Winter Construction Collaborates with Georgia Tech: Experimental Testing of Innovative Retrofits to Abate Earthquake Damage

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Winter Construction recently donated project management services worth $250,000 to help construct, in collaboration with a team of researchers from the Georgia Tech School of Civil and Environmental Engineering at the Georgia Tech Structural Laboratory, a full-scale, two-story, reinforced concrete building for an experiment that will test innovative retrofit techniques, in order to prevent earthquake damage to older buildings. The test will determine which retrofit is most effective, easily installable, easily adaptable, and economical when retrofitting reinforced concrete structures to mitigate the effects of earthquakes.

"Typically when we build a building, there are many steps we take to ensure the building is structurally sound, and the people who inhabit it will be safe. But it is rare, if ever, that we have an opportunity to help build one building that has the potential to make tens of thousands of other buildings and millions of people safe from collapsing buildings due to major earthquakes," stated Brent Reid, Winter's President and CEO, when considering the potential impacts from a one-of-a-kind project like this.

This experiment will help to identify retrofit techniques that are cost-effective and that can minimize the occupancy disruption during the retrofit process. Eccentric mass shakers, provided by the Network for Earthquake Engineering Simulation (NEES) program, will shake the concrete building, producing effects similar to those of a moderate to large earthquake.

NEES was created by the National Science Foundation (NSF) to aggressively move forward the development of improvements and innovations in infrastructure design and construction practices to prevent or minimize damage during earthquake events.

In scale alone, this project is the first of its kind. The technique and equipment used by researchers in this experiment can also be used to test other reinforced concrete gravity frame structures.

The reinforced concrete building to be used during the experiment will display many of the same structural vulnerabilities of older, less fortified concrete buildings; structures that have the propensity to be damaged during earthquakes such as recent ones in Japan, Turkey, and Haiti. Even throughout the US, older buildings are susceptible to the effects of earthquakes, as modern-day seismic codes have only been put into practice on the east coast in the last 20 years. The potential impacts from this research include widespread use of retrofits that will heighten collapse prevention, saving lives as well as significantly reducing the economic catastrophes that accompany earthquakes.

The test building was recently completed, and the Georgia Tech Structural Laboratory will conduct the experiment in the Spring of 2014.

About Winter:
Winter is a privately owned and operated Atlanta based general contracting company. We provide construction and environmental services to clients in the hospitality, retail, government, education, corporate/office, religious, healthcare, historic restoration, industrial and multifamily markets in the Southeast. For more information visit: http://www.wintercompanies.com

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