Commercial-Residential Buildings' Vulnerability Component of the Florida Public Hurricane Loss Model

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The constant natural hazards' threat has led the public and private sectors to require the civil engineering community to provide with more effective decision making tools. An increasing number of stakeholders are no longer only interested in the performance of a single building exposed to deterministic loads but also of a group of buildings subjected to probabilistic demands. This requirement has created a significant challenge onto the civil engineering community that faces a twofold problem, namely to estimate the performance of heterogeneous groups of structures subjected to uncertain loads. Both fields are uncertain and need to be surveyed and defined. Within this context the State of Florida has created the Florida Public Hurricane Loss Model (FPHLM). This paper presents the vulnerability component of the commercial-residential module of the FPHLM produced for the Florida Department of Financial Services. Its first stage, devised to project insurance losses in single-family residential buildings, was certified by the State of Florida. The model was later expanded to deal with commercial-residential low-rise (1-3 stories) and mid-high rise buildings (4+ stories). In this paper the rationale to estimate the vulnerability of low and mid-high rise buildings along with selected results are presented and discussed.