Improvement Fund
Project Proposals

Creating a sporting habit for life

THURSTON OUTDOOR EDUCATION CENTRE:
THE LAKE DISTRICT

Upgrading works due to commence in 2014

An outline of the project proposals supported through the Lottery Improvement Fund are set out below. These will be followed through to post completion to assess the benefits of the range of interventions, new products and technologies.

New features

Environmental improvements will include:

- LED (light emitting diode) lighting with PIR (passive infrared) activation
- Discreet solar tiles installed on the rooftops
- Micro hydro generating system
- Ground source heat pump
- Electric car charging point installation
- Double-glazed windows.

The Thurston Outdoor Education Centre is positioned within the Lake District National park and owned, run and maintained by South Tyneside Council. The centre is based around a Victorian country house offering residential stays for South Tyneside schools and private groups. It is set in 43 acres of grounds on the shore of Lake Coniston and offers outdoor pursuits such as sailing, kayaking climbing and walking.

Sport England awarded the centre £243,750 towards an overall budget of £325,000 to bring environmental improvements and energy cost savings to the centre. The money made available through Sport England's Improvement Fund will be used to install solar, mini hydro and ground source technologies. These upgrades are anticipated to save 40-50% or £15,000 off of the energy costs for the centre.

Thurston is a residential centre used by schools in South Tyneside

Discrete solar tiles to be applied to some of the roofing

Shining light

The Thurston Centre are aiming to contribute to overall energy savings of 40-50% by replacing their current lighting system with LED lights. The savings will be made by having better lighting control throughout by introducing push button timers and PIR sensors (which turn on lighting when movement is detected). It is hoped this will help to regulate their usage and to prevent lights in the communal rooms and external buildings from being left on for long periods of the day when they are not required.

LED lighting with PIR and push button activation

Drilling for energy

Thurston will be adding a ground source heat pump and extracting heat from the ground to heat the under floor heating in the changing room and shower area which is housed in the basement of the building. This will contribute greatly to the 40-50% saving on energy which the council is expecting once all of the upgrades have been installed.

To extract the heat from the ground, a borehole will be drilled to a depth of 120 metres and a coil or series of pipes will be fed down

the hole. The coil is filled with a gel which is pumped around the circuit and captures the heat from the surrounding ground before returning to the surface. The heat is then transferred to another coil which is attached to the under floor heating system.

This is an ideal solution where small amounts of heat are required as is the case at Thurston. Should this prove to be successful, further holes may be drilled and used to heat the outer buildings.

Using the suns rays

Solar panels are to be added to the roof of the main building and some of the outer buildings to utilise renewable energy from the sun and reduce the demand on conventional energy use.

As the centre is within the Lake District National Park, the outward appearance of the buildings is paramount and planning policy restricts the use of certain materials or technologies. The team at South Tyneside Council have overcome this obstacle by using solar tiles instead of the more conventional solar panels. Once applied to the roof of a building it is virtually impossible to tell the solar tiles from standard roof tiles. The solar tiles are currently 30% more expensive than the conventional photovoltaic panels but when used in sensitive areas such as national parks they offer an ideal solution.

The centre will also be installing an electric car charging point which will be powered in part by the solar energy. This will be used to charge the councils vehicles and there is a chance the centre will purchase an electric powered minibus to transport visitors.

Keeping the heat in

Double-glazed windows are to be applied throughout the centre to replace single glazed windows and frames that are coming to the end of their lifespan. The installation of double glazing will contain the heat within the property more efficiently and will allow less energy to escape. This should have a significant impact on the cost of heating the building.

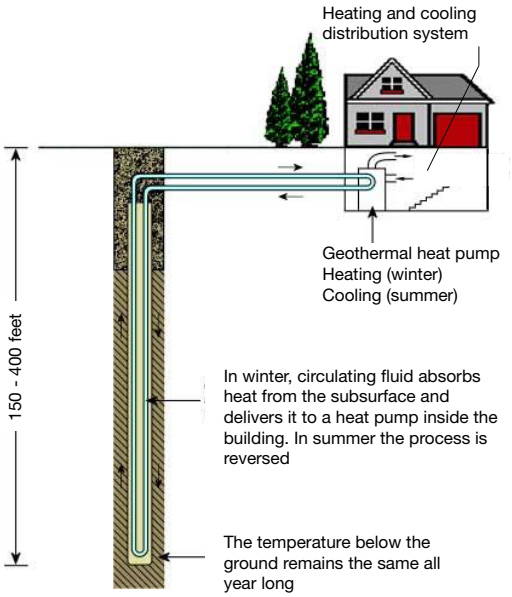
Using the rain

The final initiative at Thurston is to be the installation of a micro hydro generating system. As the name suggests, this will use water to power a turbine which will generate power for the Centre.

Thurston is said to be the wettest place in England with an average of 130 inches of rain per year and a micro hydro scheme is anticipated to produce significant amounts of energy. The centre owns a large forested area which rises steeply away from the main site, and this is where the water will be captured and piped down the hill to the generating turbine.

The generated electricity will be transferred to the house while the water will continue through the unit to Lake Coniston. The micro hydro scheme will ensure renewable energy all year round when used in conjunction with the solar tiles and ground source heat pump.

> ***"... we anticipate energy savings of 40-50% saving up to £15,000 per year..."***
>
> ***Manager***
>
> ***Thurston Outdoor Education Centre***



Heat from ground will feed the under floor heating

Proposed location for micro hydro turbine generator

Between 2012 and 2017...

the Improvement Fund will invest £45m of National Lottery funding into medium-sized projects that improve the quality and experience of sport.

The Improvement Fund aims to award capital grants worth £150,000 to £500,000 into sustainable projects with a clear local need.

The priorities for 2014 are projects that can clearly demonstrate environmental sustainability through changes to efficiency and usage of energy.

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