

NASCAR SAFER® Barrier

Kansas City, Kansas



For many years, containment of errant racing vehicles traveling on oval speedways was provided through rigid, concrete walls placed around the exterior and interior of the track. However, accident experience found that serious injuries and fatalities occurred through vehicular impacts into these non-deformable barriers. Because of these injuries, INDYCAR and the Indianapolis Motor Speedway, later joined by NASCAR, sponsored the development of a new barrier system by the Midwest Roadside Safety Facility at the University of Nebraska-Lincoln to improve the safety of drivers participating in automobile racing events.

The new barrier, known as the Steel and Foam Energy Reduction (SAFER®) Barrier, consists of a high-strength, tubular steel skin that distributes the impact load to energy-absorbing foam cartridges in order to reduce the severity of the impact, extend the impact event, and provide the driver additional protection. Due to the success of the initial barrier, which was installed at Indianapolis Motor Speedway in 2002, all oval courses and several road courses utilized by NASCAR and INDYCAR tracks have installed the barriers in critical areas of tracks to help lessen the chance of injury and reduce vehicle damage. In 2015, SAFER® Barrier coverage expanded at many NASCAR tracks, including Martinsville, Kansas City, Phoenix, Daytona, Chicago, Darlington, and California as a proactive step in safety.

The tubular steel panels and connection hardware that comprise the main structural components of the SAFER® Barrier must be able to withstand exposure to the elements across a wide range of conditions. As such, all of the steel components of the SAFER® Barrier employed a hot-dip



galvanized duplex system to prevent corrosion and extend the service life of the components. In addition to the structural components of the SAFER® Barrier, alternative backup structures made of galvanized steel have been developed to support the barrier. These alternative steel backup structures have proven economical and allow the SAFER® Barrier to be used in applications where reinforced concrete support walls do not exist or cannot be feasibly installed. In total, 1802 tons of steel were hot-dip galvanized to ensure a long life-cycle and lower maintenance cost for the repair of the barriers lining these tracks. The SAFER® barrier has been installed in more than 30 miles of track to date.

The hot-dip galvanized coating, which consists of tightly-bonded (~3,600 psi) abrasion resistant intermetallic layers help the barrier last more than 70 years without maintenance. Some of the barriers also employ a duplex system (paint over hot-dip galvanizing) to allow for multiple aesthetic finishes on the panels to match branding at the various tracks. An important advantage of a duplex system is the extended maintenance-cycle of the paints. If a panel is damaged by a race car, or the paint system begins to fail, the exposed zinc surface can be repainted with minimal surface preparation, as no rust will form.



The recently opened Iowa Speedway in Newton, Iowa, was entirely surrounded with SAFER® Barrier mounted on these alternative backup structures. It also incorporated overhead lighting structures. The reduction in impact loads and vehicle decelerations ranging from 30-80% will allow for high-speed racing with less risk to the drivers. The SAFER® Barrier has proven to be a significant improvement to oval track racing. Currently installed in at least a portion of most NASCAR and INDYCAR facilities throughout the country, it is likely all 29 NASCAR tracks will line their entire tracks with these systems at some point, representing a significant opportunity for more hot-dip galvanizing.

The revolutionary SAFER® Barrier will allow drivers to continue “putting the pedal to the metal” in one of America’s favorite sporting events. Thanks to the hot-dip galvanized backbone, these systems will not be at risk of corrosion and look race-ready for many, many years to come. ■

Galvanizer

Valmont Coatings - Birmingham Galvanizing
Valmont Coatings - Columbia Galvanizing

Fabricator

Browning Enterprise, Inc.
North Industrial Machine LLC

Engineer

Midwest Roadside Safety Facility
(University of Nebraska)

Contractor

Smith Fence Company

Original Equipment Manufacturing