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# GREEN ARCHITECTURE: ENVIRONMENTAL IMPACT AND IMPLEMENTATION

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**Abstract**

*Green architecture, or sustainable design, is essential for addressing the environmental, social, and economic challenges of the 21st century. This study examines green architecture as a method for sustainable building, aiming to reduce environmental impact throughout a structure's lifecycle. As climate change and ecological degradation escalate, the demand for sustainable architecture increases. This paper provides an overview of green architecture, outlining its principles, technical applications, and benefits for the environment and human health. It also evaluates core concepts like sustainable development, eco-design, and resource efficiency while addressing barriers to widespread adoption. By using a qualitative research design, this study analyses case studies verified by the Green Building Council (GBC) to demonstrate the successful application of green architecture principles. Systematic searches in various databases reveal key themes and trends in current practices and emerging innovations in the field. Key benefits of green architecture study include the enhancement and protection of biodiversity, improved air and water quality, natural resource conservation, and reduced operational costs. Additionally, creating green buildings contributes significantly to the overall quality of life for occupants by fostering healthier environments that prioritize well-being. The research underscores the role of renewable energy sources, effective waste management, and thoughtful site planning as integral components of successful green architecture. However, challenges such as high upfront costs, limited awareness among stakeholders, and regulatory barriers are identified as significant obstacles to implementation. The study advocates for a multifaceted approach to overcoming these challenges through increased education, collaboration among stakeholders, and supportive government policies. In conclusion, the evolution of green architecture is paving the way for innovative design solutions like Net-Zero Energy Buildings, which aim to offset energy consumption by generating equivalent energy. This initiative is vital for mitigating the environmental impact of the construction industry and advancing global sustainability goals. This paper provides a foundational understanding of green architecture, contributing to the ongoing discourse on sustainable development and offering actionable insights for practitioners, policymakers, and researchers alike.*

**Keywords**. Environmental Impact, Green Architecture, Implementation, Net-Zero Energy Buildings, Sustainability