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Harnessing Spatial Intelligence in Adopting Net Zero Energy Building Concept to the Residential Buildings in Sri Lanka

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The pressing need to address the rising energy demand in residential and high-rise housing developments has become a crucial issue for stakeholders. As the construction industry seeks efficient alternatives to meet these energy requirements, the concept of Net Zero Energy Buildings (NZEB) has gained significant attention. NZEB emphasizes energy production from affordable, locally sourced, and renewable resources, substantially reducing energy consumption. Despite its benefits, the widespread adoption of NZEB faces various challenges. This study explored the integration of the NZEB concept into residential buildings in Sri Lanka, focusing on the innovative application of spatial intelligence in design and implementation. By conducting a thorough methodology, including literature reviews, surveys, and interviews with industry experts involved in NZEB projects, the study examined the current preparedness, obstacles, and initiatives in Sri Lanka's construction sector. The findings reveal insights into the nation's efforts and highlight both successes and areas needing improvement. The data gathered reflects the construction sector's evolving mindset towards sustainable practices. Despite existing challenges, the study emphasizes the critical need to adopt NZEB principles, aligning with global sustainability goals, and ensuring a greener future for residential buildings in Sri Lanka.

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