



who has got energy for life?

name

George

occupation

Museum Manager

organisation

National Railway Museum

www.locomotion.uk.com

introducing George

George is the Manager of Locomotion at the National Railway Museum's newest venue located in Shildon which opened in September 2004. Although George does not manage the continually changing collection of 50 or so historic trains he admits that as Museum Manager "everything else ultimately stops at my door".

"as utility costs have gone up it has proved to be a god send"

Something that would change the world happened here at Shildon 180 years ago. The Stockton and Darlington Railway Company had just started the first steam hauled passenger railway not far from here. Subsequently Shildon became the centre for engineering, building and repairing the Nation's locomotives right up until 1985.

Locomotion covers an area of two football pitches and is one of the **largest purpose built venues in the UK**. It has "become a **real iconic building** in the town, its shape is based on the classic arch that you would see at a railway station".

However its' fabric looks very much to the future, using materials and components which make it very energy efficient, very sustainable and very comfortable. "It works very well even on the coldest of days".

The walls are built from Macadian blocks improving the buildings thermal efficiency, it is heated from pipe work buried in the floor, yet "the floor is strong enough to trot elephants across". The roof is massively insulated way beyond the required standards; the rainwater is collected, recycled and pumped by a wind turbine and across a third of the roof runs a Solar Photovoltaic (PV) array.

"I only wish the PV array was twice the size as it has been absolutely super"

George has worked in Museums for most of his life and so knows a thing or two about running a successful attraction like this on an incredibly tight budget. "**Other museums do worry about utility bills going up** whereas **we do have this slight cushion provided by the PV**. As utility costs have gone up it has proved to be a god send. **I only wish the PV array was twice the size as it has been absolutely super**".

"The Solar PV, the wind turbine and the rain water harvesting system have been completely trouble free and very reliable. If someone said here is the money for another PV array I would have it tomorrow".

Finally George's tip if you are designing a new building "**go for it, for a start, I would have another turbine, the proven stuff like the PV and the smart building controls is the way to go**. It is far easier to incorporate those into the capital cost of a new build than try to install afterwards".

It all seems to be paying off since the Museum opened in 2004 "it has consistently exceeded forecasts for visitor numbers and now runs 40 to 50 events throughout the year attracting families and enthusiasts alike". George is even talking about a Phase III!

National Railway Museum

Locomotion is the largest and the latest venue of the National Railway Museum.

The photovoltaic panels are fitted to follow the curve of the zinc roof standing seam providing an elegant and lightweight solution for generating electricity on site.



solar photovoltaic solutions

Retrofit standing seam rooftop

area (sqm)

270

size (kW)

34

project details

Customer

National Railway Museum

Type of building

Museum

Date completed

2005

Location

Durham

carbon saved / energy generated

Annual carbon saving

11.7 tonnes

Lifetime carbon saving

409.4 tonnes

Annual energy generated

27200 kWh

For further information on other innovative ways of incorporating renewable energy in your building see our Solution Sheets.