

## Air Change in the Blue Mountains



Every suite at Emirates Wolgan Valley Resort and Spa features a pool.

In addition to the formal criteria used to assess the luxuriousness of hotel resorts there are some informal indices that might also be applied. Into this second category might be filed such indicators as: the famous people who have used the holiday destination in question, and, of course, a positive answer to the question, “Will I have my own temperature-controlled private pool?”

For the award-winning Emirates Wolgan Valley Resort and Spa nestled in the foothills of the Blue Mountains, the answer to this last question is a resounding yes.

Throw in A-grade serenity, carbon-neutrality, world-class views and close attention to detail from the resort’s designers and you have yourself one coveted holiday spot. Little wonder that Wolgan Valley has earned a swag of trophies at the Australian Hotels Association National Awards for Excellence.

The resort consists of suites dotted around a restored heritage homestead, with accommodation taking up only 2 per cent of the total area available.

Air Change’s Shane Carmichael, M.AIRAH, was approached by the builder to provide an air conditioning solution for the indoor pool design. The nature and size restrictions of the site meant that the usual indoor pool air conditioning equipment needed to be customised.

Conditioning the air inside a heated indoor pool space is a particularly difficult and energy-intensive process in which three major components must be addressed: heat/water loss, indoor air quality and corrosion.

Carmichael chose energy recovery ventilators (ERVs) for the application.

“The altered design minimised duct work to make it compact in size, without compromising on efficiency,” Carmichael says. “The Wolgan Valley indoor pool required up to 8.5kW of airside heating (based on 0°C ambient/28°C indoor). The in-built heat recovery system incorporates an air-to-air sensible plate heat exchanger that reclaims up to 80 per cent of the

energy required to heat the outside air, and uses only 1.75kW, thus reducing CO<sub>2</sub> emissions as well as the impact on the environment.”

Carmichael says the heat recovery system also enables temperature control, maintaining the air temperature slightly above the water temperature by about 1 to 2°C, effectively reducing heat loss from the water to the air. He says temperature control reduces evaporation loss from the pool surface and enhances comfort levels for swimmers leaving the water. This greatly reduces the total water consumption.

For this installation the ERV provides a high ventilation rate of 250 L/s, with up to 10 air changes per hour.

“A prototype of the ERV was tested in one of the suites indoor pool over a six-month period to ensure the efficiency and performance was consistent,” Carmichael says.

Emirates ordered 34 Air Change ERVs to condition the indoor pool areas inside each suite. ■