Vision
We discover and disseminate innovative ways to separate humans from hazards through research and training, focusing on applications that reduce occupational fatalities, injuries, illnesses, and accidents.

Mission
To provide leadership in large-scale, work-related accident, injury, illness, and fatality reduction in the U.S. and beyond. To design, develop, implement, and translate innovative, integrated, and multidisciplinary projects for significant safety and health improvements in the occupational domain.

Need For Research
Work-related injuries, illnesses, and fatalities remain a substantial global concern. Across the globe, the International Labour Organization (2012) “estimates that some 2.3 million women and men . . . succumb to work-related accidents or diseases every year,” with “over 6000 deaths every single day,” and that “there are around 340 million occupational accidents and 160 million victims of work-related illnesses annually.”

In the U.S., there are nearly 5,000 work-related fatal injuries and nearly one million non-fatal injuries and illnesses each year (BLS, 2012). These adverse events and outcomes involve substantial human suffering as well and impose a significant economic burden to individuals, businesses, and nations. An interdisciplinary and hierarchical approach is needed to improve occupational safety and health in the U.S. and beyond. Members of OSHRC take such approaches, conducting research, translation, training, and outreach across multiple occupational sectors and using methods from diverse scientific disciplines.

Who We Are
OSHRC is a collection of individuals, resources, and knowledge, wherein faculty, students, partners, and external stakeholders congregate, collaborate, innovate, and disseminate to benefit the safety and health of workers. OSHRC, formally known as the Center for Innovation in Construction Safety and Health (CICSH), was originally formed in 2004 through a grant from the National Institute for Occupational Safety and Health (NIOSH) to innovatively improve health and safety in the construction sector. It is supported and is administered by the Institute for Critical Technology and Applied Science (ICTAS) at Virginia Tech.

OSHRC Research Areas
OSHRC members are involved in a broad range of research areas that are within diverse disciplines and/or address one or more occupational sectors.

- Sectors: Agriculture, Construction, Health Care, Manufacturing, Mining, Cross Sector
- Disciplines: Industrial Hygiene, Musculoskeletal Disorders, Safety, Slips/Trips/Falls, Work Organization
Selected Current Research Projects

A Decision Support System for Ergonomic Construction Design
Work-related musculoskeletal disorders (WMSDs) remain prevalent among residential construction workers. Pre-manufacturing is a trend in this industry, a key aspect which involves panelized walls that a designer generates. While this approach provides increased efficiencies, centralization of design provides an opportunity to promote ergonomics and enhance efficiency in the design process. The main goal is to develop a decision support system (DSS) for panelized design and construction, to facilitate a more proactive approach to ergonomics in panelized construction, consistent with the philosophy of prevention through design (PtD).

Finger-pointing to Lifesaving: A supply chain approach to construction OSH
The construction industry performs poorly in occupational safety and health, and many industry participants (clients, designers, and other stakeholders) can play a part in helping to make the work safer. The main focus of this research is to examine the way in which decisions that improve occupational safety and health of construction workers are made in the project planning and design stages, as well as during construction itself. This project looks at how construction participants address safety and health in their decisions and how and when important safety and health information is communicated between different stakeholders through the construction project lifecycle.

A Fall Protection System for Residential Construction Considering Usability and Worker Attitudes
Residential construction workers must use a fall protection system for all work performed above 6 feet off the ground, since OSHA changed the fall protection standards in 2011. However, fall protection systems are not considered feasible for residential work, as the time to finish roof construction would be greatly extended by installing the fall protection system. The purpose of this project is to transfer a fall arrest system used in the commercial, post-frame construction area to residential construction, by testing existing fall arrest elements and redesigning the system based on residential construction workers’ performance.

New Technologies for Identifying and Understanding Ground Stability Hazards
Statistics from the Mine Safety and Health Administration indicate that 16% of fatalities and lost-time incidents in the underground mining industry are due to unexpected rock mass failure. Excavating underground openings can be compounded by the lack of a method to quantify changes within the rock mass. The main goals of this work are to evaluate new technologies for quantifying ground responses in underground coal mines with different geologic settings and to provide critical information on Ground Control data center displays for miners and mine engineers.

Effects of Obesity and Age on Balance and Fall Risk – Implications for Safety Guidelines
Falls are a significant cause of occupational morbidity and mortality. The number of people who are older and/or obese in the U.S. is growing. However, no specific fall prevention or safety recommendations have been established despite an increased risk of falls in older adults and workers who are obese. The main goals are to: (1) characterize the effects of age, obesity, and their interaction on balance and risk of falls, and (2) provide data to develop more inclusive safety guidelines and/or designs that account for the balance abilities of workers who are older and obese.

Dust-control Usage: Strategic Technology Intervention (DUSTI)
Respiratory disease among plasterers and wall finishers is a major concern for construction workers. The goal of this project is to develop an intervention that will improve adoption of dust control technology in the drywall finishing sector of the construction industry. The intervention aims to improve health knowledge, perceived risks, worker self-efficacy, trust in technology and organization, adoption of readiness, and perception of barriers.

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