100-Year Bridges: Design Practices and Performance Benefits of Hot-Dip Galvanized Steel

Sullivan County Bridge, Fallsburg, NY
Valmont American Galvanizing

Conserving Resources, Improving Life.
www.valmontcoatings.com
Case Study:
Sterns Bayou Bridge
Ottawa County, MI United States

This is believed to be the first fully galvanized bridge in the United States. Galvanized and installed in 1966, this county bridge measures 420 ft. (128 m) long with a 30-foot clear roadway and a five-foot walkway along each side. All the steel was galvanized including the handrail, diaphragms, fasteners, shear connectors, and beams - some with 30-inch wide flanges, weighing between 99 and 108 pounds per foot. All steel used to erect the Stearns Bayou Bridge has no signs of rusting or staining, and is in excellent shape. The average mil thickness is 4.7 (160µm). Projected life expectancy to first maintenance is 106 years for the principal steel and 44 years for the handrail.

Details:
- Year Galvanized: 1966
- Sectors: Bridge & Highway
- Location: Ottawa County, MI United States
- Environment: Rural

The majority of the steelwork is six feet above a fresh water river in a rural location. Traffic is light to moderate. The entire bridge is subject to winter salting.

At the 2016 inspection, all beams and diaphragms were in very good shape and showed no signs of rusting or staining. The average mil thickness was 4.7 (160µm). Projected life expectancy to first maintenance is 106 years for the principal steel.

Case Studies find Steel Bridges Saves 25% Over Concrete Precast Bridges
- Steel bridges do not require the heavier equipment that’s needed for heavier concrete bridge girders.
- Galvanized steel I-beam bridges have the lowest initial cost and life cycle cost compared to concrete bridges.
- Galvanized steel bridges offer accelerated fabrication, 40% LESS construction time, reducing expensive down time for residents and business.
- Little to no maintenance cost for the first 50 years with regard to the Hot-Dip Galvanized Superstructure.

eSPAN140
Complimentary Web-Based Design Tool provides customized steel solutions for bridges up to 140 feet.

www.eSpan140.com

Duplex System is formed by painting or powder-coating over hot-dip galvanized steel. This process not only enhances the aesthetic value of the bridge, but also increases the corrosion protection by 1.5-2.3 times the sum of the expected life of each system.

Valmont Coatings has the Largest Galvanizing Capacity in North America
“If you can design it, Valmont Coatings can Galvanize It!”
- Length in excess of 94 feet
- Lifting Capacity of 100 Tons

Case Studies find Steel Bridges Saves 25%
Valmont Coatings has the Largest Galvanizing Capacity in North America
“Want to design it, Valmont Coatings can Galvanize It!”
- Length in excess of 94 feet
- Lifting Capacity of 100 Tons

www.eSpan140.com

Duplex System is formed by painting or powder-coating over hot-dip galvanized steel. This process not only enhances the aesthetic value of the bridge, but also increases the corrosion protection by 1.5-2.3 times the sum of the expected life of each system.

Valmont Coatings has the Largest Galvanizing Capacity in North America
“If you can design it, Valmont Coatings can Galvanize It!”
- Length in excess of 94 feet
- Lifting Capacity of 100 Tons

www.eSpan140.com

Duplex System is formed by painting or powder-coating over hot-dip galvanized steel. This process not only enhances the aesthetic value of the bridge, but also increases the corrosion protection by 1.5-2.3 times the sum of the expected life of each system.

Valmont Coatings has the Largest Galvanizing Capacity in North America
“If you can design it, Valmont Coatings can Galvanize It!”
- Length in excess of 94 feet
- Lifting Capacity of 100 Tons

www.eSpan140.com

Duplex System is formed by painting or powder-coating over hot-dip galvanized steel. This process not only enhances the aesthetic value of the bridge, but also increases the corrosion protection by 1.5-2.3 times the sum of the expected life of each system.

Valmont Coatings has the Largest Galvanizing Capacity in North America
“If you can design it, Valmont Coatings can Galvanize It!”
- Length in excess of 94 feet
- Lifting Capacity of 100 Tons

www.eSpan140.com

Duplex System is formed by painting or powder-coating over hot-dip galvanized steel. This process not only enhances the aesthetic value of the bridge, but also increases the corrosion protection by 1.5-2.3 times the sum of the expected life of each system.