

How to design concrete structures using Eurocode 2

Corrections due to Amendment 1 of the UK National Annex



The following are the technical updates applicable to the Sep 2009 revision of *How to design concrete structure using Eurocode 2*.

Location	Original	Amendment
Page 55, left col, para 2	With Eurocode 2 the permissible shear resistance when using shear links is higher, although such designs may not be economic or desirable.	The UK NA recommends $v_{Ed} \leq 2V_{Rd,c}$ at the basic control perimeter.
Page 55, Figure 6	<p>Determine concrete punching shear capacity (without shear reinforcement), $V_{Rd,c}$ from Table 8 where $r_1 = (r_y r_u)^{0.5}$ (r_y, r_u are the reinforcement ratios in two orthogonal directions for fully bonded tension steel, taken over a width equal to column width plus $3d$ each side.)</p> <p>Is $V_{Ed} > V_{Rd,c}$?</p> <p>No → Punching shear reinforcement not required</p> <p>Yes → Determine area of punching shear reinforcement per perimeter from: $A_{sw} = (V_{Ed} - 0.75V_{Rd,c}) s_u / (1.5 f_{ywd})$ where s_u is the radial spacing of shear reinforcement (see Figure 9) $f_{ywd} = 250 + 0.25 d_{eff} \leq f_{ywd}$ (see Table 9)</p>	<p>Determine concrete punching shear capacity (without shear reinforcement), $V_{Rd,c}$ from Table 8 where $r_1 = (r_y r_u)^{0.5}$ (r_y, r_u are the reinforcement ratios in two orthogonal directions for fully bonded tension steel, taken over a width equal to column width plus $3d$ each side.)</p> <p>Is $V_{Ed} > V_{Rd,c}$?</p> <p>No → Punching shear reinforcement not required</p> <p>Yes → Is $V_{Ed} \leq 2V_{Rd,c}$?</p> <p>No → Redesign slab</p> <p>Yes → Determine area of punching shear reinforcement per perimeter from: $A_{sw} = (V_{Ed} - 0.75V_{Rd,c}) s_u / (1.5 f_{ywd})$ where s_u is the radial spacing of shear reinforcement (see Figure 9) $f_{ywd} = 250 + 0.25 d_{eff} \leq f_{ywd}$ (see Table 9)</p>
Page 20, Figure 3, box 5.	Determine Factor 3 (F3) $F3 = 310 / \sigma_s$ Where σ_s = Stress in reinforcement at serviceability limit state (see Figure 4) σ_s may be assumed to be 310 MPa (i.e. $F3 = 1.0$) Note: $A_{s,prov} \leq 1.5 A_{s,req'd}$ (UK National Annex)	Determine Factor 3 (F3) $F3 = A_{s,prov} / A_{s,req'd} \leq 1.5$ (UK National Annex)
Page 21, Figure 4		This figure is no longer required (but it may be useful)
Page 29, Figure 6, box 5.	Determine Factor 3 (F3) $F3 = 310 / \sigma_s$ Where σ_s = Stress in reinforcement at serviceability limit state (see Figure 4) σ_s may be assumed to be 310 MPa (i.e. $F3 = 1.0$) Note: $A_{s,prov} \leq 1.5 A_{s,req'd}$ (UK National Annex)	Determine Factor 3 (F3) $F3 = A_{s,prov} / A_{s,req'd} \leq 1.5$ (UK National Annex)
Page 29, Figure 8		This figure is no longer required (but it may be useful)
Page 54, Figure 3, box 5.	Determine Factor 3 (F3) $F3 = 310 / \sigma_s$ Where σ_s = Stress in reinforcement at serviceability limit state (see Figure 4) σ_s may be assumed to be 310 MPa (i.e. $F3 = 1.0$) Note: $A_{s,prov} \leq 1.5 A_{s,req'd}$ (UK National Annex)	Determine Factor 3 (F3) $F3 = A_{s,prov} / A_{s,req'd} \leq 1.5$ (UK National Annex)
Page 55, Figure 5		This figure is no longer required (but it may be useful)