EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1992-1-1:2004/AC

ICS 91.080.40; 91.010.30

English version
Version Française
Deutsche Fassung

Eurocode 2: Design of concrete structures - Part 1-1: General rules and rules for buildings

Eurocode 2: Calcul des structures en béton - Partie 1-1: Règles générales et règles pour les bâtiments

Eurocode 2: Bemessung und Konstruktion von Stahlbeton- und Spannbetontragwerken - Teil 1-1: Allgemeine Bemessungsregeln und Regeln für den Hochbau

This corrigendum becomes effective on 10 November 2010 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 10 novembre 2010 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 10.November 2010 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

Ref. No.:EN 1992-1-1:2004/AC:2010 D/E/F

Modifications due to EN 1992-1-1:2004/AC:2008 (as modified by EN 1992-1-1:2004/AC:2010)

1 Modifications to National annex for EN 1992-1-1

2nd paragraph, list, replace "6.8.6(2)" *with* "6.8.6(3)".

2nd paragraph, list, replace "J.1(3)" *with* "J.1(2)".

2 Modification to 1.2.2

Replace:

"EN ISO 17760:   Permitted welding process for reinforcement"

with the following:

"EN ISO 17660 (all parts):   Welding – Welding of reinforcing steel".

3 Modification to 3.1.3

Table 3.1, 9th row, last column replace:

"ε_{c1}(‰) = 0,7 $f_{cm}^{0,31}$ < 2,8"

with the following:

"ε_{c1}(‰) = 0,7 $f_{cm}^{0,31}$ ≤ 2,8".

4 Modifications to 3.1.4

Paragraph (4), replace:

"$\varphi_k\left(\infty, t_0\right)$"

with the following:

"$\varphi_{nl}\left(\infty, t_0\right)$".

Paragraph (4), replace:

"k_σ is the stress-strength ratio $\sigma_c / f_{cm}\left(t_0\right)$ …"

with the following:

"k_σ is the stress-strength ratio $\sigma_c / f_{ck}\left(t_0\right)$, where σ_c is the compressive stress and $f_{ck}(t_0)$ is the characteristic concrete…".

5 Modification to 3.2.4

Paragraph (2), Note, replace "Values of $\left(f_t / f_y\right)_k$ and…" *with* "Values of $k = \left(f_t / f_y\right)_k$ and…".

6   Modification to 3.2.5

Paragraph (2)P, replace "with EN ISO 17760" *with* "with EN ISO 17660"*.*

7   Modifications to 3.2.7

Paragraph (2), replace in entry a) " γ_s " *with* " γ_S "*.*

Figure 3.8, replace " γ_s " *with* " γ_S "*.*

8   Modification to 3.3.2

Paragraph (9) replace "10.3.2.2 applies" *with* "10.3.2.1 applies"*.*

9   Modification to 3.3.6

Figure 3.10, replace " γ_s " *with* " γ_S "*.*

10   Modification to 4.4.1.3

Paragraph (4) replace "minimum cover" *with* "nominal cover"*.*

11   Modification to 5.1.1

Delete Clause (5) and renumber Paragraphs "(6)P" *as* "(5)P"*,* "(7)" *as* "(6)" *and* "(8)" *as* "(7)"*.*

12   Modifications to 5.2

Paragraph (5), replace:
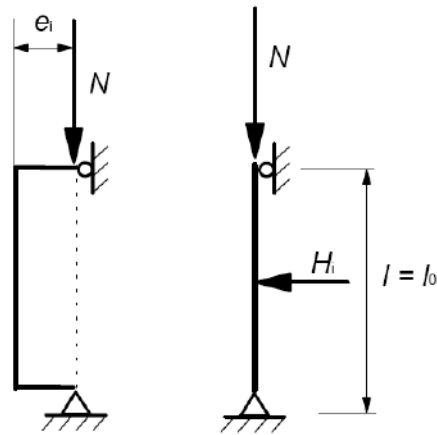
   "*l*   is the length or height [m], see (4)"

with the following:

   "*l*   is the length or height [m], see (6)"*.*

Replace Figure 5.1 a2) with the following one:

"

e_i

N

N

H_i $l = l_0$

a2) Braced

".

13 Modification to 5.6.3

Paragraph (2), replace "In regions of yield hinges, x_u/d shall not" *with* "In region of yield hinges, x_u/d should not".

14 Modifications to 5.8.6

Paragraph (3), replace "Expression (3.14) and 3.2.3 (Figure 3.8)" *with* "Expressions (3.14) and 3.2.7 (Figure 3.8)".

Paragraph (3) replace in Expression (5.20) and in the Note " γ_{cE} " *with* " γ_{CE} ".

15 Modification to 5.8.7.1

Paragraph (2), replace "as compared with 5.8.6 (2)." *with* "as compared with 5.8.5 (1).".

16 Modification to 5.8.7.3

Paragraph (1), replace "moments resulting from a linear analysis, namely:" *with* "moments resulting from a first order analysis, namely:".

17 Modification to 5.8.8.1

Paragraph (1), replace "(see also 5.8.5(4))." *with* "(see also 5.8.5 (3)).".

18 Modification to 5.8.8.2

Paragraph (2), replace "Differing first order end moments M_{01} and M_{02} may be" *with* "For members without loads applied between their ends, differing first order end moments M_{01} and M_{02} may be".

19 Modification to 5.8.9

Paragraph (3) replace "and if the relative eccentricities e_y/h and e_z/b (see Figure 5.7) satisfy" *with* "and if the relative eccentricities e_y/h_{eq} and e_z/b_{eq} (see Figure 5.8) satisfy".

20 Modification to 5.10.2.1

Paragraph (2), replace "the maximum prestressing force P_{max} may be increased to $k_3 \cdot f_{p0,1k}$ (e.g. for" *with* "the maximum prestressing force P_{max} may be increased to $k_3 \cdot f_{p0,1k} \cdot A_p$ (e.g. for"*.*

21 Modification to 5.10.4

Paragraph (1), replace in the Note "(see Annex D)" *with* "(see 10.3.2.1 and Annex D)"*.*

22 Modification to 5.10.5.2

Paragraph (4), replace in the Note "HPDE" *with* "HDPE"*.*

23 Modifications to 5.10.6

Paragraph (2), Formula (5.46), replace "I_c" *with* "I_c"*.*

Paragraph (2), replace:

"E_p is the modulus of elasticity for the prestressing steel, see 3.3.3 (9)"

with:

"E_p is the modulus of elasticity for the prestressing steel, see 3.3.6 (2)".

24 Modification to 6.1

Paragraph (5), replace "concentric loading ($e/h<0,1$), such" *with* "concentric loading $(e_d\, / \, h \leq 0,1)$, such"*.*

25 Modification to 6.2.1

Paragraph (5), replace "(see Expression (6.8))." *with* "(see Expression (6.1))."*.*

26 Modification to 6.2.2

Paragraph (1), replace:

"N_{Ed} is the axial … for compression). The influence on N_E may be ignored."

with:

"N_{Ed} is the axial … for compression). The influence on N_{Ed} may be ignored."*.*

27 Modifications to 6.2.3

Paragraph (1), replace "the longitudinal tensile force due to shear defined in (3)." *with* "the longitudinal tensile force due to shear defined in (7)."*.*

Paragraph (5), replace "(e.g. for uniformly distributed loading) the shear reinforcement in any length increment $l = z$ (cot θ + cot α) may be" *with* "(e.g. for uniformly distributed loading applied at the top) the shear reinforcement in any length increment $l = z$(cot θ) may be"*.*

Paragraph (6), replace "Where the web contains grouted ducts" *with* "Where the web contains grouted metal ducts".

Paragraph (8), replace:

"The value V_{Ed} calculated without reduction by β, should however always satisfy Expression (6.5)."

with:

"The value V_{Ed} calculated without reduction by β, should however always be less than $V_{Rd,max}$, see Expression (6.9).".

28 Modification to 6.2.4

Replace the title "Shear between web and flanges of T-sections" *with* "Shear between web and flanges".

29 Modification to 6.2.5

Paragraph (2), replace:

"

    −   Very smooth: a surface cast against steel, plastic or specially prepared wooden moulds: c = 0,25 and μ = 0,5
    −   Smooth: a slipformed or extruded surface, or a free surface left without further treatment after vibration: c = 0,35 and μ = 0,6
    −   Rough: a surface with at least 3 mm roughness at about 40 mm spacing, achieved by raking, exposing of aggregate or other methods giving an equivalent behaviour: c = 0,45 and μ = 0,7"

with the following:

"

    −   Very smooth: a surface cast against steel, plastic or specially prepared wooden moulds: c = 0,025 to 0,10 and μ = 0,5
    −   Smooth: a slipformed or extruded surface, or a free surface left without further treatment after vibration: c = 0,20 and μ = 0,6
    −   Rough: a surface with at least 3 mm roughness at about 40 mm spacing, achieved by raking, exposing of aggregate or other methods giving an equivalent behaviour: c = 0,40 and μ = 0,7".

30 Modification to 6.3.2

Paragraph (4), replace:

    "where ν follows from 6.2.2 (6) and α_c from Expression (6.9)"
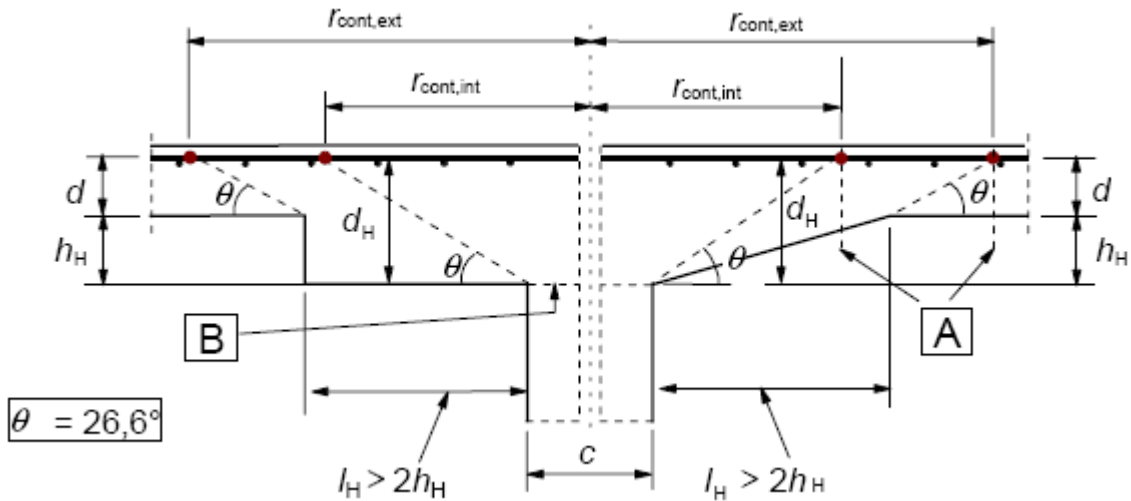
with:

    "where ν follows from 6.2.2 (6) and α_{cw} from Expression (6.9)".

31 Modification to 6.4.2

Paragraph (11), replace Figure 6.18 with the following one:

"

$\boxed{A}$ - basic control sections

for circular columns

$\boxed{B}$ - loaded area A_{load}

Figure 6.18 — Slab with enlarged column head where $l_H > 2(d + h_H)$".

32 Modifications to 6.4.3

Paragraph (2), list entry (a), replace:

   "$v_{Ed} < v_{Rd,max}$"

with:

   "$v_{Ed} \leq v_{Rd,max}$".

Paragraph (2), list entry (b), replace:

   "$v_{Ed} < v_{Rd,c}$"

with the following:

   "$v_{Ed} \leq v_{Rd,c}$".

Paragraph (3), Equation (6.40), replace "$W_1 = \int_0^{u_i} |e| dl$" with "$W_i = \int_0^{u_i} |e| dl$".

Paragraph (3), after Equation (6.42), replace:

      "where D is the diameter of the circular column"

with:

      "where D is the diameter of the circular column

            e is the eccentricity of the applied load $e = M_{Ed} / V_{Ed}$".

7

Paragraph (4), after Equation (6.45), replace "the eccentricity e should be measured from the centroid of the control perimeter" *with* "the distance e should be measured from the centroid axis of the control perimeter.".

33 Modification to 6.4.4

Paragraph (2), replace in Equation (6.50) "ρ" *with* "ρ_l".

34 Modifications to 6.5.4

Paragraph (6), replace "and (3.25) with $\sigma_{\text{Rd,max}} \leq k_4 \; v \; f_{\text{cd}}$ if for all three directions" *with* "and (3.25) with an upper limit $\sigma_{\text{Ed,max}} \leq k_4 \; v \; ' f_{\text{cd}}$ if for all three directions".

Paragraph (9), replace "in accordance with 8.4." *with* "in accordance with 8.3.".

35 Modification to 6.8.5

Paragraph (3), replace in Equation (6.71) "$\gamma_{s,fat}$" *with* "$\gamma_{S,fat}$".

36 Modifications to 6.8.6

Paragraph (1), replace:

"For welded reinforcing bars …under frequent load combined with the basic…"

with:

"For welded reinforcing bars …under frequent cyclic load combined with the basic…".

Paragraph (2), replace "above verification may be carried out using the Frequent load" *with* "above verification may be carried out using the frequent load".

37 Modification to 7.2

Paragraph (5), replace "Unacceptable cracking or deformation" *with* "For the appearance unacceptable cracking or deformation".

38 Modifications to 7.3.1

Paragraph (5), replace "A limiting calculated crack width, w_{max}, taking into account" *with* "A limiting value, w_{max}, for the calculated crack width, w_k, taking into account".

Paragraph (5), in Note 1 of Table 7.1N, replace "this limit is set to guarantee acceptable appearance. In the absence" *with* "this limit is set to give generally acceptable appearance. In the absence".

39 Modifications to 7.3.3

Paragraph (2), in Note 1 of Table 7.2N, replace "h_{cr} = 0,5; (h-d) =" *with* "h_{cr} = 0,5h ; (h-d) =".

Paragraph (2), in Note 1 of Table 7.2N, replace "k' = 1,0" *with* "k_4 = 1,0".

Paragraph (3), replace "or a suitable simplification (see 7.3.3 (2)) assuming pure tension" *with* "or a suitable simplification assuming pure tension".

Paragraph (5) replace "detailing rules given in 9.22, 9.2.3, 9.3.2 and 9.4.4.3 are observed." *with* "detailing rules given in 9.22, 9.2.3, 9.3.2 and 9.4.3 are observed.".

40 Modification to 7.3.4

Paragraph (3), replace Equation (7.13):

"$k_2 = (\varepsilon_1 + \varepsilon_2)/2\varepsilon_1$"

with the following:

"$k_2 = (\varepsilon_1 + \varepsilon_2)/(2\varepsilon_1)$".

41 Modification to 7.4.2

Paragraph (2), replace:

"ρ_0 is the reference reinforcement ratio = $\sqrt{f_{ck}}\, 10^{-3}$"

with:

"ρ_0 is the reference reinforcement ratio = $10^{-3}\sqrt{f_{ck}}$ ".

42 Modification to 7.4.3

Paragraph (5), replace:

"$\varphi(\infty, t_0)$ is the creep coefficient relevant for the load and time interval (see 3.1.3)"

with:

"$\varphi(\infty, t_0)$ is the creep coefficient relevant for the load and time interval (see 3.1.4)".
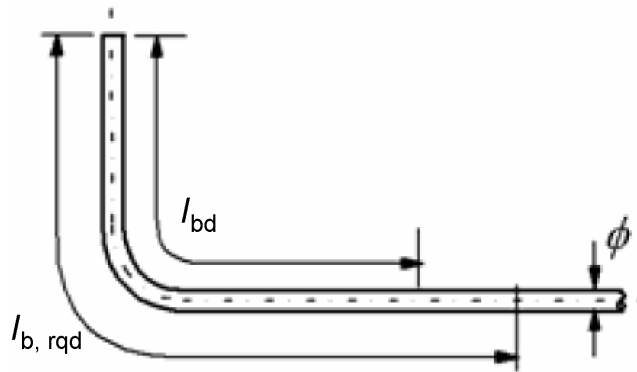
43 Modification to 8.3

Paragraph (2), in the Note of Table 8.1N, replace "in accordance with prEN ISO 17660 Annex B" *with* "in accordance with EN ISO 17660, Annex B".

44 Modification to 8.4.1

Paragraph (2), replace Figure 8.1 a) with the following one:

"

a) Basic tension anchorage length, $l_{b,rqd}$, for any shape measured along the centerline".

45 Modification to 8.4.3

Paragraph (3), replace "the basic anchorage length, l_b, and the design" *with* "the basic required anchorage length, $l_{b,rqd}$, and the design".

46 Modifications to 8.4.4

Paragraph (1), Equation (8.6), replace "$l_{b,min} > \max\{0{,}3l_{b,rqd}; 10\ \varphi; 100\ \text{mm}\}$" *with* "$l_{b,min} \geq \max\{0{,}3l_{b,rqd}; 10\ \varphi; 100\ \text{mm}\}$".

Paragraph (1), Equation (8.7), replace "$l_{b,min} > \max\{0{,}6l_{b,rqd}; 10\ \varphi; 100\ \text{mm}\}$" *with* "$l_{b,min} \geq \max\{0{,}6l_{b,rqd}; 10\ \varphi; 100\ \text{mm}\}$".

47 Modification to 8.6

Paragraph (5), replace "If two welded cross bars with a minimum spacing of φ_t are used, the anchorage length given by" *with* "If two welded cross bars with a minimum spacing of φ_t are used, the anchorage capacity given by".

48 Modification to 8.7.3

Paragraph (1), Equation (8.11), replace:

"$l_{0,min} > \max\{0{,}3\ \alpha_6\ l_{b,rqd}; 15\ \varphi; 200\ \text{mm}\}$"

with:

"$l_{0,min} \geq \max\{0{,}3\ \alpha_6\ l_{b,rqd}; 15\ \varphi; 200\ \text{mm}\}$".

49 Modification to 8.7.4.1

Paragraph (3), replace "Where the diameter, φ, of the lapped bars is greater than or equal to 20 mm, the transverse reinforcement should have a total area, A_{st} (sum of all legs" *with* "Where the diameter, φ, of the lapped bars is greater than or equal to 20 mm, the transverse reinforcement should have a total area, $\sum A_{st}$ (sum of all legs".

50 Modification to 8.8

Paragraph (4), replace "or where the stress is not greater than 80%" *with* "or where the reinforcement stress is not greater than 80 %".

51 Modification to 8.9.2

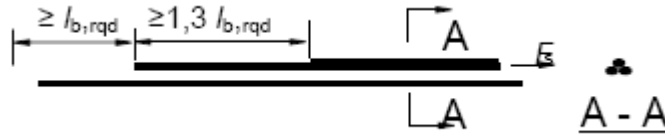*Paragraph (2), replace Figure 8.12 with the following one:*

"

Figure 8.12 - Anchorage of widely staggered bars in a bundle

".

52 Modifications to 8.10.2.2

Paragraph (1), replace:

"$f_{ctd}(t)$ is the design tensile value of strength at time of release; $f_{ctd}(t) = \alpha_{ct} \cdot 0{,}7 \cdot f_{ctm}(t) / \gamma_c$ (see also 3.1.2 (8) and 3.1.6 (2)P)"

with:

"$f_{ctd}(t)$ is the design tensile value of strength at time of release; $f_{ctd}(t) = \alpha_{ct} \cdot 0{,}7 \cdot f_{ctm}(t) / \gamma_C$ (see also 3.1.2 (9) and 3.1.6 (2)P)".

Paragraph (4), replace "see Figure 8.17:" *with* "see Figure 8.16:".

53 Modifications to 8.10.2.3

Replace the title "Anchorage of tensile force for the ultimate limit state" *with* "Anchorage of tendons for the ultimate limit state".

Paragraph (1), replace "the effect of shear according to 6.2.3(6); see also" *with* "the effect of shear according to 6.2.3(7); see also".

54 Modifications to 9.2.1.4

Paragraph (1), replace "The area of bottom reinforcement provided at supports with little" *with* "The area of bottom reinforcement provided at end supports with little".

Paragraph (2), replace "The tensile force to be anchored may be determined according to 6.2.3 (6) (members…" *with* "The tensile force to be anchored may be determined according to 6.2.3(7) (members…".

Paragraph (2), Equation (9.3), replace "$F_E = |V_{Ed}| \cdot a_l / z + N_{Ed}$" *with* "$F_{Ed} = |V_{Ed}| \cdot a_l / z + N_{Ed}$".

55 Modification to 9.8.2.1

Paragraph (1), replace "the design model shown in 9.8.2.1 may be used." *with* "the design model shown in 9.8.2.2 may be used.".

56 Modification to 9.8.5

Paragraph (3), replace:

"Bored piles with diameters not exceeding h_1 should be provided with a minimum longitudinal reinforcement area $A_{s,bpmin}$."

with:

"Bored piles should be provided with a minimum longitudinal reinforcement $A_{s,bpmin}$ related to pile cross section A_c.

NOTE   The values of $A_{s,bpmin}$ and the associated A_c for use in a country may be found in its national annex. The recommended values are given in Table 9.6N. This reinforcement should be distributed along the periphery of the section.".

57 Modifications to 9.10.2.2

Paragraph (2), Equation (9.15), replace "$F_{tie,per} = l_i \cdot q_1 \leq q_2$" *with* "$F_{tie,per} = l_i \cdot q_1 \geq Q_2$".

Paragraph (2), Note, replace "q_2" *with* "Q_2".

58 Modification to 9.10.2.3

Paragraph (4), Equation (9.16), replace "$F_{tie} = (l_1 + l_2)/ 2 \cdot q_3 \leq q_4$" *with* "$F_{tie} = q_3 \cdot (l_1 + l_2)/ 2 \geq q_4$".

59 Modification to 10.3.1.1

Paragraph (3), replace "$f_{cm}(t)$, may be estimated from Expression (3.3) in which" *with* "$f_{cm}(t)$, may be estimated from Expression (3.1) in which".

60 Modification to 10.3.2

Heading of Subclause 10.3.2.2, replace "10.3.2.2" *with* "10.3.2.1".

61 Modification to 10.5.2

Paragraph (1), replace:

"α_C is the linear coefficient of thermal expansion for concrete (see 3.1.2)"

with the following:

"α_C is the linear coefficient of thermal expansion for concrete (see 3.1.3(5))".

62 Modification to 10.9.6.2

Paragraph (2), replace "The lap length according to 8.6 should be increased" *with* "The lap length according to 8.7 should be increased".

63 Modification to 11.3.1

Paragraph (1)P, replace "In EN 206-1 lightweight aggregate is classified" *with* "In EN 206-1 lightweight aggregate concrete is classified".

64 Modification to 11.3.2

Table 11.3.1, 12th row, last column, replace "$|\varepsilon_{\text{lcu2u}}| \geq |\varepsilon_{\text{lc2}}|$" *with* "$|\varepsilon_{\text{lcu2}}| \geq |\varepsilon_{\text{lc2}}|$".

65 Modifications to 11.3.5

Paragraph (1)P, Equation (11.3.15), replace "γ_{c}" *with* "γ_{C}".

Paragraph (1)P, replace "where γ_{c} is the partial safety factor for concrete, see 2.4.1.4, and" *with* "where γ_{C} is the partial safety factor for concrete, see 2.4.2.4, and".

Paragraph (2)P, replace the two occurrences of "γ_{c}" *with* "γ_{C}".

66 Modification to 11.5.1

In the Note, replace "For light weight concrete the value of θ_{plast}, as shown in Figure 5.6N, should be multiplied by a factor $\varepsilon_{\text{lc2u}}/\varepsilon_{\text{c2u}}$." *with* "For light weight concrete the value of $\theta_{\text{pl,d}}$ as shown in Figure 5.6N, should be multiplied by a factor $\varepsilon_{\text{lcu2}}/\varepsilon_{\text{cu2}}$.".

67 Modifications to 11.6.1

Paragraph (1), replace Equation (11.6.2):

"$V_{\text{lRdc}} = [....] \geq (v_{\text{l,min}} + k_1 \, \sigma_{\text{cp}})b_{\text{w}} \, d$"

with the following:

"$V_{\text{lRdc}} = [....] \geq (\eta_1 \, v_{\text{l,min}} + k_1 \, \sigma_{\text{cp}})b_{\text{w}} \, d$".

Paragraph (1), Note, replace "0,15/ γ_{c} " *with* "0,15/ γ_{C}".

Paragraph (1), Note, replace "$v_{\text{l,min}}$ is 0,30 $k^{3/2}f_{ck}^{1/2}$" *with* "$v_{\text{l,min}}$ is 0,028 $k^{3/2}f_{ck}^{1/2}$".

Paragraph (1), Note, replace "and that k_1 is 0,15" *with* "and that for k_1 is 0,15".

Paragraph (1), replace Title of Table 11.6.1N:

"Table 11.6.1N: Values of $v_{\text{l,min}}$ for given values of d and f_{ck}"

with:

"Table 11.6.1N: Values of $v_{\text{l,min}}$ for given values of d and f_{lck}".

Paragraph (1), Table 11.6.1N, 2nd row, replace "f_{ck} (MPa)" *with* "f_{lck} (MPa)".

Paragraph (1), Table 11.6.1N, 6th row, 2nd column, replace "0.40" *with* "0.23".

68 Modification to 11.6.2

Paragraph (1), Equation (11.6.6N), replace "$v_1 = 0{,}5 \, \eta_1 \, (1- f_{\text{lck}}/250)$" *with* "$v_1 = 0{,}5 \, (1- f_{\text{lck}}/250)$".

69 Modification to 11.6.4.1

Paragraph (2), replace "ρ_1" *with* "ρ_{l}".

70 Modification to 11.8.1

Paragraph (1), replace "for normal density concrete given in 8.4.4 to avoid" *with* "for normal density concrete given in 8.3 to avoid".

71 Modification to 11.8.2

Paragraph (1), replace "with $f_{lctd} = f_{lctk,0.05}/\gamma_c$." *with* "with $f_{lctd} = f_{lctk,0.05}/\gamma_c$.".

72 Modification to 12.3.1

Paragraph (2), Equation (12.1), replace " $f_{ctd} = \alpha_{ct}\, f_{ctk,0.05}\big/\gamma_c$ " *with* " $f_{ctd,pl} = \alpha_{ct,pl}\, f_{ctk,0.05}\big/\gamma_C$ ".

73 Modifications to 12.6.1

Paragraph (3), Equation (12.2), replace "f_{cd}" *with* "$f_{cd,pl}$".

Paragraph (3), replace:

"where:

ηf_{cd} is the design effective compressive…"

with:

"where:

$\eta f_{cd,pl}$ is the design effective compressive…".

74 Modifications to 12.6.3

Paragraph (2) and Equation (12.7), replace the three occurrences of "f_{cd}" *with* "$f_{cd,pl}$".

Paragraph (2) and Equations (12.5), (12.6) and (12.7), replace the seven occurrences of "f_{ctd}" *with* "$f_{ctd,pl}$".

Paragraph (3), replace "f_{ctd}" *with* "$f_{ctd,pl}$".

75 Modifications to 12.6.5.2

Paragraph (1), Equation (12.10), replace "f_{cd}" *with* "$f_{cd,pl}$".

Paragraph (1), Equation (12.11), replace "$\Phi = (1,14 \times (1\text{-}2e_{tot}/h_w) - 0,02 \times l_o/h_w \leq (1\text{-}2\, e_{tot}/h_w)$" *with* "$\Phi = 1,14 \times (1\text{-}2e_{tot}/h_w) - 0,02 \times l_o/h_w \leq (1\text{-}2\, e_{tot}/h_w)$".

76 Modifications to 12.9.3

Paragraph (1), Equation (12.13), replace " $\dfrac{0,85 \cdot h_F}{a} \geq \sqrt{\left(9\sigma_{gd}\big/f_{ctd}\right)}$ " *with* " $\dfrac{0,85 \cdot h_F}{a} \geq \sqrt{\left(3\sigma_{gd}\big/f_{ctd,pl}\right)}$ ".

Paragraph (1), replace "f_{ctd}" *with* "$f_{ctd,pl}$".

77 Modifications to A.2.1

Paragraph (1), replace "$\gamma_{S,red1}$" *with* "$\gamma_{S,red1}$".

Paragraph (1), in the Note of Table A.1, replace "$\gamma_{s,red1}$" with "$\gamma_{S,red1}$".

In Paragraph (2) and in the Note, replace "$\gamma_{c,red1}$" with "$\gamma_{C,red1}$".

78 Modifications to A.2.2

In Paragraph (1) and in the Note, replace "$\gamma_{s,red2}$" with "$\gamma_{S,red2}$".

In Paragraph (1) and in the Note, replace "$\gamma_{c,red2}$" with "$\gamma_{C,red2}$".

In Paragraph (2) and in the Note, replace "$\gamma_{c,red3}$" with "$\gamma_{C,red3}$".

79 Modifications to A.2.3

Paragraph (1), replace "γ_c" with "γ_C".

In Paragraph (1) and in the Note, replace "$\gamma_{c,red4}$" with "$\gamma_{C,red4}$".

80 Modifications to A.3.2

Paragraph (1), replace "$\gamma_{s,pcred}$" with "$\gamma_{S,pcred}$".

Paragraph (1), replace "$\gamma_{c,pcred}$" with "$\gamma_{C,pcred}$".

81 Modifications to C.1

Paragraph (1), in the text after Table C.2N, replace "the bond stresses shall satisfy the recommended" *with* "the bond stresses should satisfy the recommended".

Paragraph (3), replace:

"- the individual values of yield strength f_{yk} and ε_{uk} should be greater than…"

with:

"- the individual values of yield strength f_y and ε_u should be greater than…".

Paragraph (3), Table C.3N, 3rd row, 1st column, replace "K" *with* "k".

82 Modification to C.3

Paragraph (1)P, replace "specified for bending in Table 8.1 of this Eurocode." *with* "specified for bending in Table 8.1N of this Eurocode.".

83 Modifications to D.1

Paragraph (4), replace "given by Expression (3.31), becomes:" *with* "given by Expression (3.29), becomes:".

84 Modification to E.1

Paragraph (2), replace "calculation of minimum reinforcement according to 7.3.2 and 9.1.1.1 and crack" *with* "calculation of minimum reinforcement according to 7.3.2 and 9.2.1.1 and crack".

85 Modification to I.1.3

Paragraph (2), replace "to edge of columns given in 5.11.2 should be applied." *with* "to edge of columns given in I.1.2 (5) should be applied."*.

86 Modification to J.1

Paragraph (2), in the Note, replace "(see Figure 9.7)." *with* "(see Figure J.1).".

Modifications due to EN 1992-1-1:2004/AC:2010

87 Modification to 3.1.9

Paragraph (2), replace "which reach the plastic condition" *with* "which can reach the plastic condition".

88 Modification to 3.2.5

Paragraph (1)P, replace in the note in Table 3.4 "metal arc active welding[2)]" *with* "metal arc active welding".
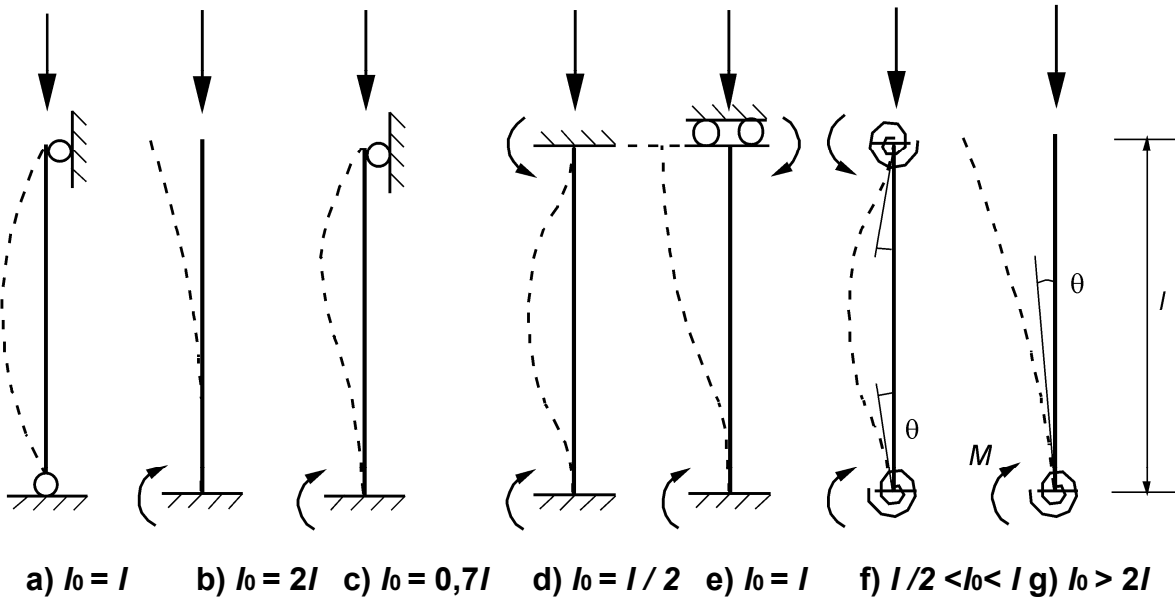
89 Modifications to 5.6.3

Paragraph (3), replace "The rotation θ_s should be determined on the basis of the design values for actions and materials and on the basis of mean values for prestressing at the relevant time." *with* "The rotation θ_s should be determined on the basis of the design values for actions and of mean values for materials and for prestressing at the relevant time.".

Paragraph (4), replace expression (5.12N): " $\lambda = M_{Sd} / (V_{Sd} d)$ ".

90 Modification to 5.8.3.2
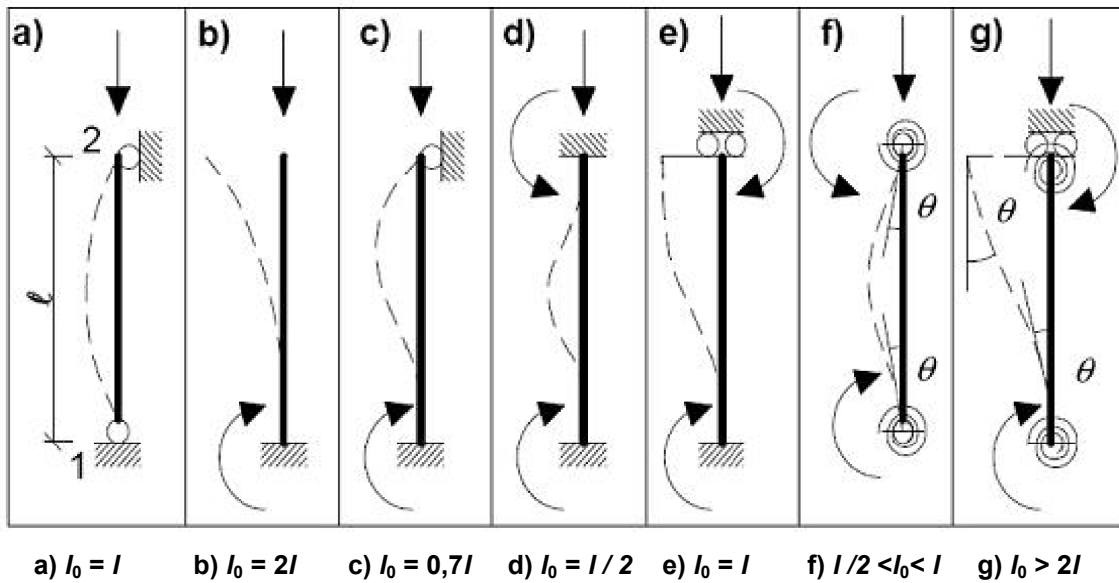
Paragraph (2), replace Figure 5.7:

"

a) $l_0 = l$ b) $l_0 = 2l$ c) $l_0 = 0,7l$ d) $l_0 = l / 2$ e) $l_0 = l$ f) $l /2 < l_0 < l$ g) $l_0 > 2l$

"

with:

"

a) $l_0 = l$ b) $l_0 = 2l$ c) $l_0 = 0,7l$ d) $l_0 = l / 2$ e) $l_0 = l$ f) $l /2 < l_0 < l$ g) $l_0 > 2l$

".

91 Modification to 5.8.8.3

Paragraph (4), replace:

"λ is the slenderness ratio, see 5.8.3.1"

with:

"λ is the slenderness ratio, see 5.8.3.2".

92 Modification to 6.1

Paragraph (4), replace "For cross-sections with symmetrical reinforcement loaded by the compression" *with* "For cross-sections loaded by the compression".

93 Modification to 6.4.2

Paragraph (11), Figure (6.18), caption, replace "$l_H \geq 2(d + h_H)$" *with* "$l_H \geq 2h_H$".

94 Modification to 6.4.3

Paragraph (6), Figure 6.21N, replace "r column" *with* "$\boxed{C}$ – corner column".

95 Modifications to 6.4.5

Paragraph (3), replace "u_0 = length of column periphery" *with* "u_0 = enclosing minimum periphery".

Paragraph (3), delete:

"ν see Expression (6.6)".

Paragraph (3), Note, replace:

"**Note:** The value of vRd,max for us in a Country may be found in its National Annex. The recommended value is 0,5 vf_{cd}."

with:

"**Note:** The value of $v_{Rd,max}$ for use in a Country may be found in its National Annex. The recommended value is 0,4 vf_{cd}, where v is given in Expression (6.6N)".

96 Modifications to 6.5.4

Paragraph (4), Figures (6.26), (6.27) and (6.28), replace "F_{cd}", "$F_{cd,0}$", "$F_{cd,1}$", "$F_{cd,2}$" *and* "$F_{cd,3}$" *with* "F_{Ecd}", "$F_{Ecd,0}$", "$F_{Ecd,1}$", "$F_{Ecd,2}$" *and* "$F_{Ecd,3}$".

Paragraph (4), replace in text and in Figures (6.26) and (6.27) "$\sigma_{Rd,1}$", "$\sigma_{Rd,2}$" *and* "$\sigma_{Rd,3}$" *with* "$\sigma_{Ed,1}$", "$\sigma_{Ed,2}$" *and* "$\sigma_{Ed,3}$".

Paragraph (4), Figure (6.26), replace "σ_{c0}" *with* "σ_{Ec0}".

Paragraph (4), Figure (6.26), replace "$F_{cd,1l}$" *and* "$F_{cd,1r}$" *with* "$F_{Ecd,1l}$" *and* "$F_{Ecd,1r}$".

Paragraph (4), Figures (6.27) and (6.28), replace "F_{td}", "$F_{td,1}$" *and* "$F_{td,2}$" *with* "F_{Etd}", "$F_{Etd,1}$" *and* "$F_{Etd,2}$".

Paragraph (4), Figure (6.28), replace "$\sigma_{Rd,max}$" *with* "σ_{Ed}".

Paragraph (4), after point c), add:

"where $\sigma_{Rd,max}$ is the maximum compressive stress which can be applied at the edges of the nodes. See 6.5.2 (2) for definition of v'.

Note: The values of k_1, k_2 and k_3 for use in a Country may be found in its National Annex. The recommended values are k_1 = 1,0; k_2 = 0,85 and k_3 = 0,75.".

97 Modifications to 6.8.4

Paragraph (1), replace "The damage of a single stress amplitude $\Delta\sigma$" *with* "The damage of a single stress range $\Delta\sigma$".

Paragraph (1), replace Note 1:

"**Note 1:** The values of $\gamma_{F,fat}$ for use in a Country may be found in its National Annex. The recommended value is 1,0."

with:

"**Note 1:** The value of $\gamma_{F,fat}$ is given in 2.4.2.3 (1).".

98 Modification to 7.3.1

Paragraph (5), Table 7.1N, replace "XD1, XD2, XS1, XS2, XS3" *with* "XD1, XD2, XD3, XS1, XS2, XS3".

99 Modification to 7.3.4

Paragraph (2), Expression (7.10), replace "$\rho_{p,eff} \qquad (A_s + \xi_1^2\ A'_p)/ A_{c,eff}$" *with*

"$\rho_{p,eff} = (A_s + \xi_1\ A'_p)/ A_{c,eff}$".

100 Modification to 7.4.2

Paragraph (2), Note, replace "for common cases (C30," *with* "for common cases (C30/37,".

101 Modifications to 8.3

Paragraph (2), Table 8.1N, replace "where the welding is carried out in accordance with prEN ISO 17660 Annex B" *with* "where the welding is carried out in accordance with EN ISO 17660".

Paragraph (3), replace:

"The mandrel diameter need not be checked to avoid concrete failure if the following conditions exist:

  – the anchorage of the bar does not require a length more than 5ϕ past the end of the bend;

  – the bar is not positioned at the edge (plane of bend close to concrete face) and there is a cross bar diameter $\geq \phi$ inside the bend."
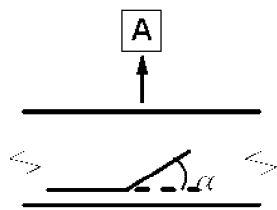
with:

"The mandrel diameter need not be checked to avoid concrete failure if the following conditions exist:

  – either the anchorage of the bar does not require a length more than 5ϕ past the end of the bend or the bar is not positioned at the edge (plane of bend close to concrete face) and there is a cross bar diameter $\geq \phi$ inside the bend.".
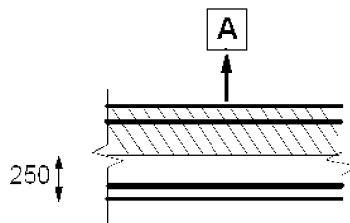
102 Modification to 8.4.2

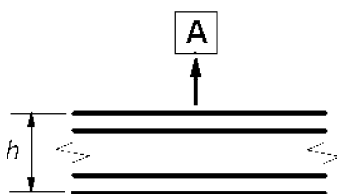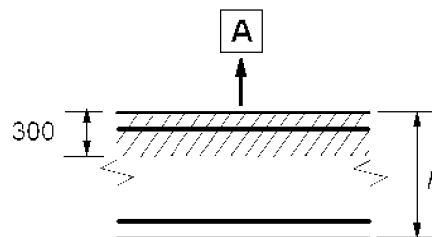*Paragraph (2), replace Figure (8.2) with the following one:*

"

a) $45° \leq \alpha \leq 90°$

c) $h > 250$ mm

b) $h \leq 250$ mm

d) $h > 600$ mm

A   Direction of concreting

".

103 Modification to 8.7.4.1

Paragraph (3), replace "of the lapped reinforcement and between that and the surface of the concrete." *with* "of the lapped reinforcement.".

104 Modification to 9.2.4

Paragraph (1), replace in the Note "Detailing rules for surface reinforcement are given in Informative Annex J" *with* "Guidance on surface reinforcements is given in Informative Annex J".

105 Modification to 9.4.3

Paragraph (2), Expression (9.11), replace "$\geq 0{,}08 \cdot \sqrt{(f_{ck})} / f_{yk}$" *with* "$\geq 0{,}08 \cdot \dfrac{\sqrt{f_{ck}}}{f_{yk}}$".

106 Modification to 9.7

Paragraph (1), replace in the note "The recommended value is 0,1% but not less" *with* "The recommended value is $0{,}001 A_c$ but not less".

107 Modifications to 9.10.2.3

Paragraph (4), Expression (9.16), replace "$F_{tie} = q_3 \cdot (l_1 + l_2)/ 2 \leq q_4$" *with* "$F_{tie} = q_3 \cdot (l_1 + l_2)/ 2 \geq Q_4$".

Paragraph (4), Note, replace "q_4" *with* "Q_4".

108 Modification to 10.9.5.2

Paragraph (1), Table 10.3, replace "C30" *with* "C30/37".

109 Modification to 11.3.1

Paragraph (3), replace "upper limit of the density for the relevant class" *with* "upper limit of the oven dry density for the relevant class".

110 Modification to 11.3.2

Table 11.3.1, row about ε_{lc1} *, replace:*

"$k\,f_{lcm}\,(E_{lci}\cdot\eta_E)$"

with:

"$k\,f_{lcm}\,(E_{cm}\cdot\eta_E)$".

111 Modifications to 11.3.5

Paragraph (2)P, Expression (11.3.16), replace "γ_c" *with* "γ_C".

Paragraph (2)P, replace "where γ_c is the partial safety factor for concrete, see 2.4.1.4 and" *with* "where γ_C is the partial safety factor for concrete, see 2.4.2.4, and".

112 Modifications to 11.6.1

Paragraph (1), replace "σ_{cp} is the mean compressive stress in the section due to axial force and prestress." *with* "σ_{cp} is the mean compressive stress in the section due to axial force and prestress, where $\sigma_{cp} < 0.2 f_{cd}$".

Paragraph (2), replace:

"$V_{Ed} = 0.5\ \eta_1\ b_w\ d\ \nu_l f_{lcd}$

where

η_1 is in accordance with 11.6.1 (1)

ν_l is in accordance with 11.6.2 (1)"

with:

"$V_{Ed} = 0.5\ b_w\ d\ \nu_1 f_{lcd}$

where

ν_l is in accordance with 11.6.2 (1)".

113 Modification to 11.6.2

Paragraph (1), replace:

"(1) The reduction factor for the crushing resistance of the concrete struts is ν_1.

Note: The value of ν_1 for use in a Country may be found in its National Annex. The recommended value follows from:

$\nu_1 = 0.5\ \eta_1\ (1 - f_{lck}/250)$ (11.6.6N)"

with:

"(1) The reduction factor for the crushing resistance of the concrete struts is ν_l.

Note 1: The value of ν_l for use in a Country may be found in its National Annex. The recommended value follows from:

$\nu_l = 0.5\ \eta_1\ (1 - f_{lck}/250)$ (11.6.6N)

Note 2: For lightweight concrete ν_l should not be modified in accordance with Note 2 of 6.2.3(3).".

114 Modification to 11.6.4.1

Paragraph (2), replace "The punching shear resistance, V_{lRd}, of lightweight" *with* "The punching shear resistance, ν_{lRd}, of lightweight".

115 Modifications to 11.6.4.2

Paragraph (2), Expression (11.6.53), replace "$V_{Ed} = \dfrac{V_{Ed}}{u_0 d} \leq V_{lRd,max} = 0.5\ \nu\ f_{lcd}$" *with*

"$V_{Ed} = \dfrac{V_{Ed}}{u_0 d} \leq V_{lRd,max}$".

Paragraph (2), replace:

"where ν is taken equal to ν_1 defined in 11.6.2 (1)."

with:

"The value of $v_{lRd,max}$ for use in a Country may be found in its National Annex. The recommended value is 0,4 $v f_{lcd}$, where v is taken equal to v_1 defined in expression (11.6.6N)".

116 Modification to 12.6.5.1

Paragraph (3), replace:

"– within the length l_{ht} the transverse wall has no openings."

with:

"– within the length l_w/5 the transverse wall has no openings.".

117 Modification to 12.9.2

Paragraph (1), replace "Where tensile stresses in the concrete occur in construction joints are expected to occur, reinforcement" *with* "Where tensile stresses are expected to occur in concrete, reinforcement".

118 Modification to C.1

Paragraph (1), Table C.1, 7th row Shear strength, 3rd column Wire Fabrics, replace "0,3 $A f_{yk}$" *with* "0,25 $A f_{yk}$".

119 Modification to C.3

Paragraph (1)P,, replace "no cracking shall be visible after the first bend" *with* "no cracking shall be visible after the test".

120 Modification to E.1

Paragraph (2), Table E.1N and its caption, replace "Indicative strength class" *with* "Indicative minimum strength class".