# IMPLEMENTATION OF UNIVERSAL DESIGN IN THE DESIGN OF A SHOPPING MALL FOR ABEOKUTA

# SOGBETUN, OREOLUWA TOLUWANIMI (15CA03373)

SEPTEMBER, 2021

## IMPLEMENTATION OF UNIVERSAL DESIGN IN THE DESIGN OF A SHOPPING MALL FOR ABEOKUTA

 $\mathbf{BY}$ 

# SOGBETUN, OREOLUWA TOLUWANIMI (15CA03373)

**B.Sc Architecture, Covenant University, Ota** 

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

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 in the Department of Architecture, College of Science and Technology Covenant University, Ota, Nigeria.

Mr. John A. Philip	
(Secretary, School of Postgraduate Studies)	Signature and Date
Professor Akan B. Williams	
(Dean School of Postgraduate Studies)	Signature and Date

### **DECLARATION**

I, SOGBETUN, OREOLUWA TOLUWANIMI (15CA03373) declare that this research was carried out by me under the supervision of Dr. Bukola A. Adewale of the Department of Architecture, College of Science and Technology, Covenant University, Ota, Nigeria. I attest that the dissertation has neither been presented wholly nor partly for the award of any degree elsewhere. All data sources and scholarly information used in this dissertation are duly acknowledged.

SOGBETUN, OREOLUWA TOLUWANIMI	
	Signature and Date

### **CERTIFICATION**

We certify that this dissertation titled "IMPLEMENTATION OF UNIVERSAL DESIGN IN THE DESIGN OF A SHOPPING MALL FOR ABEOKUTA" is an original research work carried out by SOGBETUN, OREOLUWA TOLUWANIMI (15CA03373) in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria under the supervision of Dr. Bukola A. Adewale. We have examined and found this work acceptable as part of the requirements for the award of Master of Science in Architecture.

Dr. Bukola A. Adewale	
(Supervisor)	Signature and Date
Don't Alexander D. Orralia	
Prof. Akunnaya P. Opoko	
(Head of Department)	Signature and Date
Dr Adetokunbo Ilesanmi	
(External Examiner)	Signature and Date
Prof. Akan B. Williams	
(Dean, School of Postgraduate Studies)	Signature and Date

### **DEDICATION**

This design thesis is dedicated to God, all citizens of developing nations who desire public buildings that are inclusive, body of Architecture, my supervisor, my colleagues and to my parents for helping me through it all.

#### **ACKNOWLEDGEMENT**

My utmost gratitude goes to God Almighty, the source of life, wisdom and all knowledge. I owe you this degree and my very life. I specially thank my parents Engr. and Mrs Sogbetun for being a great support system, you come next to God. Big thanks to my family who supported me emotionally and financially.

I would also like to thank the faculty of Department of Architecture for the various experiences I had in course of my studies. I particularly would love to thank Dr. Bukola A. Adewale, a mother, friend and instructor, thanks for being more than a supervisor. You are untiring, thorough and kind. To Dr. Oluwole A. Alagbe, thank you for being a blend of sound learning and humour. Your lectures always had a relaxed atmosphere and made learning easy. Dr. Eghosa O. Ekhaese, it is certainly impossible not to make a mention of you. Thank you for your willingness to always guide in the right direction.

Finally, to my amazing colleagues, it was beautiful learning with each one of you and being of great assistance to me. Shalom, Wumi, Korede, Lolu, Dikachi to mention a few, I am grateful for the numerous times I received any form of support from each person. Thank you.

### TABLE OF CONTENT

CONTENT	PAGE
COVER PAGE	
TITLE PAGE	I
ACCEPTANCE	ii
DECLARATION	iii
CERTIFICATION	iv
DEDICATION	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENT	vii
LIST OF FIGURES	xi
LIST OF TABLES	xii
LIST OF PLATES	xiii
ABSTRACT	xiv
CHAPTER ONE: INTRODUCTION	
1.1 Background to the Study	
1.2 Statement of the Research Problem	
1.3 Research Questions	3
1.4 Aim of the Study	3
1.5 Objectives of the Study	3
1.6 Justification for the Study	4
1.7 Significance of the Study	4
1.8 Scope of the Study	5
1.9 Study Area	5
1.10 Overview of Methodology	6
1.11 Definition of Key Terms	6
	0
CHAPTER TWO: LITERATURE REVIEW	
2.1 Concept of Universal Design	
2.1.1 Definition of Universal Design	
2.1.2 The Process of Universal Design	10
2.1.3 Universal Design Principles	12

	2.1.4 Universal Design of Functional Spaces	15
	2.2 Shopping Mall	16
	2.2.1 History of Shopping Mall	16
	2.2.2 Definition of Shopping Mall	17
	2.2.3 Shopping Mall Patterns	18
	2.2.4 Types of Shopping Mall	22
	2.2.5 Spatial Requirement of Shopping Mall	24
	2.2.6 Design Problems in Shopping Mall	26
	2.3 Accessibility Strategies for Realizing Universal Design in Shopping Mall	s27
	2.3.1 Universal Design Procedures for Outdoor Environment	27
	2.3.2 Universal Design Strategies for Indoor Environment Entrances	31
	2.4 Principles of Perceptible Information in Public Building	42
	2.4.1 Use Different Modes for Redundant Presentation of Essential Information	
	2.4.2 Maximize Legibility of Essential Information	43
	2.4.3 Differentiate Elements in Ways That Can Be Described	.44
	2.4.4 Provide Compatibility with A Variety of Techniques or Devices Used	•
	People with Sensory Limitations	.44
	2.5 Passive Means of Achieving the Principle of Perceptible Information	.44
	2.6 Implication/Importance of Universal Design Principles on Shopping Mall	.45
CF	HAPTER THREE: RESEARCH METHODOLOGY	47
	3.1 Overview	.47
	3.2 Research Philosophy	.47
	3.3 Research Approach	.48
	3.4 Research Design	49
	3.5 The Study Population	50
	3.6 Sampling Technique	51
	3.7 Sample Size	52
	3.8 Sources of Data	52
	3.9 Instruments for Data Collection	52
	3.9.1 Questionnaire	52
	3.9.2 Case studies	53
	3.9.3 Scheduled Observation	53

	3.10 Data Presentation, Analysis and Discussion	.53
	3.11 Summary of Methodology	.53
	3.12 Ethical Considerations	.54
Cl	HAPTER FOUR: RESULTS AND DISCUSSIONS	.55
	4.1 Data Analysis and Interpretation	
	4.2 Preliminary Survey Details	
	4.3 Evaluation of Universal Design Strategies in Case Studies	
	4.3.1 Objective 1: To identify the universal design strategies used in selec shopping malls in Abeokuta	ted
	4.3.2 Objective 2: To examine the extent to which universal design strateg are used in shopping malls in the study area.	•
	4.3.3 Case Study 1: Palms Shopping Mall	.56
	4.3.4 Case Study 2: Ikeja City Mall	.64
	4.3.5 Case Study 3: Ventura Shopping Mall	.72
	4.3.6 Case Study 4: Cepa Shopping Centre	.80
	4.3.7 Case Study 5: Majidi Mall	.82
	4.4 Analysis of Fieldwork Survey by Objective	.83
	4.4.1 Objective 3: To evaluate the effectiveness of elements of percepti information principle in shopping malls	
	4.5 Discussion of Findings	.89
	4.6 Site Analysis Results	.91
	4.6.1 Site Location	.91
	4.6.2 Site Selection Criteria	.92
	4.6.3 Background Information of Abeokuta	.93
	4.6.4 Site Analysis	.93
CI	HAPTER FIVE: DESIGN CRITERIA AND APPROACH1	100
-	5.1 Overview	
	5.2 Project Goals	
	5.3 Design Objectives	
	5.4 Functional and Space Criteria	
	5.4.1 Service Zone	
	5.4.2 Commercial Zone	

5.4.3 Recreational Zone	103
5.4.4 Administrative Zone	104
5.5 Operational Requirement	105
5.5.1 Circulation	106
5.5.2 Lighting	106
5.5.3 Ventilation	106
5.6 Technological And Environmental Criteria	106
5.6.1 Materials and Finishes	106
5.6.2 Services	107
5.6.1 Electrical Services	108
5.6.2 Structural Services	109
5.6.3 Sound Control	109
5.6.4 Ventilation	109
5.6.5 Daylighting & Shading Devices	110
5.6.6 Sustainability	110
5.6.7 Waste Disposal Management	110
5.6.8 Water Distribution	111
5.6.9 Drainage Services	111
5.7 Legal and Planning Regulations	111
CHAPTER SIX: DESIGN PHILOSOPHY, CONCEPT AND PROPO	SAL113
6.1 Concepts and Justification	113
6.2 Design Development Process	113
6.2.1 Site zoning	114
6.2.2 Bubble Diagrams	115
6.3 Design Proposal	116
6.3.1 Accessibility	116
6.3.2 Circulation	116
6.3.3 Sustainability	117
6.3.4 Inclusivity	117
REFERENCES	118
APPENDICES	121

## LIST OF FIGURES

Figure 2.1: Strip shaped pattern	18
Figure 2.2: Strip shaped pattern	18
Figure 2.3: U Shaped pattern	19
Figure 2.4: Cluster Shaped pattern	19
Figure 2.5: T Shaped	20
Figure 2.6: Triangle Shaped	21
Figure 2.7: Dumbbell Shaped	21
Figure 2.8: Double Dumbbell Shaped	22
Figure 2.9: Disabled Carpark (All dimensions are in millimeters)	28
Figure 2.10: walkway with dropped kerbs accessible for persons with disability	30
Figure 2.11: Ramp Access	31
Figure 2.12: Automated sensor door	32
Figure 2.13: Usability dimension for doors (All dimensions are in millimeters)	33
Figure 2.14: stair requirement (All dimensions are in millimeters)	35
Figure 2.15: Handrail requirement (All dimensions are in millimetres)	37
Figure 2.16: Escalator	38
Figure 2.17: Elevator and Elevator brail placement	39
Figure 2.18: Platform Lift	40
Figure 2.19: Disabled Toilet	41
Figure 2.20: tactile & tactile information (left) and infographics (right)	44
Figure 2.21: stylized font type (left) and plain, bold font type (right)	44
Figure 4.1: site location	91
Figure 4.2: Ogun state map	93
Figure 4.3: Average rainfall in Abeokuta, Nigeria	95
Figure 4.4: Average wind speed in Abeokuta, Nigeria	95
Figure 4.5: Wind Rose Graph of Abeokuta, Nigeria	96
Figure 4.6: Average temperature in Abeokuta, Nigeria	96
Figure 4.7: Average sun hours and sunny days in Abeokuta, Nigeria	97
Figure 4.8: Terrain map of the site	98
Figure 4.9: Vegetation on the site	98
Figure 4.10: Average humidity in Abeokuta, Nigeria	99
Figure 4.11: M.K.O Abiola stadium Abeokuta (left) and OOPL Abeokuta (right).	99
Figure 6.1: Cubism / Minimalist Design Concept	113
Figure 6.2: Image showing possible zoning of spaces and proposed building on	site
	114
Figure 6.3: Image showing possible zoning of spaces and proposed building on	site.
	114

## LIST OF TABLES

## LIST OF PLATES

Plate 4.1: Approach view of Palms Shopping Mall	57
Plate 4.2: Entrance with dropped kerbs Provision at Palms Shopping Mall	57
Plate 4.3: Outdoor walkway provision at Palms Shopping Mall	63
Plate 4.4: Provision of Signage, circulation corridor, Natural lighting and	Stairs at
Palms Shopping Mall.	63
Plate 4.5: Approach view of Ikeja City Mall.	64
Plate 4.6: Entrance with ramp provision	65
Plate 4.7: Entrance at Ikeja City Mall	65
Plate 4.8: Provision of escalator at Ikeja City Mall.	71
Plate 4.9: Provision of staircase at Ikeja City Mall	71
Plate 4.10: Approach view of Ventura Mall.	72
Plate 4.11: provision of waterfall as sensory identification at the entrance	73
Plate 4.12: Entrance with canopy provision Ventura Mall	73
Plate 4.13: Provision of handrails at Ventura Mall	80
Plate 4.14: entrance at Ventura Mall	80
Plate 4.15: Approach of Cepa shopping centre.	81
Plate 4.16: Entrance canopy provision at Cepa shopping centre	81
Plate 4.17: Approach of Majidi Mall	82
Plate 4.18: Elevator provision at Majidi mall	83
Plate 6.1: Bubble diagram showing spatial relationship between spaces on the	e ground
floor	115
Plate 6.2: Bubble diagram showing spatial relationship between spaces on the	he upper
floor	115

#### **ABSTRACT**

The process of designing inclusive spaces and ultimately, inclusive buildings can be viewed as an answer to accommodating various persons within the built environment regardless of experienced individuality and differences. What truly creates a disability is the interaction between an individual's impairment and the various barriers presented by the design of a building. Unfortunately, it has been identified through observation and review of existing literature that accessibility is not fully considered and provided to users of several public buildings. Many public buildings are designed with a half-hearted attempt at universal design and this makes them inaccessible to the physically challenged. In addition to that, few studies have discussed the application of Universal design principles in shopping malls in South western Nigeria, specifically Ogun state and the literature found addressing Universal Design principles have mainly focused on achieving universal design amongst people with sensory limitations by making use of active means only. As architects, it remains a social responsibility to consistently design spaces that will cater to individuals in an effective, efficient, and satisfactory way, regardless of health, body size, experience, mobility, strength and age. Therefore, the aim of this research is to study the implementation of Universal design in shopping malls towards the design of a shopping mall in Abeokuta, Nigeria. To collect data for this research, a mixed mode method of data collection was used. Qualitative data was collected with the use of an observation schedule and case studies and Quantitative data was collected through the administration of structured questionnaires. Findings show that selected shopping malls for the purpose of this research only catered to the mobility impaired and not all individuals with disabilities. This study therefore recommends a model that will ensure an inclusive public building in order to create a better user experience.

Key terms: Abeokuta, Implementation, shopping mall, Universal design