Correlation of Wet SCOF Values and Slip-and-Fall Injury Claims in the Retail Industry

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Scope:

In 1996 the NFSI co-sponsored two comprehensive studies, which correlated the wet Static Coefficient of Friction (SCOF) of walkways in two “real-world” retail store chains to that of actual same-store slip and fall injury claims. The results of which lead to the development of the NFSI 101-A-1999 (withdrawn) wet SCOF Test Method and the ANSI/NFSI B101.1-2009 “Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials”.

Project Organization:

Two prominent U.S. based retail store chains served as test locations for the study, Pier 1 Imports, Inc. based in Fort Worth, Texas and Drug Emporium, Inc. based in Columbus Ohio. Over 100 stores participated in the study and ranged in location across the continental U.S. The flooring materials as installed at the Pier 1 Imports stores were that of a glazed ceramic tile while the floors at Drug Emporium were polished Vinyl Composition Tile (VCT). Wet SCOF testing via the use of the NFSI’s Universal Walkway Tester (UWT) was performed at each location prior as to establish a benchmark of slip resistance. Each location was employing the use of various floor-cleaning agents, which were subsequently removed and replace with a traction enhancing chemical floor cleaner. Monitoring of each stores wet SCOF was conducted for a period of 30 days whereby each locations walkways were re-tested and found to possess a wet SCOF of 0.60 or greater. Each store continued to maintain their floors as prescribed and after one year each store wet SCOF was again tested to which the results of the study were published in a leading occupational health and safety publication.

Between 2008-2013 this study was duplicated by a large international insurance company who conducted more than 5000 independent wet SCOF evaluations for a major U.S. restaurant chain whereby in-store wet SCOF test results were acquired and categorized per the three traction ranges as defined in the ANSI/NFSI B101.1-2009 standard and confirmed that walkways whose wet SCOF was in compliance with the “High-Traction” range exhibited the least number of slip and fall claims while walkways whose wet SCOF was ranked as “Low-Traction” exhibited the highest number of slip and fall claims.

Note: It is estimated that the majority (80%+) of all same level slip and fall events occur on wet surfaces walkways and therefore Wet SCOF testing was performed.

Human Factors Topics

The study revealed that the wet slip resistance of the walkway was far more of an important indicator in the field of slip-and-fall prevention than that of previously noted demographic criteria such as age, sex, or type of footwear. Predictive modeling techniques can now be employed via walkway audits which can correlate and/or predict the number and range of slip and fall injury claims (events) to that of a particular walkways wet slip resistance.

Factors related to causation and the prevention of slip and fall events are provided via comprehensive training by the NFSI, which in 2014 was the first organization to receive accreditation for a national Walkway Auditor Certificate Program (WACH) via the ANSI Certificate Accreditation Program (ANSI-CAP).

Project Phases

This research now provides the opportunity for the risk, safety, design and architectural communities to provide for better safety-by-design elements, which will benefit both property owners and pedestrians alike.
Conclusion

It was found that prior to integrating the use of a high-traction floor cleaning agent, building walkways whose wet SCOF values were below that of a 0.40 had the highest number of reported slip and fall injury claims while walkways whose wet SCOF were 0.60 or greater had the lowest number of reported injury claims. By elevating the wet SCOF to a value of 0.60 or greater reduced 90% of previously reported same store slip and fall claims. The studies revealed three risk classes or "Traction Ranges" which lead to the development of the NFSI 101-A-1999 (withdrawn) and ANSI/NFSI B101.1-2009 standards.

Independent case studies, which correlated wet SCOF test results to that of injury claims, revealed that evaluation of walkways wet SCOF as defined per the ANSI/NFSI B101.1-2009 standard can serve as a reliable risk management tool for predicting slip and fall injury claims.