PROJECT

Hermitage Building Art & Technology, Assumption College, Kilmore, Victoria

ARCHITECT

Y2 Architects, Melbourne

DESIGN TEAM

Matthew Dwyer, Walter Di Giangregorio, Michael Roberts, Devla Kabas, Alice Penna

GENERAL GLAZIER

Fipro - Shepperton

PRINCIPAL GLAZING RESOURCE

Viridian

BUILDER

Morey and Hurford (a division of the Fairbrother Group)

PRINCIPAL GLAZING

External vision glass – ComfortPlus Low E 6.38mm and 10.38mm on the north, west and east facades.

South facades – clear laminate 6.38mm

Internal glass – clear laminated and clear toughened.

PROJECT COST

$5.1 Million

# Open Learning

Text – Peter Hyatt
Photography – Latitude Group

The information revolution has created a generation of educators and students acutely aware of enlightened learning/teaching environments. Architects, designers and builders are beneficiaries of the desire to develop healthy stimulating study environments. Demonstration by example is the best starting point and secondary schools such as Victoria's Assumption College at Kilmore are a case in point.

The school's new art and technology facility designed by Y2 Architects is much more about disclosure than enclosure. It reveals how simple, yet effective technologies and an ambitious, thoughtful glazing program can make the world of difference to learning.

The new environmental model encourages a high level of interaction between staff, students and their immediate environment. Glass is the perfect medium to break down the familiar barriers that separate people from each other and the wider environment.

From the college common the building reads as a large folded plane over which a number of distinct and boldly colored objects with a glass curtain are slipped between. The desire for a bold expression of student activity and internal comfort required an innovative, interactive green strategy. A large part of the solution was extensive internal glazing and a high performance external envelop of Viridian ComfortPlus Low E Green.

Project architect Matthew Dwyer of Y2 discusses the new ethos of smarter school buildings with Vision editor Peter Hyatt.

**All architecture and building has a special opportunity to leave the best of impressions upon its users. Is that how you viewed this project?**

The best place we can start is by demonstrating to students at an early age just what is possible. It's occurring most noticeably in primary schools and now it's catching on in secondary schools. With the type of computerised building management systems used here, schools are encouraged to be involved with their operation and students can actively participate in that process on a daily basis.

**What are the underlying design principles?**

It's about being smart and recognising that everyone needs to contribute to the green challenge. The ESD initiative here is about encouraging awareness. We have a deliberate strategy to expose much of the structure and services. Various energy management systems and pipe-work are identified throughout, whether it's natural gas, water or storm-water and they readily identify the main processes and systems within the building.

**Are we seeing a major shift in the way students are being given greater ownership of their school buildings?**

Schools typically haven't give students this, but that is definitely changing. Contemporary education is now designed to create virtual communities, or villages, within a specific building, or area. These are places where students will spend the vast majority of their school life. They're encouraged and more likely to be interested in what's going on in and around that environment than forever changing classrooms. In that situation factors such as air, water, quality and temperature become more important. When they plug into and can control their environment, there is a whole new level of interest and we hope commitment from the inside out.

**The environmental expression of this project goes considerably further.**

Glass thermal chimneys are more of a passive element where we effectively draw air from the perimeter of the building and pass it throughout the building. It's an automated system that also has an active component of louvered windows. Night purging expels stuffiness and heat build up and really negates the need for air-conditioners. Rain gardens around the building perimeter effectively filtrate water before overflow enters the storm-water. The green 'living wall' is designed to effectively remove any volatile organic compounds from the air. Heating and lighting system is zoned and controlled by the BMS as well.

**There's a trend towards public architecture adopting those principles of connection that represents a cultural change and some of that is safety driven to make it much more transparent. While that may not be a priority here, there is that sense of being connected to others which pays real dividends.**

The Courtyard 800 design that school buildings adopted in Victoria for decades is, as the title suggests, essentially designed for 800 students. It usually has two courtyards and a library space and they're done to a very prescriptive formula. They have high windows to discourage views in or out and this was once regarded as an educational ideal. Well that's not the prevailing view any more.

**Apart from transparency what makes such a strong case for this level of transparency?**

We really wanted to promote an awareness of the building's operations and what occurs inside. We promoted student art by exhibiting it at the front of the building because there is so much colour and talent to showcase. More and more schools are moving towards having as much glass as possible between teaching/learning spaces.

**Traditionally the potential for distraction was treated with walls and small, high windows.**

That model is well and truly outmoded. It's all about transparency now because it also keeps staff connected. The idea is that teachers should be able to observe what else is occurring in other classrooms. This permits them to work on best practice together, even if there are minor acoustic issues. The typical individual box means you don't often know what else is happening outside that immediate environment.

**It's really much more than about bringing the outside into a building.**

That's only a small part of it. We really try to develop other qualities. It's not a bad thing that you aim not to make it look like a school. There is a trend to deliver a less institutional, more residential quality.

**There is also that tension that occurs once you open a building up internally and externally. Performance imperatives mean you demand so much more of the materials and the design. You're testing yourself when you use large expanses, or a lot glass because you need to select the most appropriate type for that purpose.**

Absolutely. We do a lot of modeling in the office and through our sub-consultants. As we go along we're becoming a lot smarter about what's the best light and if you can't get that how do you protect against the alternative. Northern light is fantastic and has thermal advantages and that might be to filtrate that throughout. Here we use a masonry wall through the guts and in winter that thermal mass radiates a wonderful warmth. So those are some of the basic issues and responses. There is also a very large canopy to the north and east where it dog ear's down to the ground to protect much of the glazing. ComfortPlus Low E delivers high solar performance and to that was applied large text to demonstrate some of the school's aspirations. Much of that text conveys what staff and students felt best expressed the building.

**Your thermal chimneys perform a handy secondary role.**

We relied on a modeling process to reveal the extent of natural light. The thermal chimney also acts as a light transmitter that delivers light into the building's core thereby pushing light into both art and technology areas.

The lighting system is automated and zoned and reads lux levels (400 at table level) so they are zoned that as they move away from the light source it might only be the third row of lights that come on.

From an education viewpoint it's critical. It actually sets a stage for a certain student behavioral standard and that's something often not fully appreciated. From the school's perspective it's a business and needs to be competitive and so they rely on their architecture sending the right message. This also had to be innovative and beautiful and reflect its purpose.

**Are there trends in ESD that reflect your architecture compared to what you were creating 10, or even five, years ago?**

Five or 10 years ago ESD wasn't the starting point whereas it is now. Then you might have started with a design and if there was any money left over ESD was plugged on. Clients certainly weren't as interested as they are today. It's now part of their curriculum and students are very interested in the subject. ESD has also generally become much more affordable.

**What other types of glass is used?**

The thermal properties established the performance standards required but we are very familiar with ComfortPlus Low E and so we knew the performance characteristics of that glass. Standard clear laminate is used internally and that is where the transfers and stickers come into play both as visual aids for safety. Double glazing is used as an acoustic barrier between materials technology and the passageway/arts spaces. That was a specifically designed system rather than off the shelf solution. Two layers of glass have an acoustic air cavity that effectively separate the inner and outer skins. There is an elastic seal that divides the frame into two and reduces noise that would otherwise transfer through the frame.

**In terms of internal air movement, how do the glass walls allow or impede air movement?**

There are high-level louvered windows to the façade which are automated and from the art 'faculty' side there are no walls to impede cross ventilation, while in the technology 'faculty' there are a number of large sliding doors generally left open to allow cross ventilation.

**These projects often require a high degree of ingenuity and ingenuity can be expensive.**

We knew what we wanted to achieve from the start. We considered this building from two sides. There is a certain amount of structural repetition and that industrial quality provides a certain economy and efficiency. Then we basically split the building in two – there's the glamorous side that faces the school and the simplified rear section.



Viridian