Toward the Characterization of Building Occupancies for Fire Safety Engineering: Prevalence, Type, and Mobility of Disabled People

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Abstract
This paper is the first in a series of four that collectively provide a substantial body of knowledge on the egress capabilities of disabled people who frequent public assembly buildings. Here, the results are given of an analysis of survey data estimating the numbers and types of disabled people who are mobile beyond their own homes, the degree of assistance they require, the percentage of the total mobile population they constitute, and the extent to which they are involved in sports and leisure pursuits. This information can be used to derive working estimates of the prevalence and nature of disability among building populations when characterizing building occupancies, a prerequisite to fire engineering.

Introduction
Part I of the British Standard Code of Practice, BS DD240, Guide to the Application of Fire Safety Engineering in Buildings, and the International Standards Organization's draft documents, TC 92, both recognize that the characterization of building occupants is an essential prerequisite to the application of fire safety engineering principles in building design. The increasing accessibility of buildings to disabled people, the high percentage of the U.K. population that can be classified as disabled, and the varied nature of building occupants dictates the importance of getting essential information about occupants' ability to evacuate a building in an emergency. At present, however, such information is not available. In order to address this lack, the authors undertook an extensive project designed to develop the existing body of knowledge on the egress capabilities of disabled people who frequent buildings.

The specific objects of this study were to determine the numbers and characteristics of disabled people who are mobile beyond their homes and the types of

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buildings they frequent, and to design and conduct an experimental program to determine the capabilities of mobile disabled people to carry out the steps involved in a basic evacuation.

The information presented about this work in this first of four papers can be used to characterize building occupancies in terms of the numbers and types of disabled people likely to frequent public assemblies.

Surveys of Disability in Great Britain and Northern Ireland

The most recent surveys of disability in Great Britain and Northern Ireland were conducted by the Office of Population Census and Surveys (OPCS) in 1984, 1985, and the Policy Planning and Research Unit (PPRU) in 1989. For the purposes of both surveys, the World Health Organization's International Classification of Impairment, Disability and Handicap was adopted. This document defines impairment as "...any loss or abnormality of psychological, physiological or anatomical structure or function," and it defines disability as "any restriction or lack of ability (resulting from impairment) to perform an activity in the manner or within the range considered normal for a human being." The prevalence of disabilities were determined: locomotion; reaching and stretching; dexterity; seeing; hearing; personal care; continence; communication; behavior; intellectual functioning; consciousness; eating, drinking and digestion; and disfigurement.

The results of these studies indicated that between 140 and 170 persons per thousand of the UK population could be classified as disabled. Although the rate of disability in Northern Ireland was deemed to be slightly higher than that of the rest of the United Kingdom, a comparison of the published statistics relating to each survey indicates that the findings are remarkably consistent with respect to the types and distribution of disabilities of adults and children and to their mobility—that is, whether they are assisted or unassisted beyond their home environment.

The information OPCS and the PPRU published on the extent to which disabled people in Great Britain and Northern Ireland are mobile beyond their homes, and, in the case of the OPCS surveys, how often disabled people go out, is useful in a general sense. However, because of the manner in which the results of both surveys were presented, it is not possible to obtain information on the actual numbers of disabled people who are out and about in the community, the nature of their disabilities, and the proportion of the total mobile population they actually constitute.

The more extensive Northern Ireland Disability Survey (NIDS) data had the potential to yield this and additional information about how people with disabilities are involved in various social, recreational, and sporting activities.