

Case Study- Houghton-Le-Spring Primary Care Centre

A new primary care development at Houghton-Le-Spring achieved a BREEAM 'Outstanding' at the design stage for best practice in sustainable design and environmental performance for buildings. Breathing Buildings played a crucial part in this via the low-carbon natural ventilation system developed for the project.



PROJECT	Houghton-Le-Spring Primary Care Centre
LOCATION	Sunderland
SECTOR	Healthcare
FEATURES	Consultation, design and implementation of a bespoke, innovative low carbon ventilation system
HISTORY	Project began in 2009. Project completed in 2011



Internal view of thermal wall

Key Message

Breathing Buildings instrumental in Health Centre design achieving BREEAM 'Outstanding' rating.

Introduction

Sunderland Primary Care Trust (PCT) at Houghton-Le-Spring has recently seen the completion of a development to provide a range of local healthcare services. The building includes large public spaces for a café and waiting areas, in addition to the patient and consulting rooms.

Working for the PCT, Breathing Buildings was asked to develop a design strategy for natural ventilation particularly of the public areas but also other spaces within the building. Following the completion of this initial stage, Breathing

Buildings worked closely with the project team to design and deliver bespoke ventilation equipment.

The Challenge

- To maintain an interior temperature below 25°C
- To provide a low-carbon solution

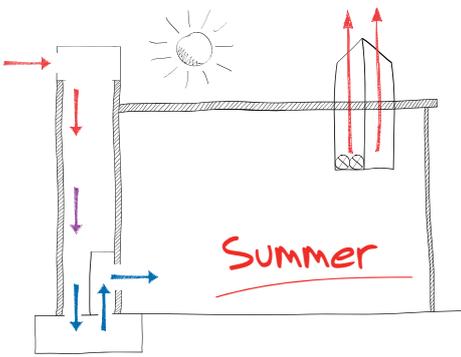
An extremely challenging brief was given by the PCT, stating that the interior temperature is to remain below 25°C, for all but 100 hours per year in order to ensure patients are kept comfortable and in well ventilated conditions at all times.

Traditionally, this would have been achieved through the use of mechanical ventilation and air conditioning. The objective of the design team here, however, was to create an innovative, low-carbon solution for summer cooling through the use of natural ventilation and thermal mass.

Breathing Buildings Managing Director Shaun Fitzgerald says:

“We are delighted to have been chosen by Willmott Dixon to be involved in this project and to have played a part in the achievement of the industry-first Outstanding BREEAM rating.”

Thermal Wall: Low Energy Ventilation System



The Solution

Breathing Buildings designed a bespoke 50m long thermal wall, which was constructed along the spine of the building. This provides ventilation for the consultancy rooms as well as the open-plan waiting area and café. The wall is split into 49 individual shafts to separate the ventilation for individual spaces and therefore reduce the potential for infection transfer.

Natural Ventilation Delivered

In order to optimise both comfort and energy savings, different strategies have been applied for summer and winter ventilation.

In summer, the thermal wall is used to passively cool the incoming air. Cold air is drawn down the shafts into the wall during the night and

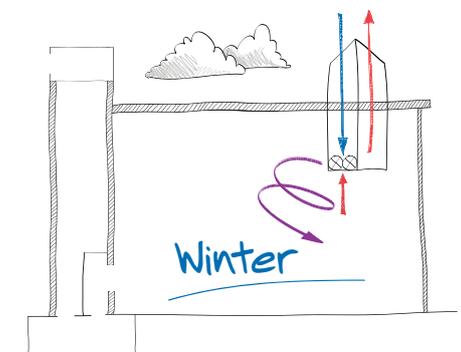
the cooled shafts are then used to reduce the temperature of the warm outside air which is brought into the building the following day.

In winter, a mixing ventilation strategy is used involving six Breathing Buildings' unique e-stack R Series units within the open plan areas and café. Cold air is brought into the buildings from outside and is diluted with interior warm air within the buildings before it reaches the occupants.

Partnership

Andy Mackintosh, Director at Willmott Dixon, said:

“Willmott Dixon is delighted how the whole team has worked together to achieve BREEAM Outstanding. This is the first healthcare project in the UK to achieve BREEAM Outstanding.”



Awards for Houghton Primary Care Centre

BREEAM Awards 2012

Healthcare

Construction Excellent 2012

The Legacy Award Sustainability

CIBSE North East Building Services

Best Practice

Architectural plan



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