

BEYOND
SMART CITIES

wel come to
BEYOND SMART CITIES

BEYOND
SMART CITIES



SUSTAINABLE CLASSROOM SPECIALIST SCS CERTIFICATE

ONLINE PROFESSIONAL COURSES LED BY THE
WORLD'S TOP SPECIALISTS

ONLINE TRAINING BY KRISHNAJI PAWAR

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

LEARN.BEYONDSMARTCITIES.IN



MODULE
18

Indoor Environment: Air Quality and Acoustics

KRISHNAJI PAWAR - CEO & FOUNDER

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

WWW.BEYONDSMARTCITIES.IN





SUSTAINABLE CLASSROOM SPECIALIST SCS CERTIFICATE

The indoor environment of educational institutions is crucial for the health, comfort, and learning outcomes of students and staff. Two significant aspects of this environment are air quality and acoustics. Air quality refers to the condition of the air within a building and is a crucial determinant of occupant health and productivity.

Learning Objectives

- Green school buildings are dynamic learning environments.
- Operations and Maintenance for Whole School Sustainability
- Meaningful, purposeful, and engaging learning
- Sustainable Spaces and Smart Transportation
- Energy Efficiency - Lighting
- Energy Efficiency - Plug Loads & HVAC Systems
- Water Efficiency and Quality
- Indoor Environment: Air Quality and Acoustics
- Smart Cleaning & Integrative Pest Management
- Materials and Resources
- Emerging Design and Technology
- Summary and Resources
- SCS Quiz: Test Your Knowledge!

INTRODUCTION

Indoor Air Quality (IAQ)

- IAQ is crucial for occupant health and productivity, especially in school buildings.
- Poor IAQ can lead to health issues like respiratory diseases, allergies, and fatigue, affecting academic performance.
- Common pollutants compromising IAQ include Volatile Organic Compounds (VOCs), Particulate Matter (PM), Carbon Dioxide (CO₂), and biological contaminants.

Acoustics

- Importance of acoustics in facilitating effective communication and learning.
- Poor acoustical conditions can disrupt concentration and hinder comprehension.
- Strategies to create an acoustically favorable environment include architectural design, sound-absorbing materials, and zoned areas.

AIR QUALITY IN SCHOOL BUILDINGS

- Importance of Indoor Air Quality (IAQ): IAQ is crucial for occupant health and productivity, especially in school buildings where children are vulnerable.
- Common Pollutants: Volatile Organic Compounds (VOCs), Particulate Matter (PM), Carbon Dioxide (CO₂), and Biological Contaminants can compromise IAQ.
- Strategies for IAQ Improvement: Proper ventilation, air filtering, source control, and regular maintenance are essential.
- Research shows a direct correlation between IAQ and student performance, with improved ventilation systems resulting in a 10% increase in test scores.



ACOUSTICS IN SCHOOL BUILDINGS

- Role of Acoustics: Poor acoustics can lead to increased noise levels, disrupting concentration and hindering comprehension.
- Sources of Noise: External Noise: Traffic, construction, and playground activities can introduce external noise into classrooms.
- Effects of Noise on Learning: Excessive noise can have detrimental effects on student learning and behavior.
- Strategies for Acoustics Improvement: Architectural design, sound-absorbing materials, zoning, and technological solutions can create an acoustically favorable environment.



INDOOR ENVIRONMENTAL QUALITY (IEQ) AND ACOUSTICS

- IEQ includes air quality, lighting, thermal comfort, and ergonomics.
- Acoustics studies sound transmission and its effects on individuals.
- Acoustics in educational settings significantly influences pedagogical outcomes, student engagement, and overall well-being.

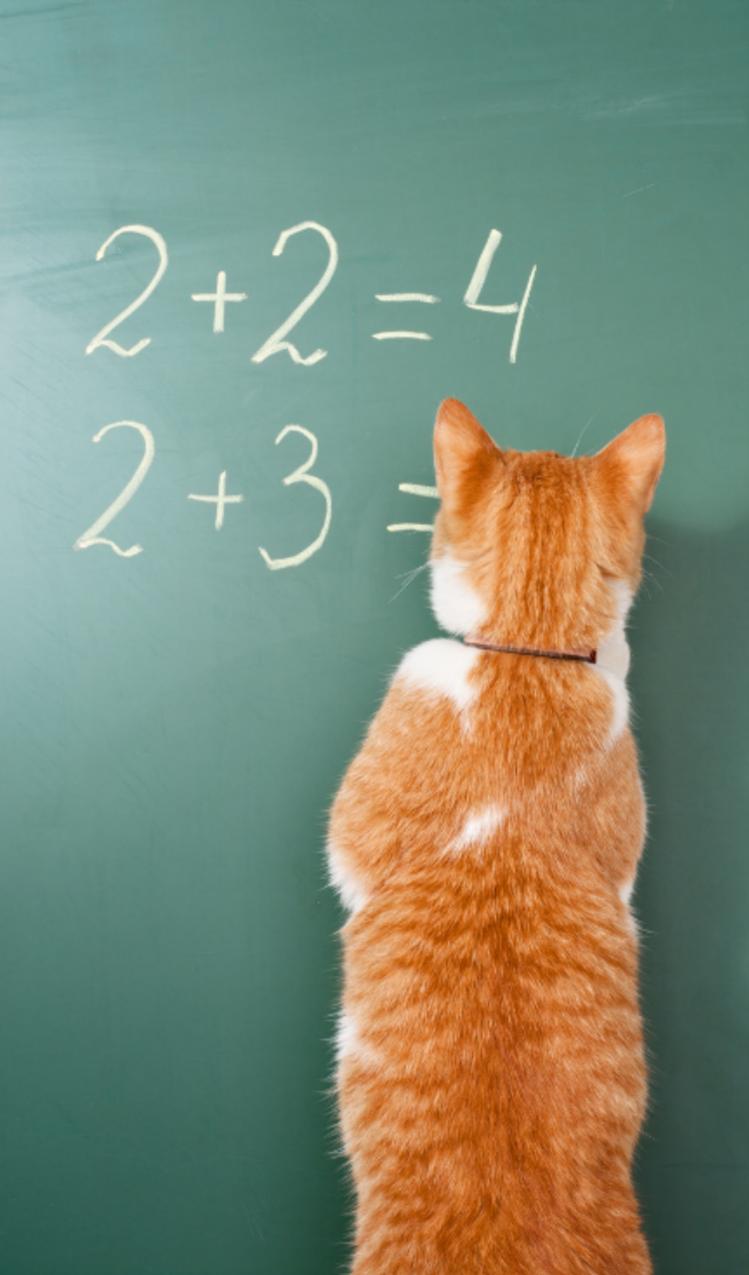


IMPORTANCE OF NOISE CONSIDERATIONS IN GREEN CLASSROOMS

- Noise increases cognitive load and learning.
- High noise levels can induce stress in students, leading to increased anxiety and behavioral issues.
- Noise can hinder effective communication, especially in collaborative learning strategies.



IMPACT OF NOISE IN THE LEARNING ENVIRONMENT



- Acoustic conditions correlate with academic performance.
- Prolonged exposure to high noise levels can have adverse health effects.
- A noisy classroom can disrupt social interactions and collaborative learning opportunities.

STRATEGIES TO LIMIT NOISE IN THE CLASSROOM

- Architectural design: Use of sound-absorbing materials can mitigate noise.
- Zoning and Layout: Separate noisy activities from quieter areas.
- Acoustic Barriers: Installing sound walls or partitions can contain noise within designated areas.
- Behavioral Guidelines: Establishing behavioral expectations around noise can promote respect for the learning environment.
- Acoustic Testing and Monitoring: Regularly assessing the acoustic quality of classrooms can help identify issues and inform interventions.





CONTACT US



+91 6363032722



info@beyondsmartcities.in



learn.beyondsmartcities.in



#55,HMR Layout ,Bengaluru ,India



THANK YOU

