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March 2012

Asia Pacific Edition

HOT DIP GALVANIZED STEEL

SOREL AWARD WINNER 2011 AND SPECIAL COMMENDATIONS

SOREL AWARD

Winner

Hartway Galvanizers Naval Base *for* The Brockman 4 Project "Green with Envy"

Special commendations

Korvest Galvanisers *for* 'Manuele Engineers Steel Facade Building' *and* Australian Professional Galvanizing Pty Ltd *for* 'Redlynch Indoor Sports Stadium – Futsal '

The winner of the Sorel Award 2011 for Industry Innovation was announced at the Galvanizers Association of Australia's Annual Conference last October. The award was presented to:

Hartway Galvanizers Naval Base *for* The Brockman 4 Project "Green with Envy"

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SOREL AWARD WINNER 2011

Background

The Sorel Award is dedicated to Stanislaus Tranquille Modeste Sorel, the French Civil Engineer who, during the 1830's, pioneered the galvanizing process as we know it today.

Sorel said "Every day of practice in a new industry gives birth to new improvements and frequently the parent idea is virtually eclipsed by the modifications, becoming finally no more than a small nucleus around which is grouped everything created by thought and experiment. This is what happened with our discovery: The parent idea is a trifle and the details are everything – they form a NEW INDUSTRY."

Today, the Award recognises the most significant recent contribution to the enhancement of the galvanizing industry in the areas of project innovation.

The criteria for each entry, by which it is judged, include:

- Ability to provide specific service, in terms of delivery and backup
- Contribution towards increasing the galvanizing market in total, through innovation, promotion and distribution
- Extension of product and service into related market segments
- Benefit to the community
- Contribution to reducing construction time, cost and efficiency
- Contribution to the engineering viability of the structure
- Specific contribution to corrosion resistance, mitigation and maintenance-freedom
- Degree of engineering difficulty in design
- Development of new techniques for handling, pretreatment and galvanizing
- Degree of galvanizing complexity
- Contribution of process to improvement in galvanizing efficiency

"Green with Envy"

The Brockman Syncline 4 Mine – Hartway Galvanizers Naval Base

Hot dip galvanizing was sold as a "superior service" in this arid inland project.
Rio Tinto's Brockman 4 iron ore mine is located in the Pilbara, Western Australia and was officially opened in September 2010. The US$1.5 billion mine will have an initial output of 22 million tonnes per annum (Mt/a) of high-grade iron ore, with the opportunity to double that capacity as Rio Tinto's expansion of its Pilbara operations continues.

The project involved the development of a new mine and construction of a:

- Primary and secondary crushing facility
- Product screening facility
- Project sampling stations
- Stacker, Reclaimer, stockpiles and train load out bin
- 43kms of new heavy haul railway from Brockman 2 to a rail loop at Brockman 4
- New rail siding (Crest Siding), located between Rosella and Brockman 2
- Infrastructure to support the new site

Corrosion protection for steel on projects in this arid environment was traditionally through the use of paint, i.e. one coat system (with blasting for surface preparation) consisting of a green 75µm inorganic zinc rich silicate primer. Although hot dip galvanizing offers over a 50 year life to first maintenance, durability was not a major concern in this project's arid climate. "At the end of the day, it is in the middle of the desert and will be covered in red dust once commissioned." The galvanizer could see in order to offer an alternative to paint, the merits of hot dip galvanizing with regard to ease of handling, faster turnarounds and quality service, needed to be promoted.

Tight co-ordination with the fabricators on the design of the steel components enabled a high standard of galvanizing and a fast, efficient service. A close relationship with the main contractor, Monadelphous, also ensured teamwork enhanced the final outcome.

One of the original reasons for using a paint system was to make the structure 'aesthetically pleasing'. Teamwork with Monadelphous and the fabricators along with an emphasis on quality service allowed hot dip galvanizing to meet this criterion. Monadelphous Project Manager, Chris Emer, flew over the site and said the galvanizing looked brilliant from the air.

Hot dip galvanizing was used as a corrosion protection in the conveyor modules, stringers, trestle legs, piping, brackets, cable ladders and conveyor frames.

The Sorel judges commented that the galvanizer provided added value to the corrosion protection of steel by offering proof of good service, fast turnaround and quality which will ensure that this geographically located market will continue to grow.

SPECIAL COMMENDATIONS

SOREL AWARD

SPECIAL COMMENDATIONS WERE AWARDED TO:

Australian Professional Galvanizing Pty Ltd *for* 'Redlynch Indoor Sports Stadium – Futsal ' and Korvest Galvanisers *for* 'Manuele Engineers Steel Facade Building'

Futsal Stadium, Cairns Queensland - Australian Professional Galvanizing

The $6m Redlynch Central Sports Stadium Cairns Queensland was opened in October 2010 and is a 3,000 square metre facility, primarily designed to accommodate the expansion of the fastest growing sport in Australia – indoor soccer, known as "Futsal". The complex has also been configured to hold netball and handball fixtures. It has Australia's largest and most advanced synthetic playing surface, which was designed for the tropics, and can be converted into four open-sided courts; four dressing rooms and a 650m^2 gym.

The complex was designed to complement the tropical landscape with its simple, pure and clean structure.

The architect placed stringent aesthetic requirements on the visible structure, consisting of heavy section 610 Universal Beam structural steel sections. This meant the galvanizer had to develop special procedures for progressive or double dipping and were additionally constrained in the handling of the structure due to its size, as the roof spanned 18 metre runs on an exo-skeletal frame.

The roof's overall length is 80 metres. With the exo-skeletal frame constructed, a portable rolling container delivered BlueScope's continuous Aramax sheeting which was rolled directly under the frames on the "dollies". The sheets were then lifted by small gantries from the floor controlled by a rigger on each frame and secured directly to the frame. Total erection time from concrete slab to completion of the frame and the roof installation was two weeks.

Consultation with the builder, architect, owner, fabricator and galvanizer prior to commencement ensured an understanding and commitment on timing, outcomes and delivery. A world-class facility.

"THE COMPLEX WAS DESIGNED TO COMPLEMENT THE TROPICAL LANDSCAPE WITH ITS SIMPLE, PURE AND CLEAN STRUCTURE"

Futsal Stadium, Cairns Queensland

SPECIAL COMMENDATIONS

Korvest Galvanisers *for* 'Manuele Engineers Steel Facade Building'

Manuele Engineers Steel Facade Building, North Plympton South Australia - Korvest Galvanisers

Manuele Engineers had previously used hot dip galvanizing with success on the steel facade of their Clovelly Park SA office and wanted to make a similar, but more prominent, statement about the business they are in by showcasing intricate steel fabrication, enhanced by contrasting hot dip galvanized in-fill panels against a painted RHS support frame.

Here is a project that combines the complemented aesthetics of hot dip galvanized steel with a painted frame. The metallic nature of the galvanized steel contrasts well against the dark gloss painted RHS frame. The durability and maintenance free nature of hot dip galvanizing on very complex and intricate fabrications will continue to enhance the surrounding environment long into the future by preventing unsightly rust staining.

As an architectural feature of the steel facade, it was imperative the finish was consistent, requiring selection of domestic equivalent steel chemistry from the same steel supplier. With a "meccano" type construction of the facade required in order to bring the various components together, very tight tolerances were involved. This was reduced to several millimetres to accommodate a number of the in-fill panels which are able to be hydraulically rotated. This, of course, required close attention to the method of fabrication, as well as dipping technique during the hot dip galvanizing process.

The critical nature of this project highlights the need for early collaboration between the stakeholders; from the architect to fabricator to hot dip galvanizers. Teamwork again was the key.

The judges commented that both entries display great innovation in achieving the architect's design. Close collaboration with the stakeholders ensured the vision of the buildings were a success. The Manuele Engineers Building highlights successfully the melding of galvanizing with paint to produce a striking visual statement. The Fustal Stadium showcases a dynamic structure complementing the tropical landscape.

Manuele Engineers Steel Facade Building, North Plympton South Australia

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