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GREEN CLASSROOM PROFESSIONAL GCP CERTIFICATE REFRESHER

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ONLINE TRAINING BY KRISHNAJI PAWAR

LEED AP(BD+C), GSAS CGP, GCP, ISO 14001

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MODULE
14

Sustainable Grounds & Transportation

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Sustainable school design prioritizes energy efficiency, sustainable materials, water conservation, indoor environmental quality, and community engagement. Passive design strategies like natural daylight can reduce artificial lighting, improve students' well-being, and enhance the educational environment.

Learning Objectives

- Green school buildings are dynamic learning environments.
- Operations and Maintenance for Whole School Sustainability
- Meaningful, purposeful, and engaging learning
- **Sustainable Grounds & Transportation**
- Indoor Environment—Air Quality
- Smart Cleaning & Integrative Pest Management
- Indoor Environment—Acoustics
- Water Efficiency and Quality
- Energy Efficiency—Lighting
- Plug Loads & HVAC Systems
- Materials and Resources
- Innovation & Conclusion
- Summary and Resources / GCP Quiz

CURRICULUM COMPONENTS

- Sustainable spaces include green infrastructure, such as green roofs, permeable pavements, and urban forests, to manage stormwater and improve air quality.
- Mixed-use development promotes coexistence of residential, commercial, and recreational spaces, reducing transportation needs.
- Smart transportation uses advanced technologies and data analytics to improve transportation efficiency, safety, and sustainability.
- The convergence of sustainable spaces and smart transportation fosters a holistic approach to urban development.
- Transit-Oriented Development (TOD) promotes walking and cycling, while Smart Mobility Hubs encourage multi-modal travel.
- Data-driven urban planning uses big data and analytics to make informed decisions about infrastructure investments and transportation planning.
- Collaboration among governments, communities, and private stakeholders is essential for the success and longevity of these initiatives.

GREEN SCHOOLS: A COMPREHENSIVE OVERVIEW

Introduction to Green Schools

- Green schools are educational institutions that promote sustainability and environmental awareness.
- They integrate environmentally responsible practices in operations, curricula, and community engagement.

Key Principles of Green Schools

- Sustainable Design and Construction: Green schools use recycled materials, energy-efficient systems, and designs that maximize natural light and ventilation.
- Resource Management: Green schools optimize water usage through rainwater harvesting systems, waste reduction strategies, and energy-efficient appliances.
- Curriculum Integration: Sustainability is integrated into curricula, teaching students about environmental issues and conservation.
- Health and Well-being: Green schools prioritize the health of students and staff, focusing on physical and mental health.
- Community Engagement: Green schools often serve as community hubs for sustainability initiatives, hosting community workshops on composting or energy conservation.



SUSTAINABLE SPACES IN EDUCATION



- Schools should minimize ecological impact while maximizing social and economic benefits.
- Energy Efficiency: Incorporating passive design strategies like maximizing natural daylight can reduce reliance on artificial lighting and improve student well-being.
- Sustainable Materials: Schools can use recycled, locally sourced, or sustainably harvested materials.
- Water Conservation: Implementing rainwater harvesting systems and xeriscaping can reduce reliance on local water supplies.
- Indoor Environmental Quality: Schools can enhance indoor environmental quality by using low-VOC paints and finishes, improving ventilation systems, and maintaining optimal humidity levels.
- Community Engagement: Schools like the Sustainable School in Portland actively engage students and the community in sustainability projects.

SMART TRANSPORTATION IN SCHOOL BUILDINGS

- Active Transportation Promotion: Schools can implement programs that promote walking and biking.
- Public Transportation Integration: Schools can work with local transit authorities to improve public transportation access.
- Smart Technology Utilization: Integration of smart technologies like real-time tracking of school buses and mobile applications for parents and students can enhance the convenience of school transport.
- Electric and Alternative Fuel Vehicles: Schools can transition to electric or alternative fuel vehicles to reduce carbon emissions.
- Carpooling and Ridesharing Programs: Schools can facilitate carpooling and ridesharing among families to decrease traffic congestion and emissions.



SCHOOL BUS IDLING: MYTHS AND FACTS

Myths and Facts:

- Myth: Long Idle Periods Are Necessary for Engine Warm-Up
- Fact: Modern school bus engines have advanced technology that allows a warm-up time of less than five minutes.
- Myth: Low-Speed Idling Causes More Wear on Internal Parts Than Regular Speed Driving
- Fact: Modern buses have re-wired circuitry that allows operation without continuous idling for up to an hour without negatively impacting the electrical system.
- Myth: Idling is Necessary for Cabin Comfort, But It's Not Efficient
- Fact: School bus routes can be timed and organized to minimize extra time spent on the bus, thereby reducing the need for idling.
- Myth: Idling Produces More Pollution Than a "Cold Start"
- Fact: An EPA study indicates that continuous idling emits more fine particle emissions than restarting the engine.



ACTIONS AT SCHOOL:

- Direct Actions: Close classroom windows during bus idling or lawn maintenance to minimize exposure to pollutants.
- Communication: Monitor water and irrigation systems to ensure leaks or inefficiencies are promptly reported to maintenance staff.
- Work with School Administrators: Ensure grounds maintenance is conducted when children are not present to prevent exposure to pollutants and reduce idling during these tasks.
- Prompt Cleanup of Dumpsters and Trash Near Classrooms: Regular maintenance of waste areas is essential to minimize odors and potential pest problems.
- Advocacy for Policy Changes: Advocate for policies that minimize irrigation and chemical use, prohibit pesticide application and lawn maintenance during school hours, implement waste management policies, reduce idling by school buses, and encourage Carpooling, Safe Bicycling, and Walking to School Programs.





ADDRESSING UNHEALTHY & UNSUSTAINABLE ISSUES IN SCHOOL GROUNDS

Unsafe Conditions:

- Poorly maintained playground equipment and inadequate lighting can pose physical hazards to students.
- The presence of hazardous materials like lead in paint or asbestos in older buildings can pose significant health risks.



UNSUSTAINABLE PRACTICES

- Excessive use of synthetic fertilizers and pesticides can lead to soil degradation, water pollution, and loss of biodiversity.
- Schools often operate using outdated HVAC systems that consume more energy than necessary, leading to higher greenhouse gas emissions.



UNHEALTHY CONDITIONS

- Poor air quality and lack of green spaces can lead to unhealthy conditions.
- Schools in urban settings may experience elevated levels of air pollution, exacerbate respiratory issues such as asthma.
- The absence of green spaces and outdoor environments can hinder students' physical and mental well-being.



ROLE OF GREEN COMMUNITY PARTNERSHIPS (SCS'S)

- SCSs can advocate for sustainable practices and policies.
- They can influence change through policy reforms at the local and state levels.
- SCSs can enhance awareness about the importance of sustainable practices among students, parents, and staff.
- Investing in infrastructure improvements can reduce runoff and improve groundwater recharge.
- Green spaces within school grounds are vital for fostering healthier environments.



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