



THE FIRE PROTECTION RESEARCH FOUNDATION

Evaluating Occupant Load Factors for Ambulatory Health Care Facilities

Executive Summary

There are current code change proposals related to changing the business occupancy occupant load factor specified in NFPA 101, *Life Safety Code*, and NFPA 5000, *Building Construction and Safety Code*. The occupant load for ambulatory health care facilities relies on the occupant load factor for business occupancies, so it has been questioned whether the occupant load factor for ambulatory health care facilities is appropriate as well. Additionally, an effort is underway to make the ambulatory healthcare occupancy chapter a standalone chapter that does not utilize any of the requirements of the business occupancy chapter.

There is a need for supportable occupant load factors for ambulatory health care facilities. The objective of this effort was to provide data to the Technical Committee on Healthcare Occupancies to either support the current occupant load factor or to provide technical basis to justify a change in this occupant load factor.

Data were collected using site surveys for several health care floors in order to analyze the occupant load factor for ambulatory health care facilities. Two types of outpatient activities were considered: primary care and urgent/treatment care. The first corresponds to facilities where the patients do not necessarily receive special care, although patients with an injury or illness that makes them incapable of evacuation by themselves can access these facilities. The second corresponds to facilities where the patients receive medical treatment, anesthesia, or urgent care, rendering them incapable of taking action for self-preservation under emergency conditions without the assistance of others.

Data analysis showed that the samples from the two types of facilities came from the same population and therefore could be treated as a single sample. The overall occupant load factor was obtained, resulting in a mean value of 24.84 m²/person (267.37 feet²/person). This is higher than the current occupant load factor of 9.33 m²/person (100 feet²/person) required by NFPA Standards. However, the results were highly variable with a standard deviation of 15.95 m²/person (171.68 feet²/person) Furthermore, 50% of the data were lower than 20 m²/person (214 feet²/person).

It should be noted that this data collection corresponds with real values of occupant load factors in ambulatory health care facilities by gross floor area. Each gross floor area can contain enclosures

with different uses or activities, such as auxiliary services (machine rooms, multi-use rooms, cafeterias, etc.), medical services (consultations, surgeries, day care hospitals, etc.), administrative services (admissions, offices, etc.) and common areas (waiting rooms, halls, etc.), where the occupant load density is very different.

This implies that there may be a lower occupant load factor for ambulatory health care facilities when all services operate, called the maximum occupant load factor. For this, the maximum number of people within different enclosures is easily obtained if the total number of medical services is known. However, the maximum number of people in common areas is not so easily obtained because of the variability in the number of companions and the number of patients waiting for assistance.

We also obtained the patients-to-consultation ratio and visitors/companions-to-patient ratio. The results were a mean value of 1.21 and 0.44 respectively. These parameters can be useful to calculate the total number of people in the areas where companions can access the patient.