SLOVENSKI STANDARD
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Stavbno okovje - Vodila vrat, ki jih uporabljajo otroci, starejġi, invalidi in drugi funkcionalno ovirani ljudje doma in v javnih stavbah - Vodilo za oznaḷ evanje

Building hardware - Door fittings for use by children, elderly and disabled people in domestic and public buildings - A guide for specifiers

Baubeschläge - Türbeschläge für die Nutzung durch Kinder, ältere und behinderte Personen in privaten und öffentlichen Gebäuden

Quincaillerie pour le bâtiment - Accessoires de portes pour enfants, personnes âgées ou personnes handicapées dans les habitations et bâtiments publics - Guide destiné aux prescripteurs

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Building hardware - Door fittings for use by children, elderly and disabled people in domestic and public buildings - A guide for specifiers

Quincaillerie pour le bâtiment - Accessoires de portes pour enfants, personnes âgées ou personnes handicapées dans les habitations et bâtiments publics - Guide destiné aux prescripteurs

Schlösser und Baubeschläge - Türbeschläge zur Nutzung durch Kinder, ältere und behinderte Menschen in privaten und öffentlichen Gebäuden - Ein Leitfaden für Planer

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Contents

Page

Foreword

This document (CEN/TR 15894:2009) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

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

Europe has a population of 800 million of whom over 100 million are children and elderly people and 50 million are declared as disabled (the latter figure includes many people who are also elderly). The European Union has 77 million elderly people and 43 million people registered as disabled. These consumers with special needs constitute a major (and growing) part of the population who daily come into contact with the numerous barriers that exist in and outside of buildings.

This European guidance document aims to help designers, specifiers and building managers or owners to identify and include the needs of children, elderly and disabled persons, by enabling people with low physical strength, dexterity and manipulative impairment, to be able to open, close and lock doors.

It includes general guidelines for selecting hardware products and guidelines for product specifications. It also includes the following annexes:

— Annex A - Guidelines for suitability assessment of hardware products;

— Annex B – Guidelines for hardware product specification.

Ultimately the intention of this guidance document is to make existing hardware products and standards more suitable with regard to their use by children, the elderly and disabled.

NOTE If needed, these guidelines may be included as informative annexes in future revisions of suitable hardware product standards.

Introduction

The essential function of building hardware is to provide easy access to all users regardless of their ability or disability. Doors should be of a minimum clear opening width to accommodate wheelchairs and should be easy to use. For example, this requires low friction hinges and carefully selected door controls, possibly using low energy door operators, powered or automatic operators or electromagnetic devices.

The correct choice of door furniture with easy-to-use locking systems and good signage all add up to an acceptable combination. Generally, this is no more than would be asked of any responsible specification. This guide is intended to enable installers to correctly follow building specifications and to make sure that buildings are correctly equipped for their intended use.

One of the main challenges to specifiers, architects, manufacturers and builders is to ensure that the specification, design and construction do not result in the environment of an elderly or disabled person appearing different from the rest of the community.

This European guidance document is people-based and it is essential that specifiers recognize that the individual needs of users can vary. Users should be consulted frequently in the specification and installation processes. The specification should recognize that buildings are often occupied by non-disabled and younger people, as well as elderly and disabled people. Similarly, these members of the community need to move freely and safely in the wider environment.

Where dimensions/measurements are given for guidance purposes, they are subject to the tolerances incorporated in any appropriate product or construction standard. National regulations, where applicable, should take precedence.

It is recognized that local regulations and certain types of door construction (such as aluminium) may prevent specifiers from achieving all the recommendations in this document. In these circumstances, the needs of the building occupants should be considered and the best possible compromise should be achieved.

This European guidance document refers to the following mandates: M/273-ICT, M/283-Elderly and Disabled, M/292-Product information, M/293-Child safety and CEN Guide 6.

This European guidance document does not refer to EN 12217 which contains selected maximum operating forces considered unsuitable for children, elderly and disabled people to use and does not take into consideration doors fitted with emergency and panic exit devices and systems, or door closing devices.

1 Scope

This European guidance document provides guidance on the selection of existing building hardware for manually and power operated pedestrian doors and associated products whose integration into the design of buildings will make them more safe, secure and convenient for the occupants inclusive of children, elderly and disabled people to use ("design for all"). Although it is intended for people with reduced physical and sensorial capabilities, it may not cover all specific individual needs. For example, it may not cover all needs of blind people or those not able to move unassisted.

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.

N/A

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
C.E.D.
abbreviation for Children, Elderly and Disabled people

3.2
clear opening width
horizontal distance, measured parallel to door frame, between nearest points on door frame and leaf, less the protrusion of any hardware mounted less than 1 800 mm above nominal floor height, with door at maximum opening position

NOTE National regulations may accept deviations or tolerances.

4 How to use this guidance document

The following steps should be undertaken by specifiers (architects, etc.) to select the suitable product to specify for the intended application, and by manufacturers to offer the appropriate product:

- **Step 1. Specifier: define users' environmental situation**

  Refer to Clause 5, Annex A and Table A.1 to define needs.

- **Step 2. Specifier: define hardware product functions**

  Refer to Table B.1 to determine relevant product category and hence appropriate Annex.

- **Step 3. Specifier: define users' needs**

  Refer to appropriate part of Annex B for recommended suitable products.

- **Step 4. Manufacturer: define product offer**

  Refer to appropriate part of Annex B to list for recommended product specifications.

– **Step 5. Specifier: match users' needs and product offer**

  Select suitable product to be specified for intended application.

5 Guidelines for selecting hardware products

5.1 General

The objective with this part of the document is to help specifiers assess what the application requires. It provides guidelines for selecting hardware products.

Specifiers should be aware that building hardware standards cover only hardware products and do not specify maximum manual operating forces for the complete door. The door manufacturers should inform the market about the test results for the forces to operate the hardware in their door construction, for example to open/close doors and to engage/release and lock/unlock the hardware using a key or handle.

5.2 Building category

For selecting hardware products, specifiers should define the purpose of the building such as:

— residential, commercial, industrial, public building, etc.;

— location of the door: internal door, external door;

— alternative use, day and night use, use by various groups, etc.

5.3 Purpose of the door

For selecting hardware products, specifiers should define the purpose of the door, such as:

— fire/smoke resistance;

— burglar resistance;

— access/egress/flow control;

— thermal insulation, energy saving, etc.;

— wind/water penetration resistance;

— noise reduction;

— smell reduction;

— light reduction.

5.4 Interface between users and door

For selecting hardware products, specifiers should define the interface between users and the door. The following types of user should be taken into account:

— all public;

— children;

— elderly;

— mobility impaired.

For selecting hardware products, specifiers should also define the limitation on ability to operate the hardware, such as:

— height/reach restriction (applies mainly to children);

— strength/grip restriction;

— mental restriction (relates to “mental age”);

— one hand only;

— no hands;

— sight impairment;

— hearing impairment;

— confined to wheelchair (manually operated or powered).

5.5 Product functions

Although the ergonomic function is the primary concern for children, elderly and disabled people (C.E.D.), other functions are particularly important and should also be provided by the products to meet other user’s needs with regards to:

— **convenience**: ergonomics, usage and durability, privacy, aesthetic design, see-through, etc.;

— **safety**: escape and ability to release in case of emergency and panic situations, self closing and safety in case of fire, safety in use or risk of injury, personal safety;

— **security**: protection against burglary or attack, from inside/both sides, access/flow control, protection against vandalism, abuse, etc.

5.6 Economic aspects

When considering economic aspects of a product specification, it is important to take into account the followings factors:

— cost of product;

— cost of installation;

— cost of maintenance (all costs to maintain intended product functions).

Where conflicting aspects may affect a product specification, alternative solutions should be considered according to a priority order. As an example, one may consider the following priority order:

1) escape and ability to release in case of emergency and panic situations;

2) self closing and safety in case of fire;

3) risk of injury;

4) personal safety;

5) ergonomics;

6) protection against burglary;

7) access/flow control;

8) protection against vandalism, abuse;

9) usage and durability;

10) privacy;

11) aesthetic design;

12) etc.

5.7 Suitability assessment of hardware products

This guide provides to specifiers a model scheme for suitability assessment of hardware products as necessary to meet the user's need in a specific application.

NOTE See Annex A.

6 Guidelines for product specifications

6.1 General

This clause offers general recommendations for manufacturers for each product category with regard to:

— purpose of the hardware;

— different types and accessories;

— product standards;

— installation and maintenance;

— requirements with regard to safety, security, convenience and cost.

6.2 Proposed scheme for suitability assessment of products for particular applications

This guide provides to specifiers a model scheme for hardware product specification, as required for each product category.

NOTE See relevant parts of Annex B for each product group.

Annex A
(informative)

Guidelines for suitability assessment of hardware products

A.1 General

There are three basic areas to consider.

— Who has to use the door, or “Interface between users and door”?

— What is the reason for the door, or “Purpose of door”?

— What functions are expected of the door and/or its fittings, or “Additional functions”?

Furthermore, these areas can be examined under two headings:

1. what the intended application requires;

2. what the product offers.

Items 1 and 2 can then be compared to determine the suitability of a product for a particular application. This is described in more detail below.

NOTE The risk assessment is part of the evaluation and should be used to determine the priority order.

A.2 What the intended application requires

There are three basic areas to consider.

a) Interface between users and door. In this context, limitations on ability to operate are considered (irrespective of cause), such as:

— height/reach restriction (applies mainly to children);

— strength/grip restriction;

— mental restriction (relates to “mental age”);

— one hand only;

— no hands;

— sight impairment;

— hearing impairment;

— confined to wheelchair (manually operated or powered);

— others.

b) Purpose of door. Specifiers should also define the purpose of the door, such as:

— to ensure privacy/access/egress/flow control;

— to resist attack by intruders/burglars;

— to resist wind/water penetration;

— to provide thermal/noise/smell/light insulation;

— to resist the spread of smoke/fire.

c) Additional door functions/requirements. Specifiers should also define additional functions and/or need, such as:

— to withstand heavy usage (high number of operating cycles);

— to resist abuse/vandalism;

— to allow emergency egress at all times, but be key lockable from outside;

— to be key locking from both sides;

— to be safe for the user;

— to meet mandatory regulations (fire and escape);

— to take into account product material when specific allergies are identified.

A.3 What the product offers

There are three basic areas to consider.

a) Interface between users and door hardware. In this context, usability of the product is considered, such as:

— simple and clear to use (user friendly);

— operating elements and controls within easy reach;

— operable by hand, or fingers at low forces/torques;

— operable one-handed;

— operable without any hands;

— operable in total or partly darkness (for visually impaired people);

— operable without the need for audio visual feedback;

— operable from a wheelchair.

b) Purpose of the door hardware. Specifiers should define the contribution of the hardware to the purpose of the door, such as:

— contributes to make the use simple and clear;

— contributes to burglary resistance;

— contributes to wind/water resistance;

— contributes to thermal insulation;

— contributes to the smoke and fire resistance;

— contributes to safe and convenient use.

c) Additional hardware functions/requirements. Specifiers should define the contribution of the hardware to additional functions and/or requirements, such as:

— to withstand heavy usage (high number of operating cycles);

— to resist abuse/vandalism;

— to allow emergency egress at all times, but be lockable by key from outside;

— to be key lockable from both sides.

NOTE See Table A.1.

Table A.1 — Checklist for specifying hardware products for use by children, elderly and disabled persons

	Potential user's requirements that are relevant in the building	Comments by specifier
	General requirements	
	Provide audio/visual feedback	
	Visual recognition of operating element	
	Rounded corners	
	Accessible from a wheelchair	
	Operational requirements	
	Single action to operate	
	Operable with one hand	
	Operable without need to grip	
	No need to insert a key	
	Self-latching action	
	Maximum torque on handle	
	Maximum torque on key	
	Maximum force on thumb slide	
	Maximum manual door opening force	
	Maximum manual door closing force	
	Controlled door closing with adjustable speed	
	Delayed closing function	
	Free swing function with maximum opening force	
	Dimensional requirements	
	Good clearance around finger-operated element	
	Good clearance around hand-operated element	
	Low projection into the clear opening of the door	
	Suitability for use on fire- / smoke-resisting doorsets	
	Suitability for use on fire-resisting doorsets	
	Suitability for use on smoke-resisting doorsets	

Annex B
(informative)

Guidelines for hardware product specification

B.1 General

This Annex covers the following for each product category:

— purpose of the hardware;

— different types and accessories;

— product standards;

— installation and maintenance;

— advantages/disadvantages of specific hardware products according to safety, security, convenience and cost.

Table B.1 will help specifiers find the relevant annexes for basic door hardware functions, in accordance with EN standards and product categories.