Seismic Design in Steel
Quiz for Session 7: Seismic Design Concepts – Application: Design of the Moment Frames – April 2, 2018
Due: April 23, 8:00 a.m. EDT – Submit through the online form

1) Which of the following have to be considered in SMF beam selection?
   a) Prequalification weight limit
   b) Prequalification depth limit
   c) Prequalification flange-thickness limit
   d) Prequalification span-to-depth ratio limit
   e) Seismic compactness limit
   f) All of the above
   g) None of the above

2) Which is more correct?
   a) SMF beams with RBS must meet the AISC seismic compactness limit.
   b) SMF beams with RBS must meet the AISC seismic compactness limit at the region of the RBS expected to undergo significant inelastic strain.

3) Which of the following need to be considered in the analysis?
   a) Base fixity/foundation flexibility
   b) Panel-zone flexibility
   c) Whether DAM stiffness reductions apply
   d) RBS effect on beam effective stiffness
   e) All of the above
   f) None of the above

4) Which of the following may be considered in member selection for more economical design or a more efficient design process?
   a) Strong-column/weak-beam ratio
   b) Likelihood of necessitating column reinforcement
   c) Beam lateral bracing spacing
   d) All of the above
   e) None of the above

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5) Why is the Effective Length Method (ELM) recommended in the design example rather than the Direct Analysis Method (DAM)?
   a) The ELM produces more accurate results.
   b) The DAM requires special software.
   c) It reduces design effort not to have to change from a strength check with stiffness reduction to a drift check without stiffness reduction.

6) In the design example what is the anticipated plastic hinge location?
   a) At the column centerline
   b) At the column face
   c) One half a beam depth in from the column face
   d) At the center of the RBS
   e) At the 2/3 point of the RBS
   f) All of the above
   g) None of the above

7) Which of the following statements are true about the effect of the gravity forces on SMF beams and beam-to-column connections?
   a) Gravity forces may be ignored.
   b) Gravity forces increase the moment at the column face.
   c) Gravity forces from beams on opposite sides of the column have offsetting effects on the column panel-zone shear.
   d) All of the above
   e) None of the above
   f) Both b and c

8) Which is more correct?
   a) The ratio of column plastic section to that of the beam is the same as the strong-column/weak-beam ratio.
   b) The ratio of column plastic section to that of the beam may be a useful consideration in member selection in order to achieve an acceptable strong-column/weak-beam ratio.

9) Which is used to determine the required strength for the limit states of web-local yielding and web crippling in the column?
   a) The expected strength of the beam flange
   b) The expected strength of the column flange
   c) The moment at the column face
   d) The column shear

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10) SMF tend to be governed by drift limits, so it is more efficient to begin the design by selecting members to meet the drift limit and then proceeding to verify member strength. True or false?
    a) True
    b) False