

“Seismic Isolation Applications”

Monday, December 25, 2023

15:30-16:30

Z04-İnşaat Mühendisliği Bölümü

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Mehmet Emre ÖZCANLI got his B.Sc. degree with honors in Civil Engineering from Istanbul Technical University in 1989. He got his MSc (1999) degrees in Earthquake engineering from Boğaziçi University, Kandilli Observatory & Earthquake Research Institute. After 1992 Erzincan earthquake, he focused on earthquake engineering, especially on mitigation systems. After 1999 Kocaeli earthquake occurred, he decided to go to Japan in order to investigate “Seismic Isolation Systems to be applied in Japan” since his hometown is Erzincan, and his family had suffered a lot from earthquakes happened in Erzincan. It motivated him on seismic isolation systems to save human being life. He is founder member of Turkish Association for Seismic Isolation (TASI) which was established in 2006 and recently general secretary of TASI. He was the organizing secretary for ASSISI World Conference on Seismic Isolation held in Istanbul in 2007. He supplied more than 16.000 anti-seismic devices including Lead Rubber Bearings (LRB), Double Friction Pendulum Bearings, Viscous dampers, Sliders, etc. in Turkey for public hospitals, data centres, highway viaducts. The most featured projects he supplied the bearings are Gebze Izmir Highway Viaducts, 15 Temmuz Bosphorus Suspension Bridge, North Marmara Highway, Bursa PPP Hospital, Manisa PPP Hospital, Corum State Hospital, Turkcell Data Centers at Izmir, Gebze and Çorlu, Mecidiyekoy Viaduct Retrofit, Erzincan State Hospital, ITU Data Centre, Sabiha Gokcen My Technic Hangar.

Abstract

To many structural engineers, the conventional approach to protect buildings from the destructive forces of earthquakes is to increase the strength of the buildings so that they do not collapse during such events. This approach is not entirely effective in terms of protection related to the contents and occupants as a result of the application of the forces transmitted in to the building. Since the motion of earthquakes is vibrational in nature, the principle of vibration isolation can be utilized to protect a building. This can be achieved via decoupling the structure from the horizontal components of the earthquake ground motion by mounting rubber bearings and friction pendulum bearings between the structure and its foundation. Such a system not only provides protection to the building but to its contents and occupants as well. During this seminar, the applications and the benefits of seismic isolation systems along with observations from past earthquakes will be presented. A simulation will be performed in GTU Civil Engineering Department.