Masi / Vona Method

Bibliography (13) – 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 :

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

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 (-)

$$C_{H/D} = \frac{2}{1.5 + \frac{\phi}{L}}$$

Φ : core diameter (mm)

L : core height (mm)

C_{dia} : correction coeff. due to core diameter (-)

1.06 for diam. 50 mm
1.00 for diam. 100 mm
0.98 for diam. 150 mm
linear interpolation allowed

C_{dril} : correction coeff. for damage because of drilling (-)

1.2 for $f_{c,i} < 20$ MPa
1.1 for $f_{c,i} \geq 20$ MPa

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

1.00 no rebar
1.03 for rebar diam. 10 mm
1.13 for rebar diam. 20 mm