

## Ground Source Heat Pumps For Primary School in Carmarthenshire



Ysgol y Dderwen is a junior school set in the centre of Carmarthen where Welsh is the official spoken and written language. The school currently has an Eco Council which is responsible for helping to improve the school's environment, recycling measures and promoting Fair Trade.

### The Problem:

Carmarthen County council in conjunction with the school's governing body and their consultants planned a major extension and refurbishment of Ysgol y Dderwen in 2009 for which they wished to lower the buildings' carbon emissions and to make it a more energy efficient school.

### The Solution:

Part of the school would be new build and part would be 'retro-fitted' utilising existing radiators so high temperature heat pumps would be a requirement. Ground loops were not an option owing to the amount of ground that would be required so twenty-four boreholes were drilled by sub-contractors Apex Drilling as the source of energy for the heat pumps.

The boreholes were drilled in an area now used as a sports field and cross-coupled with the four Dimplex 40kW high temperature heat pumps so that they could operate in 'cascade' format thus minimising electrical energy use.

### The Benefits:

Ysgol y Dderwen were able to benefit from the Low Carbon Phase II programme by obtaining 50% funding from the Government.

The use of the high temperature ground source heat pumps ensured that the hot water and heating system could meet the current building under-floor heating and radiator demands with the minimum of back-up support from electric immersion heaters.

WDS director Dr. Aled Davies gave a presentation to the pupils so they could understand the benefits of their ground-breaking eco-friendly heating and hot water system.

This school was one of the first in the country to use heat pumps, with the project receiving much local television and radio news coverage on both English and Welsh channels.

The School won its Third Eco-School Green Flag in 2012. A Green Flag is the highest accolade a school can receive from the Eco Schools Organisation for promoting environmental awareness.

