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**CORROSION-INDUCED BRITTLE FAILURE IN REINFORCING STEEL****J. Sanchez<sup>a\*</sup>, J. Fullea<sup>a</sup>, C. Andrade<sup>a</sup>**<sup>a</sup> Instituto de Ciencias de la Construcción “Eduardo Torroja”, C/Serrano Galvache, 4, Madrid, Spain\* Contact person: [javier.sanchez@csic.es](mailto:javier.sanchez@csic.es)**ABSTRACT**

Steel rebar corrosion is the main cause of reinforced concrete structure deterioration and shortened service life. A number of corrosion mechanisms induce geometric flaws in rebar, reducing its mechanical strength. Interstitial hydrogen, which lowers steel toughness, may also prompt embrittlement.

This paper discusses the effect of local, pitting and corrosion stress on steel rebar performance. The findings show that rebar bearing strength depends on corrosion morphology and weight loss, which would explain the scatter in experimental results when the latter is the sole parameter studied.

**KEYWORDS:** Corrosion; Brittle Failure; Stress Corrosion Cracking; Hydrogen Embrittlement.

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