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**TITLE**

Resilience criteria for seismic evaluation of existing buildings: A proposal to supplement ASCE 31 for intermediate performance objectives

**SESSION**

This paper would be most appropriate in the SEAONC EBC-proposed session on *Engineering for Resilience* or in a session on improvements to existing ASCE standards.

**ABSTRACT**

Resilience, defined by the time needed to recover basic operations, is becoming the measure of choice even for non-“essential” facilities. This paper proposes new evaluation criteria engineers can use to address clients’ resilience concerns.

Our performance-based engineering tools are better than their compliance-based predecessors. But they still don’t address the question our clients are asking as they look beyond mere safety and even beyond likely damage: How long will I be out of my building or unable to operate my business?

For example, our national standard, ASCE 31, provides criteria to confirm either Life Safety performance – which is fine if you can afford to lose your building and contents – or Immediate Occupancy performance – which is necessary only if you need to be functioning in your space right away. What about the cases in between? Most businesses can afford to close for a week for clean up, but not a month or more. City emergency planners want to know how many shelter beds they’ll need after, say, a 72-hour period. Social service providers, daycare and assisted living centers, and government offices are not essential in building code terms, but it’s part of their mission to be available in times of need, and the community might be relying on them to be recovered within weeks of a damaging event.

The resilience question is crucial for organizations that anticipate being active during response or recovery but occupy buildings designed for basic code compliance. It’s also meaningful to organizations that lease space and therefore have the capacity to alter nonstructural components and contents but are less interested in the results of a typical structural assessment.

Currently, there are no consensus criteria to help a client gauge whether he can expect to recover within days, weeks, or months. This project will develop some, using ASCE 31 as a platform and incorporating input from FEMA 74 and other relevant sources. The proposed criteria will allow engineers already familiar with ASCE 31 to extend its use to intermediate performance objectives and to address client concerns in resilience-based terms most valuable to their planning efforts. As with ASCE 31, the intent of the proposed criteria is not to predict absolute “dollars” or “downtime” but to identify conditions expected to compromise recovery within a stated time, the resilience objective.

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