

Air Change works out a sustainable option

Air Change and Fitness First have worked together to fine tune a sustainable 100 per cent fresh air system for the heating and cooling requirements of the health club's gym and indoor pool facilities in Rockdale, South Sydney.

Reducing energy consumption has been a key focus of Fitness First and its design team, IAQ Consulting.

On average, all of the air in a Fitness First club is completely replaced with healthy outdoor air every six to eight minutes.

With the use of the Air Change energy recovery technology, the 100 per cent fresh air systems are less expensive to operate than conventional air conditioning systems with the same fresh air supply.

Most recently, a de-superheater was adapted to provide free hot water from the waste heat of the Air Change fresh air rooftop AC unit.

Fitness First Rockdale was converted from a Bunnings store, and designers had to contend with the extra load and air distribution difficulties with 5m ceilings in the pool area and up to 10m ceilings in the gymnasium area.

The club's mechanical system was designed to capture waste heat from the air conditioners to provide hot water heating for the indoor pool and showers.

This now supplies 70 to 80 per cent of all hot water heating at Rockdale and a back-up heating system is initiated only if required.

The 96kW Air Change rooftop package unit fitted with a de-superheater can reclaim up to 50.4kW from the condensing energy.

The Air Change unit has a built-in pressure control to safe guard the refrigeration system.

Fitness First Rockdale can now provide up to 18,000 litres of free hot water heating per day.



ABOVE: Height factors... Designers had to contend with the extra load and air distribution difficulties with 5m ceilings in the pool area and up to 10m ceilings in the gymnasium area. RIGHT: Keeping crisp... On average, all of the air in a Fitness First club is completely replaced with healthy outdoor air every six to eight minutes.

Air Change had logged the equipment at Rockdale to obtain energy saving data over the past few months.

Air Change has estimated an overall coefficient of performance (COP) of 7.6 to 1 can be achieved with the use of the de-superheater option to the already energy reclaim system.

The reduction in condensation in



indoor pools is clearly visible at the Rockdale club.

The temperature in the pool area, serviced by the Air Change fresh air PoolPac unit, has a temperature of 28°C humidity, contrasting with the gymnasium air conditioned at 21°C.

The window area separating both areas is crystal clear without a drop of water, and there is no trace of condensation in the pool hall.

In addition to Rockdale, Air Change's fresh air rooftops and PoolPacs have been installed Fitness First centres at Pittwater Place and Castle Hill in NSW, Chadstone in Victoria, Innaloo in Western Australia and at Varsity Lakes and Fortitude Valley in Queensland.

Upcoming Fitness First projects using Air Change equipment are at the St Kilda centre in Victoria and Adelaide.

Enquiries; tel: 02 9531 4699, email: sales@air-change.com

Comparative Summary of Air Change's Fitness First energy savings

COOLING COMPARISON at ROCKDALE FITNESS FIRST

Air Change AC with Energy Reclaim	Conventional AC without Energy Reclaim
• Outside Air – 35°C / 40% RH	• Outside Air – 35°C / 40% RH
• Room Condition – 24°C / 50% RH	• Room Condition – 24°C / 50% RH
• Enters AC – 27 °C / 45% RH	• Enters AC – 35°C / 40 % RH
• 10.4 grams of water per kg of air	• 14.2 grams of water per kg of air
• Providing 8000 l/s of outside air (Main Gym area) = 172 kW	• Providing 8000 l/s of outside air (Main Gym area) = 342 kW
• Providing 2000 l/s of outside air (Studio area) = 41 kW	• Providing 2000 l/s of outside air (Studio area) = 81 kW
• Providing 12,000 l/s of outside air (A typical Fitness First Club) = 246 kW	• Providing 12,000 l/s of outside air (A typical Fitness First Club) = 489 kW