

*Holistic  
strategy  
at the  
Greenpower  
Centre*





## *Holistic strategy at the Greenpower Centre*

Greenpower promotes engineering as a rewarding career to anyone aged 9 to 25, while also focussing on sustainability, teamwork and the community. Following the design and build of electric racing cars at all levels, the project culminates in events at well known venues such as Silverstone and Goodwood, whether it is driving skills tests for primary schools or the unique four hour endurance race for older students and corporate teams.

Passivent has a serious interest in engineering, design and environmental issues and is delighted to support this initiative sponsoring two Greenpower racing teams.

In 2009 Passivent were approached by Fordingbridge plc and Emission Zero to help design the ventilation strategy and other aspects of a permanent and inspiring headquarters for Greenpower, just off the busy A27 near Fontwell in West Sussex, where the building itself would inspire and encapsulate the organisation's objectives.



## *Building features*

- FSC sourced timber frame
- Natural passive ventilation system
- High thermal mass floor
- High insulation levels in floor, walls, roof and glazing
- Underfloor heating
- Rainwater harvesting
- Green 'wildflower meadow' roof
- Solar shading for summer and optimum orientation for solar gain in winter
- Excellent air tightness levels
- Air sourced heat pump system
- Intelligent lighting systems
- Fully integrated Passivent building energy management system (BEMS)

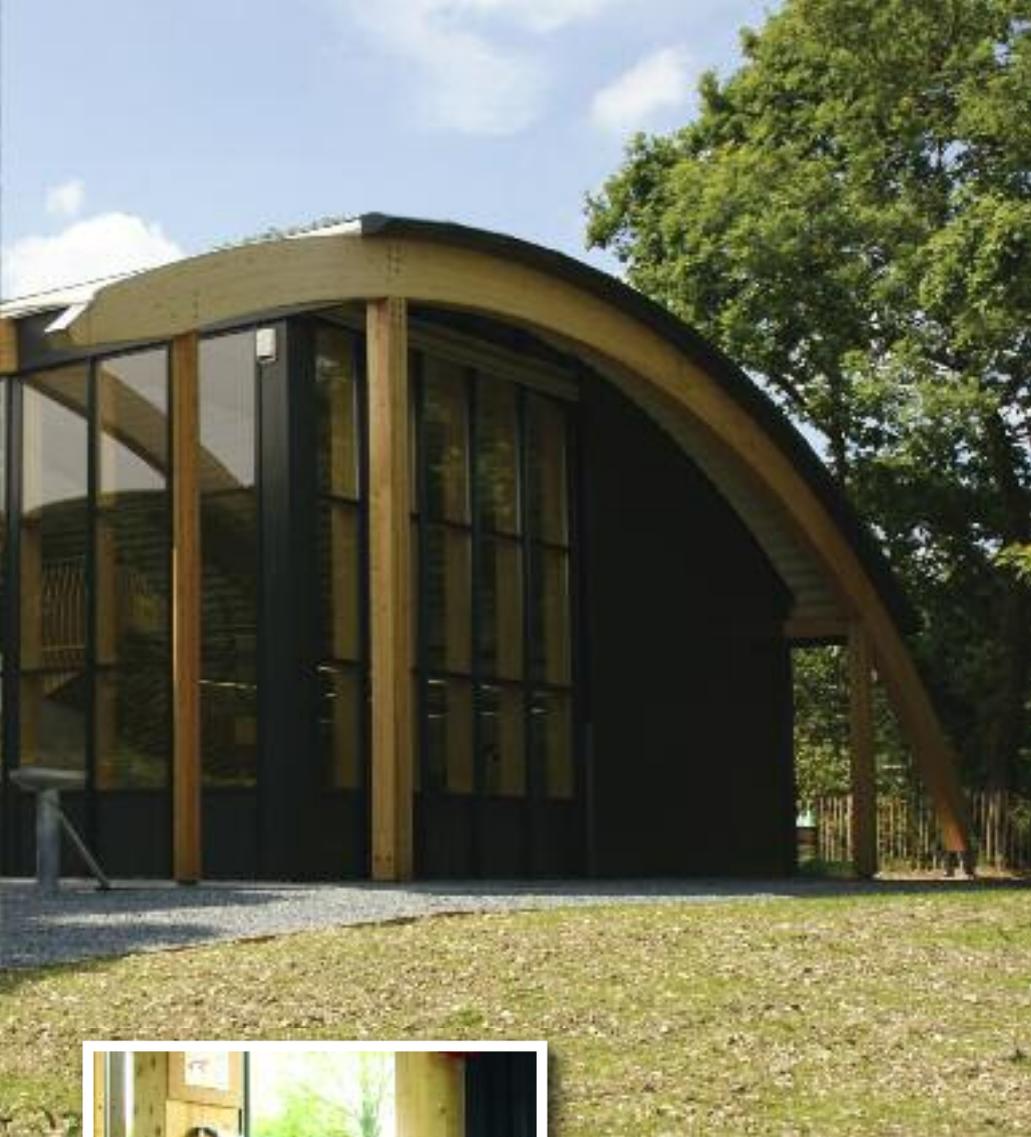
The Passivent system harnesses natural air movement principles of convection and buoyancy to effectively ventilate the building keeping temperatures and CO<sub>2</sub> levels within pre-determined set points.

## *Ventilation strategy*

A combination of Aircool insulated controllable louvres in the walls at low level and circular Airstract terminals on the green roof provide a passive stack ventilation strategy which is one of the most effective methods of natural ventilation. The strategy can ventilate up to twice the depth when compared to cross ventilation and is particularly suited to night cooling in the summer months which is essential in the Greenpower building because of the high proportion of glazed façade.

Due to the location of the site close to the busy A27 in West Sussex it was necessary to acoustically attenuate the roof mounted Airstract terminals to maintain internal background noise levels within agreed levels.





## Passivent iC7000 controls

An advanced Passivent iC7000 control system not only monitors the building's air quality and temperature constantly it also controls the underfloor heating systems. The iC7000 utilises the latest BEMS computer communications protocols and is fully networkable through the building thus saving hard wiring. This together with intranet/IP addressable units makes for a fast, simple and fully expandable control scheme. Whilst set points for the buildings temperature, heating system and CO<sub>2</sub> levels are pre-set in consultation with the design team, these can be overridden either temporarily or permanently to suit the needs of the building via the control system interface.



More energy efficient

A+

A 0-25

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G Over 150

Less energy efficient

Net zero CO<sub>2</sub> emissions  
 19 This is how energy efficient the building is.

## Energy performance

The Greenpower Centre has been awarded a Class A energy performance certificate with a rating of 19.



## Comprehensive strategy

- Free appraisal and quotation
- Design consultation at client's office
- Research and development
- UK product design, manufacture and supply
- Bespoke solutions
- Comprehensive environmental solutions
- Thermal modelling service
- Project management
- Performance and offsite monitoring
- Maintenance contracts
- Controls, supply, supervisory visit and commissioning
- Mastercare installations
- Ventilation and controller specification
- After sales assistance
- Extensive warranties



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**BPD**

A member of the Building Product Design Group

