Lecture 2: Energy-efficient and environmentally friendly solutions for healthcare facilities

Introduction

Medical institutions are among the most energy-intensive facilities.

According to the International Energy Agency (IEA), the global healthcare sector consumes about 10% of the world's energy.

Implementing energy-efficient and environmentally friendly solutions reduces environmental impact and cuts costs.

Main problemsenergy efficiency inmedicine

Hospitals operate 24 hours a day, which results in high energy costs.

According to a US study, hospitals consume 2.5 times more energy than commercial buildings of similar size.

The main problems are heating, ventilation, lighting, sterilization and operation of medical equipment.

Eco-friendlysolutions Vmedical institutions

Renewable energy sources: solar panels, wind turbines.

Energy-saving technologies: intelligent resource management systems.

Slide 5: Renewable energy sources



Solar energy: Hospitals in sunny regions use photovoltaic panels to generate energy.

Example:Children's hospital Boston(USA)installed solar panels on roof,What reduced carbon track on15%.



Geothermal energy: space heating and cooling.

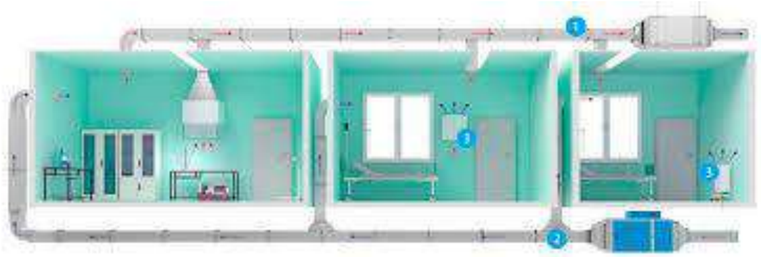
Example:geothermal systems hospitalsVIceland allow save to50%energy on heating.

Slide6:Energy efficient lightingAndventilation



LEDlighting consumes on75%less energyAndserv esat 25once longer,how lamps incandescent.

Example:hospit alVGermany shortenedener gy costson lighting on40%,having implemented LED lamps.



Ventilation-nye systemsWithre cuperation heat.

Example: the use of air recuperators allows hospitals to reduce energy consumption by 20-30%.

Control thermal energy



Thermal insulation: the use of modern materials for insulating walls, windows and roofs reduces heat loss by 30%.

Intelligent heating and cooling systems: automatic temperature control systems.

Example:hospitalVSweden shortened expenses on heating on20%thanks to installation«smart»thermostats.

Eco-friendlymaterialsVconstruction hospitals

Use of environmentally friendly building materials: recycled concrete, wood, glass.

Example: A hospital in the Netherlands was built using 50% recycled materials, reducing CO2 emissions by 20%.

Sustainable construction reduces operating costs and reduces the carbon footprint.

Control water resources



Rainwater collection systems: use for technical purposes (irrigation, sanitary facilities).

Recirculation water:systems cleaningAndrepeated use.

Example:hospitalVIndia shortened consumption water on35%after implementation systems processing wastewater waters.

Control medical waste





Safe disposal: recycling of medical materials (glass, plastic), disposal of hazardous waste.

Example:clinic Mayoin the USArecycles80%their own medical waste,What allowed reduce expenses on disposal on25%.

The use of environmentally friendly disinfectants reduces toxic emissions.

Eco-friendly medical devices

Example:modern devicesMRIuse on30%less energy By comparisonWithmodels past generations.

Energy efficientdevices For diagnosticsAndtreatment:digital X-ray machines,ultrasonic scanners,devicesWithfunction energy saving.

System "smart"management resources

Digital platforms for automated monitoring of electricity, water, heating, and ventilation consumption.

Example: BMS (Building Management System) in Danish hospitals reduced resource management costs by 25%.

Automation of control allows to reduce operating costs and increase energy efficiency.

Role sustainable management

Participation of staff in energy saving programs.

Training employees in environmental standards.

Example: A hospital in the UK organised training for medical staff, which reduced resource costs by 10%.

Financial benefitsAndecology

Example:Implementation energy efficient decisionsVhospital in France reduced cost on electricity on15% infirst year.

Eco-friendlysolutions reduce long-term operational expensesAndhelp achieve goals sustainable development(SDG).

Conclusion

Energy-efficient and environmentally friendly solutions are an important step for healthcare facilities.

Example: The implementation of green technologies at the Karolinska Institutet Hospital in Sweden reduced carbon emissions by 40% over 10 years.

Combining resource conservation and environmental stewardship leads to the creation of a sustainable healthcare system.