plumbing Systems.

What do candidates on the Plumbing Maintenance course actually do?

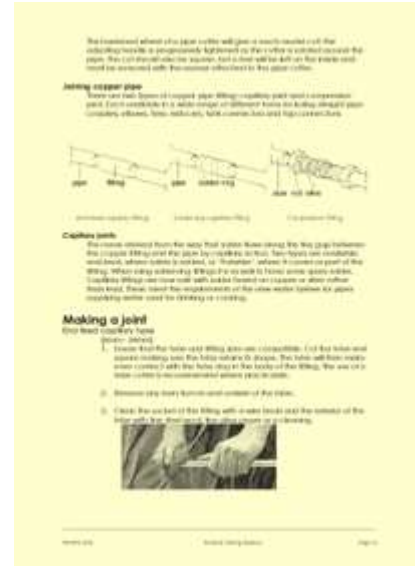
The maintenance of plumbing systems course begins by looking at a range of plumbing tools, what they are used for and how they should be used safely. The following are pages taken from the course notes in this section of the course, describing plumbing tools and how to make pipework joints properly:



Page 8 of the course notes, describing the plumbing tools used

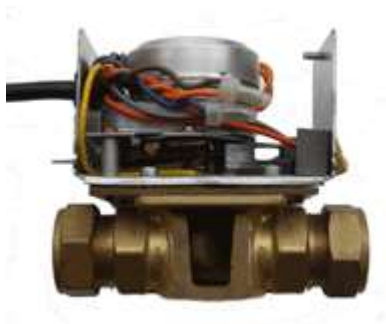


Page 11 of the course notes, describing more of the plumbing tools used



Page 15 of the course notes, describing how pipework joints should be made

During the course candidates are shown a range of plumbing fittings, many of which have been specially sectioned so that the inner workings can be seen. The components are discussed as to their suitability for various applications such as gravity fed and high pressure systems. We also look at the Water Byelaws, Health and Safety issues and Building Regulations during this part of the course.



One of the sectioned components - a diverter valve



One of the sectioned components - a mixer valve



One of the sectioned components - a thermostatic mixer valve

Candidates begin their practical exercises by annealing, swaging and bending copper tubing. This is followed by a demonstration of soldering which the candidates then practice under the supervision of their instructor. Candidates practice annealing, swaging and bending a variety of copper tubing.



One of the pipe benders used

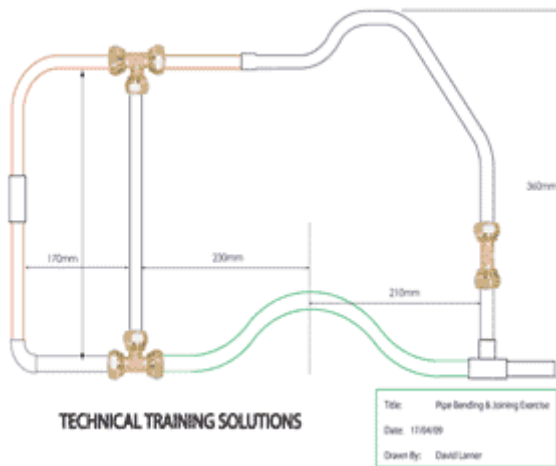


One of the swaging tools



One of the soldering tongs

When bending and joining has been mastered the candidates must produce a demonstration piece to a drawing that contains a range of fittings, e.g. end feed, compression, pre-soldered, quick fit and swaged. The test piece is then filled with water and a pressure test is conducted to demonstrate the integrity of all the joints.



One of the drawings for the copper pipe exercise on the course



One of the assembled test-pieces for the copper pipe exercise on the course

In some cases where a repair needs to be carried out, it may not always be practical to drain the system. In this instance an ice plug needs to be formed either side of the leak. Candidates practice this operation on a pressurised system using pipe freezing equipment. Candidates are also shown how to replace worn tap seats and washers, using professional tap re-seating tools.

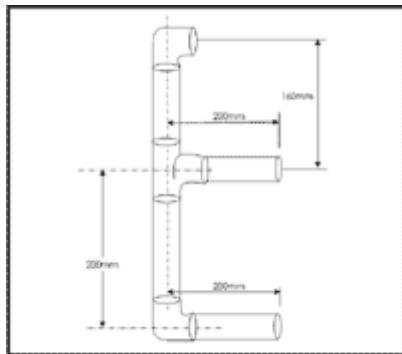


The pipe freezer used



Some of the tap re-seating tools used

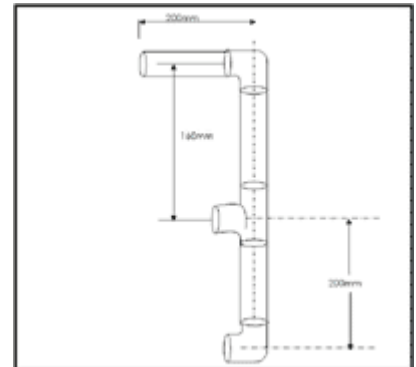
Drainage systems are explained and candidates practice making drainage circuits using solvent bonding and 'O'-ring fittings. This provides the candidate with practical experience of reading drawings and cutting tubing to size.



The drawing for one of the projects that candidates make on the course

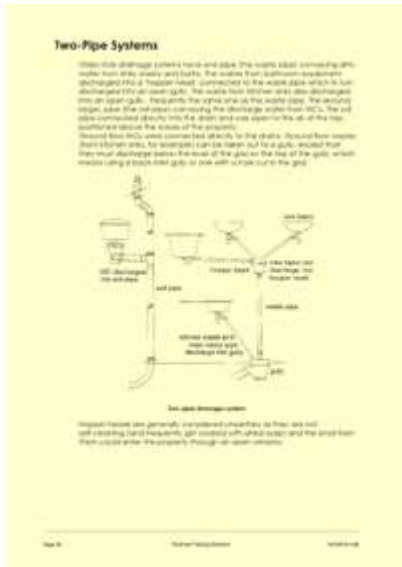


One of the projects that candidates make on the course

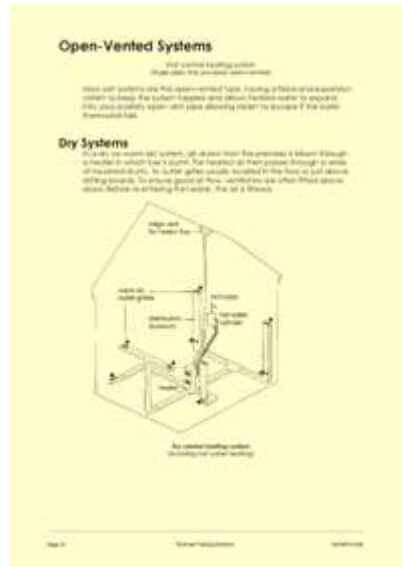


The drawing for one of the projects that candidates make on the course

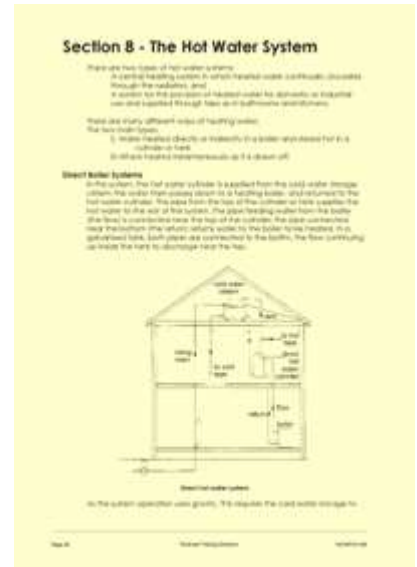
In addition to the important physical skills that candidates acquire (making pipework bends, joints etc as explained in the above), we also look carefully at how each of these components forms part of a complete domestic or commercial heating or hot/cold water system, so that the candidates understand the role of each component and the symptoms associated with their various failure modes. The following are extracts from the course notes covering this section of the course:



Page 26 of the course notes, describing two-pipe systems



Page 32 of the course notes, describing open-vented systems



Page 48 of the course notes, describing hot water systems

If you would like to see some of the equipment used on the Plumbing Maintenance course for yourself, then please call us to arrange a visit to our base in Kent. Alternatively, we can visit you anywhere in the British Isles.





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