

# Case Study: COBEII Kangan Batman TAFE Automotive Centre of Excellence

**Address:** 4Automotive Centre of Excellence, Batman Drive, Docklands VIC

**Owner:** Kangan Batman TAFE, [www.kangan.edu.au/ace](http://www.kangan.edu.au/ace)

**Design:** Lyons Architects, Umow Lai Environment, Umow Lai & Associates Pty Ltd, Robert Bird & Partners

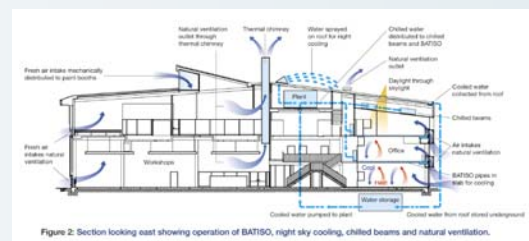
**Construction:** Carson Group

**Total floor area (NLA):** 4,238 sq.m.

**Commercial Office area (NLA):** 1284 sq.m.

A 5 Star Green Star project, the Automotive Centre of Excellence (ACE) was supported by Commercial Office Building Energy Innovation Initiative (COBEII) of Sustainability Victoria. The office component of the project was certified under Green Star - Office Design v1 in December 2005.

ACE will be the first dedicated automotive training facility in the southern hemisphere. The building itself is unique in the way innovative sustainable design features have been integrated. An Australian 'first', BATISO active mass cooling and night sky cooling systems have been combined in a single building. These and other design measures such as chilled beams, thermal chimneys and natural ventilation mean that the building's operational energy demand for ventilation and air conditioning will be reduced by a predicted 68%. The challenge for the new ACE building was to produce a landmark structure that delivers excellence in learning space, sustainability measures, occupancy comfort and within budget constraints.



## Management

- Environmental Management Plan
- Environmental Management System
- 60% of construction waste to be recycled
- KBT staff undertaken Green Building Council training
- Centrally located recycling facilities
- Independent commissioning agent to ensure optimum building performance
- 12 month commissioning building tuning period to ensure construction meets design intent

## Indoor Environment Quality

- Skylights
- Low internal noise levels
- External shading
- Active chilled beams for cooling
- Thermal chimneys for ventilation
- 75% of office space within 8m of external windows
- Thermal modelling to ensure minimal temperature fluctuations
- 50% improvement on outside air flow rates
- Floor slab heating
- Carbon dioxide monitoring and control
- Enhanced daylight levels to 60% of the net lettable area
- Use of low VOC materials for paints, carpets, adhesives and sealants

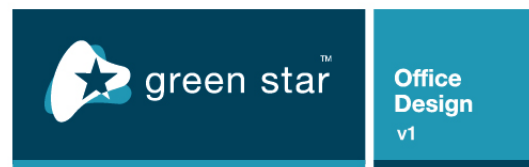
## Indoor Environment Quality (Cont.)

- Use of low emission formaldehyde materials for composite wood products

## Energy

- Passive Chilled water generation (night sky cooling)
- Low energy thermal comfort systems (BATISO)
- Energy savings exceeding 5 star ABGR model requirements
- 68% reduction in energy demand for ventilation and air-conditioning
- Greenhouse gas savings equivalent to saving 65 trees (44 tonnes of CO2 per annum)
- 500m shading reveals on north façade assist with thermal load reduction

# 5 star rating



This rating represents Australian Excellence



## Contact Us

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[www.gbcaus.org](http://www.gbcaus.org)

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## Energy (Cont.)

- Use of East atrium as a thermal buffer space
- Light sensors and automatic dimming on lighting system
- Energy efficient T5 lighting units
- Carpark carbon monoxide monitoring and control
- Energy sub-metering and trend-logging
- Peak energy demand reduction through chilled water storage

## Transport

- Secure bicycle facilities, showers
- Provision of small car parking spaces
- Close to public transport

## Water

- 47% reduction in water consumption (based on average 3A consumption rating)
- Waterless Urinals
- 130,000 litre capacity rainwater collection storage and reticulation system for toilet flushing, irrigation, car washing, some paint-shop needs and night cooling system

- 3/6 dual flush toilets
- 5A rated shower heads
- Water efficient cooling towers

## Materials

- RSustainably sourced timber
- PVC minimisation
- Office waste recycling facilities

## Land Use & Ecology

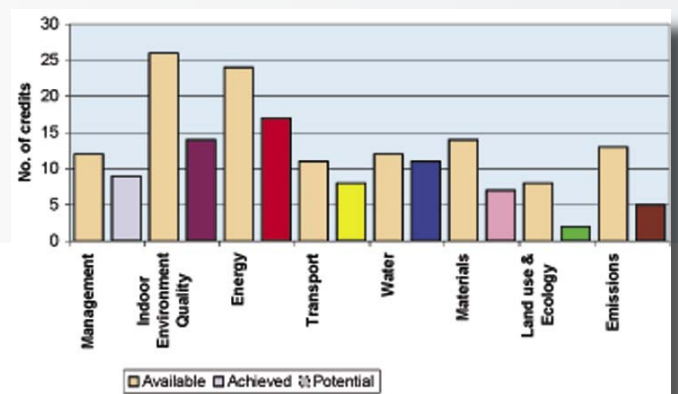
- Intensive remediation of soil

## Emissions

- 100% of refrigerants have an Ozone Depletion Potential of zero

## Innovation

- BATISO Hydrolic Slab heating and cooling in an innovative combination with the Night Sky Cooling strategy.
- The use of harvested rainwater for above cooling solution.
- A very innovative small project.



Overall Green Star  
Building Performance

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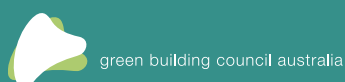
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## Green Building Council of Australia

The Green Building Council of Australia is a national, not-for-profit organisation that is supported by both industry and governments across the country.

Launched in 2002, the Green Building Council's mission is to develop a sustainable property industry for Australia and to drive the adoption of green building practices through market-based solutions.



## Key Objectives

- Drive the transition of the Australian property industry towards sustainability by promoting green building programs, technologies, design practices and operations; and
- Encourage the integration of green building initiatives into mainstream design, construction and operation of buildings.