TROPICAL SUSTAINABLE DESIGN CASE STUDIES

Malanda Falls Visitor Centre

Project type: Civic

Location: Atherton Rd, Malanda, QLD, Australia
Year of completion: 2007

- **Modular and transportable the building acts as an attractor in its roadside location**
- **The articulated, wrapping external façade features the volcanic history of the region, recalling indigenous stories of the seven-sisters whilst nestling up to the pristine rainforest**

OVERVIEW

The Malanda Falls Visitor Centre was established in 1996 by a team of enthusiastic and passionate locals. Their dream was to provide a place to help visitors and school children understand and appreciate this unique rainforest environment.

On 24th April 2010, the Malanda Falls Visitor Centre was destroyed by fire. It was a devastating blow to the staff and volunteers. All the original displays and many irreplaceable artefacts were destroyed.

After the fire, Tablelands Regional Council worked with volunteers and the community to rebuild the Centre. People from a range of organisations generously gave their time and contributed their ideas including Ngadjon elders, members of the Choorechillum Prescribed Body Corporate (PBC), the Malanda Chamber of Commerce, Eacham Historical Society, Queensland Parks and Wildlife Service and Wet Tropics Management Authority, as well as Tablelands Regional Council staff and volunteers. Rather than recreate what had been lost, they decided on a more modern style for the Centre, to be rebuilt on the same site (see http://malandafalls.com/our-story).

PLANNING AND MANAGEMENT

The centre is a new and upgraded interpretive educational facility for the Atherton Tablelands. This project makes for a unique building prototype in that it is cost-effective, modular in its construction and transportable, but the design is bespoke in its detail layout and in its external configuration.

Public consultation during the design development workshops ensured the delivery of a building that had real input from all stakeholders.

Innovation and new solutions to the problems of living with climate change in the 21st century are delivered by integrating the expertise of allied disciplines, in particular the hydraulic and structural engineering which not only facilitated the advanced sustainability initiatives but also the practical requirements for withstanding annual cyclonic weather events.

The project was developed and procured through an intensive value management process, resulting in a highly cost-effective solution for a fully functional, exemplar public building prototype.

SITE

The centre has a roadside location on a busy highway leading into the town of Malanda. The site is controlled by the Queensland Government Department of Transport and Main Roads. Due to the nature of the tenure is was a requirement that the building be transportable.

The site is part of major road setbacks leading towards the public car parking for the Malanda Falls Conservation Park and recreation area and is already cleared from vegetation.

The site slopes from west to east and stepped concrete footings and slab form the main base of the building.

DESIGN

The building design represents a re-think and new direction for tropical architecture, moving away from the conventional building vernaculars toward new and progressive solutions that can be applied anywhere on a tropical latitude. The articulated, wrapping external façade features the volcanic history of the region, recalling indigenous stories of the seven-sisters and surrounding landscape.

The building acts as an attractor in its roadside location, whilst nestling up to the pristine rainforest with sheltered viewing platform and private verandahs from which visitors can look out for the elusive tree kangaroos. From every point within the facility there are full height framed feature views of the rainforest surrounding whilst shielding the view of the busy highway.

The centre has a central interpretive space that is flexible and adaptive to changing display requirements. The wrapping verandas with feature soffit shelters act as flexible break-out spaces with direct connection to the rainforest and walking tracks down to the waterfalls.

As a public facility it has extensive areas for people to meet, discover and interact with nature. Careful consideration was given to all aspects of universal access requirements. The centre also features a small shop, reception, offices for volunteers, council staff and public amenities.

Natural ventilation and cooling is achieved by applying passive design principles. The long axis of the building runs from east to west and the large roof overhangs on the eastern, southern and northern elevations shade the main walls of the centre. There are large door openings on the northern elevation that faces onto the rainforest drawing in cool breezes.

MATERIALS

There was a collective desire to develop a world-class environmentally sensitive design (ESD), that was not reliant on complex technological solutions or require perpetual up-keep and costly maintenance.

Long life cycle efficiency materials were selected and sourced locally from the tablelands region.

The main steel structure is modular. The steel skeleton is easily disassembled and transportable. The steel is fully recyclable.

The roof is a light coloured steel sheeting and the cavity is ventilated through large vents situated on the northern elevation fascia.

Much of the external wall cladding is extruded aluminium sheet with a decorative profile that is long lasting in the tropics, does not require painting and is easy to keep clean.
The external wall cladding to the western elevation that receives the full hot summer afternoon sun is light coloured colorbond steel sheeting.

The soffits and fascia's are clad with fibre cement sheeting, a durable and locally available material.

The decking is a reconstituted timber and recycled plastic product that is fully recyclable. It is very durable in a tropical climate and requires little maintenance.

Extensive solar tinting treatments have been applied to all glazing to reduce heat and UV light, which is important for the preservation of artefacts.

ENERGY

The centre is located in a cooler wet tropical climate. For much of the year the temperature is very pleasant and air-conditioning is not required. The centre has artefacts and humidity is also controlled by air-conditioning but in the dryer months of the year the building can be naturally ventilated.

The centre is designed to be a mixed mode building and natural ventilation works well for most of the year and ceiling fans are installed throughout. During the hot humid wet season, air-conditioning can be used.

The centre also has a range of energy efficient LED lighting.

WATER AND WASTE

The project features stormwater harvesting tanks for non-potable uses and low water usage plumbing fixtures and fittings.

OWNERS/USERS STATEMENT

"By working closely with all members of the user and client groups we were able to achieve unanimous council and public support for what is a challenging and innovative architectural proposal. Now that I see it linked to Country, I think it is beautiful. It is a building to make people stop." *Eva Morta, Ngadjon-ji representative from the Choorechillum*

PROJECT TEAM

Base building architect/ designer: Charles Wright Architects
Civil & structural engineer: G&A Consultants
Services Engineer: GHD
Project Manager: Charles Wright Architects
ESD Consultant: GHD
Energy Efficiency rating consultant: Brad Pinches
Other consultants: CMRP Hydraulic Consultants.
Builder: Hutchinson Builders

Photographs courtesy of Patrick Bingham Hall
Photos of ramp, vents and western wall: Emma Thirkell

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

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