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## Bringing Design for Functional Recovery into State of Practice: Updated Analytical Tools and How They are Being Used on Recent Projects

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### ABSTRACT

Resilient design for functional recovery has gained immense traction in the past few years, and structural engineers are already electively designing many buildings to be more resilient, with typical goals related to the building regaining function more quickly after an earthquake. In parallel with this elective adoption in structural engineering practice, the research community has been rapidly expanding the analytical tools used to estimate reoccupancy and functional recovery times. These tools allow the structural engineer to make design decisions (for both structural and non-structural design), analytically estimate the resulting effect on the reoccupancy and functional recovery times, and then iteratively revise the design to meet the intended recovery goals (e.g. immediate occupancy and function within a week). This presentation discusses these recent improvements in these analytical tools to model reoccupancy and functional recovery (with primary focus on the recent NIST work as well as the FEMA-funded ATC-138 project). This presentation also provides examples of how these advanced methods are being used in practice for current building projects, showing how forward-looking practitioners are delivering more resilient buildings to their clients, both for the benefit of both their clients and community resilience at large.

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