



NSAI
Standards

Irish Standard
I.S. EN 1991-1-3:2003&AC:2009&A1:2015

Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads

I.S. EN 1991-1-3:2003&AC:2009&A1:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 1991-1-3:2003/A1:2015

EN 1991-1-3:2003/AC:2009

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I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

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EN 1991-1-3:2003

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National Foreword

I.S. EN 1991-1-3:2003&AC:2009&A1:2015 is the adopted Irish version of the European Document EN 1991-1-3:2003, Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads

Eurocodes permit certain design parameters to be selected nationally. In Ireland, the selection of National Design Parameters (NDP's) is the responsibility of the Eurocodes Consultative Committee (NSAI TC 015). National Annexes are developed in accordance with CEN and NSAI procedures and include a public consultation process.

Where NSAI TC 015 considers it appropriate, NDP's are agreed and listed in Irish National Annexes to Eurocodes.

Eurocodes must always be used in conjunction with the accompanying National Annex (NA), where available. For example, I.S. EN 1991-1-4, Eurocode 1: Actions on structures – Part 1-4: General actions – Wind actions is to be used in conjunction with NA to I.S. EN 1991-1-4.

National Annexes are reviewed as necessary e.g. when a new edition, an amendment or a corrigendum to a Eurocode is issued. The National Annex identifies what amendments/corrigenda are addressed. The user should check that the National Annex addresses the latest changes to the Eurocode. Previews of all documents are available on www.standards.ie. Any questions should be directed to NSAI.

Where an Irish National Annex to a Eurocode has not been prepared, the user must make sure that the general requirements of I.S. EN 1990 and the accompanying Irish National Annex are complied with.

Where a Eurocode has been changed (revised/amended/corrected) and the National Annex has yet to be revised to account for the change(s), the National Annex for the previous version is available. Engineering judgement must be applied if using guidance contained therein e.g. when selecting appropriate parameters.

Information on Eurocodes and the related national annexes is available from www.nsai.ie.

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

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EUROPEAN STANDARD

EN 1991-1-3:2003/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2015

ICS 91.010.30

English Version

Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads

Eurocode 1 - Actions sur les structures - Partie 1-3 :
Actions générales - Charges de neige

Eurocode 1 - Einwirkungen auf Tragwerke - Teil 1-3:
Allgemeine Einwirkungen, Schneelasten

This amendment A1 modifies the European Standard EN 1991-1-3:2003; it was approved by CEN on 17 July 2015.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 1991-1-3:2003/A1:2015) has been prepared by Technical Committee CEN/TC 250 “Structural Eurocodes”, the secretariat of which is held by BSI.

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 September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EUROPEAN STANDARD

EN 1991-1-3:2003/AC

NORME EUROPÉENNE

March 2009

EUROPÄISCHE NORM

Mars 2009

März 2009

ICS 91.010.30

English version
Version Française
Deutsche Fassung

Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads

Eurocode 1 - Actions sur les structures -
Partie 1-3: Actions générales - Charges de
neige

Eurocode 1 - Einwirkungen auf Tragwerke -
Teil 1-3: Allgemeine Einwirkungen,
Schneelasten

This corrigendum becomes effective on 11 March 2009 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 11 mars 2009 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 11.März 2009 zur Einarbeitung in die drei offiziellen Sprachfassungen der EN in Kraft.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Ref. No.: EN 1991-1-3:2003/AC:2009 D/E/F

EN 1991-1-3:2003/AC:2009 (E)

1 Modifications to Foreword

1) Page 4, 2nd paragraph, replace:

“...conflicting National Standards shall will be withdrawn at latest by January 2004.”

with:

“...conflicting National Standards shall be withdrawn at the latest by March 2010.”

2) Page 7, 'National annex for EN 1991-1-3', replace the list of allowed national choices with the following:

"

– 1.1(2), 1.1(3), 1.1(4)

– 2(3), 2(4)

– 3.3(1), 3.3(3),

– 4.1(1), 4.1(2), 4.2(1), 4.3(1)

– 5.2(2), 5.2(5), 5.2(6), 5.2(7), 5.2(8), 5.3.3(4), 5.3.4(3), 5.3.4(4), 5.3.5(1), 5.3.5(3), 5.3.6(1), 5.3.6(3)

– 6.2(2), 6.3(1), 6.3(2)

– A(1) (through Table A1)

"

2 Modification to Section 1, 'General'

1) Page 8, 1.1 'Scope', paragraph (2), replace:

"NOTE 1: Advice for the treatment..."

with the following:

"NOTE: Advice for the treatment..."

3 Modifications to Section 5, 'Snow load on roofs'

1) Page 23, Subclause 5.3.3 'Pitched roofs', paragraph (4), replace:

“...are shown in Figure 5.3, cases (ii) and (iii), unless specified for local conditions.”

with the following:

“...are shown in Figure 5.3, cases (ii) and (iii), unless otherwise specified for local conditions.”

2) Page 23, Subclause 5.3.4 'Multi-span roofs', paragraph (1), replace:

“...and shown in Figure 5.”

with the following:

“...and shown in Figure 5.4.”

3) Page 27, Figure 5.7, replace:

“This case applies where $b_2 < l_s$ ”

with the following:

“This load arrangement applies where $b_2 < l_s$ ”

4 Modifications to Annex B, 'Snow load shape coefficients for exceptional snow drifts'

1) Page 33, B1 'Scope', paragraph (1), replace “ . ” at the end of the point c) with “ ; ”.

2) Page 35, B.4 'Roofs where drifting occurs at projections, obstructions and parapets', paragraph (2), replace:

“...is not greater than 1m^2 , the effect...”

with the following:

“...is not greater than 1m, the effect...”

5 Modification to Annex C, 'European Ground Snow Load Maps'

1) Page 38, paragraph (3), replace:

“The European snow map developed...”

with the following:

“The European snow maps developed...”

6 Modification to Annex D, 'Adjustment of the ground snow load according to return period'

1) Page 54, paragraph (4) replace:

“...may also be adapted...”

with the following:

“...may also be adopted...”

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EUROPEAN STANDARD

EN 1991-1-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2003

ICS 91.010.30

Supersedes ENV 1991-2-3:1995

English version

Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads

Eurocode 1 - Actions sur les structures - Partie 1-3: Actions
générales - Charges de neige

Eurocode 1 - Einwirkungen auf Tragwerke - Teil 1-3:
Allgemeine Einwirkungen-Schneelasten

This European Standard was approved by CEN on 9 October 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



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

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EN 1991-1-3:2003 (E)

Foreword

This document (EN 1991-1-3:2003) has been prepared by Technical Committee CEN/TC250 "Structural Eurocodes", the Secretariat of which is held by BSI.

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 January 2004, and conflicting National Standards shall be withdrawn at latest by January 2004.

This document supersedes ENV 1991-2-3:1995.

CEN/TC250 is responsible for all Structural Eurocodes.

Annexes A and B are normative. Annexes C, D and E are informative.

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

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 1980's.

In 1989, the Commission and the Member States of the EU and EFTA decided, on the basis of an agreement¹ between the Commission and CEN, to transfer the preparation and the publication of the Eurocodes to the 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

¹ 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).

standards (e.g. the Council Directive 89/106/EEC on construction products 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).

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 Documents² referred to in Article 12 of the CPD, although they are of a different nature from harmonised product standards³. Therefore, technical aspects arising from the Eurocodes

² According to 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 hENs and ETAGs/ETAs.

³ According to Art. 12 of the CPD the interpretative documents shall :

- 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 ;
- 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. ;
- 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.

EN 1991-1-3:2003 (E)

work need to be adequately considered by CEN Technical Committees and/or EOTA Working Groups working on product standards with a view to achieving a full compatibility of these technical specifications with the Eurocodes.

The Eurocode standards provide common structural design rules for everyday use for the design of whole structures and component products of both a traditional and an innovative nature. Unusual forms of construction or design conditions are not specifically covered and additional expert consideration will be required by the designer in such cases.

National Standards implementing Eurocodes

The National Standards implementing Eurocodes will comprise the full text of the Eurocode (including any annexes), as published by CEN, which may be preceded by a National title page and National foreword, and may be followed by a National Annex.

The National Annex may only contain information on those parameters which are left open in the Eurocode for national choice, known as Nationally Determined Parameters, to be used for the design of buildings and civil engineering works to be constructed in the country concerned, *i.e.* :

- values for partial factors and/or classes where alternatives are given in the Eurocode,
- values to be used where a symbol only is given in the Eurocode,
- country specific data (geographical, climatic etc.), e.g. snow map,
- the procedure to be used where alternative procedures are given in the Eurocode.

It may also contain

- decisions on the application of informative annexes,
- references to non-contradictory complementary information to assist the user to apply the Eurocode.

Links between Eurocodes and harmonised technical specifications (ENs and ETAs) for products

There is a need for consistency between the harmonised technical specifications for construction products and the technical rules for works⁴. Furthermore, all the information accompanying the CE Marking of the construction products which refer to Eurocodes should clearly mention which Nationally Determined Parameters have been taken into account.

Introduction - Additional information specific for EN 1991-1-3

EN 1991 1-3 gives design guidance and actions from snow for the structural design of buildings and civil engineering works.

⁴ see Art.3.3 and Art.12 of the CPD, as well as clauses 4.2, 4.3.1, 4.3.2 and 5.2 of ID 1.

EN 1991 1-3 is intended for clients, designers, contractors and public authorities.

EN 1991 1-3 is intended to be used with EN 1990:2002, the other Parts of EN 1991 and EN 1992- EN 1999 for the design of structures.

National Annex for EN1991-1-3

This standard gives alternative procedures, values and recommendations for classes with notes indicating where national choices may have to be made. Therefore the National Standard implementing EN 1991-1-3 should have a National Annex containing nationally determined parameters to be used for the design of buildings and civil engineering works to be constructed in the relevant country.

National choice is allowed in EN 1991-1-3 through clauses:

1.1(2), 1.1(4)

2(3), 2(4)

3.3(1), 3.3(3),

4.1(1), 4.2(1), 4.3(1)

5.2(1), 5.2(4), 5.2(5), 5.2(6), 5.2(7), 5.3.3(4), 5.3.4(3), 5.3.5(1), 5.3.5(3),

5.3.6(1), 5.3.6(3)

6.2(2), 6.3(1), 6.3(2)

A(1) (through Table A1)

EN 1991-1-3:2003 (E)

1. Section 1 General

1.1. Scope

(1) EN 1991-1-3 gives guidance to determine the values of loads due to snow to be used for the structural design of buildings and civil engineering works.

(2) This Part does not apply for sites at altitudes above 1 500 m, unless otherwise specified.

NOTE 1: Advice for the treatment of snow loads for altitudes above 1 500 m may be found in the National Annex.

(3) Annex A gives information on design situations and load arrangements to be used for different locations.

NOTE: These different locations may be identified by the National Annex.

(4) Annex B gives shape coefficients to be used for the treatment of exceptional snow drifts.

NOTE: The use of Annex B is allowed through the National Annex.

(5) Annex C gives characteristic values of snow load on the ground based on the results of work carried out under a contract specific to this Eurocode, to DGIII / D3 of the European Commission.

The objectives of this Annex are:

- to give information to National Competent Authorities to help them to redraft and update their national maps;
- to help to ensure that the established harmonised procedures used to produce the maps in this Annex are used in the member states for treating their basic snow data.

(6) Annex D gives guidance for adjusting the ground snow loads according to the return period.

(7) Annex E gives information on the bulk weight density of snow.

(8) This Part does not give guidance on specialist aspects of snow loading, for example:

- impact snow loads resulting from snow sliding off or falling from a higher roof;
- the additional wind loads which could result from changes in shape or size of the construction works due to the presence of snow or the accretion of ice;
- loads in areas where snow is present all year round;
- ice loading;
- lateral loading due to snow (e.g. lateral loads exerted by drifts);
- snow loads on bridges.

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