

TECHNICAL BULLETIN

Recotherm

INNOVATIVE POOL VENTILATION TECHNOLOGY FROM

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Keeping spectators comfortable in an indoor pool hall environment.



A great many local authority and school pools have spectator areas, with terraced seating in the pool hall.

Mostly this area is populated with mums, dads & grandparents watching their family swimming. Sometimes they have a 'Gala day', where a couple of hundred vocal school children, are loudly cheering their friends and family.

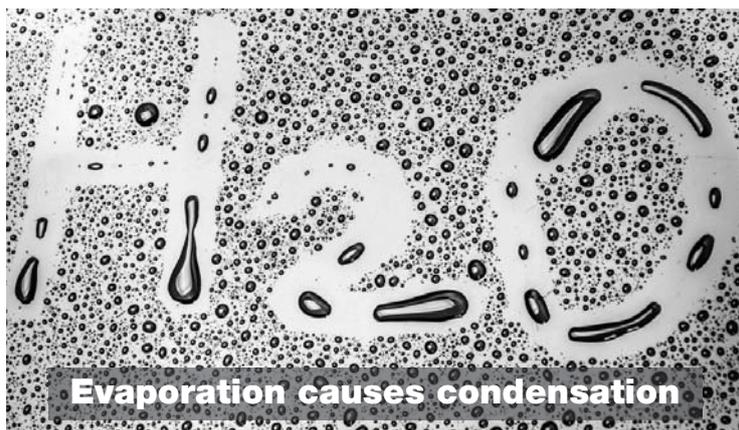
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How Recotherm can help.

In the majority of commercial indoor pools, to reduce the amount of evaporation, the pool hall temperature is kept around or slightly above the temperature of the pool water to moderate evaporation. Moisture evaporated from the pool surface leads to high humidity in the building that damages the fabric of the building and condenses on cold surfaces such as windows. This has to be balanced against the needs of the swimmers when they exit the pool, covered in water at 30°C. This results in the pool hall setting, commonly found in modern installations, of 30°C, with 50%-60% RH (relative

humidity), which prevents high humidity/condensation. Whilst this is comfortable for the bathers in or around the pool, it most certainly isn't comfortable for the fully clothed spectators sitting in the terraced seating.



The common solution.

You can't simply drop the temperature of the entire hall just for the benefit of a few people sitting in the seating area, as this would then be unpleasantly cool for the bathers.

Similarly you can't separately air-condition the spectator area because it is part of the pool hall with no physical barrier between the seating and the pool area.

A dual system would just end up fighting against each itself and

running up some unpleasantly high energy bills! It's like having the air con in your car on cool on a summer's day and opening the windows at the same time.

Because the issue is seemingly insurmountable, in the majority of designs the problem is just swept under the carpet and the engineer works out the required air volume based on evaporation rates and heat losses, and the system supplies this air into the entire hall via a single supply duct. The air that is supplied has to be at a higher temperature than the pool hall in order to offset

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the heat losses for the hall. It will usually be supplied at temperatures approaching 40°C! If this air is blown over the spectators it only increases their discomfort further.



So how do Recotherm overcome this problem?

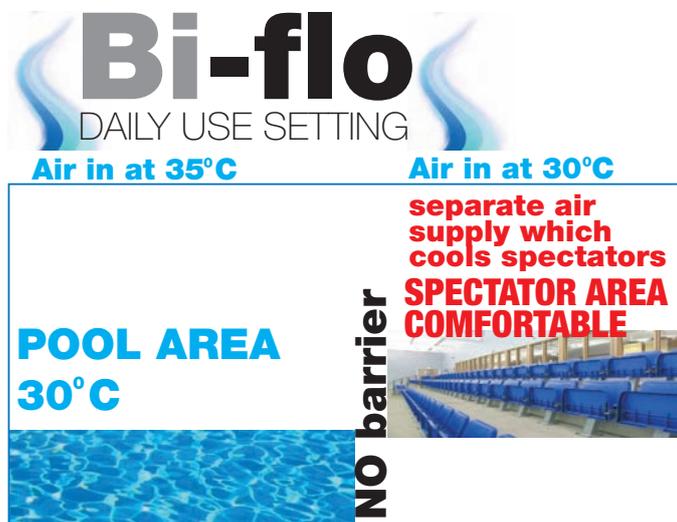
There is a solution that is both practical AND cost-effective, a Recotherm Bi-flo, which has two ducts and two heaters in one system. One duct carries the majority of the air to the main pool

Recotherm Bi-flo

hall, the other a smaller amount of air into the spectator area. Each duct has its own heater and separate temperature controls. This could be achieved with two separate air-handling units but this is costly to install, but with Recotherm Bi-flo it can be achieved by just one, saving considerably on costs.

How does it work?

Under normal operating conditions, the main pool duct carries the air to heat the hall to the required temperature, usually supplied between 35°C and 40°C. However, the spectator area duct carries air at the 'set point' of the pool hall. Therefore, if the pool hall is set for 30°C, the supply air temperature to the spectator area will be at 30°C. This doesn't actually cool the spectator area, but on the other hand, it's not being overheated, as it would be if the supply air for the main pool hall were used.



The magic bit is that what's also happening to the air movement over the spectator area - the separate air flow has a cooling effect - at a temperature that does not affect the pool hall temperature; and, as the air contains the same amount of moisture as the air supplied into the pool hall via the main duct, the dehumidification effect is not compromised!

Special control for special Gala days

On Gala days when you have a large number of people in the spectator area and only a few people actually swimming at any one time, the emphasis can change from looking predominantly at the comfort of the bathers to making the spectators feel more comfortable.

Recotherm Bi-flo can achieve this, by switching the control of the heater serving the spectator area from a sensor in the duct to a sensor mounted in the spectator area. This way, Recotherm Bi-flo can provide cooled ambient air to the spectators, which may or may not have been heated in the air-to-air heat recuperator, depending on the outside air temperature. We also recommend lowering the pool hall temperature to 26°C and switching the unit over to full fresh air which will have the effect of also lowering the relative humidity and making the conditions more comfortable for people who are fully-clothed.

This can all be done with the flick of one 'GALA DAY' switch which can either be a software programmed switch, or a hard wired physical switch.

GALA DAY SETTING



It's an extremely elegant, effective solution and most importantly it's cost-effective. Running costs are controlled to be as low as possible by only using one air handling unit, whilst providing conditions that are comfortable for both bather and spectator when appropriate.

