

Preventing energy wastage

Harnessing natural wind power and temperature buoyancy to ventilate buildings significantly reduces energy consumption that would have been used to operate a more traditional mechanical arrangement, according to GDL

IN ORDER TO maintain a comfortable environment, with the correct air temperature and velocity, temperature and CO2 sensors maintain a controlled ventilation rate again significantly contributing to energy conservation.

Incorporating CO2 sensors within a natural ventilation system will prevent wastage of energy in buildings where occupancy varies during the day. By incorporating CO2 monitoring throughout a school classroom as an example the ventilation rate can be designed in each area to be dependent on the occupancy within the room.

In summer, ventilation rates will be controlled by temperature sensors, but lower winter ventilation rates will be controlled by CO2 sensors. This limits the fresh air entering the building in order to

maintain the internal temperature. There are numerous options to allow for the most effective air-flow throughout the building.

Natural ventilation systems are not suitable in areas with a high level of pollutants, fumes and odours – eg kitchens, laboratories, toilets and areas with high functional heat gains.

Operating theatres also need to be mechanically ventilated so that outside air cannot bring potential pollutants into this type of environment.

However a mixed mode systems approach when designing the ventilation system can be used to minimise the cost of a mechanical arrangement by using natural ventilation where possible, solar-powered systems can also reduce energy demand where power-assisted fans are required.

Askham Bryan College

Construction is underway at Askham Bryan College, the Agricultural and Land Management College based in York. The first phase of this £34m project is the Animal Management Centre and adjoining Wildlife and Conservation Area. The centre will also include lecture theatres and a replica veterinary practice.

The College has been designed sustainably and incorporates various energy efficient systems including our solar powered Intelivent Solarstore Units. The units were a bespoke circular design, manufactured to meet the aesthetic design requirements of the architects.

GDLs Intelivent Solarstore Units harvest solar energy provided from the photovoltaic cells located on top of Penthouse Turrets. The power generated from the cells allow 24-hour supply or extract ventilation, this is a particularly effective method of increasing the ventilation rate during the summer months or when the room occupancy has reached capacity.



Fullbridge Academy



GDLs Intelivent Natural Ventilation Penthouse Turrets were selected as the most suitable method of sustainably ventilating the new school building at Fulbridge Academy.

Ordinarily the Intelivent Solarstore Turrets would have been selected to offer increased ventilation during summer months or when the occupancy level in the classrooms reaches its maximum capacity. On this project however GDL provided the Intelivent Penthouse Turrets with hard-wired controls whereby the teachers and staff could independently control the ventilation rate using conveniently located override switches.

Ventilation demand changes depending on the season and occupancy levels. As occupancy levels change throughout each classroom during the day, a controlled ventilation rate using natural ventilation will maintain a comfortable environment whilst remaining cost effective and energy efficient. Aesthetically the architects designed the building using a bold and vibrant colour scheme for the Penthouse Turrets.

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