Slips, Trips & Falls Contributing Factors

PS: Describe your background and your role as chair of the A1264.2 Subcommittee, Standards for Slip Resistance and Prevention of Slips, Trips and Falls.
Steve: As director of research and development (R&D) for ESIS Health, Safety & Environmental, I am responsible for the development of products and services for all lines of business, research studies and management of the ESIS knowledge base of training programs, client publications, technical reference reports, forums and technical resources.

I began my career at ESIS in 1980. Prior to my appointment to R&D in 2000, I was an account manager and a field consultant for all lines of business with a focus on casualty. I serve on several technical committees, including those under UL and NFPA. I am past chair of ASTM Committee F13 Pedestrian/Walkway Safety and Footwear and continue to serve on other ASTM committees, including C21 Ceramics, D01 Paints, D21 Polishes, F06 Resilient Flooring, F15 Consumer Products and E34 Safety and Health.

I have written numerous studies and articles, and the second edition of my book, Slip, Trip and Fall Prevention: A Practical Handbook, was published in 2010. My role as A1264.2 chair is to marshal the considerable knowledge and expertise of committee members to craft standards based on the best available research and practices, ensuring relevancy, technical accuracy and value.

PS: How do the A1264.1 (Safety Requirements for Workplace Walking/Walking Surfaces or Whose Access: Workplace Floor, Wall & Roof Openings; Stairs & Guardrails Systems) and A1264.2 committees complement each other?
Steve: A1264.1 provides clear guidance on the design of walkway/jam components, such as stairs and railing systems, as well as the protection of roof, floor, wall and platform openings. A1264.2 further helps us focus on other workplace factors that contribute to slips and falls, including lighting, floor coverings and treatments, as well as management practices, such as housekeeping, incident investigation and the use of warnings and barricades.

PS: What makes the A1264.2 standard both unique and effective?
Steve: A1264.2 focuses specifically on walking/working surfaces, which makes it unique. The scope and breadth of its content are designed to use as an easy-to-understand and useful reference for occupational safety professionals as well as non-technical staff with responsibility for workplace safety. The committee is composed of seasoned and knowledgeable professionals who have specialized knowledge and experience in this area, which helps ensure the document’s relevancy and effectiveness.

PS: The ANSI/ASSE A1264.2-2012, Provision of Slip Resistance on Walking/Working Surfaces standard addresses three of four factors that can contribute to slips and falls: 1) floor surface characteristics affecting slip resistance; 2) footwear traction properties; 3) environmental factors; 4) human factors. What other factors not listed in ANSI/ASSE A1264.2-2012 also contribute to slips and falls, and why does A1264.2 only address the first three?
Steve: In reality, 50 or more variables that contribute to slips and falls have been identified in the literature, some of which are subsets of these main four. Most vexing is the inherent variability in the traction of footwear and flooring. The standard does not address human factors for several reasons. Human factors are numerous and complex, and the nature of assessing such factors falls outside the committee’s expertise.

PS: How do workers ensure that they select proper footwear? What should they look for in terms of fit or traction based on their workplace conditions?
Steve: Footwear suitability depends heavily on the environment in which it is to be worn. In workplaces where floors are likely to be wet and/or contaminated, slip-resistant footwear of some kind is recommended. Workers should follow two rules of thumb when selecting slip-resistant footwear:
1) Softer soles tend to be more slip resistant than harder soles. Materials that appear smooth have some roughness to them, even if it is microscopic. Softer soles more readily conform to the floor surface, adhering better to any roughness present and providing more traction than a harder sole.
2) Footwear with aggressive tread patterns tend to be more slip resistant than footwear with shallow, low, little or no tread patterns. Varied and deeper tread patterns designed to channel water away from the footwear bottom, minimize the potential for hydroplaning and allow the sole a greater opportunity to make contact with the surface instead of sliding over or other contamination that sits on top of the walkway.

PS: What are the key elements of a fall investigation and analysis? How can a completed investigation and analysis best be used to prevent future falls or near-miss falls?
Steve: A fall investigation differs from that of other types of incidents, so supplemental information is needed to properly determine the root causes. These include:
• the direction of the fall (i.e., backward, forward or sideways);
• the type and condition of footwear worn and other information about the injured party such as vision or gait impairment, and medication use;
• lighting conditions, including levels, transitions, shadow and glare;
• type and condition of floor surface, including the angle, material, texture/finish, surface irregularities and presence of contaminants.
Additional information would be needed for incidents that occur outside or on a stair, ramp or landing. Information needed in these cases would include measurements of the treads, risers, handrails, guardrails and tread/nosing condition.

PS: What are the A1264.2 subcommittee’s plans and goals for this year?
Steve: We plan to release a correction to a slope formula in the document. Also, based on the availability of the new ASTM F2508 standard, we will work to establish a more precise and accurate guideline/threshold for slip resistance of walkway surfaces.
In addition, we are considering an update to the A1264.3 technical report, and we are in the beginning stages of a new project intended to help users evaluate the slip-resistance test results of walkways and footwear.

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