1. Record Nr. UNINA9910346753403321

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Titolo	Evaluation of Building Resilience Under Earthquake Input Using Single, Double and Multiple Impulses
Pubbl/distr/stampa	Frontiers Media SA, 2017
Descrizione fisica	1 online resource (61 p.)
Collana	Frontiers Research Topics
Soggetti	History of engineering and technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	This eBook is the third in a series of books on the critical earthquake response of elastic or elastic-plastic structures under near-fault or long-duration ground motions, and includes four original research papers which were published in the specialty section Earthquake Engineering in 'Frontiers in Built Environment'. Several extensions of the first eBook and the second eBook are included here. The first article is on the earthquake resilience of residential houses after repeated ground motions with high intensity. The 2016 Kumamoto earthquake brought a significant impact on the earthquake resilience of residential houses under repeated ground motions with high intensity in a few days. The necessary strength upgrade withstanding two repeated high-intensity ground motions was found to be 1.5. The second article is concerned with the smart enhancement of earthquake resilience of building structures under both near-fault and long-duration ground motions. A hybrid system of base-isolation and building connection control was proposed and its earthquake resilience to near-fault and long-duration ground motions was evaluated by a double impulse and a multiple impulse. It was demonstrated that the base-isolation is effective for near-fault ground motions and the building connection system using passive dampers is effective for long-duration ground motions. The third article is related to the robustness evaluation of elastic-plastic base-isolated high-rise buildings under resonant near-fault ground motions. The robustness function was introduced to

evaluate quantitatively the robustness of elastic-plastic base-isolated high-rise buildings. The fourth article is an extension of the previously proposed energy balance approach to a bilinear elastic-plastic single-degree-of-freedom system under a long-duration sinusoidal ground motion. A historical difficulty in nonlinear vibration posed by Caughey (1960) and Iwan (1961) has been overcome in a smart manner after half a century. The approach presented in this eBook, together with the previous eBooks, is an epoch-making accomplishment to open the door for simpler and deeper understanding of structural reliability and resilience of built environments in the elastic-plastic and nonlinear range.