

City of Surrey, Floraform Project

Surrey, British Columbia



Combining function and art, the Floraform Project serves to light up the City of Surrey with its delicate galvanized light stands crafted to mimic the image of flowers and vegetation. Bruce Voyce, an artist becoming well-known for his practical approach combining longevity and durability with function and the environment, created the tall, blossoming flowers to function not only as art, but also as solar powered light stands.



The environmentally friendly light stands utilized two tons of galvanized steel for the tubing support frames, flower sections, and cross members. Galvanizing the flowers was especially difficult given the light weight and fragile nature of the leaves and petals, and according to the galvanizer, a little "creativity" was required to achieve the particular finish the artist was looking for in the project.

The light stands are stand-alones in a large park setting, blooming out of the ground at intervals in the flower beds. Arranged throughout the park, the structures visually support each other; meanwhile, the public has access to review and inspect the project in its entirety. The high-profile nature, artistic impression, environmental consideration, and longevity of coating protection made galvanizing the obvious choice for these unique structures.



Specifier, Artist
Bruce Voyce

Engineer
Graham Olney
O&S Engineering

Landscape Architect
Mark Van der Zalm
Van Der Zalm + Associates, Inc.



Nashville Children's Theatre Dragon

Nashville, Tennessee



Every year, the Nashville Children's Theatre draws in more than 70,000 children and adults to see productions such as "Go, Dog, Go!" and "The Reluctant Dragon." Located adjacent to the Nashville metro buildings downtown and highly visible from the street, the dragon guarding the newly renovated theatre required a coordinated effort between the artists and galvanizer to produce, and will be viewed by approximately 300,000 people each year.

With such high visibility, the artist wanted to ensure the sculpture would remain aesthetically pleasing for generations to come. Galvanizing was specified to prevent unsightly rust from marring the whimsical look of the sculpture.

The dragon needed to appear solid in form, yet be fashioned with enough air holes to properly ventilate it. This was achieved by skip welding under the scales and adding holes later disguised as part of the sculpture. This extra effort preserved the realistic dragon-like appearance. All components of this elaborate sculpture were galvanized, from the anchor apparatus for the dragon support, to the curling tips of the dragon's wings – totaling more than 3,000 pounds of galvanized steel. To ensure low maintenance and to preserve the dragon for decades of children to enjoy, galvanizing was the best choice to protect the dragon from corrosion.



Specifier, Architect
Zophia Kneiss

Engineer
Milligan Engineering PC





Michigan/M-102 Bridge Rail Reconstruction Project

Detroit/Ferndale, Michigan

With the original steel guardrail panels galvanized back in 1955, the rails on the MI/M-102 Bridge and Rail Project were due for corrosion repair. Fortunately, because of the protection provided by the galvanized coating on the railing panels, highway traffic damaged only 15-20 percent of the more than 300 tons of steel that would need replacement in the repair. After attending an educational *Galvanize It!* seminar, Sue Datta of the Michigan Department of Transportation (MDOT) learned how many states have been taking old guardrail, stripping, regalvanizing, and returning it to service - so MDOT decided to regalvanize the existing steel guardrail panels.

MDOT felt recycling the existing steel was an excellent opportunity to contribute to the "Keep It Green" initiative being supported by the department. The state saved more than half of the budget earmarked for this project because they only had to replace 20 percent of the old material. The money saved on this project allowed MDOT to start the next project – one originally slated to begin in 2009.

The cost savings merely added to the original benefits of galvanizing this project – after 50 years of Michigan weather, traffic mishaps, road grime, and salts, the galvanized steel remained corrosion free. In addition to contributing to the "Keep It Green" effort, the new railings for this project will provide maintenance-free corrosion protection well into the future.



Specifier, Architect, Engineer
Michigan Department of Transportation

Fabricator
Cardinal Fabricating





Kuujuuaq, Nunavik Airport

Nunavik, Quebec

Planning a new airport terminal located well north of the frosty 55th Parallel, the Kuujuuaq, Nunavik Airport had several cultural, environmental, and logistical considerations that made it a challenging project. Situated in a Kuujuuaq Inuit Village in northern Quebec, the airport serves as a very important symbol for the Inuit community. Because airplanes are the only year-round connection to the outside world – as well as the sole means of contact with thirteen other Inuit communities in the region – the airport was specially designed to respect and reflect the Inuit culture. Designed in the likeness of a traditional kayak, the new terminal illustrates the importance of symbolism in the Inuit culture.

Despite the remoteness of the location, the Nunavik airport is the third most important airport in Quebec due to its designation as a hub for the entire arctic region of the province. Because of high construction costs associated with the frigid and icy climate, functionality and efficiency relative to size was a necessity, as well as smooth integration of the project with the existing facilities.

Furthermore, the project needed to comply with the latest standards for far northern construction. Because the owner wanted to obtain the silver LEED certification, the project incorporated all of the latest sustainable development standards. Galvanizing, in addition to saving the waste and expense of corrosion maintenance and repair, is also recyclable, making it an environmentally friendly choice directly in line with the owner's intentions.

Local hiring quotas, combined with a very limited and unskilled local population, required the project be completed over two summer seasons. This made galvanizing the preferred corrosion protection system because of the rapidity and flexibility the process allows during onsite construction. Galvanizing was an excellent fit, as it accommodated the unique cultural and labor needs of the region by allowing the incomplete structure to be left exposed throughout the arctic winter without damage. Using galvanizing to support the environmentally friendly airport was the best choice, given the sustainability of the process, the superior corrosion protection in extreme environments, and the low-maintenance quality of galvanized steel.



Specifier
Transport Canadaa,
Quebec Region

Architect
Fournier Gersovitz Moss
Architects and Associates

Engineer
Genivar

Contractor
Laval Fortin Adams

Fabricator
Sturo Metal





Decorative Flower Boxes

West Middlesex, Pennsylvania

In a small town in northwest Pennsylvania Amish country, the main thoroughfare through town is now artfully adorned with large galvanized flower planters. A generous donation of time, effort, and material was given to the Women's Club and Garden Club by Young Galvanizing, Inc. and T. Bruce Sales, Inc. to decorate Main Street in West Middlesex, Pennsylvania.

After galvanizing the 2,600 pounds of steel for the flower boxes, the planters were later adorned with a plaque in appreciation of the two downtown merchants, as well as filled with decorative foliage. This donation was not only a gift of the here-and-now, but rather a gift that will continue to give for decades to come, as the boxes will be protected from unsightly rust stains and the everyday wear-and-tear of street traffic.

Because of galvanizing's durability, these planters will look as beautiful 50 years from now as the day they were given to the Women's Club and Garden Club.



Additional
T. Bruce Sales, Inc.
Design/Build





Chinatown Park

Boston, Massachusetts

Located in the heart of Boston's Chinatown, the Chinatown Park project has a great deal of public exposure, an element that made quality and craftsmanship important components in the choice to utilize galvanizing on the project. As a landmark project representing a major neighborhood in Boston, longevity and appearance were major considerations. The duplex system of paint applied over galvanizing meets those requirements, as duplex systems combine the superior protection of galvanized steel with the additional benefits of another corrosion protection system such as powder coating or paint to extend the life of the piece even further.

Using a duplex system allows a structure to have the best of both worlds – aesthetic appeal and corrosion protection. For projects that require a particular color scheme, duplexing is a good way to get the corrosion-resistant protection of galvanizing, while allowing a structure to incorporate any color desired.

For this artistic endeavor, the architect's design represents a balance of memory and prophecy. The theme is expressed through contemporary interpretations of traditional elements such as village festival spaces, contemplative gardens, gateways, garden walls, flowing water, and Asian plantings. A stylized sampan sail, fabricated in stainless steel and LED's, and the contemporary duplex coated steel gateway serve as a counterpoint to the traditional "dragon" gate on nearby Beach Street. Bamboo plantings are supported by the duplex-protected frames, which will resist corrosion for generations to come.



Architect
Carol R. Johnson Associates

Engineer
Lim Consulting, Inc.

Fabricator
Auciello Iron Works

Owner
Massachusetts Turnpike Authority

General Contractor
W.T. Rich, Inc.





Aero Solutions Pole-Max

Throughout North America

As wireless companies have grown to meet consumer demand, so has the need for new antennas to carry and transmit the signals. Municipalities do not want new towers built, nor does the public desire them in their backyard, but everyone needs his/her cell phone to work. Aero-Solution's Pole-Max serves as a simple solution to add antennas onto existing towers. While doing so can be problematic – antennas add more mass and wind load to a structure not built to accommodate such additions – each Pole-Max system developed is compliant with governing design codes.



Special purpose, high-strength galvanized channel is used, capitalizing on the quick turnaround of the galvanizing process. Because galvanizing is not a weather-dependent process, it can be completed year round without common delays. With quick delivery and fast installation, Pole-Max takes advantage of this benefit. Because Pole-Max is installed on galvanized monopole structures, the finish of the reinforcing channel closely matches the existing pole – and the protected steel will stand up to the elements for generations to come.

Nearly 24,000 of the approximately 80,000 monopoles throughout North America could benefit from Aero-Solution's Pole-Max retrofit to upgrade poles to higher load designs, making the market for this long-lasting, galvanized product wide open, and because galvanized monopoles are expected to perform for decades without maintenance, galvanizing will continue to be the best choice for the additional poles.



Specifier, Architect
Aero Solutions

Engineer
Paul J. Ford & Co.

Fabricator
JL Fabrication

Additional
Crown-Castle, International





South San Joaquin Irrigation Distribution Solar Farm

Oakdale, California

The South San Joaquin Solar Farm, which is one of the largest solar projects in the United States, is a 1.9 megawatt single-axis solar tracking system constructed to provide electricity to the De Groot Water Treatment Plant. In this forward-thinking, environmentally friendly project, 11,040 solar modules produce 3.7 million kilowatt hours of electricity output annually – enough to power 550 homes and offsetting nearly four million pounds of carbon dioxide emissions per year.



Nearly 9,000 pieces were galvanized on this project, and packaging and bundling were very important to maximize full truck loads from Los Angeles to the site in central California. A critical timeline had to be followed in order to coordinate fabrication and galvanizing in L.A. and transportation to the jobsite within two months. With the quick turnaround in the galvanizing process, the galvanizer was able to deliver parts to the jobsite in a timely manner for this environmentally conscious “green” project.



This solar installation will transform San Joaquin into one of the “greenest” spots in California and will nearly wipe out the entire \$500,000 annual electricity bill the Irrigation Department pays to run their plant. As the need to “go green” continues, the need for hot-dip galvanizing on solar projects will undoubtedly continue to increase. Galvanized steel, in addition to saving the waste and expense of corrosion maintenance and repair, is also recyclable – making it an environmentally friendly choice that easily integrates with the intentions of the Solar Farm.

Specifier, Architect, Engineer
Sun Technics

Fabricator
CSM Metal Fab

Additional
Conergy Inc.





Indiana Packers Quick Chill Cooler Expansion

Delphi, Indiana

The Indiana Packers Corporation (IPC) invested \$70 million on this 160,000 square foot cooler and production capacity expansion, and more than doubled its workforce from 1,300 to 2,700. The facility required all metal building materials be aluminum, stainless, or hot-dip galvanized to comply with USDA food processing requirements. In order to protect their sizeable expansion investment, IPC chose the corrosion protection system that looks attractive and easily withstands the daily contact with corrosive elements. Beef and poultry production can be some of the most corrosive environments imaginable; but hot-dip galvanizing will protect against the corrosive elements, as well as the impact of working in a semi-industrial environment.

The expansion construction was performed in a compressed 6-month schedule and overcame weather delays at the remote location; but thanks to value engineering, including hot-dip galvanizing, the project was completed on schedule, saving the owner time and money. This project was recognized by the Associated Builders and Contractors as one of the nation's top construction projects for the quality and innovation of the design team. Hot-dip galvanizing was a large part of the initial success of the project, and with the longevity and durability of the coating, it will continue to be a prime factor in the project's success for years to come.



Architect, Engineer
Stellar Group – Florida





National Gypsum

Mount Holly, North Carolina

National Gypsum's Mount Holly plant is a \$125 million high-speed wallboard manufacturing facility that recycles waste material rather than sending it to landfills. In keeping with the "green" spirit of recycling waste material, galvanized steel prevents the waste and expense of corrosion maintenance and repair, and is also recyclable; thus making it an environmentally friendly choice for this massive project.

As is often the case, the initial cost and life-cycle cost of galvanizing the 3,461 tons of steel, including beams, columns, channel, angels, plates, connection details, roof trusses and joists, girts and purlins, embeds and more, offered superior economics when compared to painted steel. The entire structure (with the exception of the outer skin of the building) is hot-dip galvanized for corrosion protection - a necessary requirement to withstand the damaging effects of an industrial environment.

A fast-track erection schedule allowed only one week from delivery by the fabricator to the galvanizer and delivery to the site. Because galvanizing is a factory-controlled process and can be completed independent of weather, the galvanizer was quickly able to turnaround the material, which was fabricated and erected in sequences. The galvanizer worked closely with the fabricator and the joist manufacturer to design the structural pieces in lengths that could be single or progressively dipped successfully. The sustainable, protective, and efficient galvanizing process will provide National Gypsum with a maintenance-free structure for many generations.



Specifier
National Gypsum

Architect
Merriman/Schmitt Architects

Engineer
Walker Engineering





EFCO Deck Systems

Des Moines, IA



In 2007, EFCO, a manufacturer of systems for concrete construction, began marketing a newly developed Handset Shoring System for cycling large deck panel systems from floor-to-floor by crane. The innovative system and lightweight components of this project are designed so one person can erect the shoring system without the assistance of an entire crew.

The EFCO system, made of galvanized steel and aluminum, is designed for slab construction where flying tables are not practical. The system is a good solution for pour-in-place concrete slabs, and has been used in several high rise renovations, apartment complexes, and other building construction projects around the globe. Because the system utilizes hot-dip galvanized steel, it will be protected from the harsh environment of construction sites. Already becoming immensely popular in the industry, the potential for galvanizing in this marketplace is exponential.



The fabricator has a lease program for the equipment, and the protection of hot-dip galvanizing greatly reduces touch-up and maintenance requirements when equipment comes in off of lease and is prepared for leasing to new customers. The galvanized components maintain their aesthetic appeal lease after lease – and erected structures in the field look good to the public for the entire project duration. As a concrete form construction product, hot-dip galvanized steel is superior to painted product on construction sites. With minimal clean-up, galvanizing will allow the EFCO system to continue to be leased repeatedly without corrosion for generations.





Original Equipment Manufacturing

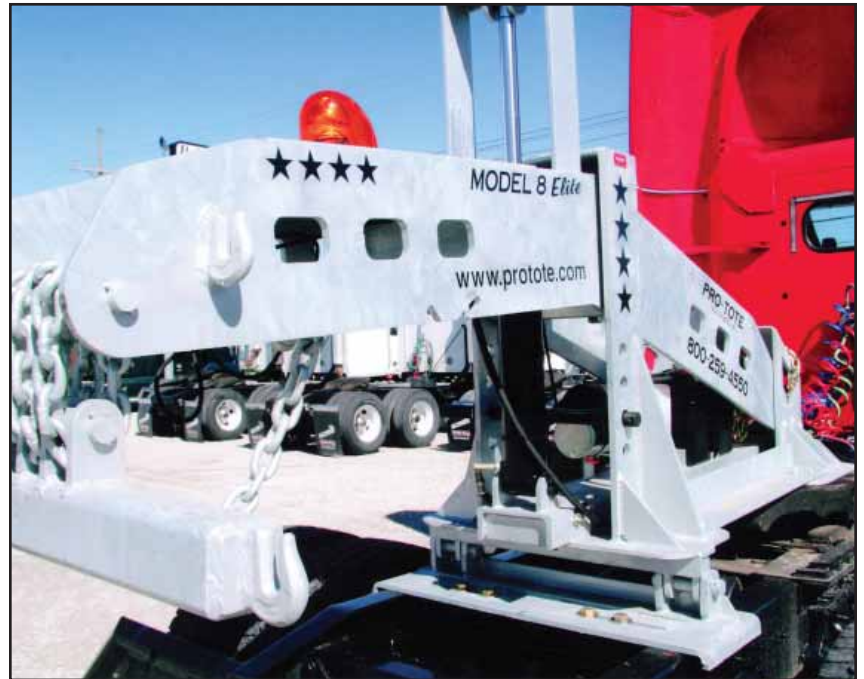
Pro-Tote Bellway Wrecker Converter

South Bend, Indiana

The Pro-Tote Bellway Wrecker Converter is a unique product that enables any fifth-wheel semi to be converted into a heavy duty wrecker. The complex fabrication and moving parts of this project made ensuring the complete coverage and movement of parts a considerable challenge during the galvanizing process.

However, hot-dip galvanizing met the challenge, ensuring the duct will last for generations. Hot-dip galvanizing was the only corrosion-protection coating able to withstand the rugged outdoor use of this unit, including foul weather, road salts, and rough handling.

Many fleet owners are turning to Pro-Tote, which requires only a 5-minute installation. Installation of the galvanized heavy duty steel Pro-Tote is quick and easy, because the strength of the zinc coating protects the product from rust buildup caused by scratches or nicks made by chainware. The galvanized coating will protect this product, which is consistently exposed to environmental assaults and towing wear-and-tear well into the future.



American Galvanizers Association

Specifier
Bellway Trucking Inc.



Expocité

Quebec, Quebec

Renovation of the 80-year-old Expocité sport stadium in Quebec required a great deal of planning and environmental consideration, not to mention the removal of existing interior structural columns preventing the installation of a hockey rink. The columns were obstructing sightlines for spectators, and the engineers decided the solution was to install external trusses to support the roof from above. The tops of the old columns were used to tie in the new ones, which penetrated the roof to catch the new trusses.

This project used more than 500 tons of steel, most of which is exposed. The massive hot-dip galvanized steel trusses on top of the roof can be seen from Highway 73 (the main artery entering the downtown corridor of Quebec City,) making aesthetics an important consideration. Galvanizing the steel used in the project will keep unsightly rust stains from developing and keep the structure looking freshly renovated. The Expocité was renovated to attract a major hockey tournament in 2008, the Junior World Hockey Championship, and throughout the year various events and expositions are held within. Galvanized steel will keep the structure looking attractive for the large number of people attending events at this location.

Protecting the building's aesthetics was not the only concern for this structure. The close proximity of the salted highway and the cold, damp Quebec climate also made hot-dip galvanizing the preferred system, as the protected steel will stand up to these corrosive elements for generations to come.



Specifier, Engineer
Lucien Viel
Genivar S.E.C.

Architects
Bisson, Leblond Tremblay
Boulay Fradette Barette

Contractor
Techno Metal - Pommerleau





Chicago Transit Authority Brown Line Sedgwick Station

Chicago, IL Illinois



Nestled deep in one of Chicago's thriving neighborhoods stands the historic Sedgwick Station. Built in June 1900, this elevated station was incorporated into Chicago Transit Authority's (CTA) \$530 million Brown Line Capacity Expansion Project. Maintaining the original design and making the station accessible to all customers, including those with disabilities, were primary goals of the restoration project. The stairways were widened, two elevators were added, new turnstiles installed, lighting improved, and platforms lengthened to accommodate increased commuter traffic.

To secure the \$530 million investment, CTA specified galvanizing for corrosion protection, just as it was selected back in 1900. With the ability to withstand exposure to the elements without developing unsightly and dangerous rust, galvanized steel will allow the station's renovations to last another hundred years.



Architect
Gonzalez, Hasbrouck Architects

Specifier, Engineer
Chicago Transit Authority (CTA)

Fabricator
K&K Iron Works, Inc.



Savage Residence Dock

Searsport, Maine



The Savage Dock, developed for a private residence in Searsport, Maine, is consistently exposed to harsh Northern New England weather, but is also a permanent fixture on a fresh water lake. Because steel was the material of choice to support the wooden cross members making up the surface of the dock, the owner desired a protective coating with proven capabilities that would also blend into the rural surroundings.

The demonstrated corrosion protection provided by hot-dip galvanizing combined with the synergistic effect of paint over the galvanized surface, made the use of a duplex system the obvious choice to maximize corrosion protection and aesthetics.



Using a duplex system, which expands upon the underlying protection of the galvanized coating, allows a structure to have the best of both worlds – color choice and corrosion protection. For projects that have a particular color scheme, duplexing is a good way to get all the corrosion-resistant protection of galvanizing, while allowing the structure to incorporate a range of colors. To allow the steel to blend in with the wooden cross ties, the fabricator specified a duplex system in forest green. Because the steel is exposed to a severely corrosive environment, the duplex system, with its synergy of galvanized steel and paint, will extend the life of the steel.

The Life-Cycle Cost Calculator at www.galvanizingcost.com, which includes data from National Association of Corrosion Engineers (NACE) papers and the American Galvanizers Association, was used to show the owner the monetary benefits of using a galvanized/duplex system. The underlying galvanized steel will keep the dock viable for generations, while the paint will allow the dock to blend into its environment – even when facing constant exposure to corrosive elements.

Fabricator
Prock Marine Company





Most Distinguished

Indianapolis Motor Speedway

Indianapolis, Indiana

A towering metal structure extending far into the horizon, the Indianapolis Motor Speedway (IMS) is one of the largest sport facilities in the world. Since IMS chose hot-dip galvanizing for corrosion protection of the Speedway's Northwest Vista Addition in 1992, all subsequent steel additions to the metal behemoth have been specified to be hot-dip galvanized – a testament to the cost effectiveness and staying power of the zinc coating.



Originally, the Northwest Vista was painted for corrosion protection; however, as the paint failed over the years, the owner began searching for a better corrosion protection system. Instead of repainting the section, IMS chose the arduous process of tearing down the structure, sandblasting the failed paint system, and, finally, galvanizing the steel. IMS felt tearing down the structure to galvanize it was more cost efficient in the long-term than to repaint the structure in place – a common assessment when comparing the expected life-cycle costs of painted steel versus galvanized steel.

Rather than dreading the maintenance and repair costs over the lifetime of a painted system, IMS is pleased they can expect decades of maintenance-free corrosion protection on the Northwest Vista. They knew hot-dip galvanizing would be the perfect solution for the speedway, not only for corrosion protection, but also for the safety of the millions who will attend races. Galvanized steel will resist the rust that could cripple a structure such as the speedway. All 500 tons of structural steel used in the project was galvanized.

A narrow window of time existed between the Fall Formula 1 race and the Spring Indy 500 race, and all construction had to be completed for the arrival of throngs of race fans. Exposed to nearly one half-million fans onsite, and tens of millions worldwide, an attractive appearance for the entire facility was critical. Hot-dip galvanizing fills this requirement by protecting against unsightly rust stains and corrosion for generations to come. The durability, aesthetic appeal, and maintenance-free qualities of galvanized steel made it the perfect choice for corrosion protection.



American Galvanizers Association

Specifier
Kevin Forbes