



Most Distinguished

# 7th Avenue LRT Refurbishment - Phase I

Calgary, Alberta CANADA



The City of Calgary, Alberta is a leader in the use of hot-dip galvanizing and duplex systems for infrastructure. Over the past decade, duplex systems have been used extensively on major overpass guardrails and pedestrian rails. Recently, the city specified hot-dip galvanized reinforcing steel in all bridges. So when the city was ready to refurbish the 7th Avenue Light Rail Transit (LRT) System, hot-dip galvanizing was the logical choice.

Because many commuters rely on the rail system, turnaround time was of the essence. The system had to be de-energized, erected, and re-energized in a 72-hour timeframe to minimize the impact on commuters. To create a uniform appearance, all hardware, hollow structural steel cords, tension members, columns, upper and lower arms, ornamental light posts, handrails, benches, and trash bins were hot-dip galvanized. The durable coating will be able to withstand the extreme winter climate and constant foot and rail traffic, while remaining aesthetically appealing. Following the success of this project, there are plans for up to 14 more similar station refurbishments in the near future.

**Architect**

Graham Edmunds Cartier & Sturgess Architecture

**Engineer**

Read Jones Christoffersen, Ltd.

**Additional**

Westcal Erectors, Inc.



# The Muse

Wellington, FL



The Muse was created by Jack Howard-Potter and is part of the Cultural Trust of Palm Beach's Sculpture Biennale at the Cultural Art Campus. The campus is a highly trafficked tourist area along the coast of Florida, and the 25-foot tall sculpture will be seen by many critics, artists, and tourists. The artist has gained recognition as a metal sculptor, and experiments with many different finishes with his work. For the Muse, galvanizing was the logical choice because it was more economical than a three-coat paint system and the durable coating could better withstand the salty ocean air of the Florida coast. The entire 1,615 pound sculpture was hot-dip galvanized and then powder coated with a silver finish to extend its service life.



The duplex coating will provide the sculpture a long life free from corrosion and maintenance in the harsh coastal environment. The initial cost of galvanizing and powder coating was less than a paint system, and will protect the artwork for up to 2.5 times longer than either system alone. The use of galvanizing will ensure this beautiful sculpture will be admired for many years.

## Engineer

Andy Bell, Bell Engineering  
Altamont, NY

## Sculptor

Jack Howard-Potter





Artistic

# I-75 Welcome to Findlay Bridge Sign

Findlay, OH



The City of Findlay, Ohio wanted to erect a welcome sign along an overpass above I-75 leading into the city. The grand entryway consisted of giant steel letters spelling out "Welcome to Findlay" and "Flag City USA." The City of Findlay received permission from the Ohio DOT to put up the signs along the interstate, but there was question as to which party would be responsible for maintaining the project. With the question of responsibility in the air, a low-maintenance coating was preferred. When the project began, the engineers and planners were educated about galvanized coatings and learned there were galvanizing kettles large enough to accommodate the letters and artwork. As long-term maintenance was a key issue in specifying the project, hot-dip galvanizing was selected for its corrosion performance.

The letters and artwork, totaling 12 tons, were galvanized and then painted for aesthetic appeal. The addition of paint to the galvanized coating will increase the corrosion performance, guaranteeing the sign will be an attractive welcome to everyone visiting Findlay for many generations.

**Architect**

Burgess & Niple  
Columbus, OH

**Specifier**

City of Findlay

**Designer**

Phil Williams, Stevens Steel Company

**General Contractor**

Complete General



# Freddie Mac Pedestrian Bridge

McLean, VA



The Freddie Mac Pedestrian Bridge is located over a major thoroughfare in western Virginia, and is seen by thousands of commuters daily. With the constant traffic on the 5-lane street, a pedestrian bridge for foot traffic between the Freddie Mac office complexes was a necessity. The 160-foot long walkway was originally specified as stainless steel, but when the cost of stainless steel was unveiled, the owner changed to hot-dip galvanized steel. Galvanizing offers a similar aesthetic appeal and excellent corrosion protection for much less than stainless steel.

All of the railing, including the frames and mesh, walkway, and bridge were hot-dip galvanized. As the rail was initially designed for stainless steel, simple modifications were made to make the design conducive to the galvanizing process. The walkway is supported by 12 cables, and connects a series of elevated walkways linking Freddie Mac office complexes. Using galvanized steel ensures the bridge will be an attractive and safe way to travel between the complexes well into the future.



**Fabricator**  
Chesapeake Machine Company

**Specifier**  
West Group Commercial Real Estate





# Charlotte Douglas International Airport Parking Garage

Charlotte, NC



The Charlotte Douglas International Airport, with an average of 600 daily departures, is a rapidly growing airport in the southeastern United States. As the passenger traffic has increased over the past few years, so has the demand for more parking. In late 2004, the airport broke ground on a 3,000 space parking facility to increase customer-parking capacity by 13 percent. The designer wanted to break away from the normal square, concrete box structure of parking facilities, and envisioned a facility that would mirror the curvature of an airplane wing.

In order to accomplish this design, the architect and engineer decided to attach stainless steel cladding to a galvanized structural steel frame. Three hundred tons of hot-dip galvanized steel was used in the project including; bow-string trusses, embed plates and anchors, stair towers, stairways, hand rails, and castellated beams. Galvanized steel was specified for its exceptional maintenance-free service life, overall aesthetic appearance, and compatibility with stainless steel. When used together, galvanized and stainless steel provide a uniform appearance and an economical alternative to specifying stainless steel for the entire structure.

By specifying a hot-dip galvanized coating instead of a paint system, the garage will not require costly maintenance due to the constant vehicle and pedestrian traffic it will accommodate. Furthermore, the galvanized coating will allow the structure to remain a corrosion-free, attractive piece of the airport landscape well into the future.

**Specifier/Architect**  
Brian Bresg, LS3P Associates, Ltd.  
Charlotte, NC

**Engineer**  
Jeff Adams, HNTB  
Kansas City, MO



# The Tip Top Building Renovation

Omaha, NE



The Tip Top building was first constructed in 1916 as a factory of the Ford Motor Company to manufacture Model T's. In a landmark project for the city of Omaha, the building was recently renovated into an apartment complex. The apartment homes were advertised as stylish and hip, and a change from ordinary apartment living. The owner was looking for a low-maintenance, but stylish design for the atrium and roof railings on the building. The owner was introduced to the modern concept of using laser skeletons (the remainder of the sheet of steel after various parts are laser cut and removed) as partitions and fencing. The hot-dip galvanized skeletons were a perfect fit for the modern industrial design of the building.

Actual skeleton pieces from past projects were used on the roof top railings, while the atrium railings were designed to look like skeleton pieces because they had to meet strict codes. The owner also had a short turnaround time for the railings so the building could be completed on schedule, which the galvanizer was able to meet. The use of the recycled hot-dip galvanized skeletons and newly designed skeletons not only increase the aesthetic appeal of the building, but also offer the owner the convenience of maintenance-free railings in hard to maintain areas.



**Architect**  
Alley Poyner

**Engineer**  
Dan Moore, Metal and Art

**Branding Firm**  
Archival

**Manufacturer**  
TMCO, Inc.

**Specifier**  
Todd Heistand





# Schooner Isaac H. Evans

## Historical Vessel

Rockland, ME

The Schooner Isaac H. Evans was built in Mauricetown, NJ in 1886 to carry oysters in the Delaware Bay. At the time, oystering was the largest segment of the fishing industry in America, and the schooner spent many years in service. In the early 1970's, the Isaac H. Evans was rebuilt, and in 1991 was designated a National Historic Landmark by the National Parks Service of the US Department of the Interior. Since 1973, the vessel has been carrying groups of people on 3, 4, or 6-day sailing vacations on Penobscot Bay in Maine. During the winter of 2004, the schooner's captain, Brenda Walker, noticed some rot in the fore cross trees when she was performing some routine maintenance. The captain stripped numerous layers of paint from the pieces, and consulted other schooner owners about how to preserve the custom pieces.

After receiving input from another captain and a nearby galvanizer, Captain Walker decided the best way to preserve the existing fittings, improve their appearance, and prevent corrosion, was to hot-dip galvanize the pieces. The metal bands, futtock shrouds (angled pieces that support the cross trees on each mast), and other small pieces were galvanized for corrosion protection in the oceanic environment. Many of the original parts were galvanized, and still exhibited corrosion-protective zinc, but after more than 100 years of ocean use, were in need of a new galvanized coating which will last another 100 years.

Using galvanized steel on the custom pieces helped restore the historic vessel to its original luster and strength. The hot-dip galvanized coating will be able to withstand the corrosive elements from the ocean and extreme climates of Maine, ensuring the Schooner Isaac H. Evans will set sail for many years to come.



### Specifier

Captain Brenda G. Walker  
Rockland, ME







# Super Wawa Convenience Store Gas Canopies

Various Locations on the East Coast



The Wawa convenience stores originated from a textile company in Millville, NJ in the 1800's. In 1964, the family-owned company opened their first food market and has since grown to more than 500 stores in five states. In recent expansions, the Wawa Corporation designed gasoline canopies for their new stores, which are known as "Super" Wawas. The owner preferred a bright white finish on the canopies, and originally specified a three-coat paint system. After several new stores were finished with the painted canopies, noticeable rust drips and staining were running down the columns due to breaches in the paint. The fabricator and owner discussed the problem, and the astronomical maintenance costs the canopies would require with the painted system, and decided it was necessary to change to a galvanized steel duplex system.

Because the structures were originally specified for paint only, the designers retrofitted the roof truss, column, and framing design to promote a quality hot-dip galvanized coating. Each canopy used 30 tons of steel; all galvanized and then painted bright white for appearance. The use of the duplex system will increase the service life of the steel up to 2.5 times that of galvanizing or painting alone.

Using a duplex system affords the steel the corrosion protection and durability of the galvanized coating and increased aesthetic possibilities by painting. Galvanizing prior to painting will eliminate the unsightly rust staining of a compromised paint coating. The duplex coating will protect the canopies from corrosion and reduce maintenance costs, so the popular convenience stores can continue to serve its loyal customers for generations to come.

**Architect/Engineer/Designer**  
Eagle Erectors  
Bear, DE

**Specifier**  
Wawa Corporation

**Painter**  
Colorworks Painting, Inc.







# Metcalf Energy Center-Screen

San Jose, CA

The Metcalf Energy Center is a 600-megawatt power generation facility located along Highway 101 in California's "Silicon Valley." It utilizes natural gas for fuel and is one of the cleanest, most efficient facilities of its kind in the world. Since the facility is situated near a residential area, consideration was taken to help it blend in with the surrounding area and reduce the visual impact on the community. The designers decided to erect an elaborate screen to cover the plant and buffer it from existing residential areas. The screen was made of a steel frame with a tan mesh screen.

The engineer and designer wanted a long-lasting durable coating that wouldn't rust and bleed onto the outside mesh panels creating unsightly stains. So, the steel frame, which included stack triangular pipe frames, pipe columns, and braces, was hot-dip galvanized for corrosion protection. The 950 tons of galvanized steel frame support the architectural tan screen panels and hide the industrial energy facility from view. The galvanized frames and mesh screen will allow the Metcalf Energy Center to blend into its surroundings and continue to deliver power to northern California for generations to come.



**Specifier/Engineer**  
Geiner Engineers

**Architect**  
Hillier Architecture

**Additional**  
Mountain States Steel, Calpine Management Company, &  
Bragg Crane & Rigging





# Dairy Production Systems Static Screen Separator

Raymond, MS



Dairy Production Systems milks 1,400 cows per day, and at this level of production, regular wash-downs of the milking parlor are required. The Static Screen Separator has helped turn waste disposal into profits. The separator takes manure and urine flushed from the milking parlor into holding tanks, and separates liquid from solids to the stack or lagoon to be recycled. It will produce 15 tons of solid waste per day, which can be spread or baled into compost.

Because of the constant presence of corrosive elements (urine and manure) that run through the separator, a durable, corrosion resistant system is required. The entire structure, including tower assembly, flush valves, stairs, framework, landing, and handrails were hot-dip galvanized for corrosion protection. Hot-dip galvanizing has proven to be a durable, cost effective coating for use in these harsh conditions as well as 75 percent of all of the agricultural equipment the manufacturer of the separator produces.

**Specifier**  
AgPro, Inc.  
Paris, TX



# A&M Composting Building

Manheim, PA



The original A&M Composting Facility collapsed following a large snowstorm, because the building was weakened from the corrosive environment of composting. The new 45,000 square-foot facility is a sewage containment and remediation facility that breaks down bio-solids from water treatment plants and makes nutrients that safely fertilize plants and farms. The nature of this process and the corrosive elements of the sewage produce a corrosion-rich atmosphere, and the new structure needed to withstand these harsh conditions.

Hot-dip galvanizing was specified because of its durable, corrosion resistant nature and quick turnaround time. After the previous structure collapsed, the composting facility needed to be constructed and operational in a short period of time. To meet the time constraints, two galvanizers teamed up to produce the pieces in a compressed schedule. In total, 1,200 tons of steel were galvanized, including columns, trusswork, structural supports, and hardware. The quick turnaround of the galvanized pieces allowed the facility to resume operations in the shortest amount of time possible, and the durable, corrosion resistant coating ensures the composting facility will continue to operate safely and economically well into the future.



**Specifier**  
A&M Composting Facility

**Engineer**  
JP Mascaro & Sons





# Rapid Aerostat Initial Deployment System

Iraq and Afghanistan



The Rapid Aerostat Initial Deployment (RAID) systems consist of infrared sensors carried via an aerostat or stationary platform capable of detecting hostile troop and/or equipment movement at great distances. The systems were developed by Raytheon to meet the Army's developing critical needs in Operation Enduring Freedom and Operation Iraqi Freedom, enabling US forces to respond rapidly to threatening situations. Raytheon was awarded an Army contract to provide 41 RAID systems for use in Iraq and Afghanistan. The RAID system towers were specified to be galvanized because of military specification requirements.

The trailer, fender, outrigger, and tower components were all galvanized for corrosion protection. The durable galvanized coating can withstand the rigors of international transport and handling of the systems, as well as the intense environment where they are installed. The equipment will be subjected to chemical warfare, military combat, and extreme temperature variances. The use of galvanizing ensures the RAID systems will continue to protect American and Coalition forces and save lives throughout the term of these military operations and beyond.

**Specifier/Engineer**  
US Tower Corporation





# Michigan International Speedway

Brooklyn, MI

The Michigan International Speedway was originally expanded in 1986, using galvanized steel. Because of the outstanding performance of the galvanized coating 20 years later, the recent expansion was also galvanized. In addition to the outstanding corrosion performance and quality of the previous galvanized steel, the old and new galvanizing match well, which create a uniform appearance, unlike paints that fade and deteriorate.

The owner required a unique, customized design to include luxury boxes, stairways, and elevator shafts, without compromising the integrity of the seating for the general public. As all of the pieces were custom fit and unique, the galvanizer tagged the separate pieces to ease the erection of the structure. The total project comprised 800 tons of galvanized steel, including structural and other miscellaneous pieces. The new galvanized expansion will blend well with the previous galvanized structure, and provide the owner and public with an aesthetically pleasing speedway that will last for decades.



**Engineer**  
Glen Elrod

**Fabricators**  
J.K. Elrod Company  
Mooresville, IN

Edwards Steel  
Columbus, OH





# Park Air Express

Irving, TX



The Dallas Fort Worth Airport is the 3rd largest airport in the United States. This park and ride structure is conveniently located near the airport and has been at capacity since its opening. When construction of the facility was underway, the owner desired an aesthetically appealing facility that required little or no maintenance. Because the facility is in use 24 hours a day, 7 days a week, closure for maintenance would result in a financial loss for the owner. The owner requested hot-dip galvanizing for corrosion protection to avoid the timely and costly maintenance a paint system would require.

Forty-three tons of steel, including radius beam sections, wide flange beams, angles, and plates were hot-dip galvanized. The galvanized coating provides the owner with the aesthetically appealing facility he desired, while eliminating costly maintenance, ensuring the park and ride customers will enjoy the convenience of the facility for many years to come.

**Architect**  
John O'Brien

**Engineer**  
Keith Leslie, Techni Structures, Inc  
Dallas, TX

**Additional**  
W&W Steel, Con-Am Construction, &  
Bosworth Steel Erectors

