

**PASSIVE DESIGN APPROACH IN PLANNING AND DESIGN OF  
CRUISE TERMINAL IN EKO ATLANTIC CITY, LAGOS, NIGERIA**

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**A DISSERTATION SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE,  
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DEGREE IN ARCHITECTURE.**

May, 2019

## **DECLARATION**

**I, UDEZI BENJAMIN EWOMAZINO, (13CA015711)** of the Department of Architecture, Covenant University, Ota, Ogun State, hereby declare the information contained in this thesis work is the result of an honest academic research undertaken by me and that no part of it had been accepted for publication in any journal or magazine.

I therefore state that all information and data are fully acknowledged via proper referencing.

**UDEZI BENJAMIN EWOMAZINO**

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## **CERTIFICATION**

It is hereby certified, that this dissertation was written by Udezi Benjamin Ewoamzino and was supervised by me and submitted to the School of Post Graduate studies and the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State.

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## **DEDICATION**

This thesis is dedicated to the God of the Universe, the God of all flesh, my only source of wisdom, understanding and sustenance, for bestowing upon me these thesis topic and divine inspiration to see it through, for renewing my strength on a daily base and to the course that I follow-the field of Architecture. Also, to my parents, Mr & Mrs Mike Udezi for their endless love, care and encouragement, Arc. & Mrs Brighten Udezi for their support through all

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

EU – End User

EUF – End user Factors

GHG – Green House Gases

HVAC – Heating Ventilating, and Air Conditioning

IPCC – Intergovernmental Panel on Climate Change

MRT – Mean Radiant Temperature

PBD – Passive Building Design

TABS – Thermally Activated Building Services

## ABSTRACT

Buildings are responsible for over 40% of the global energy consumption in recent times. This has led to the advancement of various strategies for ensuring that building can still perform optimally with a reduce energy consumption level. Designers of modern building structure need to develop a new approach towards harnessing the attributes of nature and its immediate environment in order to achieve a great level of building indoor thermal performance of the building structure. The concept of passive design planning and strategies has been known to achieve such thermal performance in building structure and reducing energy consumption to the barest minimum. The study aims at examining how passive design approach can be implemented in the planning and design of transport buildings with a view to evolving an architectural design proposal of a cruise terminal building. The research was carried out to explore the various passive design strategies also, identifies the level of awareness of these strategies by professionals of passive planning and strategies. The data used in the research were collated through the administration of questionnaires to architects and case studies of transport terminal buildings. Data retrieved were analysed using a descriptive statistics and content analysis. The finding from the survey analysis reveals that few passive design and planning strategies are being implemented in the design of terminal buildings however, certain strategies are being ignored thereby increasing energy consumption and reducing user comfort. The findings of the study emphasizes the need for the employment of these passive design strategies and planning in buildings in view if reducing the current global energy consumption and also achieving a high level of indoor thermal comfort to be experienced by the users of transport terminal buildings.

**Key words:** Passive design, passive strategies, transport terminals, passenger terminals, Eko Atlantic, Lagos, Nigeria.