Rosebrook Primary School –
designing in sustainability

In March 2009, a new £4.5m state-of-the-art eco school opened for use in Roseworth, Stockton on Tees. The project replaces three schools, Redbrook Primary, and Roseworth Infant and Junior Schools, bringing them together under one roof. Environmental sustainability and climate change adaptation were at the core of planning and construction.

Road safety was a primary concern with resident parking close by and no provision for dropping off pupils. Improving access would encroach on existing green spaces and preserving the biodiversity of the site was a prime concern.

The site also boasts several mature Chestnut trees which play an important role in the school's local environment providing natural cooling and shelter from both heat and wind.

Rising energy costs and the increasing use of technology within schools meant that energy efficiency needed to be of high importance. The building of a brand new facility allowed opportunity to incorporate renewable energy. Measures to help the school adapt to a changing climate were also high on the agenda. The overheating of classrooms in summer and the provision of sheltered areas in the playground were a primary concern.

Consultation with Stockton Borough Council's Arboriculture Officer ensured new access roads and parking facilities did not encroach on nearby mature Chestnut trees. Covered and secure cycle storage was also provided as part of the school's Active Travel Plan, to encourage an uptake of sustainable school travel.

The principle of energy-saving to lower running costs and reduce carbon dioxide emissions was central to the design. This has been achieved through incorporating high levels of insulation, use of solar control glass, passive ventilation and a geothermal energy system provided by a 37kW ground source heat pump combined with under floor heating.

Electronically controlled natural ventilation – Monodraught Wind Catcher is provided to all teaching spaces. If room temperatures rise individual thermostats operate the vents providing natural ventilation. Maximum use of daylight is provided throughout the school by use of large areas of glazing and roof-lights. Monodraught Sun Catchers have also been built into internal spaces within the school. Low energy artificial lighting has been specified throughout the school.

The school has been built with the ability to cope with climate change at the core of its planning. Large areas of glazing can pose problems of overheating during hot weather; however the building has been oriented to avoid direct sunlight during summer months whilst translucent glazing in the hall and ICT suite diffuses sunlight, helping to keep the room shaded and cool on sunny days and preventing glare. Monodraught wind catchers provide natural ventilation which keep class rooms at a comfortable temperature and, will prevent classrooms from overheating during hot weather.

The building itself has been carefully positioned to ensure preservation of nearby mature chestnut trees which provide natural cooling and shelter from both heat and wind. Careful planting of the surrounding green spaces to further promote cooling shelter was also a priority for the school.

"Staff, children and parents are very impressed with the whole school." Says Val Rudd, Head Teacher.
'The look and design of the building is impressive… this includes the landscaping and outside play areas which include raised beds for vegetable planting. 30% of our heating is provided by a ground source heat pump which is under the car park.
The classrooms are light and airy and the passive ventilation system and under floor heating provide a comfortable environment conducive to learning."