Broadmeadows Primary School

April 2011

***Roderic Bunn* revisits Broadmeadows Primary School in Melbourne to see how construction of the ground-coupled ventilation system is progressing, and how the designers are using innovative low-energy light sources.**

Innovation can fall into one of two camps: that which fulfils a client's craving need, or that which fulfills a designer's craving desire.

The intake ducts, taped of and yet to be finished off with cowls, adjacent to the school's external walls

Satisfying both is quite rare, especially with ostensibly active green technologies that often create more management and maintenance than clients have been lead to expect. Innovation in passive engineering, on the other hand, can lead to far more robust fit-and-forget installations.

In June 2010, Delta T reported on the construction of Broadmeadows Primary School in Melbourne, Australia, where the architect (Now Achitecture) aimed to cool the school's supply air by drawing it through water-encased foundations ('Pooled Resource', Delta T June 2010). BSRIA took the opportunity to revisit the site in November 2010 to see how the project is shaping up.

Broadmeadows is notable as it signals a major shift in Australian school design. The passive engineering is far more akin to UK design practice than traditional Australian engineering, which tends to air-condition or mechanically ventilate as a matter of course. Here, ventilation will rely on a natural thermosyphon, where supply air, up to 40oC in summer, will be drawn through the water-encased ducts and injected into the occupied space. Air will rise through internal heat gains and wind-assistance to be exhausted at high level.

Lighting can be switched between automatic and manual control using very intuitive and well-labelled switches

A high quality of construction, particularly fabric airtightness, will be required to ensure that the thermosyphon will operate correctly. Heat gains from lighting and small power will need to be strategically located, based on intrinsically efficient equipment, and well controlled. To this end the architect has specified the use of light-emitting diode (LED) lamps for the sports hall. With sports hall lighting usually very energy-intensive, LEDs might just be the great get-out-of-gaol card that school designers are seeking. It will be useful to see if the LEDs deliver comparable light at a much lower wattage.

The images opposite show recent aspects of this revealing project. Delta T intends to report on the performance of the school once it is operating.

Contact Us
BSRIA Ltd
Old Bracknell Lane West
Bracknell, Berkshire
RG12 7AH, UK

T: +44 (0) 1344 465600
F: +44 (0) 1344 465626
E: bsria@bsria.co.uk