

Technical Bulletin – Understanding Slip Resistance.

It is important to note that when it comes to slip resistance there is no separate standard for decking. All surfaces fall under the standard for tile flooring.

Past - OSHA Standard 29 CFR 1910 Subpart D / ADA (Americans with Disabilities Act)

Slip-resistance. A reasonable measure of slip-resistance is static coefficient of friction (COF). A COF of 0.5, which is based upon studies by the University of Michigan and reported in “Work Surface Friction: Definitions, Laboratory and Field Measurements, and a Comprehensive Bibliography,” is recommended as a guide to achieve proper slip-resistance. A COF of 0.5 is not intended to be an absolute standard value. A higher COF may be necessary for certain work tasks, such as carrying objects, pushing or pulling objects, or walking up or down ramps.”

The ADA adopted the Osha Standard in Section 4.5 where they say in general that:

General. Ground and floor surfaces along accessible routes and in accessible rooms and spaces including floors, walks, ramps, stairs, and curb ramps, shall be stable, firm, slip-resistant, and shall comply with 4.5.”

Specifically the ADA discusses Coefficient of Friction requirements in Appendix A4.5.1:

“The Occupational Safety and Health Administration recommends that walking surfaces have a static coefficient of friction of 0.5.”

The standard test methods used to determine static coefficient of friction ASTM 1678 and ASTM 1679 test methods were withdrawn in 2005 and 2006 and replaced with ASTM C1028 which was withdrawn in 2014 with no replacement as none of these test methods addressed Dynamic Coefficient of Friction (walking slip resistance).

Present – IBC (International Building Code)

In 2012 the IBC adopted NSF1 –B101 and ANSI 1264 slip resistance standards replacing OSHA/ADA standards.

ANSI/NFSI (American National Standards Institute/National Floor Safety Institute)

NSFI – B101 and ANSI 1264 establish traction standards and methods for measuring both Static and Dynamic Coefficient of Friction. Static Friction is the friction between two surfaces that are not in relative motion to each other (friction while standing). Dynamic Friction is the friction between two surfaces that are in relative motion with respect to each other (friction while walking). The Standards are established as follows:

Static – Minimums

- High Traction (SCOF of 0.6+)
- Moderate Traction (SCOF of 0.4 – 0.6)
- Low Traction (SCOF of <0.4)

Dynamic- Minimums

- High Traction (DCOF of 0.42+)
- Low Traction (SCOF of <0.3)

Iron Woods Compliance with IBC Standards

Iron Woods® Ipe Decking Products have been tested in accordance with ANSI B101.1 Test Method for Measuring Wet Static Coefficient of Friction (SCOF) of Common Hard Surface Floor Materials and ANSI A137.1 section 9.6 Procedure for Dynamic Coefficient of Friction (DCOF) of Common Hard Surface Floor Materials.

The results of these tests were that Iron Woods® Decking Products in wet conditions

Average Static Coefficient of Friction: .615 (High Traction)

Average Dynamic Coefficient of Friction: .44 (High Traction)

Smooth Verses Grooved Deck Surfaces

The question is frequently asked. Are non-slip grooved wood surfaces less slippery than smooth wood surfaces? While visually it would appear that a grooved surface would more slip resistant than a smooth surface, in fact a grooved wood surface is less slip resistant than a smooth wood surface because a grooved surface actually creates less surface contact with the sole of the shoe.

This was recently reconfirmed by testing performed by a World Famous Theme Park who undertook their own testing comparing smooth verses grooved decking for their Kong Island Bridge Deck applications.

It should also be noted that grooved surfaces are prone to collect dirt, food and other organic materials which serve as a food source for fungus growth reducing coefficient of friction. As such it is important to keep any walking surface clean.

Non-slip granular surfaces like those of anti-slip strips increase friction by penetrating or cutting into the sole of the shoe which increases friction. Additional slip resistance can be achieved through the application of these types of products.



Note* Compliance with minimum coefficient of friction requirements does not eliminate the potential for slipping. The volume of shoe contact with the floor surface, The material of the shoe sole and it's degree of wear, the physical and mental condition of the individual at the time of a slip, whether the floor is flat or inclined, how the surface is used, how drainage takes place if liquids are involved all impact slip resistance. It is the responsibility of the designer to determine the appropriateness of surface material for any given application.