

Cairns Convention Centre

Project type: Commercial



Location: Corner Wharf & Sheridan Streets, Cairns, QLD Australia

Year Completed: Stage 1 1996 | Stage 2 1999

Refurbishment: 2005 | 2011

Energy star rating: EarthCheck Bronze Benchmarked

Gross Floor Area: 31,000m² | Site Area: 2.2 ha

- Australia's first environmentally planned public building
- Recent refurbishments keep it at the forefront of environmental operation of world class public facilities
- It has won many awards for its energy and resource conservation features including the first ever European Incentive & Business Travel Meetings environmental award

OVERVIEW



The proposal for the building of the Cairns Convention Centre was the outcome of a collaborative response to a design competition to construct Australia's first environmentally planned major public building. The Centre's iconic double pleated roof is not only geometrically striking, providing a visual reference on arrival to the city of Cairns, but captures the seasonal tropical downpours, channelling rain water directly into storage.

As Australia's first environmentally designed major public building the Centre has won many awards for its energy and resource conservation features including the first ever European Incentive & Business Travel Meetings environmental award in 1994. It is situated in close proximity to the Great Barrier Reef and the ancient Wet Tropics rainforests (the only place in the world where two World Heritage sites sit side by side).

The Centre, unlike previous public buildings at the time, was formed from a combination of steel and laminated plantation timber, producing a more crafted architecture that responds to environmental issues.

PLANNING AND MANAGEMENT

A collaborative professional approach to the environmental planning of the Cairns Convention Centre recognised the importance not only of designing environmental features but also effectively delivering the initiatives of this design. These features were supported with training and creating user manuals for the systems employed. Post occupancy system tuning has been continued by the Managing company, AEG Ogden, to ensure optimal performance of all building systems.

The building was designed with all critical infrastructure located above the Q 100 flood line to ensure the resilience of the structure to any severe tropical weather or storm surge events that may be experienced.

A 2008 review of the environmental features of the Centre identified new trends and technologies in the field of ESD. These technologies are incorporated into future capital improvements to support and improve operations and allow the Cairns Convention Centre to remain at the forefront of environmental operation of world class public facilities.

SITE

Previous use of the site was flat land containing a bunded bulk fuel tank terminal.

Decommissioning the terminal and preparing the site for redevelopment was achieved with minimal requirement for excavation, vegetation removal, clearing or disturbance to the topsoil and ecology of the site. Removing the fuel terminal and redeveloping for public use significantly improved the amenity, community safety and ecological value of the precinct.

The site is ideally located, adjacent the Cairns City central business district, transport routes, hotel and accommodation precincts. These factors all combine to encourage delegates and visitors alike to use interconnecting footpaths, cycle ways and public transport for attending conferences, exhibitions, concerts and sporting events. Bicycle racks have been provided for the use of staff,



delegates and visitors to further promote healthy attendance and minimising the reliance on private transport.

Fitting of gross pollutant traps to all storm water runoff sumps has improved the protection to local marine habitats, water ways and marine life from the harmful effects of waste and debris entering the storm water system.

DESIGN

The Cairns Convention Centres' design provides flexible meeting spaces to maximise functionality and adaptability for conventions, exhibitions, concerts and sporting events all within a minimum building footprint.



Photo above: Original Design

Expansive use of glazed foyers harness natural light for day time functions whilst providing sight lines to the surrounding topographical features offering a living canvass of natural beauty enhancing occupant wellbeing. This is complemented by story board murals and an extensive collection of work by local artists strategically placed inviting the user to move throughout the space.

The roofing design incorporates both thermal and acoustic insulation to shield the occupant spaces from tropical heat and seasonal rainfall. An outdoor function space with enhanced natural ventilation provides an inviting location for visitors to take advantage of the local climate.

MATERIALS

The Centre was formed from a combination of steel and laminated plantation timbers, producing a more crafted architecture that responds to environmental issues. Façade cladding is insulated sandwich panel providing thermal resistance to heat gain within the space.





Over 80% of carpets used within the Centre were selected for their ability to be fully recycled.

ENERGY

Energy efficient features incorporated into the design include an insulated roof with light coloured roof sheeting to reflect solar heat, solar hot water panels and louvers on foyer glazing to shade from solar radiation reducing air conditioning demand. The roof line overhangs both the eastern and western sides to provide further shading.

A building management system controls the air conditioning ensuring optimal operation to conserve energy when operating. This same system includes on/off control of lighting and air conditioning at individual zones which is programmed in response to conference requirements safeguarding against wasted energy consumption.

Car park exhaust and ventilation is controlled by multiple CO sensors to switch off fans when not required.

In 2005 upgrades to the central chilled water plant saw the addition of thermal energy storage tanks to the chilled water circuit to improve plant performance and reduce maximum demand loads.

Compact fluorescent light fittings are used for foyers and a continued upgrade of lighting has seen the inefficient dichroic lamps replaced with high efficiency LED fittings. Movement sensors have been installed to public wash rooms and common back of house areas to switch off lighting in areas when unoccupied.

Sub metering of electrical loads has been upgraded to improve energy monitoring and reporting.

WATER AND WASTE

Installation of flow restrictors to all outlets during construction has reduced the Centre's demand on the town water supply. Captured rain water supplies half the watering needs of the garden and grounds further reducing the demand on treated town water.

Re-landscaping of the west facing gardens in 2009 to a more drought tolerant planting and drip feed irrigation has further reduced water consumption.

AEG Ogden as operators of the Cairns Convention Centre identified the ability to further capitalise on the rain water collected and stored in the inbuilt water tank. This captured water is now fed to the air conditioning cooling towers further reducing the demand on town water.

A program of Sub metering installation has provided the ability to better monitor and report on usage and identifies waste.

OWNERS/USERS STATEMENT

"The facilities that you have at the Centre are very versatile and the flexibility of the room configurations makes it easy to work with." Ms Joanne Tovey, Project Manager, Arinex Pty Ltd, The Renal Society of Australasia

"The Cairns Convention Centre is a fantastic venue: the building is impressive and functional."
Dr Carol Petherick, Conference Chair, 43rd International Congress of the International Society for Applied Ethology

"Your Centre provided the ideal venue for our Meeting. We received so many complimentary comments about the Cairns Convention Centre from our overseas guests."
Professor Bruce Waxman, Conference Chair, Tirpartite Colorectal Meeting

"Your venue is beautiful and was ideal for our Symposium. ICRS social events don't normally attract such huge numbers but we believe delegates felt relaxed, happy and ready to participate because of your venue." Professor Terry Hughes, Convenor, 12th International Coral Reef Symposium

PROJECT TEAM

Base building architect/designer, Stage 1, Stage 2 and Refurbishments: Cox Architecture

Interior designer, Stage 1: Coxnexus Design

Interior designer, Stage 2 & refurbishments: Cox Architecture

Civil engineer (Site and traffic)/Structural engineer, Stage 1, 2 & refurbishments: Arup

Services engineer (mechanical electrical, hydraulic, fire), Stage 1 & 2: Connell Wagner

Project manager: Project Services

ESD consultant, 2008 ESD operational review: Arup

Energy efficiency rating consultant/Green Star rating consultant: EarthCheck Bronze Benchmarked

Other consultants and contractors

Acoustics: RFA Acoustics

Food & Beverage Services: FSD Australia

Quantity Surveyors: WT Partnership

Builder, Stage 1: Civil & Civic

Builder, Stage 2: Abi Group

Electrical: PDR Electrical

Mechanical: Haden

Hydraulics: Tacoma Plumbing

FFE: RGC Consulting

BMS & Access control: Schneider Electrics

For more information visit: www.jcu.edu.au/tsd
www.greenbuild.com.au



Information and photos are supplied by the project owners and designers. The Tropical Green Building Network and James Cook University (the administrators) cannot guarantee the accuracy or authenticity of this content. Produced July 2014.

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