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B U I L T E N V I R O N M E N T M A T T E R S



THE ONLINE ENVIRONMENT
MAKING CONNECTIONS IN A VIRTUAL WORLD

Is it a bird? is it a plane?

When looking at architect, David Hertz's most recent project, you would be forgiven for wondering, is it a bird? Is it a plane? Well, yes actually, it's a plane and an innovative new home. The private residence has been designed for a female client, who requested curvilinear/feminine shapes for the building, much like the wing of a plane. After some initial research, it became apparent to Hertz that an aeroplane wing could be used. Further research was undertaken on different wing types and it was decided that the wing of a 747, at over 2,500sq ft, was an ideal configuration to maximise views and provide a self-supporting roof with minimal additional structural support needed.

The house is under construction on a 55-acre site, previously owned by eccentric designer Tony Duquette, who developed over 21 unique structures in the area incorporating objects from all over the world. In 1995, the Malibu fire destroyed all but a few steel 'Pagoda'-like structures. By incorporating many of the previous pads and retaining walls, the new 747 house will cause minimum impact to the existing topography and landscape. The wing structures will 'float' on top of simple concrete, shot-crete, and rammed-earth walls that are cut into the hillsides. The floating roofs will derive simple support from steel brace frames attached to

strategic mounting points on the wing where the engines were previously mounted. Frameless, structural self-supporting glass will create the enclosure from the concrete slab on grade into the wing as roof.

After reviewing various aeroplanes, and the amount of metal that they would need to use, the architect decided to recycle a 'retired' craft. Retired aeroplanes are re-sold at the price of their principal raw material, aluminium. Hertz explained: "As we analysed the cost, it seemed to make more sense to acquire an entire airplane and to use as many of the components as possible, like the Native American Indians used every part of the buffalo. Therefore, the property is to consist of several structures, all made with components and pieces of a Boeing 747-200 aircraft." He continued: "The recycling of the 4.5M parts of this 'big aluminium can' is seen as an extreme example of sustainable reuse and appropriation."

Both wings will be used on the main residence, other elements of the plane will be used to build an art studio building, a guest house, an animal barn and a meditation pavilion. In fact, the new buildings incorporate so much of the craft that the roof of the new house had to be registered with the FAA (Federal Aviation Administration) so that pilots flying overhead do not mistake it as a downed aircraft.



The final straw

York Council's flagship sustainable development, the EcoDepot, officially opened at the end of 2006. The old depot building was poorly insulated, totally dependent on fossil fuels and used vast quantities of tap water to clean vehicles. The new building, a partnership between the City of York Council, Yorkshire Forward, architect White Design and contractor Carillion, has completely changed this.

The building uses prefabricated straw-bale panels as eco-friendly cladding around a glulam timber frame. The panels are made from locally sourced straw-bales using the Modcell construction method. Modcell works by using a

wooden box in which windows, doors and straw-bales can be arranged, compressed and rendered with lime to create individual units. The use of such environmentally-friendly materials, has saved over 1,746t of CO₂ in building materials alone. The walls are so highly insulating that they will save over three times more energy than required by current building regulations. The full-height window sections were selected to complement the straw-clad panels and maximise natural light and ventilation. This is furthered through window sensors which can detect high temperatures and CO₂ levels and open accordingly.

Solar panels across the roof, which represent the largest PV system in Yorkshire, together with a 15kW wind turbine, help to generate energy for the site. Indeed, site-generated electricity represents 12 per cent of the power currently consumed at the depot. Solar-thermal panels have been erected on ancillary buildings which will provide a sufficient amount of hotwater for the development, saving energy and heating costs.

A substantial array of new workshop buildings have been designed to

shed water to a central underground rainwater-harvesting tank. The rainwater-collection system utilises and recycles water which is then used to wash depot vehicles. Previously, council vehicles were washed at the depot using tap water costing the council a total of £25,000 a year. With the new system, vehicles will be washed with grey water, reducing consumption by over 50 per cent.

York's EcoDepot is the largest timber-framed and straw-clad structure in Europe. It has received a wealth of praise from the public, and is a shining example of cutting-edge sustainable design. The impressive building will be used to manage the council's housing, waste and roads needs. It is also home to the new Sustainable Construction Interpretation Centre. The Interpretation Centre aims to raise awareness of sustainable development, climate change, sustainable-construction techniques and renewable technologies to a wide range of audiences, from young school children through to architects and developers.

For more information visit: www.york.gov.uk