

1. A project owner wants to evaluate the environmental effects associated with choosing materials. Which of these tools should the team use?
 - A. Life-Cycle Costing (LCC)
 - B. Life-Cycle Evaluation (LCE)
 - C. Life-Cycle Development (LCD)
 - D. Life-Cycle Analysis (LCA)

2. LEED for New Construction projects are required achieve a minimum level of energy efficiency for the building and its systems using a baseline energy code. Which of these could a project use to meet that requirement?
 - A. SMACNA
 - B. ASHRAE 90.1
 - C. EAct
 - D. ASHRAE 62.1

3. Which of these is a strategy to increase pedestrian connectivity for neighborhoods?
 - A. Decrease street-grid patterns
 - B. Place buildings at the corner of the street
 - C. Limit the use of cul-de-sacs
 - D. Place parking lots away from the building to reduce traffic

4. Which of these is a benefit of a compact development design?
 - A. Increased sprawl
 - B. Reduced infill development
 - C. Increased area for building parking lots
 - D. Reduced transportation to services

5. What is the LEED referenced standard for providing adequate ventilation to a building?
 - A. SMACNA
 - B. ASHRAE 90.1
 - C. ASHRAE 62.1
 - D. ISO

6. What is the LEED referenced standard for establishing minimum standards for indoor air quality (IAQ)?
 - A. SMACNA
 - B. ASHRAE 62.1
 - C. ASHRAE 90.1
 - D. ISO

7. Which of these should be included in an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of the building to protect the indoor air quality during construction?
 - A. Cover ducts with plastic
 - B. Store all material on a slab
 - C. Store material in the mechanical room
 - D. Run the air-handling Unit with permanently installed filtration media

8. Which of these emissions should be minimized in order to reduce exposure to construction workers?
- A. Chlorofluorocarbon (CFC)
 - B. Hydrochlorofluorocarbons (HCFCs)
 - C. Hydrofluorocarbon (HFC)
 - D. Volatile Organic Compound (VOC)
9. Which of these should be located in the core of the building? [Choose 3]
- A. Closets
 - B. Equipment room
 - C. Office space
 - D. Locker room
 - E. Conference space
10. Which of these are true about the Montreal Protocol? [Choose two]
- A. Bans the production of Refrigerants made of Hydrocarbon (HC)
 - B. Phases out the production of Refrigerants made of Hydrocarbon (HC)
 - C. Bans the production of Refrigerants made of Chlorofluorocarbon (CFC)
 - D. Bans the production of Refrigerants made of Hydrochlorofluorocarbons (HCFCs)
 - E. Phases out the production of Refrigerants made of Hydrochlorofluorocarbons (HCFCs)
11. Designers and builders can construct green buildings that use significantly less water than conventional construction by incorporating which of these strategies? [Choose three]
- A. Xeriscaping
 - B. Artificial turf
 - C. Reclaimed water
 - D. Sprinklers
 - E. Efficient Equipment
12. Which of these projects would be eligible for pursuing the LEED O+M: Existing Buildings rating system?
- A. LEED Certified two-story apartment building located in a city
 - B. LEED Certified single-family home located in a rural community
 - C. LEED Certified Neighborhood Development
 - D. LEED Certified building located on a college campus
13. What LEED rating system focuses on the where, what, and how to build green at a community scale?
- A. LEED BD+C: Retail
 - B. LEED BD+C: Schools
 - C. LEED BD+C: New Construction
 - D. LEED for Neighborhood Development
14. A U.S. Geological survey determined that buildings in the United States account what percentage of potable water consumption?
- A. 6%
 - B. 14%
 - C. 20%
 - D. 23%

15. A building maintenance manager is purchasing a new boiler to replace an existing system. Although the first cost of one of the new boilers being considered is higher, when maintenance, fuel, and operating costs are included the payback over time shows the system to be the most cost effective. What tool is being used to help make the decision?
- A. Life-cycle costing
 - B. Life-cycle analysis
 - C. Performance Rating Method
 - D. Energy Cost Budget Analysis
16. A Lawrence Berkeley National Laboratory study found that commissioning for new construction has a median payback time of how many years?
- A. 1.7
 - B. 3.6
 - C. 4.8
 - D. 10
17. Which of these processes identifies inefficiencies and restores high levels of performance in existing buildings in order to keep a building on track for meeting or exceeding the original operational goals.
- A. Energy Modeling
 - B. Commissioning
 - C. Retrocommissioning
 - D. Building Flush-out
18. How is lighting power density measured?
- A. Lumens
 - B. Watts per hour
 - C. Lighting power unit per area
 - D. Illuminance per square foot
19. The units used for water use by a water closet are
- A. Gallons per flush
 - B. Gallons per hour
 - C. Gallons per person
 - D. Gallons per minute
20. Which of these is true about greywater and black water?
- A. Greywater can be used for drinking; black water can be used to flush toilets
 - B. Greywater can be used for swimming pools; black water can be used for irrigation
 - C. Greywater comes from lavatory sinks; black water comes from toilets and urinals
 - D. Greywater can be used for drinking; black water can be used for irrigation
21. Which of these environmental effects is addressed in the construction prevention plan?
- A. Smog
 - B. Acid rain
 - C. Airborne dust generation
 - D. GHG emissions from transportation

22. A civil engineer is designing a project site in an area known for storms and flooding. Which of these strategies would help to prevent flooding of the site building during construction?
- A. Bioswale
 - B. Paved parking
 - C. Impervious walkways
 - D. Minimize roadways
23. Which of these can help to slow the passing of materials and resources through the system and link elements to form new relationships and functions?
- A. Open Flow
 - B. Closed Flow
 - C. Open System
 - D. Closed System
24. What is the first step in the integrative process?
- A. Set goals
 - B. Look for opportunities for improvement
 - C. Have a team meeting
 - D. Hire a LEED AP
25. Which of these is essential to achieving a project's environmental and sustainability goals cost-effectively?
- A. Interpretive process
 - B. Open Design?
 - C. Integrative process
 - D. Collaboration
26. What is an intense workshop designed to produce specific deliverables called?
- A. Stakeholder Meeting
 - B. Charrette
 - C. Task Group
 - D. Team Meeting
27. LEED stands for
- A. Leadership in Engineering and Eco-Design
 - B. Leadership in Energy and Ecological Design
 - C. Leadership in Energy and Environmental Design
 - D. Leadership in Engineering and Ecological Design
28. How many points are required to earn LEED Certified?
- A. 30-39
 - B. 40-49
 - C. 50-59
 - D. 60-69

29. What type of meeting includes all members of the design team and sets goals is to optimize the integration of green strategies across all aspects of building design, construction and operations, drawing on the expertise of all participants?
- A. Eco-Summit
 - B. Stake Holder Meeting
 - C. Charrette
 - D. Team Meeting
30. What is the LEED standard for Water Efficiency credits for Indoor Water Use Reduction calculations?
- A. EPAAct 1992, 2005
 - B. WaterSense
 - C. ENERGY STAR
 - D. ASHRAE
31. Which of these is a standard reference by the LEED rating systems
- A. American Association of Architects (AIA)
 - B. Mechanical Contractors Association (MCA)
 - C. National Electric Code (NEC)
 - D. International Organization for Standardization (ISO)
32. What organization is responsible for determining the LEED impact categories?
- A. USGBC
 - B. DOE
 - C. SMACNA
 - D. ASHRAE
33. What tool can a project use to determine the targeted number of LEED points the project could earn?
- A. Scorecard
 - B. Architect
 - C. General contractor
 - D. You can't determine the LEED points in advance
34. LEED Online can be used to
- A. Purchase a reference guide
 - B. Manage the entire LEED certification process
 - C. Provide access to the public for LEED case studies
 - D. Register for a LEED exam
35. Which of these is true about the LEED scorecard?
- A. A maximum of 100 base points
 - B. A minimum of 7 prerequisites per credit category
 - C. A maximum of 55 points per credit category
 - D. A maximum of 100 base points and 10 bonus points.

36. What impact category supports occupant comfort and well-being?
- A. Enhance Individual Human Health and Well-Being
 - B. Enhance Social Equity, Environmental Justice, Community Health and Quality of Life
 - C. Create a Strong Sense of Place
 - D. Protect Human Health Globally
37. Who developed the LEED Impact Categories?
- A. U.S. Green Building Council (USGBC)
 - B. United States Department of Energy (DOE)
 - C. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
 - D. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
38. What is the intent of the Materials and Resources Credit Construction and Demolition Waste Management Planning?
- A. Reduce the need for dumpsters
 - B. Reduce the waste generated by building occupants
 - C. Utilize innovative approaches and techniques for green design and construction
 - D. Divert materials and toxins from landfills
39. Which of these is a pre-consumer recycled material?
- A. Plastic water bottles discarded by building occupants
 - B. Material diverted from a manufacturing process
 - C. Used Office paper
 - D. Material diverted from the waste stream, during the manufacturing process
40. Besides protect, enhance and restore biodiversity what else does the Forest Stewardship Council (FSC) do?
- A. Limits timber production
 - B. Responsible forest management
 - C. Recycles planer shavings
 - D. Purchases old growth forests
41. A project used a door salvaged 600 miles from the project. What Materials and Resources credit can this contribute to?
- A. Divert from landfill
 - B. Materials reuse
 - C. Wood products
 - D. Low Emitting Materials?
42. Which of these third-party organizations could help projects to obtain preferred materials?
- A. ITE Transportation Planning
 - B. American Council for an Energy Efficient Economy (ACEEE)
 - C. Forest Stewardship Council (FSC)
 - D. California Air Resources Board (CARB)
43. When choosing sustainable custodial products and materials what standard must be meet?
- A. SMACNA
 - B. EPAAct
 - C. Green Guard
 - D. Green Seal

44. Which of these is primary for guiding the design team?
- A. Availability of green products
 - B. Goals
 - C. Cost
 - D. LEED AP
45. Which of these can help a project to reduce the contaminants brought into a building at the entrances?
- A. grates, grilles, or mats
 - B. underfloor air distribution
 - C. carpet mats
 - D. fewer building entrances
46. Which of these are LEED credit categories? [Choose three]
- A. Water Efficiency (WE)
 - B. Core and Shell (CS)
 - C. Energy Efficiency (EE)
 - D. Indoor Environmental Quality (EQ)
 - E. Sustainable Sites (SS)
47. In addition to acoustics, lighting, and occupant experience, what else does LEED address related to the indoor environmental quality?
- A. Environmentally, socially, and locally preferable materials
 - B. Waste reduction
 - C. Indoor air quality
 - D. Carbon monoxide
48. Which of could help to reduce the carbon emissions associated with commuting? [Choose three]
- A. Carpooling
 - B. Reduced work week schedule
 - C. Telecommuting
 - D. Transit subsidy
49. Which of these could help to promote pedestrian access to a project site?
- A. Reduce vehicle speed in the parking lot
 - B. Provide a shuttle to a nearby transit location
 - C. Provide additional parking lot spaces
 - D. A nature trail within 1/8 mile of the project site
50. Which credit category can a project earn a point for having a LEED AP on the project team?
- A. Sustainable Sites (SS)
 - B. Energy and Atmosphere (EA)
 - C. Innovation (IN)
 - D. Regional Priority (RP)

51. A non-profit organization is planning to rent three floors of an existing 15-story building. What LEED rating system would you recommend to the project team to follow?
- A. LEED BD+C: New Construction
 - B. LEED ID+C: Commercial Interiors
 - C. LEED O+M: Existing Buildings
 - D. LEED BD+C: Retail
52. Which of these is the main idea of the triple bottom line concept?
- A. Socially responsible
 - B. Local Capital
 - C. Economically responsible
 - D. Business capital
53. The triple bottom line addresses both social capital and natural capital. What other concept does the triple bottom line incorporate?
- A. Private capital
 - B. Local Capital
 - C. Economic capital
 - D. Business capital
54. A project site area that have been graded is called
- A. Previously disturbed
 - B. Previously developed
 - C. Greenfield
 - D. Brownfield
55. A project team has incorporated Rainwater Management strategies by installing an open-grid parking lot and reducing the impervious pavement surrounding the project site buildings. What other environmental impact is reduced by this design?
- A. Light Pollution
 - B. Heat Island Effect
 - C. Potable Water Use for Irrigation
 - D. Green House Gas Emissions
56. What environmental impact is reduced by installing a highly-reflective roof?
- A. Light Pollution
 - B. Energy resource depletion
 - C. Global Warming
 - D. Heat Island Effect
57. What is the minimum required gross floor area for a LEED for New Construction project?
- A. 250 square feet
 - B. 1000 square feet
 - C. 100 square feet
 - D. 10,000 square feet

58. The Forest Stewardship Council (FSC) exist to ensure that resources are available from responsible forestry operations. What else is important to their mission?
- A. Keep the cost of wood products down
 - B. Reduce the use of timber throughout the world
 - C. Restore biodiversity and habitat protection
 - D. Limit the number of forestry operations and suppliers
59. Which of these can be used to produce green power?
- A. Biomass
 - B. Natural gas
 - C. Coal
 - D. Diesel fuel
60. Projects incorporating daylighting strategies can earn a point in which credit category?
- A. Energy and Atmosphere (EA)
 - B. Innovation (IN)
 - C. Indoor Environmental Quality (EQ)
 - D. Materials and Resources (MR)
61. Water from a kitchen sink is
- A. Blackwater, unless otherwise specified by code
 - B. Graywater
 - C. Potable
 - D. process water
62. What is the purpose of LEED prerequisites?
- A. To guarantee a project will achieve LEED certification
 - B. To provide projects with optional strategies to pursue
 - C. To achieve a minimum level of sustainability
 - D. To help projects to gain points toward LEED certification
63. Specification of more costly, high-performance windows may allow for the use of a smaller
- A. HVAC system
 - B. Roof system
 - C. Dehumidification system
 - D. Electrical system
64. A unit of renewable energy produced for the grid is called?
- A. Green Power
 - B. Renewable Energy Certificate (REC)
 - C. Carbon offset
 - D. Eco Friendly
65. What is the purpose of RECs?
- A. Encourage production of green power
 - B. Stabilize the energy market
 - C. Keep the cost of electricity high
 - D. Encourage installing on-site photovoltaics (PV)

66. What refrigerant can be used by a LEED project?
- A. Halon
 - B. Hydropentachlorodimethyl (HPD)
 - C. Chlorofluorocarbons (CFC)
 - D. Hydrofluorocarbons (HFC)
67. The site disturbance boundary is defined as
- A. the boundary 20 feet from the building perimeter
 - B. the boundary surrounding the building footprint
 - C. the boundary where construction, materials storage, grading, landscaping and related activities occur
 - D. the boundary where construction occurs
68. What unit is used to measure the water used by the building flush fixtures?
- A. GPM
 - B. GPF
 - C. CFM
 - D. FPS
69. If not mitigated a buildings resource use over time tends to
- A. increase
 - B. decrease
 - C. stay about the same
 - D. can't be measured
70. Which of these is a cost-effective strategy for an existing building, if porcelain replacement proves cost-prohibitive to achieve water savings.
- A. Install sensors
 - B. Aerators
 - C. Install new flush valves or flow restrictors
 - D. Limit access
71. What system has the largest energy use in a commercial building?
- A. Space heating
 - B. Cooling
 - C. Hot water
 - D. Computers
72. Which of these is pollution from the production of electricity?
- A. CFC
 - B. HCFC
 - C. NH₃
 - D. Nitrogen Oxide
73. An existing building is going to be renovated and certified as maintaining sustainability. Which rating system would you recommend the project use?
- A. LEED BD+C: New Construction and Major Renovations
 - B. LEED O+M: Existing Buildings
 - C. LEED ID+C: Commercial Interiors
 - D. LEED ND: Built Project

74. When selecting a location, which of these should a team consider?
- A. Economy
 - B. Political climate
 - C. Existing infrastructure
 - D. Access to fast food
75. What is it called when materials are mixed in one container but sorted and processed at an off-site recycling facility, which separates them from the waste going to a landfill?
- A. Recycled
 - B. Commingled
 - C. Contained
 - D. Diversion
76. How is total water consumption determined by a LEED project?
- A. Calculated
 - B. Number of flush and flow fixtures
 - C. Estimated using a similar building
 - D. Total uses of flush and flow fixtures per month
77. Which of these can be used to verify the material location valuation?
- A. Phone book
 - B. Invoice
 - C. General contractor
 - D. Map showing locations