

Side Equalizer Design

Side equalizers are sometimes used to save on piping costs and/or save on space requirements for equalizer piping. While side equalizers can help balance water levels between cells their capability is very limited.

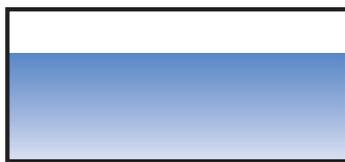
Equalizers work on the premise of water flowing from cell to cell due to differing operating water levels. Since the head differential between cells is often only 1" to 2" of water there is not a large driving force to balance the flow. As a result, large pipe diameters are often required to flow enough water to accommodate flow variances between cells. For a standard bottom equalizer design large pipe diameters are easily accommodated in the large depressed section of the basin floor. Inversely, increasing pipe diameter on side equalizers is not practical due to the reasonably shallow operating water level as well as physical size restrictions due to the basin wall.

If space is limited underneath the tower or the tower rests on a concrete slab the use of flumes is recommended. Flumes have a much large cross sectional area than a side equalizer and offers greater flexibility to accommodate reasonable flow imbalances.

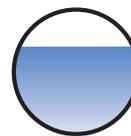
Another important hydraulic limitation of equalizer piping is getting water into the pipe. Bottom equalizers are naturally flooded with 7" to 8" of head above their entire opening whereas side equalizers are only flooded towards the bottom of its cross sectional area limiting its use. Flumes inherently combat this with its rectangular design by maximizing the cross sectional areas towards the basin floor.

Many existing installations currently use side equalizers. Operators on these systems apparently have tight balance control allowing for the side equalizers to keep up with flow variances. If the system can remain tightly balanced with a replacement tower then the use of side equalizers can likely be effective again.

Which flows more water?



Flume



Side Equalizer

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AE-MFP-02 | ISSUED 04/2017
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