



**aerators
laminar flow
and flow
straighteners...**

**an industry
perspective**

Make an informed choice laminar flow or flow straightener...

Recently we have received numerous requests and feedback from hospital engineers, facility managers and hydraulic consultants in relation to the removal of aerators, either altogether, or to be replaced by flow straighteners, but this might cause problems ...



So, why is there a growing preference for aerators to be removed?

Our discussions with hospital engineers and facility managers has found that the choice to remove aerators is primarily to remove debris capture points to help prevent Legionella and bacteria forming in spout outlets as well as help increase the flow movement of water through a facility, but this may cause other problems...

Water Efficiency Labelling and Standards (WELS)

In Australia, Federal Legislation stipulates water-using or water-saving products including tapware, showers, and lavatory equipment must have a WELS rating. To achieve a WELS rating products are required to have integrate prescriptive flow control measures.

For tapware, the most efficient way to integrate flow control measures is at the outlet (or spout end) using a pressure compensating, flow controlled aerator.

This is the most efficient way as this part can be easily serviced, replaced and cleaned as necessary. It also regulates the mixed flow rate, meaning both hot and cold flows are regulated to the same WELS flow rate regardless of whether only cold or only heated water is being used.

Upstream Effect

If the flow control is placed further upstream, for instance to the spout inlet, it is then difficult to service, clean or change. If the flow control is moved to the inlets prior to the valve, not only is it harder to service, but more capture points for debris are introduced and a suitable outcome for WELS is unachievable.

Flow Straighteners

The installation of flow straighteners means the spout outlet utilises a special, open flow fitting that assists in directing the flow of water from the outlet so its stream is straighter. This device is not flow regulated and therefore does not have the same mesh surface and fine orifices of a pressure compensating aerator.

Putting WELS aside for a moment... if a flow straightener is used, remembering these devices have no flow control capability and therefore do not comply with WELS then that

fitting may deliver an unregulated water stream of approximately 15-20Lpm. This impacts greatly on pipe sizing calculations; it also creates splashing issues, further increasing bacterial growth risks and slip hazards around the basin environment. Additionally, many basins are not capable of draining at a rate greater than 6-8Lpm (some even less), and in hospitals no overflow is used, potentially this is a major safety, health and hygiene hazard.

Isolation Valves

If the flow is regulated using isolation valves (mini taps or similar), not only is this difficult to set up and maintain, but flow will alter as a result of in line pressure changes. Further to this, the flow will have to be reduced to a point where flushing and scouring of the hot and cold water lines may be effected, potentially producing lower flow than what could be achieved without splashing, using a pressure compensating flow control outlet.

Laminar Aerator

The use of Laminar flow aerators which are pressure compensating to deliver a flow rate of 7-9Lpm is probably the best all round solution, based on our research and experience.

The use of Laminar flow aerators coupled with a regime of thermal flushing and regular cleaning of aerators provides a sound foundation to control Legionella and bacteria at point of use.

It's worth noting that a major Sydney Hospital, after removing all aerators some 18 months ago for all of the reasons listed above, have now reinstalled all aerators (7.6Lpm Laminar) and are looking to upgrade all TMV's to Aquablend Thermal Flush to assist with the disinfection of warm water pipework and outlets.

Another source of reference worth consulting is a fact-sheet from Neoperl, "Selecting And Using Aerators In Medical Facilities"¹, which reports on the of the BZH - German Consulting Centre for Hospital Epidemiology and Infection Control.

Neoperl is one of the leading worldwide suppliers of flow controls and aerators

¹. http://www.neoperl.net/dms/pdf/Clinic/Factsheet_Aerators_in_medical_facilities_End_1-1-1/Factsheet_Aerators_in_medical_facilities_1.1.pdf

REFERENCES

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