

The Impact of Energy- Saving Devices on Indoor Air Quality

Read the sentence?

"The energy required to achieve unpolluted, high quality indoor air, however, often comes at a high cost, both in dollars and to the planet."

1. What does the author mean in this sentence?
 - A. High quality indoor air require energy.
 - B. Unpolluted, high quality indoor air is expensive.
 - C. Energy for unpolluted, high quality indoor air is financially expensive.
 - D. Energy for good indoor air quality costs money and takes a lot from the Earth.

Read this sentence

"Out of a desire to find a balance between maintaining a healthy indoor environment and lowering energy consumption, people are increasingly constructing new buildings with environmentally conscious features and relying on energy-efficient devices that can either be installed in new buildings or retrofitted to older buildings."

2. What specifically is the balance that people desire to find?
3. To find that balance, what two things are people doing?
4. How can energy-efficient devices be used?

Read this sentence:

"Indoor environmental quality, or to put it in clearer terms, the healthfulness of a building, is influenced by many factors including a building's lighting, moisture level, and chiefly, its air quality."

5. The healthfulness of a building is influenced by a building's lighting, moisture level, and chiefly, its air quality. True or false?

Read the sentence:

"Many people spend up to 90 percent of their time indoors (Boorstein, 2011), and pollution quickly builds up in closed spaces, much as smoke accumulates in a glass jar if it is placed over a burning stick of incense."

6. Who concluded that "Many people spend up to 90 percent of their time indoors"?
7. When did he conclude that?
8. What is compared to "smoke accumulates in a glass jar if it is placed over a burning stick of incense"?

Read the sentence:

“In a world that is facing climbing global temperatures due to emissions from human activities such as the heating and cooling of structures, using more energy to improve air quality—and, not incidentally, increasing carbon emissions—can be a hard sell.”

9. What is the subject of the sentence?
10. What is the verb phrase of the sentence?
11. What are examples of human activities?
12. What does emissions from these human activities result in?

Read the sentence:

“Of course, the extent to which individuals employ energy-saving measures such as simply turning off the air conditioner in the summer, opening the windows, and wearing appropriate clothing is worth considering, as these types of modifications would cut monthly bills and save energy.”

13. What are some energy-saving measures?
14. What does “these types of modifications” refer to?

Read the sentence:

“The key to a balance of energy consumption and air quality lies in using energy-saving devices that can be installed in new buildings or retrofitted into existing structures.”

15. What is the key in the sentence?

Read the sentence:

“Demand-controlled ventilation systems rely on a control system that¹ calculates occupancy levels by sensors that² most commonly detect carbon dioxide, which is a colorless, odorless gas exhaled by humans”

16. How many relative clauses are there in the sentence?
17. What does that¹ refer to?
18. What does that² refer to?
19. What does which refer to?

Read the sentence:

“To further explain, like a carbon dioxide sensor, a drive can be programmed to allow the motor to operate at full capacity during times when the occupancy level is high, such as during a school day, and to slow the system down during lower- occupancy times, like nighttime.”

20. What is “during a school day” an example for?
21. What is “nighttime” an example for?
22. From the sentence, can you understand how a carbon dioxide sensor works?

Read the sentence:

“Another energy-saving device for HVAC systems is known as an “energy recovery ventilation” system, which serves regions with extreme climates particularly well in terms of energy conservation.”

23. What does an energy recovery ventilation serve?
24. How does an energy recovery ventilation serve them?

Read the sentence

“In one example where such a system has benefited occupants of a building, school officials retrofitted—that is, completely overhauled the HVAC of—a 1960s building in the frigid Upper Peninsula of Michigan (Heikkila 2015)”

25. What was retrofitted?

Read the sentence

“In addition to using the three aforementioned HVAC-related devices, many builders are installing onsite solar panels to achieve a net-zero or nearly net-zero energy building.”

26. What are two things that builders are doing?

Read the sentence

“Research shows that HVAC system improvements result in measurable reductions in energy consumption.”

27. What is the subject of the sentence?
28. What does it result in?

Read the sentence

“Energy-saving devices like demand-controlled ventilation, variable frequency drives, and energy recovery ventilation systems all supply healthy indoor air and can work either together or individually to help owners lower energy costs and breathe easy.”

29. What are the energy-saving devices?
30. What are the two main verbs of the sentence?
31. What do these energy-saving devices help owners do?

