TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 19100-4

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English Version

Design of glass structures - Part 4: Glass selection relating to the risk of human injury - Guidance for specification

Conception et calcul des structures en verre - Partie 4 : Sélection du verre en fonction du risque de blessure - Document d'orientation pour les spécifications

Bemessung und Konstruktion von Bauteilen aus Glas - Teil 4: Bestimmung der Glaskonfiguration in Abhängigkeit des Verletzungsrisikos - Leitfaden zum Erstellen von Regeln

This Technical Specification (CEN/TS) was approved by CEN on 29 January 2024 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (CEN/TS 19100-4:2024) has been prepared by Technical Committee CEN/TC 250 “Structural Eurocodes”, the secretariat of which is held by BSI. CEN/TC 250 is responsible for all Structural Eurocodes and has been assigned responsibility for structural and geotechnical design matters by CEN.

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

This Technical Specification has been drafted to be used in conjunction with relevant execution, material, product and test standards, and to identify requirements for execution, materials, products and testing that are relied upon by this document.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

0 Introduction

0.1 Introduction to CEN/TS 19100-4

This document is based on several European documents covering the choice of appropriate glazing for the protection against injuries and falling, e.g. national standards, national building codes, professional association recommendations, etc.

The aim of this guidance is to assist experts who want to write new safety Specifications or to revise existing ones, whatever the type of document. It does not pretend to be exhaustive.

The values given are examples only and are based on different practices in Europe. Experts using this guidance are free to choose other values.

In the same spirit, they can also take all or only some of the topics covered in this document and can add requirements for situations not considered here.

0.2 Verbal forms used in the Eurocodes

The verb “shall” expresses a requirement strictly to be followed and from which no deviation is permitted in order to comply with the Eurocodes.

The verb “should” expresses a highly recommended choice or course of action. Subject to national regulation and/or any relevant contractual provisions, alternative approaches could be used/adopted where technically justified.

The verb “may” expresses a course of action permissible within the limits of the Eurocodes.

The verb “can” expresses possibility and capability; it is used for statements of fact and clarification of concepts.

1 Scope

(1) This document provides guidance for the development or improvement of rules deemed to help with the choosing of appropriate glazing for protection against injuries and falling, hereafter called "the Specifications". The Specifications to be written or revised can be a national regulation, a national standard, recommendations from a professional association, requirements for a particular project, etc.

(2) This document deals with the choice of the mode of breakage (see 5.2) with regard to the safety of people against:

— the risk of injury in the event of a collision with a glazed element, e.g. a partition,

— the risk of falling through or over a glazed element, e.g. a balustrade, and

— the risk of accidental falling of glass fragments on people not having caused the breakage, e.g. an overhead glazing.

(3) These risks can be evaluated in the function of a normal use of the building or construction work. This includes use by the elderly, children and people with disabilities, but excludes deliberate risk taking. It presupposes a rational and responsible behaviour of the users or, in case of children, of those responsible for supervising them.

(4) The information contained in this document can be used to define minimum glass configuration. It does not exempt from the verification according to CEN/TS 19100-1 and CEN/TS 19100-2 and where appropriate CEN/TS 19100-3.

(5) Safety against burglary, vandalism, bullet attack, explosion, exposition to fire and seismic actions are not covered in this document. Preventing these risks needs further appropriate requirements.

(6) This document does not apply to the following glass products:

— glass blocks and paver units;

— channel-shaped glass.

(7) It also does not apply to the following applications:

— escalators and moving walkway;

— lifts;

— accesses to machinery;

— animal enclosures and aquariums;

— greenhouses and agricultural installations;

— temporary scaffolds.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE See the Bibliography for a list of other documents cited that are not normative references, including those referenced as recommendations (i.e. in 'should' clauses), permissions ('may' clauses), possibilities ('can' clauses), and in notes.

CEN/TS 19100-1, *Design of glass structures — Part 1: Basis of design and materials*

CEN/TS 19100-2, *Design of glass structures — Part 2: Design of out-of-plane loaded glass components*

CEN/TS 19100-3, *Design of glass structures — Part 3: Design of in-plane loaded glass components and their mechanical joints*

EN 356, *Glass in building — Security glazing — Testing and classification of resistance against manual attack*

EN 12150-1, *Glass in building — Thermally toughened soda lime silicate safety glass — Part 1: Definition and description*

EN 12488, *Glass in building — Glazing recommendations — Assembly principles for vertical and sloping glazing*

EN 12600, *Glass in building — Pendulum test — Impact test method and classification for flat glass*

EN 14179-1, *Glass in building — Heat soaked thermally toughened soda lime silicate safety glass — Part 1: Definition and description*

EN ISO 12543-1, *Glass in building — Laminated glass and laminated safety glass — Part 1: Vocabulary and description of component parts (ISO 12543-1)*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12600, EN 356, EN 12150-1, EN 14179-1, EN ISO 12543-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org

3.1.1
safety glass
glass which remains unbroken, or achieves a specified resistance, or fails in a prescribed manner when tested in accordance with a relevant technical standard