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**BS EN 40-3-1:2013**



BSI Standards Publication

# Lighting columns

Part 3-1: Design and verification —  
Specification for characteristic loads

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This British Standard is the UK implementation of EN 40-3-1:2013. It supersedes BS EN 40-3-1:2000, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/509/50, Street lighting columns.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

## Lighting columns - Part 3-1: Design and verification - Specification for characteristic loads

Candélabres d'éclairage public - Partie 3-1: Conception et  
vérification - Spécification pour charges caractéristiques

Lichtmaste - Teil 3-1: Bemessung und Nachweis -  
Charakteristische Werte der Lasten

This European Standard was approved by CEN on 25 November 2012.

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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## Foreword

This document (EN 40-3-1:2013) has been prepared by Technical Committee CEN/TC 50 "Lighting columns", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

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 supersedes EN 40-3-1:2000.

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

There are seven parts to the series of standards EN 40 - Lighting columns, as follows

- Part 1: Definitions and terms;
- Part 2 : General requirements and dimensions;
- Part 3: Design and verification:
  - Part 3-1: Specification for characteristic loads;
  - Part 3-2: Verification by testing;
  - Part 3-3: Verification by calculation;
- Part 4: Requirements for reinforced and prestressed concrete lighting columns,
- Part 5: Requirements for steel lighting columns;
- Part 6: Requirements for aluminium lighting columns;
- Part 7: Requirements for fibre reinforced polymer composite lighting columns.

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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.

## 1 Scope

This European Standard specifies design loads for lighting columns. It applies to lighting columns of nominal height (including any bracket) not exceeding 20 m. Special structural designs to permit the attachment of signs, overhead wires, etc. are not covered by this European Standard.

The requirements for lighting columns made from materials other than concrete, steel, aluminium or fibre reinforced polymer composite (for example wood, plastic and cast iron) are not specifically covered in this standard. Fibre reinforced polymer composite lighting columns are covered in this document, in conjunction with Annex B of EN 40-7:2002.

This European Standard includes performance requirements for horizontal loads due to wind. Passive safety and the behaviour of a lighting column under the impact of a vehicle are not addressed. Such lighting columns will have additional requirements (see EN 12767).

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 40-1:1991, *Lighting columns — Part 1: Definitions and terms*

EN 1990, *Eurocode — Basis of structural design*

EN 1991-1-4:2005, *Eurocode 1: Actions on structures — Part 1-4: General actions — Wind actions*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 40-1:1991 apply.

## 4 Symbols

The following symbols are used in this European Standard.

The definitions are abbreviated, the full definitions being given in the text.

|           |   |
|-----------|---|
| $A_b$     | Projected area of section bracket being considered              |
| $A_c$     | Projected area of section of column shaft being considered      |
| $A_l$     | Projected area of the luminaire                                 |
| $c$       | Shape coefficient   |
| $C_{ALT}$ | Altitude Factor   |
| $c_e(z)$  | Exposure coefficient  |
| $C_s$     | Probability factor  |
| $c_r(z)$  | Roughness Factor  |
| $D$       | Diameter or distance across flats                               |
| $f$       | Topography factor   |
| $F_b$     | Partial horizontal force on section of bracket being considered |