

## Civil Engineering: Seismic Principles Examination Sample Questions

### Example No. 1

A civil engineer is designing a 5-story building with a discontinuous diaphragm assigned to Seismic Design Category E. Which of the following will be required to be increased by a factor of 1.25?

- A. Base shear
- B. Diaphragm connection to the vertical elements
- C. Collector connections using the overstrength factor
- D. Non-structural element forces

### Example No. 2

An apartment building of reinforced concrete construction was built in 1930. For the maximum considered earthquake, what minimum level of seismic design is appropriate to satisfy the *CBC* design philosophy for the replacement of this building?

- A. Minor structural damage or loss of function
- B. Limited property damage
- C. Limited damage in order to maintain function
- D. Major structural damage but no collapse

### Example No. 3

Given:

- $I_e = 1.0$
- $S_I = 0.67g$
- $S_S = 1.70g$
- $S_{D1} = 0.67g$
- $S_{DS} = 1.13g$
- $T = 0.8$  secs
- $T_L = 12.0$  secs

A storage yard has a cast-in-place concrete silo. The silo walls are continuous to the foundation. The tributary weight of the structure, including the weight of the stored items, is 100 kips. What is the minimum design base shear?

- A. 5 kips
- B. 18 kips
- C. 28 kips
- D. 38 kips