

Discovery Centre



location: Great Notley, Braintree, UK
dates: Groundworks started in 1999, opened in June 2001
type: New Construction
use: Environmental Education Facility and Country Park
size: 159m2, the surrounding park is 110 acres
people:
actors: Braintree District Council, Countryside Properties
goals: To provide a sustainable social community resource as a centre for sports, environmental education and recreation

energy use	KWh/m ²
heating&electricity, goal	
heating&electricity, achieved	
heating&electricity, best	
systems	
district heating	
combined heat & power	
solar panels	x
solar cells	
biomass and refuse	
wind power	x
natural ventilation	x
forced vent.w/heat recovery	
under floor heating system	x
individual metering	

- construction**
- concrete floors with termodec flooring
 - double glazed windows
 - special choice of building materials

- amenities**
- Country park
 - Open air sport facilities
 - Conference facilities
 - Education facility
 - Shop
 - Café

- special projects**
- Rainwater Collection & wetland treatment system

- site ecology**
- Wider site supports a wide variety of wildlife



process and history

The Discovery Centre evolved from a Planning Obligation between Braintree District Council and Countryside Properties, to provide a community centre for sports, environmental education and a social community resource. Architects Penoyre & Prasad designed the building to maximise its sustainable credentials. The site, formerly farmland, was selected for its close proximity to the Great Notley Garden Village residential development.



process and history, continued

The design of the centre incorporates a number of innovative ideas to reduce energy consumption, recycle waste products and minimise environmental degradation. Forward planning has also been included in its design, as the Discovery Centre will cause minimal impact on the environment when it comes to the end of its life. Nearly all of the materials used can be recycled and the landscape can be easily recreated thanks to shallow foundations.

description of special project features

It is estimated that the 2 renewable energy systems provide 1/3 of the total energy requirements of the building. A future planned extension will integrate a smart metering system and a biomass burner.

Passive Solar Gain

The Discovery Centre has a bank of double glazed windows on the south elevation including an area of central glazing to maximise internal illumination. The north elevation contains only small windows primarily for ventilation.

Wind Turbine

A Proven 6KW wind provides approximately 1/3 of the centre's electricity demand.

Solar Panels

The south elevation holds a tier of solar thermal panels distributing hot water throughout the building.

Termodeck Flooring

The concrete floors throughout the Discovery Centre have hollow cores running through them. These hollow cores have many outlets in the floors of the Discovery Centre. There is a large air inlet at the front of the Discovery Centre. The air that comes into the building from the inlet is then blown around the building to regulate the air temperature, this keeps the building cool in summer. In winter the air is blown through the boiler, which heats the air and keeps the Discovery Centre warm in the colder months.

Rainwater Collection & wetland treatment system

A rainwater harvesting system collects and filters rainwater, which is used to flush the toilets. Sewage is flushed into a settlement tank before flowing into a reed bed and slowly filtering into the pond as clean water over a period of about 90 days.

Materials

Materials used have been selected with an awareness of their embodied energy, their recyclability, sustainability of their sources and their potential toxicity. Desks, worktops and shelves are made of recycled plastics. The exterior cladding is Douglas Fir selected for its longevity and sustainability. The lignacite and breeze blocks used internally and externally contain a high level of recycled material including cardboard and wood. Procedures as detailed as purchasing copper piping from sources that use Hydro Electric Power for smelting has been included in the construction. Nearly all of the materials used can be recycled and the landscape can be easily recreated thanks to shallow foundations.

funding

Total value of the project was 1million UK pounds.

results

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