

**APPLICATION OF SUSTAINABLE DESIGN STRATEGIES IN THE
DESIGN OF A YOUTH CENTRE IN EBONYI STATE, NIGERIA**

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JULY, 2023

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BY

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**A DISSERTATION SUBMITTED TO THE SCHOOL OF
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(M.Sc) DEGREE IN ARCHITECTURE IN THE DEPARTMENT OF
ARCHITECTURE, COLLEGE OF SCIENCE AND TECHNOLOGY,
COVENANT UNIVERSITY, OTA, OGUN STATE**

JULY, 2023

ACCEPTANCE

This is to attest that this dissertation is accepted in partial fulfilment 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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DECLARATION

I, **EGWU-CHUKWU, OLUBUNMI OLUCHI (20PCA02156)**, declare that this dissertation was carried out by me under the supervision of Dr. Osahon J. Ediae, in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria. I attest that this dissertation has not been presented, either wholly or partially for the award of any degree elsewhere. All sources of scholarly information used in this research work were duly acknowledged.

EGWU-CHUKWU, OLUBUNMI OLUCHI

Signature and Date

CERTIFICATION

This is to certify that this dissertation titled “**APPLICATION OF SUSTAINABLE DESIGN STRATEGIES IN THE DESIGN OF A YOUTH CENTRE IN EBONYI STATE, NIGERIA**” is an original research work carried out by **EGWU-CHUKWU, OLUBUNMI OLUCHI (20PCA02156)** in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria under the supervision of Dr. Osahon J. Ediae. This dissertation has met the required standard for the award of Master of Science (M.Sc) in Architecture.

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DEDICATION

I dedicate this work to the Almighty God who blessed me with adequate knowledge to carry out research and document this thesis. The entire body of this work would not have been possible without Him.

I also dedicate this dissertation to my wonderful parents Mr. & Mrs. Augustine Egwu, my brother, extended family members, and friends for the immense love, care and support they have shown me throughout the course of the program.

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LIST OF ABBREVIATIONS

FCT – Federal Capital Territory

NYSC – National Youth Service Corps

LGA – Local Government Area

LEED - Leadership in Energy and Environmental Design

BREEAM - Building Research Establishment Environmental Assessment Method

IEQ - Indoor Environment Quality

LED - Light Emitting Diodes

CFL - Compact Fluorescent Lamps

ICT - Information and communications technology

IoT – Internet of Things

BMS - Building Management Systems

HVAC - Heating, Ventilation, and Air Conditioning

BIPV - Building-Integrated Photovoltaic

HPFD - High-Performance Façade Design

ABSTRACT

Youths are constantly migrating from rural to urban areas in search of a better life and better opportunities and as a result, there is a need to develop rural areas to suit their taste and cater to the means to meet their various need. Proposing a youth centre offers educational, recreational, vocational, and sociocultural supports that tend towards the development of the youths for a brighter future. However, the issue of sustainability remains an issue in the development of infrastructures in Nigeria. This research focuses on the application of sustainable design strategies in the design of a youth centre in Ishieke, Ebonyi State, Nigeria. The specific objectives include identifying sustainable design strategies, identifying the sustainable design strategies that are environmentally friendly, determining the level of adoption of these strategies and applying these strategies in the design of a youth centre. The research approach adopted is the mixed method approach where data was obtained using qualitative (observation guide) and quantitative (questionnaires) means. The data obtained was analysed using the statistical products for services and solutions (SPSS) software and content analysis tools. The results were presented using tables, charts, pictures, architectural drawings, models, and animations. The findings revealed the various design strategies that contribute to a sustainable site as well as make for energy efficiency which will be adopted in the design of the proposed youth centre. More research should be done to cover other sustainable design strategies that can be applied in the design of a youth centre as the scope of this study incorporated just two strategies. This will help inform designers of the available sustainable design strategies and influence their level of adopting these strategies.

Keywords: Sustainable Design Strategies, Energy Efficiency, Sustainable Site, Youth centre