



SOLAR SCHOOL LIGHTS THE WAY

A low technology solution obtained by high technology means is the way in which the passive solar addition to the East Beechboro Primary School was achieved when the Building Management Authority commissioned architect Garry Baverstock to design the four-teaching-area structure.

Passive solar buildings are those which through design and siting enable the sun's light and heat to be controlled effectively for the operation of the building and for the comfort of its users. It does not involve mechanical means of heating and cooling.

"The principles are really all there in the BMA's volume, "Energy Management in the Design of New Buildings," Garry says.

"In the preliminary discussions with the BMA on the East Beechboro Primary School project, it was decided that the nature of the requirements lent itself to the passive solar path.

"In passive solar designs, the details are all important. You can have the principles correct but the total project can fail because the details are not similarly accurate.

"At East Beechboro, we made sure we covered all relevant matters.

"For example, we first met teachers and Parents and Citizens representatives to discuss the concept after we had circulated a questionnaire on requirements.

"We gave careful consideration to the layout of the classrooms and at the same time educated the teachers on the benefits of the passive solar approach.

"Obviously, it is critical that the areas of glass are correct and that they face the right directions, that the angles and extent of eaves and other controls are accurate and that the insulation is sufficient.

"But this is not as difficult as it sounds because there is now a large body of knowledge about these designs and the requirements of the various components.



From left: Commissioned Architect Garry Baverstock, School Principal Tony Barker and Project Liaison Architect Mike Couche discuss the success of the passive solar additions to the East Beechboro Primary School.

"Also, the advent of computer analysis for all the variables and factors involved has meant that the architect can confidently go ahead with the final design and not have to rely on any intuitive approach."

At East Beechboro Primary, Garry's ideas have resulted in vaulted ceilings which provide twice as much air volume as there would be in the standard class room.

Fifty per cent of the northern facade is glass, which is fully shaded in summer while the glass areas have been minimised on the south, east and west.

Two "solar pergolas" shade the north eastern and north western entrances to the building, these being translucent sheeting with carefully angled aluminium slats above to control the direct sun falling on the sheeting.

The angles of these slats allows winter sun to shine directly onto the translucent sheeting while protecting it from the summer light.



Interior view showing how well lit the school is through the use of vaulted ceilings.



Children enjoy a break from class under one of the "Solar Pergolas."

The \$430,000 project, which includes a big, covered assembly area, has been well received by teachers.

The school principal, Mr Tony Barker, and his deputy, Mr Colin McGinniss, both say that the new addition works well both for teaching staff and for students.

For his part, Garry Baverstock believes that the principles utilised in the East Beechboro addition will find much greater application in public sector buildings in the future.

He considers that the quantity of accurate data now available on all considerations of such designs will mean that architects and clients will be much more-ready to go the passive solar way of construction.

The BMA's Project Liaison Architect for the East Beechboro additions, Mike Couche, said that the Authority had encouraged innovation in the design.

"There's no doubt that some of the features could be more widely adopted, for example, the good daylighting system," Mike said.

"But how commonly used the various features might become depends on assessing them over time."