

# Case Study

## High stakes skin for Star extension

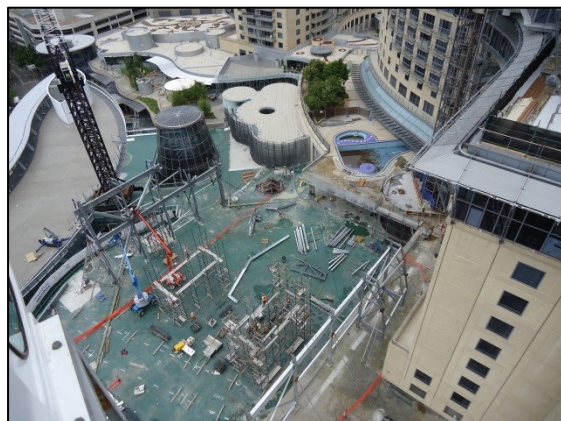


### Background

Hot Dip Galvanizing (HDG) met the multifarious demands for the recent major redevelopment atop the Star City Casino beside Sydney's Darling Harbour.

The \$760 million redevelopment has produced a 3000m<sup>2</sup> gaming facility featuring a new entrance facing Sydney Harbour, a floor-to-roof glass façade and a 3000-seat Multi Use Entertainment Facility (MUEF).

Located on the busy shoreline of Sydney Harbour exposed to a marine environment classified by ISO 9223 as a mid-level corrosive environment (C3), the project demanded guaranteed low-maintenance corrosion protection for the marine exposed environment, on-time staged delivery of prepared steelwork, resistance



to onsite handling damage whilst providing aesthetic appeal for such a high profile venue.

### The Project

The selection of a HDG protected steel frame successfully met the site challenges of a limited lay down area, a tight construction schedule whilst the venue maintained continuous trading, guaranteed long-term performance, and resistance to handling damage in delivering the project on-time and within budget.



The MUEF is a 40 by 60 metre complex geometric structure that utilises a 300-tonne galvanized steel frame to support internal walls and an external glass façade which is internally lit at night to spectacular effect.

The use of architecturally exposed structural steel is becoming increasingly popular and was a key design feature of the new MUEF.

Aesthetics were a key consideration in the selection of HDG as the steel frame is visible through the glass façade, which is exposed to sunlight, as well as at internal locations. Despite the filtering effect of the

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glass, impact of UV light on the coating had to be considered and HDG is not affected by UV. Galvanized steel quality was important including placement and precision of vent and drain holes.



Effectively the steel frame is sandwiched between the interior soundproof walls of the MUEF and the attractive external stainless-steel and glass façade. In such a structure, the asset owner needed a guarantee that minimal or no-maintenance would be required for an extended period. The durable nature of the HDG coating ensures it will exceed the warranty period providing a maintenance-free service for at least 10 years.



Normal operations were to continue during the redevelopment above the gaming facility in use 24 hours every day so minimal disruption and risk to clientele was demanded. Onsite preparation also needed to be minimised to lessen the potential impact of dust and fumes.

It was unnecessary to coat the HDG treated steel onsite and this eliminated the issues of dust, paint fume and encapsulation that would have interrupted trading operations on the site.

The construction zone was in a cul-de-sac that also contained the entry to the casino car park and loading dock. All building deliveries had to take place in a 30-metre zone that also contained the base of the tower crane leaving just 16m of useable space. Storage space was also limited

### **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 from vandalism & accidental knocks
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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and available locations were constrained by the load capacity of the concrete slabs so the steelwork erection was split into stages that were erected sequentially to minimise storage and maximise structural stability and safety.

The need for off-site preparation and lack of onsite storage meant that any protective coating on the steel needed to be tough and resistant to handling damage as it would be craned directly into position from the back of the transport.

The thick alloy layer that coats HDG steel proved highly beneficial in this application with the galvanic protection provided by the coating ensuring that scratches have minimal impact on service life or aesthetics.



### Project Team

**Asset Owner:** Echo Entertainment

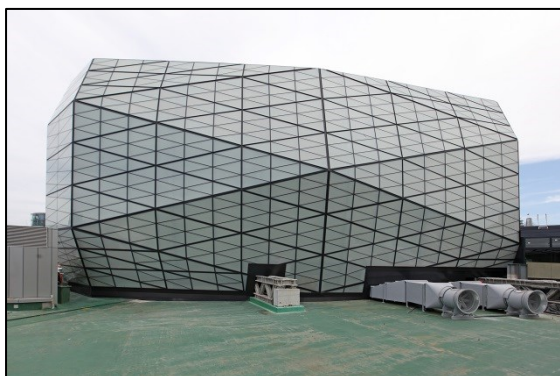
**Architecture:** Fitzpatrick & Partners

**Principal Builder:** Brookfield Multiplex

**Specifier and Construction Project**

**Management:** ICMP

**Galvanizing:** Industrial Galvanizers



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**galvanizers**  
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