



Safety Technical Group

The Safety Technical Group consists of individuals interested in research and applications concerning safety-related human factors issues. Example application areas include transportation, industry, military, aerospace, offices, public areas and buildings, recreation, and home environments. One of the goals of the STG is to keep members informed of current issues and developments in safety through its newsletter, *Safety News*, and by its technical sessions at the annual meeting. The group also maintains, through activities of its members, ongoing relationships with other safety organizations and standards-making bodies.

TECHNICAL FOCUS

Human factors specialists in the field of safety are involved in the mitigation of hazards from human, machine, and environmental sources. Hazard identification, evaluation, and management are the basic steps toward a goal of providing safe and healthful working conditions and products. Practitioners may be involved in job studies and design, equipment design, personnel protection, and environmental controls, among other functions. The following are some of the topics of greatest interest to STG members:

Aviation

- Air traffic control and communications
- Crew fatigue and performance
- Display/control design and layout
- Design and effects of automated systems
- Pilot training and flight simulation

Ground and Sea Transportation

- Accident and crash analysis
- Alcohol and drug use
- Intelligent vehicle/highway systems
- Driver behavior
- Degraded vision conditions
- Operator restraint and rescue system design
- Navigation system design

Buildings

- Construction
- Environment
- Stairs, ramps, elevators, access
- Signage and risk perception

Products

- Child use and safety
- Instructions and warnings
- Product abuse and misuse

Work Conditions and Environment

Noise, vibration, temperature, atmosphere
Occupational hazards and risk perception
Warnings and alarms
Operator fatigue and injury potential
Machine design

MEMBERSHIP

The STG consists of more than 600 individuals who work in such areas as product and process design, industrial manufacturing, engineering, academia, contract consulting, forensics and legal service, the military, and agencies of the government. The STG seeks to foster the exchange of information among members and to promote the development and application of human factors data and principles to improve system safety. Although most STG members are also members of the Human Factors and Ergonomics Society, STG membership may be obtained separately as well.

BENEFITS OF MEMBERSHIP

The Safety Technical Group, like other technical groups within HFES, performs a variety of functions and services for its members. In addition to sponsoring technical sessions at the annual meeting of the Society, the STG conducts special symposia on topics of interest to members. A newsletter is sent to all members about three times each year. Additional information on the STG can be obtained by contacting HFES.

SUCCESS STORIES

Human factors experts working in systems safety have been involved in a number of successful programs and products. Representative examples include the following:

Aircraft Evacuation System

Human factors played an important role in the design, testing, and certification of the slide-raft evacuation system for the Douglas DC-10 commercial aircraft. The effectiveness of this system has been demonstrated in several incidents and accidents. As an example, at Los Angeles International Airport, a fully loaded aircraft was forced to abort a takeoff. The aircraft ran off the runway, sheared part of its landing gear, and caught on fire. All of the passengers, most of whom were elderly, were evacuated safely.

Fire Escape Stockings. "Evacuation systems and procedures for large buildings. For decades, ergonomists have studied means of egress facilities for buildings. Partly in response to recent major evacuations, such as in the World Trade Center in 1993 and 2001, ergonomists have contributed to revisions to building codes and safety standards. Research indicates that these changes improve situation awareness, communication, egress and refuge procedures, crowd safety, stairway design and retrofit, and emergency use of elevators."

Active Noise Cancellation Systems. Through the use of human factors knowledge in acoustics and speech communications, lightweight headset communications systems have been developed that cancel noise electronically, avoiding the bulk and weight of conventional noise control materials. Improvements in communications and reductions in noise exposure hazards are benefits of this technology, which has been used successfully in aviation and tank crew headsets, as well as in hearing protectors for industrial noise applications.