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From Design to Impact: How Architecture Can Shape Educational Environments and Student Well-being

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ABSTRACT:

Architecture holds a pivotal role in shaping human behavior, health, and productivity, especially in educational environments. The quality of indoor spaces—specifically air quality, lighting, thermal comfort, and acoustics—directly impacts students' ability to focus, retain information, and perform well academically. Yet, many schools and colleges operate in inadequately designed buildings with poor ventilation and limited natural lighting, resulting in elevated CO₂ levels, pollutants, and uncomfortable learning conditions that impair cognitive function. This paper explores the consequences of insufficient indoor environmental quality (IEQ) in educational settings, focusing on the effects of poor ventilation, artificial lighting reliance, and the lack of natural design elements. Supported by research studies, the paper advocates for human-centered architectural interventions, such as passive ventilation, biophilic design, and adaptive lighting systems, which can create healthier, more engaging educational spaces. By integrating these design practices, architects can enhance student well-being, improve concentration, and support academic success within educational environments.

Keywords: Indoor Environmental Quality (IEQ), Student Well-being, Educational Architecture, Natural Lighting, Cognitive Function, Human-Centered Design

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