Designing Acoustically Optimized Spaces

Part 1: Roleplay Dialogue

Scenario: An Interior Architect is designing acoustically optimized spaces for an office, hotel, or auditorium with a colleague.

Hiroshi: Hi Elena, have you finalized the material selection for the auditorium? We need to ensure proper **sound absorption panels** are installed.

Elena: I'm still evaluating the best options. We need panels with a high **acoustic rating (NRC, STC)** to effectively reduce echo and outside noise.

Hiroshi: Agreed. We should also add **ceiling baffles** to control sound reflection. The high ceilings in the auditorium could cause excessive reverberation.

Elena: Good point. Proper **reverberation control** is essential for speech clarity, especially for conferences and performances.

Hiroshi: Exactly. In the open office design, we should consider **white noise mitigation** to improve concentration and minimize distractions.

Elena: Yes, integrating sound-masking systems and strategically placing partitions will help.

Hiroshi: I also suggest using carpeting and upholstered furniture to absorb excess sound in the office areas.

Elena: That's a great idea. For the hotel, we should focus on using insulated walls to prevent noise from traveling between rooms.

Hiroshi: Right. We can also specify door seals and thick drapes to enhance acoustic performance.

Elena: Let's document all these recommendations and present them to the client.

Hiroshi: Sounds good. I'll put together a proposal, and we can review it before the meeting.

Part 2: Comprehension Questions

1. What type of material does Hiroshi suggest using in the auditorium to manage sound reflection?
   A) Wood paneling
   B) Glass partitions
   C) Ceiling baffles
   D) Metal grilles

2. Why does Elena focus on the acoustic rating of materials?
   A) To enhance aesthetic appeal
   B) To ensure noise reduction and echo control
   C) To increase natural light in the space
   D) To improve ventilation

3. What strategy do they discuss for noise control in the office?
   A) Installing additional speakers
   B) Removing partitions
   C) Using open ceilings
   D) Implementing white noise mitigation

4. What will Hiroshi do next?
   A) Install the sound-absorbing materials
   B) Conduct sound tests in the space
   C) Present the recommendations to the client
   D) Prepare a proposal for review

Part 3: Vocabulary Definitions (Japanese Translations)

1. **Sound absorption panels (吸音パネル)** – Panels designed to absorb sound waves and reduce noise levels.
2. **Acoustic rating (NRC, STC) (音響評価: NRC、STC)** – Numerical values that measure how well materials reduce sound transmission and echo.
3. **Ceiling baffles (天井バッフル)** – Hanging acoustic panels used to reduce sound reflection and improve clarity.
4. **Reverberation control (残響コントロール)** – The process of managing sound reflection to enhance speech clarity and listening comfort.
5. **White noise mitigation (ホワイトノイズ軽減)** – The use of sound-masking techniques to reduce background distractions in open spaces.

Part 4: Answer Key

1. **What type of material does Hiroshi suggest using in the auditorium to manage sound reflection?**
   ✅ C) Ceiling baffles
2. **Why does Elena focus on the acoustic rating of materials?**
   ✅ B) To ensure noise reduction and echo control
3. **What strategy do they discuss for noise control in the office?**
   ✅ D) Implementing white noise mitigation
4. **What will Hiroshi do next?**
   ✅ D) Prepare a proposal for review