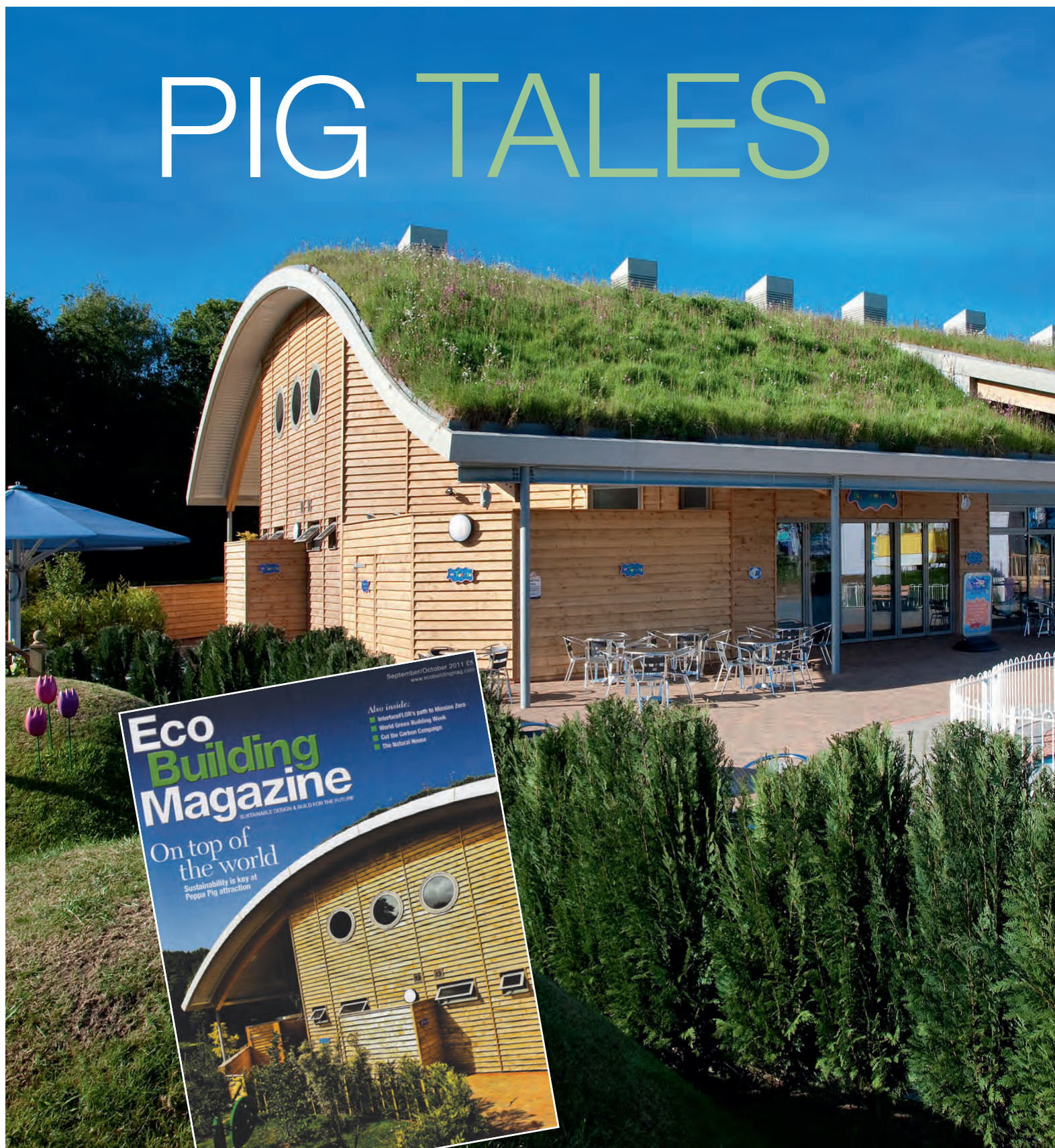


# PIG TALES



As the children's TV phenomenon Peppa Pig broke UK records with merchandise sales of £200m for 2010, the world's first Peppa Pig World opened in Hampshire featuring one of the most innovative and sustainably viable buildings in the south

Words: Gary Wilburn, creative director, HPW

**P**aultons Family Theme Park, which lies within the New Forest National Park, launched Peppa Pig World in April – a seven-ride attraction themed around the TV show and its characters, representing a £6m investment for the family-owned business.

The main building within the three-acre attraction, which incorporates George's Spaceship Play Zone, a themed indoor play area, was designed to both minimise the structure's carbon footprint and help in reducing ongoing running costs.

The combination of locally-sourced materials and low-energy dependent innovations enabled HPW to combine the requirements of a low-carbon building in keeping with and supporting the natural environment with those of an inviting, child-friendly commercial development.

In addition to its primary function as the park's only all-weather attraction, the building also accommodates Daddy Pig's Big Tummy Cafe, a 1,900ft<sup>2</sup> restaurant and kitchen; Peppa Pig's Toy Shop, a 2,200ft<sup>2</sup> retail area; and visitor toilet facilities.

A steel frame, laminated timber beams and hybrid glulam were used for the building's framework – utilising timber wherever the framework would still

be visible once the structure was complete to help blend the building into its wooded location.

The building's form was also designed to minimise its visual impact on the area while meeting a brief for a high-level mezzanine party area and multi-level children's play structure. The building's curved wildflower roof, which is planted with indigenous vegetation and flowers found in the surrounding National Park, is the most striking of its features designed for maximum visual effect.

The shape matches the natural contours of the surrounding landscape, which together with the sprouting plant life, seamlessly merges the 10,000ft<sup>2</sup> building into its natural scenery and screens it from residential properties on the other side of the lake. The lowest eaves wall faces these houses, while the higher curtain-wall glazing faces the entrance to the site giving the building greatest prominence to guests as they enter Peppa Pig World.

The wildflower turf laid on the roof was grown locally by a Hampshire specialist. Unlike traditional turf, it was produced without using soil; instead it was grown in a compost mix over a membrane, creating a root-like mat which was then transferred to the building, providing an instantly mature effect.

The building's curved wildflower roof is designed for maximum visual effect ■



With more than 30 varieties of wildflower, plus four different grasses, the building is now home to a nectar-rich landscape



## FACT SHEET

**Architect:** HPW  
**Structural engineer:** Wedgewood Associates, Romsey  
**Project management & procurement:** Paultons Park in-house team



■ Seven windcatchers protruding from the rooftop reveal the building's self-ventilation system

With more than 30 varieties of wildflower, including wild red clover, bird-foot-trefoil and yellow rattle, plus four different grasses, the building is now home to a nectar-rich landscape encouraging biodiversity across the whole park. In the six months since the turf was laid, the roof has already attracted bumblebees, hover flies and honeybees, as well as a range of insects – all of which will attract more wildlife in the future. Because of the protection it provides ground-nesting birds from predators, similar roofs have attracted red storks, partridges and lapwings.

Internally, the curvature of the roof allows for the main play area to stretch the full height of the building, which at its centre reaches 8m. Split over three levels, this area is able to accommodate a maximum of 300 children at once. The high ceiling also allows for two mezzanine floors: one above the cafe and kitchen used as a private party area, and the second above the shop used for storing retail stock.

The reduced height at the eaves provides the cafe and shop at either end of the building with a manageable commercial height, while outside, the overhanging eaves provide shelter to visitors queuing. From an aesthetic perspective, the roof also gives the park vital

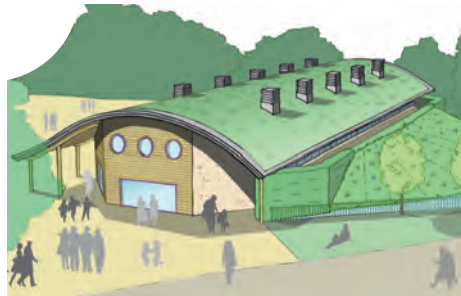
continuity, as it reflects the characteristic landscaping of other attractions in Peppa Pig World as well as some existing parts of Paultons Park that also used the same local wildflower turf.

Even more locally-sourced was the building's larch timber shell, a tree farmed in the New Forest, which was grown, harvested and sawn within 10 miles of the site and installed untreated, using the wood's natural qualities for the building's rainscreen cladding.

For temperature control, super-insulated walls, floors and roofing – in addition to the inherent insulation qualities of a wildflower roof – ensure a secure envelope, and effectively restrict heat loss in winter and heat gain in summer.

One of the fundamental design factors for the Peppa Pig World building was its orientation. From the initial brief, the structure was to be east-west facing, but in order to exploit the full potential of the natural resources, and therefore limit its reliance on non-renewable energy, HPW architects designed the building to be perfectly north-south aligned.

Double-glazed above the industry standard for this type of development, the high, north-facing front maximises natural illumination while also minimising



unwanted heat gain. As a result, there is little need for electric lighting, but, for dull days and winter months, there are large, low-energy hi-bay lights installed to give ambient level lighting as required.

The north-south orientation also lends itself to the building's self-ventilation system, which is visible from the seven windcatchers protruding from the rooftop – acting as a statement of the building's sustainability credentials. Extracting stale air and taking in fresh air, the windcatchers are positioned to maximise the natural flow of air, but also have built-in photovoltaic panels to power the fans when windflow is low.

Working in synchronisation with this system, windows are integrated in the facade at first-floor level on the front and rear elevations of the building – these open and close to help optimise natural passive ventilation.

Other examples of the use of natural resources include the roof's in-built rainwater harvesting system. As well as rain naturally irrigating the roof's vegetation as it falls, the system ensures that not a single drop of water that lands on the building is wasted. Any excess water not required immediately for irrigation is drained off through the external steel columns at the edge of the overhanging roof and into a man-made

lake, where it is stored until needed, along with surface drainage surrounding the building as part of the site's sustainable urban drainage system (SUDS).

During dry periods, a 60mm, pressure-regulated piston pumps the water from the lake back up to the roof and into a self-cleaning dripline installed under the vegetation. A computer is then able to turn on and off the irrigation to different parts of the roof depending on what vegetation is growing where and how much water each section needs.

High-level innovation at every stage of this development – from when the north-south orientation was accommodated at the earliest design phase, through to the careful selection of seeds planted on the roof – has delivered a building that is not only nearing carbon-neutral, but actually supports the local eco-system.

And the benefits extend beyond preserving the environment: the cost of installing windcatchers was one fifth that of a mechanical equivalent and, with little or no maintenance required, it is an investment the park will profit from for the lifetime of the building.

With a target audience of young children and families, this building provides a platform for promoting the value of sustainable living at grassroots level ■

## PRODUCTS / SUPPLIERS

**Watermatic**  
Water pump system  
[www.watermaticltd.co.uk](http://www.watermaticltd.co.uk)

**Coronet Turf**  
Wildflower turf  
[www.wildflowerturf.co.uk](http://www.wildflowerturf.co.uk)

**Monodraught**  
Windcatchers  
[www.monodraught.com](http://www.monodraught.com)

## CONTACT

**HPW**  
[www.hpw.co.uk](http://www.hpw.co.uk)