"Sustainable Living: Green Screen Strategies for Enhanced Indoor Thermal Performance in Dhaka's Mid-Rise Residential Buildings"

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Abstract:

This study investigates sustainable living strategies, focusing on the application of green screens to enhance indoor thermal performance in mid-rise residential buildings in Dhaka, Bangladesh. Dhaka's subtropical monsoon climate poses challenges such as high temperatures and humidity, necessitating innovative solutions for improved indoor comfort and sustainability. The research employs a simulation-based approach alongside a case study methodology, using mid-rise residential buildings in Dhaka as the primary subjects. Green screens, which integrate vegetation into the building design as passive shading devices, are the central intervention.

The study incorporates detailed simulations to model the impact of green screens on indoor temperature variations and energy consumption patterns. Data collection involves comparing simulated results with real-world measurements of indoor thermal performance and resident feedback. Preliminary findings from these simulations indicate significant improvements in indoor thermal conditions due to green screens, which act as effective shading elements, reducing heat gain and promoting a more sustainable indoor environment.

Simulations also reveal potential reductions in reliance on mechanical cooling systems, supporting the principles of sustainable living. Resident feedback further provides insights into the social acceptance and perceived benefits of green screen interventions, highlighting the importance of user satisfaction in sustainable design.

In conclusion, this research underscores the importance of integrating green screen strategies into sustainable living practices for mid-rise residential buildings in Dhaka. The combination of simulation-based analysis and empirical data demonstrates that these natural interventions not only enhance thermal comfort but also contribute to broader environmental goals, including energy efficiency and improved urban livability. The findings offer valuable insights for architects, urban planners, and policymakers aiming to implement effective sustainable solutions in densely populated urban settings.

Keywords:

Sustainable Living, Green Screens, Indoor Thermal Performance, Shading Devices, Energy Efficiency, Urban Sustainability.