



Illinois Society of Professional Engineers - University of Illinois
College of Engineering
Professional Engineer On-Line Seminars



INSTRUCTIONS:

1. View the on-line seminar.
2. Complete the quiz below.
3. Complete the "Engineer Information" section.
4. Make a copy for your records.
5. Mail the quiz along with your \$20 payment (credit card information or check payable ISPE) to:
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If you score an 80% or better on the quiz, you will receive your certificate within 4 weeks. If you fail to earn an 80% score, the quiz will be returned to you and you will have the opportunity to retake it.

Each seminar/quiz is worth 1 Professional Development Hour.

QUIZ: 05-06

Presenter: William F. Baker

Topic: Burj Dubai: A Case Study

1. What major structures has SOM designed throughout the world? (Select all that apply)
 - a. Aon Building (formally Amaco Building), Chicago, IL
 - b. Sears Tower, Chicago, IL
 - c. John Hancock Center, Chicago, IL
 - d. Jin Mao Tower, Shanghai, China
 - e. Taipei 101, Taipei, Taiwan
2. What does the word Burj mean?
 - a. Center
 - b. Name of company from region
 - c. Tower
 - d. Building
3. The most important structural parameter of a tall building is
 - a. The material
 - b. Its primary use
 - c. Weather / seismic conditions
 - d. Shape
4. Earthquake loading will always govern for tall buildings in high seismic areas.
(circle) TRUE FALSE

5. William Baker mentioned that the magnitude of wind vortices on a building can be affected by: (Select all that apply)
- Wind speed
 - Shape / cross section of the building
 - Air humidity
 - Width of the building
 - Height of the building
6. The worst possible cross section and variability of cross section for a tall building would be:
- Circle of constant radius up the height of the building
 - Rectangle of varying width the height of the building
 - Circle of varying radius up the height of the building
 - Rectangle of constant width the height of the building
7. When setbacks were used to change the cross section of the building, what structural component was used to transfer loads in the Sears Tower?
- Trusses
 - Large W-section beams
 - Transfer Columns
 - Diagonal compression members
 - Tension cables
8. Residential construction provides many more difficult design parameters than does Commercial / Office Structures.
(circle) TRUE FALSE
9. All of the following are advantages of the "Y-shaped" buttressed core floor plan except:
- Maximizes window perimeter for residential use
 - Reduces length of interior space to allow for ambient light
 - Provides the structure with a less rigid and forgiving behavior
 - Allows all residential elevators to be located in the inner core.
10. Most tall buildings experience twisting movement more than lateral movement.
(circle) TRUE FALSE
11. What is a way that one cannot observe the movement of a tall building?
- Observe twist of the building on the horizon.
 - Observe the lateral movement of a building where there is no adjacent building.
 - Observe the lateral movement of a building where there is an adjacent building.
 - Inertial movement or "jerk"
 - Noise or groaning of the building
12. The strength of concrete in the Burj Dubai was very high strength (>12000 psi).
(circle) TRUE FALSE
13. The most highly stressed members in the building were link beams located near a setback.
(circle) TRUE FALSE

14. In reference to wind behavior of a tall building, more chaotic behavior is ideal as compared to a more organized behavior.
(circle) TRUE FALSE
15. Prof. Kuchma's calculations on the capacity of the link beams proved that SOM's design was
 a. appropriately conservative
 b. very close to the calculated value
 c. unconservative and needed to be redesigned.
16. During the load tests on the piles, only one of the piles actually failed.
(circle) TRUE FALSE
17. What is the name of the effect caused by very hot air outside of the building and air conditioning inside of the building?
 a. Stack Effect
 b. Reverse Stack Effect
 c. Rush Effect
18. What year is the Burj Dubai scheduled to be completed?
 a. 2006
 b. 2007
 c. 2008
 d. 2009

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