MAXIMUM AMOUNT OF REINFORCING BAR CORROSION AND RELIABILITY-BASED DURABILITY DESIGN TO ENSURE THE SEISMIC SAFETY OF RC BRIDGE PIERS EXPOSED TO MARINE ENVIRONMENT

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Abstract:
Although accurate structural models of corroded structures subjected to monotonic flexure and/or shear have been developed, few seismic performance studies consider corrosion damage. Earthquakes are a dominant hazard to structures in many parts of the world. Lifetime assessments of structures in aggressive environments and earthquake prone regions must consider the effects of corrosion on seismic performance. While the seismic demand depends on the results of the seismic hazard assessment, the deterioration of seismic capacity depends on the environmental hazard assessment. This paper analyzes the life-cycle reliability of corroded reinforced concrete structures under earthquake excitations and presents a reliability-based durability design methodology that ensures the seismic safety of RC bridge piers in a marine environment.