Experimental methods for consideration of concrete cracking in service life design

Prediction of service life of reinforced concrete structures using corrosion initiation as the controlling limit state and assuming homogeneous concrete has become commonplace. However, advancements are needed to progress service life models to consider initially non-pristine concrete (i.e., concrete with cracks at start of service) and to more accurately estimate time-to-cracking due to reinforcement corrosion based on experimental measurements. This paper presents two non-destructive measurement techniques with potential to quantify the impact concrete cracks have on service life of reinforced concrete.

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