



UFF Position Statement

Effect of Crew Size on Firefighter Health and Safety

Situation

Fire chiefs are often faced with policies created by municipal officials who are challenged to balance community service expectations with finite budgetary resources. Unfortunately, municipal officials frequently lack the solid technical foundation they need to properly evaluate the impact of fire department staffing and deployment decisions on the safety of the public and of firefighters. This situation often results in chiefs being forced to plan fire department resources to meet budget needs, rather than budgeting to ensure the proper resource allocation and deployment to meet critical service and safety needs.

Though there are research studies addressing relevant issues like crew size, time-to-task, fire dynamics, building materials, firefighter cardiac impact, fatigue, and other health and safety concerns, these studies have been conducted separately often without direct correlation. To address this situation, the Metropolitan Fire Chiefs Association asked four tenured researchers to evaluate independent research and prepare a report compiling the evidence from published data, industry standards and expert opinion. The results of that effort are a peer-reviewed published paper that is to be a position of the Urban Fire Forum and Metro Chiefs Association.

Abstract

Firefighters' safety during fire responses depends on sound policies and procedures that ensure they can do their jobs efficiently and effectively. Decisions on *vehicle crew size* and *total effective response force deployment* should be based on the best available evidence. It is imperative that fire department leaders and political decision makers understand how the fire department resource deployment impacts community safety related to civilian injury and death, firefighter injury and death, and property loss. This state-of-the-art review provides a comprehensive examination of (1) results from multidisciplinary (e.g., engineering, medicine, fire technology, and social sciences) research efforts, (2) published data, (3) industry standards, and (4) expert opinion. The review examines the effect of emergency response vehicle crew size and total effective response force deployment on firefighters' health and safety risks, recognizing that firefighter health and safety is necessary to ensure that firefighters can effectively perform their jobs and protect their community.

The paper concludes that based on available evidence, that the crew sizes and the effective response force sizes recommended in NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, should be considered the **minimum** to provide for firefighter health and safety. Whenever possible, additional resources should be provided to address firefighters' physiological stress, limit fire growth, and mitigate occupational exposure in today's rapidly evolving fireground.

Recommendations

The Metropolitan Fire Chiefs support the following recommendations based on a review of published research, industry standards, and expert opinion.

1. All fire chiefs and individuals who are responsible for fire department budgets should use NFPA 1500™ and the performance objectives in NFPA 1710 to ensure adequate resources are deployed to protect communities and to minimize risks to firefighter health and safety.
2. Adequate resources, including properly trained firefighters and appropriate vehicles, should be deployed to arrive on scene in an appropriate timeframe to limit fire growth. Firefighters are facing an unprecedented level of risk in today's fires because of widespread use of synthetic building materials and furnishings, lightweight construction, larger buildings, and more open floor plans. In order to meet these challenges, enough firefighters must arrive on scene and initiate fire suppression activities as quickly as possible.
3. Firefighter health and safety is the responsibility of the entire fire department, but the ultimate accountability resides with the fire chief and municipal officials. Adequate personnel are necessary to successfully perform firefighting operations without undue risk to citizens and/or firefighters.

Source

Effects of crew size on firefighter health and safety. *International Fire Service Journal of Leadership and Safety*. [Pending Publication *IFSJLM* Volume 16, 2021]