

Implementing Green Building Practices for Sustainability

Part 1: Roleplay Dialogue

Characters:

- **Ethan** – Civil Engineer
- **Sophia** – Project Manager

Ethan: Sophia, we're aiming for **LEED certification** on this project. That means we need to focus on sustainable building strategies from the start.

Sophia: Absolutely. One of the key aspects is using **eco-friendly materials**. Have you reviewed which suppliers meet our sustainability criteria?

Ethan: Yes, I found a supplier that provides recycled concrete and bamboo-based flooring. These options can help reduce the building's carbon footprint.

Sophia: That's great. What about **energy efficiency**? Are we integrating high-performance insulation and smart lighting systems?

Ethan: Definitely. We're incorporating solar panels and optimizing the HVAC system to minimize energy consumption.

Sophia: Another aspect to consider is **passive design**. Can we make better use of natural light and ventilation to cut down on artificial energy use?

Ethan: We can. The building's orientation will maximize daylight, and we'll install large windows for cross-ventilation.

Sophia: Perfect. Have we also factored in **carbon-neutral construction**? Reducing emissions during the building process is just as important.

Ethan: Yes, we're planning to use electric construction equipment and purchase carbon offsets to balance out any emissions.

Sophia: That's a solid plan. If we follow through on these measures, we should secure our **LEED certification** without issues.

Ethan: Agreed. I'll finalize the documentation and coordinate with the certification board to ensure compliance.

Part 2: Comprehension Questions

1. What is Ethan's main goal for the project?
 - (A) Reducing labor costs
 - (B) Completing construction faster
 - (C) Achieving **LEED certification**
 - (D) Increasing building height
2. What kind of **eco-friendly materials** does Ethan mention?
 - (A) Steel and aluminum
 - (B) Recycled concrete and bamboo flooring
 - (C) Plastic-based insulation
 - (D) Traditional cement
3. How does Ethan suggest improving **energy efficiency**?
 - (A) Installing wind turbines
 - (B) Using geothermal heating
 - (C) Optimizing the HVAC system and using solar panels
 - (D) Reducing building size
4. How does the team plan to achieve **carbon-neutral construction**?
 - (A) Using diesel-powered machines
 - (B) Importing materials from overseas
 - (C) Increasing concrete production
 - (D) Using electric equipment and purchasing carbon offsets

Part 3: Vocabulary List

- **LEED certification (LEED 認証)** – A globally recognized rating for sustainable and environmentally friendly buildings.
- **Eco-friendly materials (環境に優しい材料)** – Construction materials that have minimal environmental impact.
- **Energy efficiency (エネルギー効率)** – The practice of reducing energy consumption while maintaining performance.
- **Passive design (パッシブデザイン)** – A building strategy that optimizes natural resources like sunlight and ventilation.
- **Carbon-neutral construction (カーボンニュートラル建設)** – A construction approach that balances carbon emissions through reductions or offsets.

Part 4: Answer Key

1. What is Ethan's main goal for the project?
☒ (C) Achieving **LEED certification**
2. What kind of **eco-friendly materials** does Ethan mention?
☒ (B) Recycled concrete and bamboo flooring
3. How does Ethan suggest improving **energy efficiency**?
☒ (C) Optimizing the HVAC system and using solar panels
4. How does the team plan to achieve **carbon-neutral construction**?
☒ (D) Using electric equipment and purchasing carbon offsets