

Adiabatic Cooling used on Prestigious London Development



Bullet proof windows, purified air systems and 'panic rooms' are just some of the features of London's most expensive apartment, at One Hyde Park in London. The HVAC system is equally creative; Fläkt Woods is installing enormous air handling units, fitted with adiabatic cooling to reject the heat from the 3MW chillers.

■ FACTS

Customer:

One Hyde Park in London, England.

Need:

Tailor made solution for excellent indoor air quality.

Solution:

Air Handling Units fitted with adiabatic cooling.



“Large reductions in energy and maintenance costs”

The project features 80 apartments designed by architect Richard Rogers with communal spas, squash courts and a private wine-tasting facility. Its 27,000ft², £100 million penthouse will become the most expensive flat in the world, upon completion in 2010.

Originally, the design team proposed roof mounted dry coolers. However, as one of the development aims was to compliment the existing streetscape of Knightsbridge, creating a scheme that offers daylight and generous views, this idea was scrapped.

Because the dry coolers would interfere with the line of site, services engineer Cundall proposed a clever solution, using adiabatic cooling to cool down incoming air before it goes across the heat rejection coil. The airflow is a maximum 180m³/s to make sure that the maximum exhaust temperature was not exceeded.

With the Mandarin Oriental hotel next door and a residential block the other side, releasing air at the right temperature into the atmosphere was critical.

Working out what to do proved a complex design, as John English from Fläkt Woods explains “Space was extremely restricted, the idea of adiabatic cooling within the psychometrics of our EU air handling system was a bright idea, and fortunately we were able to provide this from our existing EU range”.



The EU air handling units are effectively supplying free cooling. This means that the adiabatic system will be called on only when the cooling source of outdoor air is fully exploited. So in summer months, the adiabatic cooling effect, is capable of removing some 8°C from the ambient air.

The adiabatic humidification process relies on the heat in the air to provide the energy for vaporization and absorption. In HVAC applications, the moisture is absorbed into the moving air stream. The absorption efficiency is dependent on the humidification chamber configuration, air temperature, RH and velocity of the air. The heat used to absorb the moisture cools the air.

“Our experience gained from HVAC installations using adiabatic technology, means it is easier to design and install adiabatic humidification systems with confidence”, continues John English. It is now possible to convert HVAC and industrial installations with steam humidification systems, to adiabatic systems with large reductions in energy and maintenance costs.

EU Air Handling Unit

The EU modular air handling unit gives you full flexibility with it's wide range of functions and options to find the ideal solution.

You can easily combine sizes with the air handling functions you need. The unit meets relevant CEN standards for AHU performance and is Eurovent certified. EU is hygienic and easy to service and clean.

Fläkt Woods Group

Fläkt Woods is a global company providing solutions for ventilation and air treatment for buildings as well as fan solutions for Industry and Infrastructure applications.

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