

Building BIG ideas

THE ORGANIC SHAPES OF THE NEW HIGH SCHOOL IN KINGSTON, TASMANIA, ARE AN INNOVATIVE INTERPRETATION OF WHAT AN EDUCATIONAL SPACE CAN BE, AND A SIGNAL OF THE INTENT TO USE ARCHITECTURE AS A POSITIVE INFLUENCE ON MODERN LEARNING

Adriano Denni, a senior associate architect with HASSELL, has been involved with the new Kingston High School (KHS), Tasmania, since HASSELL and JAWS Architecture won a design competition in 2007. Their winning proposal was for a single-level campus design comprised of a series of 'pods' arranged around a harmonic wave pattern; it negotiated a long slender site with an 18m site fall; and delivered on the Department of Education's call for big ideas.

"What was refreshing and challenging for HASSELL," says Denni, "was the State Government's commitment to visionary design and sustainability in an educational context. They were brave, had faith in the design team, and financially backed their commitment."

Each learning pod houses five group-learning zones catering for a mix of year levels. Student-based open-learning environments of varying scales have been designed with internal and external group activity in mind; and their layout supports flexible learning, team teaching, integrated curriculum and collaborative practice.

ARCHITECT HASSELL in association with JAWS Architecture WRITER Susanne Kennedy PHOTOGRAPHER Peter Benneits



ABOVE: Arranged in a wave pattern, a series of learning pods caters for a mix of school levels and supports flexible learning. **LEFT:** The new school is a sophisticated and productive work environment for students and teachers.

KHS acting principal Steven Lewis believes the new school is a very sophisticated and productive work environment for students and teachers. “The atmosphere is not like that of a 19th or 20th century school. It is very much based on a 21st century educational model,” said Lewis. “It is clear how the environment affects culture here, how it changes interactions.”

Sustainability was a key driver for the project – which is being benchmarked against the 2007 Green Star Education pilot tool, developed by the Green Building Council of Australia – and an application for five-star rating is still pending. Careful consideration was given to the school-community interface. Ultimately, Kingborough Council invested in the school auditorium in exchange for community access to it, and this also allowed for its significant upsizing. The 600-seat auditorium reportedly has superb acoustics and is located adjacent to the existing Kingborough Sports Centre. And this means parking and access areas are shared. “One of the most successful aspects of this project is its co-location in the community,” says Denni. “These arrangements mean that infrastructure is not duplicated, capital costs are reduced, and community relationships are strengthened.” With shared usage, the site is populated much of the time, so passive surveillance and the subsequent reduction in truancy, graffiti and vandalism rates are additional benefits. Each building’s north-south orientation, along with floor-to-ceiling windows and skylights, maximises northern light capture, and the staggered buildings also optimise selective solar gain and enhance views.

Natural ventilation has been achieved with operable windows, night-time heat purging and comprehensive insulation, as well as considered material selection and eave design. As a result, cooling systems are not required. “The pods have excellent air flow and natural light,” one teacher comments. “And it is easy to maintain a comfortable temperature in the pod teaching spaces because it is all in-slab heating, which is very pleasant because you are unaware of it.”

CLOCKWISE FROM FAR RIGHT: Cooling systems are not required in the pods as natural ventilation has been well considered; Natural amphitheatres have been created in the landscape design; Kingborough Council invested in the 600-seat auditorium, allowing shared usage with the community; The design provides students and teachers with inspiring and engaging spaces; The single-level buildings optimise the stunning views of the surrounding Mt Wellington to the Derwent River valley.

While a number of teachers I spoke with were appreciative of KHS’ numerous design-assisted benefits, they also noted some costs. In early consultations, teachers agreed to an open-plan design on the condition there would be a series of acoustically sound concertina walls but, when the State Government’s education budget was substantially cut, these were removed from the plan and the acoustic issue was not readdressed. As one teacher comments: “The pod centres tend to become thoroughfares and too noisy when full of classes, so we usually end up around the edges.” Another consistent point relates to the elongated arrangement of the pods, partly dictated by the shape of the greenfield site: teachers are now more likely to stay near their home pods rather than walk the distance, which takes around five minutes, to a larger staff room, and this diminishes the sense of a whole of staff; students also predominantly interact in their grade groups, which reduces opportunities for important role modelling.

An extensive green roof system, the first of its kind for an Australian school, is beautiful and has strong environmental impacts. While intensive systems are more like parks or regular gardens on roofs, extensive systems have a shallower growing medium, are intended to be virtually self-sustaining and are a much lighter load for the roof structure to bear. The plants are all endemic to the Kingston area. And other gardens, growing fruits, vegetable and bush-tucker plants, are utilised in the curriculum.

Water recycling, the protection of trees and expansion of native woodland areas and their bird habitats are other successful planning objectives.

KHS demonstrates what can be done when budget and brief support exploration and innovation. And while the same financial commitment will not be available to all public school projects, it stands as an exemplar of what can be done to optimise sustainable and engaging educational design that supports contemporary teaching and learning, while also offering some valuable lessons for future developments. **M**

PROJECT DETAILS

ARCHITECT, LANDSCAPE ARCHITECT, INTERIOR DESIGN: HASSELL
CLIENT: Department of Education, Tasmania
CONSTRUCTION: VOS Construction
CIVIL AND STRUCTURAL ENGINEER (DESIGN): Bonacci Group
MECHANICAL AND ELECTRICAL ENGINEER: WSP Environment & Energy
QUANTITY SURVEYOR: WT Partnership
ENVIRONMENTAL CONSULTANT: Built Ecology
STRUCTURAL CONSULTANT (CONSTRUCTION): Gandy & Roberts
BUILDING SURVEYOR: McKenzie Group
ACOUSTIC CONSULTANTS: ARUP Acoustics
WATER STRATEGY CONSULTANT: EcoHarvest
BUDGET: \$33 million
DESIGN AND DOCUMENTATION: 16 months
CONSTRUCTION: 24 months
FLOOR AREA: 8600m²
BALUSTRADES AND BALCONIES: Custom architectural grade hot dip galvanised stanchions and handrails with perforated aluminium panels
CLADDING: Custom Orb BMT 0.48mm metal wall cladding by BlueScope Lysaght, concrete blocks in charcoal, natural grey standard and natural grey honed from Hanson, custom solid galvanised cage with locally sourced Dolerite stone fill gabion wall
FLOORING: RetroFit and Cubic Collections carpet from Interface Floor, Horner PR1 sprung timber floor system from Australian Sports Floors, Sikafloor 264T epoxy floor finish from Sika
FURNITURE: Public area seating from Draffin, bicycle rails from Securabike, Quantum 850 Upholstered auditorium seating from Camatic
LIGHTING: T5 linear fluorescents from Eagle Lighting, Moonlighting, Pierlite and Versalux, compact fluorescents from Sylvania Lighting, Eagle Lighting and mLight, metal halide from Sylvania Lighting and mLight, wall-mounted step light from Eagle Lighting, quartz halogen and exit signage from Thomas & Betts
ROOF: Klip-Lok 700 Hi-Strength BMT 0.48mm by Bluescope Lysaght



Architect statement

Critical to the success of the Kingston High School project was the multidisciplinary approach which established a collaborative design process. The Tasmanian Department of Education’s commitment to sustainability allowed us to explore design principles, creating a sophisticated education project. Each of the learning pods embraces natural light, fresh air, acoustic design, and temperature control. The buildings capture views from Mt Wellington to the Derwent River valley and the landscape design creates natural amphitheatres and incorporates orchards and vegetable gardens. ‘Extensive’ green roof systems – a first for an Australian school – control stormwater run-off and create a natural habitat for local fauna. A standout initiative is the co-location and facility share agreements with Kingborough Council. Sustainability is also improved by minimising the construction of duplicate infrastructure within a community, reinforcing a strong sense of local community ties and broader relationships.
ADRIANO DENNI