

Hot-Dip Galvanized Steel Costs Less, Lasts Longer

Fact vs. Fiction

The fact is hot-dip galvanized steel is less expensive than paint. Empirical cost and performance data provided by the paint industry¹ show initial and life-cycle galvanizing costs are lower. Additionally, time to the job site is shorter because galvanizing is done regardless of weather conditions and requires no field touchup, unlike paint. Because galvanized steel performs for 75 years or more without maintenance, there are no indirect costs (traffic delays, business interruption, structural failure) caused by road closures, as is normal for paint used on bridges, railing, sign/light poles, etc.

Examining the costs associated with a bridge of 500 tons of steel² in an ISO C3 medium corrosion industrial environment, the cost comparison is below:

Initial Cost	per square foot	Total
Hot-Dip Galvanizing ³ (\$0.22/lb)	\$1.76	\$220,000
Paint (epoxy/polyurethane) 2-coat system	\$1.88	\$235,000
Paint (IOZ/epoxy/polyurethane) 3-coat system	\$2.56	\$320,000

Life-Cycle Cost ⁴ (75 years)	per square foot	Total
Hot-Dip Galvanizing (\$0.22/lb)	\$1.76	\$220,000
Paint (epoxy/polyurethane) 2-coat system	\$7.84	\$980,014
Paint (IOZ/epoxy/polyurethane) 3-coat system	\$6.59	\$823,207

Schedule Cost	Availability	Turnaround	Field Touchup (\$)
Hot-Dip Galvanizing	24/7/365	24-72 hours	0 - no touchup required
Paint (epoxy/polyurethane) 2-coat system	weather restrictions	weather restrictions	1-3% of total bridge cost
Paint (IOZ/epoxy/polyurethane) 3-coat system	weather restrictions	weather restrictions	1-3% of total bridge cost

Indirect Cost	Traffic Delays, Accidents, Structural Failure, Productivity, and Disruption of Commerce (\$)
Hot-Dip Galvanizing	0 - no maintenance required
Paint (epoxy/polyurethane) 2-coat system	5 to 11 times the total direct maintenance cost ⁵
Paint (IOZ/epoxy/polyurethane) 3-coat system	5 to 11 times the total direct maintenance cost ⁵

Hot-Dip Galvanizing Maximizes Taxpayers' Investment in America

- **Lower initial cost** than paint
- **Lower life-cycle cost** than paint
- **Lower schedule cost** than paint
- **Lower indirect cost** than paint

¹ NACE Paper #6318 Expected Service Life and Cost Considerations for Maintenance and New Construction Protective Coating Work (Helsel, Melampy, Wissmar)

² Mixed structural steel of 250 ft²/ton

³ Does not include fabricator markup

⁴ Using 3% inflation and 6% interest to calculate the time value of money spent on maintenance over the 75-year project life

⁵ Corrosion Costs and Preventative Strategies, 2001, Federal Highway Administration, CC Technologies, and National Association of Corrosion Engineers (NACE)