

DIN EN 1998-2



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Supersedes  
DIN EN 1998-2:2010-12

**Eurocode 8: Design of structures for earthquake resistance –  
Part 2: Bridges (includes Amendment A1:2009 + A2:2011 + Corrigendum  
AC:2010)**

**English translation of DIN EN 1998-2:2011-12**

Eurocode 8: Auslegung von Bauwerken gegen Erdbeben –  
Teil 2: Brücken (enthält Änderung A1:2009 + A2:2011 + Berichtigung AC:2010)  
Englische Übersetzung von DIN EN 1998-2:2011-12

Eurocode 8: Calcul des structures pour leur résistance aux séismes –  
Partie 2: Ponts (Amendement A1:2009 + A2:2011 + Corrigendum AC:2010 inclus)  
Traduction anglaise de DIN EN 1998-2:2011-12

Document comprises 152 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.



*A comma is used as the decimal marker.*

## National foreword

This standard has been prepared by Technical Committee CEN/TC 250 “Structural Eurocodes” (Secretariat: BSI, United Kingdom).

The responsible German body involved in its preparation was the *Normenausschuss Bauwesen* (Building and Civil Engineering Standards Committee), Working Committee NA 005-51-06 AA *Erdbeben; Sonderfragen* (Sp CEN/TC 250/SC 8).

This document includes Amendment EN 1998-2:2005/A1:2009, approved by CEN on 12 February 2009, Amendment EN 1998-2:2005/A2:2011, approved by CEN on 8 April 2011 and Corrigendum EN 1998-2:2005/AC:2010, approved by CEN on 10 February 2010.

This European Standard is part of a series of standards dealing with structural design (Eurocodes) which are intended to be used as a “package”. In Guidance Paper L on the application and use of Eurocodes, issued by the EU Commission, reference is made to transitional periods for the introduction of the Eurocodes in the Member states. The transitional periods are given in the Foreword of this standard.

In Germany, this standard is to be applied in conjunction with the National Annex.

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The start and finish of text introduced or altered by amendment or corrigendum is indicated in the text by tags **A1** **A1** for Amendment EN 1998-2:2005/A1:2009, **A2** **A2** for Amendment EN 1998-2:2005/A2:2011 and **AC** **AC** for Corrigendum EN 1998-2:2005 AC:2010.

## Amendments

This standard differs from DIN EN 1998-2:2010-12 as follows:

- a) this standard is the consolidated version of the previous 2010 edition with Amendment A2:2011.

## Previous editions

DIN V ENV 1998-2: 1998-07  
DIN EN 1998-2: 2006-06, 2010-12

English Version

## Eurocode 8: Design of structures for earthquake resistance - Part 2: Bridges

Eurocode 8 - Calcul des structures pour leur résistance  
aux séismes - Partie 2: Ponts

Eurocode 8: Auslegung von Bauwerken gegen Erdbeben -  
Teil 2: Brücken

EN 1998-2:2005 was approved by CEN on 2005-07-07, Amendment A1:2009 on 2009-02-12, Amendment A2:2011 on 2011-04-08 and Corrigendum AC:2010 on 2010-02-10.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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**TABLE OF CONTENTS**

	Page
<b>FOREWORD TO EN 1998-2:2005 .....</b>	<b>6</b>
<b>FOREWORD TO EN 1998-2:2005/A1:2009 .....</b>	<b>6</b>
<b>FOREWORD TO EN 1998-2:2005/A2:2011 .....</b>	<b>7</b>
<b>1 INTRODUCTION .....</b>	<b>12</b>
1.1 SCOPE .....	12
1.1.1 <i>Scope of EN 1998-2</i> .....	12
1.1.2 <i>Further parts of EN 1998</i> .....	13
1.2 NORMATIVE REFERENCES .....	13
1.2.1 <i>Use</i> .....	13
1.2.2 <i>General reference standards</i> .....	13
1.2.3 <i>Reference Codes and Standards</i> .....	13
1.2.4 <i>Additional general and other reference standards for bridges</i> .....	13
1.3 ASSUMPTIONS .....	14
1.4 DISTINCTION BETWEEN PRINCIPLES AND APPLICATION RULES .....	14
1.5 DEFINITIONS .....	14
1.5.1 <i>General</i> .....	14
1.5.2 <i>Terms common to all Eurocodes</i> .....	14
1.5.3 <i>Further terms used in EN 1998-2</i> .....	14
1.6 SYMBOLS .....	16
1.6.1 <i>General</i> .....	16
1.6.2 <i>Further symbols used in Sections 2 and 3 of EN 1998-2</i> .....	16
1.6.3 <i>Further symbols used in Section 4 of EN 1998-2</i> .....	17
1.6.4 <i>Further symbols used in Section 5 of EN 1998-2</i> .....	18
1.6.5 <i>Further symbols used in Section 6 of EN 1998-2</i> .....	19
1.6.6 <i>Further symbols used in Section 7 and Annexes J, JJ and K of EN 1998-2</i> .....	21
<b>2 BASIC REQUIREMENTS AND COMPLIANCE CRITERIA.....</b>	<b>24</b>
2.1 DESIGN SEISMIC ACTION .....	24
2.2 BASIC REQUIREMENTS .....	25
2.2.1 <i>General</i> .....	25
2.2.2 <i>No-collapse (ultimate limit state)</i> .....	25
2.2.3 <i>Minimisation of damage (serviceability limit state)</i> .....	26
2.3 COMPLIANCE CRITERIA .....	26
2.3.1 <i>General</i> .....	26
2.3.2 <i>Intended seismic behaviour</i> .....	26
2.3.3 <i>Resistance verifications</i> .....	29
2.3.4 <i>Capacity design</i> .....	29
2.3.5 <i>Provisions for ductility</i> .....	29
2.3.6 <i>Connections - Control of displacements - Detailing</i> .....	32
2.3.7 <i>Simplified criteria</i> .....	36
2.4 CONCEPTUAL DESIGN .....	36
<b>3 SEISMIC ACTION .....</b>	<b>39</b>
3.1 DEFINITION OF THE SEISMIC ACTION .....	39
3.1.1 <i>General</i> .....	39
3.1.2 <i>Application of the components of the motion</i> .....	39
3.2 QUANTIFICATION OF THE COMPONENTS .....	39

3.2.1	<i>General</i> .....	39
3.2.2	<i>Site dependent elastic response spectrum</i> .....	40
3.2.3	<i>Time-history representation</i> .....	40
3.2.4	<i>Site dependent design spectrum for linear analysis</i> .....	41
3.3	SPATIAL VARIABILITY OF THE SEISMIC ACTION .....	41
<b>4</b>	<b>ANALYSIS</b> .....	<b>45</b>
4.1	MODELLING .....	45
4.1.1	<i>Dynamic degrees of freedom</i> .....	45
4.1.2	<i>Masses</i> .....	45
4.1.3	<i>Damping of the structure and stiffness of members</i> .....	46
4.1.4	<i>Modelling of the soil</i> .....	46
4.1.5	<i>Torsional effects</i> .....	47
4.1.6	<i>Behaviour factors for linear analysis</i> .....	48
4.1.7	<i>Vertical component of the seismic action</i> .....	51
4.1.8	<i>Regular and irregular seismic behaviour of ductile bridges</i> .....	51
4.1.9	<i>Non-linear analysis of irregular bridges</i> .....	52
4.2	METHODS OF ANALYSIS .....	52
4.2.1	<i>Linear dynamic analysis - Response spectrum method</i> .....	52
4.2.2	<i>Fundamental mode method</i> .....	54
4.2.3	<i>Alternative linear methods</i> .....	58
4.2.4	<i>Non-linear dynamic time-history analysis</i> .....	58
4.2.5	<i>Static non-linear analysis (pushover analysis)</i> .....	60
<b>5</b>	<b>STRENGTH VERIFICATION</b> .....	<b>62</b>
5.1	GENERAL .....	62
5.2	MATERIALS AND DESIGN STRENGTH .....	62
5.2.1	<i>Materials</i> .....	62
5.2.2	<i>Design strength</i> .....	62
5.3	CAPACITY DESIGN .....	62
5.4	SECOND ORDER EFFECTS .....	64
5.5	COMBINATION OF THE SEISMIC ACTION WITH OTHER ACTIONS .....	65
5.6	RESISTANCE VERIFICATION OF CONCRETE SECTIONS .....	66
5.6.1	<i>Design resistance</i> .....	66
5.6.2	<i>Structures of limited ductile behaviour</i> .....	66
5.6.3	<i>Structures of ductile behaviour</i> .....	66
5.7	RESISTANCE VERIFICATION FOR STEEL AND COMPOSITE MEMBERS .....	74
5.7.1	<i>Steel piers</i> .....	74
5.7.2	<i>Steel or composite deck</i> .....	75
5.8	FOUNDATIONS .....	75
5.8.1	<i>General</i> .....	75
5.8.2	<i>Design action effects</i> .....	76
5.8.3	<i>Resistance verification</i> .....	76
<b>6</b>	<b>DETAILING</b> .....	<b>77</b>
6.1	GENERAL .....	77
6.2	CONCRETE PIERS .....	77
6.2.1	<i>Confinement</i> .....	77
6.2.2	<i>Buckling of longitudinal compression reinforcement</i> .....	81
6.2.3	<i>Other rules</i> .....	82
6.2.4	<i>Hollow piers</i> .....	83

6.3	STEEL PIERS .....	83
6.4	FOUNDATIONS .....	83
6.4.1	<i>Spread foundation</i> .....	83
6.4.2	<i>Pile foundations</i> .....	83
6.5	STRUCTURES OF LIMITED DUCTILE BEHAVIOUR .....	84
6.5.1	<i>Verification of ductility of critical sections</i> .....	84
6.5.2	<i>Avoidance of brittle failure of specific non-ductile components</i> .....	84
6.6	BEARINGS AND SEISMIC LINKS .....	85
6.6.1	<i>General requirements</i> .....	85
6.6.2	<i>Bearings</i> .....	86
6.6.3	<i>Seismic links, holding-down devices, shock transmission units</i> .....	87
6.6.4	<i>Minimum overlap lengths</i> .....	89
6.7	CONCRETE ABUTMENTS AND RETAINING WALLS .....	91
6.7.1	<i>General requirements</i> .....	91
6.7.2	<i>Abutments flexibly connected to the deck</i> .....	91
6.7.3	<i>Abutments rigidly connected to the deck</i> .....	91
6.7.4	<i>Culverts with large overburden</i> .....	93
6.7.5	<i>Retaining walls</i> .....	94
<b>7</b>	<b>BRIDGES WITH SEISMIC ISOLATION .....</b>	<b>95</b>
7.1	GENERAL .....	95
7.2	DEFINITIONS .....	95
7.3	BASIC REQUIREMENTS AND COMPLIANCE CRITERIA .....	96
7.4	SEISMIC ACTION .....	97
7.4.1	<i>Design spectra</i> .....	97
7.4.2	<i>Time-history representation</i> .....	97
7.5	ANALYSIS PROCEDURES AND MODELLING .....	97
7.5.1	<i>General</i> .....	97
7.5.2	<i>Design properties of the isolating system</i> .....	98
7.5.3	<i>Conditions for application of analysis methods</i> .....	104
7.5.4	<i>Fundamental mode spectrum analysis</i> .....	105
7.5.5	<i>Multi-mode Spectrum Analysis</i> .....	108
7.5.6	<i>Time history analysis</i> .....	109
7.5.7	<i>Vertical component of seismic action</i> .....	109
7.6	VERIFICATIONS .....	109
7.6.1	<i>Seismic design situation</i> .....	109
7.6.2	<i>Isolating system</i> .....	110
7.6.3	<i>Substructures and superstructure</i> .....	111
7.7	SPECIAL REQUIREMENTS FOR THE ISOLATING SYSTEM .....	113
7.7.1	<i>Lateral restoring capability</i> .....	113
7.7.2	<i>Lateral restraint at the isolation interface</i> .....	116
7.7.3	<i>Inspection and Maintenance</i> .....	117
<b>ANNEX A (informative) PROBABILITIES RELATED TO THE REFERENCE SEISMIC ACTION. GUIDANCE FOR THE SELECTION OF DESIGN SEISMIC ACTION DURING THE CONSTRUCTION PHASE .....</b>		<b>118</b>
<b>ANNEX B (informative) RELATIONSHIP BETWEEN DISPLACEMENT DUCTILITY AND CURVATURE DUCTILITY FACTORS OF PLASTIC HINGES IN CONCRETE PIERS .....</b>		<b>119</b>

<b>ANNEX C (informative) ESTIMATION OF THE EFFECTIVE STIFFNESS OF REINFORCED CONCRETE DUCTILE MEMBERS.....</b>	<b>120</b>
<b>ANNEX D (informative) SPATIAL VARIABILITY OF EARTHQUAKE GROUND MOTION: MODEL AND METHODS OF ANALYSIS.....</b>	<b>122</b>
<b>ANNEX E (informative) PROBABLE MATERIAL PROPERTIES AND PLASTIC HINGE DEFORMATION CAPACITIES FOR NON-LINEAR ANALYSES .....</b>	<b>129</b>
<b>ANNEX F (informative) ADDED MASS OF ENTRAINED WATER FOR IMMERSED PIERS .....</b>	<b>135</b>
<b>ANNEX G (normative) CALCULATION OF CAPACITY DESIGN EFFECTS.....</b>	<b>137</b>
<b>ANNEX H (informative) STATIC NON-LINEAR ANALYSIS (PUSHOVER) .....</b>	<b>139</b>
<b>ANNEX J (normative) VARIATION OF DESIGN PROPERTIES OF SEISMIC ISOLATOR UNITS.....</b>	<b>142</b>
<b>ANNEX JJ (informative) <math>\lambda</math>-FACTORS FOR COMMON ISOLATOR TYPES .....</b>	<b>144</b>
<b>ANNEX K (informative) TESTS FOR VALIDATION OF DESIGN PROPERTIES OF SEISMIC ISOLATOR UNITS.....</b>	<b>147</b>

## **Foreword to EN 1998-2:2005**

This document (EN 1998-2:2005) 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.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2006, and conflicting national standards shall be withdrawn at the latest by March 2010.

This document supersedes ENV 1998-2:1994.

According to the CEN-CENELEC Internal Regulations, the National Standard Organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## **A1 Foreword to EN 1998-2:2005/A1:2009**

This document (EN 1998-2:2005/A1:2009) has been prepared by Technical Committee CEN/TC 250 “Structural Eurocodes”, the secretariat of which is held by BSI.

This Amendment to the European Standard EN 1998-2:2005 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by March 2010.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom. A1



## **[A<sub>2</sub>] Foreword to EN 1998-2:2005/A2:2011**

This document (EN 1998-2:2005/A2:2011) has been prepared by Technical Committee CEN/TC “Structural Eurocodes”, the secretariat of which is held by BSI.

This Amendment to the European Standard EN 1998-2:2005 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2012, and conflicting national standards shall be withdrawn at the latest by September 2012.

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.

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### **Background of the Eurocode programme**

In 1975, the Commission of the European Community decided on an action programme in the field of construction, based on article 95 of the Treaty. The objective of the programme was the elimination of technical obstacles to trade and the harmonisation of technical specifications.

Within this action programme, the Commission took the initiative to establish a set of harmonised technical rules for the design of construction works which, in a first stage, would serve as an alternative to the national rules in force in the Member States and, ultimately, would replace them.

For fifteen years, the Commission, with the help of a Steering Committee with Representatives of Member States, conducted the development of the Eurocodes programme, which led to the first generation of European codes in the 1980s.

In 1989, the Commission and the Member States of the EU and EFTA decided, on the basis of an agreement<sup>1</sup> between the Commission and CEN, to transfer the preparation and the publication of the Eurocodes to CEN through a series of Mandates, in order to provide them with a future status of European Standard (EN). This links *de facto* the Eurocodes with the provisions of all the Council’s Directives and/or Commission’s Decisions dealing with European standards (*e.g.* the Council Directive 89/106/EEC on construction products - CPD - and Council Directives 93/37/EEC, 92/50/EEC and 89/440/EEC on public works and services and equivalent EFTA Directives initiated in pursuit of setting up the internal market).

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<sup>1</sup> Agreement between the Commission of the European Communities and the European Committee for Standardisation (CEN) concerning the work on EUROCODES for the design of building and civil engineering works (BC/CEN/03/89).

The Structural Eurocode programme comprises the following standards generally consisting of a number of Parts:

EN 1990	Eurocode:	Basis of structural 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 structures
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

Eurocode standards recognise the responsibility of regulatory authorities in each Member State and have safeguarded their right to determine values related to regulatory safety matters at national level where these continue to vary from State to State.

### **Status and field of application of Eurocodes**

The Member States of the EU and EFTA recognise that Eurocodes serve as reference documents for the following purposes:

- as a means to prove compliance of building and civil engineering works with the essential requirements of Council Directive 89/106/EEC, particularly Essential Requirement N°1 – Mechanical resistance and stability – and Essential Requirement N°2 – Safety in case of fire;
- as a basis for specifying contracts for construction works and related engineering services;
- as a framework for drawing up harmonised technical specifications for construction products (ENs and ETAs).

The Eurocodes, as far as they concern the construction works themselves, have a direct relationship with the Interpretative Documents<sup>2</sup> referred to in Article 12 of the CPD, although they are of a different nature from harmonised product standards<sup>3</sup>. Therefore, technical aspects arising from the Eurocodes work need to be adequately considered by

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<sup>2</sup> In accordance with Art. 3.3 of the CPD, the essential requirements (ERs) shall be given concrete form in interpretative documents for the creation of the necessary links between the essential requirements and the mandates for harmonised ENs and ETAGs/ETAs.

<sup>3</sup> In accordance with Art. 12 of the CPD the interpretative documents shall:

- a) give concrete form to the essential requirements by harmonising the terminology and the technical bases and indicating classes or levels for each requirement where necessary ;
- b) indicate methods of correlating these classes or levels of requirement with the technical specifications, e.g. methods of calculation and of proof, technical rules for project design, etc.;
- c) serve as a reference for the establishment of harmonised standards and guidelines for European technical approvals.

The Eurocodes, de facto, play a similar role in the field of the ER 1 and a part of ER 2.