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USGBC LEED-AP-Homes Exam Syllabus Topics:

Topic	Details
Topic 1	<ul style="list-style-type: none"> • Energy and Atmosphere: This section of the exam measures the skills of a Green Building Engineer. It includes evaluating the principles of energy efficiency, performance optimization, and emissions reduction in residential design, all critical to minimizing environmental impact while meeting occupant needs.
Topic 2	<ul style="list-style-type: none"> • Materials & Resources: This section of the exam measures the skills of a Sustainability Specialist. It emphasizes the selection and management of eco-friendly materials, efficient usage of resources, and implementation of waste reduction strategies to support green residential construction.
Topic 3	<ul style="list-style-type: none"> • Regional Priority Credits: This section of the exam measures the skills of a Regional Performance Advisor. It covers specific environmental credits that reflect local priorities, enabling tailored certification strategies that align with regional ecosystems or regulatory contexts.
Topic 4	<ul style="list-style-type: none"> • LEED Process: This section of the exam measures the skills of a Green Building Consultant. It covers the comprehensive framework of the LEED Homes certification process, from understanding project eligibility and roles—such as green raters and quality assurance designees—to navigating certification requirements, the LEED verification process, and documentation submission to GBCI.
Topic 5	<ul style="list-style-type: none"> • Indoor Environmental Quality: This section of the exam measures the skills of an Architectural Designer. It addresses indoor air health, natural light, and ventilation requirements to ensure occupant comfort and durability, reflecting a home's capacity to provide a healthy and lasting living environment.

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Our desktop software also tracks your progress, and identifies your strengths and weaknesses, to ensure you're getting the best possible experience for the LEED-AP-Homes Exam. All features of the web-based version are available in the desktop software. But the desktop software works offline and only on Windows computers.

USGBC LEED AP Homes (Residential) Exam Sample Questions (Q84-Q89):

NEW QUESTION # 84

Points can be earned for Energy and Atmosphere Credit: Efficient Hot Water Distribution System, Option 1 through which of the following measures?

- A. Insulating all domestic hot water piping to R-4
- B. Installing demand-controlled recirculation
- C. Installing central manifold distribution
- **D. Limiting branch line length**

Answer: D

Explanation:

The LEED for Homes Rating System (v4) includes the Energy and Atmosphere (EA) Credit: Efficient Hot Water Distribution System, which aims to reduce energy and water waste in hot water delivery. Option 1:

Length of Piping focuses on minimizing the length of hot water piping to reduce heat loss and delivery time.

According to the LEED Reference Guide for Homes Design and Construction (v4):

EA Credit: Efficient Hot Water Distribution System, Option 1. Length of Piping (1-2 points) Design and install the hot water distribution system to meet one of the following requirements:

* Maximum branch line length: The length of any branch line from the water heater or hot water source to any fixture must not exceed 20 feet (6 meters) for 1 point, or 10 feet (3 meters) for 2 points. This reduces the volume of water that must be purged before hot water reaches the fixture, saving energy and water. Source: LEED Reference Guide for Homes Design and Construction, v4, Energy and Atmosphere Credit: Efficient Hot Water Distribution System, p. 132.

The LEED v4.1 Residential BD+C rating system maintains this requirement:

EA Credit: Efficient Hot Water Distribution

Option 1: Limit the length of branch lines from the water heater to fixtures to 20 feet (6 meters) for 1 point or 10 feet (3 meters) for 2 points.

Source: LEED v4.1 Residential BD+C, Credit Library, accessed via USGBC LEED Online.

Limiting branch line length (Option A) directly aligns with Option 1 of this credit, as it reduces the distance hot water must travel, minimizing heat loss and water waste.

Why not the other options?

Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Efficient Hot Water Distribution System, p. 133.

C). Installing demand-controlled recirculation: This is part of Option 3: Demand-Controlled Recirculation in LEED v4, where recirculation systems are activated only when hot water is needed (e.g., via a button or motion sensor). It is not part of Option 1. Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Efficient Hot Water Distribution System, p. 133.

D). Insulating all domestic hot water piping to R-4: While pipe insulation is a best practice and may be required in some EA credits (e.g., EA Prerequisite: Minimum Energy Performance), it is not a specific requirement for Option 1 of the Efficient Hot Water Distribution System credit. Insulation reduces heat loss but does not address branch line length. Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Prerequisite: Minimum Energy Performance, p. 112.

The LEED AP Homes Candidate Handbook emphasizes EA credits, including hot water distribution, and references the LEED Reference Guide for Homes Design and Construction as a key resource. The exam is based on LEED v4, ensuring the relevance of Option 1's focus on branch line length.

References:

LEED Reference Guide for Homes Design and Construction, v4, USGBC, Energy and Atmosphere Credit: Efficient Hot Water Distribution System, p. 132-133.

LEED v4.1 Residential BD+C, USGBC LEED Credit Library, accessed via LEED Online (<https://www.usgbc.org/credits>).

LEED AP Homes Candidate Handbook, GBCI, October 2024, p. 12 (references study resources and exam scope based on LEED v4).

USGBC LEED for Homes Rating System (v4), available via USGBC website (<https://www.usgbc.org/resources/leed-homes-design-and-construction-v4>).

LEED v4.1 for Homes, USGBC, accessed via LEED Online, confirming branch line length criteria.

NEW QUESTION # 85

A home in climate zone 2's window-to-floor area ratio increases from 10% to 30%. What is necessary to qualify for the Energy and Atmosphere Credit Windows?

- A. Less stringent U-factor requirement
- B. Less stringent solar heat gain coefficient
- **C. More stringent U-factor requirement**

- D. More stringent solar heat gain coefficient

Answer: C

Explanation:

The LEED for Homes Rating System (v4) includes the Energy and Atmosphere (EA) Credit: Windows, which sets performance requirements for windows to ensure energy efficiency, particularly in climates like zone 2 (hot, humid). A higher window-to-floor area ratio increases heat gain, requiring stricter performance standards.

According to the LEED Reference Guide for Homes Design and Construction (v4):

EA Credit: Windows (1-3 points)

In climate zone 2, for a window-to-floor area ratio exceeding 24% (or significantly increased, e.g., from 10% to 30%), more stringent U-factor requirements are necessary to reduce heat loss and gain, ensuring energy efficiency. The U-factor must be lower to compensate for the larger glazing area.

Source: LEED Reference Guide for Homes Design and Construction, v4, Energy and Atmosphere Credit: Windows, p. 122.

The LEED v4.1 Residential BD+C Rating system confirms:

EA Credit: Windows

For higher window-to-floor area ratios (e.g., 30%), a more stringent U-factor is required in climate zone 2 to minimize heat transfer, particularly to address cooling loads in hot climates.

Source: LEED v4.1 Residential BD+C, Credit Library, accessed via USGBC LEED Online.

The correct answer is more stringent U-factor requirement (Option B), as a lower and more increased window-to-floor area ratio requires a lower U-factor to maintain energy efficiency in climate zone 2.

Why not the other options?

Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Windows, p. 122.

C). Less stringent solar heat gain coefficient: In climate zone 2, a more stringent SHGC may also be needed, but U-factor is the primary concern for heat transfer control. Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Windows, p. 122.

D). More stringent solar heat gain coefficient: While SHGC is relevant in hot climates, the question focuses on U-factor for thermal performance. Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Windows, p. 122.

The LEED AP Homes Candidate Handbook emphasizes EA credits, including window performance, and references the LEED Reference Guide for Homes Design and Construction as a key resource. The exam is based on LEED v4, ensuring the relevance of U-factor requirements.

References:

LEED Reference Guide for Homes Design and Construction, v4, USGBC, Energy and Atmosphere Credit: Windows, p. 122.

LEED v4.1 Residential BD+C, USGBC LEED Credit Library, accessed via LEED Online (<https://www.usgbc.org/credits>).

LEED AP Homes Candidate Handbook, GBCI, October 2024, p. 12 (references study resources and exam scope based on LEED v4).

USGBC LEED for Homes Rating System (v4), available via USGBC website (<https://www.usgbc.org/resources/leed-homes-design-and-construction-v4>).

LEED v4.1 for Homes, USGBC, accessed via LEED Online, confirming window performance requirements.

NEW QUESTION # 86

Which of the following is used to properly size space heating and cooling systems in accordance with LEED for Homes criteria?

- A. SMACNA Publication 69.2
- B. DOE 2006 HVAC Sizing Guide
- C. ACCA Manual J
- D. ASHRAE 62.2

Answer: C

Explanation:

The LEED for Homes Rating System (v4) requires proper sizing of space heating and cooling systems to ensure energy efficiency, addressed in the Energy and Atmosphere (EA) Prerequisite: Minimum Energy Performance and related credits.

According to the LEED Reference Guide for Homes Design and Construction (v4):

EA Prerequisite: Minimum Energy Performance

Size heating and cooling systems in accordance with ACCA Manual J (Residential Load Calculation). This ensures that HVAC systems are appropriately sized for the home's thermal loads, improving energy efficiency and occupant comfort.

Source: LEED Reference Guide for Homes Design and Construction, v4, Energy and Atmosphere Prerequisite: Minimum Energy

Performance, p. 112.

The LEED v4.1 Residential BD+C Crating system confirms:

EA Prerequisite: Energy Performance

Use ACCA Manual J to calculate heating and cooling loads and properly size HVAC equipment to meet LEED requirements.

Source: LEED v4.1 Residential BD+C, Credit Library, accessed via USGBC LEED Online.

The ACCA Manual J (Option B) is the standard method for sizing residential heating and cooling systems, ensuring they match the home's thermal requirements.

Why not the other options?

Reference: LEED Reference Guide for Homes Design and Construction, v4, Indoor Environmental Quality Prerequisite: Ventilation, p. 142.

C). SMACNA Publication 69.2: SMACNA standards focus on sheet metal and ductwork installation, not system sizing. Reference: No mention in LEED v4 for Homes; irrelevant to HVAC sizing.

D). DOE 2006 HVAC Sizing Guide: While the DOE provides energy guidelines, LEED specifically requires ACCA Manual J for sizing. Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Prerequisite: Minimum Energy Performance, p. 112.

The LEED AP Homes Candidate Handbook emphasizes EA prerequisites, including HVAC sizing, and references the LEED Reference Guide for Homes Design and Construction as a key resource. The exam is based on LEED v4, ensuring the relevance of ACCA Manual J.

References:

LEED Reference Guide for Homes Design and Construction, v4, USGBC, Energy and Atmosphere Prerequisite: Minimum Energy Performance, p. 112.

LEED v4.1 Residential BD+C, USGBC LEED Credit Library, accessed via LEED Online (<https://www.usgbc.org/credits>).

LEED AP Homes Candidate Handbook, GBCI, October 2024, p. 12 (references study resources and exam scope based on LEED v4).

USGBC LEED for Homes Rating System (v4), available via USGBC website (<https://www.usgbc.org/resources/leed-homes-design-and-construction-v4>).

LEED v4.1 for Homes, USGBC, accessed via LEED Online, confirming ACCA Manual J requirement.

NEW QUESTION # 87

Envelope leakage is measured in air changes per hour (ACH) at what pressure differential?

- A. 25 pascals
- **B. 50 pascals**
- C. 100 pascals
- D. 75 pascals

Answer: B

Explanation:

The LEED for Homes Rating System (v4) requires blower door testing in the Energy and Atmosphere (EA) Credit: Air Infiltration to measure envelope leakage, expressed as air changes per hour (ACH) at a specific pressure differential.

According to the LEED Reference Guide for Homes Design and Construction (v4):

EA Credit: Air Infiltration (1-3 points)

Conduct a blower door test to measure envelope leakage in air changes per hour (ACH) at a pressure differential of 50 pascals (Pa). This standardizes the measurement of air tightness across projects.

Source: LEED Reference Guide for Homes Design and Construction, v4, Energy and Atmosphere Credit: Air Infiltration, p. 124.

The LEED v4.1 Residential BD+C Crating system confirms:

EA Credit: Air Infiltration

Envelope leakage is measured using a blower door test at 50 pascals, reported as ACH50, to assess the airtightness of the building envelope.

Source: LEED v4.1 Residential BD+C, Credit Library, accessed via USGBC LEED Online.

The correct answer is 50 pascals (Option B), as this is the standard pressure differential for measuring ACH in LEED for Homes.

Why not the other options?

Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Air Infiltration, p. 124.

C). 75 pascals: Higher pressures are not used, as 50 pascals is the industry standard for consistency. Reference:

LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Air Infiltration, p. 124.

D). 100 pascals: This is too high and not used in residential testing standards. Reference: LEED Reference Guide for Homes Design and Construction, v4, EA Credit: Air Infiltration, p. 124.

The LEED AP Homes Candidate Handbook emphasizes EA credits, including air infiltration testing, and references the LEED Reference Guide for Homes Design and Construction as a key resource. The exam is based on LEED v4, ensuring the relevance of the 50-pascal standard.

References:

LEED Reference Guide for Homes Design and Construction, v4, USGBC, Energy and Atmosphere Credit: Air Infiltration, p. 124.

LEED v4.1 Residential BD+C, USGBC LEED Credit Library, accessed via LEED Online (<https://www.usgbc.org/credits>).

LEED AP Homes Candidate Handbook, GBCI, October 2024, p. 12 (references study resources and exam scope based on LEED v4).

USGBC LEED for Homes Rating System (v4), available via USGBC website (<https://www.usgbc.org/resources/leed-homes-design-and-construction-v4>).

LEED v4.1 for Homes, USGBC, accessed via LEED Online, confirming ACH50 testing standard.

NEW QUESTION # 88

In addition to testing envelope leakage for energy impacts, a blower door test can be used in attached housing projects to evaluate:

- A. Flow rate of local exhaust and supply fans or hoods
- B. Quantity of moisture transfer through common wall systems
- C. Potential for environmental tobacco smoke and odor contamination
- D. Effectiveness of non-toxic strategies designed to control pests

Answer: C

Explanation:

The LEED for Homes Rating System (v4) requires blower door testing in the Energy and Atmosphere (EA) Credit: Air Infiltration to measure envelope leakage, but it also has applications in Indoor Environmental Quality (EQ) credits for attached housing (e.g., multifamily or semi-detached homes) to assess air transfer between units.

According to the LEED Reference Guide for Homes Design and Construction (v4):

EQ Credit: Compartmentalization (1 point, multifamily)

In attached housing projects, use a blower door test to evaluate the potential for environmental tobacco smoke and odor contamination between units by measuring air leakage through common walls and ensuring effective sealing. This ensures indoor air quality by preventing unwanted air transfer.

Source: LEED Reference Guide for Homes Design and Construction, v4, Indoor Environmental Quality Credit: Compartmentalization, p. 152.

The LEED v4.1 Residential BD+C Crating system confirms:

EQ Credit: Compartmentalization

Blower door testing in attached housing verifies the airtightness of shared walls, reducing the potential for environmental tobacco smoke, odors, or other contaminants to transfer between units.

Source: LEED v4.1 Residential BD+C, Credit Library, accessed via USGBC LEED Online.

The correct answer is potential for environmental tobacco smoke and odor contamination (Option D), as blower door tests in attached housing assess air leakage through common walls, which can carry smoke or odors.

Why not the other options?

Reference: LEED Reference Guide for Homes Design and Construction, v4, EQ Credit: Enhanced Ventilation, p. 146.

B). Quantity of moisture transfer through common wall systems: While air leakage can carry moisture, blower door tests focus on air, not moisture quantification. Reference: LEED Reference Guide for Homes Design and Construction, v4, EQ Credit: Compartmentalization, p. 152.

C). Effectiveness of non-toxic strategies designed to control pests: Pest control strategies are addressed in EQ Credit: Contaminant Control, not evaluated via blower door tests. Reference: LEED Reference Guide for Homes Design and Construction, v4, EQ Credit: Contaminant Control, p. 148.

The LEED AP Homes Candidate Handbook emphasizes EQ credits, including compartmentalization, and references the LEED Reference Guide for Homes Design and Construction as a key resource. The exam is based on LEED v4, ensuring the relevance of blower door testing for smoke and odor control.

References:

LEED Reference Guide for Homes Design and Construction, v4, USGBC, Indoor Environmental Quality Credit: Compartmentalization, p. 152.

LEED v4.1 Residential BD+C, USGBC LEED Credit Library, accessed via LEED Online (<https://www.usgbc.org/credits>).

LEED AP Homes Candidate Handbook, GBCI, October 2024, p. 12 (references study resources and exam scope based on LEED v4).

USGBC LEED for Homes Rating System (v4), available via USGBC website (<https://www.usgbc.org>)

