

SLOVENSKI STANDARD
SIST EN 1998-1-2:2026/oprA1:2026
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Evrokod 8 - Projektiranje potresnoodpornih konstrukcij - 1-2. del: Stavbe

Eurocode 8 - Design of structures for earthquake resistance - Part 1-2: Buildings

Eurocode 8 - Auslegung von Bauwerken gegen Erdbeben - Teil 1-2: Hochbauten

Eurocode 8 - Calcul des structures pour leur résistance au séisme - Partie 1-2 :
Bâtiments

Ta slovenski standard je istoveten z: EN 1998-1-2:2026/prA1

ICS:

91.010.30	Tehnični vidiki	Technical aspects
91.120.25	Zaščita pred potresi in vibracijami	Seismic and vibration protection

SIST EN 1998-1-2:2026/oprA1:2026 **en,fr,de**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
EN 1998-1-2:2026
prA1

September 2026

ICS 91.010.30; 91.120.25

English Version

Eurocode 8 - Design of structures for earthquake resistance - Part 1-2: Buildings

Eurocode 8 - Calcul des structures pour leur résistance
au séisme - Partie 1-2 : Bâtiments

Eurocode 8 - Auslegung von Bauwerken gegen
Erdbeben - Teil 1-2: Hochbauten

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

This draft amendment A1, if approved, will modify the European Standard EN 1998-1-2:2026. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

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EN 1998-1-2:2026/prA1:2026 (E)**European foreword**

This document (EN 1998-1-2:2026/prA1:2026) 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.

This document is currently submitted to the CEN Enquiry.

This document will amend to EN 1998-1-2:2026.

NOTE Some modifications are purely editorial corrections to improve the quality of the document and these will not be tagged in the consolidated publication, as noted after the modification.

The following main changes to EN 1998-1-2:2026 are included in the amendment:

- corrections of symbols, terms and cross-references for consistency with the other Eurocodes;
- consistency with other Eurocode 8 parts, namely for calculation of resulting damping contributions including soil-structure interaction;
- ease of use formulation for the contribution of infills to frame stiffness;
- clarity on the relative input of EN 1998-1-1 and of EN 1998-1-2 in the displacement-based approach;
- improved clarity through better formulation of requirements.

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.

1 Modifications throughout the whole document

Replace “EN 1990:2023” with “EN 1990-1:2023+A1:2026”

Replace “FprEN 1994-1-1:2025” with “EN 1994-1-1:2026”

Replace “FprEN 1995-1-1:2025” with “EN 1995-1-1:2025”

Replace “FprEN 1998-3:2025” with “EN 1998-3:2025”

Replace “in the seismic design situation” with “under the design seismic action”

Replace “fundamental” with “predominant”

Replace “times” with “multiplied by”, except in Table 4.1, 6.2.11(7), 11.12.1(3), 14.4.1.2(4)b)

Replace “composite steel beam” with “composite beam” and replace “composite steel beams” with “composite beams”

2 Modification to Introduction

0.1 Replace “— EN 1990-1” with “— EN 1990”

0.2 Replace “as defined in EN 1990-1” with “as defined in EN 1990 (all parts)”

3 Modification to Clause 1, “Scope”

1.1(1) *Replace “buildings and temporary” with “buildings, ancillary elements and temporary”*

4 Modification to Clause 3, “Terms, definitions and symbols”

3.1.8 *Replace “of-a” with “of a” and “that results” with “that result”*

3.1.11 *Replace “moment coupling effect” with “in-plane bending”*

3.1.22 *Replace “part of” with “in a masonry structure, part of”*

3.2.1 *Delete the repeated definition of “ P_{tot} ” in the Lower case Latin symbols, replace “ $F_{\text{Rd,ndb}}$ ” with “ $F_{\text{Rd,nd}}$ ”, replace “ $F_{\text{Rk,ndb}}$ ” with “ $F_{\text{Rk,nd}}$ ”, and replace “ $e_{\text{min},y,i}$ ” with “ $e_{\text{min},y,i}$ ”*

3.2.1 *Replace “reference” with “design” in the definition of $E_{\text{dH},k,\text{max}}$*

3.2.1 *Replace “CLT shear-wall” with “shear wall” in the definition of $F_{\text{Rd,hd},i,j}$ and move it to the correct alphabetical order*

3.2.1 *Replace the definition of $F_{\text{Rd,hd}}$ with “tensile-vertical design strength of the 2D or 3D anchoring connectors placed against overturning”*

3.2.1 *Replace the symbol and definition of $F_{\text{v,Rk,d}}$ with “ $F_{\text{D},k,d}$ characteristic value of the dowel-effect contribution per shear plane of the selected ductile failure mode providing energy dissipation, according to EN 1995-1-1:2025, 11.2.3.2(7)”*

3.2.1 *Replace the symbol and definition of $F_{\text{v,Rk,nd}}$ with “ $F_{\text{D},k,nd}$ characteristic value of the dowel-effect contribution per shear plane of the less ductile failure mode, according to EN 1995-1-1:2025, 11.3.2”*

3.2.1 *Replace the symbol and definition of $K_{\text{SLS},v,\text{mean}}$ with “ $K_{\text{SLS},v}$ slip modulus of a connection at serviceability limit state verifications calculated according to EN 1995-1-1:2025, 11.3.8.2”*

3.2.1 *Replace the symbols and definitions of $L_{x,i}$ and $L_{y,i}$ with “ $L_{x,i}$, $L_{y,i}$ width of floor at level i measured at right angle to direction y and x of the seismic action, respectively”*

3.2.1 *Add “design” before “seismic action” in the definitions of $M_{\text{Ed},E}$, $M_{\text{Ed},E,i,j}$, $M_{\text{Rd,rock},i,j}$, $V_{\text{Ed},E,i,j}$, $V_{\text{Rd},a,i,j}$, Ω , and γ_d*

3.2.1 *Delete “segmented” in the definitions of $M_{\text{Ed},E,i,j}$, $M_{\text{Rd,rock},i,j}$, $V_{\text{Ed},E,\text{LLRS},i}$, $V_{\text{Ed},E,i,j}$, and k_{IR}*

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3.2.1 Add the symbol and definition " $V_{Rd,nd}$ design value of the strength of the non-dissipative component"

3.2.1 Add the symbol and definition " $V_{Rk,nd}$ characteristic value of the strength of the non-dissipative component"

3.2.1 Replace symbol " d^* " with " d_t^* " and move it to the correct alphabetical order

3.2.1 Add the symbol and definition " d_e elastic horizontal displacement of a point in the structure obtained from the linear elastic analysis"

3.2.1 Replace the definition of d_y^* with "equivalent yield displacement of the equivalent single degree of freedom (SDOF) model"

3.2.1 Add "or withdrawal length of a smooth nail" at the end of the definition of l_{vj}

3.2.1 Replace symbol " n_{vj} " with " n_v "

3.2.1 Add the symbol and definition " t_{con} contact width between infill and column" and move the definition of " t_{ap} " to the correct alphabetical order

3.2.1 Delete the symbol and definition " t_w anchorage depth of a smooth nail"

3.2.1 Replace "partial factors on resistance at NC limit state" with "partial factor on resistance at NC limit state, if a displacement-based approach is used" in the definition of $\gamma_{Rd,NC}$

3.2.1 Replace "partial factors on resistance at SD limit state" with "partial factor on resistance at SD limit state, if a displacement-based approach is used" in the definition of $\gamma_{Rd,SD}$

3.2.1 Add the symbol and definition " $\beta_{t,LS,CC}$ target reliability index for the seismic design situation for a given limit state and consequence class"

3.2.1 Add the symbol and definition " σ_{lnR} total logarithmic standard deviation of the resistance model"

3.2.1 Add the symbol and definition " ξ total equivalent viscous damping ratio of the structure, which includes its inherent damping and the damping due to soil-structure interaction"

3.2.1 Add the symbol and definition " ξ_{SSI} equivalent viscous damping ratio due to soil-structure interaction"

5 Modification to Clause 4, "Basis of design"

4.4.1(4) Replace "may include energy dissipation systems or base isolation. For buildings with energy dissipation systems or base isolation, respectively, Clauses 8 and 9" with "may include base isolation or energy dissipation systems. For buildings with base isolation or energy dissipation systems, respectively, Clauses 8 or 9"

4.4.1(7) Add a NOTE after c) to read as follows: "

NOTE CEN/TS 1998-1-101 gives a loading protocol and acceptance criteria for such experimental evidence."

4.4.1 Add a new paragraph to read as follows:

"(8) The seismic action resisting system of a penthouse may be calculated as being a part of the building structure or, if a) to c) are satisfied, as being an ancillary structure:

- a) the number of storeys of the building under the penthouse is not smaller than 4;
- b) the mass of the penthouse calculated as given in 5.1.2(1) and in EN 1998-1-1:2024, 6.2.1(3), complies with 7.1(3);

c) the resisting system of the penthouse satisfies (1) to (7).

NOTE A penthouse is a unit installed on the highest floor of a building to host people or equipment and which often does not occupy the entire roof deck."

4.4.2(1) *Replace "analysis." with "analysis, except if (6)b) is applied."*

4.4.2(2) *Replace "caused by the most unfavourable seismic design situation." with "under the most unfavourable design seismic action."*

4.4.2(3) *Replace "connections in timber structures should satisfy 13.2.1(7) and (8)" with "connections between secondary timber columns and horizontal members, and between timber columns and the foundation should have a rotational capacity consistent with the interstorey drift reached by the primary structure at the SD limit state"*

4.4.3(1) *Replace the whole paragraph to read as follows:*

"(1) A building should be considered torsionally flexible if the period of the first predominantly torsional mode of vibration is greater than either of the periods of the predominant translational modes in the two principal horizontal directions, with possible local modes and equipment modes not being considered in this classification.

NOTE The predominant translational mode in a principal horizontal direction corresponds to the mode with the greatest translational effective modal mass in that direction."

4.4.3(2) *Replace "stiffness C_i to the" with "stiffness C_i , to the" in the definition of r_i*

4.4.3(2) *Replace the symbols and definitions of $e_{0x,i}$ and $e_{0y,i}$ with " $e_{0,x,i}$, $e_{0,y,i}$ are the coordinates in direction x and y , respectively, of the centre of mass of storey i in a system of axis (x,y) with an origin at the centre of lateral stiffness of storey i ;" . Then add the following new definitions:*

" $e_{0,i}$ is the natural eccentricity, i.e. the distance between the centre of mass and the centre of lateral stiffness of storey i ;

$F_{x,i}$, $F_{y,i}$ are the horizontal forces acting on storey i in direction x and y of the seismic action, respectively;

$L_{x,i}$, $L_{y,i}$ are the widths of floor at level i measured at right angle to direction y and x of the seismic action, respectively."

Replace Figure 4.1 with the following figure: "

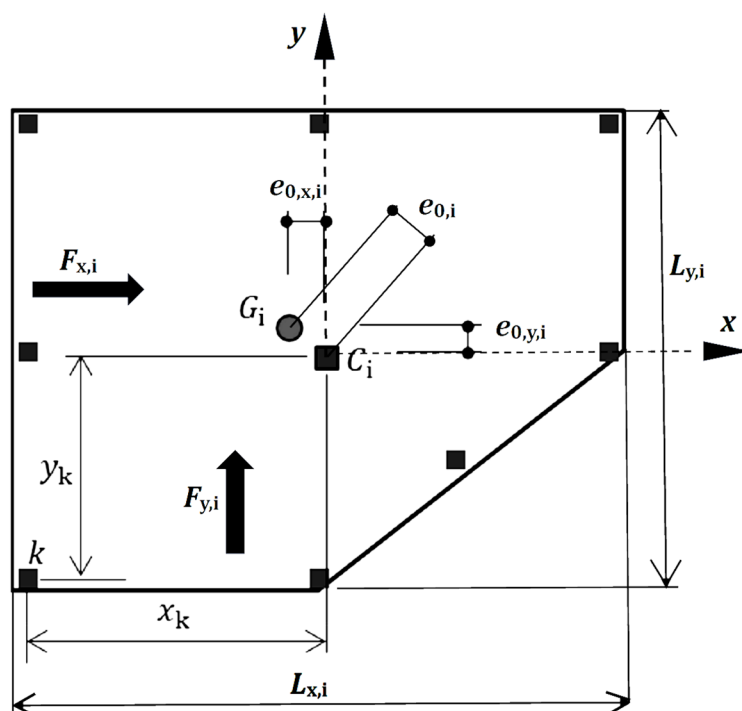


Figure 4.1 — Definition of axes x and y with origin at the centre of lateral stiffness C_i . Coordinates $e_{0,x,i}$ and $e_{0,y,i}$ of the centre of mass G_i and coordinates x_k and y_k of the k -th primary resisting member with respect to C_i . Natural eccentricity $e_{0,i}$ and width of floors $L_{x,i}$ and $L_{y,i}$

4.4.4.2 Add a new paragraph to read as follows:

“(2) The height of penthouses satisfying 4.4.1(8)a) and b) should not be considered in the calculation of the building height H or in the assessment of the building regularity in elevation.”

4.4.5 Replace title with “Damping”

4.4.5(2) NOTE Replace “Rules to combine explicitly the two types of damping in the analysis of structures are given in 5.3.” with “The way to derive ξ from ξ_i and ξ_{SSI} is given in (3).”

4.4.5 Add a new paragraph (3) to read as follows: “(3) When soil-structure interaction is considered in the analysis, the total damping ratio of the structure, ξ , should be calculated as given in EN 1998-5:2024, Formula (8.1), taking for the inherent damping ratio ξ_i the values given in (4) and (5).” and renumber the following paragraphs

4.4.5(3) (new (4)) Replace “For all building heights,” with “When soil-structure interaction is considered, for all building heights,”

4.4.5(5) (new (6)) Replace “(1) to (4) should not be applied to the analysis of buildings with energy dissipation systems or to buildings with base isolation,” with “(1) to (5) should not be applied to the analysis of buildings with base isolation or energy dissipation systems;”

6 Modification to Clause 5, “Modelling and structural analysis”

5.1.1(2) Replace “direction x (alternatively y)” with “direction y (alternatively x)”

5.1.3(2) Replace “4.4.1(5)” with “4.4.1(6)”

5.1.3(2) Delete “, composite” and add a NOTE to read as follows: “

NOTE For composite members, see 12.5.2"

5.2(2) *Replace the whole paragraph to read as follows:*

"(2) In order to comply with (1), a minimum eccentricity with both signs $+e_{\min,x,i}$ and $-e_{\min,x,i}$ (alternatively $+e_{\min,y,i}$ and $-e_{\min,y,i}$), measured at right angle to the considered direction y (alternatively x) of the seismic action, should be calculated at every storey i using Formula (5.2) and should be considered as given in (3).

$$e_{\min,x,i} = 0,05 L_{x,i} \left(\text{alternatively } e_{\min,y,i} = 0,05 L_{y,i} \right) \quad (5.2)$$

where $L_{x,i}$ and $L_{y,i}$ are defined in 5.1.1(2).

NOTE 1 Annex B gives procedures for the calculation of the natural eccentricity.

NOTE 2 (5.2) does not imply that a different sign of the additional eccentricity is applied at the different storeys."

5.2(3) *Replace the whole paragraph to read as follows:*

"(3) When the force-based approach is used, the effects at any storey i of mass eccentricity perpendicular to the considered direction y (alternatively x) of the seismic action may be calculated considering independently two torsional moments $M_{y,i,1}$ and $M_{y,i,2}$ (alternatively $M_{x,i,1}$ and $M_{x,i,2}$) which act around the building vertical axis and are given by Formula (5.3).

$$M_{y,i,j} = e_{x,i,j} \times F_{y,i} \left(\text{alternatively } M_{x,i,j} = e_{y,i,j} \times F_{x,i} \right) \text{ with } j = 1 \text{ or } 2 \quad (5.3)$$

where

$F_{x,i}$, $F_{y,i}$ are the horizontal forces acting on storey i in direction x and y of the seismic action, respectively;

$e_{x,i,1}$ is equal to a), b) or c):

- the maximum value of $+e_{\min,x,i}$ and $|e_{0,x,i}|$, when using planar models;
- $e_{\min,x,i} - e_{0,x,i}$, when using 3D models that encompass natural eccentricity if $|e_{0,x,i}|$ is smaller than $e_{\min,x,i}$;
- 0, when using 3D models that encompass natural eccentricity and if $|e_{0,x,i}|$ is greater than $e_{\min,x,i}$;

$e_{x,i,2}$ is equal to a), b) or c):

- the minimum value of $-e_{\min,x,i}$ and $-|e_{0,x,i}|$, when using planar models;
- $-(e_{\min,x,i} + e_{0,x,i})$, when using 3D models that encompass natural eccentricity if $|e_{0,x,i}|$ is smaller than $e_{\min,x,i}$;
- 0, when using 3D models that encompass natural eccentricity if $|e_{0,x,i}|$ is greater than $e_{\min,x,i}$;

$e_{y,i,1}$ is equal to a), b) or c):

- the maximum value of $+e_{\min,y,i}$ and $|e_{0,y,i}|$, when using planar models;
- $e_{\min,y,i} - e_{0,y,i}$, when using 3D models that encompass natural eccentricity if $|e_{0,y,i}|$ is smaller than $e_{\min,y,i}$;
- 0, when using 3D models that encompass natural eccentricity if $|e_{0,y,i}|$ is greater than $e_{\min,y,i}$;

$e_{y,i,2}$ is equal to a), b) or c):

- the minimum value of $-e_{\min,y,i}$ and $-|e_{0,y,i}|$, when using planar models;

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- b) $-(e_{\min,y,i} + e_{0,y,i})$, when using 3D models that encompass natural eccentricity if $|e_{0,y,i}|$ is smaller than $e_{\min,y,i}$;
- c) 0, when using 3D models that encompass natural eccentricity if $|e_{0,y,i}|$ is greater than $e_{\min,y,i}$.

”

5.3.2(5) Delete “ductility”

5.3.2 Add a new paragraph (8) to read as follows: “(8) In case the damping ratio ξ calculated according to 4.4.5(3) is different from 5 %, the reduced spectrum in EN 1998-1-1:2024, 6.4.1(6), should consider $S_e(T)$ with a damping correction factor η calculated according to EN 1998-1-1:2024, 5.2.2.2(12), Formula (5.13).”

5.3.3(1) Replace 2 instances of “above a rigid basement” with “above the foundation or the top of a rigid basement”

5.3.3(3) Replace “mode shape may be calculated using approximate methods of structural dynamics or taken as given by Formula (5.6)” with “mode shape in the direction considered may be calculated using approximate methods of structural dynamics or calculated using Formula (5.6) for T_1 and considering the deformed shape as given by the displacements s_i used in Formula (5.6) or in Formula (5.7) for the mode shape”

5.3.3(4) Replace “The seismic action” with “The design seismic action” and replace “forces” with “force”

5.3.3(5) Replace “forces” with “force” and replace “top of a rigid basement” with “top of the foundation or the top of a rigid basement”

5.3.3 Add a new paragraph (6) to read as follows: “(6) 5.3.4(2) to (4) should be satisfied.”

5.3.4(1) Replace “with EN 1998-1-1:2024, 4.4.5, 6.4.1 and 6.4.3” with “with 4.4.5 and with EN 1998-1-1:2024, 6.4.1 and 6.4.3”

5.3.4(2) Replace the whole paragraph to read as follows: “(2) When soil-structure interaction (SSI) is considered in the analysis, the total damping ratio of the structure, ξ , should be calculated as given in 4.4.5(3)” and renumber the following 3 Formulae as (5.9) to (5.11).

5.3.5.1(1) Add a NOTE to read as follows: “

NOTE The target displacement is given in EN 1998-1-1:2024, 6.5.4, including the amplification given by Formula (6.30). The construction of the capacity curve is based on EN 1998-1-1:2024, 6.5.2 and 6.5.3, completed by 5.3.5.2 and 5.3.5.3 in this standard, which gives the action effects for each structural state.”

5.3.5.1 Add new paragraphs (7) to (9) to read as follows:

“(7) The definition of the capacity curve and the calculation of the seismic action effects should be realised according to 5.3.5.2 and 5.3.5.3.

(8) The local action effects to be compared to the resistance given in EN 1998-1-1:2024, 6.7(2) or 6.7(3) or 6.7(4), should be those corresponding to the target displacement d_t^* of the SDOF model as given by EN 1998-1-1:2024, Formulae (6.28) or (6.29), amplified by the factors $c_{p,k}$ and $c_{E,i}$ given in EN 1998-1-2:2026, 5.3.5.3.

(9) The local action effects calculated as given in (8) should not be greater than the resistance given in EN 1998-1-1:2024, 6.7(2) or 6.7(3) or 6.7(4).”

5.3.5.3(2) NOTE 1 and NOTE 2 Replace 2 instances of “seismic action” with “design seismic action”

5.3.5.3(3) Replace “seismic action” with “design seismic action”