

LOW SOURCE CAPTURE BENCH

EVACUATOR®

Need for Evacuator®

It is all too common to walk into an indoor pool facility and smell “chlorine”. The layman’s typical reaction is that there is too much chlorine in the pool. However, this chlorine odor is not caused by excess chlorine but rather by a compound called Trichloramine and by other airborne disinfection byproducts (DBP) that are being created in the water and off-gassing from the surface of the pool. These



Figure 1 - Evacuator® Bench

contaminants are heavier than air and form a “Trichloramine bubble”. This not only causes problems for the staff and swimmers, it can also be the source of corrosion on metal components in the pool facility.

The Evacuator® addresses the disinfection byproducts problem in a unique way and provides an immediate and long-term solution. When paired with an exhaust fan, the bench will inhibit the mixing of Trichloramine laden air found at the water surface with the balance of the natatorium air. The air which blankets the pool surface contains the bulk of the eye, nose and throat irritants. This contaminate laden air is separately captured and then exhausted through the Evacuator® bench, leaving the remaining air more healthful for instructors, coaches, swimmers, staff and spectators.

The Evacuator® bench and an exhaust fan create a system that reduces maintenance and corrosion on the deck equipment and metal components of a natatorium structure. This system collects the chemically laden air and discharges it, eliminating a large portion of Trichloramines before it can cause corrosion inside of the natatorium.

Evacuator® Bench Features

The Evacuator® bench has slotted ports for air entry with the entry orifices sized to provide a uniform entry of air from along the bench length. These openings can be adjusted as required to balance the exhaust air volume. The Evacuator® is fabricated of corrosion-proof PVC. It is an excellent retrofit solution as it can be installed on the deck or along a natatorium wall.

The Evacuator® bench low source capture exhaust system can be improved further by substituting the exhaust fan with the Desert Aire RecoverAire™ system, a heat pump energy recovery product. The RecoverAire™ system captures energy from the exhaust air stream to be transferred to the pool water, providing an energy recovery solution that assists with the pool water heating process.

Benefits of the Evacuator®

The Evacuator® provides the means to pull air with high concentrations of airborne Trichloramine that are present right above the water surface. Slots along the length of the bench draw air evenly across the pool surface increasing the capture effectiveness with the following benefits:

- Reduction of odors by removing contaminated air
- Removal of the disinfection byproducts improves air quality and results in improvements to the swimmers' ability to breath which can translate into better performance by competitive swimmers
- Produces a more desirable environment for patrons, swimmers and facility staff. Seniors and patrons with respiratory issues can enjoy the pools, rather than having to stay away due to the detrimental effects of excessive Trichloramines.
- Reduces the maintenance required for deck equipment and metal building components
- Extends the life of "HVAC" equipment and the building components by preventing heavy chemical-laden air from attacking system components which in turn reduces the reserves required for future capitalization for repairs and replacement of facility components.

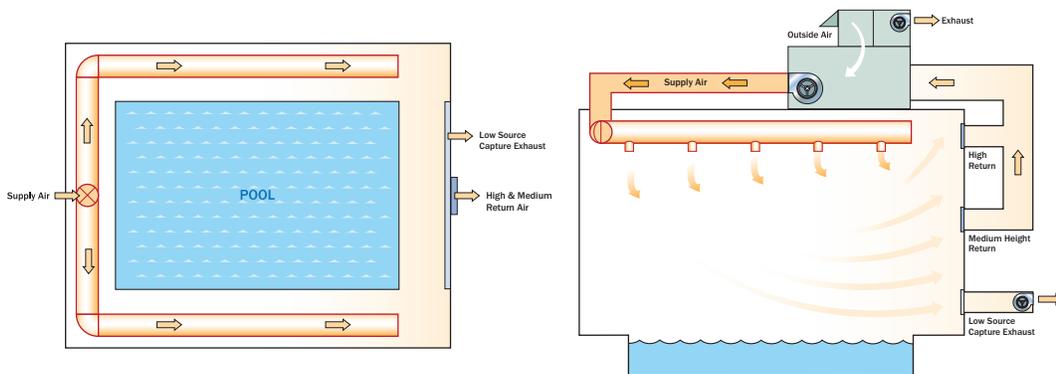


Figure 2 - Installation in pool facility

System Integration

Integrating the Evacuator® with a Desert Aire SelectAire™ or SelectAire Plus™ series unit allows the pool room to be automatically controlled to a negative space pressure. This is a design strategy recommended by ASHRAE that can be difficult to achieve with some systems.

An Evacuator® bench integrated with a Desert Aire unit that dehumidifies, heats and cools the recirculated natatorium air provides the following benefits:

- ASHRAE code ventilation requirements of the pool room will be achieved while removing unwanted disinfectant byproducts
- Ability to modify the low source capture exhaust volume based on the pool room mode of operation (unoccupied, occupied, event, maximum outside air, and purge)
- Energy recovery of exhaust air when the pool room requires heating

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