This reference note provides guidelines on characteristics of slip-resistant soles, guidelines for selecting slip-resistant footwear, and guidelines for implementing a slip-resistant footwear program.

Slips, trips, and falls (STF) are a leading cause of workplace injuries. According to the 2013 Liberty Mutual Workplace Safety Index (WSI), the direct cost of same-level, fall-related injuries in the U.S. in 2011 was $8.6 billion. Slips and falls are the leading cause of injury among restaurant workers, and footwear labeled “slip resistant” seems to be effective in reducing slip risk in the restaurant industry. In most industry groups, slips and falls represent the highest or second-highest type of workers compensation claim. In addition, 11 percent of low back pain-related claims and 12 percent of low back pain-related claims costs are attributed to slips and falls.

Proper housekeeping and the installation of quality slip-resistant floor surfaces is the foundation of any slip/fall prevention program. Using slip-resistant footwear is an additional intervention strategy for reducing the likelihood of slips and falls. A slip-resistant footwear program needs to consider the entire working environment, including the selection of proper footwear. Considering the floor condition, such as whether floors are wet or greasy, and whether the worker will be indoors or outdoors, has a bearing on footwear selection.

**Slip-Resistant Soles and Testing**

“Slip resistant” is a specific term given to footwear that reduces the likelihood of slipping. Terms such as oil resistant, fat resistant, acid resistant, alkaline resistant, or skid resistant do not mean slip resistant. The objective of a slip-resistant sole is to maximize contact between the outsole and the walkway surface through tread design and construction.

Shoe soles labeled “slip resistant” in the U.S. are commonly recognized in the restaurant and food service industries, but there are no mandatory sole design or friction requirements that must be met in order to classify a sole as “slip resistant,” only general guidelines.


**Tread Design**

Slip-resistant tread design is intended to maximize contact with the walkway surface by pushing or “squeezing” water and contaminants away from the sole at the heel strike, mid stance, and toe-off phases of the gait cycle.
Tread Material
Shoe sole construction (e.g., type of rubber, cleat design, and performance in various climate conditions, including cold) is important for traction, durability, and slip resistance. Most shoe soles are constructed of a blend of rubber polymers to achieve the highest performance possible for the product’s intended use, whether for athletic purposes, hiking, work, etc. Styrene butadiene rubber (SBR), nitrile-butadiene rubber (NBR), and polyurethanes are some of the more commonly used footwear soling materials.\(^7\)

The harder or less flexible the rubber is, the less potential it has for helping with slip performance. In cold temperatures (e.g., 10°F), NBR rubbers can harden quickly, thereby reducing slip performance. Other polymers get harder even faster in cold temperatures. Some rubber blends remain softer in cold temperatures, and thus produce better slip results in cold environments.

Organizations should work with footwear companies to customize a sole to meet the needs of traction, slip performance, and durability for the expected environment.

Implementing a Slip-Resistant Footwear Program
A slip-resistant footwear program should be in writing and should include a written policy for footwear selection, purchase, reimbursement, and replacement. A slip-resistant footwear policy should be customized to meet the specific needs of your organization. Before implementing a slip-resistant footwear program, it is a good idea to have legal counsel review the policy for potential legal exposures.

Purchasing slip-resistant footwear and specifying who pays is an important decision.

The following are common footwear purchase options:

- **Company purchase**: Employer purchases slip-resistant footwear from a specified vendor and workers then pick their sizes. Employer subsidizes the entire cost and the specifies the look and style of footwear that employees wear.
- **Employee purchase**: Workers purchase their own footwear from specified vendors, or any vendor that meets the specifications defined in the employer’s policy. Discounts might be offered for work purchase of shoes from retail outlets or mail order.
- **Payroll deduction plan**: Employees order their own footwear from specified vendors according to the policy and the cost is automatically deducted from employees’ paychecks. Footwear vendors work with the company to track purchases and provide information for payroll deduction.

Summary
Using slip-resistant footwear can be an effective strategy in preventing slips and falls. It is important that the features, benefits, and limitations of slip-resistant footwear be understood by managers before a program is implemented. Slip-resistant footwear, in combination with good housekeeping, can offer a comprehensive approach to managing slips and falls in the workplace.

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