

NEW NATURAL VENTILATION SYSTEMS FROM ADVANCED AIR



The Midlands Co-operative Super Store at Oakham, Rutland, is one of the most energy efficient Co-op stores in the region.

Natural ventilation in the shopping areas is achieved through special dampers and louvres supplied by Advanced Air. The system incorporates low level intake modulating dampers with high level discharge through a large area of outlet dampers and louvres running along the length of the building on both sides.

The aerodynamic characteristics of the damper/louvre arrangement were critical since the ventilation requirements were to be met by the "stack effect" or buoyancy of the air as the temperature increased in the building. Any additional ventilation from the "wind effect" was a bonus over and above the design parameters. The characteristic of the dampers were that firstly it needed to have a very low pressure drop so that it did not impede the natural flow of air. Extruded aluminium aerofoil sectioned blades were a feature of the 2000 series Advanced Air damper providing the low resistance that was required.

The dampers also needed to have low leakage characteristics. This was achieved with silicon blade tip seals and stainless steel side/blade edge seals. With this positive seal arrangement the dampers complied with Class 4 EN1751 with very low leakage characteristics of 3.8 l/s/m₂ at 500 Pa.

The dampers also had to be very robust and capable of being supplied in large single sections of 1800 x 1200mm. This involved bolting the blades onto horizontal shafts which gave rigidity to the damper blade assembly.

Derek Walker, Associate Director of EDP Consulting Ltd, the specialist consultants on the project said: "We needed a damper and louvre system that could be easily installed into the cladding and more importantly had low pressure loss and low leakage characteristics. The Advanced Air System 2000 met all of our requirements and we were also able to include some refinements which were particular to this project and that gave us a high quality and cost effective solution"

The building also has many other energy saving and sustainable features including heat recovery, daylighting, free cooling, solar water heating and a rain water recovery system, to mention just a few.

The architect was KPW and mechanical services contractor was William Bailey Ltd.

Press release issued by:

Advanced Air - Susie Whyman
Tel: 01842 855586
Fax: 01842 855546
Email: swwhyman@advancedair.co.uk

TF Sales & Marketing
Tel: 07909 448185
Email: tjfarthing@talktalk.net

Advanced Air UK Ltd
Burrel Way
Thetford
Norfolk
IP24 3QU

Tel: +44 (0)1842 765657
Fax: +44 (0)1842 753493
Email: info@advancedair.co.uk
www.advancedair.co.uk

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