Green Air Handling Units aim for the stars

The challenge of climate change is demanding urgent action by building managers, owners and operators. Buildings – commercial and residential – contribute 71% of greenhouse gasses, according to speakers at the Green Cities conference held in Sydney in February 2007.

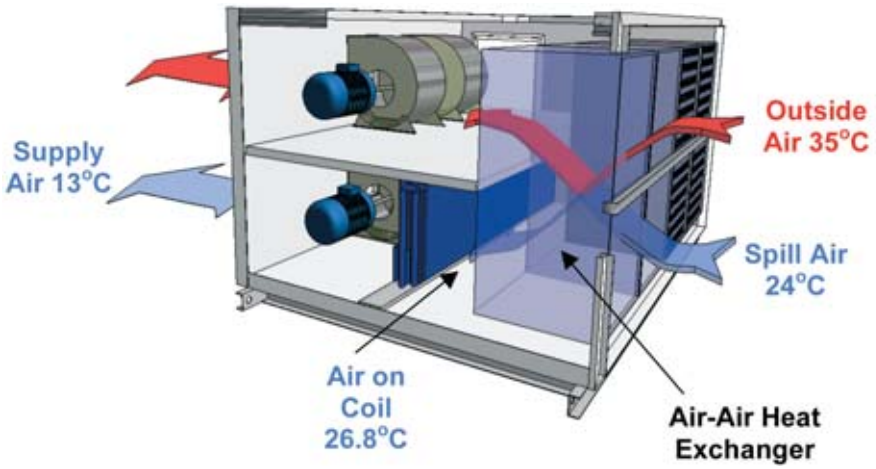
A study released in April 2007 showed that New York's 950,000 buildings are responsible for 79 percent of the greenhouse gases produced by the city with transportation including mass transit, cars and trucks, responsible for most of the remaining 21 percent of the emissions. "Even though New Yorkers already generate less than a third of the carbon emissions than the average American does, we can and we must do more," Mr. Bloomberg said in announcing the results of the study at a news conference in Lower Manhattan.[1]

Astute developers and property managers are making the switch to green buildings, and considering major refits of existing older and less efficient buildings to avoid their "looming obsolescence". Major opportunities can arise during initial design or major refurbishment, whilst many other small improvements in the area of energy efficiency can be achieved with little investment or no disruption to operations.

The new Building Code of Australia has set guidelines for energy usage, and the Green Building Council of Australia (GBCA) has introduced a star rating system for designers. New 5 and 6 star buildings are achieving around 30% lower CO_2 emissions than a typical office building, whilst still providing a higher grade of indoor air quality with more outside air. Credit points towards a star rating can be achieved on the basis of ventilation improvements relative to the minimum levels stated by Australian Standard 1668.2-1991.

Green Star Credit Points	Outside Air Ventilation improvement on AS1668.2-1991
1	50%
2	100%
3	150%

A new high profile and potential Green Star project has selected Air Change air handling units (AHU) as a companion product to the chilled beam system planned for this building.



Chilled beam systems need a dedicated outside air unit to provide cool dry air. The requirement is ideal for Air Change with its capacity to condition high levels of outside air efficiently with inbuilt energy or heat reclaim.

The "green" air handling units have an inbuilt air-air heat exchanger which takes hot outside air, and transfers this heat to the cooler spill air. The net result shown in the figure shown is an 8.2 degree reduction in temperature from 35ºC to 26.8ºC. This is where the major energy savings are made.

This inbuilt heat exchanger lies at heart of all Air Change units and reduces the cost of conditioning outside air by around 75%. All 3 phase units come with Variable Speed Drives as standard equipment, to control fan speed. Directly coupled fans and motors replace outdated pulleys and belts, reducing servicing costs. CO_2 sensors are a new addition to the Air Change AHU range to vary the requirement for conditioning and ventilation according to the population of the area.

Other heat reclaim products available are rooftop and pool package units, fan coil units and ventilators, with airflows from 100 to 12,000 litres per second. With all units made and designed in Australia, retrofitted units are made viable for many older buildings.

Some high profile clients with similar Air Change air handling units include:

- **Australian Institute of Sport** (Consultants: Acor, Installation: Climatech Group)
- **Bendigo Police Station** (Consultants: GHD, Installation: Burns Pty Ltd)
- **Shangri-Lah Resort, Fiji** (Consultants: Irwin Alsop Pacific, Installation: Kooline Refrigeration)
- **Launceston Hospital** (Consultants: Engineering Solutions Tasmania, Installation: Omni Contracting)
- **St Kevin's Aquatic Centre** (consultants: BRT Consulting Engineers, Installation: Allcare Air Conditioning)
- **Box Hill Hospital** (Design and Construct: Associated Mechanical Services)

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1 Report commissioned by New York Mayor, Michael R Bloomberg.