

Case Study

Milson Island Indoor Sports Stadium



Background

The project called for a site-specific, multi-purpose building to accommodate a variety of sporting and social activities. The design of the entire building is modular including the floor, walls, roof, and service pods. It can be extended, reduced in size, or even moved with relative ease, particularly important for the remote water-locked location to ensure a lot of the work could be completed off-site and barged to site in pieces and simply bolted together. Likewise, the building could equally be unbolted and shipped away.

Prefabrication off-site for the most part meant that the steel frame erection was completed in days allowing other trades to quickly move onto and enclose the structure and the finishing trades to start. Portal frames incorporated splice details to allow for the sections to fit on the barge. All other material was generally lightweight. Steel sections could be readily handled while some of the heavier section portals required a mobile crane to install. The use of concrete footing was minimised by embedding steel posts in the existing rock shelf and a steel jointed floor system was adopted rather than a traditional concrete slab.

The unusual asymmetrical curve of the hall arose from practical considerations of wind load, bushfire protection and maintenance. The main curve directs wind efficiently over the roof, while the indented curves at the base scoop wind inside providing natural ventilation to the hall. The continuous wall/roof shape dispenses with gutters, reducing maintenance and removing a major bushfire hazard.



A structural frame consisting of galvanized and MIO painted primary steel framing members and roofing material of marine grade COLORBOND® were specified to ensure the building is relatively maintenance-free.



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The Advantages of Using Hot Dip Galvanizing

The hot dip galvanized structure offered the designers several significant advantages over alternative materials.



Modular design delivers speed

Fabrication of the majority of the structure took place off-site – a unique capability of well-designed hot dip galvanized steel structures. In addition, by coordinating the production requirements with the galvanizer and utilising their superior logistics capabilities, the project team enabled the sub-components to be delivered on time, in full, and in a controlled manner via barge to the bushland site. The galvanized steel skeleton and sub floor structure design



also minimised the use of time-sensitive concrete. The modular nature of the building footprint means that it can be easily expanded should the need arise.



Tough coating system

Due to the tough galvanized coating the building could be quickly assembled, once the components had been delivered to site, as little or no touch-up was required at the building site. Of course, the galvanized surface has the advantage of also protecting the base steel from the everyday activities occurring within the completed stadium.

Superior corrosion protection

The initial cost savings generated by the *tried, tested, and proven* galvanized coating will be even more apparent as the building ages, with reduced maintenance and an increased and predictable life over alternative materials and coatings.

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Awards

Winner: ASI 2012 Small Buildings Projects, National & NSW/ACT

Winner: Master Builders Commercial or Industrial Construction Award 2011

Winner: COLORBOND® Award for Steel Architecture 2012 AIA

High Commendation: GAA 2012 Sorel Award

Commendation: Public Building AIA 2011

Acknowledgements

Architect: Allen Jack+Cottier Architects

Structural Engineer: Taylor Thomson Whitting Consulting Engineers

Building Contractor: Inten Constructions

Galvanizer: Hunter Galvanizing



Eight Reasons to Choose Hot Dip Galvanizing

1. No hold ups due to weather – steel can be galvanized in any weather conditions
2. Speed – modular design compatibility to speed up construction
3. Tough coating system – reduces transport damage & minimises on-site repairs
4. Inbuilt durability – minimises in-service damage in the sporting environment
5. Withstands UV – the surface is immune to damage from the extreme Australian sun
6. Superior corrosion protection – provides initial and lifetime cost savings
7. Aesthetics – natural good looks
8. Sustainable – Zinc and steel are 100% recyclable

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Hot Dip Galvanizing **Tried. Tested. Proven.** **Your first and last line of defence**

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