



- 1) In the design example, how are required brace strengths determined?
  - a) From a 3-D finite element analysis
  - b) From a catalog
  - c) Using simple methods for horizontal force distribution and trigonometry to convert frame shear into brace axial force.
  
- 2) What does the factor  $\beta$  (beta) represent?
  - a) The expected strength of the BRB core material
  - b) The strain hardening of the BRB core material
  - c) The compression overstrength (compared to tension) of the BRB
  
- 3) Which of the following statements are true?
  - a) BRB area or strength may be specified
  - b) BRB steel material yield strength may be limited to a range of 38-46 ksi
  - c) BRB steel material yield strength should not be limited to a range narrower than 38-46 ksi
  - d) All of the above
  - e) None of the above
  
- 4) What does the factor  $\omega$  (omega) represent?
  - a) The expected strength of the BRB core material
  - b) The strain hardening of the BRB core material
  - c) The compression overstrength (compared to tension) of the BRB
  
- 5) Beam flexure in a V- or inverted-V braced (“chevron”) frame is due to...(pick one)
  - a) The strain hardening of the BRB
  - b) The compression overstrength (compared to tension) of the BRB
  - c) Brace weight
  - d) All of the above
  - e) None of the above



## Seismic Design in Steel

Quiz for Session 8: Seismic Design Concepts – Design of the Braced Frames – April 16, 2018

Due: May 7, 8:00 a.m. EDT – Submit through the online form

- 6) In calculating the strength of the beam with respect to web local yielding at the chevron connection, what bearing length is considered?
  - a) The horizontal projection of the Whitmore width
  - b) The gusset length
  - c) One half (  $\frac{1}{2}$  ) the gusset length
  
- 7) In the design example, the anchor rods are not used to resist shear. Why?
  - a) The anchor rods are de-bonded
  - b) The connection is modeled as a pin.
  - c) It is generally more economical to design anchor rods for tension only and provide a different load path for the horizontal force.
  
- 8) In the chevron connection, the gusset may be lengthened to reduce the required shear strength of the beam. True or false?
  - a) True
  - b) False
  
- 9) Which forces are considered in the design of the beam-column-brace connection in the stacked, inverted-V configuration?
  - a) The expected tension and compression strength of the connecting brace
  - b) The expected tension and compression strength of the braces of the level below connecting to the beam
  - c) The collector force from diaphragm analysis
  - d) All of the above
  - e) None of the above
  - f) a and b only
  
- 10) In BRBF the column required axial strength is determined using a seismic force equal to....(pick one)
  - a) The overstrength seismic load ( $\Omega_o E$ )
  - b) The capacity limited seismic load ( $E_{cl}$ ) based on the expected strengths of the braces in the frame
  - c) The greater of a ( $\Omega_o E$ ) and b ( $E_{cl}$ )
  - d) The lesser of a ( $\Omega_o E$ ) and b ( $E_{cl}$ )



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