

LEED v4 Building Design and Construction

Quiz #6

EA

1. Which of these energy sources are nonrenewable? [Choose two]
 - A. Solar
 - B. Coal
 - C. Natural gas
 - D. Wind
 - E. Hydroelectric

2. Early in the design phase what energy efficiency strategy could help a project to reduce the overall energy needs for the building?
 - A. High-efficiency HVAC systems
 - B. Install smart controls
 - C. Building orientation
 - D. Glazing selection

3. Heating and cooling a building without using mechanical equipment is what type of design strategy?
 - A. Passive
 - B. Active
 - C. Efficient
 - D. Smart

4. What is commissioning?
 - A. The process of verifying and documenting that a building has achieved a minimum energy performance standard.
 - B. The process of involving an energy manager early in the design phase of a project to reduce the overall energy demand of the building.
 - C. The early involvement of an energy authority to verify that the building's energy systems are properly working.
 - D. The process of verifying and documenting that a building and all of its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the owner's project requirements.

5. What program allows a local utility to coordinate with building operators to decrease their electricity use during peak times?
 - A. Demand Response (DR)
 - B. Dedicated Response (DR)
 - C. Differential Response (DR)
 - D. District Response (DR)

6. Which of these commissioning (Cx) process activities must the commissioning authority (CxA) do? [Choose two]
 - A. Develop the OPR
 - B. Develop the BOD
 - C. Prepare a final CX process report
 - D. Develop and implement a Cx Plan

7. What are the qualifications required to be the commissioning authority (CxA)?
 - A. Must have documented commissioning process experience on building projects with a similar scope of work.
 - B. Must be an employee of the owner that has documented commissioning process experience on at least two building projects with a similar scope of work.
 - C. Must be an independent consultant that has documented commissioning process experience on at least two building projects with a similar scope of work.
 - D. Must have documented commissioning process experience on at least two building projects with a similar scope of work.

8. Who does the commissioning authority (CxA) directly report their findings to?
 - A. General Contractor
 - B. Mechanical sub-contractor
 - C. LEED AP
 - D. Owner
 - E. Design team

9. Which of these are benefits of a properly executed Cx process that meets the goals and objectives of the owner's project requirements? [Choose three]
 - A. Reduced energy consumption
 - B. Lower operating costs
 - C. Improved coordination with subcontractors
 - D. Reduced employee absenteeism
 - E. Increased employee productivity

10. What do contractors use to provide confirmation to the CxA that the systems have been installed, started up, programmed, tested, and balanced, and that the team is ready for functional testing?
 - A. Scorecards
 - B. Construction checklists
 - C. OPR
 - D. BOD

11. Which of these systems must be commissioned for EA Prerequisite: Fundamental Commissioning and Verification? [Choose four]
 - A. Building envelope
 - B. HVAC&R equipment and controls
 - C. Domestic hot water systems
 - D. Lighting and daylighting controls
 - E. Renewable energy systems
 - F. Fire protection and fire alarm systems
 - G. Communications and data systems

12. Which of these might be included in the Owner's Project Requirements (OPR)? [Choose three]
 - A. Target goals for energy efficiency
 - B. Codes and Standards
 - C. Budget considerations and limitations
 - D. Descriptions of the systems to be used
 - E. Occupant requirements

13. Who is responsible for documenting the Basis of Design (BOD)?
 - A. Owner
 - B. LEED AP
 - C. Commissioning Authority
 - D. Design team

14. If a project team has set a goal to earn as many points as possible for EA Credit Optimize Energy Performance which option would you recommend they use for EA Prerequisite Minimum Energy Performance?
 - A. Energy Cost Budget Method
 - B. Performance Rating Method
 - C. Whole-Building Energy Simulation
 - D. Prescriptive Compliance: ASHRAE 50% Advanced Energy Design Guide
 - E. Prescriptive Compliance: Advanced Buildings™ Core Performance™ Guide

15. A LEED BD+C: Warehouses and Distribution Centers project that is 75,000 square feet wants to satisfy EA Prerequisite Minimum Energy Performance without using an energy model. Which option would you recommend they use?
 - A. Prescriptive Compliance: ASHRAE 50% Advanced Energy Design Guide
 - B. Prescriptive Compliance: Advanced Buildings™ Core Performance™ Guide
 - C. ASHRAE 50% Advanced Energy Design Guide for Medium to Large Box Retail Buildings
 - D. The project must use an energy model

16. To comply with the prescriptive compliance: ASHRAE 50% Advanced Energy Design Guide what information is needed? [Choose two]
 - A. Building size
 - B. Location
 - C. Climate zone
 - D. Number of occupants

17. Which sources of energy must projects meter for EA Prerequisite Building-Level Energy Modeling? [Choose three]
 - A. Utility supplied electricity
 - B. Utility supplied Natural gas
 - C. On-site wind-generated electricity
 - D. On-site solar photovoltaic-generated electricity
 - E. Utility supplied Biofuels

18. To comply with EA Prerequisite Fundamental Refrigerant Management projects must not use what type of refrigerant for new HVAC&R systems?
 - A. HCFC
 - B. HFC
 - C. Propane
 - D. CFC

19. What must a project complete in order to earn the maximum number of points for commissioning? [Choose three]
 - A. EA Prerequisite Fundamental Commissioning and Verification
 - B. EA Credit Enhanced Commissioning, Option 1. Enhanced Systems Commissioning , Path 1: Enhanced Commissioning
 - C. EA Credit Enhanced Commissioning, Option 1. Enhanced Systems Commissioning , Path 2: Enhanced Monitoring Based Commissioning
 - D. EA Credit Enhanced Commissioning, Option 2. Envelope Commissioning

20. Which of these are additional tasks required for EA Credit Enhanced Commissioning? [Choose four]
- A. Commissioning on-site renewable energy systems
 - B. Preparing a systems manual
 - C. Complete a final commissioning report
 - D. Issue construction checklists
 - E. Perform a 10-month review
 - F. Issue owner's training requirements
 - G. Develop ongoing commissioning plan
21. A LEED BD+C: New Construction project has achieved 55% improvement in the proposed building performance rating compared with the baseline. How many points could the project earn for EA Credit Optimize Energy Performance, Option 1?
- A. 10
 - B. 18
 - C. 19
 - D. 20
22. Which of these characteristics must an advanced energy metering system have? [Choose three]
- A. Meters must be revenue-grade
 - B. Electricity meters must record consumption
 - C. Electricity meters must record consumption and demand
 - D. Meters must be capable of transmitting data remotely
 - E. The systems must be able to store meter data for 36 months
23. Which of these would help a project to earn EA Credit Demand Response?
- A. A reduction of 5% in peak electricity demand and 5% in peak natural gas demand
 - B. A reduction of 5% in peak energy demand and 5% in peak electricity demand
 - C. A reduction of 10% in peak electricity demand
 - D. A reduction of 10% in peak energy demand
24. If a project did not use EA Prerequisite Minimum Energy Performance, Option 1 Whole Building Energy Simulation, what must they use to estimate the building's total annual energy use and cost for EA Credit Renewable Energy Production?
- A. Local Averages
 - B. ENERGY STAR
 - C. ASHRAE
 - D. Commercial Buildings Energy Consumption Survey (CBECS) database
 - E. EPA Target Finder
25. Which of these are eligible renewable energy systems? [Choose three]
- A. Wind
 - B. Wave and tidal energy
 - C. Ground-source heat pump
 - D. Solar thermal panels
 - E. Combustion of municipal solid waste

26. The total annual energy cost for a multifamily residential project for electricity is \$20,013 and for natural gas is \$46,121. The project team anticipates generating on-site 216,789 kWh of electricity per year. The virtual energy rate is \$0.082 per kWh and a utility rate of \$0.675 per therm of natural gas. What is the projects percentage of renewable energy?
- A. 27%
 - B. 30%
 - C. 39%
 - D. 89%
27. Which of these refrigerants has no ozone depletion potential?
- A. CFC-11
 - B. HCFC-22
 - C. HCFC-123
 - D. HFC-134a
28. What is needed to calculate the average refrigerant atmospheric impact? [Choose three]
- A. GWP of the refrigerant
 - B. ODP of the refrigerant
 - C. Daily usage rate of HVAC units
 - D. Location of HVAC units
 - E. Equipment Life
29. What certification must green power and RECs have to qualify for EA Credit Green Power and Carbon Offsets?
- A. Green-e climate
 - B. Green Label
 - C. Green Score
 - D. Green-e
 - E. Green-e Energy
30. Which of these sources could help a projects to earn EA Credit Green Power and Carbon Offsets? [Choose three]
- A. Utility provided green power
 - B. Utility provided steam
 - C. Carbon offsets that meet certification requirement
 - D. Local Wind farm
 - E. Photovoltaic panels mounted on a nearby parking structure roof
 - F. RECs that meet certification requirement