SUSTAINABLE SEISMIC DESIGN – A CONTINUING EVOLUTION

Author(s)
Stephen Pessiki
Department of Civil and Environmental Engineering
Lehigh University
Bethlehem PA, USA

Abstract

In the past 20 years, considerable research has focused on the development of a new approach to the seismic design of building structures that is rooted in the use of unbounded post-tensioned lateral force resisting systems, combined with energy dissipation mechanisms. These structural systems, referred to as to hybrid systems, have significant potential for improved seismic performance relative to conventional systems, including reduced damage, reduced residual lateral drift, and improved economy. Much of the prior research and implementation in practice has focused on traditional steel and concrete materials. The implementation of the hybrid design concept, together with the use of more eco-conscious renewable materials, offers clear benefits to society with important economic, environmental, and public safety impacts in seismic regions worldwide. This paper will review the evolution of the hybrid building concept, and the opportunities that exist for the continued evolution of the concept through the use of renewable materials and eco-conscious construction practices to create more sustainable building systems for seismic regions.

Keywords : -