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Continuing Education Course #302
HVAC Design
Cooling Towers

1. Approach is defined as:

- a. Type of system used
- b. Difference between the leaving water temperature and the entering air wet bulb temperature
- c. Inlet piping
- d. Difference between the entering and leaving water temperatures

2. Range is defined as:

- a. Maximum number of cells
- b. Difference between the leaving water temperature and the entering air wet bulb temperature
- c. Cooling capacity
- d. Difference between the entering and leaving water temperatures

3. The best way to specify cooling tower capacity is based on the rule that there is 15,000 BTU/hr per ton of cooling tower capacity:

- a. True
- b. False

4. The purpose of fill is to:

- a. Slow the water's rate of travel through the cooling tower
- b. Increase the contact time between the water and the air
- c. Increase the water's surface area
- d. All of the above

5. An indirect cooling tower is also known as closed-circuit:

- a. True
- b. False

6. Type of cooling tower best suited for indoor application:

- a. Field fabricated
- b. Forced draft
- c. Natural draft
- d. Induced draft

7. Natural draft cooling towers are the most common:

- a. True
- b. False

8. Rule of thumb for preliminary cooling tower sizing:

- a. 1 GPM per 100 tons
- b. 1 GPM per 1,000 tons
- c. 1 GPM per 100 Sq. Ft.
- d. 1 GPM per 1,000 Sq. Ft.

9. Which design discipline is interested in the cooling tower's location:

- a. Civil engineer
- b. Structural engineer
- c. Architect
- d. All of the above

10. All things considered, which is the best material for condenser water piping:

- a. PVC
- b. Black steel
- c. Stainless steel
- d. Galvanized steel

11. Best approach to keep condenser water piping from freezing:

- a. Heat trace
- b. Insulate
- c. Keep water recirculating
- d. Both A and B

12. In a cooling tower application, a water trap is used to:

- a. Prevent sewer gas from entering the basin
- b. Regulate makeup water
- c. Prevent the basin from overflowing
- d. Prevent solids buildup on the basin floor

13. The best way to ensure that the condenser water pump has adequate net positive suction head:

- a. Pressurize the system with an expansion tank
- b. Locate the cooling tower on grade and the pump on the roof
- c. Make the piping between the basin and pump inlet as long as possible
- d. Elevate the cooling tower and place the pump beneath it

14. Cooling tower water consumption is caused by:

- a. Evaporation
- b. Drift
- c. Blowdown
- d. All of the above

15. The International Energy Conservation Code requires cooling tower fan motors 5 HP and larger to have a variable speed drive:

- a. True
- b. False

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