

Connection Design: Tips, Tricks & Lessons Learned  
Quiz for Session 7: Seismic Connections – March 25, 2019  
Due: April 15, 8:00 a.m. EDT – Submit through the online form



1. When designing members that are part of a seismic force-resisting given in AISC 341-16...
  - a. one only needs to satisfy the requirements of AISC 341-16.
  - b. one only needs to comply with the requirements of AISC 341-16, and AISC 358-16, if the system is a special concentrically braced frame.
  - c. one still needs to satisfy all of the requirements in AISC 360 unless a specific exclusion or substitute is prescribed in AISC 341-16.
  - d. all welds connecting such members shall satisfy the requirements for a demand critical weld.
  
2. All welds used to connect members that are part of a seismic force-resisting system, provided in AISC 341-16, must satisfy the requirements...
  - a. for demand critical welds.
  - b. for consumables as given AWS D1.8.
  - c. for consumables as given in AWS D1.8 only for welds designated as demand critical.
  - d. for Supplemental Welder Certification as required in Annex D of AWS D1.8.
  
3. Where required by AISC 341-16 and/or AISC 358-16, special corner snip geometry is required in continuity plates...
  - a. to minimize flange bending of the column flange.
  - b. to ensure proper weld termination.
  - c. to facilitate proper force transfer to the column web doubler plate.
  - d. to avoid welding in the column k-area.
  
4. For a prequalified bolted flange plate (BFP) connection, as given in AISC 358-16,  $R_y F_y$  and  $R_t F_u$  can be used in place of  $F_y$  and  $F_u$  for limit state checks on the ...
  - a. the flange plate only.
  - b. the flange plate and the beam flange.
  - c. the beam flange only.
  - d. all elements and hardware part of the connection.
  
5.  $R_y$  and  $R_t$  are factors used to capture the...
  - a. expected yield stress and expected tensile strength of a material, respectively.
  - b. expected tensile strength and expected yield stress of a material, respectively.
  - c. the effects of mill geometry tolerances for rolled shapes as given in the AISC *Code of Standard Practice* (AISC 303-16).
  - d. the effects of fabrication geometry tolerances as given in the AISC 303-16.



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6. Welding is permitted in protected zones...
  - a. as long as they are removed subsequent to erection.
  - b. only when the weld is part of the permitted work, as given in the design and detailing prescriptions of AISC 341-16 and AISC 358-16.
  - c. when the erector deems it necessary to facilitate erection.
  - d. is never permitted.
  
7. When designing bolted joints that connect members of a seismic force-resisting system, as given AISC 341-16, the joints should be designed...
  - a. as slip-critical connections to ensure there is no slip at a code-level ground motion.
  - b. as slip-critical connections regardless of hole type.
  - c. as pretensioned joints with a Class A faying surface, or better, using bearing bolt shear strength values when standard sized hole types are used.
  
8. Which of the following can be used to avoid the “barn door” effect in the brace connection of a special concentrically braced frame?
  - a. Use a smaller Whitmore angle than 30 degrees, use an elliptical hinge line, or allow the brace to buckle in-plane and provide a hinge plate to accommodate brace buckling
  - b. Design the connection for the loads obtained using seismic load combinations with the overstrength factor, in lieu of  $R_y F_y A_g$
  - c. Specify wide flange braces or round HSS braces
  - d. Use a brace connection that does not require the brace to be slotted over the gusset
  
9. True or False: When delegating the design of BFP connections in a special moment frame, the engineer of record should provide the gravity load assigned to the frame beam.
  - a. True
  - b. False
  
10. The moment at the face of the column, for a given beam size in a special moment frame where a prequalified moment connection, specified in AISC 358-16, is...
  - a. the same regardless of the type of prequalified moment connection selected.
  - b. the same for both the reduced beam section and BFP connections.
  - c. varies depending on the type of connection used.
  - d. is the same at both ends of the beam.

