Concrete Buildings Scheme Design Manual (Eurocode 2 edition)

Corrections due to Amendment 1 of the UK National Annex

The following are the technical updates applicable to the Nov 2009 revision of *Concrete Buildings Scheme Design Manual*.

Location	Original	Amendment
Page 46, section 3.6	3. 310/σ_s, where σ_s = tensile steel stress at mid-span (or support for cantilevers) under the design load at SLS. The stress in the steel at SLS can be estimated from Figure 3.3. This assumes that the area of steel has not been enhanced to control deflection and the stress can be further reduced by $A_{s,req}/A_{s,prov}$ when this is the case ($A_{s,req} \leq 1.5\,A_{s,prov}$).	3. $A_{s,prov}/A_{s,req'd} \leq 1.5$ (UK National Annex)
Page 47, Figure 3.3		This is figure is no longer required (but it may be useful)
Page 60, top of page	Insert new text	At the basic control perimeter check $v_{Ed} \leq 2v_{Rd,c}$
Page 29, Figure 6, box 5.	Determine Factor 3 (F3) F3 = 310/σ_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 62, WE 4, punching shear	Length of perimeter = 4 x 350 + 2π x 500 = 4542 mm Radial spacing s_r = 0.75 x 250 = 188 mm $A_{sw} = (v_{Ed} - 0.75\,v_{Rd,c})s_r\,u_1/(1.5\,f_{ywd,ef})$ = (1.15 x 1238 x 10^3/(4542 x 250))- 0.75 × 0.75) x 188 x 4542 /(1.5 x 313) = 1257 mm2/perimeter	Length of perimeter = 4 x 350 + 2π x 500 = 4542 mm V_{Ed} = 1.15 x 1238 x 10^3/(4542 x 250) = 1.25 ≤ 2 x 0.75 ∴OK Radial spacing s_r = 0.75 x 250 = 188 mm $A_{sw} = (v_{Ed} - 0.75\,v_{Rd,c})s_r\,u_1/(1.5\,f_{ywd,ef})$ = (1.25 - 0.75 × 0.75) x 188 x 4542 /(1.5 x 313) = 1257 mm2/perimeter
Page 63, WE 4, deflection	Increase area of steel to reduce steel stress, assume H20 @ 225 ctrs (1400 mm2) Approximate steel stress at SLS = 236 MPa Therefore approximate steel stress, σs, when $A_{s,prov}$ = 1400 mm2 σs = 236 x 1243/1400 = 210 MPa Increased basic l/d = 24.4 x 310/210 = 36 > 34.6 ∴OK ∴Use H20 @ 225 ctrs $A_{s,prov}$ = 1400 mm2	Increase area of steel to reduce steel stress: $A_{s,prov} = A_{s,req}$ x (actual l/d)/(basic l/d) = 1243 x 34.6/24.4 = 1763 mm^2 ∴Use H20 @ 175 ctrs $A_{s,prov}$ = 1800 mm2