

Costs and problems with Indoor Pools

Indoor pools are one of the most energy intensive building spaces with inherent health and safety risks, challenging architects, developers, builders and building managers with questions of design, installation, operation and maintenance in which owners must ultimately fund. In addition to the high operating costs of any heated pool environment, there is the hidden costs of building fabric degradation if the moisture in the air is allowed to condense.

To achieve the ideal balance between a safe and healthy indoor environment and operating costs, presents owners with a complex set of interrelated control and management issues. The ideal indoor environment requires good temperature and humidity control but this comes at an increased cost of operation.

Most people associate the interior of indoor pools with high humidity, stuffy chlorine smelling air and steamy windows, floors and walls. Water condensation is not only a safety, comfort and health problem but will in the long term cause serious, expensive structural damage to the building. Without effective dehumidification and ventilation control, there is a risk of mould, corrosion, structural damage and an uncomfortable pool environment. This does not have to be the case and in a correctly designed pool heating system, a good controlled environment can be had at the same cost as heating the pool water.

Some typical Swimming Pool problems

- Uncomfortable humidity around the pool
- Condensation on vents/ glass panels/ AC grills / floors etc.
- Strong and persistent smell of chlorine (chloramines)
- Building degradation and corrosion
- Mould and mildew growth
- Frequent accidents (slipping/ falling) caused by wet floors
- All of these problems have a cost and amenity impact for the building owner's corporation.

Avanti Apartments

Avanti apartments, built over a decade ago, located in Hornsby 25km Norwest of Sydney's CBD includes two towers with 198 residential apartments, 45 commercial spaces, 8 shops, a childcare centre, heated pool, spa and fully equipped gym. Since the original construction, Avanti have been struggling with mould, mildew and corrosion in a pool space that had inferior ventilation installed during the original build. This poor indoor air quality led to the eventual deterioration of the ceiling panels within the pool area, and the corrosion of many surfaces in the space.

Air Change, with its local engineering and manufacturing team were able to tailor a customised 'turn-key' solution for Avanti from design, through to installation and maintenance. The original brief from Avanti was simple:

1. Provide energy efficient heating for the pool, both air and water
2. Eliminate condensation and corrosion issues
3. Improve indoor air quality within the pool environment

Avanti also had the added challenge of space restrictions due to the limited available plant space.

Air Change's solution was to supply a split DX heat pump system. A fully ducted fan coil incorporating an air to air heat exchanger was installed in the ceiling space to manage the quality and temperature of the air.



To heat the pool water, Air Change installed a heat pump in the lower car park. The most innovative aspect of this design is that the two units are linked, to ensure the energy from the exhaust air in the pool room released during water evaporation is recycled back into the pool air and water. This system dramatically reduces the heating costs compared with conventional pool water heating systems. The air to air heat recovery further reduces the overall running cost by improving the overall system efficiency.

The installed equipment has an energy metering and logging device that tracks energy consumption. Current indications show an annual energy cost reduction of 51%. More importantly, the pool air environment is healthier and more comfortable whilst preserving the building fabric and this all occurs at a lower heating cost than before the system upgrade.

As the cost of gas increases on the Australian East Coast, the Air Change PoolPac Plus system offers an ideal solution to reduce energy running costs, minimise condensation and improve air quality in new pools and refurbishments.

Take a dive toward indoor pool efficiency with the Air Change PoolPac™ Plus



PoolPac™ Plus
100% Outdoor Air Reverse Cycle
PoolPac™ Plus Unit

Air Change is an Australian manufacturer delivering customised solutions in pool heating, ventilation and air conditioning for aquatic centres and residential pools. Our internationally patented heat recovery technology minimises energy consumption and can supply up to 100% fresh air, solving condensation and corrosion issues whilst reducing overall running costs.

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Multi Award Winning Technology

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