



- 1) Which of the following systems requires a 3-D analysis?
 - a) A building with flexible diaphragms and an out-of-plane horizontal irregularity
 - b) A building with flexible diaphragms and a non-parallel-systems horizontal irregularity
 - c) A building with semi-rigid diaphragms and an in-plane vertical irregularity
 - d) A building with rigid diaphragms and a torsional horizontal irregularity
 - e) All of the above
 - f) None of the above
 - g) b and d

- 2) Which is most correct?
 - a) Accidental eccentricity is addressed by adding a torsional moment equal to the seismic force multiplied by 5% of the building dimension orthogonal to that force.
 - b) Accidental eccentricity is addressed by checking torsional irregularity.

- 3) Which statements about the exponent k in the vertical-force distribution equation are correct?
 - a) The factor increases with period
 - b) A higher factor puts more force at the top of the building
 - c) The factor captures higher-mode effects
 - d) All of the above
 - e) None of the above

- 4) Why are the collector-force diagrams different for the two braced-frame lines?
 - a) The presence of an opening on Line 5 precludes shear from being transferred to the collector along part of its length.
 - b) Accidental eccentricity puts more force on line 1.
 - c) The overstrength factor applies in areas of discontinuity.

- 5) In the design example, it is suggested to pin the gravity columns at each level. Why?
 - a) To reduce P-Delta effects
 - b) To allow the use of non-compact columns
 - c) To facilitate design of the seismic-load-resisting system for 100% of the lateral forces
 - d) All of the above
 - e) None of the above



Seismic Design in Steel

Quiz for Session 6: Seismic Design Concepts – Application: Building Analysis/Diaphragms –
March 26, 2018

Due: April 16, 8:00 a.m. EDT – Submit through the online form

- 6) Why is the selection of the SMF beam-to-column connection important at this stage?
- a) Some beam to-column connections affect frame stiffness, and this effect should be considered in the analysis used for member selection.
 - b) Prequalified beam to-column connections have limits on the member sizes that can be used and thus limit member selection.
 - c) Both a and b
 - d) Neither a nor b
- 7) Which is more correct?
- a) SMF column bases are always fully rigid because they are designed for the overstrength factor
 - b) SMF column bases have flexural stiffness due to the foundation rotational stiffness, including that of any connecting grade beams.
- 8) The stiffness adjustment factor K_F on BRBs represents:
- a) The effect of the stress that might migrate from the steel core to the sleeve
 - b) The effect of the larger stiffness in the non-yielding segments of the brace
 - c) Poisson's effect
 - d) The Bourne Effect
 - e) Ben Affleck
 - f) All of the above
 - g) None of the above
- 9) Which of the following affect the stiffness adjustment factor K_F on BRBs?
- a) BRB length
 - b) BRB strength
 - c) BRB connection type
 - d) All of the above
 - e) None of the above
- 10) True or False: The stability factor θ (theta) in ASCE 7 §12.8.7 is approximately equal to B_2-1 , where B_2 is the multiplier for second-order effects in AISC 360 Appendix 8.
- a) True
 - b) False

