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LEED AP Homes (Residential) Exam

USGBC LEED-AP-Homes

Version Demo

Total Demo Questions: 12

Total Premium Questions: 122

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QUESTION NO: 1

A homeowner reviews monthly water-meter readings and observes a steady increase in water use during a period when the home has been vacant and the irrigation system has been shut off. Which action is most appropriate?

A. Wait for the next annual utility bill to determine whether the pattern continues.

B. Investigate for continuous flow and isolate likely plumbing leak sources.

C. Replace all bathroom fixtures with lower-flow models before testing the plumbing system.

D. Increase irrigation runtime after occupancy to offset the prior low outdoor water use.

ANSWER: B

Explanation:

The homeowner should investigate for a leak by checking for continuous flow and isolating likely sources such as toilets, plumbing fixtures, water heaters, and supply lines. A water meter supports ongoing water-use monitoring because unusual consumption can reveal leaks that would otherwise remain undetected.

Waiting for the next annual utility bill delays investigation of a potentially significant water loss. Replacing plumbing fixtures without identifying the source may not resolve the problem, and increasing irrigation runtime is unrelated to water use during a period when irrigation has been shut off.

QUESTION NO: 2

Which of the following power needs requires special consideration at the design phase?

A. Continuously operating bathroom fans

B. 220-volt supply to laundry room

C. ENERGY STAR appliances

D. Electric vehicle charging station

ANSWER: D

Explanation:

Electric vehicle charging station is correct because accommodating electric-vehicle charging is an electrical-service and infrastructure decision that is most economical and practical when addressed during design. Although basic Level 1 charging can use a standard 120-volt receptacle, residential Level 2 charging commonly uses a dedicated 208/240-volt branch circuit and substantially increases the anticipated electrical load. The design team should therefore evaluate the dwelling's service and panel capacity, perform the applicable load calculation, identify the charger location, and plan the required raceway, wiring route, overcurrent protection, and available panel space. EV charging equipment is generally treated as a continuous load for electrical-design purposes, so capacity must be sized accordingly. Providing this infrastructure before walls, finishes, and site work are complete avoids costly retrofit work and helps support future transportation electrification. This aligns with LEED's integrative, whole-building design approach: significant anticipated energy loads and enabling infrastructure should be coordinated early with the home's energy strategy and electrical design. The U.S. Department of Energy describes the charging levels and typical residential charging equipment at Alternative Fuels Data Center: Electric Vehicle Charging Stations. Additional electrical-safety and charging-installation guidance is available from NFPA: Electric Vehicles.

QUESTION NO: 3

The first consideration in solar home design is to:

A. Select windows

B. Size solar shading

C. Incorporate thermal mass

D. Orient the building

ANSWER: D

Explanation:

Orient the building is correct because solar orientation establishes the fundamental conditions for passive heating, daylighting, seasonal solar control, and potential photovoltaic or solar-thermal collection. In the Northern Hemisphere, the design process generally seeks useful exposure on the south side of the home, while accounting for local climate, site constraints, topography, neighboring buildings, and vegetation that can create shading. Establishing orientation early allows the design team to place major glazing and living spaces where they can receive beneficial winter sun, while planning roof planes and exterior conditions that can support solar technologies.

Orientation must be determined before detailed envelope and solar-design decisions because it controls the solar resource available to the building throughout the day and across seasons. Once the home's relationship to the sun has been established, the team can appropriately refine glazing distribution, shading geometry, thermal storage, and HVAC loads as part of an integrated energy strategy. This sequencing aligns with LEED's whole-building, performance-based approach to residential energy design. The U.S. Department of Energy explains that passive solar design begins by considering a building's orientation and its access to sunlight; see its Passive Solar Home Design guidance. LEED's energy-performance framework is available through the USGBC LEED v4 rating-system resources.

QUESTION NO: 4

Which of the following information about showers is necessary to calculate Indoor Water Baseline Consumption?

A. Fixture flow rates, number of bedrooms, and bathrooms

B. Size of plumbing piping to fixtures, fixture flow rates, and number of bathrooms

C. Size of shower compartments, fixture flow rate, and number of shower heads

D. Number of recirculating shower systems, fixture flow rates, and number of bedrooms

ANSWER: A

Explanation:

Fixture flow rates, number of bedrooms, and bathrooms is the information used for the residential indoor-water baseline calculation. Shower water consumption is calculated from the shower fixture's flow rate and an assumed use pattern. The number of bedrooms is used by the LEED residential methodology as a standardized proxy for household occupancy, which establishes the expected frequency of fixture use without relying on a project team's variable occupancy estimate. The bathroom count identifies the relevant fixture locations and supports the calculation of whole-home indoor water use, including the shower fixtures serving the dwelling.

For the baseline, LEED applies standardized assumptions so that the proposed design can be compared consistently against a conventional home. The project team then enters the actual specified shower flow rate and applicable dwelling information into the residential water-use calculation to determine the percentage reduction from baseline. This approach evaluates water efficiency at the dwelling-unit level rather than modeling plumbing-pipe dimensions or shower-compartment geometry. The shower fixture flow rate is especially important because it directly determines the volume delivered during each assumed shower-use event.

USGBC's LEED v4 Homes Rating System identifies indoor water use as a Water Efficiency credit and provides the residential framework for establishing baseline and proposed consumption. The federal EPA WaterSense showerhead criteria also explains why shower flow rate, measured in gallons per minute, is the central fixture-performance input.

QUESTION NO: 5

To achieve Energy and Atmosphere Credit, Efficient Hot Water Distribution System, Option 3: Pipe Insulation, what insulation value is required?

A. R-2

B. R-3

C. R-4

D. R-10

ANSWER: B

Explanation:

R-3 is the required minimum insulation value for the pipe-insulation path in the LEED for Homes v4 Energy and Atmosphere credit for an efficient hot-water distribution system. This measure is intended to limit standby and distribution heat loss from domestic hot-water piping between the water heater and fixtures. By maintaining the required thermal resistance around all hot-water piping, the system retains water temperature more effectively, reducing the energy needed to replace heat lost while water is stored or travels through the distribution network. This strategy can also reduce the amount of time occupants wait for acceptably warm water at fixtures, particularly when it is used alongside a compact, well-designed distribution layout. The requirement applies to the hot-water piping system rather than only to selected accessible portions of pipe, so the project team should specify the insulation consistently and verify it during construction. The LEED v4 Homes rating-system materials identify pipe insulation of at least R-3 as the qualifying threshold for this option. See the LEED v4 Homes Rating System and USGBC's Homes Energy and Atmosphere credit resources.

QUESTION NO: 6

Solar hot water heating systems are rewarded under which Energy and Atmosphere credit?

A. High-Efficiency Appliances

B. Efficient Domestic Hot Water Equipment

C. Renewable Energy

D. Balancing of Heating and Cooling Distribution Systems

ANSWER: B

Explanation:

Efficient Domestic Hot Water Equipment is the applicable Energy and Atmosphere credit because a solar thermal hot-water system directly reduces the energy needed to provide a home's domestic hot water. In LEED for Homes v4, this credit awards points for installing efficient domestic hot-water equipment, including solar hot-water systems that meet the credit's performance requirements. For a solar system, qualification is based on its solar fraction: the share of the domestic hot-water load supplied by solar energy. A system with a qualifying solar fraction reduces the modeled or calculated conventional fuel or electricity needed for water heating and can therefore earn points under this credit. This approach recognizes that domestic water heating is a major residential energy end use and that solar thermal collectors can displace energy that would otherwise be consumed by a water heater. The credit evaluates the water-heating equipment and its performance as a domestic-hot-water strategy, rather than treating solar thermal hot water as on-site renewable electricity generation. USGBC's LEED credit library identifies the Residential BD+C credit requirements and intent for efficient water-heating equipment; the LEED for Homes v4 rating-system materials provide the associated credit structure and thresholds. See the USGBC LEED v4 overview and the LEED v4 BD+C rating-system resources.

QUESTION NO: 7

The Home Energy Rating System (HERS) Index, which measures the energy efficiency of a home, was developed by the:

A. Department of Energy (DOE)

B. Environmental Protection Agency (EPA)

C. U.S. Green Building Council (USGBC)

D. Residential Energy Services Network (RESNET)

ANSWER: D

Explanation:

The **Residential Energy Services Network (RESNET)** developed and maintains the Home Energy Rating System (HERS) Index, a nationally recognized scoring framework for estimating a home's energy performance. A certified HERS Rater uses approved software and standardized inspection and testing procedures to model the rated home against a reference home of the same size, shape, and climate location. The resulting score indicates relative energy efficiency: a lower HERS Index score represents lower projected energy use. A score of 100 corresponds to the reference home, while a score of 0 represents a home designed to produce as much energy as it consumes on an annual basis under the rating methodology. In residential green-building programs, including LEED for Homes, a HERS rating can provide an established, third-party means of documenting energy performance and verifying that efficiency measures are incorporated into the completed home. RESNET's standards also define the qualifications, quality assurance processes, and technical procedures applicable to certified ratings. See the RESNET HERS Index overview and RESNET's rating standards resources for the organization's role and methodology.

QUESTION NO: 8

A builder plans to build two semi-detached residential homes at a rural lot he just bought, where the municipal water system cannot reach. The homes will use well water dug on site. The builder would like to build the two units as LEED certified homes. To meet the prerequisite of Water Efficiency domain in LEED Homes, what should the builder do?

A. Install two water meters for each unit separately

B. Use one water meter for the entire building of two units

C. These two semi-detached homes will be exempt from the prerequisite of Water Efficiency

D. At least one water meter will be shared by two units, and another separate meter will be used for monitoring landscaping water usage

ANSWER: A

Explanation:

Install two water meters for each unit separately is correct because the LEED Homes water-metering requirement is intended to provide reliable measurement of potable water consumption for each certified home. A well-water supply does not eliminate the need to measure water use: the meter can be installed on the well-water system so that water delivered to the dwelling is recorded. For two semi-detached dwellings pursuing certification as individual homes, each dwelling needs its own meter and associated consumption data. Separate metering allows the project team and occupants to track each home's total water use, identify unusual consumption that may indicate leaks, and document performance over monthly and annual periods. This approach also recognizes that attached homes may share a site or physical structure while still functioning as separate dwelling units with independently measurable water demand. LEED's water-efficiency approach addresses potable-water use regardless of whether the source is a public utility or an on-site well; the essential requirement is permanent, accessible measurement of the applicable water supply. See USGBC's LEED v4 Homes Water Efficiency credit information and the LEED Residential Design and Construction guidance.

QUESTION NO: 9

The owner is considering a fireplace in a new house and is pursuing LEED for Homes certification. Which type of fireplace, if any, should be installed in order to achieve the maximum credit for Indoor Environmental Quality Credit, Enhanced Combustion?

A. Install no fireplace

B. EPA-certified woodstove

C. Masonry wood-burning fireplace

D. Factory-built wood-burning fireplace with catalytic combustor

ANSWER: A

Explanation:

Install no fireplace is correct because the maximum achievement path for Enhanced Combustion Venting is to eliminate combustion sources rather than manage their emissions or venting. Fireplaces and woodstoves can introduce combustion byproducts—including particulate matter, nitrogen dioxide, and carbon monoxide—into the home. Even when a combustion appliance is efficient or carries an emissions certification, it remains a potential source of pollutants and requires appropriate installation, venting, operation, and maintenance to limit occupant exposure.

By not installing a fireplace, the project avoids this indoor-air-quality risk entirely and meets the highest-level intent of the credit: protecting residents from pollutants generated by onsite combustion. This approach also simplifies the home's combustion-safety strategy because there is no fireplace flue, combustion-air path, or potential for combustion spillage associated with that appliance. The LEED for Homes rating system identifies the absence of fireplaces and woodstoves as the maximum-credit approach under enhanced combustion requirements. See USGBC's LEED v4 Homes Rating System and the USGBC LEED v4 resources page for the applicable residential credit requirements and guidance.

QUESTION NO: 10

The project team is planning trades training to meet requirements for the Integrative Process Credit, Option 2: Trades Training. How many hours are required to earn this credit?

A. Four hours

B. Six hours

C. Eight hours

D. Ten hours

ANSWER: A

Explanation:

Four hours is the required minimum for the Trades Training pathway under the LEED residential Integrative Process credit. This option is intended to help ensure that the subcontractors and trade professionals whose work affects building performance understand the project's high-performance goals and the construction practices needed to achieve them. The training should be relevant to the project and cover the measures that participating trades need to implement, such as air sealing, insulation installation, HVAC quality installation, moisture control, indoor air quality protections, or other applicable green-building strategies. Training is most effective when it occurs before the relevant work is performed, allowing trades to coordinate their responsibilities and avoid installation errors that could undermine the home's energy, water, durability, or health outcomes. Project documentation should demonstrate that the required four hours of qualifying training were provided and identify the content and participating trades. This approach recognizes that successful residential green-building outcomes depend on informed execution in the field, not solely on design intent. See USGBC's LEED v4 overview and the LEED v4 Residential BD+C Reference Guide for the applicable credit requirements and documentation guidance.

QUESTION NO: 11

A contractor has chosen to use a concrete mix that contains 100 lbs (45.4 kg) of fly ash. If the total mass of cementitious materials is 700 lbs (317.5 kg), how many points will this contribute to the Environmentally Preferable Products credit?

A. 0 points

B. 0.5 points

C. 1 point

D. 1.5 points

ANSWER: A

Explanation:

0 points is correct because the fly ash percentage must be calculated from the total cementitious-material mass, not from the total concrete mass. The calculation is 100 pounds of fly ash divided by 700 pounds of cementitious materials, multiplied by 100: (100 ÷ 700) × 100 = 14.29%. The applicable supplementary cementitious material threshold is 15% by weight of cementitious materials. Since 14.29% is less than 15%, the mix does not meet that minimum requirement. LEED thresholds are minimum performance requirements, so a calculated value below the stated threshold cannot be rounded upward merely because it is close to the requirement. Consequently, this concrete mix does not qualify as an environmentally preferable concrete product through its fly ash content and contributes no points under the stated criterion. Project teams should revise the mix design so that fly ash represents at least 15% of the cementitious materials, while also confirming that the selected mix remains suitable for the project's structural, durability, curing, and specification requirements. See the USGBC LEED v4 Homes Design and Construction rating system and the USGBC LEED credit library for credit requirements and current supporting guidance.

QUESTION NO: 12

A home has a large shower compartment of 3,750 in² (2.4 m²) with dual 1.5 gpm (5.6 lpm) shower heads. How should the flow rate be calculated?

A. The flow rates are added to total 3.0 gpm (11.2 lpm)

B. The flow rate is calculated as two separate 1.5 gpm (5.6 lpm) showerheads

C. Multiple shower heads are not allowed

D. Shower compartment size does not affect shower head flow rates for LEED compliance

ANSWER: B

Explanation:

The flow rate is calculated as two separate 1.5 gpm (5.6 lpm) showerheads because the shower area is 3,750 in² (2.4 m²), which exceeds the LEED shower-compartment threshold of 2,500 in² (1.6 m²). In the LEED Homes indoor-water-use methodology, the special treatment of multiple showerheads as one shower fixture applies only within a shower compartment at or below that maximum floor area. A larger shower space does not qualify as a single shower compartment for this purpose. Therefore, each showerhead must be evaluated independently at its rated flow rate. For this installation, the water-use calculation recognizes two showerheads, each rated at 1.5 gpm; it does not treat the enclosure as one qualifying compartment with a combined fixture-flow allowance. This distinction ensures that large shower areas with multiple independently operating outlets are represented appropriately in the indoor water-use calculation. The applicable definitions and calculation requirements are provided in USGBC's LEED v4 Homes Rating System and its associated LEED v4 BD+C reference resources.