



Indianapolis Motor Speedway

Indianapolis, Indiana



With scores of silvery seating rows spanning far into the distance, Indianapolis Motor Speedway (IMS) is the largest race track in the world and an American icon. For decades the only corrosion protection used to protect the massive collection of steel used in this structure was paint; as a result, it was necessary to hire a full-time crew of men to move from one section to another, providing year-round maintenance and upkeep on the deteriorating paint coating.

The cost of perpetual painting was overwhelming, with no end in sight. Finally, in 1991, IMS decided to test hot-dip galvanized steel by incorporating it into the new construction being built on Turn 3. A thousand tons of steel bleachers were galvanized, to great success. After a year of maintenance-free corrosion protection using galvanized steel, the owners realized it would be more cost-effective over the life of the structure to tear down the steel elements, sandblast the failed paint system, and galvanize them one section at a time.

While the cost of incorporating galvanized steel was competitive initially, the long-term cost-effectiveness has proven to be an enormous savings over the past 19 years. When the sections were initially galvanized in 1991, the mil readings indicated excellent coverage of the steel. Over the decades, the galvanized steel has stood strong and maintenance-free, earning back every penny of the initial investment.

Because of this proven performance, IMS set a goal to galvanize one section of bleachers each year between scheduled events, so eventually the whole structure would benefit from such dependable corrosion protection.

Subject to the abrasive foot traffic of millions of race fans every year, the stadium needed maintenance-free protection from unsafe and unsightly corrosion. In a corrosive industrial atmosphere with race track emissions and exposure to harsh Midwest winters, rain, and sun, the bleachers have taken advantage of the superior barrier and cathodic protection created during the galvanizing process to keep the stadium structurally sound and free of rust.

The formation of the zinc patina has turned the steel to a uniform and traditional matte gray well suited to the urban surroundings and raceway environment. The zinc patina is the formation of zinc corrosion byproducts on the surface of the steel. Zinc, like all metals, begins to corrode when exposed. As galvanized coatings are exposed to both moisture and free flowing air, the corrosion byproducts will naturally form on the coating surface. →

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The patina is impervious, and passive, which slows the corrosion rate of the zinc, thus providing long lasting protection from damaging rust. Proving the durable nature of galvanized steel, an inspection in 2009 indicates little zinc lost since the initial galvanizing in 1991 and enough to last an additional 75+ years from now. The coating is still well above the minimum coating thickness required by ASTM A 123 – still working hard to protect the steel from corrosion, without maintenance.

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Produced 1977, Tested 2009:					
Sample Area	Readings (mils)				Average
Stairs	13.2	13.1	13.3	13.2	13.2
Bleachers	16.4	16.6	16.1	16.5	16.4
Wheelchair Access	7.6	7.7	7.6	7.5	7.6

As IMS continues to galvanize one section of bleachers each year between scheduled events, turnaround time is critical to meet the schedules, and galvanized steel is well suited to this need. An indoor, factory-controlled process, hot-dip galvanizing can be done regardless of weather conditions. All structural steel, including formed columns, stringers, rail risers, steps, handrail, debris fences, poles, tubular columns, angles and horizontal beams were galvanized for each section of these updates.

After being galvanized in a speedy manner, the parts are ready for use. Hot-dip galvanized steel is a highly sustainable building material, utilizing the most earth-friendly corrosion protection system available. Utilizing 100% natural, abundant, and recyclable zinc and steel, hot-dip galvanized steel remains maintenance-free over the life of the project. This means no wasted energy or materials on continuous upkeep. This particular project adds to the sustainable nature of galvanized steel by recycling previously used and painted steel – meaning the stadium can be fully enjoyed without compromising the needs of future generations.

The Director of Engineering for IMS reported the objective for corrosion protection in the stadium has always been safety for the fans, durability, and low-maintenance. Hot-dip galvanized steel has met or exceeded all of these expectations and then some, with a corrosion- and maintenance-free life-expectancy of 75 years or more. As the performance of galvanized steel has been proven by real-life, in-the-field experience and data, IMS now requires any steel used on the raceway property be galvanized, meaning the speedway will stand safe and strong against the damaging effects of corrosion for generations of fans to enjoy. 🏁

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