

National Study Tackles the Challenge of Fighting Fires in High Rises

The U.S. Department of Homeland Security (DHS) and the Federal Emergency Management Agency have funded a new study aimed at answering questions stemming from 9/11 and other disasters about the risks of fighting high-rise fires and the efficacy of existing methods for responding to these emergencies. It will also evaluate new approaches to firefighting and building design that could make high-rise firefighting more effective and safer for the fire service.

"High-rise fires are some of the most challenging and hazardous situations firefighters face," says Kathy Notarianni, professor and head of the Fire Protection Engineering Department (FPE) at Worcester Polytechnic Institute (WPI). "Unfortunately, fire codes provide little guidance on how to respond to fires in tall buildings, and fire and city officials have little or no quantitative data to draw on as they evaluate various deployment configurations or building code changes that could make high-rise fighting safer. This study will provide the data, the analysis and the guidance they need."

According to Notarianni, this study will be conducted in tall buildings in urban areas. In a series of experiments, actual working firefighters will be deployed to simulated multi-alarm high-rise fires. Crews consisting of more than 90 firefighters will provide realistic data on the time required to complete critical tasks and milestones on the fire ground. Various crew sizes, fire apparatus configurations, and deployment and firefighting schemes will be evaluated. The study will also evaluate the benefits of firefighters using elevators to reach and attack fires.

"As the 9/11 disaster made clear, moving firefighters and supplies up 10, 20, or even 30 stories is an arduous task, especially if you have to move against a stream of evacuees," Notarianni says. "If not properly managed, no one will reach the fire with enough stamina to actually fight it. Using elevators can dramatically improve response time and effectiveness but the elevators have to be reliable and dedicated to the fire service, which is often not the case. We want to quantitatively measure the impact of employing elevators, and provide guidance that could influence codes for elevator design and placement in new high-rise construction."

The study will be led jointly through a longstanding partnership between the FPE at WPI, the Center for Public Safety Excellence, the International Association of Fire Fighters, the National Institute of Standards and Technology, and the Urban Institute. It will build on the results of previous national studies conducted by WPI and its national partners with funding from the DHS. For more information, visit www.wpi.edu/news.