# Effect of column size on the seismic capacity of elevated reinforced concrete water tank

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**ABSTRACT**
Elevated reinforced concrete water tanks are one of the most essential structure to major cities and also in rural areas before, during and after a disaster such earthquake. It is important to prevent elevated reinforced concrete water tank from collapse so the water supply can be maintained. One of the methods used to evaluate the seismic capacity of elevated reinforced concrete water tank is the pushover analysis. Pushover analysis is based on the assumption that structure oscillate predominantly in the first mode or in the lower modes of vibration during a seismic event. The objective of this project is to study the effect of column size on the seismic capacity of elevated reinforced concrete water tank. A total number of 10 models of elevated reinforced concrete water tanks consist of 4 storey and 7 storey has been used for this project. All models have been designed repeatedly to 5 different size of column for each storey, where the beam size is fixed for each model. All models have been designed based on BS8110 to represent the existing elevated reinforced concrete water tanks. Then the pushover analysis has been conducted on all models to study the seismic capacity of elevated reinforced concrete water tank. An adequate information on seismic demands imposed on the structural system and its components by the designed ground motion will be provided from the pushover analysis. Based on the pushover analysis conducted in this study, the elevated RC water tank with larger size of column tend to have higher value of force at yield limit state and ultimate limit state.

**KEYWORDS:**
Column size; Seismic capacity; Concrete water tank