Cestelli Guidi / Morelli Method

(cores without rebars)

Bibliography (12) – 1981

This method is one of the first suggested. The estimated in situ concrete strength may be calculated from the core compressive strength, measured in lab, with the following formula :

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

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 (-)

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

Φ : core diameter (mm)

L : core height (mm)

C_{dir} : correction coeff. for drilling direction vs concrete casting (-) **1 for orthogonal direction**
0.92 for parallel direction

C_d : correction coeff. for damage because of drilling (-) **1.5 constant**