

# Case Study 4

## Water quality system installed in a dental practice

Water quality is of high consideration in the pharmaceutical, medical and laboratory businesses and Aqua-Nouveau has supplied a number of systems over the years. Dental surgeries are well catered for by a number of specialist suppliers. However, the water emphasis is usually centred on 'point of use', particularly for autoclaves, sterilisers and for the reservoir bottles providing pressurised water for 'in mouth' patient equipment. Water is either purchased, such as bottled sterile water, or it is produced via counter top or under sink equipment, such as distillers.

Previous experience has highlighted that there is little consideration given to improving 'point of entry' water i.e. water coming into the premises. This can vary considerably. However, it is possible to employ certain water treatment methods so that water is used more effectively, not only for the medical aspects of a practice, but also as part of a surgeries' day to day activity as well. This is often overlooked. There are considerable cost benefits as we will outline later.

Having had a water softener and purifier successfully fitted at his home, we were asked by the proprietor of a dental practice, in Burnham, near Slough, to look at improving water quality for his business. This was to

coincide with refurbishment work at his surgery during the early part of 2010. A quick audit of the systems in place showed that all water coming into the building was hard. This was furring up the beverage making equipment, the on-site washing machine, as well as leaving stains in sinks and toilets. All water for the medical side of the practice was by distiller. Distilled water is over 99% pure. It is made by continually boiling water and condensing the resulting steam. Although the water quality is excellent distillers use a great deal of electricity and waste heat. In some cases condensation is an unwanted by-product. They also require regular servicing as the elements can scale up due to the hard water. This also adds to the running costs.

### The recommended equipment

To banish scale and scum problems we agreed to fit a water softener (see Aquafact sheet No.5), on the incoming water main, to supply softened water to the whole premises. This was followed by a reverse osmosis (RO) membrane purifier (see Aquafact sheet No.2) to supply both an improved drinking water and medical quality water to dedicated taps. We added a small deioniser to lift the purity to 99.9% to meet recommendations that water should be free from both inorganic and organic contamination.



The medical room and the surgery showing the steriliser and two autoclaves. The deioniser is shown in the bottom of the open cupboard and the dispensing tap is shown in the photograph to the right.

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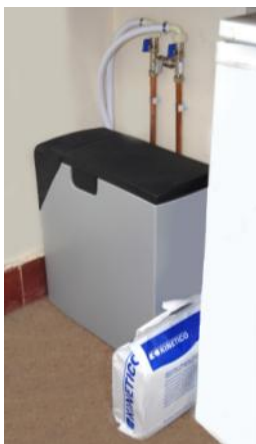
## Installation

The installation was not straightforward due to the layout of the building and the ongoing refurbishment work. An independent building company were involved in combining two properties into one. Our involvement was to link two rising water mains together.

Pipe runs were fairly long. The water softener and RO were fitted in a downstairs kitchenette with a separate pure water drinking tap at the sink. A further RO dispensing tap was installed in the upstairs medical room, via a deioniser, so that the sterilisers and autoclaves can be filled manually. The work, by two of Aqua-Nouveau's own engineers, was undertaken over a day and a half.

## The financial advantages

The dental practice is a busy one with 6 dental 'stations'. Pure water consumption is around 10 to 15 litres a day. With the distiller the costs are estimated at around £300.00 a year.



The KINETICO softener was fitted in the kitchenette

Through the RO and deioniser the costs should be halved. With RO water now being used for drinking there is the additional benefit of staff satisfaction as water will taste so much better giving rich flavours to beverages. The advantages of softened water are well catalogued. Every area in which water is used should be easier to keep clean, particularly toilets, urinals and the kitchenette.

There will be a noticeable reduction in cleaning products and washing powder. This could all add up to more than £150 a year in savings both in product usage, time and labour.

## Conclusion

The changes implemented have been well received. We would like to thank the surgery for allowing us to publish this project as a case study.

## Update Summer 2010

Due to a variation in water pressure the RO was updated a month or so later, after the original installation, with a pumped version. The RO was also



The reverse osmosis system was located under the kitchenette sink along with the storage tank for the pure water. The separate drinking tap is located above. A pure water feed is connected to the medical room on the first floor (see photograph overleaf).

relocated from the kitchenette into a loft area in order to provide more space. An additional tank was also fitted in the medical room to provide more pure water storage.