



WARREN

Pedestrian Falls

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Fall incidents result in over 12,000 deaths and over 2 million disabling injuries each year. In this article we will discuss pedestrian falls, which include falls on walking surfaces, falls from stairs, and falls from ramps. It is necessary to reconstruct the conditions and events leading up to any fall incident in order to identify the hazard(s) and cause(s). The two primary classification types of falls are **Slips** and **Trips**.

SLIPS

A **slip** occurs when a person's foot or feet unexpectedly slide on a walking surface resulting in a loss of balance and subsequent fall. Common slipping hazards include liquids on walking surfaces, slippery objects such as food items left on walking surfaces, excessive slope on ramps, slippery shoe sole materials, changes in levels, etc. The Coefficient of Friction (COF) measures the slipperiness of surfaces. COF is the ratio of the friction force to the total force that is normal or perpendicular to the sliding surface; the higher the COF, the greater the traction. Representative values of COF are: book on a table, 0.3, brake material on brake drum, 1.2, dry tire on dry road, 1, and good walking surface with proper shoes, .5.

TRIPS

A **trip** occurs when the motion of a person's foot or feet is interrupted by contact with an object resulting in a loss of balance and subsequent fall. Common tripping hazards include obstructions protruding into walkways or from the walking surface, loose carpeting, tile or other floor covering material, uneven or raised surfaces, irregular walking surfaces, holes, objects laying on a surface, non uniform steps, etc.

CODES AND STANDARDS APPLICABILITY

The Americans with Disabilities Act Accessibility Guidelines (ADAAG), current version

The American National Standards Institute, ICC/ANSI A117.1 (2004) Accessible and Usable Buildings and Facilities

State Adopted Building & Accessibility Codes for the applicable year

The International Building Code (IBC) developed by the International Code Council (ICC) for the applicable year

ASTM F1637-09 Standard Practice for Safe Walking Surfaces

CODES AND STANDARDS Continued

ASTM F1694-96 (2004) Standard Guide for Composing Walkway Surface Evaluation and Incident Report Forms for Slips, Stumbles, Trips and Falls

ASTM F1240-01 Standard Guide for Ranking Footwear Bottom Materials on Contaminated Walkway Surfaces According to Slip Resistance Test Results

ANSI A1264.1-1995 (R2002) Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems

ANSI A1264.1-2007 Safety Requirements for Workplace Walking/Working Surfaces and Their Access; Workplace Floor, Wall and Roof Openings; Stairs and Guardrails Systems

ANSI A1264.2-2006 Standard for the Provision of Slip Resistance on Walking/Working Surfaces

ANSI -TR-A1264.3 -2007 ANSI Technical Report: Using Variable Angle Tribometers (VAT) for Measurement of the Slip Resistance of Walkway Surfaces