

Unique heat exchange project completes first phase with Ridgistorm-XL

The first phase of a major heat exchange system from Polypipe has been completed at Westbrook Primary School, Hounslow



Earth Tube
Ventillation
system



Noise pollution caused by passing aircrafts was a major problem for Westbrook Primary School, due to its location under one of the main flight paths for Heathrow Airport. The issue was exacerbated during summer months when windows needed to be opened to allow for ventilation in the building, causing disruption to learning.

As part of major new construction works taking place at the school, Consulting Engineers WSP worked closely with Polypipe and BSRIA to devise an innovative ventilation solution that minimised the environmental impact while limiting noise pollution.

A modular earth tube structured wall pipe work system utilising Polypipe's market leading Ridgistorm-XL large diameter pipe was installed as a ground source energy system in order to precondition the temperature of incoming air before it enters the building, with air drawn into the earth tube system via air inlets. This passive technology enables the transfer of ground source energy to heat or cool ventilation air, stabilising temperatures without compromising the learning environment.

376 metres of Ridgistorm-XL in 900mm and 1050mm diameters were selected for the Galliford Try project.

Earth tubes operate on the understanding that earth temperatures are relatively constant throughout the year at just a few metres below ground. In summer, the soil around the pipe work will be cooler than the atmospheric air, so the pipe will deliver cool, fresh air to the school. Conversely, in winter the soil will be warmer than the atmospheric air, so the pipe will deliver warm air to the school – reducing the heating bill of the school.

The system allows 100% fresh air ventilation within the school, creating an improved internal environment while reducing the energy required to heat or cool the building and greatly reducing the school's carbon footprint in line with the requirements of the 2011 London Plan.

CASE STUDY

Project

Westbrook Primary School
– Hounslow

Client

Hounslow Council

Application

Earth Tube air
pre-conditioning system

Products

Ridgistorm-XL

Polypipe's Ridgistorm-XL with electro-fusion was selected for a number of reasons. As well as the smooth internal lining of the pipe work reducing resistance of air movement through the tubes, the external corrugated profile of the tubes also increases the surface area of the pipe wall, increasing the temperature transfer efficiency.

Despite its large size the lighter weight nature of the system made it easy to handle and install, providing substantial health & safety benefits against the use of traditional concrete pipe systems.

Polypipe was also able to fabricate Ridgistorm-XL condensate chambers off-site at its manufacturing facility in Loughborough to reduce and remove water from the system. The system also incorporates an anti-microbial lining to resist the development of bacteria in the system and ensure the safety of pupils and staff.

