



## FANWALL TECHNOLOGY delivers energy efficient control for the Aquatics Centre



### Case Study

Eaton-Williams® FANWALL TECHNOLOGY® (FWT) has been used in a wide range of applications but few are as prestigious as when the company was selected as a supplier of air conditioning units for the Aquatics Centre for the London 2012 Games.

A total of 10 MODUCEL® LKP air handlers with FANWALL TECHNOLOGY were successfully used in the Aquatics Centre to provide controlled air conditioning for the tiered seating area. The Aquatics Centre was the second largest venue in the Olympic Park spanning some 200 metres in length with a 22,000 metre squared footprint and a volume of approximately 500,000 cubic metres. The facility includes two 50 metre pools and a 25 metre diving tank.

Externally, the building comprises a striking 160 metre long undulating wave length shaped steel roof covered with aluminium panels that rest on three concrete supports.

In legacy mode the centre will be transformed as a swimming centre for the local community with swimming lessons, family fun sessions, a crèche and café. In addition it will also host a number of national and international sporting events.

The design of the Aquatics Centre and the limited space restrictions eliminated most standard AHU designs.

Placing air handlers in rooms adjacent to the pool's concourse and close to competitors and spectators, posed a number of challenges. Noise levels were also a key consideration. The confined spaces also restricted the amount of ductwork.

Each of the units were fitted with filters, heating coils and incorporated MODUCEL's award winning FANWALL TECHNOLOGY.

FANWALL was specified, as the single or dual fans used in conventional air handlers are replaced by a modular array of small diameter fans, housed in individual cubes.

***There's no doubt that using multiple fans has advanced air handler technology.***

Each array of cubes can be specifically designed to match the performance specification and enable a reduction in footprint, freeing up floor space. The unique design combines flexibility with significant improvements in reliability, energy efficiency, noise levels and operating costs.

The use of fan arrays was pioneered in the USA by Huntair, Inc. a CES Group®, LLC company. FANWALL completely re-engineers how air moves, one of the key differentiator between FANWALL and other fan array systems is the direct drive fan itself and the use of system optimisation controls, Huntair's patented Coplaner Silencer® and the FBD backdraft damper.

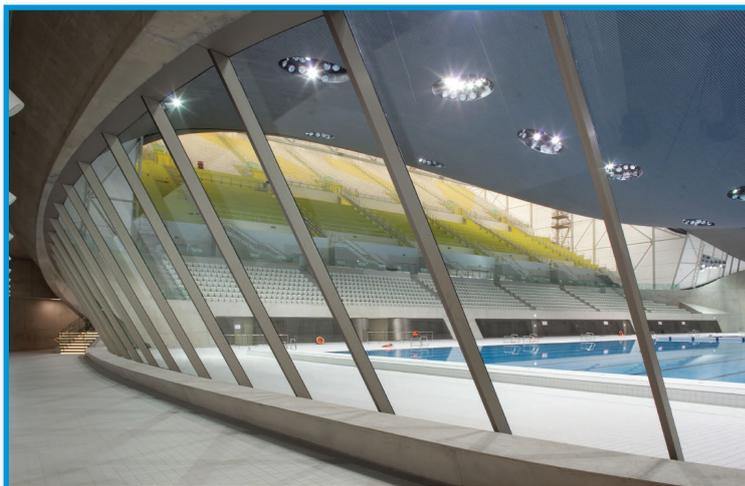
#### Key Benefits

- Energy efficiency
- Better airflow than a single fan
- Reduced noise – quieter than larger fans
- Built in redundancy/reliability
- Small footprint
- Reduced maintenance costs – smaller fans easier to replace

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The FBD backdraft damper used in a FANWALL TECHNOLOGY® system has a revolutionary blade profile that can actually improve air flow characteristics. The vertical blades of the damper open as airflow commences and closes when the fan is idle. This is achieved without the use of mechanical means or added weights. The damper has a smaller footprint than the industry standard versions and is designed with a bell mouth opening. Tests have shown this to have near zero effect with reduced acoustic impact. The FBD backdraft also has a low leakage rate and sealed ball bearings ensure little or no maintenance. FANWALL is produced at the Eaton-Williams® Stoke-on-Trent manufacturing plant and uses state-of-the-art fans, motors, cabinetry, controls, and accessories. These components have been successfully combined to provide the benefits of redundancy, quiet and vibration-free operation, optimised energy efficiency from design minimum to maximum flow, and low cost. The benefits for the Aquatics Centre is an integrated system that provides optimised energy efficient air conditioning units with built-in redundancy, quiet and vibration free operation.

Fresh air was brought in from the outside, heated to the required temperatures and supplied to the seating area. The FANWALL systems met the Olympic Development Authority's (ODA) objective of delivering reliable and energy efficient environmental control that complied with its overriding goal of delivering the greenest games in Olympic history to date.



### London Aquatics Centre

Basement: 3,725m<sup>2</sup>  
Ground Floor: 15,402m<sup>2</sup>  
First Floor: 16387m<sup>2</sup>  
Seating Area: 17,500 capacity  
Footprint Area: 21,897m<sup>2</sup>

### London Aquatics Centre Legacy

Basement: 3,725m<sup>2</sup>  
Ground Floor: 15,137m<sup>2</sup>  
First Floor: 10,168m<sup>2</sup>  
Seating Capacity: 2,500 capacity with ability to add further 1,000 for major events  
Footprint Area: 15,950m<sup>2</sup>