

**IMPLEMENTATION OF GREEN DESIGN STRATEGIES IN THE  
DEVELOPMENT OF A MUSEUM, ABUJA, NIGERIA**

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**JULY, 2024**

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**BY**

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ARCHITECTURE, COLLEGE OF SCIENCE AND TECHNOLOGY,  
COVENANT UNIVERSITY, OTA, OGUN STATE, NIGERIA**

**JULY, 2024**

## **ACCEPTANCE**

This is to attest that this dissertation is accepted in partial fulfillment of the requirements for the award of the degree of Master of Science (M.Sc) in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Nigeria, and has been accepted by the School of Postgraduate Studies, Covenant University, Ota, Ogun state.

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**Signature and Date**

## **DECLARATION**

**I, ENE, VINCENT ONYEDIKACHI (22PCA02361)**, declare that this dissertation is a representation of my work, and is written and implemented by me under the supervision of Dr. Bukola A. Adewale of the Department of Architecture, Covenant University, Ota, Nigeria. I attest that this dissertation has in no way been submitted either wholly or partially to any other university or institution of higher learning for the award of a master's degree. All information cited from published and unpublished literature has been duly referenced.

**ENE, VINCENT ONYEDIKACHI**

**Signature and Date**

## **CERTIFICATION**

This is to certify that this dissertation titled “**IMPLEMENTATION OF GREEN DESIGN STRATEGIES IN THE DEVELOPMENT OF A MUSEUM, ABUJA, NIGERIA**” is an original research work carried out by **ENE, VINCENT ONYEDIKACHI (22PCA02361)** in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria under the supervision of Dr. Bukola A. Adewale. This dissertation has met the required standard for the award of Master of Science (M.Sc) in Architecture.

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## **DEDICATION**

This research work is dedicated first and foremost to God Almighty, the custodian of all wisdom, knowledge, and understanding, for His grace and favour throughout carrying out this research. Then to my family for their endless support and love.

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## LIST OF ABBREVIATIONS

<b>AAM</b>	American Alliance of Museums
<b>AR</b>	Augmented Reality
<b>ICOM</b>	International Council of Museums
<b>SDGs</b>	Sustainable Development Goals
<b>NGOs</b>	Non Governmental Organizations
<b>HVAC</b>	Heating, Ventilation, Air-Conditioning
<b>A.D.</b>	After Death (of Christ)
<b>NCMM</b>	National Commission for Museums and Monuments
<b>B.C.</b>	Before Birth (of Christ)
<b>MoMA</b>	Museum of Modern Art
<b>BREEAM</b>	Building Research Establishment Environmental Assessment
<b>LEED</b>	Leadership in Energy and Environmental Design
<b>EDGE</b>	Excellence in Design for Greater Efficiencies
<b>IGCC</b>	International Green Construction Code
<b>HPSB</b>	High Performance and Sustainable Building
<b>TAM</b>	Technology Acceptance Model
<b>TPB</b>	Theory of Planned Behavior
<b>DOI</b>	Diffusion of Innovations
<b>SCT</b>	Social Cognitive Theory
<b>MM</b>	Motivational Model
<b>ARCON</b>	Architects Registration Council of Nigeria
<b>SPS</b>	School of Postgraduate S
<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>ROM</b>	The original Royal Ontario Museum
<b>AMAC</b>	Abuja Municipal Area Council
<b>NMDC</b>	National Museum Directors' Council

## ABSTRACT

This study investigates green design strategies in Nigerian museums to minimize energy consumption and environmental impact while preserving cultural heritage. Adopting a qualitative approach, the research employed interviews and case studies, focusing on three Abuja museums: Discovery Museum, Nike Art Gallery, and Retro Africa Gallery. Purposive sampling selected the three museums, while snowball sampling facilitated the selection of the 8 architects which were interviewed. The case studies were evaluated using LEED and EDGE guidelines. Findings revealed partial implementation of sustainable practices, with effective passive design strategies like cross ventilation and vegetation, yet limited integration of renewable energy and advanced water management systems. Six case studies, including three international museums, were assessed using LEED and EDGE guidelines. Results highlighted both achievements and gaps, particularly in renewable energy and water conservation techniques. The study recommends enhanced renewable energy integration, advanced water management systems, education and training for professionals, policy support and incentives, collaboration for knowledge sharing, and regular assessments and upgrades. These measures aim to foster sustainability in Nigerian museums, serving as models for environmental conservation while enhancing user experience and preserving cultural heritage. The study's implications extend beyond architectural practice, as sustainable museums can serve as models for environmental conservation and cultural stewardship in Nigeria and beyond. By enhancing user experience and preserving cultural heritage, these initiatives contribute to broader societal and sustainable development goals.

***Keywords: Green design strategies, Museum, Sustainable design, Sustainability***