Gaining traction

by Chris Tricozzi

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To prevent slips & falls, don't take flooring for granted

When you think about industrial floor safety, type and maintenance are first on your list.

Many industrial locations use either cement or conventional vinyl floors in key work areas. Although these floors can be durable, they also heavily depend on proper maintenance. Poorly maintained floors or the use of inappropriate floor care products can result in serious problems and injuries.

These injuries can be costly. A study conducted by the Wausau Insurance Company found that slips, trips and falls typically cost an employer $12,000 in medical- related costs, absenteeism and insurance claims each year per incident. Liberty Mutual Insurance reports that slips, trips and falls are the second-leading cause of workplace accidents in the United States.

Of course, a slip, trip or fall can just as easily occur because a cable or cord is laid over a walkway or floor surface. In most cases, such accidents are the result of too little friction or traction between footwear and the floor surface due to floor types or maintenance.

Also, some industrial slips and falls are the result of worker fatigue, especially when workers must stand for long hours at a time at workstations. In response to such accidents, many industrial facility managers are selecting a different type of flooring material that may help promote worker safety. Additionally, matting systems can help minimize fatigue — especially among workers who must stand for extended periods.

Rubber flooring

Rubber flooring is getting closer scrutiny by industrial facility managers. It was popular in a variety of settings for decades, dating back to the 12th century. However, it lost favor to linoleum, patented in 1845, as well as to new resilient flooring products introduced after World War II.1

Today rubber floors continue to play a rather small role compared to other types of floor coverings, especially in industrial locations.

One reason rubber floors have not found wider use is cost when compared to other hard-surface floor types. However, rubber flooring is now one of the fastest-growing segments of the floor industry with annual growth estimated between 7 and 15 percent.

Many attribute its growing use to its greater functionality, reduced costs, ability to deaden noise

levels, availability in various styles, textures, and colors and minimal maintenance requirements. Some building professionals believe safety factors are the key reason for its renewed popularity.

Rubber flooring is naturally slip resistant, so it is often used in locations where adherence to Americans with Disabilities Act (ADA) requirements is mandatory. It is also a good floor covering in industrial and work areas because it offers excellent traction, even when wet. Further, rubber flooring can last for 25 to 40 years and maintain effective slip-resistance qualities if properly maintained.

An additional quality of rubber flooring is its comfort. Rubber flooring has a bounce, although limited, that is not found in other hard-surface flooring materials. This bounce helps promote blood flow through the lower limbs and in doing so reduces worker fatigue that can result in injuries.

Fatigue and flooring

If the floor offers no bounce, workers who stand in one spot throughout the day feel a lot of pressure on their legs, knees and feet, which can cause fatigue and possible injury. Workers compensate for the discomfort by twisting their feet and legs, shifting their weight and moving from side to side. All of this can slow down production and, especially if the floor is not well maintained, lead to a slip, trip or fall. But even where a rubber floor has been installed, additional solutions may be necessary, such as the use of antifatigue matting systems.

Unlike entrance mats that are designed to prevent soil from entering a facility, antifatigue matting systems are often constructed of vulcanized or nitrile rubber bonded to a sponge base. More advanced systems use a patented technology called Zedlan® foam. As workers perform their tasks, these systems add the bounce necessary to help stimulate muscles and blood flow through the legs.

In the case of mats, “bounce” is referred to as “resilience.” When a worker walks on antifatigue matting, the matting compresses but then immediately recovers and pushes back up, similar to a trampoline. This compression energy stimulates leg muscles and blood flow by inducing a natural flexing of the leg muscles. This fosters improved blood circulation and reduces the buildup of lactic acid, which causes fatigue. As a result, these systems reduce fatigue and may promote safety.

However, proving all of this scientifically has been difficult. Although several studies suggest that localized muscle fatigue can be one of the risk factors for slips and falls, there is still no documented study examining the relationship between fatigue and fall accidents.

In one study,2 16 young, healthy participants were asked to walk across a vinyl floor surface for a continued period of time. Data was collected, and the researchers reported that muscle fatigue, especially in the thighs, affected walking in such a way that it could cause a higher risk of slip-induced falls.

Additionally, the knees of the participants were affected as well. The fatigue resulted in a delayed response in producing effective joint movements. The researchers concluded, “The findings from this study indicate that muscle fatigue [of the legs and knees] is a potential risk factor causing slip-induced falls.”2

Slips, trips, and falls continue to be a significant cause of injuries and economic losses in many facilities, including industrial locations. Taking steps to identify the risk factors causing these falls is key to preventing them. Along with proper floor maintenance, this often calls for the use of rubber flooring as well as the effective use of antifatigue matting.

Educating workers about slips and falls and how they can be prevented is equally important and should not be overlooked.

Sources:
1. Resilient Floor Covering Institute

2. Lockhart T. Effects of Lower Extremity Muscle Fatigue on the Outcomes of Slip-Induced Fall. Ergonomics Magazine, December 2008.

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