



**SLOVENSKI STANDARD**  
**oSIST prEN 1991-1-4:2024**  
**01-junij-2024**

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**Evrokod 1 - Vplivi na konstrukcije - 1-4. del: Obtežbe vetra**

Eurocode 1 - Actions on structures - Part 1-4: Wind actions

Eurocode 1 - Einwirkungen auf Tragwerke - Teil 1-4: Windlasten

Eurocode 1 - Actions sur les structures - Partie 1-4 : Actions du vent

**Ta slovenski standard je istoveten z: prEN 1991-1-4**

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**ICS:**

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English Version

## Eurocode 1 - Actions on structures - Part 1-4: Wind actions

Eurocode 1 ç Actions sur les structures ç Partie 1-4 :  
Actions du vent

Eurocode 1 - Einwirkungen auf Tragwerke - Teil 1-4:  
Allgemeine Einwirkungen - Windlasten

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 250.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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**prEN 1991-1-4:2024 (E)****European foreword**

This document (prEN 1991-1-4:2024) has been prepared by Technical Committee CEN/TC 250 “Structural Eurocode”, 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.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1991-1-4:2005 and its amendments and corrigenda.

The first generation of EN Eurocodes was published between 2002 and 2007. This document forms part of the second generation of the Eurocodes, which have been prepared under Mandate M/515 issued to CEN by the European Commission and the European Free Trade Association.

The Eurocodes have 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 the Eurocodes.

The Eurocodes recognize the responsibility of each Member State and have safeguarded their right to determine values related to regulatory safety matters at national level through the use of National Annexes.

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## 0 Introduction

### 0.1 Introduction to the Eurocodes

The structural Eurocodes comprise the following standards generally consisting of a number of parts:

- EN 1990, Eurocode — Basis of structural and geotechnical design
- EN 1991, Eurocode 1 — Actions on structures
- EN 1992, Eurocode 2 — Design of concrete structures
- EN 1993, Eurocode 3 — Design of steel structures
- EN 1994, Eurocode 4 — Design of composite steel and concrete structure
- EN 1995, Eurocode 5 — Design of timber structures
- EN 1996, Eurocode 6 — Design of masonry structures
- EN 1997, Eurocode 7 — Geotechnical design
- EN 1998, Eurocode 8 — Design of structures for earthquake resistance
- EN 1999, Eurocode 9 — Design of aluminium structures
- New Eurocodes under development, e.g. Eurocode for design of structural glass

The Eurocodes are intended for use by designers, clients, manufacturers, constructors, relevant authorities (in exercising their duties in accordance with national or international regulations), educators, software developers, and committees drafting standards for related product, testing and execution standards.

NOTE Some aspects of design are most appropriately specified by relevant authorities or, where not specified, can be agreed on a project-specific basis between relevant parties such as designers and clients. The Eurocodes identify such aspects making explicit reference to relevant authorities and relevant parties.

### 0.2 Introduction to EN 1991 (all parts)

EN 1991 specifies actions for the structural design of buildings, bridges and other civil engineering works, or parts thereof, including temporary structures, in conjunction with EN 1990 and the other Eurocodes.

EN 1991 does not cover the specific requirements of actions for seismic design. Provisions related to such requirements are given in EN 1998 (all parts), which complement and are consistent with EN 1991.

EN 1991 is also applicable to existing structures for their:

- structural assessment,
- strengthening or repair,
- change of use.

NOTE In these cases, additional or amended provisions can be necessary.

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EN 1991 is applicable for the design of structures where materials or actions outside the scope of the other Eurocodes are involved.

NOTE In this case, additional or amended provisions can be necessary.

EN 1991 is subdivided in various parts:

- EN 1991-1-1, *Eurocode 1 — Actions on structures — Part 1-1: Specific weight of materials, self-weight of construction works and imposed loads for buildings*
- EN 1991-1-2, *Eurocode 1 — Actions on structures — Part 1-2: Actions on structures exposed to fire*
- EN 1991-1-3, *Eurocode 1 — Actions on structures — Part 1-3: Snow Loads*
- EN 1991-1-4, *Eurocode 1 — Actions on structures — Part 1-4: Wind Actions*
- EN 1991-1-5, *Eurocode 1 — Actions on structures — Part 1-5: Thermal Actions*
- EN 1991-1-6, *Eurocode 1 — Actions on structures — Part 1-6: Actions during execution*
- EN 1991-1-7, *Eurocode 1 — Actions on structures — Part 1-7: Accidental actions*
- EN 1991-1-8, *Eurocode 1 — Actions on structures — Part 1-8: Actions from waves and currents on coastal structures*
- EN 1991-1-9, *Eurocode 1 — Actions on structures — Part 1-9: Atmospheric icing*
- EN 1991-2, *Eurocode 1 — Actions on structures — Part 2: Traffic loads on bridges and other civil engineering works*
- EN 1991-3, *Eurocode 1 — Actions on structures — Part 3: Actions induced by cranes and machines*
- EN 1991-4, *Eurocode 1 — Actions on structures — Part 4: Silos and tanks*

### 0.3 Introduction to prEN 1991-1-4

prEN 1991-1-4 gives design guidance and actions for the structural design of buildings and civil engineering works for wind.

prEN 1991-1-4 is intended to be used with EN 1990, the other Parts of EN 1991 and EN 1992 to EN 1999 for the design of structures.

### 0.4 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.

## 0.5 National Annex for prEN 1991-1-4

National choice is allowed by this standard where explicitly stated within notes. National choice includes the selection of values for Nationally Determined Parameters (NDPs).

The national standard implementing prEN 1991-1-4 can have a National Annex containing all national choices to be used for the design of buildings and civil engineering works to be constructed in the relevant country.

When no national choice is given, the default choice given in this standard is to be used.

When no national choice is made and no default choice is given in this standard, the choice can be specified by the relevant authority or, where not specified, agreed for a specific project by the relevant parties.

National choice is allowed in prEN 1991-1-4 through notes to the following clauses:

5.4(8)	6.1(3)	6.2(1)	6.2(2)
6.2(4)	6.2(5)	6.3.1(1)	6.3.2(1)
6.3.2(3)	6.3.3(2)	6.4(2)	6.4(3)
6.4(4)	6.5(1)	7.1(2)	9(1)
B.1(1)	B.3(1)	B.4.1(2)	B.4.3(5)
B.5(5)	B.8.1(1)	B.8.2(1)	Table B.3 (NDP)
B.8.3(2)	C.3.1(1)	C.3.2(1)	C.4.1(4)
C.4.1(6)	C.4.2(6)	C.4.3(3)	Table C.3 (NDP)
C.4.4(3)	C.4.4(4)	C.4.5(3)	C.4.5(4)
C.4.6(3)	C.4.8(1)	C.4.9(2)	C.4.9(3)
C.5.1(2)	C.5.2(1)	C.5.3(1)	C.6.1.1(1)
C.6.1.1(4)	C.6.2(1)	C.6.3(1)	C.7(7)
D.3.2(1)	D.3.3(1)	D.3.6(1)	D.4.2(1)
D.4.3(1)	E.3.1(3)	E.3.3(1)	E.3.4(1)
E.3.5(1)	E.3.5(2)	E.3.5(7)	E.3.6(1)
E.3.7(1)	E.4(1)	E.5.1(1)	E.5.1(3)
E.5.6(1)	E.7.1(1)	E.8.1(1)	E.8.1(4)
E.8.1(5)	E.8.2(1)	E.8.2.2(4)	E.8.2.3(1)
E.8.2.4(3)	E.8.2.5(1)	F.1(1)	F.5.3(2)
F.9.2(1)	G.1(1)	G.3(2)	H.1(1)
H.3(4)	H.5.3.2(1)	H.5.3.4(1)	H.5.4(2)
H.5.5.1(1)	H.5.5.2(2)	H.5.5.2(3)	H.5.6.1(1)
H.5.6.2(1)	H.5.6.3(1)	H.6.4(2)	I.1(1)
J.1(1)	J.4.2.8(4)	J.4.3(1)	J.4.3(2)
J.5.3.2.2(2)	J.5.3.2.3(1)	J.5.3.2.8(4)	K.1(1)
L.1(1)	M.1(1)		

**prEN 1991-1-4:2024 (E)**

National choice is allowed in prEN 1991-1-4 on the application of the following informative annexes:

Annex B	Annex F	Annex G	Annex H
Annex I	Annex J	Annex K	Annex L
Annex M			

The National Annex can contain, directly or by reference, non-contradictory complementary information for ease of implementation, provided it does not alter any provisions of the Eurocodes.

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## 1 Scope

### 1.1 Scope of prEN 1991-1-4

(1) This document gives principles and rules for the determination of natural wind actions for the structural design of building and civil engineering works for each of the loaded areas under consideration. This includes the whole structure or parts of the structure or elements attached to the structure, e.g. components, cladding units and their fixings, safety and noise barriers.

(2) This part is applicable to:

- buildings and civil engineering works with heights up to 300 m;
- bridges having no span greater than 200 m.

(3) This part is intended to predict characteristic wind actions on land-based structures, their components and appendages.

(4) This part is also applicable to structures less than 1 km offshore from the main coastline. For offshore structures more than 1 km from the main coastline, the terrain effects defined in this part do not apply.

(5) This part does not give guidance on non-synoptic winds (e.g. thunderstorms, downbursts, microbursts, tornadoes, etc.), mixed wind climates, nor does it give guidance on how to account for local effects (e.g. thermal effects, funnelling, strong arctic thermal surface inversion, etc.).

(6) This document addresses simplified procedures for dynamic effects, mostly based on the assumption of a dominant single-mode response. General criteria for performing a full dynamic analysis under aerodynamic excitation are not treated in this document.

(7) Wind pressure effects of passing vehicles are outside the scope of this document.

NOTE See EN 1991-2 for wind effects from passing trains.

### 1.2 Assumptions

(1) The assumptions given in EN 1990:2023, 1.2 apply.

## 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.

EN 1990, *Eurocode — Basis of structural and geotechnical design*

ISO 2394, *General principles on reliability for structures*

ISO 3898, *Bases for design of structures — Names and symbols of physical quantities and generic quantities*

ISO 8930, *General principles on reliability for structures — Vocabulary*

### 3 Terms, definitions and symbols

#### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1990, ISO 2394, ISO 3898 and ISO 8930 and the following apply.

##### 3.1.1

##### **fundamental basic wind velocity**

characteristic 10-minute mean wind velocity with an annual probability of being exceeded of 0,02, irrespective of wind direction and time of year, at a height of 10 m above ground level in flat open country terrain with large windward fetch of low vegetation such as grass and isolated obstacles with separations of at least 20 obstacle heights, and accounting for altitude effects (if required)

Note 1 to entry: This terrain corresponds to terrain category II in Table 6.1 and is illustrated in B.1.

##### 3.1.2

##### **basic wind velocity**

fundamental basic wind velocity modified to account for the annual probability of exceedance, the direction of the wind, the season and the altitude (if required)

##### 3.1.3

##### **mean wind velocity**

basic wind velocity modified to account for the effect of terrain roughness, orography and height above ground level

##### 3.1.4

##### **peak factor for turbulence**

factor corresponding to a gust duration of approximately 3 seconds, which corresponds to standardized gust durations at meteorological stations

##### 3.1.5

##### **pressure coefficient**

coefficient which gives the pressure on the surfaces of buildings or civil engineering works; external pressure coefficients apply to the external surfaces; internal ones to the internal surfaces

##### 3.1.6

##### **net pressure coefficient**

coefficient that accounts for the resulting pressure difference across a skin

##### 3.1.7

##### **force coefficient**

coefficient that accounts for the overall effect or the effect per unit length of the wind on a structure, structural element or component, including friction, if not specifically excluded

##### 3.1.8

##### **friction coefficient**

coefficient that accounts for the effects of wind friction on the external surfaces of buildings and structures

##### 3.1.9

##### **background response factor**

factor to allow for the lack of full correlation of the pressure on the structural surfaces