



The New B101.1 Floor Safety Standard

Here's the story of how two OH&S case studies lead to a new national standard.

- By Russell J. Kendzior
- Sep 01, 2011

Just about everyone at some time in their life has slipped and fallen, only to receive a bump or bruise. However, if you are one of the 8 million Americans who seek emergency room treatment each year for an accidental fall, the consequences are quite different. Falls are the leading cause of accidental death for the elderly and one of the leading causes of employee and guest injuries for many companies. According to the National Floor Safety Institute (NFSI), 55 percent of slips, trips, and falls are caused by a hazardous walkway.

Surprisingly, most are preventable. However, many property owners don't realize that their walkways are slippery until someone slips and falls. But that is about to change.

Slip Resistant vs. High-Traction

For decades, manufacturers of floor finishes and polishes have relied upon the ASTM D-2047 (UL-410) standard for determining the slip-resistant properties of their products. This laboratory test method divided products into two categories, those whose dry Static Coefficient of Friction (SCOF) was equal to or greater than a 0.5 value and those whose SCOF was below the 0.5 value. Products that met the 0.5 or greater value were "Classified" as "Slip Resistant," while products whose SCOF was below the 0.5 value were simply not classified.

For many, this pass-fail approach created the perception that products meeting the 0.5 value were "safe," while those that did not were therefore "unsafe." Many in the risk and safety field have been lead to believe that this 0.5 value was recognized by OSHA, when in fact OSHA has never published nor mandated any minimum slip resistance value. The only reference to the 0.5 value being accepted by OSHA was that of the 1990 Americans with Disabilities Act (ADA) appendix, which incorrectly attributed the 0.5 SCOF value to OSHA. In 2006, the ADA amended the statute via a bulletin announcement and has since withdrawn all language pertaining to walkway slip resistance. As it stands today, neither OSHA nor the ADA has any minimum requirement for slip resistance.

In August 1997, *OH&S* published a case study entitled "Pier 1's Slip and Fall Success Story." The article was written by Reta Lewis, senior manager of Workers Compensation and Safety for Pier 1 Imports, Inc., and described how Pier 1 Imports was able to reduce its slip-and-fall claims

by way of a comprehensive floor safety maintenance program. In the story, Lewis stated, "The results of our slip and fall prevention program have been tremendous. During the past two years, Pier 1 reported the lowest number of customer and employee accidents since 1988, when we had only 436 stores. Pier 1 now operates more than 700 stores in the United States, Canada, and Puerto Rico. This translates to approximately 7,000 employees who serve hundreds of thousands of customers annually. The number of stores reporting no accidents at all increased by more than 100 percent. Perhaps most satisfying to me as a risk management and safety professional are these facts: During fiscal year 1996, Pier 1 reduced accident costs by \$1.3 million. Our insurance premiums decreased by \$377,000."

In the August 1999 issue of *OH&S*, a similar case study was published with the title "Drug Emporium Stops Slips." The author was Michael S. Morrison, CPP, director of Loss Prevention for Nortex Drug Distributors, which operated 15 Drug Emporium stores in the Dallas-Fort Worth area. Like Pier 1, Drug Emporium employed an aggressive floor safety program that realized huge savings. "Before we implemented our current program of floor maintenance, our stores had a fairly serious problem with slips and falls. In 1993 we had 20 claims, all from customers, which was more than one per store. More than half of the claims resulted in a significant expenditure of dollars. Since implementing this new system, we have seen our customer accident claims decrease by more than 50 percent."

So what exactly did Pier 1 Imports and Drug Emporium do as to see such a huge decrease in their stores slip-and-fall rates? They changed their existing floor care program from a conventional floor program that provided a dry SCOF of 0.5 to a "High-Traction" program, which elevated the wet SCOF to 0.60 or greater. *Raising the slip resistance of their walkways from 0.5 dry to 0.60 wet significantly reduced slips and falls.*

Note that the test procedure changed from a dry test method to a wet test method. Why? Because most of their slip-and-fall claims resulted from wet walkways. Furthermore, it was found that walkways whose wet SCOF was below a value of 0.4 produced the most slip-and-fall claims. Elevating the slip resistance of their walkways revealed that the industry standard of 0.5 was in fact too low and did not provide for an adequate margin of safety. What emerged was completely unexpected and would eventually serve as the foundation of a new national standard.

The Creation of a New National Standard

In 2006, the NFSI was awarded the distinction of being accredited as a Standards Developing Organization by the American National Standards Institute (ANSI). Since that time, the NFSI/ANSI B101 Committee on the Prevention of Slips, Trips and Falls has been working on a number of floor safety standards, including the newly released B101.1 standard.

NFSI's approach to slip-and-fall prevention was different from what was previously employed. Because approximately 80 percent of all slip-and-fall accidents occur on wet walkways, it seemed only reasonable to test walkways when wet rather than dry. Secondly, intuition tells us that low Coefficient of Friction (COF, also referred to as μ) walkways are more slippery and therefore more likely to induce a slip and fall than are high COF walkways, but exactly how

much slip resistance is required to prevent a slip and fall is not always clear. So rather than simply categorizing walkways as safe or unsafe based upon a single COF value, the ANSI/NFSI B101.1-2009 standard identifies three individual risk categories, or "Traction Ranges."

Based largely on the two *OH&S* case studies, NFSI found that walkways whose wet SCOF was a 0.60 value or greater reduced slip-and-fall claims by as much as 90 percent, while walkways with values below a 0.40 contributed to the largest number of slip-and-fall claims. Walkways that possess a wet SCOF of 0.60 or greater are defined by the B101.1 standard as "High-Traction" and present the least amount of risk for a slip-and-fall claim. Walkways whose wet SCOF is below a 0.60 but greater than a value of 0.40 are defined as "Moderate Traction," and walkways which possess a wet SCOF of less than 0.40 are defined as "Low Traction." Simply put, High-Traction walkways present the least amount of slip-and-fall risk, while Low Traction walkways present the highest risk for a slip and fall. This unique approach of quantifying the wet SCOF to that of a risk category will serve as a valuable risk assessment and management tool for risk and safety professionals.

Wet SCOF Value	Available Traction	Remediation
mu 0.60 or above	High Traction -- lower probability of slipping	Monitor SCOF regularly and maintain cleanliness
mu less than 0.60 but at or above 0.40	Moderate Traction -- increased probability of slipping	Monitor SCOF regularly and maintain cleanliness. Consider traction-enhancing products and technologies.
mu less than 0.40	Minimal Available Traction -- higher probability of slipping	Seek professional intervention. Consider replacing flooring and/or coating with high-traction products.

ANSI/NFSI B101.1-2009 Table 1.

How Will This Affect You?

It is important to note that for the first time in American history, property owners can now be held accountable for the slip resistance of their walkways. In the past, there was no nationally recognized safety standard by which property owners could accurately measure the slip resistance of their walkways, which made it difficult for many industries that experience a high level of slip-and-fall accidents to identify the underlying problem -- that being a slippery floor. That has now changed with the release of the ANSI/NFSI B101.1-2009 national standard.

The NFSI/ANSI B101.1-2009 "Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials" is certain to change the way property owners, safety professionals, and insurance companies address the growing problem of slip and fall accidents.

Like most ANSI and ASTM standards, the ANSI/NFSI B101.1-2009 standard is not law mandated by any government agency, but rather is a risk management tool that property owners can use to manage their slip-and-fall risks. Property owners who choose to comply with the B101.1 standard may see immediate cost-saving benefits, while companies that choose not to

comply may not reap the full level of cost savings and are at risk of having the standard used against them in a slip-and-fall lawsuit.

But don't be fooled by the voluntary nature of this standard. A property owner's choice to comply or not to comply may play a big factor in the outcome of a slip-and-fall lawsuit. Companies that are seen as being in compliance will find their legal defense bolstered, while those that do not are at greater risk of losing their lawsuit.

Most slip-and-fall lawsuits are based on the premise that a property owner failed to provide a reasonably safe walkway, which in turn resulted in the plaintiff's slip and fall. Although the plaintiff has the burden to prove the floor was unreasonably dangerous, the defendant often finds itself in the position of having to prove its walkways were safe. The easiest way to do so is to have them tested. If you don't, the jury may ask why not -- what are you trying to hide? Perhaps you simply didn't care enough to protect your employees and invited guests.

The growing problem of slips and falls has become too big to ignore. Having represented more than 400 plaintiffs and defendants in slip-and-fall lawsuits, I have often found that many business owners consciously chose not to establish clear slip-and-fall prevention policies or guidelines, believing that ignorance or denial would somehow serve as their defense. Statements such as "I don't want to know if our walkways are slippery because then I will have to do something about it" or "As long as we keep wet floor signs out all the time, then we are not responsible for someone slipping and falling" are commonplace in many businesses. Needless to say, property owners who have clung to these philosophies may want to reconsider their approach to slip-and-fall prevention. Burying your head in the sand will no longer be a place of safe refuge.

NFSI-Certified 'High-Traction' Products

In an effort to assist consumers make a more informed decision as it relates to product selection, NFSI has offered manufacturers of flooring materials, floor care products, and cleaning equipment a way to have their products independently evaluated for their slip resistance performance. Since 2002, NFSI has certified a wide range of floor-related materials as High-Traction, thus allowing consumers an easy, cost-effective way to comply with the High-Traction goal established in the ANSI B101.1 standard.

The certification process consists of two phases. Phase one is a laboratory test where products that meet the 0.60 wet SCOF threshold are screened. Products that pass this phase move on to phase two, where the product is placed into a real-world application for a minimum of 30 days. If the product as used in a real-world application continues to meet the 0.60 wet SCOF threshold, it is certified by the NFSI as High-Traction. With the introduction of the new ANSI B101.1 standard, the demand for NFSI Certification and High-Traction products will certainly increase. A complete list of NFSI Certified products as well as walkway auditors can be found on the NFSI website, www.nfsi.org.

About the Author

Russell J. Kendzior is President of Traction Experts, Inc. and founder of the National Floor Safety Institute (NFSI). Internationally recognized as a leading expert in slip-and-fall accident prevention, he has served as an expert witness in more than 400 lawsuits representing both plaintiffs and defendants. He is a safety consultant, public speaker, and the author of two best-selling books on accident prevention, "Falls Aren't Funny" and "Slip and Fall Prevention Made Easy," published by Government Institutes, Inc., and the "OSHA Self-Inspection Checklist" (A.M. Best Company, 1997-current). An active participant in the creation of numerous walkway safety standards, he is secretary of the ANSI B101 Safety Requirements for Slip, Trip and Fall Requirements, a past member of the Board of Delegates of the National Safety Council, and a voting member of six American Society for Testing and Materials (ASTM) committees.

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