

Inveresk Apartments



UNIVERSITY *of*
TASMANIA



Environmentally Sustainable Design Features

The project adhered to ESD principles across all disciplines from design inception through to construction, including:

- passive solar design
- extensive use of phase change material as a replacement for thermal mass
- maximised natural lighting
- natural ventilation, including the first use in Australia of an innovative trickle ventilation system
- 40kW photovoltaic array
- smart building systems such as entry card activated power to apartments, motion activated lighting, and water and energy monitoring systems
- plantation timber
- the third use to date in Australia of structural cross-laminated timber
- low volatile organic compounds (VOC) and low formaldehyde construction materials and finishes
- capture and re-use of rainwater
- secure, undercover bike parking

Social & Cultural Sustainability

The project delivers social sustainability benefits in terms of lifestyle and social outcomes through enhanced student experience, sense of community, identity, safety and security. ESD principles employed throughout the project enhance user comfort, a healthy environment and resource efficiencies.

Situated on a major transport corridor close to the amenities of the Launceston CBD, residents have reduced transport needs, access to public transport when required and facilities to encourage bicycle use.

The development provides a sensitive response to the site's underlying urban structure, heritage surrounds and natural amenity.



Sustainability Leadership

The University's Centre for Sustainable Architecture with Wood (CSAW) was heavily involved in the design to encourage industry to embrace new building methods based on timber's strength, workability, weight and local availability. Each apartment has a full lightweight-timber frame and the project is Tasmania's first timber-framed, multi-storey residential development.

A small amount of structural cross-laminated timber (CLT) was included to provide local operators with a chance to become familiar with this product on a manageable scale.

CLT is a valuable development, is a carbon sink, lightweight and has excellent fire resistance properties. Its use served as a showcase for development of a local CLT industry based on plantation hardwood originally planted for the aborted paper mill.

The apartments were prefabricated as complete, individual modules in a warehouse close to the site and installed in a modular build process, achieving multiple procurement advantages.



ESD Outcomes

The project's Life Cycle Analysis demonstrated the following reductions in environmental impacts when compared to a conventional reference building:

60% reduction in global warming potential

38% reduction in acidification potential

27% reduction in eutrophication

42% reduction in tropospheric ozone formation potential

61% abiotic resource depletion

The extensive use of timber was crucial in achieving this by replacing less environmentally friendly materials.

The Apartments are using as little as half the energy (kWh per bed) as some of the University's older accommodation.

The project is expecting to comfortably achieve a five-star Green Star accreditation, with a chance of attaining a six-star rating.



Site Response

The development continues the enhancement of the Inveresk precinct through a sensitive response to the site's underlying urban structure, its heritage and its natural amenity. The angular roof forms and use of corrugated iron and zincalume cladding reference the distinctive angular saw-tooth roofs of the historic rail sheds to the north, while raw timber screens evoke the local river foliage.

The riverside location determined a need for resilience and solidity to withstand flood and inspire confidence. Yet budget constraints and marshy founding conditions pointed

to the desirability of a lightweight timber construction “floating” on the mud. The solution includes habitable spaces raised to mitigate risks from extreme floods, with the ground level utilised for parking.

Two three-story parallel apartment wings define and overlook screened and greened social courtyards, capture outlooks to Inveresk and the city, and achieve optimal solar orientation. A diagonal desire line delivers pedestrians and cyclists to and through the site. A grand-scale entry portal punctuates and frames the main arrival point.

