NATIONAL ANNEX

NA+A2:2014
to BS EN
1992-1-1:2004
+A1:2014

UK National Annex to Eurocode 2: Design of concrete structures —

Part 1-1: General rules and rules for buildings

ICS 91.010.30; 91.080.40

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Committees responsible for this National Annex

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Association of Consulting Engineers

Mineral Products Association

British Precast Concrete Federation Ltd.

Building Research Establishment

Concrete Society

Department of Transport (Highways Agency)

Institution of Civil Engineers

Institution of Structural Engineers

Scottish Building Standards Agency

UK Steel

Co-opted members

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National Annex (informative) to BS EN 1992-1-1:2004+A1:2014, Eurocode 2: Design of concrete structures — Part 1-1: General rules and rules for buildings

Introduction

This National Annex has been prepared by BSI Subcommittee B/525/2, Structural use of concrete. In the UK it is to be used in conjunction with BS EN 1992-1-1:2004+A1:2014.

NA+A2:2014 to BS EN 1992-1-1:2004+A1:2014 supersedes NA to BS EN 1992-1-1:2004, which is withdrawn.

The start and finish of text introduced or altered by National Amendment No.1 is indicated in the text by tags [A1⟩ ⟨A1]. Minor editorial changes are not tagged.

The start and finish of text introduced or altered by National Amendment No.2 is indicated in the text by tags [A2⟩ ⟨A2]. Minor editorial changes are not tagged.

National Amendment No.1 was made to reflect Corrigendum No. 1 to BS EN 1992-1-1:2004. National Amendment No. 2 was made to reflect Amendment No. 1 to BS EN 1992-1-1:2004.

NA.1 Scope

NA.1.1 This National Annex gives:

a) the UK decisions for the Nationally Determined Parameters described in the following subclauses of BS EN 1992-1-1:2004+A1:2014:

— **2.3.3** (3)
— **2.4.2.1** (1)
— **2.4.2.2** (1)
— **2.4.2.2** (2)
— **2.4.2.2** (3)
— **2.4.2.3** (1)
— **2.4.2.4** (1)
— **2.4.2.4** (2)
— **2.4.2.5** (2)
— **3.1.2** (2)P
— **3.1.2** (4)
— **3.1.6** (1)P
— **3.1.6** (2)P
— **3.2.2** (3)P
— **3.2.7** (2)
— **3.3.4** (5)
— **3.3.6** (7)
— **4.4.1.2** (3)
— **4.4.1.2** (5)
— **4.4.1.2** (6)
— **4.4.1.2** (7)
— **4.4.1.2** (8)
— **4.4.1.2** (13)
— **4.4.1.3** (1)P
— **4.4.1.3** (3)
— **4.4.1.3** (4)
— **5.1.3** (1)P
— **5.2** (5)
— **5.5** (4)
— **5.6.3** (4)
— **5.8.3.1** (1)
— **5.8.3.3** (1)
— **5.8.3.3** (2)
— **5.8.5** (1)
— **5.8.6** (3)
— **5.10.1** (6)
— **5.10.2.1** (1)P
— **5.10.2.1** (2)
— **5.10.2.2** (4)
— **5.10.2.2** (5)
— **5.10.3** (2)
— **5.10.8** (2)
— **5.10.8** (3)
— **5.10.9** (1)P
— **6.2.2** (1)
— **6.2.2** (6)
— **6.2.3** (2)
— **6.2.3** (3)
— **6.2.4** (4)
— **6.2.4** (6)
— **6.4.3** (6)
— **6.4.4** (1)
[A2⟩ — **6.4.5** (1) ⟨A2]
— **6.4.5** (3)
— **6.4.5** (4)
— **6.5.2** (2)
— **6.5.4** (4)
— **6.5.4** (6)
— **6.8.4** (1)
— **6.8.4** (5)
— **6.8.6** (1)
— **6.8.6** (3)
— **6.8.7** (1)
— **7.2** (2)
— **7.2** (3)
— **7.2** (5)
— **7.3.1** (5)
— **7.3.2** (4)
— **7.3.4** (3)
— **7.4.2** (2)
— **8.2** (2)
— **8.3** (2)
— **8.6** (2)
— **8.8** (1)
— **9.2.1.1** (1)
— **9.2.1.1** (3)
— **9.2.1.3** (1)
— **9.2.1.4** (1)
— **9.2.2** (4)
— **9.2.2** (5)
— **9.2.2** (2)
— **9.2.2** (7)
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— **9.3.1.1** (3)
— **9.5.2** (21)
— **9.5.2** (2)
— **9.5.2** (3)
— **9.5.3** (3)
— **9.6.2** (1)
— **9.6.3** (1)
— **9.7** (1)
— **9.8.1** (3)
— **9.8.2.1** (1)
— **9.8.3** (1)
— **9.8.3** (2)
— **9.8.4** (1)
— **9.8.5** (3)
— **9.10.2.2** (2)
— **9.10.2.3** (3)
— **9.10.2.3** (4)
— **9.10.2.4** (2)
— **11.3.5** (1)P
— **11.3.5** (2)P
— **11.3.7** (1)
— **11.6.1** (1)
— **11.6.1** (2)
— **11.6.2** (1)
— **11.6.4.1** (1)
[A2⟩ — **11.6.4.2** (2) ⟨A2]
— **12.3.1** (1)
— **12.6.3** (12)
— **A.2.1** (1)
— **A.2.1** (2)
— **A.2.2** (1)
— **A.2.2** (2)
— **A.2.3** (1)
— **C.1** (1)
— **C.1** (3)
— **E.1** (2)
— **J.1** ([A2⟩ 2 ⟨A2])
— **J.2.2** (2)
— **J.3** (2)
— **J.3** (3)

b) the UK decisions on the status of BS EN 1992-1-2:2004+A1:2014 informative annexes; and

c) references to non-contradictory complementary information.

NA.2 Nationally determined parameters

UK decisions for the Nationally determined parameters described in BS EN 1992-1-1:2004+A1:2014 are given in Table NA.1

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Table NA.1 — UK decisions for Nationally Determined Parameters described in BS EN 1992-1-1:2004

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	UK decision
2.3.3 (3)	Value of d_{joint}	30 m	Use the recommended value
2.4.2.1 (1)	Partial factor for shrinkage action γ_{SH}	1,0	Use the recommended value
2.4.2.2 (1)	Partial factor for prestress $\gamma_{P,fav}$	1,0	0,9
2.4.2.2 (2)	Partial factor for prestress $\gamma_{P,unfav}$	1,3	1,1
2.4.2.2 (3)	Partial factor for prestress $\gamma_{P,unfav}$ for local effects	1,2	Use the recommended value
2.4.2.3 (1)	Partial factor for fatigue loads $\gamma_{F,fat}$	1,0	Use the recommended value
2.4.2.4 (1)	Partial factors for materials for ultimate limit states γ_C and γ_S	Table 2.1N	Use the recommended values
2.4.2.4 (2)	Partial factors for materials for serviceability limit states γ_C and γ_S	1,0	Use the recommended value
2.4.2.5 (2)	Value of k_f	1,1	Use the recommended value
3.1.2 (2)P	Value of C_{max}	C90/105	Use the recommended value. However, the shear strength of concrete classes higher than C50/60 should be determined by tests, unless there is evidence of satisfactory past performance of the particular mix including the type of aggregates used. Alternatively, shear strength of concrete strength classes higher than C50/60 may be limited to that of C50/60.
3.1.2 (4)	Value of k_t	0,85	1,0
3.1.6 (1)P	Value of α_{cc}	1,0	0,85 for compression in flexure and axial loading and 1,0 for other phenomena. However, α_{cc} may be taken conservatively as 0,85 for all phenomena.
3.1.6 (2)P	Value of α_{ct}	1,0	Use the recommended value
3.2.2 (3)P	Upper limit of f_{yk}	600 MPa	Use the recommended value
3.2.7 (2)	Design assumptions for reinforcement: value of ε_{ud}	$0{,}9\varepsilon_{uk}$	Use the recommended value
3.3.4 (5)	Value of k	1,1	Use the recommended value

A2 A) Table NA.1 and the 'Recommended values' noted therein relate to BS EN 1992-1-1 incorporating corrigenda January 2008, November 2010, February 2014 and amendment A1:2014. A2

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Table NA.1 — UK decisions for Nationally Determined Parameters described in BS EN 1992-1-1:2004 (*continued*)

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	UK decision
3.3.6 (7)	Design assumptions for prestressing tendons: value of ε_{ud}	$0{,}9\varepsilon_{uk}$ or if more accurate values are not known: $\varepsilon_{ud} = 0{,}02$ $f_{p0,1k}/f_{pk} = 0{,}9$	Use the recommended values
4.4.1.2 (3)	Value of $c_{min,b}$	Post-tensioned bonded tendons in rectangular ducts: greater of the smaller dimension or half the greater dimension. Post-tensioned bonded tendons circular ducts: diameter. Pre-tensioned tendons: 1,5 × diameter of strand or plain wire, 2,5 × diameter of indented wire.	Use the recommended values
4.4.1.2 (5)	Structural classification and values of minimum cover due to environmental conditions $c_{min,dur}$	Table 4.3N for structural classification Tables 4.4N and 4.5N for values of $c_{min,dur}$	〈A1〉 Use data in BS 8500 for recommendations for concrete quality for a particular exposure class and cover reinforcement c. 〈A1〉
4.4.1.2 (6)	Value of $\Delta c_{dur,\gamma}$	0 mm	Use the recommended value
4.4.1.2 (7)	Value of $\Delta c_{dur,st}$	0 mm	0 mm unless justified by reference to specialist literature such as the Concrete Society's guidance on the use of stainless steel reinforcement [1].
4.4.1.2 (8)	Value of $\Delta c_{dur,add}$	0 mm	0 mm unless justified by reference to specialist literature
4.4.1.2 (13)	Value of k_1, k_2, k_3	$k_1 = 5$ mm $k_2 = 10$ mm $k_3 = 15$ mm	Use the recommended value
4.4.1.3 (1)P	Value of Δc_{dev}	10 mm	Use the recommended value
4.4.1.3 (3)	Value of Δc_{dev} under controlled conditions	Expressions (4.3N) and (4.4N)	Use the recommended values

〈A2〉 A) Table NA.1 and the 'Recommended values' noted therein relate to BS EN 1992-1-1 incorporating corrigenda January 2008, November 2010, February 2014 and amendment A1:2014. 〈A2〉

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Table NA.1 — UK decisions for Nationally Determined Parameters described in BS EN 1992-1-1:2004 (*continued*)

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	UK decision
4.4.1.3 (4)	Values of k_1 and k_2	$k_1 = 40$ mm $k_2 = 75$ mm	[A1] Use the recommended values [A1]
5.1.3 (1)P	Simplified load arrangements	The following load arrangements should be considered: a) alternate spans carrying the design variable and permanent load ($\gamma_Q Q_k + \gamma_G G_k + P_m$), other spans carrying only the design permanent load $\gamma_G G_k + P_m$; b) any two adjacent spans carrying the design variable and permanent loads ($\gamma_Q Q_k + \gamma_G G_k + P_m$); all other spans carrying only the design permanent load, $\gamma_G G_k + P_m$.	Use any of the following three options. a) Consider the two load arrangements recommended in the Eurocode for alternate and adjacent spans. b) Consider the two following arrangements for all spans and alternate spans: 1) all spans carrying the design variable and permanent load ($\gamma_Q Q_k + \gamma_G G_k + P_m$); 2) alternate spans carrying the design variable and permanent load ($\gamma_Q Q_k + \gamma_G G_k + P_m$), other spans carrying only the design permanent load $\gamma_G G_k + P_m$; the same value of γ_G should be used throughout the structure; c) For slabs, use the all spans loaded arrangement described in b)1) if: 1) in a one-way spanning slab the area of each bay exceeds 30 m^2; 2) the ratio of the variable load Q_k to the permanent load G_k does not exceed 1,25; and 3) the variable load Q_k does not exceed 5 kN/m^2 excluding partitions. In option c), when analysis is carried out using the load arrangement described in b)1), the resulting support moments except those at the supports of cantilevers should be reduced by 20%, with a consequential increase in the span moments. In this context a bay means a strip across the full width of a structure bounded on the other two sides by lines of support. The load arrangements in a), b) and c) are drafted using BS EN 1990:2002+A1:2005, Expression (6.10). Although not shown here, they can also be drafted using BS EN 1990:2002, Expressions (6.10a) and (6.10b).
5.2 (5)	Value of θ_0	1/200	Use the recommended value

[A2] A) Table NA.1 and the 'Recommended values' noted therein relate to BS EN 1992-1-1 incorporating corrigenda January 2008, November 2010, February 2014 and amendment A1:2014. [A2]

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