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**Ergonomics of the physical  
environment — Application of  
International Standards to people with  
special requirements**

*Ergonomie de l'environnement physique — Application des Normes  
internationales aux personnes ayant des exigences particulières*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 28803 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 5, *Ergonomics of the physical environment*.

## Introduction

This is one of a series of International Standards concerned with the ergonomics of the physical environment. This International Standard complements others in the series concerned with specific components of the environment, such as thermal environments, acoustics, lighting or air quality, building upon them to allow an assessment of human response to the total environment. This International Standard is particularly concerned with extending the scopes of other International Standards — see 5.2.2, 5.3.2 to 5.3.5, 5.4.2, 5.5, 6.2 to 6.6, 7.3 and 9.2 — so that they can be applied to as wide a range of people as possible. The background information it provides on the responses and needs of groups of persons with special requirements will contribute to accessible environmental designs that will complement other activities in the field of ergonomics.

This International Standard includes a description of the range and variety of responses and adaptations to physical environments of people with special requirements, and the consequences for measuring and evaluating those environments. It considers the application of indices and methods for people with special requirements where health and safety, comfort and well-being are considerations. It provides a description of the nature of the particular characteristics of people with special requirements in the context of their responses to environments (e.g. restricted sensation, reduced perception or ability to respond). It is not a database of characteristics of people with special requirements, but uses data from ISO/TR 22411 to provide methods and criteria that will in turn provide accessible environments.



# Ergonomics of the physical environment — Application of International Standards to people with special requirements

## 1 Scope

This International Standard describes how International Standards concerned with the ergonomics of the physical environment can be applied for people with special requirements, who would otherwise be considered to be beyond the scope of those standards. It has been produced according to the principles of accessible design provided in ISO/IEC Guide 71 and using the data provided in ISO/TR 22411.

It is not restricted to any specific environment but provides the general principles that allow assessment and evaluation, and can contribute to the development of standards concerned with specific environments. It is applicable to built environments as well as to other indoor, vehicle and outdoor environments. Nor is it restricted to specific environmental components; it includes assessment of acoustic environments, thermal environments, lighting, air quality and other environmental factors that could be considered to influence the health, comfort and performance of people with special requirements in an environment.

It is applicable to all occupants of such environments who can be considered to have special requirements.

**NOTE** This will depend upon context and can, for example, include babies, infants, men or women, people with disabilities, older or ill people. A person could have a special requirement in one type of environment but not in another.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13731, *Ergonomics of the thermal environment — Vocabulary and symbols*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13731 and the following apply.

### 3.1

#### **accessible design**

design focussed on principles of extending standard design to people with some type of performance limitation to maximize the number of potential customers who can readily use a product, building or service which may be achieved by

- designing products, services and environments that are readily usable by most users without any modification,
- making products or services adaptable to different users (adapting user interfaces), and
- having standardized interfaces to be compatible with special products for persons with disabilities

**NOTE 1** Terms such as design for all, barrier-free design, inclusive design and transgenerational design are used similarly but in different contexts.

**NOTE 2** Accessible design is a subset of universal design where products and environments are usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

[ISO/IEC Guide 71:2001, definition 3.2]