



STEWART COULSON



Smart design solutions

CREATING FUNCTIONAL YET ENVIRONMENTALLY FRIENDLY BUILDINGS IS A PRIORITY FOR THE UNIVERSITY OF QUEENSLAND.

UQ's St Lucia campus already boasts several futuristic buildings, and is about to gain one more in the name of sustainability.

Subterranean corridors to be built under the new \$130 million Advanced Engineering Building (AEB) – on the western side of the UQ Lakes – will act as air ducts and form part of the building's energy-efficient design.

A central atrium will gather cool air and funnel it through all six levels of the 20,000 sq m building.

The AEB will use just 70 percent of the energy used by other similarly sized buildings, mostly through the use of such "passive" features.

"A key aim was to produce a building that used nature to help the building perform – as opposed to using complex technologies," said architect and UQ alumnus Richard Kirk (pictured), who has designed the AEB in a joint venture with Hassell.

The AEB will have conventional air-conditioning, but the system would be used only two or three months a year.

Remotely operated shutters and doors will allow air to flow in and out of the underground tunnels at optimum times of day.

Similarly, remote-control exterior sun shades will shield the building in summer, while allowing in natural light year-round.

"People are very attuned to opening windows, doors and blinds at various times of day at

home – especially with Queenslanders houses – but somehow there's this belief that it can't be done with commercial buildings," Mr Kirk said.

"Natural ventilation is the key to ensure a healthy building."

The AEB will be fitted with a range of monitoring equipment so staff can measure solar controls, daylight, air quality, electricity produced by rooftop photovoltaic panels, and solar hot water.

"A key agenda for UQ was that this building created a new benchmark for sustainability," Mr Kirk said.

"It will be a learning laboratory in its own right.

"This building will house young engineers and architects. The best way for them to learn is to be immersed in a built environment that demonstrates a high level of thought and innovation."

Another important role for the AEB was that it would become "a new front door" for the university for those coming across the Eleanor Schonell Bridge.

A glass-walled auditorium where all 500 seats will look directly out over the UQ Lakes – with the perception from inside of the auditorium being suspended over water – is one of the AEB's most stunning design features.

Plantation timber trusses and window frames throughout will be another striking and sustainable feature of the new building.

Mr Kirk said it would be the first large Australian commercial building project to fully utilise timber window frames, instead of aluminium.

The AEB will be the home of UQ's School of Civil Engineering and five national materials research centres, including the Queensland Centre for Advanced Materials Processing and Manufacturing.

Deputy Director of Property and Facilities Geoff Dennis said UQ had policies to ensure that sustainable design was practised in new buildings consistently across all sites and campuses.

UQ CONSTRUCTION PROJECTS AT A GLANCE

| BUILDING | LOCATION | COMPLETION |
|----------------------------------|-------------------|------------|
| Global Change Institute | St Lucia | 2011 |
| Learning Innovation Building | St Lucia | 2011 |
| Translational Research Institute | Buranda, Brisbane | 2012 |
| Advanced Engineering Building | St Lucia | 2012 |
| Oral Health Centre | Herston | 2012 |
| Centre for Advanced Imaging | St Lucia | 2012 |



Bird's eye view: a three-dimensional model of the AEB overlooking the UQ Lakes precinct, and above, an artist's impression of the building

DESIGN IMAGES COURTESY RICHARD KIRK ARCHITECTS