

## **Capacity Curve Derivation From Recorded Floor Accelerations For Seismic Building Damage Evaluation: Advancements And Avenues For Future Research**

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A method to derive a building's capacity curve using floor acceleration data from seismic events was developed. This involves extracting out the predominant mode of acceleration response using the discrete wavelet transform and double integrating to obtain displacements. For multistory buildings, the response is condensed to a representative single-degree-of-freedom acceleration and displacement response which are plotted together to obtain the capacity curve. This is used to evaluate: (i) damage based on ductility response, and (ii) its capacity to survive further events. Advancements to consider limited number of sensors and to automate the process for concrete frame buildings was made. However, limitations remain, such as the inability to consider residual deformation, time-variation in predominant frequencies, and soft-story failure. This paper summarises recent advancements, verifications using E-Defense shake-table experimental data, and avenues for future research.