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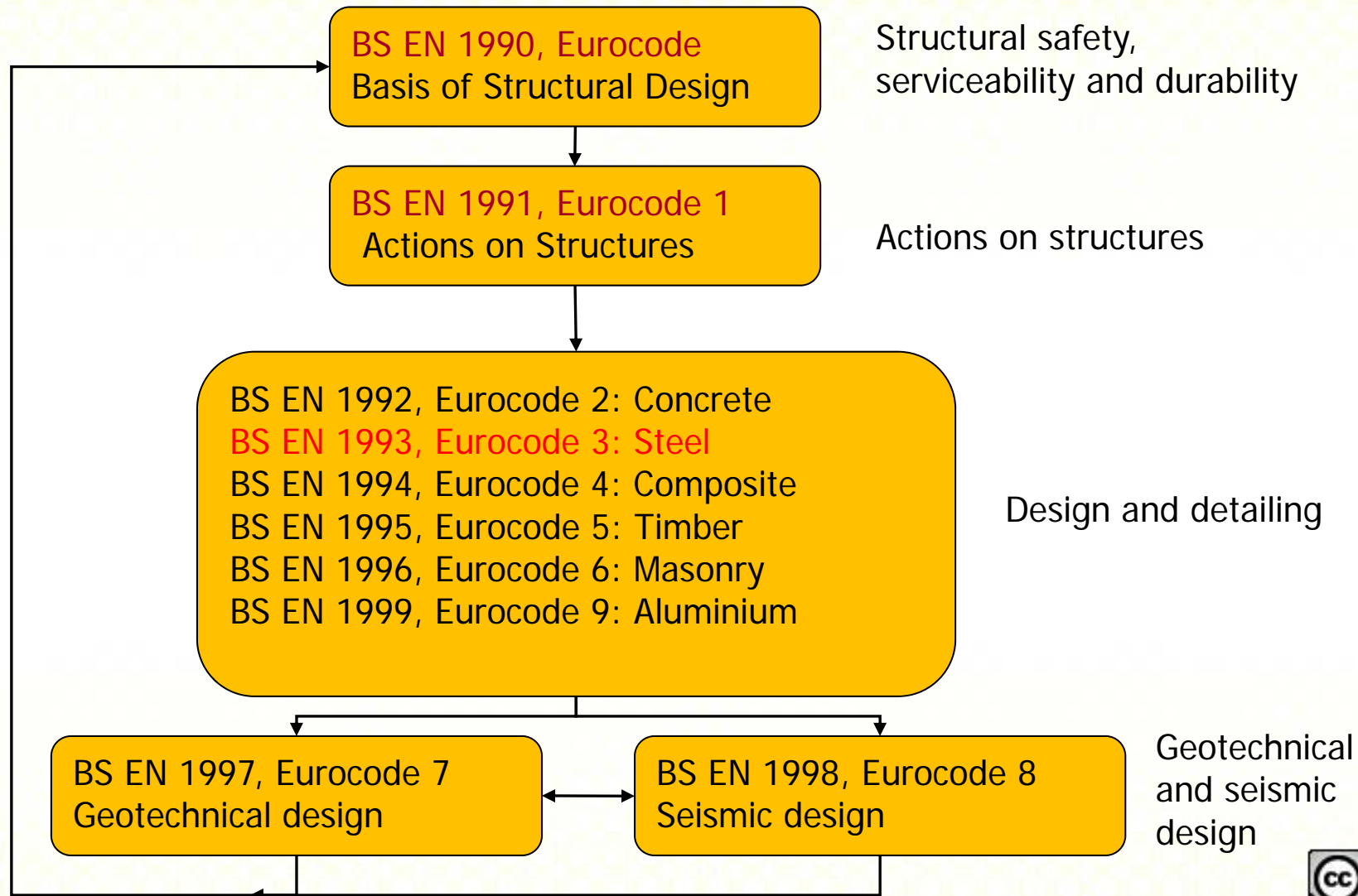


"Inspiring creative and innovative minds"

Structural Eurocodes – an overview

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Structural Eurocodes- an overview





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Basis of structural design (BS EN 1990:2002) or EC-0

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BS EN 1990:2002

There is no equivalent British Standard for *Basis of structural design* and the corresponding information has traditionally been replicated in each of the material codes.

BRITISH STANDARD

Eurocode — Basis of structural design

BS EN
1990:2002
Incorporating
Amendment No. 1

The European Standard EN 1990:2002, with the incorporation of Amendment A1:2005, has the status of a British Standard

ICS 91.010.30

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BSi
British Standards



BRITISH NATIONAL ANNEX

NA to
BS EN 1990:
2002

UK National Annex for Eurocode 0 — Basis of structural design

20021010140000

BSI
British Standards

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- Descriptives
- Terms, definitions, symbols



Content of EN 1990

Section 1: General

Section 2: Requirements

Section 3: Principles of Limit State Design

Section 4: Basic variables

Section 5: Structural analysis and design assisted by testing

Section 6: Verification by the partial factor method

Annex A1: Application for buildings

Annex A2: Application for bridges

Annex B: Management of structural reliability for construction works

Annex C: Basis for partial factor design and reliability analysis

Annex D: Design assisted by testing

SCOPE OF BS EN 1990:2002

EN 1990 establishes Principles and requirements for the safety, serviceability and durability of structures, describes the basis for their design and verification and gives guidelines for related aspects of structural reliability

EN 1990 is intended to be used in conjunction with EN 1991 to EN 1999 for the structural design of buildings and civil engineering works, including geotechnical aspects, structural fire design, situations involving earthquakes, execution and temporary structures

EN 1990 is applicable for the design of structures where other materials or other actions outside the scope of EN 1991 to EN 1999 are involved

EN 1990 is applicable for the structural appraisal of existing construction, in developing the design of repairs and alterations or in assessing changes of use.

The general assumptions of EN 1990 are :

- the choice of the structural system and the design of the structure is made by appropriately qualified and experienced personnel;
- execution is carried out by personnel having the appropriate skill and experience;
- adequate supervision and quality control is provided during execution of the work, i.e. in design offices, factories, plants, and on site;
- the construction materials and products are used as specified in EN 1990 or in EN 1991 to EN 1999 or in the relevant execution standards, or reference material or product specifications;
- the structure will be adequately maintained;
- the structure will be used in accordance with the design assumptions.

Distinction between Principles and Application Rules

- (1) Depending on the character of the individual clauses, distinction is made in EN 1990 between Principles and Application Rules.
- (2) The Principles comprise :
 - general statements and definitions for which there is no alternative
 - requirements and analytical models for which no alternative is permitted unless specifically stated.
- (3) The Principles are identified by the letter P following the paragraph number.
- (4) The Application Rules are generally recognised rules which comply with the Principles and satisfy their requirements.
- (5) It is permissible to use alternative design rules different from the Application Rules given in EN 1990 for works, provided that it is shown that the alternative rules accord with the relevant Principles and are at least equivalent with regard to the structural safety, serviceability and durability which would be expected when using the Eurocodes.

Section 1 Definitions of terms and symbols

Annex	... “Appendix”
• Normative	... “Design rules”
• Informative	... “Principles”
Structural System	... “Load-bearing elements of a building”
Actions	... “Loadings of all types”
• Characteristic	... “Representative value F_k ”
• Design	... “Factored loads”
• Combination	... “Factored loads in combination”
Effects	... “Internal forces caused by actions”
Resistance	... “Structure: ability to withstand an effect”
Strength	... “.. of a material”
• Characteristic	... “Nominal value”
• Design	... “Divided by ‘factor’ ”

