Night School 26: Developing Eye for Connection Design
Session 1: Basic Principles, June 22, 2021
Due: July 20, 2021, 8:00 am EDT – Submit through the online form

1. *Specification* Chapter F assumes:

    a. Beam end connections are full-depth
    b. Beam end connections are half-depth
    c. Points of support are restrained against rotation about their longitudinal axis.
    d. Design will be based on UDL

2. *Specification* Chapter C requires:

    a. Consideration of the "magic 5".
    b. Connections that are 20 times stiffer than the members they connect.
    c. The use of notional loads.
    d. Explicit calculation of the 1^{st} order effects so that a 2^{nd} order analysis can be performed.

3. True or False. The *Specification* provides explicit procedures to account for connection deformations that contribute to the displacements of the structure.

4. Exercising engineering judgment is:

    a. Prohibited by the International Building Code (the IBC).
    b. Unnecessary since the *Specification* addresses all applicable limit states which occur in the full range of structural design.
    c. For suckers who have old computers and software.
    d. An important part of all practical design.

5. _____ determines whether or not a structure falls within the scope of the AISC *Specification*.

    a. The AISC *Manual*
    b. The IBC
    c. ASCE 7
    d. A licensed engineer or architect

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6. _____ is the final authority in the event of a disagreement between parties regarding the design of connections to be incorporated into the overall structural steel frame.

   a. The licensed engineer in responsible charge of the connection design
   b. The owner
   c. The general contractor
   d. The engineer of record

7. Per *Specification* Section B3.4a a simple connection

   a. transmits a negligible moment.
   b. may be assumed to allow unrestrained relative rotation between the framing elements.
   c. shall have sufficient rotation capacity to accommodate the required rotation determined by the analysis of the structure.
   d. All of the above

8. Per Specification Section B3.4b a moment connection

   a. transfers moment.
   b. allows negligible rotation between the connected members.
   c. shall have sufficient strength and stiffness to maintain the initial angle between the connected members at the strength limit states.
   d. All of the above

9. Ensuring that the design of members and connections is consistent with the intended behavior of the framing system and the assumptions made in the structural analysis is

   a. something that structural analysis and design programs do automatically.
   b. the result when the *Specification* equations are used to design members and connections.
   c. is an explicit requirement of the *Specification.*
   d. an unrealistic expectation given all of the RFIs structural engineers have to address.

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10. True or False. All of the forces that need to be considered in the design of connections will be reported in the structural analysis produced by the computer.

11. The presentation focused on the effect of connection design as it relates to member stability because

    a. only stability needs to be considered relative to HOW forces are transmitted by connections.
    b. stability-related issues are among the more common issues that the presenter sees in practice.
    c. Jim Fisher has said, "I'd rather be in an over-braced and under-designed building, than in an over-designed, under-braced building."
    d. All of the above

12. The Engineer of Record is the final authority regarding the design of connections to be incorporated into the overall structural steel frame and can impose any requirement he or she deems necessary at any point in the project…

    a. for FREE!!!
    b. However, if new requirements are imposed after a bid is accepted, this likely represents a revision to the contract.
    c. as long as it does not increase the cost or schedule of the project.
    d. as long as the pieces have not been shipped.

13. Engineers

    a. only need to do what is explicitly required in the codes.
    b. bring value through the application of engineering judgment to a wide range of applications to determine where the common design methods are sufficient or insufficient for the task.
    c. receive little feedback that could be used to evaluate or improve their abilities.
    d. Items b and c

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