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Seismic Performance of Concrete Structures Reinforced with FRP Bars

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Extended Abstract

As a result of recent research efforts and improvement of manufacturing processes, Fiber-Reinforced Polymer (FRP) bars have been recognized as a reinforcement material for concrete structures as evident by the numerous successful field applications. However, most of the research in this area was focussed on studying the behaviour of individual elements such as beams and slabs (and recently columns) under monotonic loading. Recently, there has been an increasing interest in the seismic performance of FRP-RC structural elements such as beam-column joints, slab-column connections, columns and shear walls.

Most building codes require the seismic analysis of buildings to determine the forces and deformations induced in structural members not considered to be part of the seismic-force-resisting system (SFRS) due to seismic demands on the SFRS. This presentation introduces the state-of-the-art on the seismic performance of FRP-RC structures and the efforts of North American code committees in developing design provisions for these structures.