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Original Scientific Paper

ADVANCED GVMG SEISMIC ISOLATION SYSTEM FOR BUILDINGS

Summary: *The Generalized-Vertical Multi-Gap Seismic Isolation System (GVMG-SI System) for Buildings is based on the originally introduced new concept of global optimization of seismic energy balance (GOSEB Concept). This idea has been achieved by integration of: (1) Advantages of seismic isolation systems; (2) Advanced new concept for vertical multi-level multi-directional seismic energy absorption, and (3) Advantages of efficient system for response displacement control.*
In this paper presented is the basic concept of the developed advanced GVMG-seismic isolation system for seismic protection of existing and new multi-story buildings and selected original results from conducted experimental tests. The proposed system is applicable for economical earthquake protection of building structures of different usability categories and different types under destructive effects of the strongest future earthquakes. Particular emphasis is put on development of seismic isolation and vibration control devices providing high practical efficiency and effective application capability.
Keywords: *Buildings, nonlinear seismic response, passive control, seismic isolation devices, damping devices, displacement control devices, seismic protection*

NAPREDAN GVMG SISTEM ZA SEIZMIČKU IZOLACIJU OBJEKATA ZGRADA

Sažetak : *Generalan-vertikalan multi-gap sistem za seizmičku izolaciju zgrada (GVMG-SI Sistem) je baziran na kreiran nov i originalan concept za globalnu optimizaciju energetskog balansa ulazne seizmičke energije (GOSEB Koncept). Ova ideja je ostvarena preko integracije: (1) Postojećih prednosti koje obezbedjuju sistemi za seizmičku izolaciju; (2) Novih prednosti koje obezbedjuje originalan concept vertikalnog multi-nivo multi-pravac absorbera seizmičke energije i (3) Prednosti efikasnog sistema za kontrolu velikih pomeranja pri seizmičkom odgovoru.*
U ovom radu izložen je originalan koncept razvijenog unapredjenog GVMG-sistema za seizmičku izolaciju pogodnog za seizmičku zaštitu postojećih i novih višespratnih objekata zgrada i odabrani originalni rezultati od izvršenih eksperimentalnih testova. Predloženi sistem je primenljiv za ekonomičnu seizmičku zaštitu zgrada različitih namena i različitih tipova konstruktivnih sistema pri dejstvu i najjačih i najdestruktivnijih budućih zemljotresa. Posebna pažnja je poklonjena razvoju uredjaja sistema za seizmičku izolaciju i sistema za kontrolu vibracija obezbedjujući time visoku praktičnu efikasnost i sposobmost efektivne primene.
Ključne reči: *Zgrade, nelinearan seizmički odgovor, pasivna kontrola, uredjaji za seizmičku izolaciju, uredjaji za prigušivanje, uredjaji za kontrolu pomeranja, seizmička zaštita*

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