

UK National Annex to Eurocode 1: Actions on structures —

**Part 1-1: General actions — Densities,
self-weight, imposed loads for buildings**

ICS 91.010.30; 91.080.01

Committees responsible for this British Standard

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British Constructional Steelwork Association
British Masonry Society
Building Research Establishment
Concrete Society
Health and Safety Executive
Highways Agency
Institution of Civil Engineers
Institution of Structural Engineers
National House Building Council
Office of the Deputy Prime Minister
Steel Construction Institute

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National Annex (informative) to BS EN 1991-1-1:2002, Eurocode 1: Actions on structures — Part 1-1: General actions — Densities, self-weight, imposed loads for buildings

Introduction

This National Annex has been prepared by BSI Subcommittee B/525/1, Actions (loadings) and basis of design. In the UK it is to be used in conjunction with BS EN 1991-1-1:2002.

NA.1 Scope

This National Annex gives:

a) the UK decisions for the Nationally Determined Parameters described in the following subclauses of BS EN 1991-1-1:2002:

- 2.2 (3)
- 5.2.3 (1) to 5.2.3 (5)
- 6.3.1.1 (Table 6.1)
- 6.3.1.2 (1)P (Table 6.2)
- 6.3.1.2 (10)
- 6.3.1.2 (11)
- 6.3.2.2 (1)P (Table 6.4)
- 6.3.3.2 (1) (Table 6.8)
- 6.3.4.2 (Table 6.10)
- 6.4 (1) (Table 6.12)

b) the UK decisions on the status of BS EN 1991-1-1:2002 informative annexes; and

c) references to non-contradictory complementary information for the following subclauses of BS EN 1991-1-1:2002:

- 6.3.2.2
- 6.3.4.2 (1)

NA.2 Nationally Determined Parameters

NA.2.1 Dynamically susceptible structures [BS EN 1991-1-1:2002, 2.2(3)]

NA.2.1.1 *General*

The procedure to be used for structures that are susceptible to dynamic excitation is outlined in NA.2.1.2, NA.2.1.3 and NA.2.1.4 for particular cases of dynamic loading conditions and structural types. In such cases, the design should take account of the load-structure interaction and dynamic characteristics of the structure, e.g. natural frequency, mass, damping and mode shapes. Furthermore, for structural design with oscillation or vibration as a serviceability criterion, separate consideration of their influence is necessary, e.g. on the operation of equipment in the building and/or on the comfort of the users and occupiers of the building.

In certain cases, e.g. structures intended primarily for providing spectator facilities, the relevant certifying authority may refer to specific guidance documents that are considered appropriate and sufficient for compliance with their requirements.

NA.2.1.2 *Synchronized rhythmical movements*

Structures with elements subject to dancing and jumping are liable to inadvertent or deliberate synchronized movement of occupants, sometimes accompanied by music with a strong beat, such as occurs at pop concerts and aerobics events. These activities generate dynamic effects that can result in enhanced vertical and horizontal loads. If a natural frequency of a structure matches the frequency of the synchronized movement, or an integer multiple of it, then resonance can occur that greatly amplifies the dynamic response.