

Case Study - Hammerson Retail

Breathing Buildings worked in partnership with Max Fordham, to create bespoke, energy-efficient ventilation systems for five of Hammerson's high-profile shopping centres.



PROJECT

Concept studies to investigate natural ventilation opportunities in a number of UK shopping centres

LOCATION

Five Hammerson shopping centres; The Oracle in Reading, WestQuay in Southampton, Queensgate in Peterborough, Brent Cross in London and Bullring in Birmingham

SECTOR

Retail

FEATURES

Research, Consultancy, Design

HISTORY

Project started in Spring 2010

Concept studies carried out over 12 months

Comprehensive report produced for each site with individually tailored solutions

HAMMERSON'S VIEW:

Incorporating natural ventilation into our buildings will reduce our energy bills and our carbon footprint as well as our exposure to any pricing mechanisms on carbon that the Government have or may introduce. It will ensure that our buildings can cope with projected changes to temperatures over the next three or four decades due to the effects of climate change. Further, simplifying the mechanical and electrical systems on site will reduce costs associated with maintenance and on-going programmes of plant replacement.

Project Overview

Shopping centres present key challenges in effectively and efficiently providing adequate ventilation, whilst limiting the potential for summer overheating and cold draughts in winter.

Breathing Buildings was commissioned by Hammerson to investigate and establish what energy savings could be made by implementing natural ventilation systems at five of their shopping centres.

Each of the Hammerson centres was examined and thermal modelling calculations carried out, using Breathing Buildings' in-house modelling expertise. This determined what improvements could be made by

adopting natural ventilation technology and where greater efficiencies could be introduced by retaining some mechanical ventilation.

The Challenge

Huge areas of glass with large heat gains in summer and losses in winter, large heat gains from lighting, vast numbers of people entering and leaving, and doors more often open than closed at certain times of the year, are just some of the problems faced by owners of retail property. The size and structure of the buildings means that heating and ventilation systems are often inefficient and working overtime.

Breathing Buildings' Consulting Engineer, David Hamlyn says:

“The key challenges were limiting the potential for summertime overheating and cold draughts in wintertime. On top of this each retail centre has its own unique challenges ranging from the fabric quality of the centre, the number of floors and entrances and the extent of glazing through to the state of the ventilation equipment currently used.”

Dynamic Thermal Modelling



Water bath model displaying the natural air flow patterns within a building

The Solution

Given that most retail centres are currently mechanically ventilated, Breathing Buildings partnered with sustainable building design specialists Max Fordham for advice on mechanical ventilation methods and to help develop hybrid solutions. The result was a combination of the best elements of natural and mechanical ventilation to most appropriately fit the architecture of each individual mall.

Natural Ventilation Delivered

Breathing Buildings took a holistic view to discover the best way to improve energy efficiency and made cost savings. For each site a comprehensive and detailed report was produced that considered the unique challenges for each location.

Client Partnership

David Hamlyn says “Our brief was to see what energy savings could be delivered predominantly within the sphere of natural ventilation. The collaboration with Max Fordham allowed us to offer more thoughtful options and provide a solution that went beyond natural ventilation on its own. The collaboration also demonstrated our willingness and ability to adopt hybrid technologies that meet the requirements of the client and of the buildings.”

Phil Armitage, Senior Partner at Max Fordham, says: “Our aim is to facilitate architecture through innovative engineering, whilst at the same time addressing global warming issues. Working with Breathing Buildings was a fantastic opportunity to address the energy usage of such large-scale sites. Together with Breathing Buildings we provided functional solutions to challenging problems.”

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