Case Study

Glistening skin gives style to tropics

Background

A university building in North Queensland proves once again that hot dip galvanized (HDG) surfaces can lift the appeal of prominent architectural features without additional treatments required.

This project joins the Lavarack Barracks, Daintree Discovery Centre and Cairns Futsal Stadium where HDG provides corrosion protection, durability and a stunning visual impact. It has already been the subject of a seven-page spread in the Architecture Australia magazine's March-April 2014 edition and was a finalist in the 2014 GAA Sorel Awards.

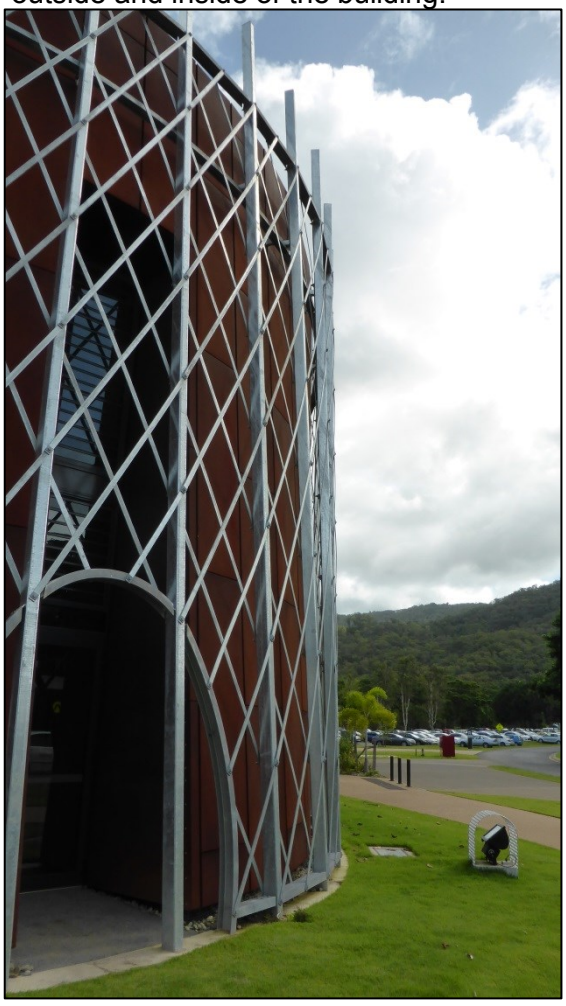
The Cairns Institute building is encompassed by a super-sized hot dip galvanized steel lattice skin, or 'trellis', shielding the building whilst connecting it to its tropical rainforest setting. Among other elements it comprises over 4km of HDG strapping and 10,000 structural bolts with around 58 tonnes of galvanized steel in total.

The landmark building supports James Cook University's aim to become one of the world's leading research universities in the tropics by facilitating research activities in social sciences, humanities and other related fields of tropical knowledge.

Inside the trellis, the tall two-storey structure is essentially three buildings; a long rectangular research and office wing and two oval 'pods', the lecture theatre, and the seminar pods, all of which are linked together by a two-storey high exhibition and display foyer.

Visually Stunning

This project is a visually stunning example of the appropriateness of HDG for a tropical environment. While the galvanizing in this project was not particularly difficult or unique, comprising mainly straight RHS and flat sections, all the galvanizing is visible, both from the outside and inside of the building.



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The HDG used to protect the trellis encapsulates aesthetics and sun control. There were also more standard items galvanized such as interior stairs. All external steelwork was HDG treated which presented logistical challenges as the nearest galvanizing plant is 350 kilometres away.

Design Features for Durability

The Cairns Institute features key design attributes to maximise durability of the trellis. The bolts are insulated where required and have special heavy duty galvanized washers in key locations.

In addition, the interface with the concrete plinth has been well considered and includes a non-conductive barrier paint applied above and below the surface. This ensures any moisture penetration into the porous concrete does not significantly reduce the life of the steel structure by accelerating the rate of corrosion of the galvanized post.

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Teamwork

The galvanizer's professional in-house software and communication procedures with the local contractors meant the project was seamless from a customer viewpoint. The company worked closely with the steel fabricator to achieve the exact finish required and coordinate the processing and delivery to site to meet construction time lines.

PROJECT TEAM
Developer/Owner: James Cook University
Architects: Woods Bagot, RPA Architects
Urban Design: Andrew Prowse Landscape Architect
Civil and Structural Engineer: Flanagan Consulting Group
Project Manager: Hansen Yuncken
Main Contractor: Hansen Yuncken
Steel Fabrication and Detailing: CSF Steel Fabricators
Hot Dip Galvanizer: Australian Professional Galvanizing
Photography: GAA
Case Study: Alan Marshall (ASI) / GAA

For further examples of the durability of hot dip galvanizing please visit www.gaa.com.au or scan the QR code.

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