Ask Dr. Galv

Q **What is the new OSHA regulation for slip resistance required on skeletal structural steel? Does the slip resistance of hot-dip galvanized steel meet this requirement?**

A On January 18, 2001, OSHA revised the 30-year-old safety standards to help reduce the risk of occupational exposure to a variety of hazards on steel erection construction sites, such as slipping, tripping, or falling off of skeletal structural steel (31 OSHA 63). According to the new safety standard, OSHA 29 CFR 1926.754(c)(3), "Workers shall not be permitted to walk on the top of any structural steel member installed after July 18, 2006 that has been coated with paint or similar material unless documentation or certification that the coating has achieved a minimum slip resistance of 0.50 when measured with an English XL tribometer or equivalent tester on a wetted surface at a testing laboratory is provided."

In August of 2003 the AGA funded wet slip resistance tests performed on both high-silicon and low-silicon steel plates that were hot-dip galvanized with high-grade zinc. The tests were performed by *Elliot & Jones, LLC, Accident Reconstruction Specialists,* using four high-silicon steel plates and four low-silicon steel plates each measuring approximately 4" X 8" and 0.25" thick. The wet slip resistance of the samples was determined by using an English XL Variable Incidence Tribometer (VIT) and was conducted following the ASTM F 1679-00 *Standard Test Method for using a Variable Incidence Tribometer (VIT)* and complying with the OSHA 1926.754(c)(3) regulation. There were four tests performed on each sample with tap water being used

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to moisten the surfaces. The tests on the four high-silicon steel plates resulted in slip resistance averages of 0.69, 0.79, 0.84, and 0.72. The overall slip resistance average for the high-silicon steel plates was 0.76. The tests on the four low-silicon steel plates resulted in slip resistance averages of 0.54, 0.68, 0.53, and 0.52. The overall slip resistance average for the low-silicon steel plates was 0.57.

Table 1: Slip Resistance Test Results

Sample	High Silicon	Low Silicon
1	0.69	0.54
2	0.79	0.68
3	0.84	0.53
4	0.72	0.52
Average	0.76	0.57

This shows the high-silicon steel plates have a higher slip resistance than the low-silicon steel plates, but all tests done on the high-silicon and the low-silicon steel plates, as well as the overall averages, had a higher slip resistance than the newly required OSHA level of 0.50, as shown in Table 1 above.