Turning a dribble to a gush

Alan Watson analyses the reasons for water pressure problems and examines one development in valve technology as a potential solution.

GC Pillinger & Co. has replaced two water boosters with new pumpsets from its Type C range at the Royal Free Hospital in Hampstead, London. Pillinger has been supplying the hospital with equipment for over 25 years. Enquiry No 209

We have all had the experience, at one time or another, of poor quality distribution of hot or cold water services in a large building - the bath taps that gush water one minute, before turning the hot water to a dribble while the cold continues to gush! You end up with a very full tepid bath.

Worse still for a hotel, the taps that start with a gentle flow, and are left to run while undressing, yet the moment you leave the room, they spring into full bore, so that the bath soon overfills. If the hotel is lucky, the overflow will carry the excess water to the drain. On the other hand there could be a very costly mess to clear up, including redecoration of the rooms below!

Then there is the 'good old British shower' experience of hot and cold flushes when next door inconsiderately takes a bath, upsetting your carefully adjusted spray. Again, what of the hand basin taps in the public toilets that at a slight twist, burst into action, presenting you with a wet patch down the front?

There are well known and tried remedies: pumped systems; variable speed pumps; pressure regulation; service valves cracked open a fraction by trial and error to regulate flow, yet not one of these addresses the real problem: The effect on flow regulation of changes in pipe pressure as demand fluctuates and varies throughout the system. The simple cure now exists: namely the "Flow Limiting Valve" (FLV).

Restriction

FLV's are small, reliable and of low cost. They are restrictors which respond to the changing pressures in the pipe so that the restriction increases with pressure. They are precisely designed and made so that the flow remains constant irrespective of pressure. For example, an FLV, factory set at say 5 litres per minute (L/Min), when fitted behind a hand basin tap, will only pass that maximum flow even when fully open.

Similarly in the hotel or restaurant kitchen, at the sink used for vegetable washing where taps are often left running all day at typically over 30 L/Min, (incidentally also reducing the cauliflower to pulp) an FLV set at say 15 L/Min can save its costs in just a few weeks.

Heat losses from valves can be prevented by using insulation covers, claims Warren Insulation. Enquiry No 2210

At the University of Exeter in the student accommodation blocks, the electric shower units have been regulated by FLV's. The showers now give a flow of 4 L/Min and Roger Carthew of the Building and Estate Division says that this has removed all the many complaints about poor temperature regulation.

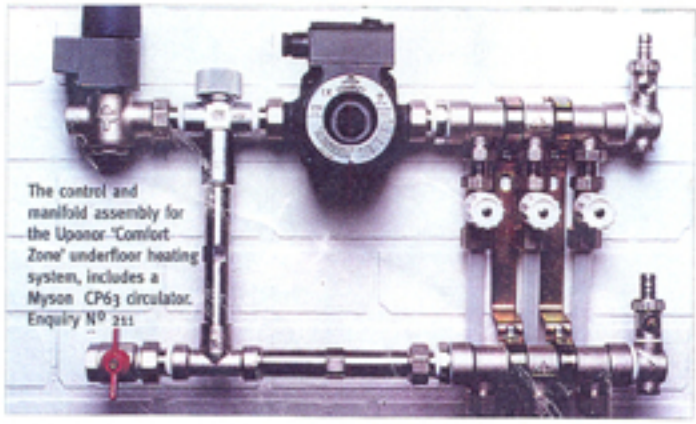
At the Savoy Hotel in London, in the renovated rooms over the past two years, FLVs have been supplied for the baths, showers, hand basins and bidets to avoid some of the most expensive bath overflows in London. Water distribution is much improved and considerable savings in water, fuel and sewage charges have already more than paid for the small extra cost of fitting FLV's, according to the engineers.

The systems in hospitals, schools, barracks etc., in fact in any large building complex could be designed to benefit from this sort of product.

Ideally the FLV's should be part of the Mechanical Services design. In that case there are probable capital savings to be made in both the design and construction phases of building projects as well as in operating costs.

For example, with the FLVs fitted, there will be an overall reduction in the prospective demand on the total services of hot and cold water. This will impact on the choice of plant sizes. (Pumps, storage tank and accumulator capacity, pipe sizes, insulation and heat losses and most important, boiler capacity). In the construction and commissioning phases, this would lead to a reduction of the time needed for the manual balancing of the distribution.

Of course the technique is not limited to new construction. A variety of special forms of the FLV's are made particularly with retrofit applications in mind. For water conservation, the prime locations are the kitchens, public toilets, showers and baths, in that order. The payback period can be as short as two weeks and generally speaking it will be on average less than 18 months. This means that the cost could be taken from a maintenance budget, with recovery within the financial year.



The control and manifold assembly for the Uponor 'Comfort Zone' underfloor heating system, includes a Myson CP63 circulator. Enquiry No 211

● Alan Watson is a director of Flowco Mariflo.

Enquiry No 212