Night School 26: Developing Eye for Connection Design
Session 3: Load Paths and Force Distribution, July 27, 2021
Due: August 24, 2021, 8:00 am EDT – Submit through the online form

1. When a vertical braced frame is designed as a pinned truss assuming a statically determinate system. The connections in a vertical braced frame:
   a. therefore will also be a statically determinate.
   b. must each be joined with a single, greased pin.
   c. generally be statically indeterminate.
   d. can only be designed using finite-element models.

2. Force
   a. is attracted to strength.
   b. seeks its own level.
   c. in buildings is best resisted using synchronous, orbiting skyhooks.
   d. is attracted to stiffness.

3. Ductility
   a. is necessary for the redistribution of the forces.
   b. is characterized by plastic deformation under tensile stress before failure.
   c. in steel structures is characterized by a loss of stiffness. will
   d. All of the above.

4. True or False: Since steel as a material is inherently ductile, any structure constructed of steel is will also be inherently ductile.
   a. True
   b. False
5. Provide a path for the force to enter into:
   a. a parallel member or section.
   b. a transverse member or section.
   c. the least stiff member or section.
   d. the strongest member or section.

6. In the Lower Bound Theorem the actual strength (the collapse solution) is closest to:
   a. the statically admissible internal force field that maximizes the capacity.
   b. the statically admissible internal force field that minimizes the capacity.
   c. the statically admissible internal force field that is calculated using free-body diagrams.
   d. the force field that is disabled by Luke Skywalker on Endor.

7. Delivering transverse force to the face of an HSS:
   a. is addressed in the AISC *Specification*.
   b. can result in an uneven distribution of stress.
   c. is not a practice that is consistent with structural intuition.
   d. All of the above.

8. Shear lag as addressed in the AISC *Specification*:
   a. can only be addressed using Table D3.1.
   b. need only be addressed for conditions shown in Table D3.1.
   c. can never be a concern for compression members.
   d. All of the above.
   e. None of the above.

9. The Connection Engineer tries to ensure that the design of the connections is "consistent with the intended behavior of the framing system and the assumptions made in the structural analysis" by:
   a. conforming to the criteria provided by the Engineer of Record in the contract documents.
   b. applying their own judgement and experience.
   c. by submitting substantiating connection information to the Engineer of Record for review and approval.
   d. a and c above.
   e. All of the above.

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10. The Uniform Force Method:
    a. has been proven to uniformly produce the most economical designs.
    b. is a standardized procedure that can be used to determine forces that satisfy equilibrium and are consistent with the boundary conditions.
    c. produces the only acceptable set of forces for vertical brace connection design.
    d. is magic.