APPLICATION OF ACOUSTICS TREATMENT TECHNIQUES IN THE DESIGN OF AN ANGLICAN CATHEDRAL, ABUJA

ADEMO, JOHN ADEOLA

(15CA03318)

SEPTEMBER, 2021

APPLICATION OF ACOUSTICS TREATMENT TECHNIQUES IN THE DESIGN OF AN ANGLICAN CATHEDRAL, ABUJA

BY

ADEMO, JOHN ADEOLA

(15CA03318)

B.Sc. Architecture, Covenant University, Ota.

DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (M.Sc) DEGREE IN ARCHITECTURE IN THE DEPARTMENT OF ARCHITECTURE, COLLEGE OF SCIENCE AND TECHNOLOGY, COVENANT UNIVERSITY OTA, OGUN STATE, NIGERIA

SEPTEMBER, 2021

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.

Mr. John A. Philip ……

(Secretary, School of Postgraduate Studies) Signature & date

Prof. Akan B. Williams …….

(Dean, School of Postgraduate Studies) Signature and Date

DECLARATION

I, **ADEMO, JOHN ADEOLA (15CA03318)** declares that this research was carried out entirely by me under the supervision of Dr. Anthony B. Sholanke of the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun, Nigeria. I attest that the dissertation has not been presented, either wholly or partially, for any degree elsewhere. All sources of data and scholarly information used in this dissertation are duly acknowledged.

ADEMO, JOHN ADEOLA …….

Signature & Date

CERTIFICATION

We certify that this dissertation titled **"APPLICATION OF ACOUSTICS TREATMENT TECHNIQUES IN THE DESIGN OF AN ANGLICAN CATHEDRAL, ABUJA"** is an original research work carried out by **ADEMO, JOHN ADEOLA (15CA03318)** in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria under the supervision of Dr. Anthony B. Sholanke. We have examined and found this work acceptable as part of the requirements for the award of Master of Science in Architecture.

Dr. Anthony B. Sholanke …….
(Supervisor) Signature & Date

Prof. Akunnaya P. Opoko …….
(Head of Department, Architecture) Signature & Date

Prof. Oludolapo O. Amole …….
(External Examiner) Signature & Date

Prof. Akan B. Williams …….
(Dean, School of Postgraduate Studies) Signature & Date

DEDICATION

This thesis is dedicated to the Almighty God, the one who imparted wisdom and understanding graciously to me.

To my adored parents, Arc. And Mrs. Ademo, in conjunction with family and friends, for the support and assistance in all variations.

And finally, to Cathedrals and churches alike whose congregants struggle with a sub-standard listening experience, there is better acoustics at the end of this tunnel.

ACKNOWLEDGEMENTS

Firstly, I would like to accredit all the glory and appreciation to my heavenly maker, the Almighty God. The sufficient grace afforded to me which enabled me to complete this dissertation cannot be fully overemphasized. I am eternally grateful to you, Lord.

On a wider scene, I would like to appreciate the role of the Vice Chancellor for a very effective display of leadership in commandeering the progressive movement of the Institution in this academic session which in many ways assisted the development of this dissertation.

I am also grateful for the Dean, School of Post Graduate Studies and the School of Post-graduate Studies for all involvements in assisting the completion of this dissertation.

I want to also appreciate the Head of Architecture Department, for a very effective discharge of leadership duties within the department of Architecture which was very beneficial to me during the course of my dissertation.

I would also like to exhibit special gratitude and appreciation to my supervisor for all of the guidance and direction which oversaw the success of this research. I want to also recognize the guidance from additional lecturers within the department of Architecture, you all were very helpful as well.

I would also like to extend heartfelt gratitude to my family for the exceptionally consistent labour of love which motivated me during the course of this dissertation. Friends alike, I'd like to appreciate you all, particularly Anglican Boys Grams for all the support. I love you all.

Finally, I'd like to offer special thanks to my respondents and others who assisted me during the course of my field work. Your labour shall not be forgotten.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF PLATES

LIST OF FIGURES

ABSTRACT

Cathedrals have existed for so long as the liturgical seats designated for presiding bishops. Previous studies showed the existence of challenges in the acoustics of Cathedrals. Therefore, this study investigated the acoustical treatment techniques used in enhancing users' listening experience in selected Cathedrals with a view to apply its features in the design of an Anglican Cathedral in Abuja, Nigeria. The scope of this study was limited to listening experience as a perception of sound quality. The study area was limited to Abuja and the units of data collection were selected using specific selection criteria. The study adopted both qualitative and quantitative research approaches. Data were gathered with the aid of literature review, observation guide and structured questionnaire. Qualitative data were content analysed and quantitative data were analysed using Statistical Products and Service Solutions (SPSS) software. The results were presented with the aid of tables, photographic materials, architectural drawings, 3D visualisations and an animation. Findings from the study connote that the acoustics treatment techniques found in the examined cathedrals did not conform with known acoustic treatment techniques. This also corresponded with the significant number of dissatisfied users in the examined cathedrals. The study contributed to knowledge by designing an Anglican Cathedral using acoustics treatment techniques that were found to enhance listening experience. A recommendation for further research; design of a Concert Hall for Maximum Satisfaction by Users', Nigeria.

Keywords: Acoustics Treatment Techniques, Anglican Cathedral, Listening Experience