

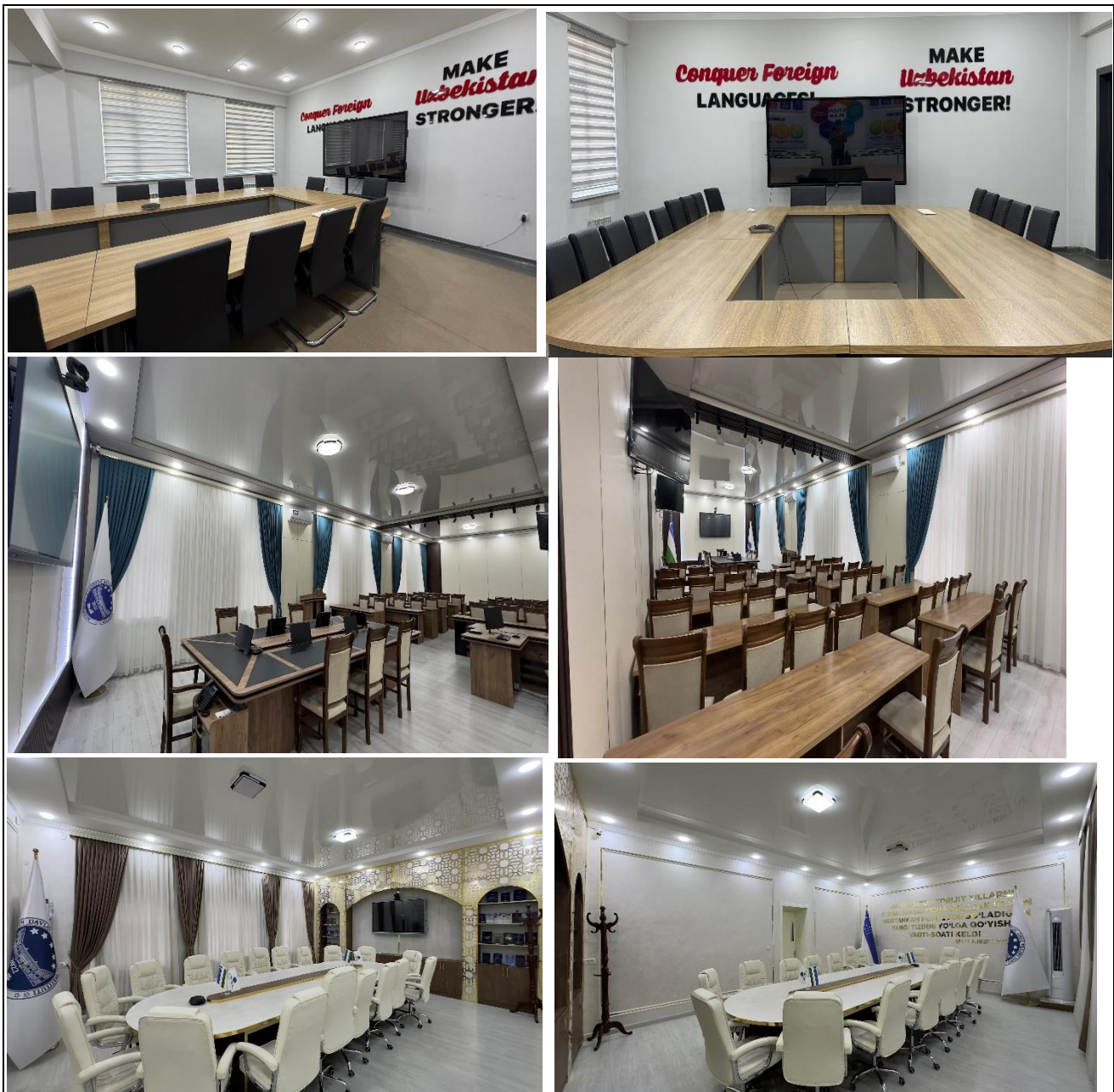


Template for Evidence(s) UI GreenMetric Questionnaire

University : Andijan State Institute of Foreign Languages
Country : Uzbekistan
Web Address : www.adchti.uz

[2] Energy and Climate Change (EC)

[2.13] Number of innovative program(s) in energy and climate change (EC.9)





Smart room sterilization system using UVC rays

Description:

Under the Energy and Climate Change (EC.9) category, Andijan State Institute of Foreign Languages has introduced an innovative Smart Room Sterilization System using UVC radiation technology. This program integrates environmental health protection, smart automation, and energy-efficient climate control strategies.

Program Overview

The Smart UVC Sterilization System is designed to maintain indoor air quality standards and reduce biological pollutants in academic buildings. The system operates through ultraviolet-C (UVC) radiation, which is scientifically recognized for its ability to inactivate microorganisms, including bacteria, viruses, and other airborne pathogens.

Unlike conventional cleaning approaches, this system provides:

- Automated room irradiation
- Surface sterilization (benches, floors, walls)
- Air quality stabilization
- Energy-conscious operation cycles

The sterilization process is conducted automatically when rooms are unoccupied. UVC exposure intervals are carefully regulated to ensure safety and operational efficiency.

Smart Automation and Energy Integration

The innovation goes beyond simple UV lamps. The system is digitally controlled and connected to PC-operated condition sensors and web cameras. These sensors detect occupancy conditions and activate sterilization cycles only when rooms are empty.

Key operational features include:

- Automatic door locking during irradiation
- External information display to notify users
- Remote regulation of UVC wavelength intensity
- Multi-organic pollutant sterilization capability

By integrating sensor-based activation, the university minimizes unnecessary energy use and prevents continuous operation, thereby optimizing electricity consumption.

Environmental and Climate Impact



Although primarily designed for indoor health safety, the program contributes indirectly to climate resilience and sustainable building management by:

- Reducing dependence on chemical disinfectants
- Lowering chemical waste production
- Enhancing air quality without excessive HVAC load
- Supporting healthier indoor environments

Improved indoor air quality reduces the need for frequent mechanical ventilation surges, which in turn helps stabilize cooling loads and energy demand.

This innovative program supports multiple UN Sustainable Development Goals:

SDG 3 – Good Health and Well-being

By eliminating airborne and surface biological pollutants, the system protects students and staff from infectious diseases and ensures a safe learning environment.

SDG 7 – Affordable and Clean Energy

Sensor-based automation ensures energy is used efficiently and only when necessary, reducing wasteful electricity consumption.

SDG 9 – Industry, Innovation and Infrastructure

The integration of smart sensors, automation systems, and UVC technology reflects advanced institutional infrastructure and technological innovation.

SDG 11 – Sustainable Cities and Communities

Healthy educational buildings contribute to sustainable urban development and resilient community infrastructure.

SDG 12 – Responsible Consumption and Production

Reduced chemical disinfectant use promotes environmentally responsible maintenance practices.

SDG 13 – Climate Action

Energy optimization and reduced environmental load contribute to climate mitigation strategies at the institutional level.

Additional evidence link (i.e., for videos, more images, or other files that are not included in this file):

<https://green-institute.adchti.uz/>

<https://green-institute.adchti.uz/#energy>