



HOT DIP

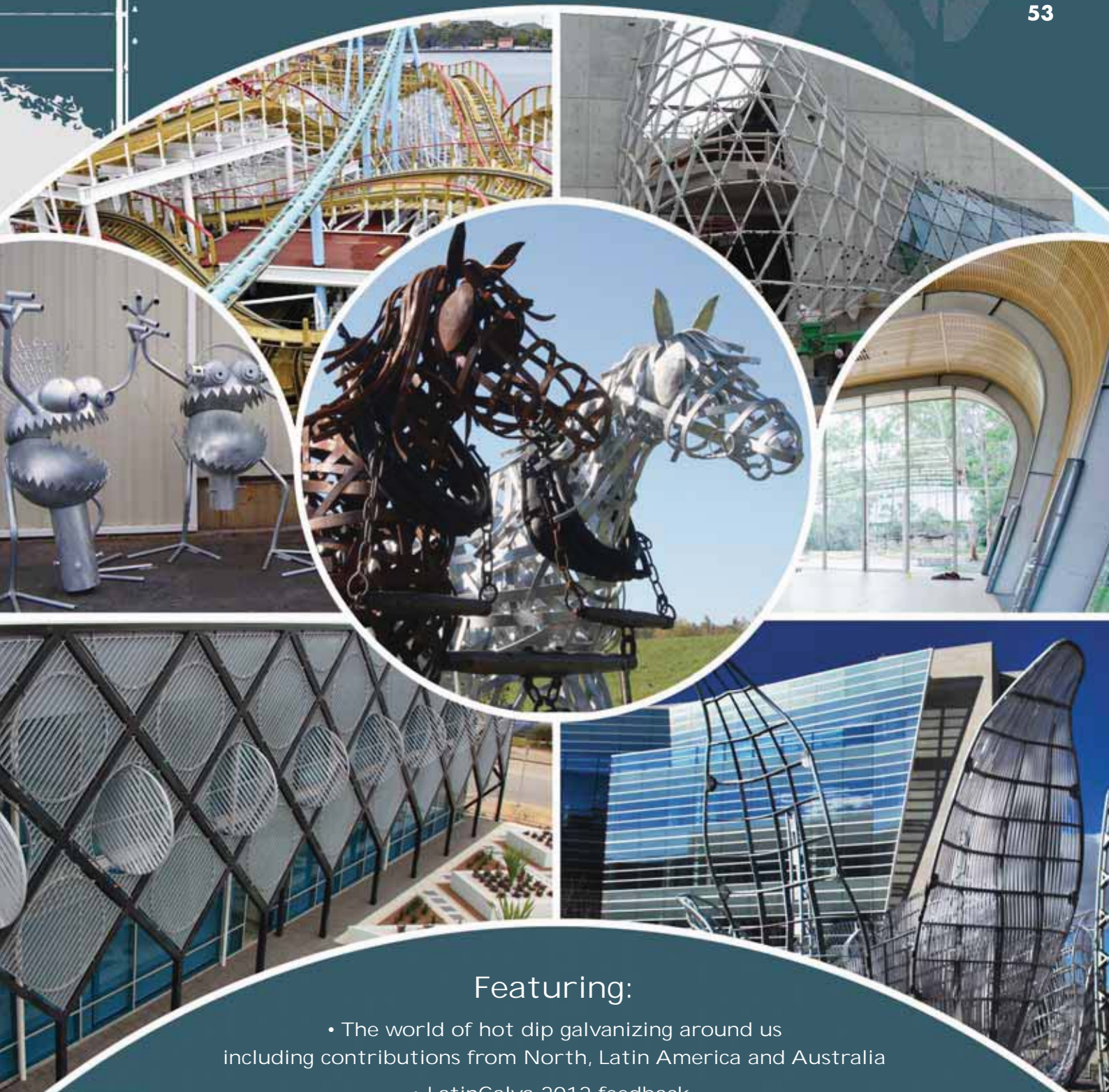
2013 Volume 10 Issue 1

GALVANIZING

TODAY

HOT DIP GALVANIZERS ASSOCIATION Southern Africa

53



Featuring:

- The world of hot dip galvanizing around us including contributions from North, Latin America and Australia
- LatinGalva 2012 feedback.
- 10 Years at the Association.

Regulars - Education and Training; Misconceptions;
Bob's BANTER and On The Couch





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The Association is an information centre established for the benefit of specifiers, consultants, end users and its members.

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TODAY

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Front Cover: A kaliedoscope of photos including the "Twister" roller coaster in Stockholm, Sweden; Salvador Dali Museum in St Petersburg, Florida; Milson Island Indoor Sports Stadium - Australia; Light Chamber in Denver, Colorado; Manuele Engineers steel building facade - Australia; Snow bugs for indicating hazardous skiing conditions; Park City, Utah and Ouevre Coburn an artistic sculpture from Val Saint-Francois, Quebec.

Hot Dip Galvanizing – Adding value to Steel

Executive Director's Comment



Starting off a new year represents an opportunity to reflect on our activities and what we represent as hot dip galvanizers.

No other corrosion control coating for steel provides the

service life, durability and predictable performance of hot dip galvanizing. An alloy of its steel substrate, hot dip galvanizing is unique in matching the design and handling characteristics of steel with its inertness to the high to extreme UV levels prevail over Africa.

Assets management and life cycle costing becomes even more essential where hot dip galvanizing provides a predictable engineering result. Hot dip galvanized steel will normally corrode 10 to 40 times slower than uncoated steel, depending on environmental conditions. In addition, zinc, the core element of the process, is a naturally occurring element, is essential for life and is 100% recyclable.

Zinc being a sacrificial metal will provide corrosion control as long as zinc remains present on the steel. The life to 1ST maintenance of a hot dip galvanized component is a function of both the thickness of the zinc and/or zinc iron alloy layers and the nature of the environment to which it is exposed. The corrosivity of particular environments, referred to as "Corrosivity Category" within ISO 9223:2012, have been widely researched and corrosion rates of carbon steel, zinc, aluminium and copper are tabulated.

Application of this data together with known zinc coating thicknesses one is able to calculate a predictable service life of a hot dip galvanized structure within the defined corrosive environment.

Reference to our Association's web site and information sheets published under technical (Information sheet No.8 - Corrosion of Zinc - Corrosivity of Atmospheres) will provide readers with an opportunity to review this guide to estimating a service life of a hot dip galvanized structure.

Bob Wilmot

Note from the Editor



When making comparisons between paint and hot dip galvanizing, a wise old man said once "the difference between a good industrial painter and a bad one is huge but the difference between a good galvanizer and a bad one is small." The reason being that a successful paint project is not only dependent on the quality of the paint but possibly about 70% on the preparation and application variables, with coating inspection playing a major role at all stages of the process. The difference between the two paint coatings produced in terms of corrosion performance, is therefore huge.

Dipping of perfectly clean steel into molten zinc is wholly dependent on a law of metallurgy and is therefore self-regulating. (If the steel is not clean it will not galvanize).

When asked to "galvanize" steel a "proactive" galvanizer will take care to ensure that the coating conforms in all aspects to the requirements of the standard. Where a customer does not identify a specific specification, some galvanizers may process steel without strict conformance to the standard. The difference however, between the two coatings produced in terms of corrosion performance is negligible, as both because of how they protect will offer the same result!

Customers may vary in what they require from a galvanizer, some may prefer to take the finished coating "as is" and methodically clean the surface to the desired surface finish. Others expect the galvanizer to work strictly according to the National Standard. Where this is the case the customer's requirements should be clearly stipulated on the order to the galvanizer.

To ensure that the components are "hot dip galvanized in all aspects to SANS 121" ask for a certificate of conformance in terms of ISO 10474 or if the galvanizer is so registered, a SABS Mark Scheme certificate.

In order to achieve this, all components must be designed and fabricated strictly in accordance with SANS 14713 and the request for certification given at order stage and not after the components have been galvanized and delivered.

Should a better surface in general or on "specific significant surfaces" be required (for duplex or architectural galvanizing), this must be clearly stated on the order and if necessary, samples produced for discussion and negotiation purposes.

The main feature for this edition is "**The world of hot dip galvanizing around us**", with some really unique contributions like the Salvador Dali Museum, Light Chamber, Oeuvre Coburn and Snow Bugs from North America; a Twister from Sweden; a Unique steel façade and Milson Island indoor Sports Stadium from Australia and viewing platforms adjacent to the Cataratas Iguazu Waterfalls and Glacier Perito Moreno from Latin America.

We re-introduce Walter Barnett's concept of **Misconceptions** with a new one and aim to repeat all the past Misconceptions due to the repeated questions we are receiving.

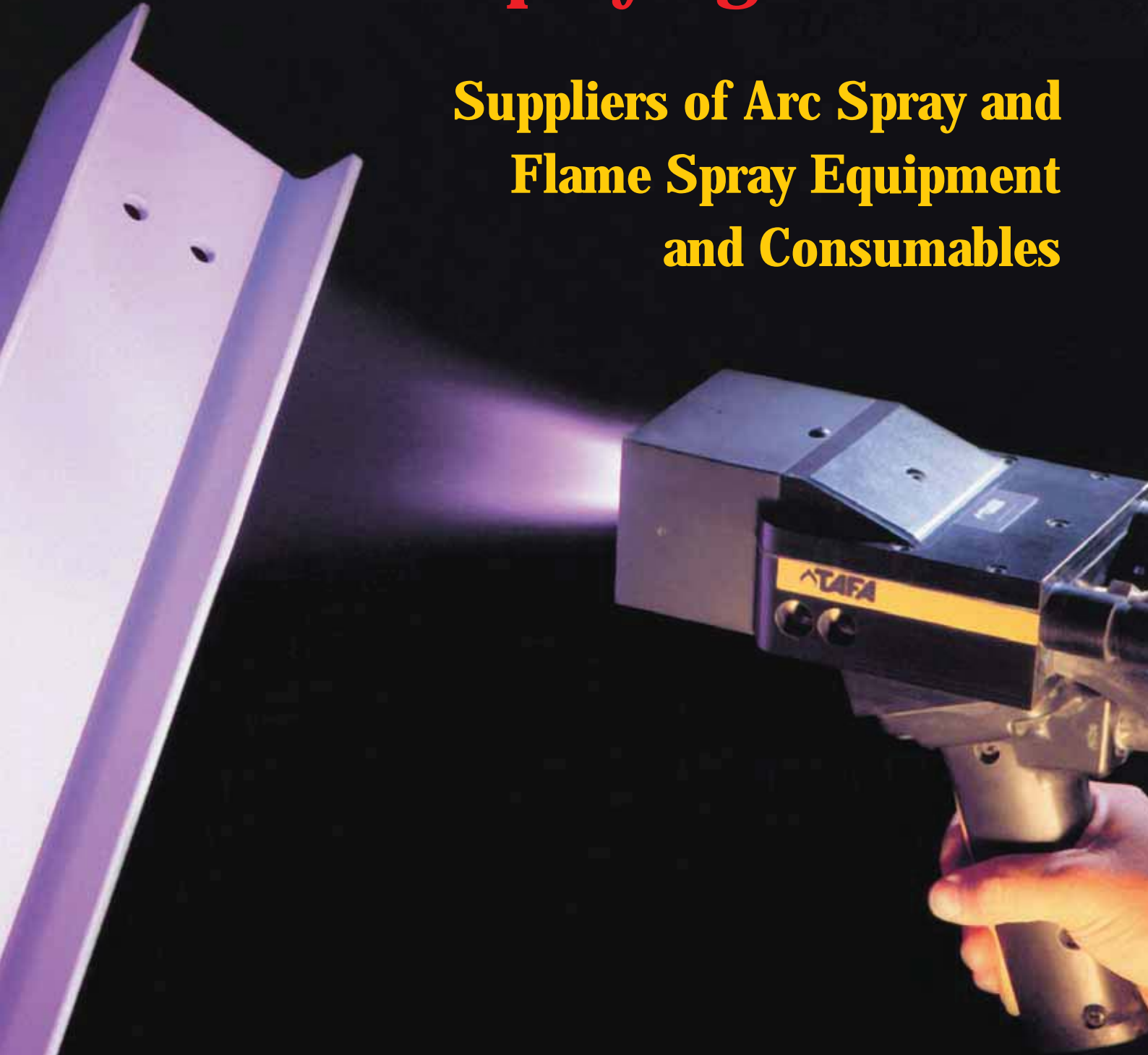
Regulars include **Education and Training**, **Bob's BANTER**, **Members News** and **On the Couch** where we chat to Riaan Louw a well known industry personality and Johannesburg galvanizer.

Enjoy the "magazinc".

Terry Smith

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North America

Cliffwalk at the Capilano Suspension Bridge: **Vancouver, Canada**

Reaching out over a misty expanse of evergreen foliage, The Cliffwalk at Capilano Suspension Bridge dares visitors to tread out over the open canyon below and drink in the bird's-eye view. With the Capilano River rushing below the treetops, visitors can fully experience nature's majesty above, beside, and below.

One of the most popular tourist attractions in British Columbia, the original bridge was constructed in 1889, spanning 450 feet across and 230

feet high. The new Cliffwalk path is just 20 inches wide, with only woven steel and glass siding separating you from the expanse of empty air below.

The Cliffwalks' cliffside location makes it difficult to maintain or repair, as the arc hangs 90 meters above the river below. Furthermore, the attraction is located only a few miles from the Pacific coastline that surrounds Vancouver, making corrosive moisture in constant contact with the exposed steel elements. A maintenance-free corrosion protection system was critical to avoid the dangerous, costly, and unpleasant task of routine

maintenance, and the superior barrier and corrosion protection of hot dip galvanized steel made it the ideal choice to protect this new facility.

Capilano Suspension Bridge's VP of Operations, John Stibbard came up with the idea while rappelling in Capilano Canyon. Four years and 4.5 million dollars later, the Cliffwalk is designed to serve as a medium for the interactive educational displays developed with the David Suzuki Foundation.

Daring visitors of all ages will see galvanized steel in all corners of the park and the Cliffwalk structure itself. The natural, matte gray aesthetic will blend easily into the cliff face and forest environment. Aesthetics were of key importance to this project, which was intended to feel light and airy.

The strong, durable galvanized steel that comprises the Cliffwalk will keep visitors safe, while existing maintenance-free for decades of adventurous visitors to enjoy.

Galvanizer

Silver City Galvanizing, Inc.

Owner

John Stibbard (VP)

Engineers

Morrison Hershfield Ltd.
Wyllie & Norrish Rock Eng.

Fabricator

Solid Rock Steel

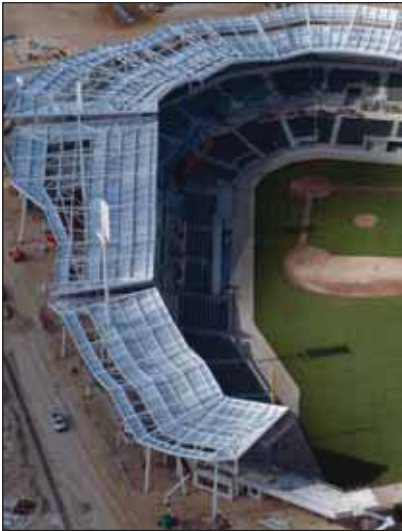


Cliffwalk at the Capilano Suspension Bridge, Vancouver, Canada.

Jet Blue Park: **Fort Myers, FL United States**

This facility is to serve the general area and as Spring Training Facility for the Boston Red Sox. The location and local weather required a strong protection against corrosiveness. Thus galvanized coating with over-coat of paint provides a synergistic system for long life and little maintenance.

This project called for very complex fabrication, hot dip galvanizing and a



Jet Blue Park in Fort Myers, FL United States.

very tough application of a duplex system. The fabricator, galvanizer, and painter had to work in a cooperative and timely manner to complete the construction on time for the Boston Red Sox spring training start. The supporting roof structure had to be erected in a safe and timely manner thus allowing completion of the fan areas to be accessed and to provide protection for the fans from the warm Florida weather once spring training practices and games started.

Project specifics

Year galvanized: 2011

Environment: Temperate marine

Location: Fort Myers, FL United States

Reason for galvanizing: Aesthetics, coating durability, life-cycle cost, sustainability

Components duplex coated: The entire complex roof system including trusses, beams, and supporting circular columns, comprising 400 tons.

New World Centre Soundscape: Miami Beach, Florida

When most people think of a night at the symphony, they may not think of 7-story tall musicians, blankets, and picnic baskets, but that is just what you will find at the home of the New World Symphony (NWS) in Miami



Beach, Florida. Designed by West 8, the 2.5 acre park brings a symphonic experience to the outdoors by projecting images onto a 7 000 square foot projection wall, while dozens of surround sound speakers simulcast the audio of the performance from inside the hall.

The project was designed to expand the audience of classical music and build a sense of community around the center. With this open air venue, free to the public, their hope is to introduce classical music to those who otherwise may never have that experience.

continued on page 6...

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The world of hot dip galvanizing around us!

Within the park, patrons will find “ballet bars” spanning the length of the park. These bars are filled with speaker systems intended to give listeners the same sound experience as if they were in the concert hall. Microphones are placed strategically around the hall to pick up each unique sound from the subtle to most pronounced. Nine high-definition cameras record the performance. It is edited live and run through fiber optic cables to four large projectors at the rear of the park.

So close to the ocean, this hostile, tropical environment wreaks havoc on steel structures. Careful consideration had to be given to how these structures would be protected from corrosion in such an environment, and in turn protect the sensitive cabling

and speaker system held inside. A duplex coating system of paint over hot dip galvanizing was chosen. Hot dip galvanizing provides the necessary corrosion resistance and a top-coat painted finish provides the aesthetic required to incorporate the large structures into the park.

The pipe structures were designed containing several layers of internal plates to hold the speakers, essentially creating multiple baffles inside the pipe. The galvanizer worked with the fabricator on determining where holes would be needed to facilitate proper draining of the zinc and venting of the entrapped air. Many of the pieces were fabricated in lengths too long for a single dip in the galvanizing kettle. Progressively dipping the structures added to the complexity of hole

placement and the quantity of holes needed.

Working in tandem, the hot dip galvanizing will protect the beautiful painted finish from the inside out, and the paint will provide an extra layer of barrier protection. This duplex coating system will provide decades of maintenance-free protection to these structures so integral in the mission of the NWS. As these “ballet bars” perform a role in the cultural progression of this community and worldwide, decades from now, parents who sit in the park with their children will recall the inspiring awe they felt when they heard their first symphony from these same “bars.”

Galvanizer

Valmont Coatings - IGA - Tampa

Fabricator

Pro-Fab Tech, Inc.

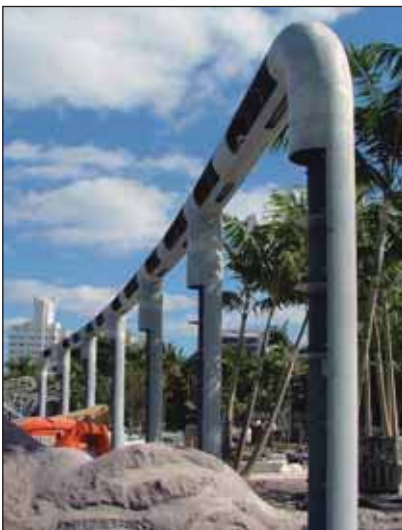


Contemplay Pavilion: Montreal, Quebec

The ContemPLAY pavilion, developed by a group of students for the McGill Architecture School, is meant to be a multi-generational structure that gathers the ideas of contemplation and play in a single expression. As a socially sustainable public infrastructure piece that plays with the visual field through form and cladding, it challenges the current trend in public space furniture and approaches the realm of the abstract sculpture.

The structure itself is a three-dimensional mobius strip supported by a triangular truss, constructed with a combination of laminated plywood and galvanized steel elements. The cladding creates visual interest by playing with line of sight manipulation and interference patterns. As the public approaches and engages the pavilion, the visual field is modified and interrupted by the interference created by motion and the two layers of cladding, a moiré effect.

The eye continuously covers the surface of the ribbonlike mobius,



New World Centre Soundscape, Miami Beach, Florida.



Contemplay Pavilion, Montreal, Quebec.

expressing dynamic motion. Within, a bench anchors the project to the ground, allowing for a center seat in the never-ending structure. Light filters through the cladding, blurring the lines between the inside and outside world of the piece.

As you move around the pavilion, new interference patterns are continuously created depending on your position, creating a responsive, interactive experience. The simplicity of a half-twist in a ribbon was rendered extremely complex through the doubling and offsetting of the Möbius strip. This elaborate visual spectacle required a strong yet minimal structural solution for support. The solution to this complexity was a space frame comprised of hot dip galvanized steel tube and wood supports.

To fabricate the space frame, the choice of galvanized steel tube was made for aesthetic and technical reasons. The hot dip galvanized steel not only resulted in a soft, matte gray color, it also proved to be the most durable and cost effective corrosion protection system for the project. The color of the wood will turn from natural to a soft gray with time, as the pavilion is exposed to the elements; however, the galvanized steel will remain attractive and rust free for the life of the project.

With age, the galvanized steel and wood will form a common visual structure that achieves the artistic intentions behind the ContemPLAY design.

Galvanizer
Corbec Inc.



Architect
McGill Architecture School

Fabricators
Protoplus Précison
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Altitudes Steel

continued on page 8...

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Light Chamber at the Denver Judicial Centre: Denver, Colorado

With gracefully arched petals blooming skyward, the Light Chamber sculpture blossoming at the entrance of the Denver Justice Center utilizes organic curves and natural materials to generate a sense of airy, natural lightness and movement. Artist Dennis Oppenheim, who has incorporated galvanized steel in several outdoor artistic displays, wanted to create a free-flowing sculpture of leaves and flowers to symbolize the wide variety and multitude of decisions made in the judge's chambers.

The artist explained the structure to be a three dimensional representation of the mental process exercised by the judges and juries within the center, where the complexities of decision-making are represented by the myriad metal pathways comprising each petal of the piece.

Located at the corner of Colfax Avenue and Elati Street, the sculpture is at the center of one of the most highly trafficked roads in downtown Denver. Light Chamber was developed in the hope of creating a vibrant city plaza for visitors and pedestrians, as well as a visual escape for workers of the Justice Center. The prominent and visual nature of the piece warranted the best corrosion protection system available to prevent the unsightly scarring and damage of rust stains.

Long-life and low maintenance were high priorities for this outdoor structure, which must stand strong against the varied and sometimes extreme fluctuations of the Denver climate. All components of the main structure – totaling more than 29 tons of steel – were galvanized to ensure the 45-foot tall outdoor display would remain stately and corrosion free for generations. The durable barrier protection of the zinc coating will protect the piece from the harsh sun and exposure to snow and rain, while the cathodic



Light Chamber at the Denver Judicial Centre, Denver, Colorado.

protection of the galvanized coating will still protect the piece from any nicks and scratches. All this will be done with no required maintenance for 75 years or more – ideal for maintaining low cost.

Galvanizer

Valmont Coatings - Calwest
Galvanizing

Specifier, architect, engineer

Denver, Department of Public Works

Artist

Dennis Oppenheim

Engineer

Charles Keys – Martin/Martin
Consulting Engineers

Fabricator

La Paloma Fine Arts

Knox County Bridge revamp: Knox County, Ohio

Nestled into a lovely, pastoral scene, the Knox County Bridge was in desperate need of rehabilitation. The bridge, which was older and originally painted for corrosion protection, had fallen into disrepair and was facing the possibility of a complete teardown. The advent of the green movement has inspired several counties to attempt renovating old bridges similar to the Knox Bridge rather than creating the waste of scrapping them altogether.

Fortunately, the local county engineer was in favor of preserving the bridge in this manner, so work began. Taking caution to protect the existing elements, the old steel structure was

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Knox County Bridge revamp in Knox County, Ohio.

disassembled, blasted, rehabilitated, galvanized, and reassembled. While the steel was being recycled and reused, the paint did not fare so well – some of the paint was suspected to be lead paint, and had to be completely removed and contained. In all, 150 tons of structural steel, bolts, diaphragms, and floor sections were galvanized and re-installed.

The sustainable nature of hot dip galvanized steel made it a perfect fit for this project. To keep with the natural beauty of the area, the specifiers wanted a natural, raw aesthetic to blend in with the surroundings. Utilizing a 100% natural zinc coating for corrosion protection reflects the earth-friendly

intention of renovating the bridge, while using natural materials to blend into the surrounding area. The zinc of the hot dip galvanized coating is infinitely recyclable and essential for life, while the unbeatable corrosion protection means no energy or materials will be wasted on routine touch-up and maintenance required by other corrosion protection systems – perfectly in tune with the green effort.

The rededication of the renovated bridge was widely covered by local television, radio, and newspapers, noting its high value to the community and increasing its level of visibility. The gleaming new bridge now sits comfortably atop the water, protected

from corrosion by a durable system that will require little or no maintenance over the next 75 years or more.

Galvanizer

V&S Columbus Galvanizing LLC

Specifier

Knox County

Engineer

Richland Engineering

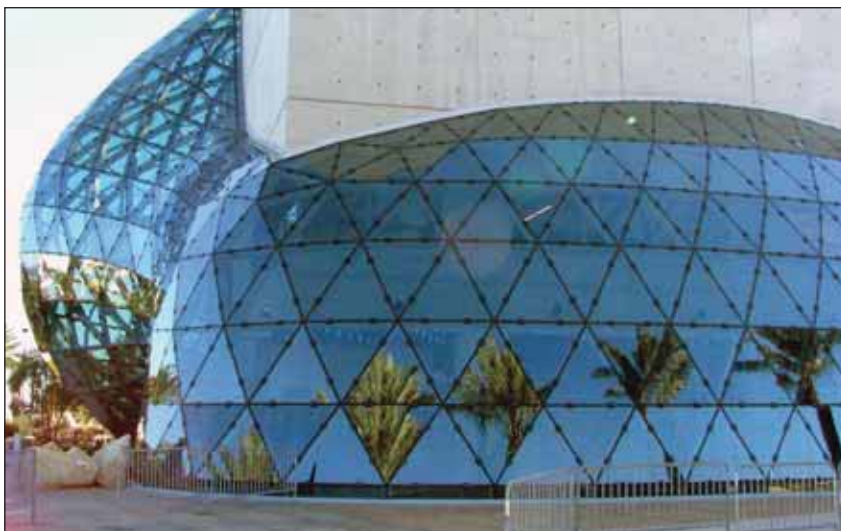
Fabricator

U.S. Bridge

**Salvador Dali Museum:
St. Petersburg, Florida**

A fitting tribute to an iconic artist, the new Salvador Dali Museum is a work of art reflective of the artist's characteristic juxtaposition of classical and fantastic elements. The structure, designed by Yann Weymouth and Novum Structures, features an undulating, abstract 75-foot glass structure that flows from the plaza up and around the cubist "treasure box" museum. The innovative structure of this popular museum will receive worldwide attention, as the geometry of the glass structure is groundbreaking in the architectural world.

The structure, located in the highly corrosive Floridian coastal environment, faced several



Salvador Dali Museum in St. Petersburg, Florida.



development challenges. All steel elements of the museum needed a durable, low-maintenance corrosion protection system to guard against unsafe and unsightly corrosion; however, the appearance of the structure must also be pleasing to the eye, without distracting from the glass structure. Finally, the complexity and scale of the architecture required the steel elements be fabricated, processed, and delivered to the jobsite in order and without loss.

Incorporating a duplex system of powder coating over hot dip galvanized steel for corrosion protection was the ideal solution for addressing all of these concerns. A duplex system combines the superior protection of galvanized steel with the additional benefits of another corrosion protection system, such as powder coating or paint, to extend the maintenance-free life of the project. The powder coated finish

allowed a color selection that would blend with the facility, while the galvanized steel beneath ensured the pieces would be protected by the most durable corrosion protection system available – the best of both worlds.

Galvanizing was ideal for the elements of this project, as the glass structure is formed with structural steel tubing, with access holes that would expose the inside of the tubing. As the steel pieces are lowered into the zinc bath during the galvanizing process, the molten zinc flows in and throughout the element being dipped. This means the interior of hollow tubes develop the same corrosion protection as the exterior – and will be protected from corrosion both inside and out.

In collaboration with the galvanizer and powder coater, the fabricator utilized a barcode technology that

would withstand the galvanizing, sandblasting, and powder coating processes, then get the pieces to their final destination in the correct order without any losses. Novum fabricated the parts at their plant, and then shipped them 1,300 miles to the galvanizer.

Because the galvanizing process is conducted indoors, there were no weather-related delays or interruptions to slow things down. After quick turnover by the galvanizer, the pieces moved on to the sandblaster, then the powder coater, and then finally to the jobsite with precision. This fast and efficient process saved the specifier thousands of dollars in repairs due to transportation damage or lost parts. Now fully constructed, the museum is a 66,450 square foot behemoth offering 50 percent more gallery space than the previous facility. The 18-inch thick concrete walls and glass

continued on page 12...



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Hambro Modular Parking System, St. Lambert, Quebec.

structure are designed to withstand 165 mph winds, so the valuable artwork within will be protected in up to a Category 5 storm surge. As the design will protect the building from the onslaught of weather extremes, so the duplex system of powder coating over hot dip galvanized steel will work to protect the structure from the ravages of corrosion for generations.

Galvanizer

Valmont Coatings - IGA - Tampa

Specifier

Novum Structures

Architect

Yann Weymouth, HOK Architects

Additional

Custom Colors Powder Coating
Sandman of Sarasota

Hambro Modular Parking System:

St. Lambert, Quebec

A gleaming utilitarian marvel, the Hambro Modular Parking System is an ingenious construction with wide-reaching market implications. The portable parking structure comprised of a parking deck and ramp, rails, and fencing elevated on support columns, all assembled over an existing parking lot to increase the number of usable parking spaces.

The moveable structure offers the flexibility to resolve issues of limited parking space, typically encountered in urban areas. The parking system can be used to alleviate pressure on popular lots, or serve as a temporary solution when part of a lot is taken out

of commission for construction purposes, fairs and markets, or other temporary events that reduce available parking. Potential markets that could benefit from such a structure include airports, train stations, hospitals, shopping malls, university campuses, and more.

Because the components of the structure are prefabricated and partially pre-assembled, field installation is quick and economical, taking only four to six days. The construction is carried out on an already-paved surface, thus eliminating the need for a foundation, and the entire structure can be disassembled, then reassembled at a new location and even reconfigured. When the structure is no longer needed, the area previously occupied by the modular system will be returned to its original state, undamaged.

The entire structure has been hot dip galvanized, top-to-bottom, from the deck panels and railings, to the fencing, and supports. It was a logical choice to utilize galvanized steel throughout the system, as these modules must be able to stand strong and corrosion free against the abuses of steady traffic and varied environments. The abrasion resistance of galvanized steel makes it an ideal construction material for this project, because the portable nature of the structure means increased exposure to rough handling during transport and assembly. A tough, durable corrosion protection system was necessary to preserve the attractive metallic aesthetic of the parking structure, which will be visible in close proximity due to the intended public use.

Hot dip galvanizing protects steel from the inside out, utilizing both tough barrier protection and intrinsic cathodic protection to defend against corrosion. The durable barrier protection will guard the steel from constant exposure to sunlight, moisture, road salts, and grit carried in by tires. Because the zinc coating created during the hot dip galvanizing process is harder than the substrate steel, it creates a tough-to-



Reliant Stadium, Houston, TX United States.

penetrate barrier that will defend the steel against corrosive moisture and vehicle pollutants.

The concept of the portable parking system offers new and exciting market potential highlighting the inherent

qualities of galvanizing, including durability, abrasion resistance, and sustainability. The aging urban infrastructure of our inner cities promises many more applications for this system, and the use of hot dip galvanized steel guarantees the

structures will stand strong and corrosion-free, from location to location, for generations to come.

Galvanizer

Corbec Corp.

Contractor/Engineer/Specifier

Hambro Division of Canam Group

Reliant Stadium:

Houston, TX United States

Stage Right is a manufacturer of portable platforms of all different designs and sizes. Everything from a Hollywood set to a High School Choir are their customers. They needed a portable, permanent platform plate material that would be durable for Toe-Motors and/or their "Removable Field" that can be re-tracked to the outside when not in use for Football. These stay inside but are stored outdoors when not in use. Hot dip

continued on page 14...

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The world of hot dip galvanizing around us!

galvanizing was perfect. They were shown where rivals the Dallas Cowboys and the New York Giants used galvanizing in their stadiums. The Cardinals in Arizona with their new retractable field also used these platforms. This is a very good OEM product and a great source for galvanizing durability in everyday use that no one would realize unless shown.

This project was 5 years in the making, with several redesigns and trial and error to get the pallets just right. This project was a perfect example of the designer/fabricator working with the owner and galvanizer to make the project a success for all parties.

Project specifics

Year galvanized: 2011

Sector(s): Original equipment manufacturing; recreation & entertainment

Environment: Temperate marine

Location: Houston, TX United States

Reason for galvanizing: Coating durability, life-cycle cost

Components galvanized: Pallets made of tube and plate

Tonnage/Size: Steel - 125; HDG - 125

Project members

Owner

Reliant Stadium, Houston Texans

Fabricator

StageRight

Member galvanizer(s)

V&S Detroit Galvanizing LLC

Burlingame Fred Meyer
Remodel:

Portland, OR United States

This store borders three main thoroughfares with street level access at many different elevations. Pedestrian access from these levels required multiple stairways, a tiered parking structure with handrails, and several canopies for protecting pedestrians from the weather. With

this large amount of exposed steel being used corrosion performance and sustainability were important factors in keeping with the corporate green building guidelines.

The Burlingame store was built in 1950 and is the oldest Fred Meyer Store still in operation. This \$19 million dollar remodel project was originally going to be on a 13 month timeline. However due to this project being "enormously disruptive" Abbott relied on two crews working back to back shifts and most weekends. Portions of the roof structure were too large to double dip and had to be welded together after galvanizing. Being on the border of one of Portland's busiest streets and exposed to the Northwest's inclement weather, the use of hot dip galvanizing offered the best solution for providing

a aesthetically pleasing and sustainable structure.

Project specifics

Year galvanized: 2011

Location: Portland, OR United States

Reason for galvanizing: Corrosion performance, sustainability

Components galvanized: Multiple stairways, sidewalk canopies, handrail and guardrail systems and privacy screens. 68 Tons.

**Indianapolis Motor Speedway:
Indianapolis, Indiana**

With scores of silvery seating rows spanning far into the distance, Indianapolis Motor Speedway (IMS)



Burlingame Fred Meyer remodel, Portland, OR United States.

is the largest race track in the world and an American icon. For decades the only corrosion protection used to protect the massive collection of steel used in this structure was paint; as a result, it was necessary to hire a full-time crew of men to move from one section to another, providing year-round maintenance and upkeep on the deteriorating paint coating.

The cost of perpetual painting was overwhelming, with no end in sight. Finally, in 1991, IMS decided to test hot dip galvanized steel by incorporating it into the new construction being built on Turn 3. A thousand tons of steel bleachers were galvanized, to great success. After a year of maintenance-free corrosion protection using galvanized steel, the owners realized it would be more cost-effective over the life of the structure to tear down the steel elements, sandblast the failed paint system, and galvanize them one section at a time.

While the cost of incorporating galvanized steel was competitive initially, the long-term cost effectiveness has proven to be an enormous savings over the past 19 years. When the sections were initially galvanized in 1991, the mil readings indicated excellent coverage of the steel. Over the decades, the galvanized steel has stood strong and maintenance-free, earning back every penny of the initial investment.

Because of this proven performance, IMS set a goal to galvanize one section of bleachers each year between scheduled events, so eventually the whole structure would benefit from such dependable corrosion protection.

Subject to the abrasive foot traffic of millions of race fans every year, the stadium needed maintenance-free protection from unsafe and unsightly corrosion. In a corrosive industrial atmosphere with race track emissions and exposure to harsh Midwest winters, rain, and sun, the bleachers have taken advantage of the superior barrier and cathodic protection



Indianapolis Motor Speedway, Indianapolis, Indiana.



created during the galvanizing process to keep the stadium structurally sound and free of rust.

The formation of the zinc patina has turned the steel to a uniform and traditional matte gray well suited to the urban surroundings and raceway environment. The zinc patina is the formation of zinc corrosion byproducts on the surface of the steel. Zinc, like all metals, begins to corrode when exposed. As galvanized coatings are exposed to both moisture and free flowing air, the corrosion byproducts will naturally form on the coating surface.

The Director of Engineering for IMS reported the objective for corrosion protection in the stadium has always been safety for the fans, durability, and

low-maintenance. Hot dip galvanized steel has met or exceeded all of these expectations and then some, with a corrosion- and maintenance-free life-expectancy of 75 years or more. As the performance of galvanized steel has been proven by real-life, in-the-field experience and data, IMS now requires any steel used on the raceway property be galvanized, meaning the speedway will stand safe and strong against the damaging effects of corrosion for generations of fans to enjoy.

Galvanizer

AZZ Galvanizing Services - Muncie
AZZ Galvanizing Services - Plymouth

Specifier

Indianapolis Motor Speedway

continued on page 16...

The world of hot dip galvanizing around us!

Twister Roller Coaster: Stockholm, Sweden

The owners know the importance of protecting steel with zinc. Almost everything in Europe is galvanized.

"The Twister" is a new wooden roller coaster at the Grona Lund amusement park in Sweden. Twister breaks new ground for wooden roller coasters being so extremely compact while still giving the roller coaster rider a thrilling ride. Thanks to its unique yet classic design and state of the art custom made trains, it will appeal to coaster lovers of all ages, both thrill seekers and families. The coaster is located down by the waterfront and takes the riders over the Ghost Train building and both over and under the Jetline and Kvasten roller coasters. Twister interacts with more rides than any other wooden roller coaster in the world.

The Park wanted a Coaster made from environmentally friendly material, but also knew it had to be built in a confined space with the most possible ride for the visitors to the park "Tivoli Grona Lund" (The Green Grove) in Stockholm, Sweden.

This coaster has 2.2 million pounds (1000 metric tons) of steel that is both galvanized and powder coated. The Gravity Group in Cincinnati designed this beautiful steel and wooden ride and National Welding fabricated it. The galvanizer had the responsibility to hot dip galvanize, powder coat, package, containerize, and protect for the shipment to Sweden. A galvanizer in the UK took care of the touch up and on site galvanizing consulting.

The park originally opened in 1883 and is built on a beautiful water inland

area in the heart of very touristy Stockholm. The galvanizer was selected on their ability to galvanize and powder coat, and their knowledge of packaging and shipping overseas. All material arrived on time and assembly was very conducive to the labor force in Sweden. All sections shipped properly in the correct containers, all fasteners were a perfect fit with every hole clean and ready for erection. The job went amazingly well on a very critical schedule to meet all shipping requirements.

Project specifics

Year galvanized: 2011

Sector(s): International recreation & entertainment

Environment: Temperate marine

Location: Stockholm, Sweden

Reason for galvanizing: Coating durability, prior HDG experience, sustainability

Components galvanized: All of the structural steel, fasteners, support frames, railings, and the entire project.

Tonnage/Size: Steel - 1100; HDG - 1100

Project members

Owner

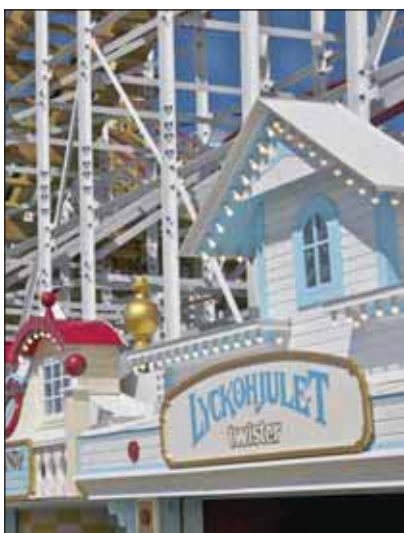
Tivoli Grona Lund
National Welding

Other

Designer: The Gravity Group

Member galvanizer(s)

V&S Columbus Galvanizing LLC



Twister Roller Coaster, Stockholm, Sweden.



Tanzania Bridge: Tanzania, Africa

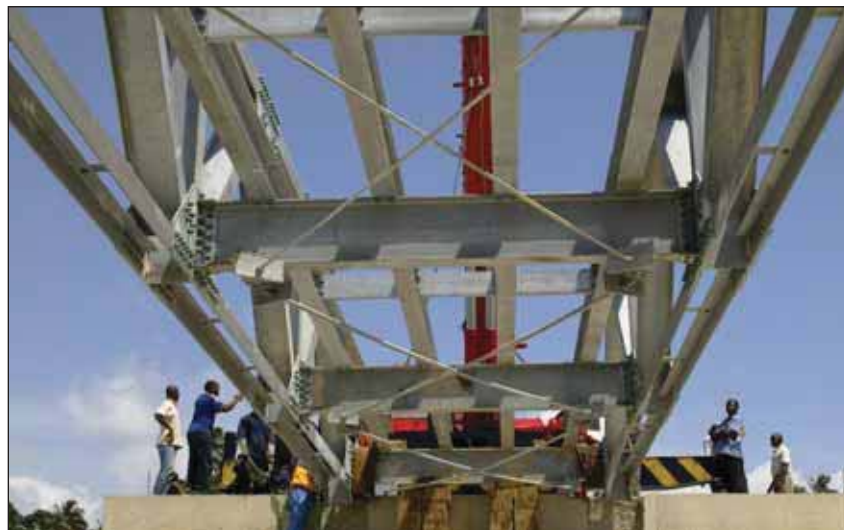
The climate of this region over the river has been bad for steel. Galvanizing was selected for its durability to withstand the elements, including sand and wind.

This region of the world needs bridges, and the fact that this was accomplished has opened a new market for American bridge galvanizers.

The galvanizer had to galvanize the steel, palletize the material, stack



Tanzania Bridge, Tanzania, Africa.



and package containers, and meet barge shipping times. They also had to come up with a way to eliminate the possibility of wet storage or white rust. This was accomplished by the use of hotdip galvanized steel, and will be enjoyed by motorists in Tanzania for many, many decades.

Project specifics

Year galvanized: 2011

Environment: Tropic marine

Location: Tanzania, Africa

Reason for galvanizing: Coating durability

Components galvanized: All structural components of the bridge.

Tonnage/Size: 1100 tons.

The Association would like to thank Melissa Lindsley, Marketing Director of the American Galvanizers Association for these interesting contributions. ➡➡➡



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Australia

Park Lake State School

Sustainable design

This multi-purpose resource hall funded by the Federal Government's Building the Education Revolution program was designed with a 'green engineering' philosophy in mind and received a 2012 Regional Commendation in the Australian Institute of Architects (AIA) Awards.

The structural steel used throughout the building was specified with the intention of using recycled steel to minimise the building's carbon footprint while providing the school with a contemporary facility in line with the school's aim to strive to provide students with the best possible learning environment.

The new hall seats over 450 people and includes an additional amenities block and performance hall separated by an open gathering space. The building structure uses steel plated sandwich panel in a creative and unique way. The benefits of steel fabrication, erection, and sandwich panel meant the building delivery time was reduced.

All steel was treated with the appropriate corrosion protection to

ensure longevity to meet the clients brief. Large overhangs provide sun and weather protection while translucent wall cladding and large openings allow natural light to penetrate the main hall and amenities block. The entire building is naturally ventilated and water tanks included in the design.

Acknowledgements

Architect

Suters Architects

Civil and structural engineering

Odyssey

Text

Australian Steel Institute (Alan Marshall)

Photography

Christopher Frederick Jones

Noosa Junction Station

Sustainable design

Jointly funded by Sunshine Coast Council (formerly Noosa Council), Translink Transit Authority (Queensland Government) and Federal Government, the project aimed to create an integrated transit hub to service the greater Noosa area

and help to revitalise the area's commercial precinct.

The sustainable design, which recently received a 2012 Queensland Australian Institute of Architects (AIA) State Commendation for Urban Design, features the use of recycled timbers coupled with the distinctive steel framed skillion roofs of the central pavilions.

The use of steel enabled a faster construction phase, ease of erection with limited labour, minimising safety issues, controlling costs and minimal impact on the existing local transport infrastructure, and also allowed for long spans and uninterrupted open spaces.

The project is located in a coastal environment with high levels of sea salt, detrimental to the long-term life of steel. Exposed, easily accessible members and simple bolted connections used hot dip galvanizing as the steel protection system which showcased the natural 'silver' characteristic of steel.

In contrast and to serve the branding requirements of the client, other steel elements such as the platform



Park Lake State School.



structures were painted in a neutral, visually unobtrusive colour and two-pack finish.

The steel is omnipresent in every detail throughout the Noosa Junction Station. The design team (architect, structural engineer, builder, steel detailer and steelwork fabricator) worked closely together in order to create a series of components which could be easily fabricated, transported, hot dip galvanized and erected, and would arrive onsite ready to erect with no additional cutting, welding or adjustment required.

Acknowledgements

Architect

Bark Design

Structural engineer

Sinclair Knight Merz

Text

Australian Steel Institute (Alan Marshall)

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



Noosa Junction Station.



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 bush-fire 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.

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

continued on page 20...

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.

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



Milson Island Indoor Sports Stadium.



Acknowledgements

Architect

Allen Jack+Cottier Architects

Structural engineer

Taylor Thomson Whitting Consulting Engineers

Building contractor

Inten Constructions

Galvanizer

Hunter Galvanizing

Manuele Engineers Steel Facade Building

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



Manuele Engineers Steel Facade Building.



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.

Craigieburn Train Maintenance Facility

Background

As part of the Department of Transport's upgrade to rail services in Victoria, HBO+EMTB was

commissioned to design the Craigieburn Train Maintenance Facility & Stabling Yard on Melbourne's northern outskirts. The 1.2-hectare facility, longer than the Melbourne Cricket Ground, is the
continued on page 22...

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largest of its kind in Australia housing up to 25 trains.

The design challenge was to create a 21st century facility spanning 20,000m² that honoured its purpose as a highly functional and mechanised space. The project scope included track work, signalling, overhead line design, maintenance roads, bogie pits, train roof access, overhead cranes, tools store, mobile equipment, open yard storage, parking, roads, security, landscaping and staff accommodation.

In addition to an efficient building layout, attention was given to the need for lifting apparatus, environmentally- sustainable design, state-of-the-art railway control

systems, and complex structures capable of balancing the work environment and functionality. The design was developed in consultation with numerous end-users that included unions, train drivers, vehicle maintenance and administration staff.

The striking use of Colorbond steel for the facility's undulating roof was inspired by the sculptural works of South Australian artist Greg Johns. It features an organic design sweeping towards the earth that is complimentary to the site's natural form. The facility takes on distinctly different perspectives as you move around its perimeter and references the rolling hills of Mount Ridley in the distance.

The building was designed for low environmental impact and delivers significant long-term benefits such as the use of recycled water captured off the building's roof to supply a 125,000-litre rainwater tank. This water is used throughout the building and by the train wash facility and amenities. Hydronic in-slab heating has been used in the workshop's floor and cross flow ventilation has been maximised to reduce the need for mechanical cooling. The choice of materials provide for the facility's 50-year life cycle and are heavily insulated against the natural elements.

Engineering and fabrication

The facility is an outstanding showcase of the comprehensive ability of Australian design, fabrication and erection of structural and architectural steel work. All the structural steel elements for the 1,400 tonne facility were locally designed and constructed, requiring a strong focus on resource management, logistics, flexibility in scheduling, and a dedication to delivering the highest quality of work.

"Coordination between the engineer, architect and shop detailer was critical due to ongoing design changes," said Aus Iron Project Manager, Dale Ekers. "The assembly of the 103 facade awning beam frames that wrapped around the perimeter of the structure was a difficult process. The majority of the frames required a different radius and alternating from on face to edge form. We had to ensure that tight tolerances were maintained, as the frames created a continuous band around the building that was required to be consistent to achieve the desired appearance."

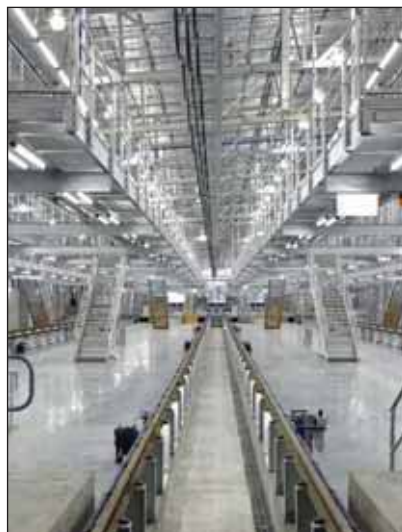
Acknowledgements

Developer/Owner
Department of Transport

Architect
HBO + EMTB (Gary Kyriacou)



Craigieburn Train Maintenance Facility.





Futsal Stadium.

Design builder

John Holland Group

Fabricator

Aus Iron Industries (Dale Ekers)

Structural engineer

Hyder Consulting

Environmental engineer

Hyder Consulting

Project manager

Department of Transport

Hot dip galvanizer

GB Galvanizing Service

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.

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Futsal Stadium

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 650m² gym.

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

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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.

Coca-Cola Amatil Distribution Centre

Sustainable design

This project involved the complete design, documentation and construction of a 40,000sqm warehouse, 6,000sqm of unloading bay canopy, 2000sqm truck parking canopy with 12-metre cantilever rafters, entry/exit canopy, a battery room under the warehouse roof and office. It utilises Australian steel throughout from portal frame to cladding and an innovative steel fibre reinforced concrete slab. Sway portal frames were used at 21-metre centres with rafters spaced 10.5 metres apart. Stramit Exacta® purlins were utilised to span the 10.5-metre bays, reducing conventional purlin weight over the entire warehouse area. As the building is 200 metres wide, it normally would have required three extra purlins on either side of the ridge, but a Stramit FarLap® roof sheeting joint was chosen to eliminate that requirement by giving additional purlin length at each sheet joint.

Externally the building is predominantly covered in Colorbond® sheeting with brand



Coca-Cola Amatil Distribution Centre.

colours incorporated throughout the building internally and externally. Colorbond® blades are situated next to the office windows to form a decorative façade and provide shading.

Practical completion was achieved two weeks ahead of schedule and the project was the winner of the ASI 2012 WA 'Steel Clad Structures' award.

Hot dip galvanizing

The external loading bay features a hot dip galvanized 12-metre cantilevered sunshade providing an extremely durable, abrasion resistant, and year round protection from the elements.



Acknowledgements

Designer

Gavin Construction

Structural engineer

E-Tec Consultants

Steel fabricator

Fremantle Steel

Galvanizer and coatings

Fero Group

Text

Australian Steel Institute (Alan Marshall) and Galvanizers Association of Australia

The Association would like to thank Peter Golding, Executive Director of the Galvanizers Association of Australia for these interesting contributions. ➡➡

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All work is done according to SABS-ISO 1461 SANS 121 Specifications. SMT Group is SABS and SATAS accredited and BEE compliant.

SMT Group offers the following services,

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- **Electroplating** - Barrel work (Yellow and trivalent blue passivating);
- **Electroplating** - Jigging up to 3.5 meters;
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SMT Electroplaters | kevin@smtgroup.co.za

SMT Steel (Engineering) | bernadette@smtgroup.co.za

Latin America

Glacier Perito Moreno

The Perito Moreno Glacier is a glacier located in the Los Glaciares National Park in south west Santa Cruz Province, Argentina. It is one of the most important tourist attractions in the Argentine Patagonia.

The 250km² ice formation, which is 30km in length, is one of 48 glaciers fed by the southern Patagonian Ice Field located in the Andes system shared with Chile. This ice field is the world's third largest reserve of fresh water.

The Perito Moreno glacier, located 78 kilometres from El Calafate, was named after the explorer Francisco Moreno, a pioneer who studied the region in the 19th century and played a major role in defending the territory of Argentina in the conflict surrounding the international border dispute with Chile.

Status

The Perito Moreno Glacier is one of only three Patagonian glaciers that is growing. The reason remains debated by glaciologists. The terminus of the Perito Moreno Glacier is 5 kilometres wide, with an average height of 74m above the surface of the water of Lake Argentino, in Argentina. It has a total ice depth of 170 metres.

Tourism

Due to its size and accessibility, Perito Moreno is one of the major tourist attractions in southern Patagonia. A large visitor centre at the site features a walking circuit which allows visitors to view the southern flank and the east facing edge of the glacier.

This walking circuit and access platforms had to be built from an aesthetical pleasing material while ensuring strength and durability.

To soften the impact of hot dip galvanized steel, which was selected for its low initial cost, ease of inspection for coating quality, durability, predictable performance, low maintenance and resistance to abrasion and mechanical damage, treated hard wood timber was used for all of the balustrades.

Cataratas Iguazu Waterfalls Viewing Platform

Iguazu Falls are on the Iguazu River on the border of Brazilian State Paraná and Argentine Province Misiones. The falls divide the river into the upper and lower Iguazu. The Iguazu River rises near the city of Curitiba. It flows through Brazil for most of its course. Below its confluence with the San

Antonio River, the Iguazu River forms the boundary between Argentina and Brazil.

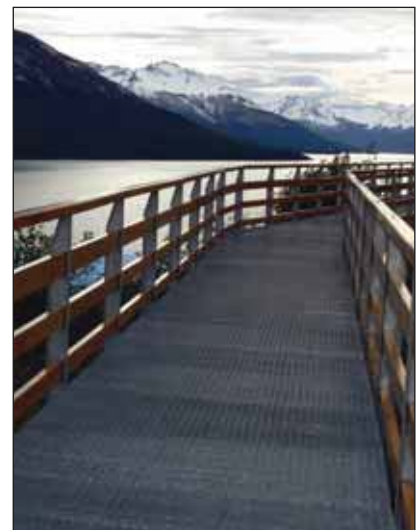
The name "Iguazu" comes from the Guarani or Tupi words "y" [ĩ], meaning "water", and "úasú" [wa'su], meaning "big".^[2] Legend has it that a god planned to marry a beautiful woman named *Naipi*, who fled with her mortal lover *Tarobá* in a canoe. In rage, the god sliced the river, creating the waterfalls and condemning the lovers to an eternal fall. The first European to find the falls was the Spanish conquistador Álvaro Núñez Cabeza de Vaca in 1541.

Geography

Iguazu Falls is located where the Iguazu River tumbles over the edge of the Paraná Plateau, 23 kilometres upriver from the Iguazu's confluence with the Paraná River. Numerous islands along the 2.7-kilometre-long edge divide the falls into a number of separate waterfalls and cataracts, varying between 60 to 82 metres high. The number of these smaller waterfalls fluctuates from 150 to 300, depending on the water level. About half of the river's flow falls into a long and narrow chasm called the Devil's Throat (*Garganta del Diablo* in Spanish).



Glacier Perito Moreno showing the extensive hot dip galvanized and wooden viewing platform.





Cataratas Iguazu Waterfalls Viewing Platform.

Iguazú Falls from the Argentine side

About 900 metres of the 2.7-kilometre length does not have water flowing over it. The water of the lower Iguazu collects in a canyon that drains in the Paraná River, a short distance downstream from the Itaipu Dam. The junction of the water flows marks the border between Brazil, Argentina, and Paraguay. There are points in the cities of Foz do Iguaçu, Brazil, Puerto Iguazú, Argentina, and Ciudad del Este, Paraguay, which have access to the Iguazu River, where the borders of all three nations can be seen, a popular tourist attraction for visitors to the three cities.

Access

Walkways, which in many instances have to be resistant to a constant mist condition from the falls are consistently requiring maintenance. A decision has been taken to use hot dip galvanized steel walkways due to their predictable durability and very little maintenance. These walkways allow close views of the falls from both Argentina and Brazil.

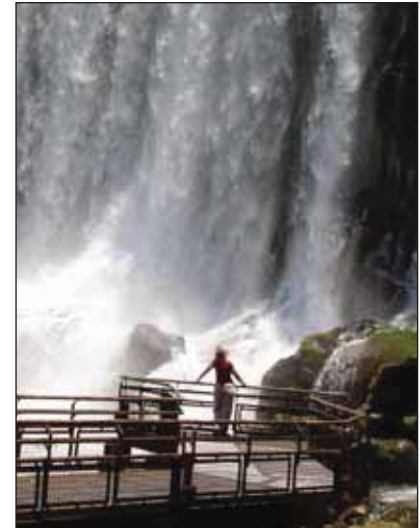
The falls are shared by the Iguazú National Park (Argentina) and Iguaçu National Park (Brazil). The two parks were designated UNESCO World Heritage Sites in 1984 and 1987, respectively.

On the Brazilian side, there is a walkway along the canyon with an extension to the lower base of the Devil's Throat.

The Argentine access, across the forest, is by a Rainforest Ecological Train. The train brings visitors to the entrance of Devil's Throat, as well as the upper and lower trails. Other walkways allow access to the elongated stretch of falls across the forest on the Argentine side.

Comparisons to other famous falls

Upon seeing Iguazu, the United States' First Lady Eleanor Roosevelt reportedly exclaimed "Poor Niagara!" (which, at 50 m or 165 feet, are a third shorter). Iguazu is also often compared with Southern Africa's Victoria Falls which separates Zambia and Zimbabwe. Iguazu is wider, but because it is split into about 275 discrete falls and large



islands, Victoria Falls is the largest curtain of water in the world.

Mist rises between 30 and 150 metres from Iguazu's Devil's Throat, and over 300 m above Victoria Falls. However, Iguazu affords better views and walkways and its shape allows for spectacular vistas. At one point a person can stand and be surrounded by 260 degrees of waterfalls. The Devil's Throat in Argentina has water pouring into it from three sides. Likewise, because Iguazu is split into many relatively small falls, one can view these a portion at a time. Victoria does not allow this, as it is essentially one waterfall that falls into a canyon and is too immense to appreciate all at once (except from the air).

On November 11 of 2011, Iguazu Falls was announced as one of the seven winners of the New Seven Wonders of Nature.

The Association would like to thank Jorge Gonzalez Executive Director of the Asociacion Argentina De Galvanizado for these two interesting contributions. 🏰➡️

PROPOSED FEATURES FOR 2013

May (No. 54): Fasteners and availability matrix • Continuous sheet and wire galvanizing

August (No. 55): Awards Event • Cable ladders and trays • Artistic/Architectural hot dip galvanizing

November (No. 56): Tubes, pipes and scaffolding • Masts and poles • Water storage • Heat

NOTE: FEATURES MAY BE SUBJECT TO CHANGE

LatinGalva – Santiago Chile

13 - 15 November 2012

LatinGalva is promoted and organised on an annual basis by the “Asociacion Latinoamericana de Zinc – LATIZA” or International Zinc Association of South America.

David Vela, Director Ejecutivo (Executive Director) and Evelyn Barbarán Comunicaciones (Communications) are generally responsible for running the entire conference.

LatinGalva is rotated amongst the Latin America countries on an annual basis, with 2012 being the turn of Santiago, Chile.

Unlike other International conferences where the plant tours follow the few days of papers, LatinGalva started with the plant tours on the first day. This proved to be the better option as the delegates got to know each other before the actual conference started. We visited four galvanizing plants from sophisticated to some older ones. One plant boasted upmarket meeting room facilities to encourage regular interaction between innovative staff members and also to entertain and present to visiting specifiers. Most of the plants visited had dedicated



temporary areas where the delegates were entertained before and after the conference plant tour.

A number of interesting papers were presented from outside the industry and these included hot dip galvanizing from an architectural, engineering and structural building perspective, given by Frances Pfenniger (Architecture Professor University of Chile), Gilberto Céspedes (Material Manager Fluor – Chile) and Javier Delgado (Structural Director Delgado-Chile), respectively.





Other papers presented from outside the industry included, Lessons and challenges for the galvanizing industry and Corrosion and its impact by Francisca Sinn Rosende (PhD in Engineering – Business Professor at Adolfo Ibáñez University – Chile and Dr Paula Rojas (Research Director at Catholic University of Valparaíso – Chile, respectively.

Several papers were presented on environmental issues, new control trends and alternatives to reduce liquid waste generation in the hot dip galvanizing industry.

Pablo Bosch (Director President of BBosch) spoke passionately about the Vision of the galvanizing industry; Rob White, Hot dip galvanizing experiences in Rail Systems and Terry Smith, Applications of hot dip galvanizing in the mining sectors of South Africa.

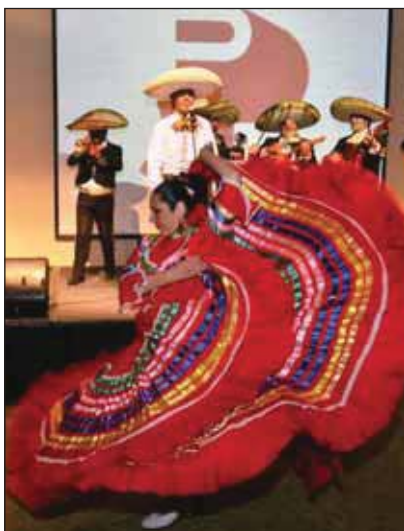
Other industry papers included, Zinc marketing trends for Latin America and the World and Votorantim projections for the zinc industry of Brazil and Latin America.

A number of excellent supporting and entertaining events ensured that not one of the delegates or their partners could complain about being bored.

I found the people at the conference and elsewhere extremely friendly and those at the conference willing to assist and discuss all aspects of hot dip galvanizing where possible.

A number of new friends and colleagues of similar interest were forged.

Terry Smith ➡➡



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**HOT DIP
GALVANISERS
ASSOCIATION**
SOUTHERN AFRICA



Ten years at the Association

The small staff (4 people) at the Association is routinely questioned as to "what do we do for the members with the money that is paid to finance operations?" Following on from this question it was suggested that another survey be sent out to members requesting comments as to what they want from the Association?

In order to place these two issues into perspective, a logical starting point would seem to be, what the highlights are over the immediate past 10 years.

Finances

Going back to early 2001 the finances were being depleted to the point where we relied on a overdraft facility to meet our cash flow requirements. The reserves had been depleted to a point where cash was simply maintained in a cheque account. An example of the lack of cash flow control actually reached a point where we were 3 months behind in meeting our salary payments.

Against this background we have progressed to where we have fully operational financial controls in place. Cash flow is managed to the point that we do not have or require an overdraft

facility. Over the past 5 to 6 years we have achieved a proper reserve and at the same time met all our cash flow requirements. With the closure of Zincor and the re-arrangements of zinc levy collections, we were able to effectively accommodate the short term cash flow impact that resulted.

In addition to zinc levies, we have supplemented our "surplus" by way of Zinc Fix/Galvpatch; Courses and Galvanizing markers. Magazines, Diaries and Golf Day are all self-financed, with the Awards dinner receiving generous sponsors.

As a result of the above controls and additional income items, we have been able to limit zinc levy increases over a number of years. It has now been agreed that we should review zinc levies on an annual basis and maintain some form of equilibrium with inflation.

What do members get for their "buck"?

Marketing

One of our primary objectives is technical marketing. This process encompasses visits to specifiers, technical papers at conferences, seminars and group presentations to end users and consultants.

Ten years ago we were using 35mm slides and an overhead projector. Today we make use of power point presentations to the point where we have an extensive library covering a wide range of subjects relating to corrosion science, hot dip galvanizing, including Duplex systems, as a system that will combat corrosion and provide maintenance free service life.

Hot Dip Galvanizing Today

Our self-financed magazine that is distributed to a data base of approximately 5,800 end users, consultants, fabricators and numerous private engineering practitioners. We use this publication to feature interesting tactical articles and case studies aimed at addressing misconceptions and

promoting the application of HDG and duplex coating systems. Numerous positive compliments have been received from various locations. One consultant has actually collected, retained and bound every single publication into a series of manuals, seeing fit to place them in his library as a permanent reference source. The magazine represents a significant part of our marketing and advertising campaign. It also affords members and their customers the opportunity to advertise themselves in a widely distributed and very well received publication.

Web Site

A well established and maintained web site that is easy to access and use. The objective of the web site is to provide as wide a range of information on all aspects of hot dip galvanizing and duplex coating systems for a maintenance free service life. Postings to the site includes current information on members, activities, case studies, codes of practice and technical information sheets that address frequently asked questions. We use the site to direct clients to specific subjects that they question, as well as to support inspection reports following site visits and field investigations.

Technical publications

We maintain a range of technical publications that are specifically designed to support members with their marketing activities. These publications comprise:

Steel Protection Guide a manual that has received wide acceptance, used extensively for promoting our marketing services to the industry. The Steel Protection Guide is recognised internationally, being translated into Spanish, Portuguese and presently being used by the Galvanizer Association in Russia as a guide for the development of their own principle technical manual.

Practical Guidelines for Inspection and Repair of HDG coatings a practical guide for inspection of HDG, but also serves to provide for education of inspectors who lack sufficient knowhow necessary to

The Association would like to acknowledge the advertisers and thank them for their support

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conduct a quality review of a hot dip galvanized coating system. This publication is under review to be expanded and updated with a new version and replacement. The redevelopment of such a manual requires an extensive amount of time

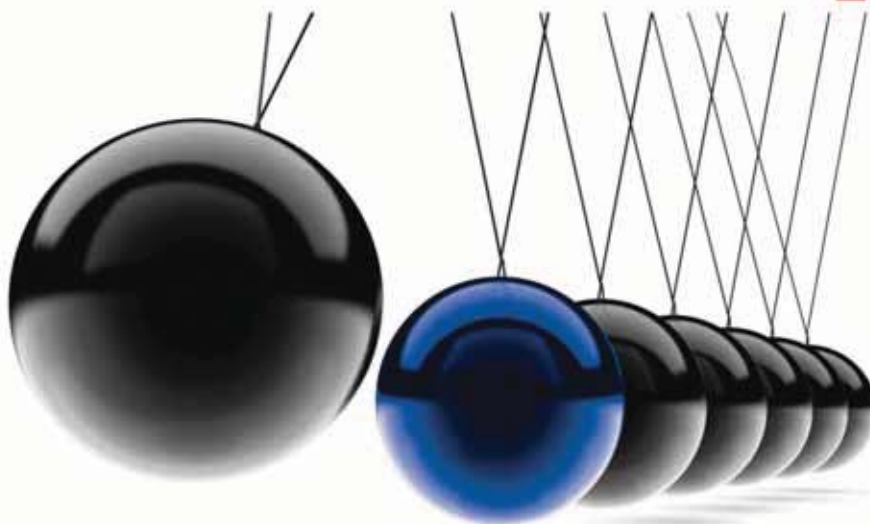
and detailed work before we can even consider going into print.

Note: Both the above publications form part of our 3 day inspector's courses and are included within the course manual that is retained by course participants.

Facts about Hot Dip Galvanizing - Practical Guidelines effectively a summarised version of our Steel Protection Guide used as a hand out at university lectures, technical presentations and mini seminars.

continued on page 32...

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Wall chart which complements our various publications is now under review and update before proceeding to a reprint.

APGGA Case Study CD was produced in Australia in 2009 and in which we participated by providing local South Africa case studies. This CD has a wide distribution and is available to local members for their own marketing programme. The concept behind such a CD is to show wide International use of HDG for corrosion control.

Awards dinner

The awards dinner is our “flagship” event in terms of marketing our industry. The awards dinner involves an inordinate amount of time and effort. The basic problem with an awards function is that without worthwhile project submissions, from members and others, there is no point in staging such a function. The awards dinner represents an opportunity for members to showcase their projects and at the same time gain recognition from their customers in terms of their capabilities. The awards dinner and the advertising of successful projects need to be seen as a marketing exercise promoting the industry as a whole. Without members participation it is pointless having an awards function.

Formal technical presentations

At every opportunity we engage in formal technical presentations to end users, consultants, engineers, architects fabricators, university students and private individuals. Where practical we include the involvement of members with visits to their plants in order to expose participants to the practicality of hot dip galvanizing. The objective in all of these presentations is to educate and promote the use and specification of hot dip galvanizing and specifically our members as preferred galvanizers.

We make a point of presenting papers promoting our industry, and processes, at formal conferences, seminars and workshops. These include papers on forms of corrosion, the environment and the application of hot dip galvanizing and duplex systems for corrosion control and a maintenance free service life.

As already indicated we have a library of technical papers and power point presentations on every aspect of hot dip galvanizing and duplex coating systems. A visit to HDG on Google will indicate how many of our publications and technical papers have found a home on the internet.

Site Inspections and Reports

As an Association we are continuously involved with members as well as being requested by contractors and end users to visit construction sites in order to inspect product quality and report our findings by way of written inspection reports. Our approach to such site visits and corresponding written reports is to maintain and be seen as an independent credible technical authority in terms of corrosion control and the application of hot dip galvanizing and duplex coating systems. Site visits and inspection reports also facilitate our opportunity to educate and create a better understanding of HDG for corrosion control.

Over and above our site visits and written reporting, we handle telephone discussion, technical queries and product quality concerns from organisations and individuals from all over Southern Africa. Some of these queries will result in e-mailed digital photographs that illustrate the concerns, which usually results in a further written report based on the photographs.

Plant environmental conditions

Over the past 8 years, numerous investigations have been undertaken to establish workable environmental and waste management standards for our industry. From 2004 to 2007, we participated and contributed to the Danida waste management project “Cleaner Production”. We produced and published a draft document in which process controls, risk management, production and environmental standards were circulated for comment and implementation. Encouraged members to devise and implement an improvement action programme that would ultimately lead to the full compliance with environmental and waste management controls. These documents remain available for comment, updating and implementation by members.

Training

Numerous training courses have been developed and where possible implemented. A simple itemised list of our training courses is listed together with comments.

Skills development comprising a series of 13 modules aimed at training plant operators on every aspect of operating a hot dip galvanizing plant. The course material was developed within the Association, funded mainly by Danida and was compiled over an 18 month period. Included in the process was the attendance at a series of MERSETA workshops at which two National Qualifications were developed and gazetted. Today only odd modules of this course have been used by galvanizing members. The total course has never been presented and no National Qualification has been awarded.

3 Day Inspectors Course consisting of 7 modules a practical plant visit including an actual quality control inspection and reporting followed by a 2 part examination. The 3 day course was re-developed from our old 2 day course as a result of comments from participants that more time should be given to cover the volume of detailed information as well as to include more practical activities. The first 3 day course took place 1 to 3 March 2011 with 123 participant's to-date.

1 Day HDG Introduction Course comprising a much simplified version of the Inspectors Course designed specifically for the “less educated” participants. The 1 day course was introduced in February 2011 with 109 participants having completed the course to-date.

1 Day workshop comprising 3 modules, presented over a 6 hour period, including environmental conditions, forms of corrosion and metallic coatings. The course has only been presented once (6 June 2012) to 12 participants with positive feed-back. The course material is designed to be given to designers, engineers and end users.

IZA Computer based operator's course Input course material was essentially compiled by the Association using our standard data and existing course materials. Local galvanizers are welcome to use this course, but participants will require access to a computer.

Correspond with other organisations**SABS**

Attendance at SABS meetings on all specifications that relate to corrosion control, hot dip galvanizing of various disciplines and monitor others that may be of interest.

SAISC

As reciprocal members, we attend SAISC gatherings; provide support by way of corrosion control specifications and network with various key fabricators and consultants. We have presented and will continue to deliver technical papers at their workshops and conferences.

Corrosion Institute of Southern Africa

Lecture to the Corrosion Engineering

Course handling chapters 2, 3 and 7 on this course. Participate and present the occasional lecture at their monthly technical meetings.

Seminars, workshops and Conferences

Attend and make formal presentations at corrosion related seminars, workshops, road shows and conferences where corrosion control is the subject matter.

Intergalva

Attend the Intergalva conferences; always present a paper, network with the other Associations and their respective galvanizers and equipment suppliers. A liaison committee comprising EGGA, AGG, AGA and ourselves has been established by way

of sharing technical and marketing information on a worldwide basis. Contacts with all these roll players have proved invaluable over the years.

Conclusion

As an Association we aim to establish, maintain and be seen as a credible, reliable and independent consulting source for information on corrosion control and the application of hot dip galvanizing and duplex coating systems, as a means to combat the ravages of carbon steel corrosion attack.

Constructive comments and suggestions on any aspect of the above are to be welcomed. welcomed.

Bob Wilmot. 



2013 Hot Dip Galvanizing Awards

Submissions are open for this year's Hot Dip Galvanizing Awards which will be held on **FRIDAY THE 23rd AUGUST**



The submission process is as follows:

1. Final entry date is 15 April 2013. The nominator / project team owner will be responsible for the completion of the submission. However, Association staff will be on hand to assist.
2. We encourage you to submit your entry earlier if possible. This will enable us to go through your entry in more detail prior to assessment by the panel of adjudicators.

The Conditions of Entry are as follows:

- ◆ All submissions to be in by 15 April 2013.
- ◆ The Judge's decision is final and no correspondence will be entered into.
- ◆ By submission of an entry, the nominator assumes responsibility for the accuracy of all information and provides the HDGASA with assurance that permission has been obtained and that the information and photos may be used in the magazine, on the Association's website and for promotional purposes.
- ◆ Submissions to be completed according to the template.
- ◆ Only new submissions will be accepted, other than previous projects now qualifying as a Vintage submission – i.e. was completed 10 years ago.
- ◆ The project or product must be complete before the deadline date for submissions – 15 April 2013.

PLEASE REMEMBER THAT THE ASSOCIATION STAFF ARE ON HAND TO ASSIST YOU IN THIS PROCESS.

For further information contact the Association on 011 456 7960 or hdgasa@icon.co.za



MISCONCEPTIONS

Miss Conception puts it "straight"

"Miss Conception" rectifies incorrect impressions concerning hot dip galvanizing.

Steel must be abrasive / sand blast cleaned prior to hot dip galvanizing.

True or false?

- ◆ In the normal sequence of events, steel arrives at a galvanizer with a request to "galvanize". Occasionally an instruction accompanies the steelwork with "Hot dip galvanize to SANS121 (ISO 1461)". More informed purchasers request the latter but insist on a Certificate of compliance to ISO 10474 or if registered an SABS Mark Scheme Certificate. Besides the assurance that the steelwork has been hot dip galvanized to SANS 121, this also assists the galvanizer in terms of time enabling him (and not the fabricator or purchaser) to fettle the coating to an acceptable condition in accordance with SANS 121. This is mandatory when the hot dip galvanizing is to be over coated with a paint coating system or when "architectural galvanizing" has been specified and discussed. Irrespective of the instructions that accompany the steelwork, cognisance should always be taken of the "Essential Information for the provision of the purchaser" in Annex A of SANS121 (ISO1461), *see right*. In the instance at hand, particular attention should be taken of Clause A2 a); g); h); j) (particularly if after painting is required?) and k). This information and anything else should be given to the galvanizer in writing and not conveyed verbally.
- ◆ In most instances when a client indicates that he wants to abrasively blast steel prior to hot dip galvanizing (Clause A2 g)), he generally does not understand that

SANS 121 (ISO 1461) ANNEX A (NORMATIVE) INFORMATION TO BE SUPPLIED

A.1 Essential information for provision by the purchaser

The number of this International Standard, i.e. ISO 1461, shall be supplied by the purchaser to the hot dip galvanizer.

A.2 Additional information for provision by the purchaser

The following information might be required for particular purposes and, if so, shall be supplied or specified, as applicable, by the purchaser:

- a) the composition and any properties of the basis metal that might affect hot dip galvanizing, including specification for the steel supply condition, with references such as EN 10025 [11], EN 10163-3 [12], EN 10204 [13];
- b) the presence of flame-cut, laser-cut or plasma-cut surfaces on the work;
- c) an indication of significant surfaces, for example, by drawings or by the provision of suitably marked samples;
- d) a drawing or other means of identifying where surface unevenness, for example round drops or contact marks, will make the coated article unacceptable for its intended purpose; the purchaser shall discuss with the galvanizer the way to deal with such problems;
- e) where fabrications sent for galvanizing include internally vented enclosed cavities, written evidence regarding this design feature shall be provided to the galvanizer prior to the work being undertaken, to ensure that the correct placement and size of venting arrangements have been undertaken;

NOTE 1 The galvanizer is not obliged to take on such work.

- f) a sample or other means of showing the required finish;
- g) any special pretreatment requirements;
- h) any special thickness of coating (see 6.2);
- i) the need for, or acceptability of, a centrifuged coating that is to meet the requirements of Table 4 instead of Table 3;
- j) any after-treatments or over-coating to be given to the galvanized coating (see 6.3);
- k) inspection arrangements (see Clause 5).

NOTE 2 Detailed guidance is given in ISO 14713-2 [8] on the effects of article condition on the results of hot dip galvanizing, with reference to the following:

- 1) steel composition (bulk and surface chemistry);
- 2) steel surface condition: SANS 121:2011
- 3) article surface roughness;
- 4) design of the article (size, weight and shape);
- 5) stresses in the article;
- 6) galvanizing practice used.

A.3 Additional information for provision by the galvanizer

The galvanizer shall, on request, provide the following:

- a) any relevant information available to him, including the method of renovation of uncoated areas;
- b) a certificate of compliance in accordance with ISO 10474, if required;
- c) if the galvanizer is so registered, certification that the work has been carried out by a galvanizer registered to an appropriate quality assurance standard, such as ISO 9001 [4].

Requests from the purchaser for this type of certificate should be made prior to the work being undertaken.

steel does not have to be abrasive blasted prior the hdg but passes through a chemical cleaning process involving pickling acid (normally a concentration of HCL) which generally removes all millscale and successfully cleans the steel surface, so that it can be hot dip galvanized. Abrasive blasting of the steelwork prior to general hot dip galvanizing is generally unnecessary unless it is used to remove welding slag at the weld areas.

- ◆ If a heavy duty hot dip galvanized coating is required, abrasive blasting will increase the surface profile of the steel and when galvanized, will attract a slightly thicker coating. However, it is the experience of the Association and its members that most structural steel and especially plate steelwork is relatively reactive to molten zinc, due mainly to the silicon and phosphorous content of the steel. For this reason it is not necessary to abrasive blast steel to achieve a heavy duty coating, the steel reactivity will generally achieve this without blasting.

- ◆ There is a galvanizer here in Cape Town who believes that when abrasive blasting on steel that has a higher than normal phosphorous content (above 0,03%), discovered when the initial hot dip galvanized coating locally delaminates due to high phosphorous, that abrasive blasting provides a key achieving adhesion of the extremely thick coating. By following this procedure steels with higher than 0,03% but less than 0,04% phosphorous can be successfully hot dip galvanized but with resulting coating thicknesses above 500um. In this instance immersion time should be limited as far as possible.

- ◆ This galvanizer also feels that the discoloration caused when hot dip galvanizing reactive steels high in phosphorous, may be less obvious when abrasive blasting the steelwork prior to hot dip galvanizing has taken place and while this may in some instances be true, there is no guarantee that it will occur in all instances and much more work will have to be done to prove it conclusively. ➡➡➡

Introductory Galvanizers Inspection Course

This one day course has been designed to be more simple and more practical than the 3-day galvanizers inspectors course discussed elsewhere in this magazine.

Topics to be covered and discussed are:

- Brief description about corrosion
 - How zinc protects
- The hot dip galvanizing process
- Inspection before and after hot dip galvanizing
- Multiple choice question test for course effectiveness.

Should you require some background information on hot dip galvanizing and its acceptance and have a limited formal education, this course is for you!

Contact our offices for more details.

2011 and 2012 Summary of 3-Day Inspectors Courses and results

| 3 Day Inspectors Course Summary 2011 | | | | | | | | 3 Day Inspectors Course Summary 2012 | | | | | | | |
|--------------------------------------|-------------------|--------------|----------------|---------------|--------------|----------------|---------------|--------------------------------------|-------------------|--------------|----------------|---------------|--------------|----------------|---------------|
| 2011 Course | No. of candidates | Higher Grade | Standard Grade | Not Qualified | Higher Grade | Standard Grade | Not Qualified | 2012 Course | No. of candidates | Higher Grade | Standard Grade | Not Qualified | Higher Grade | Standard Grade | Not Qualified |
| 1 | 4 | 1 | 3 | 0 | 76,37 | 64,65 | 0,00 | 1 | 7 | 3 | 4 | 0 | 83,2% | 67,3% | 0,0% |
| 2 | 8 | 4 | 3 | 1 | 88,26 | 59,80 | 47,53 | 2 | 7 | 3 | 4 | 0 | 80,0% | 61,3% | 0,0% |
| 3 | 4 | 3 | 1 | 0 | 79,49 | 65,93 | 0,00 | 3 | 9 | 6 | 3 | 0 | 82,1% | 65,8% | 0,0% |
| 4 | 4 | 4 | 0 | 0 | 83,04 | 0,00 | 0,00 | 4 | 10 | 0 | 7 | 3 | 0,0% | 58,4% | 0,0% |
| 5 | 5 | 0 | 5 | 0 | 0,00 | 64,84 | 0,00 | 5 | 6 | 2 | 4 | 0 | 76,9% | 70,6% | 0,0% |
| 6 | 5 | 3 | 2 | 0 | 82,78 | 70,19 | 0,00 | 6 | 7 | 2 | 3 | 2 | 79,0% | 57,9% | 40,1% |
| 7 | 6 | 3 | 3 | 0 | 84,71 | 62,00 | 0,00 | 7 | 10 | 7 | 3 | 0 | 81,4% | 69,4% | 0,0% |
| 8 | 12 | 5 | 7 | 0 | 87,58 | 64,17 | 0,00 | 8 | 10 | 2 | 6 | 2 | 82,5% | 68,2% | 34,4% |
| 9 | 4 | 0 | 1 | 3 | 0,00 | 61,81 | 36,26 | 9 | 8 | 6 | 2 | 0 | 79,8% | 67,9% | 0,0% |
| 10 | 9 | 6 | 3 | 0 | 83,15 | 62,64 | 0,00 | 10 | 9 | 3 | 3 | 3 | 83,0% | 60,3% | 42,8% |
| 11 | 6 | 5 | 1 | 0 | 83,85 | 60,44 | 0,00 | 11 | 9 | 7 | 2 | 0 | 78,6% | 60,5% | 0,0% |
| Totals | 67 | 34 | 29 | 4 | 83,247 | 63,647 | 41,896 | Totals | 92 | 41 | 41 | 10 | 80,6% | 77,84 | 39,1% |
| | 100% | 50,7% | 43,3% | 6,0% | | | | | 100,0% | 44,6% | 44,6% | 10,9% | | | |

3
CPD POINTS

3-day Galvanizers Inspectors Course

Hot dip galvanizing is one of the most widely used methods of protecting steel from corrosion. During and after fabrication and after hot dip galvanizing the coating is inspected for compliance with the relevant specifications.

The course commences at the selected venue where course material is presented and reviewed, the lecturer encourages discussions between delegates and himself. Each lecture is preceded by a number of pertinent questions on the previous lecture.

Once the delegates have a reasonable knowledge of the coating, including its inspection criteria, the venue moves to a selected galvanizer where a batch of incoming components are discussed en-group and then in teams, preselected hot dip galvanized components are inspected and reports are required to be completed.

If available at the galvanizer or other venue, preparation by sweep blasting and/or chemical treatment is demonstrated and duplex coatings are discussed.

The course will provide delegates with sufficient knowledge to advise on fabrication for successful hot dip galvanizing and also test, inspect and interpret test results after hot dip galvanizing.

COURSE DURATION AND CONTENTS

| | |
|-----------|--|
| Day 1 | (08h00 to 16h00) |
| Lecture 1 | Introduction to the Environment, Steel & Corrosion |
| Lecture 2 | Understanding Zinc Coatings (How does Zn protect) ISO 9223 & 12944 |
| Lecture 3 | Designs, Fabrication and Inspection before hot dip galvanizing SANS (ISO) 14713:1999 |
| Lecture 4 | General Hot Dip Galvanizing Processes SANS 121 (ISO 1461:2009) Batch type galvanizing SANS 32 (EN 10240: 1997) Automatic T & P SANS 10094:2007 HDG of Friction Grip Fasteners |
| Day 2 | (07h00 to 16h00) |
| | Hot Dip Galvanizing Plant Visit and Inspection |
| Lecture 5 | Duplex Coatings and HDG Reinforcement in Concrete |
| Day 3 | (08h00 to Completion of Exam) |
| Lecture 6 | Inspections after Hot Dip Galvanizing |
| Lecture 7 | Quality Assurances in Coating Applications Application of specifications Control documentation for a QA System Examination on Course Effectiveness |

Course schedule may be altered and interesting activities added for the benefit of delegates.

Following the course and successful result in a three part exam, the delegate will be issued with a certificate and if required, registered as an approved HDGSA Galvanizing Inspector. Registration will be confirmed on an annual basis. Successful galvanizing inspectors will become Affiliate Galvanizing Inspector Members of the HDGSA for the year.

VENUE AND NUMBER OF DELEGATES

The courses are usually run in Johannesburg from the Hot Dip Galvanizers Association in St Andrews, Bedfordview and also from a suitable venue in Cape Town. Bookings are limited to 10 people per course on a first come first serve basis. Courses in other areas are possible, contact HDGSA.

DATE AND TIME

Courses commence at 08h00 sharp and end at 16h30 (or as otherwise instructed). Lunch and refreshments will be provided. Comprehensive course notes can be collected from our offices two weeks before the course (this is highly recommended).

Johannesburg:

26 to 28 February; 12 to 14 March; 14 to 16 May; 9 to 11 July; 13 to 15 August; 8 to 10 October; 26 to 28 November.

Cape Town:

5 to 7 March; 4 to 6 June; 10 to 12 September.

Special courses can be arranged for a minimum of 6 delegates at appropriate venues in South Africa.

COURSE COST AND PAYMENT TERMS

R4 200.00 per person exclusive of VAT. Should you have two or more delegates from the same company, course costs will be R4 000.00 per person exclusive of VAT. Please note that payment is due on the first day of training. Cheques are to be made out to "Hot Dip Galvanizers Association SA". Members qualify for a discount.

CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

By attending the Association's 3 day course Galvanizing Inspectors Course, you will obtain 3 points (accredited by ECSA).



**SHOULD YOU BE INTERESTED, KINDLY CONTACT
SASKIA SALVATORI OR MARJORIE MONTGOMERIE AT THE ASSOCIATION**

AUTOMATED CENTRIFUGE PLANT



Galvspin Galvanizers' new automated centrifuge plant provides for quick, high volume turnaround time on centrifugal material.

It delivers a consistent, high quality zinc coating for high tensile items such as fasteners.

The Italian designed plant works on a gas fired system and includes a backup generator that will operate the robotics during times of power cuts.

Surface cleaning is done by an integrated shot blast facility, which is ideal for use on high tensile materials.

The ceramic kettle operates at temperatures of between 440°C and 680°C, while the efficient drying tunnel utilises furnace flue gasses.

The quality management systems and processes are accredited by SANAS with accreditation code SANS 121 (ISO 1461) Product Certification Scheme. ISO 9001 accreditation to follow.



Admin Office: 53A Michelson Street, Westwood, Boksburg Tel: 011 918 6177 Fax: 011 894 4046 **Plant:** 20 Hamba Gahle Road, Anderbolt, Boksburg Tel: 011 892 4640 Fax: 011 892 0808

P.O. Box 6525, Dunswart 1508 Email: galvspin@telkomsa.net

Bob's BANTER!



Using employees as resources is not developing people as assets

"Our people are our greatest asset", is the usual clarion call at staff briefing sessions. If this is true, why are there not 'human asset departments' instead of 'human resource departments'? Resources are things that are used up, assets are things of status and value.

Most companies spend a great deal of time, effort and money in managing their tangible assets, like plant and equipment, so as to obtain the greatest value from them. Even current or non-fixed assets like stores inventories are often subject to more value management than is generally the case with employees.

If treated as assets, employees can provide, or have the potential to provide, value in the form of skills, knowledge and experience that can have huge economic benefits. The key management factor here is to manage them in such a way so as to maximise their value.

Tangible or fixed assets are normally seen as having a long service life. Their life cycle consists of many different phases, e.g. acquisition; operation and maintenance; and disposal. Decisions about assets are thus enduring and will have long term implications.

The start of any fixed asset management programme is a 'needs analysis'-this defines what assets are needed to meet objectives. An economic evaluation follows to determine how the assets can be used to greatest effect. An effective plan, combined with a risk assessment, then produces the optimum strategy. In operation, the



asset is continually evaluated to decide when the asset needs to be repaired or replaced. The key issue for a manager is to optimise the service delivery potential of an asset. Why is this so seldom acknowledged for human assets?

As with other types of assets, employees should be hired, utilised and developed in accordance with a strategic asset management plan. At all stages in this plan, the focus should be on the potential performance of the individual. What the employee is capable of doing must be regarded as more important than what he or she is doing. Allowing employees to become what they are capable of becoming is akin to operating a machine at its design capacity, where its efficiency is the greatest.

Another key to human asset management is to see employees as 'knowledge workers'. Learning and attaining knowledge are important human urges that need to be nurtured. Giving employees responsibility and accountability to add value for the company does more

to increase their knowledge than giving them access to sophisticated and complex information technology systems. It's a sad reflection of our times that the huge sums of money invested in technology seem to have realised little improvement in the efficiency, effectiveness and contentment of people.

The development of potential is not only a responsibility of management. Employees have an obligation to willingly adapt to greater responsibility and accountability. They also need to recognise that 'self development' is required. They need to have a vision of theirs and others' potential. They need to complement learning with doing and teaching. They need to realise that their knowledge is about their past but that their decisions will be about their future.

Herb Kelleher, the CEO of the very successful Southwest Airlines in the USA (Maximum Leadership 2000) has the right idea. He says: "You can duplicate the airplanes; you can duplicate the gate facilities; you can duplicate all the hard things. But it's the intangibles that determine success. We've got the right intangibles". At Southwest Airlines, intangibles mean the employees.

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The Association wishes to thank Bob Andrew who is a consulting value engineer and honorary member of the Association for his article. He can be contacted on anneve@iafrica.com or boband@mweb.co.za. ➡➡

Alan Oswald, new Managing Director of Robor Galvanizers

Hot Dip Galvanizing Today welcomes Alan Oswald into the galvanizing world as he takes his place as Managing Director of Robor Galvanizers.

Full name: Robert Alan Oswald

Position: Managing Director – Robor Galvanizers

Main Activity of the company: Hot dip zinc galvanizer

Date and place of birth: Sunderland, England 1954

Education: A Levels, CA (SA)

First job: Auditor AJL Lewis Burroughs and Co

Size of first pay packet: R100

Value of assets under your control: (Market capitalisation) R120m

Number of people under your leadership: (total number of employees) 450

Management style: Open door, respect for individual

Personal best achievement: Negotiating MBO of Robor out of Barloworld

Person who has had the biggest influence on your life: John Gomersall (PPC)

Person who has had the biggest influence on your career: Mike Coward

Person you would most like to meet: Nelson Mandela

Businessperson who has impressed you most: Eli Goldratt

Philosophy of life: Treat others as you would like to be treated

Biggest ever opportunity: CFO of Robor

Biggest ever disappointment: Not getting full buy in to theory of constraints in company

Hope for the future: That a way can be found to increase productive jobs in South Africa before it is too late

Favourite Reading: African fiction, general business reading

Favourite TV programme: All sport, Glee, Homeland

Favourite food/drink: Chicken, beer and red wine

Favourite music: All genres

Favourite sport: Cricket and golf

Hobbies: Golf

Car: Lexus 300GS

Pets: Alsatian and cross Cairns terrier


Miscellaneous dislikes: Foul language

Married: Sally

Children: Bobby 34, Graeme 31, Kealy 28

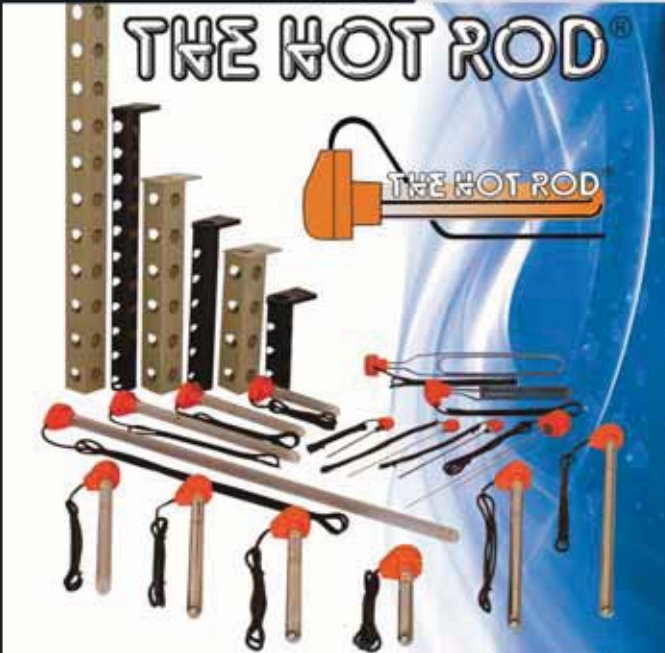
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On the Couch.....

Riaan Louw

By Desere Strydom

On the Couch caught up with **Riaan Louw**, well known personality of the hot dip galvanizing industry, as he embarks on a new professional adventure.

Please tell us a little bit about your upbringing? We moved often when I was young, but I spent most of my youth in the Northern Cape. Later we settled in Pretoria where I studied.

How did you land up in this industry? I had no idea what I wanted to do after my military service. During a stint on the South West African/Angolan border, I came across an old Sunday newspaper in which the Atomic Energy Corporation advertised bursaries for physical metallurgy. I just knew I had to apply as I always enjoyed chemistry and physics. I did not do all that well in my final year at school (too many extra murals, I think), but applied anyway. Some weeks later, to my surprise, I was accepted. (They probably felt sorry for this poor troeip on the border).

Please tell us about your career in the hot dip galvanizing industry? After completing my studies, Lyttelton Engineering Works, (a division of ARMSCOR) offered me a job. I spent most of my first 9 years at LIW doing research to enhance gun barrel life. I was awarded a special achievement award for the development in this field. This was a very fortunate development for my future career in the galvanizing industry as I built up an intimate knowledge of the metallurgy of the surface treatment of steels.

I changed direction for a while by moving to the foundry industry. I joined Thomas Begbie, a foundry in Middelburg, which was part of Middelburg Steel and Alloys, then a division of Barloworld. This was an incredible learning experience. For the

first time I gained experience in management and had the opportunity to further my studies in management and the Theory of Constraints. This stood me in good stead when I later joined Monoweld (now Robor) Galvanizers. Robor was a memorable period and I was fortunate to have had great mentors like Geoff Colloty and the late Walter Barnett.

There must have been many career highlights? There were many at Robor, but the most significant was that with a superb management team, we managed to turn the company from a struggling operation dangerously in the red to a force to be reckoned with in the galvanizing industry. It was in this time that I learnt the importance of building a strong team and nurturing good relationships with the workforce and customers alike.

From 2013, you will be heading into a new direction professionally? My time at Robor was fulfilling and challenging but I realise that I have reached a stage in my life where I want to spend more time with my family and pursue personal interests. After much soul searching I decided to retire from the corporate world. Unfortunately I'm the kind of person who can't sit still for too long; so I started wondering how I could use my time constructively. I feel that I have much knowledge and experience to offer the broader galvanizing and surface treatment industry, so why not put that to good use, at my own pace? I then joined forces with Johan du Plessis from South African Galvanizing Services (SAGS). Johan has a master's degree in mechanical engineering and is well known in the industry. Apart from his intimate knowledge of galvanizing, he is also an expert in the field of kettle design and heating systems. By



"galvanizing" our talents and experience I believe we can be of great service to the industry. We envisage offering specialised services in chemistry, kettle design, heating systems and independent inspection and technical services to mention but a few.

Hobbies and passions? I read a lot, spending time in nature (especially the Kruger National Park). I also do a bit scuba diving and cycling.

Tell us a little more about your family? I am married to Judy, the most intelligent person I know and the best cook in the world and together we have four amazing children, three boys and a girl. All as different as chalk and cheese, but yet in each I can see something very special.

Complete the sentence: This time, next year, Riaan Louw... I hope we could have grown SAGS to the point where it is widely known in the industry as the automatic "go-to" for companies in the industry who need world-class technical advice or services.

Article by Des Ray for HDG Today
2013© 



GIARDINA

galvanizing Plants Design & Engineering

Have you any problem with emission? Contact Giardina and your problems are over!

The company Giardina Srl has worked in both the hot galvanizing and in the thermal treatment sector for more than 40 years. Design and realization of hot dip galvanizing plants with a special attention to environment and energetic consumption are its main goals.

The Hasco Thermic furnace is the heart of the plant. Hasco Thermic is a pioneer company in high velocity pulsed fired systems. Furnaces have a high combustion yield with low kettle wear.

In more than 40 years Hasco Thermic has achieved a great fame for its efficient and long lasting furnaces with 200 references in 34 countries around the world.

Continuous investments in new technology, research and development assure Hasco

Thermic the first place as a supplier in the galvanizing field.

Giardina Srl, exclusive distributor for South Africa, combines the furnace with a Pilling kettle in all its plants.

The rules provide that plants have got suitable control systems for the emissions inside and outside the working place. Our company produces plants for the acid vapors captation from pickling systems, of white fumes from galvanizing baths with the relevant damping with scrubbers and dry filters.

Some of our products are successfully present on the South African market both on existing and on new plants.

Giardina - Hasco. The best solution for new galvanizing plants.



Consistently delivering superior quality galvanized products to all our customers



Armco Galvanizers Isando has been operating since 1989. Geared up to accommodate heavy structural steel up and till 13m in length.

Isando has an average output of plus minus 2000 tons per month. With an improved lay down area and increased loading capacity by addition of a tower crane we strive to give "A" class service to all our customers big or small.

Armco Galvanizers Dunswart is a Second facility based in the Boksburg area. Dunswart has an average output of plus minus 900 tons per month. This branch specializes in small structural components and is geared up to accommodate items up and till 5m length.

Armco Galvanizers Randfontein is a third facility based in the Randfontein area. Randfontein has an average output of plus minus 800 tons per month and is geared up to handle light to medium structural steel up and till 6.2 m in length.

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The company has it's own SANS 121 2000 ISO 1461 accredited Hot Dip Galvanizing plants. And is listed under the SABS ISO 9001 scheme.

GALVANIZING BATH SIZE

