

Tech Talk Q&A

Galvanizing adds more or less weight to steel depending on its thickness.

By Professor Zinc

Q: "What is the additional weight per square foot of surface area of galvanizing on a steel member?"

A. Normally, galvanizing to ASTM standards will add 4% to 8% to the nominal weight of a steel member, depending upon the thickness of the steel being galvanized.

Galvanizing is an alloy that is formed through a diffusion reaction between iron and zinc. The steel is allowed to remain in the galvanizing bath until the steel core reaches the temperature of the surrounding zinc bath, when the galvanizing reaction is complete. Thicker (heavier) steels take longer to heat, so the reaction continues for a longer period. Thinner (lighter) steels absorb heat more quickly and complete their reaction sooner and develop a lighter coating mass.

It seems counter-intuitive, but heavier steels normally pick up a lower percentage of weight (4%-5%) due to the weight/surface area ratio, than thinner material. Light sections pick up a proportionally heavier percentage due to the same effect, and usually show a 7% to 8%

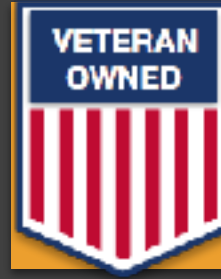
Hot Dip News Summer 2018

As an example, based on ASTM specification minimum standards, a steel beam that has a nominal thickness of $>1/4"$ will result in a galvanized coating of 100 micrometers. That will add a minimum of 2.3 oz/ft² to the weight of the article.

Please remember that this is an estimate based on MINIMUM coating thickness standards. Galvanizing will normally meet or exceed these minimums in every case.

Thanks for the question. Please don't hesitate to contact Galvan again if you need additional information.

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Galvan Industries, Inc.
Hot Dip News

Inside:

- *New photos from 85-385 Gateway project*
- *Double dipping for parking decks*



GALVAN RUST-PROOFS TANK SUPPORTS AND HANDRAIL IN SUGAR PLANT EXPANSION

A major expansion of the Imperial Sugar refinery currently underway in Port Wentworth, GA, requires large, specialized tanks and the structural steel to support them, along with other materials like handrail and ladders.

Galvan industries is providing hot dip galvanizing for the new steel in the plant that will keep it rust free and maintenance free for decades. Advanced Vessel & Alloy of Valdosta, GA is the fabricator.

Galvan is proud to have been chosen as the galvanizer for this large, high-profile project. **If quality and capacity are critical in your next industrial project, contact Ben Kelly at Galvan today.**



Tour of 85-385 interchange project shows the massive amount of galvanized rebar used in bridges

Have you ever wondered how much rebar is used in reinforced concrete bridge decks? Probably not, but it is pretty impressive.

Galvan Industries is hot-dip galvanizing the reinforcing steel used in rebuilding the interchange of Interstates 85 and 385 in Greenville County, South Carolina. The project includes ten new bridges, rehabilitation of two existing bridges, and modifications to the substructure of another bridge.

Photos from a recent visit to the site show tons of galvanized rebar woven into dense mats that will strengthen long spans of elevated roadway. Galvanized reinforcing steel prevents cracking or spalling and will greatly increase the life of the bridges.

To see more photos, visit our Project Portfolio at www.galvan-ize.com.



Double Dipping for Parking Decks

Galvan Extends The Life Of Steel In Heart Hospital Parking Deck

Gagnon Heart Hospital, a part of Morristown Medical Center in Morristown, NJ, is expanding one of its parking facilities to accommodate more than 1,000 additional staff and visitor vehicles. Galvan is helping extend the life of the project by preventing rust on the exposed structural steel.

The long steel beams being used in the parking deck project are protected against rust by Galvan Industries, Inc. using the "progressive dipping" or "double-dipping" method. With progressive dipping, **one end of the steel is dipped at a time in Galvan's 42' long x 4'6" wide x 8'6" deep galvanizing kettle.** Depending on the overall dimensions of the material, this method allows for pieces up to 80 feet in length to be hot dip galvanized.

The project team for the new deck expansion includes Buckl Architects, DiStasio Van Buren Engineers, PWI Engineering, and Wm. Blanchard Co. Construction Management.

Galvan Double Dips Castellated Beams For Cary, NC Parking Deck

Castellated beams are an ideal solution for long spans and heavily loaded floor systems, such as those in parking decks. They deliver greater strength and significant advantages in cost, as well as in design. Castellated beams weigh less than solid beams of the same depth and offer a distinct aesthetic.

Galvan is currently double-dipping 60-foot castellated steel beams for the parking deck of the Regency Woods II office development in Cary, NC. Work is expected to be completed by the end of 2018.

Steel Fab, Inc. of Charlotte, NC, is the fabricator of the castellated beams.

Galvan has earned several awards from the American Galvanizers Association for its work on parking decks, including the Lowes Corporation headquarters parking deck in Mooresville, NC and the hourly and international parking structures at Charlotte Douglas International Airport in Charlotte, NC. Visit the Awards page on our website or contact Ben Kelly at Galvan for more information.

