

Reinforced wall

Braced reinforced concrete wall per metre run · EN 1992-1-1 §5.8, §6.1, §9.6 · UK NA / PN-EN

Reference	NAE-RC-045 · version 1.0
Standards	BS EN 1992-1-1:2004 with UK NA · PN-EN 1992-1-1:2008 with Polish NA (NDP sources listed on the NDP sheet)
National Annex	Selectable: UK NA to BS EN 1992-1-1 or Polish NA to PN-EN 1992-1-1
Issued	30 October 2026

What it does

Ultimate limit state design of a braced reinforced concrete wall per metre run under a vertical load and an out-of-plane moment: slenderness, imperfection, second order effects by the nominal curvature method, the moment resistance at the design axial force by strain compatibility, and the wall detailing rules of 9.6 (with the slab rules of 9.3 for walls mainly in bending).

How to use

1. Open the Calculation sheet and select the National Annex.
2. Fill in the shaded input cells. Everything else is calculated.
3. Read the Results block; every step below it quotes its clause. Print or save as PDF for your calculation package.

Scope and limitations

Braced wall of constant thickness h (length on plan at least $4h$, 9.6.1), designed as a 1 m strip bending out of its plane. Two equal layers of vertical bars, one at each face, with the horizontal bars outside them (9.6.3(1)). Compression only ($N_{Ed} > 0$), first order end moments $M_{02} \geq |M_{01}|$ about the wall's weak axis, no loads between the floors. Effective length l_0 from the user (5.8.3.2: $0.5l_w$ to $1.0l_w$ for braced members; take l_w where the floors do not restrain rotation). The β factors of Table 12.1 for walls restrained on their vertical edges are for plain concrete and are not applied. Imperfection $e_i = l_0 / 400$ (5.2(7), simplification of 5.2(9) for walls), added to both end moments in the sense of M_{02} . Slenderness limit from (5.13N) with A, B and C worked out; $C = 0.7$ when $M_{02} \leq N_{Ed} e_i$. Second order moment by nominal curvature (5.8.8) with $c = 10$, or 8 for a constant first order moment; minimum eccentricity $e_0 = \max(h / 30; 20 \text{ mm})$ (6.1(4)). Resistance by strain compatibility with the parabola-rectangle diagram of 3.1.7(1) ($\epsilon_{c2} = 0.002$, $\epsilon_{cu2} = 0.0035$, $n = 2$) for every neutral axis depth, integrated in closed form, and the strain limits of 6.1(5): 0.0035 at the compressed face while $x \leq h$, then the pivot 0.002 at $3h/7$ up to a uniform 0.002 (bars at $\min(f_{yd}; 400)$); the rectangular block of 3.1.7(3) is not used, since extended to a fully compressed section it overstates the moment near the squash load. A fine-strip numerical integration checks the closed form. Bars elastic-plastic, the concrete they displace deducted; the neutral axis is found by bisection so that $N = N_{Ed}$. Detailing: $A_{s,vmin} = 0.002 A_c$, $A_{s,vmax} = 0.04 A_c$ outside laps, vertical spacing $\leq \min(3h; 400)$, $A_{s,hmin} = \max(25\% A_{s,v}; 0.001 A_c)$, horizontal spacing ≤ 400 , clear gaps to 8.2(2) along each face and between the two layers, cover for bond and the 10 mm floor of 4.4.1.2 (durability, fire and the allowance Δc_{dev} are the user's: enter the nominal cover), and the links of 9.6.4 flagged where $A_{s,v} > 0.02 A_c$. A wall marked as predominantly in out-of-plane bending also takes the slab rules (9.6.1(1), 9.3.1.1): each face at least $\max(0.26 f_{ctm} / f_{yk}; 0.0013) 1000 d$, spacing $\leq \min(2h; 250)$ vertical and $\min(3h; 400)$ horizontal (the maximum moment values). The user decides which action predominates. UK NA and PL NA: recommended values. In-plane bending, shear, concentrated loads, openings, crack widths and early-age thermal cracking are not covered. Concrete classes up to C50/60, $f_{yk} \leq 500 \text{ MPa}$.

The second-generation EN 1992-1-1:2023 is not yet implemented.

Further reading and independent cross-check

- The Concrete Centre, How to design concrete structures using Eurocode 2: Columns (walls are designed in the same way).
- IStructE, Manual for the design of concrete building structures to Eurocode 2 (walls).
- The Concrete Centre, RC Spreadsheets v4 (licensed product) can be used as an independent cross-check.

NA Engineering is not affiliated with The Concrete Centre or CIRIA; their publications are referenced for information only.

About NA Engineering

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Revision history

v1.0	30 Oct 2026 · First issue
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Project
Element
Date

Job no.
Made by
Checked

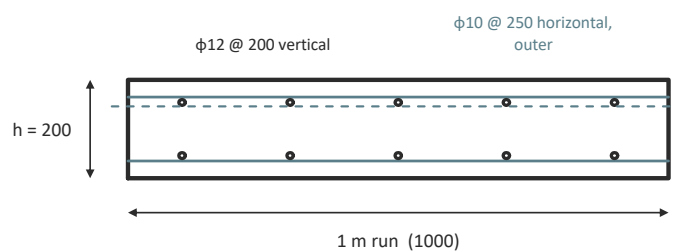
Inputs · wall
Shaded cells only; per metre run

	National Annex		UK NA (BS EN)	
Table 3.1	Concrete strength class		C32/40	
3.2.2	Reinforcement characteristic yield strength (≤ 500 MPa)	f_{yk}	500	MPa
8.2(2)	Maximum aggregate size	d_g	20	mm
	Wall thickness	h	200	mm
4.4.1	Nominal cover to the horizontal bars	c_{nom}	30	mm
	Horizontal bars: diameter (outer layer, each face)	φ_h	10	mm
9.6.3	Horizontal bars: spacing (≥ 50)	s_h	250	mm
	Vertical bars: diameter (each face)	φ_v	12	mm
9.6.2	Vertical bars: spacing (≥ 50)	s_v	200	mm
9.6.1(1)	Wall action (bending walls: slab rules 9.3 as well)		Predominantly axial (9.6)	

Inputs · actions and length
ULS design values per metre run

	Design axial force (compression)	N_{Ed}	600.0	kN/m
5.8.8.2(2)	Larger first order end moment M02	M_{02}	15.0	kNm/m
5.8.8.2(2)	Smaller end moment M01 (negative in double curvature)	M_{01}	5.0	kNm/m
	Clear height between floors	l_w	3500	mm
5.8.3.2	Effective length	l_0	3500	mm 0.5lw to 1.0lw braced
5.8.4	Effective creep ratio	φ_{ef}	1.50	
5.8.8.2(4)	Curvature factor (10; 8 for a constant moment)	c	10	
	Inputs valid and consistent			OK

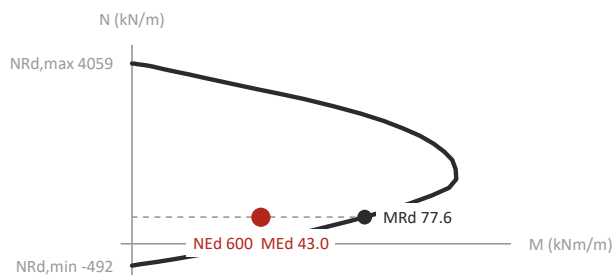
Your wall, to scale · plan section of 1 m · upper face compressed by MEd · neutral axis at NEd (dashed)



Results

Bending at NEd MED / MRd		0.55		OK
Axial force NEd / NRd,max		0.15		OK
Design moment (with second order effects when slender)	M_{Ed}	43.0	kNm/m	! Slender
Moment resistance at NEd	M_{Rd}	77.6	kNm/m	
Vertical bars, both faces (9.6.2)	$A_{s,v}$	1131	mm ² /m	OK
Horizontal bars, both faces (9.6.3)	$A_{s,h}$	628	mm ² /m	OK
Links through the wall (9.6.4) · $A_{s,v} / A_c$	ρ_v	0.57%		Not required

N-M interaction per metre · design point (red) · resistance at NEd



Calculation · materials and section (1 m run)

2.4.2.4(1)	Partial factor, concrete	γ_c	1.50	NDP sheet
2.4.2.4(1)	Partial factor, reinforcement	γ_s	1.15	NDP sheet
3.1.6(1)	Coefficient on compressive strength (flexure)	α_{cc}	0.85	NDP sheet
Table 3.1	Characteristic cylinder strength	f_{ck}	32	MPa
Table 3.1	Mean tensile strength	f_{ctm}	3.02	MPa
3.1.6(1)	Design compressive strength $\alpha_{cc} f_{ck} / \gamma_c$ ($\eta = 1$)	f_{cd}	18.13	MPa
3.2.7	Design yield strength	f_{yd}	434.8	MPa
	Gross area per metre 1000 h	A_c	200000	mm ² /m
	Vertical bars, one face $(\pi \phi_v^2 / 4)(1000 / s_v)$	$A_{s,v1}$	565	mm ² /m
	Vertical bars, both faces	$A_{s,v}$	1131	mm ² /m
	Centre of the vertical bars from the face $c + \phi_h + \phi_v / 2$	d_1	46.0	mm
5.8.8.3(2)	Radius of gyration of the bars $h / 2 - d_1$	i_s	54.0	mm
	Mechanical reinforcement ratio $A_s f_{yd} / (A_c f_{cd})$	ω	0.136	
(5.13N)	Relative axial force $N_{Ed} / (A_c f_{cd})$	n	0.165	

Calculation · slenderness and design moment

5.8.3.2	Effective length within $0.5 l_w \leq l_0 \leq l_w$ (braced, (5.15))			OK
5.8.3.2	Radius of gyration $h / \sqrt{12}$	i	57.7	mm
(5.14)	Slenderness l_0 / i	λ	60.6	
(5.13N)	$A = 1 / (1 + 0.2 \phi_{ef})$	A	0.769	
(5.13N)	$B = \sqrt{1 + 2\omega}$	B	1.127	
(5.13N)	Moment ratio M_{01} / M_{02}	r_m	0.333	
5.2(7), (9)	Imperfection $e_i = l_0 / 400$ (walls)	e_i	8.8	mm
(5.13N)	$C = 1.7 - r_m$; 0.7 when $M_{02} \leq N_{Ed} e_i$ (imperfections)	C	1.367	

(5.13N)	Slenderness limit $20 A B C / \sqrt{n}$	λ_{lim}	58.3	
5.8.8.2(2)	End moments with the imperfection M02 + NEd ei	$M_{02'}$	20.3	kNm/m
5.8.8.2(2)	M01 + NEd ei	$M_{01'}$	10.3	kNm/m
6.1(4)	Minimum eccentricity $\max(h / 30; 20 \text{ mm})$	e_0	20.0	mm
(5.36)	$Kr = (n_u - n) / (n_u - n_{bal}) \leq 1$, $n_u = 1 + \omega$, $n_{bal} = 0.4$	K_r	1.000	
(5.37)	$\beta = 0.35 + f_{ck} / 200 - \lambda / 150$	β	0.106	
(5.37)	$K\phi = 1 + \beta \phi_{ef} \geq 1$	K_ϕ	1.159	
5.8.8.3(2)	Effective depth $h / 2 + is$	d	154.0	mm
(5.34)	Curvature $Kr K\phi \epsilon_{yd} / (0.45 d)$	$1/r$	3.64E-05	1/mm
(5.33)	Second order eccentricity $(1/r) l_0^2 / c$	e_2	44.5	mm
(5.31)	Second order moment NEd e2 (slender walls only)	M_2	26.7	kNm/m
(5.32)	Equivalent first order moment $0.6 M_{02} + 0.4 M_{01} \geq 0.4 M_{02}$	M_{0e}	16.3	kNm/m
5.8.8.2	Design moment $\max(M_{0e} + M_2; M_{02}; M_{01} + M_2/2; NEd e_0)$	M_{Ed}	43.0	kNm/m

Calculation · resistance (see the Interaction sheet)

6.1	Axial resistance in compression (uniform $\epsilon_c = 0.002$)	$N_{Rd,max}$	4059	kN/m	
6.1	Axial resistance in tension –As fyd	$N_{Rd,min}$	-492	kN/m	
	Largest moment on the curve	M_{max}	108.3	kNm/m	
6.1	Neutral axis depth with N = NEd (bisection, Interaction sheet)	x	54	mm	
6.1	Axial force at that depth (check: = NEd)	N	600.0	kN/m	
6.1	Moment resistance at NEd	M_{Rd}	77.6	kNm/m	
6.1	Axial force $NEd \leq N_{Rd,max}$	N_{Ed}	600	kN/m	OK
6.1	Moment $MEd \leq M_{Rd}$	M_{Ed}	43.0	kNm/m	OK

Calculation · detailing (9.6; 9.3 for bending walls; 8.2)

9.6.2(1)	Minimum vertical reinforcement $0.002 A_c$	$A_{s,vmin}$	400	mm ² /m	UK NA, PL NA: rec.
9.6.2(1)	Maximum vertical reinforcement $0.04 A_c$ (outside laps)	$A_{s,vmax}$	8000	mm ² /m	UK NA, PL NA: rec.
9.2.1.1(1)	Bending walls: each face $\max(0.26 f_{ctm} / f_{yk}; 0.0013) 1000 d$	$A_{s,min1}$	242	mm ² /m	9.3.1.1(1)
9.6.2(3), 9.3.1.1(3)	Maximum vertical spacing $\min(3 h; 400)$; bending: $\min(2 h; 25c)$	$S_{v,max}$	400	mm	UK NA, PL NA: rec.
8.2(2)	Minimum clear gap, vertical bars $\max(\phi_v; dg + 5; 20)$	$a_{min,v}$	25	mm	
8.2(2)	Minimum clear gap, horizontal bars $\max(\phi_h; dg + 5; 20)$	$a_{min,h}$	25	mm	
	Clear gap between vertical bars $sv - \phi_v$	a_v	188	mm	
	Clear gap between the two layers $h - 2(c + \phi_h + \phi_v)$	a_t	96	mm	
	Clear gap between horizontal bars $sh - \phi_h$	a_h	240	mm	
9.6.2(1)	Vertical bars $As,v \geq As,vmin$	$A_{s,v}$	1131	mm ² /m	OK
9.6.2(1)	Vertical bars $As,v \leq As,vmax$	$A_{s,v}$	1131	mm ² /m	OK
9.3.1.1(1)	Bending walls: each face $As,v1 \geq As,min1$ (else not applied)	$A_{s,v1}$	565	mm ² /m	OK
9.6.2(3)	Vertical spacing $sv \leq sv,max$	S_v	200	mm	OK
8.2(2)	Vertical bars: clear gap $av \geq a_{min,v}$	a_v	188	mm	OK
8.2(2)	Between the layers: clear gap $at \geq a_{min,v}$	a_t	96	mm	OK
4.4.1.2(3)	Bond cover, vertical bars $\max(\phi_v (+ 5 \text{ if } dg > 32); 10)$	$c_{min,v}$	12	mm	Table 4.2, (4.2)
4.4.1.2(3)	Vertical bars: cover $c + \phi_h \geq c_{min,v}$	c_v	40	mm	OK
	Horizontal bars, both faces $2(\pi \phi_h^2 / 4)(1000 / sh)$	$A_{s,h}$	628	mm ² /m	
9.6.3(1)	Minimum horizontal reinforcement $\max(0.25 As,v; 0.001 A_c)$	$A_{s,hmin}$	283	mm ² /m	UK NA, PL NA: rec.
9.6.3(2), 9.3.1.1(3)	Maximum horizontal spacing 400 ; bending: $\min(3 h; 400)$	$S_{h,max}$	400	mm	UK NA, PL NA: rec.
9.6.3(1)	Horizontal bars $As,h \geq As,hmin$	$A_{s,h}$	628	mm ² /m	OK
9.6.3(2)	Horizontal spacing $sh \leq sh,max$	S_h	250	mm	OK
8.2(2)	Horizontal bars: clear gap $ah \geq a_{min,h}$	a_h	240	mm	OK
4.4.1.2(3)	Bond cover, horizontal bars $\max(\phi_h (+ 5 \text{ if } dg > 32); 10)$	$c_{min,h}$	10	mm	Table 4.2, (4.2)
4.4.1.2(3)	Horizontal bars: cover $c \geq c_{min,h}$	c_{nom}	30	mm	OK
9.6.4(1)	Links needed where $As,v > 0.02 A_c$	$0.02 A_c$	4000	mm ² /m	
9.5.3(1)	Links, where needed: least diameter $\max(6; \phi_v / 4)$	$\phi_{w,min}$	6.0	mm	
9.5.3(3)	Links, where needed: largest spacing $\min(20 \phi_v; h; 400)$	$S_{cl,max}$	200	mm	

*As,v*max may be doubled at laps (9.6.2(1)). For bending walls the secondary bars of 9.3.1.1(2) (20 % of the principal) are covered by the 25 % of 9.6.3(1). Where *As,v* exceeds 0.02 *A*c, the vertical bars are held by links to 9.5.3 (diameter, spacing, every bar within 150 mm of a restrained bar, spacing × 0.6 near floors and at laps). Where the vertical bars were placed nearest the faces instead, 9.6.4(2) asks for at least 4 links per m² of wall. Where crack control matters, the UK NA asks for early-age thermal and shrinkage effects to be considered explicitly (RC-022). Shear and in-plane actions are not checked here.

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N-M interaction per metre run · strain compatibility, EN 1992-1-1 §6.1

Strip 1000 mm long, two equal layers of vertical bars. Concrete: the parabola-rectangle diagram of 3.1.7(1) for every neutral axis depth, $\sigma_c = f_{cd} [1 - (1 - \epsilon_c / 0.002)^2]$ up to $\epsilon_{c2} = 0.002$, then f_{cd} , none in tension, integrated in closed form over the depth. Strain limits of 6.1(5): 0.0035 at the compressed face while $x \leq h$; beyond, the pivot 0.002 at $3h/7$ from that face, up to a uniform 0.002 (pure compression, bars at $\min(f_{yd}; 400)$). Bars elastic-plastic, $E_s = 200$ GPa, the concrete they displace deducted at the stress at the bar. M about the centre of the wall, compression positive.

	x (mm)	ϵ_c face (‰)	N (kN/m)	M (kNm/m)
1	tension	0.000	-491.7	0.0
2	2	3.500	-462.4	2.9
3	6	3.500	-403.7	8.6
4	10	3.500	-344.9	14.1
5	15	3.500	-271.5	20.6
6	20	3.500	-198.1	26.9
7	25	3.500	-124.7	32.9
8	30	3.500	-16.6	40.4
9	40	3.500	281.9	59.0
10	50	3.500	517.1	73.0
11	60	3.500	720.6	84.0
12	70	3.500	908.8	93.0
13	80	3.500	1087.1	100.2
14	90	3.500	1258.8	105.8
15	100	3.500	1457.7	108.3
16	110	3.500	1676.4	108.0
17	120	3.500	1883.2	106.9
18	130	3.500	2070.8	104.3
19	140	3.500	2251.1	100.7
20	150	3.500	2427.0	96.1
21	160	3.500	2597.9	90.5
22	170	3.500	2765.3	84.0
23	180	3.500	2930.5	76.3
24	190	3.500	3094.0	67.5
25	200	3.500	3255.9	57.5
26	210	3.379	3372.9	49.3
27	220	3.277	3465.5	42.9
28	240	3.111	3601.1	33.4
29	270	2.930	3730.1	24.5
30	300	2.800	3810.7	18.9
31	350	2.649	3891.3	13.4
32	400	2.545	3938.2	10.2
33	500	2.414	3988.6	6.8
34	600	2.333	4012.0	5.0
35	800	2.240	4031.9	3.1

36	1200	2.154	4045.5	1.7
37	2000	2.090	4052.7	0.9
38	5000	2.035	4056.9	0.3
39	compression	2.000	4058.5	0.0

The table draws the curve. MRd at NEd is found below by bisection on the neutral axis depth until $N = N_{Ed}$ (within rounding).

step	u low	u high	x (mm)	ϵ_c face (%)	N (kN/m)	M (kNm/m)
1	0.000000	0.999900	200.0	3.500	3255.3	57.5
2	0.000000	0.499950	66.7	3.500	847.2	90.2
3	0.000000	0.249975	28.6	3.500	-68.0	37.2
4	0.124988	0.249975	46.1	3.500	432.7	68.1
5	0.187481	0.249975	56.0	3.500	641.3	79.8
6	0.187481	0.218728	51.0	3.500	537.8	74.2
7	0.203105	0.218728	53.5	3.500	589.7	77.0
8	0.210916	0.218728	54.7	3.500	615.5	78.5
9	0.210916	0.214822	54.1	3.500	602.6	77.8
10	0.210916	0.212869	53.8	3.500	596.2	77.4
11	0.211893	0.212869	53.9	3.500	599.4	77.6
12	0.212381	0.212869	54.0	3.500	601.0	77.7
13	0.212381	0.212625	54.0	3.500	600.2	77.6
14	0.212381	0.212503	53.9	3.500	599.8	77.6
15	0.212442	0.212503	54.0	3.500	600.0	77.6
16	0.212442	0.212473	54.0	3.500	599.9	77.6
17	0.212457	0.212473	54.0	3.500	600.0	77.6
18	0.212465	0.212473	54.0	3.500	600.0	77.6
19	0.212469	0.212473	54.0	3.500	600.0	77.6
20	0.212471	0.212473	54.0	3.500	600.0	77.6
21	0.212472	0.212473	54.0	3.500	600.0	77.6
22	0.212472	0.212472	54.0	3.500	600.0	77.6
23	0.212472	0.212472	54.0	3.500	600.0	77.6
24	0.212472	0.212472	54.0	3.500	600.0	77.6
25	0.212472	0.212472	54.0	3.500	600.0	77.6
26	0.212472	0.212472	54.0	3.500	600.0	77.6
27	0.212472	0.212472	54.0	3.500	600.0	77.6
28	0.212472	0.212472	54.0	3.500	600.0	77.6
29	0.212472	0.212472	54.0	3.500	600.0	77.6
30	0.212472	0.212472	54.0	3.500	600.0	77.6
31	0.212472	0.212472	54.0	3.500	600.0	77.6
32	0.212472	0.212472	54.0	3.500	600.0	77.6
33	0.212472	0.212472	54.0	3.500	600.0	77.6
34	0.212472	0.212472	54.0	3.500	600.0	77.6
35	0.212472	0.212472	54.0	3.500	600.0	77.6
36	0.212472	0.212472	54.0	3.500	600.0	77.6
37	0.212472	0.212472	54.0	3.500	600.0	77.6
38	0.212472	0.212472	54.0	3.500	600.0	77.6
39	0.212472	0.212472	54.0	3.500	600.0	77.6
40	0.212472	0.212472	54.0	3.500	600.0	77.6
41	0.212472	0.212472	54.0	3.500	600.0	77.6
42	0.212472	0.212472	54.0	3.500	600.0	77.6
43	0.212472	0.212472	54.0	3.500	600.0	77.6
44	0.212472	0.212472	54.0	3.500	600.0	77.6

45	0.212472	0.212472	54.0	3.500	600.0	77.6
46	0.212472	0.212472	54.0	3.500	600.0	77.6
47	0.212472	0.212472	54.0	3.500	600.0	77.6
48	0.212472	0.212472	54.0	3.500	600.0	77.6
49	0.212472	0.212472	54.0	3.500	600.0	77.6
50	0.212472	0.212472	54.0	3.500	600.0	77.6
51	0.212472	0.212472	54.0	3.500	600.0	77.6
52	0.212472	0.212472	54.0	3.500	600.0	77.6
53	0.212472	0.212472	54.0	3.500	600.0	77.6
54	0.212472	0.212472	54.0	3.500	600.0	77.6
55	0.212472	0.212472	54.0	3.500	600.0	77.6
56	0.212472	0.212472	54.0	3.500	600.0	77.6
57	0.212472	0.212472	54.0	3.500	600.0	77.6
58	0.212472	0.212472	54.0	3.500	600.0	77.6
59	0.212472	0.212472	54.0	3.500	600.0	77.6
60	0.212472	0.212472	54.0	3.500	600.0	77.6

Nationally Determined Parameters

Values used by the Calculation sheet for the selected National Annex. Sources: UK NA to BS EN 1992-1-1:2004, Table NA.1; PN-EN 1992-1-1:2008, Załącznik krajowy NA. Edit only if your project specifies different values.

Parameter	Clause	UK NA	PL NA	Notes
Partial factor, concrete γ_c	2.4.2.4(1)	1.5	1.4	Persistent & transient. UK NA: recommended; PL: NA.2, Table NA.2
Partial factor, reinforcement γ_s	2.4.2.4(1)	1.15	1.15	UK NA: recommended; PL: NA.2, Table NA.2
α_{cc} (compression in flexure / axial)	3.1.6(1)	0.85	1	UK NA: 0.85; PL: recommended (NA.9)
$\alpha_{cc,pl}$ (plain concrete, compression)	12.3.1(1)	0.6	0.8	UK NA Table NA.1: 0.6; PL: recommended (NA.9)
α_{cc} (shear and punching)	3.1.6(1)	1	1	UK NA: 1.0 for other phenomena; PL: recommended (NA.9)
α_{ct} (design tensile strength)	3.1.6(2)	1	1	Recommended value in both annexes
CRd,c numerator (CRd,c = value / γ_c)	6.2.2(1), 6.4.4(1)	0.18	0.18	Recommended value in both annexes
k1 (axial stress term, punching)	6.4.4(1)	0.1	0.1	Recommended value in both annexes
vRd,max factor (vRd,max = factor · v · fcd)	6.4.5(3)	0.5	0.4	UK NA: 0.5 v fcd; PL: recommended value (NA.9), 0.4 v fcd since EN 1992-1-1 AC:2010 (PN-EN 1992-1-1:2008)
kmax (vEd ≤ kmax · vRd,c at u1)	6.4.5	2	1.5	UK NA 6.4.5(3): 2 vRd,c. PL: no limit in PN-EN 1992-1-1:2008; 1.5 (A1:2014 recommendation) applied conse
ϕ_{large} (large bar threshold, mm)	8.8(1)	40	32	UK NA: 40 mm; PL: 32 mm recommended (NA.9)
cot θ upper limit (variable strut)	6.2.3(2)	2.5	2	UK NA: 2.5 (1.25 with axial tension); PL: NA.4, $1 \leq \cot \theta \leq 2.0$
k1 (x/d limit, $\delta \geq k1 + k2 x_u/d$)	5.5(4)	0.4	0.44	UK NA for $f_{yk} \leq 500$ MPa; PL: recommended (NA.9)
k2 (x/d limit, $\epsilon_{cu2} = 0.0035$)	5.5(4)	1	1.25	UK NA: $0.6 + 0.0014/\epsilon_{cu2}$; PL: $1.25(0.6 + 0.0014/\epsilon_{cu2})$
Upper limit on the (310/ σ_s) factor (0 = none)	7.4.2(2)	1.5	0	UK NA Table NA.5 Note 5: (310/ σ_s) or (500/ f_{yk})($A_s,prov/A_s,req$) ≤ 1.5; PL: none
L/d not to exceed 40 K (1 = applies)	7.4.2(2)	1	0	UK NA Table NA.5 Note 6; not in EN text
ϕ_{min} (longitudinal bars in columns, mm)	9.5.2(1)	12	6	UK NA: 12 mm; PL: NA.6, 6 mm
k3 (crack spacing)	7.3.4(3)	3.4	3.4	Recommended value in both annexes
k4 (crack spacing)	7.3.4(3)	0.425	0.425	Recommended value in both annexes