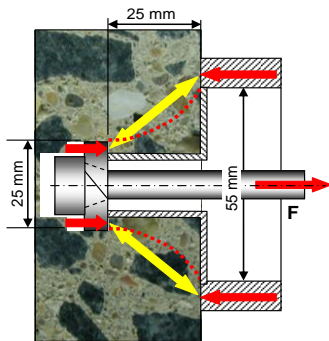


NDTitans in action

Case 4.5 Strength testing with CAPO-test on old bridges for upgrading, Poland

CAPO-TEST



As part of strength testing 50 old bridges to be upgraded, fifteen bridges, ranging in age from 25 to 52 years, were investigated initially, for establishing a correlation curve between cores and the CAPO-TEST (ASTM C-900 and EN 12504-3), with special focus on the effect on carbonation. The depth of carbonation varied from 2 mm to 35 mm. The strength of the bridges ranged from 20 MPa to 50 MPa.

The number of cores and CAPO-TEST's for each bridge are reported in the referenced ACI publication. The average values are shown adjacent.

As will be seen, the best fit curve (purple) match almost identically the general correlation for cubes (red):

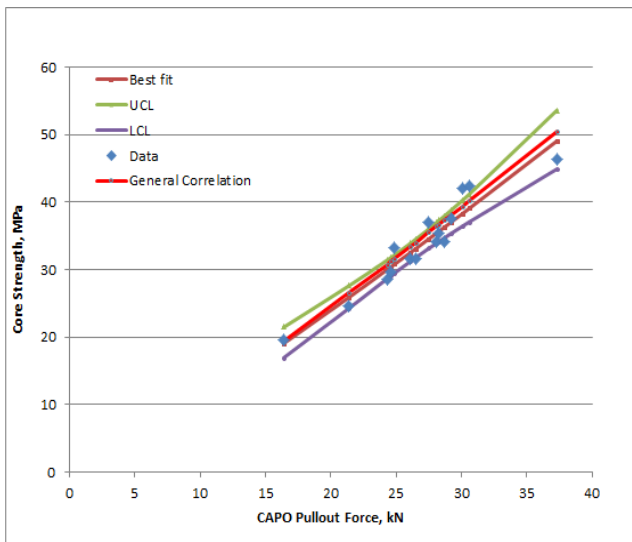
$$f_{\text{cube}} = 0.76 F^{1.16}$$

with a COV on the cores of 7.4% and 8.8% on the CAPO-TEST, in average.

Most interestingly, the effect of carbonation was only minimal on the CAPO-TEST. More importantly, there was no correlation between the depth of carbonation and the relative error of the estimate based on the CAPO-TEST.

Schmidt Hammer was also performed. The estimated strength from this test showed about 80% higher strength than cores, using the correlation recommended by the manufacturer of the Schmidt Hammer.

Subsequently testing of the remaining bridges was made with CAPO-TEST, only



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