Concrete Society Method

(Withdrawn and superseded by BS EN 13791+BS EN 6089+UK N.A. to BS EN 12504-1)

2005

This method takes into account different factors influencing the assessment of the in situ concrete strength starting from the core strengths. The estimated in situ concrete strength may be calculated from the core compressive strength, measured in lab, with the following formula :

$$f_{ci,eq} = f_{c,i} * C_{H/D} * C_a * C_d$$

Where :

$f_{ci,eq}$: in situ equivalent strength of each concrete core (N/mm^2)

$f_{c,i}$: measured strength of each core (N/mm^2)

$C_{H/D}$: correction coeff. for height/diameter ratio of core (-)

$$C_{H/D} = \frac{D}{1.5 + \frac{1}{\lambda}}$$

L : core height (mm)

Φ_c : core diameter (mm)

λ : L/Φ_c ratio height/core diameter (-)

D : = 2.5 for for core drilled perpendicularly to concrete casting direction

D : = 2.3 for core drilled in parallel to concrete casting direction

C_d : correction coeff. for damage because of drilling (-) **1.3 constant**

C_a : correction coeff. due to steel rebar (-)

$$1 + \frac{1.5}{\frac{\phi_r}{\Phi_c} * \frac{d}{L}}$$

Φr : rebar diameter (mm)

Φc : core diameter (mm)

d : min. distance of rebar center line from core edge (mm)

L : core height (mm)