Preface to the Special Section on Occupational Fall Prevention and Protection

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Preface to the Special Section on Occupational Fall Prevention and Protection

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Falls represent a serious hazard to workers in many industries. Workers who perform tasks at elevation—such as structural metalworking, roof assembly and repair, tree trimming, and green energy construction—are at risk of falls from heights, with frequently serious or even fatal consequences. Many more workers, in nearly every industry, are subject to falls to floors, walkways, or ground surfaces; these falls, characterized as "fall on the same level" by U.S. statistical reporting agencies, are responsible for well over 15% of nonfatal injuries that result in days away from work (U.S. Department of Labor, 2011).

The most recent report on injuries, illnesses and fatalities by the U.S. Bureau of Labor Statistics (BLS) shows that there were about 293,990 slip-and-fall-related nonfatal occupational injuries involving days away from work in 2010, which accounted for about a quarter of all occupational injuries in the year (U.S. Department of Labor, 2011). BLS also reported 645 fall-related fatalities for calendar year 2009, which accounted for 14.2% of overall occupational fatality cases. The health services and wholesale and retail industries experienced the highest frequency of nonfatal fall injuries, and the construction industry continued to suffer the highest rate of fall-related fatalities. Health care support, building cleaning and maintenance, transportation and material moving, and construction and extraction occupations were particularly at risk of falls to floors or ground surfaces. Workers' compensation and medical costs associated with occupational fall incidents have been estimated at approximately $70 billion annually in the United Sates (National Safety Council, 2002). Many countries are facing the same challenges as the United States in preventing slip-and-fall injury problems in the workplace.

The etiology of falls as injury-producing events is multifactorial and encompasses multiple mechanisms of exposure. Working at heights involves completely different fall risks than those found on workplace surfaces and floors. The different exposures represent serious safety risks in both cases, and both can result in fatal and serious nonfatal injury. To address the various causes of multifactorial events such as these, there needs to be wide-ranging and multidisciplinary injury mitigation research and translational efforts to provide both safety professionals and workers with validated research findings, methods and recommendations for safe practices. This special issue on occupational fall prevention and protection grew out of discussions on these topics held among various concerned parties: international work groups, the U.S. National Institute for Occupational Safety and Health (NIOSH) and its various partners and stakeholders, and academic scholars. The findings presented in this issue relied on strong support from various organizations and the International Conference on Fall Prevention and Protection conference committee. The *Human Factors* editorial board reviewed and approved the proposal for this special issue.

This special issue represents a wealth of knowledge from experts and informed stakeholders on the best way to understand, prevent, and control fall-related risk exposures. Featured are subjects on falls from elevation; slips, trips, and falls; and the practical application of prevention; and intervention tools and methods. Specifically, the articles in the special issue include the topics of falls among aging workforces, fall safety in construction practices, slips-and-trips control programs in the manufacturing industry, fall protection device design and evaluation for construction workers and emergency responders, ladder safety, and tribology

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and its fall prevention applications. A wide array of research approaches, research findings, recommendations, and expert advice on the latest tools and methods to reduce the incidence of injury from falls is provided. This range reflects the multidisciplinary orientation of the different stakeholders and the individual interests and expertise of participating researchers. It must be noted that a tribology paper authored by Chang, Chang, and Matz for this special issue was inadvertently published in a regular issue. This paper entitled "The Effect of Transverse Shear Force on the Required Coefficient of Friction for Level Walking" can be found at http://hfs.sagepub.com/content/53/5/461.abstract.

It is anticipated that these articles will serve to bring together the communities of interest that attempt to prevent and ameliorate fall-related injuries and that they will spur efforts that will continue in the form of joint and supported research investigations, research consortia, and informed dialogue in support of a common goal. It must be noted that there are emerging and significant subjects on fall prevention that this special issue does not cover because of scheduling and space constraints of the journal. Among the subjects of concern are the disproportionate fall fatality rate of the Hispanic worker population, fall control strategies for green energy construction and maintenance, slip-and-fall prevention program effectiveness in the health care industry, best fall prevention practices for emergency responders, underlying biomarkers that are known trigger events for human falls, and new innovative fall protection technologies. We hope *Human Factors* will continue to sponsor forums for the publication of methods and findings related to fall injury protection and prevention.

It is gratifying and exciting to be a part of the effort for this special issue, which exemplifies some of the best efforts to advance occupational fall injury prevention. We continue to call on the national and international communities of interest to develop a global research agenda on fall prevention and join the research effort toward a goal that benefits both workers and all nations.

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