passivent

Case Study
Honda Showroom, Romford
October 2010

Passively achieving the power of dreams

Passivent natural ventilation is helping Honda realise the dream of reducing carbon footprint whilst simultaneously achieving an energy demand reduction of over 80%, a 'very good' BREEAM rating and a 'good to best' sustainability appraisal.

As part of its market strategy, Honda UK has built a new 600m^2 car showroom on a brownfield site in Romford, Essex. Not only has the showcase building had to comply with Honda's own commitment to reducing its carbon footprint, but with the local Council's requirement that a minimum 10% of energy needs are produced using on-site renewable energy.

The services solution, developed by building services design specialists Cunnington Clark, has been found largely by utilisation of Passivent natural ventilation technology. As a result, conventional air conditioning cassettes for the showroom, staff and sales offices, meeting room and customer service areas have been replaced with Passivent Aircool inlet louvres at low level and Passivent Airstract roof terminals.

The 36 modulating wall Aircool units draw fresh air into the space on demand, maintaining internal air temperature and CO_2 at preset levels. Natural air movement principles, in which warm air rises, are harnessed to exhaust the warm, 'used' internal air through the six roof-mounted Airstract terminals with ceiling louvres.

The Passivent system functions 24/7, allowing night air to be drawn in when the building is unoccupied to provide 'free' cooling.

Underfloor heating powered by a heat pump ensures the showroom remains comfortable in the cold winter months, with the heat pump providing chilled water through the pipework in peak summer temperatures to maintain the space temperature below 28°C.

The combination, coupled with the building's increased thermal mass is predicted via thermal modelling to reduce energy demand from 61,551kg/CO_2 to just 11,058kg/CO_2, a saving of 82% compared with a traditional showroom design. A BREEAM (Building Research Establishment Environmental Assessment Method) Retail Design & Procurement Pre-Assessment classified the building as thus achieving a 'very good' rating. A regional sustainability appraisal using the SEEDA (South East England Development Agency) checklist concluded a sustainability practice level of 'good to best' for the project.

Dean Barker of Cunnington Clark observed, *"We aimed to create a benchmark energy model for Honda. The design brief was to design the services for an environmentally friendly building in accordance with the planning requirement to achieve at least Building Regulations Part L and the Greater London Assembly's energy standards, and to show Honda's commitment to reducing its carbon footprint. The showroom is also to be a showcase for Honda's new corporate image.*

We modelled the building using Passivent motorised louvres at low level and roof mounted terminals. The concept has been used to great effect in office and school environments and we felt the same technology would work in a showroom environment."

The thermostatically controlled Aircool units open automatically to draw replacement, fresh air into the building. Excellent weather protection and security are provided by external weather louvres, and internal louvres provide a U-value of 1.1W/m²K to minimise heat loss when closed. A thermally broken frame, and insulated and orientated louvres minimise the risk of nuisance condensation and draughts.

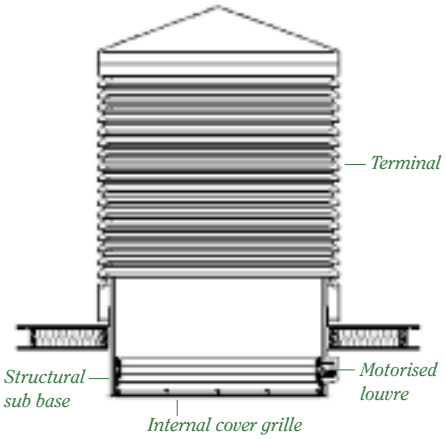
Environmentally-friendly energy saving Passivent Airstract terminals require no power other than natural forces of buoyancy, wind and convection to move the air.

Patented double-bank louvres provide maximum rain rejection whilst allowing air to flow freely. Independently tested at BSRIA.

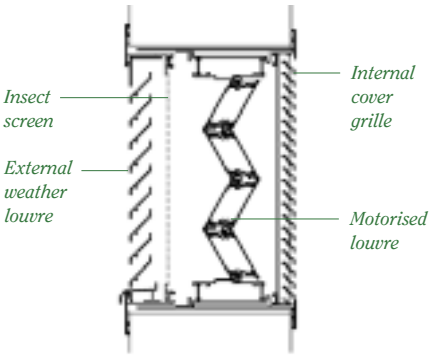
Terminals are resistant to continuous wind loads at 50m/s, demonstrated by independent BRE tests.

External components are manufactured from maintenance free re-processed fire-retardant ABS, a robust and durable material proven on other exposed roofing products.

Passivent Airstract Terminal



Passivent Wall Aircool Unit



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