Fundamentals of Welding and Bolting
Quiz for Session 2: Principles of Welded Connections – October 4, 2021
Due: November 1, 8:00 a.m. EST – Submit through the online form

AISC Night School

1. If a welded connection does not have a direct load path, which of the following might result?
    a. The stresses acting on the weld group may not be evenly distributed.
    b. The connection may locally deform parts of the member that lie parallel to the direction of the force.
    c. Both a and b
    d. Neither a nor b

2. Why does the speaker recommend that welded cover plates in cyclically loaded beams terminate near areas of low beam moment?
    a. To achieve sufficient weld length to increase the moment capacity of the beam
    b. To achieve sufficient weld length to avoid a multi-pass weld
    c. To avoid the need for transverse fillet welds at the end of the cover plate
    d. To avoid a poor fatigue detail at the termination of the fillet welds in a region of high tensile stress

3. True or False: There are exceptions to the full-length backing requirement provided in AWS D1.1.
    a. True
    b. False

4. True or False: An overly-constrained welded connection may be vulnerable to cracking while the weld metal expands.
    a. True
    b. False

5. Given bending about the weak axis of the stem plate of a tee joint, how does the speaker recommend avoiding problematic bending of the weld?
    a. Connect the stem of the tee with a fillet welds on each side of the stem plate
    b. Connect the stem of the tee with a two-sided CJP groove weld
    c. Provide a stiffener perpendicular to the stem plate
    d. None of the above

6. Which of the following constitutes what the speaker describes as a “nothin’ weld”?
    a. A weld that is ineffective in transferring forces because it connects an attachment to a perpendicular element of a member that deforms locally
    b. A single-pass weld that is made in a flat position
    c. A tack weld
    d. None of the above

7. What example did the speaker give to specifically demonstrate how a welded connection can be detailed to be easy to fabricate?
    a. A gusset plate that is detailed so that all welds may be made in the shop
    b. A cover plate that is sized so that all welds may be made without rotating the member
    c. A hanger plate that is welded to a round HSS in the longitudinal direction instead of the transverse direction
    d. A butt splice connected with a single-sided CJP groove weld instead of a double-sided CJP groove weld

8. What does the speaker intend with the advice that “(a) correct and proper welded connection recognizes commercial realities”?
    a. One should consider the tolerances associated with the structural shape production.
    b. One should use steel materials readily available in the area of a project.
    c. One should consider whether welded built-up shapes can be avoided, in favor of hot-rolled shapes.
    d. None of the above

9. What architect wrote that “form ever follows function”?
    a. Daniel Burnham
    b. I.M. Pei
    c. Louis Henry Sullivan
    d. Frank Lloyd Wright

10. The speaker described a case study where corner welds were required for a 100-inch tall x 60-inch wide built-up box section? What lesson can be taken from this case study?
    a. Box sections of such scale should always use CJP groove welds in the corners.
    b. Detail choices that might have relatively little consequence to the final design can have major consequences for the fabricator with respect to safety.
    c. Design engineers should not have input in the welding process that is chosen.
    d. Even for box sections of this scale, fabrication work on the inside of the box cannot be safely performed.