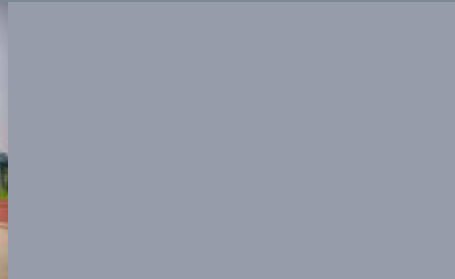




The Global Galvanizing Awards 2015



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Welcome

The Global Galvanizing Awards 2015

The Global Galvanizing Awards recognise the innovative use of galvanized steel by architects, engineers and steel constructors. These awards have been held in conjunction with the industry's global forum – Intergalva 2015.

45 projects were entered through the national and regional galvanizers associations across the world. The projects have been reviewed in two separate judging processes:

'Judges' Award' that has been judged by a panel from the world of architecture and design.

'Industry Award' that has been voted by the global galvanizing industry through the participating associations.

The judging panel was:

Jan-Carlos Kucharek (Senior Editor, *Royal Institute of British Architects Journal*)

Silvio D'Ascia (Silvio D'Ascia Architects)

Matthew Wells (Techniker)

Projects were evaluated for their effective and innovative use of galvanizing in architecture and civil engineering, as well as the functionality and aesthetics of the structure. Special attention was also given to demonstration of the contribution of galvanizing to sustainable construction. The entrant's approach towards galvanizing and its incorporation in the design stages was also considered important.

In addition, the judges have identified four **Highly Commended** and the highest placed projects from each participating association have been identified as **Shortlisted** projects and are included in this booklet.

They are excellent examples of the growing use of galvanizing in architecture and civil engineering across the world. We hope that they will serve as an inspiration to others.

Judges



Jan-Carlos Kucharek

Senior Editor

Royal Institute of British Architects Journal

Jan-Carlos Kucharek is senior editor of the RIBA Journal and editor of its sister publication Products in Practice. He is a qualified architect, having worked for five years at international practice Foster+Partners before joining the Journal. Before that he worked freelance for a number of London practices after graduating from UCL's Bartlett School. As part of his architectural education he spent three years living and working in Japan, developing an enduring fascination for Kazuyo Sejima and fugu fish. He lives in London.



Silvio D'Ascia

Silvio D'Ascia Architects

Silvio d'Ascia was born in Naples, Italy in 1969. His agency, Silvio d'Ascia Architecture, was founded in 2001 and counts among its principal works the Porta Susa high-speed railway station in Turin, the renovation of the Maeght Foundation in Saint Paul de Vence, and the technology campus for the Bank of Shanghai.

Silvio d'Ascia's project 'Porta de Parco' at Bagnoli, Naples was a winner of the 2012 International Galvanizing Awards.



Matthew Wells

Techniker

Matthew founded Techniker in 1993, he has over 30 years experience in the design of building structures and bridges. His particular area of interest is in developing the interface between structural design and architecture. As creative director Matthew maintains an overview of the conceptual content of all the projects in the company. He has served on the Architectural Association Council and CABE Olympic review panel. He is visiting professor of architectural engineering at the University of Leeds.

**Congratulations to all
the entrants in the Global
Galvanizers Awards 2015**

Central Bus Station

Haldensleben, Germany

Architect

Schulitz Architects, Braunschweig

The new central bus station in the town of Haldensleben gracefully fills a void that gives shape to what had until recently been an abandoned site in front of the main railway station.

The requirement for sheltered links between bus stops and local traffic management regulations pointed to an enclosed structure. The architects however thought differently and their final design cleverly achieves a very open structure that adheres to the design brief. A semi elliptical roof supported by slender steel sections, rectangular in plan, has such a light footprint that local residents and travellers affectionately refer to it as being like a UFO. The internal enclosed space has been landscaped and become a popular gathering space not only for commuters but also local residents.

A clever additional touch has been provided by semi enclosed seating areas that offer some privacy. The structure is extremely light and economical. Hot dip galvanized steel, which is the predominant material, ensures a long service life and has made a significant contribution to minimising of construction costs. The entire structure was pre-fabricated and easily erected on-site.



Vienna Railway Station

Austria

Architect

Albert Wimmer ZT – GmbH

Contractors and Steel Construction

Unger Steel Group

The dramatic lozenge roof of the new Vienna Central railway station has provided Vienna with a central hub in the trans-Europe rail network. It is probably one of the most complicated and striking steel construction projects in Austria incorporating over 7,000 tonnes of steel. It will be used by 145,000 people every day and over 1,000 trains are due to pass through on their journey across Europe.

The station's spectacular steel and glass lozenge roof, 200 metres long and 120 metres wide, has become a symbol of modern mobility and functionality, and distinguishes the building from everything around it. The roof structure, which is made up of 14 individual diamond shapes, arches over five platforms. Its height varies between six to fifteen metres, so that it seems to hover over the platforms. The creation of the gigantic structure was a demanding challenge for the contractors and the steel construction company Unger Steel, not only from a technical point of view, but also with regard to the logistics of the project.

The complexity of the roof structure meant that it would be virtually impossible to maintain so the design allowed for individual members to be galvanized and bolted together to form the complex rhombus for each subsection of the roof. It was therefore possible to avoid costly maintenance work which would entail closures along with health and safety issues.



Photo credit: OEBB Roman Boersich, Renee del Missier (Unger Steel Group)



Health Centre

Móstoles, Spain

Architect

Ignacio Borrego, Nestor Montenegro
and Lina Toro

The Social Care and Health Centre in the city of Móstoles (Southern Madrid) has been designed with two crucial design considerations: the creation of a multipurpose space on a very tight budget. Located in an area of urban expansion, its footprint and relationship with the environment is influenced by the surrounding streets. The four-storey structure creates more than 2,350m² of space incorporating 51 offices. The new centre has been designed to cater for three main areas of social and health care provision in Mostoles: accident and emergency, to act as a centre of excellence for preventative medicine and a primary general health care centre for the area.

An important element of the design was to counterbalance the traditional solid form of the external shell and transpose an internal design that catered for the creation of open areas throughout the building. The design would also have to be optimised to allow maximum penetration of light into the far reaches of the building.

This has resulted in the provision of a calm and soothing internal environment. Wrapping the building with a thin skin made of galvanized steel added to the interplay with light. The façade generates a thermal and solar buffer, maintaining the visual privacy of the offices without hindering the external views from the interior. Minimum cost of maintenance of the entire building was also one of the reasons for the extensive use of galvanized steel.



Photo credit: Miguel de Guzman



Water Tank

Guijo de Coria, Spain

Architects

Ignacio Mendaro, Ignacio Isasi
and Blanca Rose

In the rural wilderness of Guijo de Coria in western Spain, a new structure dominates the skyline. From a distance it seems to mimic the form of a transmission tower and on closer inspection that initial response is justified.

Ignacio Mendaro Corsini was set a brief by the Regional Public Works Ministry to provide a simple, economic way of providing pump-free water for the very small local community. The practice took their initial inspiration from the concept of the amphora. This was a large ceramic container used by the Greeks and Romans for keeping solid and liquid foodstuffs. Hydraulic studies were used to calculate water requirements which meant that a buried tank of 150m³ was required and an 80m³ tank at a height of 22m would be needed to create the pressure head. The primary objective of the designers was to develop a clear form with a minimal footprint. The new water tower is defined by a network of galvanized steel in the form of a stretched lattice cross. A platform at the top holds two 40m³ stainless steel tanks. Timber has been used to form the stairs and platform necessary for the maintenance of the water tower.

The provision of 80m³ of capacity at a height of 22m could so easily have resulted in a structure that was both massive in volume and footprint. The solution of using a lattice frame has resulted in an elegant structure that not only has a light touch but at the same time demands attention.



Photo credit: Lluís Casals

Sugar Warehouse

Santos, Brazil

Engineers

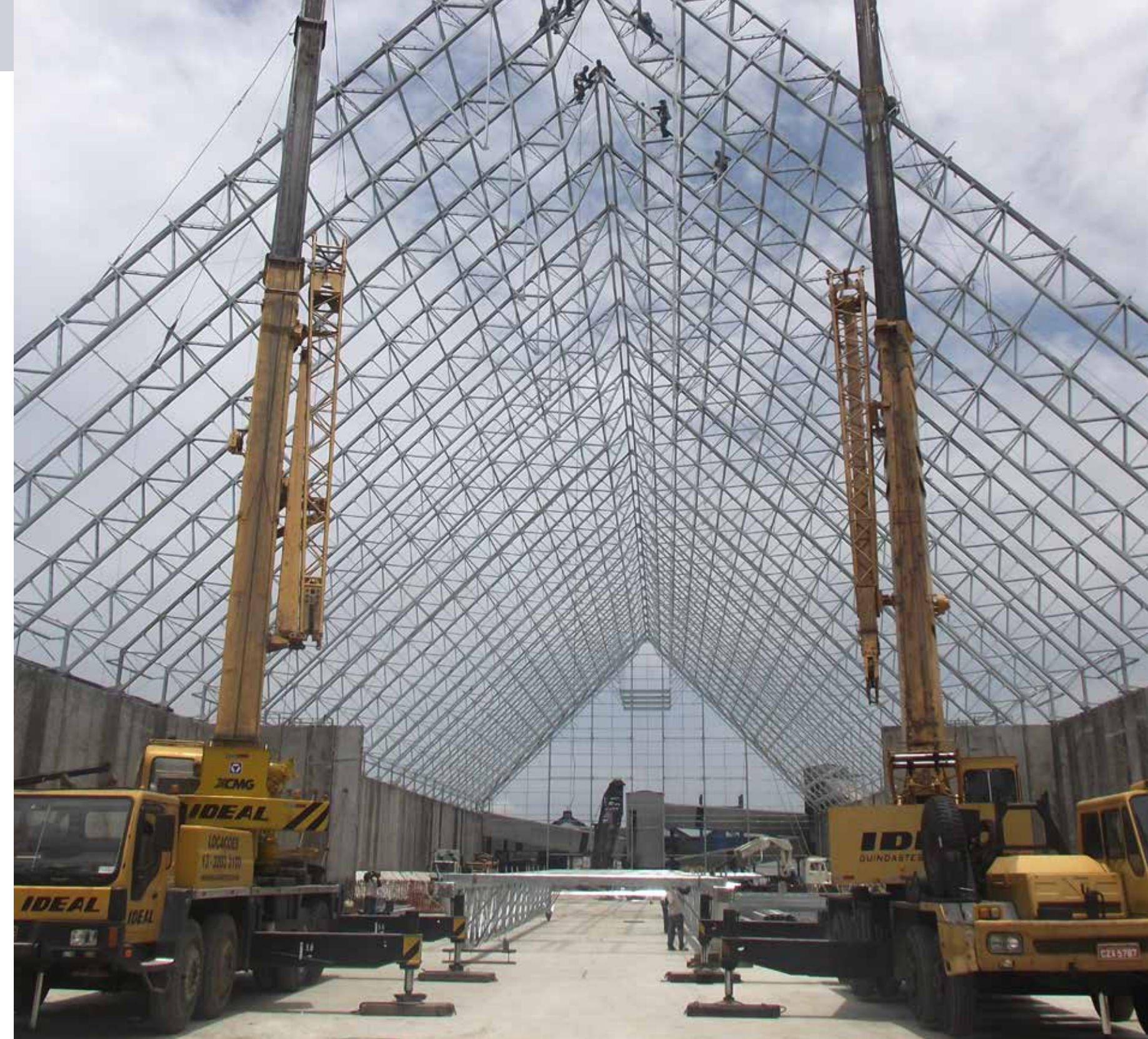
Blat Estruturas Metálicas LTDA

The new Sugar Warehouse with a storage capacity of 80,000 tons is located in the sugar terminal of Rumo Logística in the port of Santos. Measuring 200m x 40m and a height of 30m it is considered to be one of the largest of such facilities within the terminal. The galvanized steel trusses have been designed to follow the angle of repose of the mounds of sugar stored within.

Project engineers, Blat paid due consideration to; climate, performance, economics and project deadlines in their decision on the most suitable corrosion protection system for the steelwork for the project.

The project demonstrates perfectly the advantages of galvanized steel for construction of functional buildings. The coastal location of the building justifies the best choice of corrosion protection.

The project partners chose galvanizing to ensure they could deliver the building on time for the client and with favourable economics during the initial construction. Those partners made a commitment to galvanizing at the first design stage and demonstrated that, by doing this, even large structures can be galvanized if the component sizes are matched to the galvanizing kettles. Finally, the project accepted no weakness in corrosion protection. The whole structure is galvanized – including the structural fasteners.



Cliffwalk

Capilano Suspension Bridge Park, Canada

Engineers

Morrison Hershfield Ltd

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 separating you from the expanse of empty air below.

The Cliffwalks' cliffside location makes it difficult to maintain or repair, as the arc hangs 295 feet above the river below. Furthermore, the attraction is located only a few miles from the Pacific coastline that surrounds Vancouver, allowing constant contact of corrosive moisture 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.



Bicycle Bridge of Liberty

Slovakia

Architectural Solution
Ing.Arch. Milan Beláček

Technical Design
prof.h.c.,prof.Dr.Ing.Zoltán Agócs, PhD.,
Ing.Ľuboš Rojko, PhD.

General Contractor
Združenie Cyklomost

Consortium Leader
Ingsteel, s.r.o.

The Bicycle Bridge of Liberty re-establishes an old link between Schlosshof in Austria and Devínska Nová Ves in Slovakia that was lost during the Cold War.

The architectural concept for the new bridge was based on detailed studies that included the need to create a structure with minimal intervention on the landscape while maximising material use. The finished sweeping steel structure over-bridges 525m and is 4m wide. A sign of the success of the bridge is that it has become a popular tourist destination.



Courchevel Aquatic Centre

France

Architect
Auer + Weber + Assoziierte,
Stuttgart, Germany

Engineers
Bollinger + Grohmann

Courchevel Aquatic Centre is located in the heart of the urban development at the side of the Grandes Combes at the entrance of the Courchevel resort.

The simple architectural concept of architects Auer + Weber was to integrate the building harmoniously into the environment. The 120m x 80m double curved roof structure emerges from the ground and covers the whole area on a minimum of supporting points: 25 columns, 2 walls and 3 abutments. Natural light is supplied via large facades that open to the sky and act as a constant reminder to users of the grandiose environment around the aquatic centre.



Photo credit: B+G Ingenieure, Bollinger+Grohmann SARL

Garsington Opera Pavilion

Buckinghamshire, United Kingdom

Architect

Snell Associates

The new auditorium for Garsington Opera, is conceived as an elegant lightweight pavilion set within its parkland setting, elevated above the ground giving the appearance of ‘floating’ above the landscape. It features covered verandas and terraces, which contain bars and places to linger and enjoy the views. A pavilion is perhaps a fitting building type for an historic 19th Century Estate and provides a new ‘room with a view’. The new theatre is located in line with the lake and on the same north-south axis as Home Farm gardens.

The requirement for the structure to be demountable led to an entirely bespoke prefabricated structure made from a limited palette of materials; timber, fabric and galvanized steel.



Photo credit: Mike Hoban, Dennis Gilbert

Photo credit: ©Genel Galvanizciler Derneği/GALDER

Geophyte Research Station

Yalova, Turkey

Project Owner

Atatürk Horticultural Central Research Institute, Republic of Turkey Ministry of Food, Agriculture and Livestock

Architecture Design

Erdal Kaya (Project Manager)

The Geophyte Research Station is a unique geophyte garden that combines Seljuk architecture with ‘bulb design’ and includes the first Alpine greenhouse in Turkey. It is also the biggest geophyte garden in a temperate climate country and the richest in terms of species – over 1,000 species and 1,200 taxonomic groups. Plants such as peonies from across Turkey have been taken into its protection.

The complex includes a 450 m² geophyte exhibition that was inspired by the Agri Mountain – the highest in Turkey. Other buildings include the Alpine Greenhouse, extensive cultivation greenhouses, an administrative building, an open geophyte garden of 17,400 m² and an indoor area. The entire project covers 20,000 m². Erdal Kaya wanted to use steel to build this inventive structure because it gave the required flexibility of design and ease of construction. When it came to protection of the steel, Erdal Kaya explained his choice as follows:

“We preferred to use hot dip galvanized coatings as it is the most environment-friendly corrosion protection solution to make the Geophyte Garden long lasting.”



Ilico Apartments

Auckland, New Zealand

Contractor

Fletcher Construction

Architects Warren and Mahoney describe Ilico as consisting of 65 one and two bedroom apartments over five levels, developed for purchasers with a limited budget in the newly established suburb of Stonefields.

The apartments have been carefully designed to effectively utilise every part of their footprint, while maintaining a sense of spaciousness and maximising natural light and ventilation. There are two vertical circulation cores servicing boardwalks at each level which in turn provide bridge access to each apartment.

The contractor ensured that the final corrosion protection system, hot dip galvanizing and painting, met both the corrosion and aesthetic requirements of the client.



Kirstenbosch Treetop Walkway

South Africa

Architect

Mark Thomas Architects

Engineers

Henry Fagan & Partners

The Centenary Tree Canopy Walkway is a curved steel and timber bridge that winds and dips its way through and over the trees of the Arboretum. Inspired by a snake skeleton, and informally called 'The Boomslang' (meaning tree snake), it is a low-maintenance, low impact sculptural raised walkway.

The main spine of the walkway is constructed from a galvanized tubular steel frame, with welded ribs and a light mesh giving the cross bracing, allowing the whole form to act as a bridge-spanning beam. Continuous shaped timber handrails ensure the safety of the visitor. The decking is stained, treated, slatted pine, placed on edge and spaced to accommodate the walkway's curves.



Park+Ride Open Air Car Park

Elst, Netherlands

Architect

MH1 Architects

Engineering

JVZ Raadgevend Ingenieurs

General Contractor

Aan de Stegge

Steelwork Contractor

Van den Brink Staalbouw

Located beside the railway line connecting Nijmegen and Arnhem, Elst's new P+R open air car park accommodates 590 vehicles.

The modular car park consists of a steel structure with slender box columns and IPE beams with a composite deck. The galvanized steel structure, in S355 grade steel, combined with the light hue of the composite deck's underside give the new car park's interior a clear and friendly quality. The entire main loadbearing structure was designed and built in such a way as to accommodate the future addition of an extra parking layer if desired.



Pedestrian Bridge

Hradec Králové, Czech Republic

Architects

baum & baroš

Engineers

Kosch - Führer - Jürges

The city of Königgrätz, which lies between the Elbe and Adler rivers, provides a collage-like mixture of historical buildings from various periods of history. Erecting a new structure against this background calls for a high degree of sensitivity, respect and discipline.

The design solution incorporates a truss with an understressed structure, derived from a Polonceau girder, with the upper beam forming the deck which is divided into two articulated sections. A tensioned cable in the form of a five-sided polygon creates the bottom chord of the truss. The transfer of loads is aided by the incorporation of three compressively stressed elements between the deck structure and the tensioned chord.



Scenic World

Katoomba, Australia

Architect
PMDL Architecture & design

Project Manager
Sinclair Knight Merz

Constructor
Grindley Construction

The Scenic Railway Katoomba redevelopment is a world-class tourist attraction, steeped in history, and located in the Blue Mountains of NSW Australia.

The \$30 million project featured a refurbishment programme involving an overhauled track and two new platforms, brand new state-of-the-art carriages, a new winch system and radio frequency identification technology which replaced tickets with wristbands. Hot dip galvanized steelwork was integrated into all facets of the project. This included new loading and unloading platforms and stairs for top and bottom stations, service walkways, bottom station towers, module walkways, equipment platforms and a balcony extension, totalling a staggering 17,855 individual steel components.



Photo credit: Brett Boardman

Troll Office Building

Stavanger, Norway

Architect
Biesel Architects AS, Eder

The building consists of two blocks, one which stands five storeys high and the other at eight storeys. Both sections are connected by a central section which extends over the lower three floors. The Troll building was one of the first office buildings in Norway that has been constructed to both passive and Energy Class A standards.

A compact building structure, excellent U-values, low infiltration facades and balanced ventilation has helped to achieve these robust standards. The façade of the building consists of galvanized panels 4.5m x 0.4m with a thickness of 1.6mm. The total volume of the façade is 3,300 m². Galvanized steel was chosen for its sustainability credentials in comparison to alternative materials.



Waste-to-Energy Plant

Bolzano Sud, Italy

Project
TBF + Partner

Structural design
First De Biasi

Architects
Studio Claudio Lucchin and Associates

In designing the new waste-to-energy plant at Bolzano Sud, reducing the visual volume of the complex whilst at the same time giving it an image which is compatible with the surrounding area, were the objectives set for the project by Studio Claudio Lucchin and Associates.

The new plant consists of two huge units which run alongside the motorway on one side and the Isarco River on the other. The energy produced by the plant will be used for the heating and domestic hot water needs of 8,000 inhabitants. It will also help to reduce carbon dioxide emissions equal to 80,000 tonnes a year.



Photo credit: Oskar Da Riz / Stahlbau Pichler, CLEAA

Acknowledgements

The following galvanizing industry associations have made the 2015 Global Galvanizing Awards possible:

- American Galvanizers Association
- Asociación Técnica Española de Galvanización
- Associazione Italiana Zincatura
- Czech and Slovak Galvanizers Association
- European General Galvanizers Association
- GALDER
- Galvanizers Association
- Galvanizers Association of Australia
- Galvanizers Association of New Zealand
- Galvazinc Association
- Hot Dip Galvanizers Association of Southern Africa
- ICZ - Instituto de Metais Não Ferrosos
- Industrieverband Feuerverzinken eV
- Nordic Galvanizers
- Zinc Info Benelux



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