CERTIFICATION

I certify that this research project has been approved as meeting part of the requirement for the award of National Diploma in Architectural Technology, Institute Of Environmental Studies, Kwara State Polytechnic, Ilorin, Kwara State. Under the supervisor of **ARC OLAREWAJU F.A**

ARC OLAREWAJU F.A ---------- 05/08/2025.

Project Supervisor **Signature and Date**

ARC OLAREWAJU F.A ---------- 05/08/2025

Project Coordinator **Signature and Date**

ARC TOMORI ---------- 6/08/2025

Head of Department **Signature and Date**

External Examiner ----------

Signature and Date

A PROJECT REPORT

ON

PROPOSED DENTAL CLINIC

FOR

ILORIN SOUTH LOCAL GOVERNMENT CHAIRMAN SANGO, ILORIN KWARA STATE, NIGERIA.

BY

ISSA ABDULRASHEED AREMU

ND/23/ARC/FT/021

SUBMITTED TO: THE DEPARTMENT OF ARCHITECTURAL TECHNOLOGY

INSTITUTE OF ENVIROMENTAL STUDIES (I.E.S), KWARA STATE POLYTECHNIC, ILORIN

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF NATIONAL DIPLOMA (ND) IN ARCHITECTURAL TECHNOLOGY.

JUNE 2025

DECLARATION

I, **ISSA ABDULRASHEED AREMU (ND/23/ARC/FT/0021)**, hereby declare that the information provided in this project report is accurate and true to the best of my knowledge.

I understand that this project is an original work and does not infringe on the intellectual property rights of others, under **ARC. OLAREWAJU F.A**

Signature: _____ Date: _____

Project Title:

DENTAL CLINIC

CERTIFICATION

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ARC OLAREWAJU F.A ----------

Project Supervisor **Signature and Date**

ARC OLAREWAJU F.A ----------

Project Coordinator **Signature and Date**

ARC TOMORI ----------

Head of Department **Signature and Date**

External Examiner ----------

Signature and Date

DEDICATION

I dedicate this project to God Almighty the creator of the universe for the grace bestow upon my life, for he has strengthen me to this present time and also to my beloved and caring parent **MR & MRS. DAMILARE** most especially for their prayer and support.

May God Almighty bless and reward them abundantly and every other supporter to my academic life.

ACKNOWLEDGMENT

Everything that has beginning must have an end, therefore, all praises and adoration is unto Almighty Allah for the strength and courage he has accorded me in the process of this project.

Special thanks to my supervisor **ARC. OLAREWAJU F.A** for taking her time to go through my research work, may Almighty Allah bless you abundantly.

My appreciation goes to my Amiable Head Of Department in person of **ARC. J. M TOMORI** and other academic staffs for their immense contribution toward the success of my program may the Lord Honor and do you all good.

My profound gratitude goes to almighty God for the guidance and grace over my life.

My deepest appreciation goes to my parents **MR & MRS DAMILARE** for their moral and financial support towards my education.

ABSTRACT

The need for specialized dental healthcare facilities in Nigeria has become increasingly urgent due to population growth, increased awareness of oral health, and the demand for technologically advanced treatment environments. This project explores the architectural design and planning of a modern dental clinic aimed at enhancing patient experience, improving operational workflow, and supporting infection control standards. The proposed dental clinic seeks to respond to the inadequacies of conventional dental facilities, which often lack proper spatial zoning, ventilation, and user-centered features.

The research adopts a combination of methodologies including literature review, site analysis, and the study of precedent case studies within and outside Nigeria. Data was also obtained through interviews with healthcare professionals and visual site surveys. These methods informed the formulation of design goals, space programming, and the selection of environmentally responsive strategies.

Findings from the research revealed that the integration of central courtyards, zoning based on user access levels (public, clinical, restricted), and passive ventilation techniques significantly improve the quality and functionality of dental clinic architecture. The use of biophilic design principles, soundproof operatories, and barrier-free access were also identified as critical to user comfort and operational success.

The project concludes that dental clinics must go beyond clinical functionality to embrace comfort, environmental sustainability, and future adaptability. It is recommended that designers of healthcare facilities, particularly dental clinics in Nigeria, adopt context-sensitive, patient-centered, and flexible design approaches that align with both regulatory and social expectations.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Health care facilities have evolved over the decades to meet the ever-growing demand for patient-centered, functional and hygienic environments. Dental clinics, as a specialized healthcare typology, focus on oral health delivery and require distinct design considerations that support precise clinical procedures, infection control, patient comfort and efficient staff workflow. In Nigeria, the demand for modern dental facilities has grown due to increasing awareness of oral health, a rise in population and technological advancement in dental equipment.

Architecture plays a pivotal role in designing spaces that enhance patient experience, operational efficiency and clinical safety. A dental clinic is not merely a space for treatment but a system of interrelated rooms including waiting areas, operatories, sterilization zones, imaging suites, laboratories and administrative offices. A well-designed clinic should support smooth movement, natural lighting, ventilation, privacy and infection control while complying with healthcare standards.

This project proposes a specialized dental clinic that integrates architectural functionality, aesthetics and technological adequacy to serve as a modern oral health center in Kwara State, Nigeria.

1.2 STATEMENT OF DESIGN PROBLEM

Most existing dental clinics in urban Nigerian settings, including Ilorin, are either extensions of general hospitals or compact units with limited space and outdated facilities. These spaces often lack proper ventilation, spatial organization, functional zoning and modern diagnostic tools, which negatively affect service delivery and patient satisfaction.

The key design problem is to develop a purpose-built dental clinic that accommodates various specialties (such as orthodontics, oral surgery, radiology and pediatric dentistry), ensures proper workflow, complies with building regulations and provides a healing environment for both patients and staff.

1.3 AIM AND OBJECTIVES

Aim:

To design a functional and sustainable dental clinic that enhances oral healthcare delivery through spatial efficiency, environmental comfort and advanced medical integration.

Objectives:

To study and understand the spatial requirements of a modern dental clinic.

To evaluate relevant case studies and extract applicable design principles.

To analyze the selected project site and its environmental context.

To develop a functional space program that meets both clinical and user needs.

To integrate natural lighting, ventilation and modern services systems in the design.

To ensure compliance with regulatory standards for healthcare buildings.

1.4 JUSTIFICATION FOR THE PROJECT

The rise in dental health issues, coupled with the limited availability of well-equipped dental facilities in Kwara State, justifies the need for a purpose-designed dental clinic. The proposed clinic will not only improve access to oral healthcare but will also demonstrate how architectural design can contribute to hygiene control, patient comfort and operational efficiency in a dental setting. This project also presents a valuable academic opportunity to apply architectural knowledge in solving real-life health facility challenges.

1.5 CLIENT'S BACKGROUND

The proposed project is commissioned by Ilorin south local government chairman in collaboration with Kwara State Ministry of Health and a private healthcare investor, aiming to improve dental care delivery in Sango area Ilorin. The client's goal is to establish a modern dental facility with departments for general dentistry, pediatric care, oral surgery, imaging and education.

The client emphasizes the need for:

Hygienic design solutions

Flexibility for future expansion

Integration of green building strategies

Compliance with national health and safety codes

1.6 SCOPE OF STUDY

The scope of this study covers the architectural design and planning of a dental clinic. This includes:

Space programming for all required units

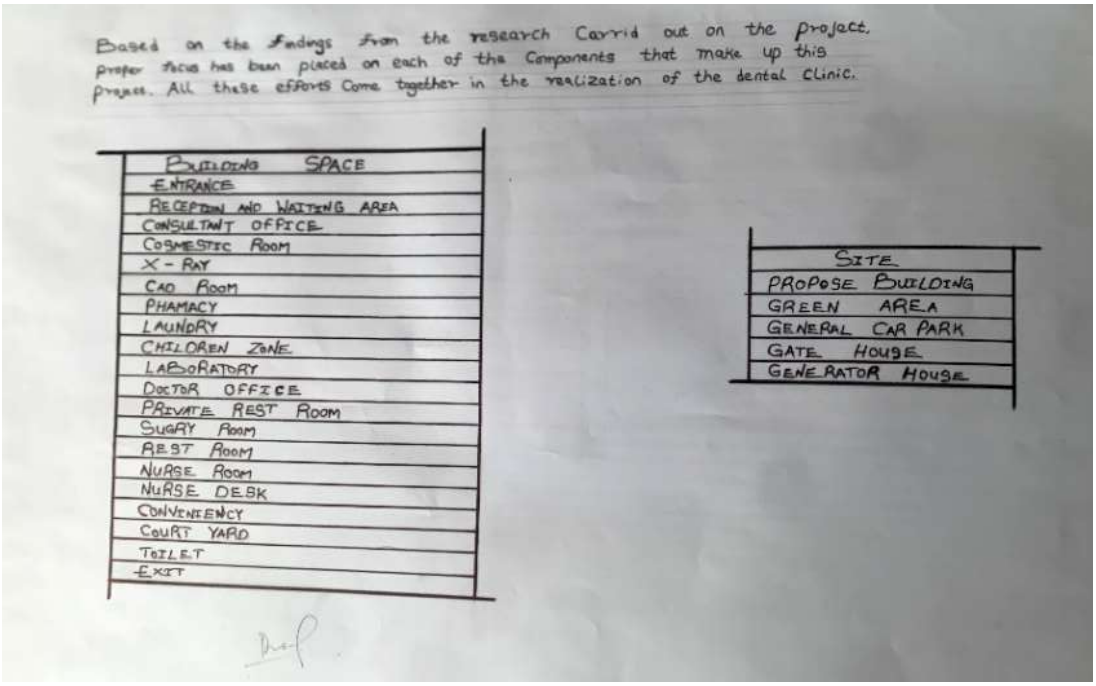
Site analysis and planning

Conceptual development and schematic design

Environmental and services integration

Compliance with healthcare architecture guidelines

It excludes the structural, mechanical and quantity surveying details unless relevant to the architectural layout.



1.7 LIMITATION OF STUDY

Access to high-resolution case study drawings may be limited

Budgetary and construction detailing constraints are not covered

Time-bound limitations may restrict extensive physical site surveys

Design will focus on spatial and architectural planning rather than deep medical equipment integration

1.8 RESEARCH METHODOLOGY

The approach to solving the design problem involves:

LITERATURE REVIEW: Understanding the evolution and requirements of dental clinics

CASE STUDIES: Analyzing local and international dental facilities

SITE ANALYSIS: Physical and desktop study of the proposed site

INTERVIEWS/SURVEYS: Engaging with dental professionals (if possible)

DESIGN DEVELOPMENT: Translating findings into architectural solutions through sketches, models and CAD presentations

CHAPTER TWO

2.0 LITIRATURE REVIEW

This chapter explores the evolution of dental clinic architecture, the unique challenges involved in designing healthcare spaces and the environmental and technological requirements relevant to dental buildings. It is divided into two parts:

- REVIEW OF LITERATURE ON THE BUILDING TYPE
- REVIEW OF LITERATURE ON THE SUB-TOPIC OF THE THESIS

2.1 REVIEW OF LITERATURE ON THE BUILDING TYPE

2.1.1 HISTORICAL EVOLUTION OF DENTAL FACILITIES

Dental care, as a specialized form of healthcare, has transitioned from basic tooth extraction booths to technologically advanced oral care facilities. In the past, dental services were performed in general medical rooms or even residential settings. As medical knowledge evolved, the need for specialized clinics emerged, especially in urban centers. Today, dental clinics are highly functional spaces tailored to meet hygienic, ergonomic and psychological needs.

Architecturally, the evolution has moved from single-chair compact rooms to multi-operatory units with departments such as X-ray imaging, sterilization centers, surgical suites and consultation rooms — all requiring precise spatial relationships.

2.1.2 CLASSIFICATION OF DENTAL CLINICS

Dental clinics can be categorized based on service type and scale:

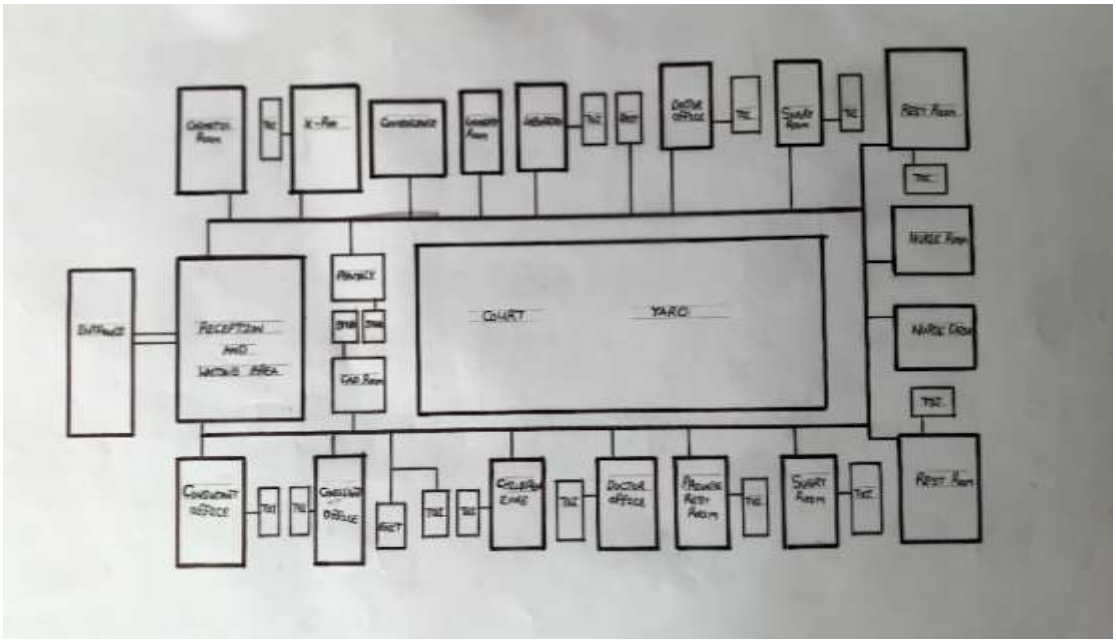
- PRIVATE CLINICS – Single practitioner or small group, compact in layout
- SPECIALIST CLINICS – Focused on a dental specialty like orthodontics or oral surgery
- TEACHING/TRAINING CLINICS – Academic dental centers with student-patient interaction
- HOSPITAL-BASED DENTAL UNITS – Integrated within general hospitals

Each category demands specific design responses, especially in spatial organization, patient flow and equipment integration.

2.1.3 FUNCTIONAL RELATIONSHIPS AND ZONING

Efficient spatial relationships are crucial in dental clinic design to ensure safety, confidentiality and smooth operation. Key functional areas include:

- Reception and Waiting Areas
- Consultation and Operatory Rooms
- X-ray/Imaging Suites
- Sterilization Rooms
- Dental Laboratories
- Pharmacy and Records Rooms
- Staff and Utility Areas



2.1.4 ENVIRONMENTAL AND TECHNOLOGICAL DESIGN CONSIDERATIONS

Dental clinics must support precise work under high hygienic standards. Thus, environmental control is essential:

- LIGHTING: Natural lighting in waiting areas; task lighting in operatories
- VENTILATION: Cross ventilation where possible, complemented with HVAC systems
- ACOUSTICS: Operatory rooms should be sound-insulated
- MATERIALS: Easy-to-clean, non-porous surfaces such as vinyl flooring, ceramic tiles, stainless steel countertops
- INFECTION CONTROL: Touchless fittings, separate sterilization zones, isolation rooms

TECHNOLOGICALLY MODERN DENTAL CLINICS INCLUDE:

- Digital X-ray machines
- Intra-oral cameras
- Electronic patient records
- Vacuum suction and compressed air systems
- Advanced dental chairs with built-in utilities

2.2 REVIEW OF LITERATURE ON THE SUB-TOPIC (e.g., Healing Architecture in Dental Spaces)

2.2.1 HEALING AND USER-CENTERED DESIGN IN DENTAL CLINICS

Recent research emphasizes the importance of "healing architecture" in healthcare facilities, especially dental spaces which often provoke anxiety. Design strategies include:

Incorporating biophilic elements such as indoor plants, nature views and calming color palettes

Providing clear circulation paths to reduce confusion and stress

Creating visual privacy without isolation

Designing welcoming reception areas that reduce the clinical “feel

2.2.2 PEDIATRIC AND FAMILY DENTAL CLINICS

WHEN DESIGNING CLINICS FOR CHILDREN, CONSIDERATIONS INCLUDE:

- Colorful, interactive waiting areas
- Child-sized furniture and fittings
- Distraction elements like wall graphics or ceiling-mounted TV screens
- Private operatory rooms for family-centered care

2.2.3 SUSTAINABLE DESIGN IN DENTAL CLINICS

SUSTAINABLE CLINIC DESIGN FOCUSES ON:

- Using low-energy appliances and efficient lighting systems
- Installing solar panels or passive cooling where possible
- Utilizing recycled and low-VOC materials
- Providing rainwater harvesting and waste segregation systems

2.2.4 ACCESSIBILITY AND INCLUSIVE DESIGN

A MODERN DENTAL CLINIC MUST BE INCLUSIVE:

- Wide corridors and doorways for wheelchair access
- Ramp access to all main entrances
- Proper signage and tactile flooring
- Accessible toilets for patients with disabilities

CHAPTER THREE

3.1 CASE STUDYS

A case study is a research methodology that involves an in-depth examination of a single case or a small number of cases. It is a qualitative research approach that aims to provide a detailed understanding of a particular phenomenon, event, or situation.

The concept of case studies has been widely applied in fields such as medicine, law, business and social sciences. However, in architecture, it serves as a tool to understand design strategies, material usage, spatial organization, environmental sustainability and cultural influences in building projects.

Renaissance Period (14^{th}–17^{th} Century): Architects such as Leonardo da Vinci and Andrea Palladio studied ancient Roman and Greek architecture to develop new design principles. Palladio's book The Four Books of Architecture (1570) documented case studies of classical buildings, influencing European architecture.

3.2 OUTLINE OF CASE STUDY

- SCHUBBS DENTAL CLINIC, Lagos Ikeja
- BOZID DENTAL CLINIC, Oyo Ibadan
- EMIRATE DENTAL CLINIC, Ilorin Kwara
- TRUST DENTAL CLINIC, United State (ONLINE CASE STUDY)
- LA DENTAL CLINIC, United State (ONLINE CASE STUDY)

3.3 CASE STUDY ONE

SCHUBBS DENTAL CLINIC,

Lagos Ikeja

Schubbs Dental Clinic, a well-known dental practice in Lagos, began over three decades ago in a small office in Apapa. The clinic has since expanded to multiple locations, including Ikoyi and Ikeja, and has been providing dental care in Lagos for over two decades. A documentary highlights the clinic's history, emphasizing its commitment to quality service.

Established in 1988 by Dr. Olabode Karunwi and Dr. Olaite Karunwi, Schubbs has grown from a single chair practice in Apapa to a multiple location upscale dental chain.

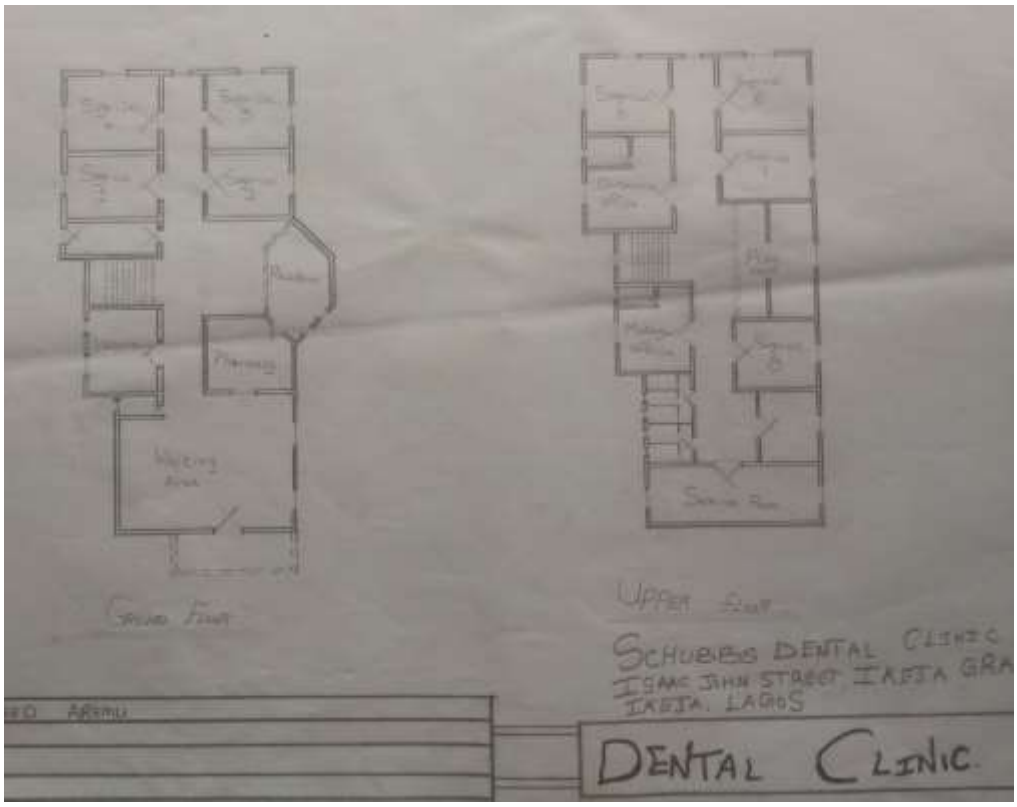


Plate 3.1.1: Floor plan of case study one Schubbs Dental Clinic

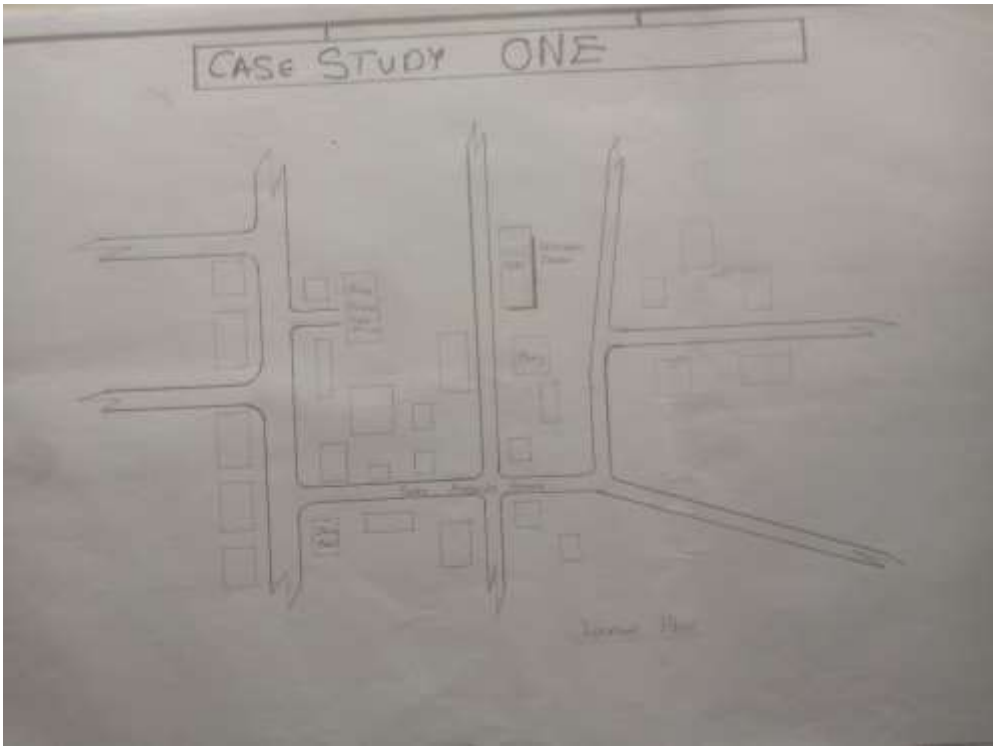


Plate 3.1.2: Locational plan of case study one Schubbs Dental Clinic

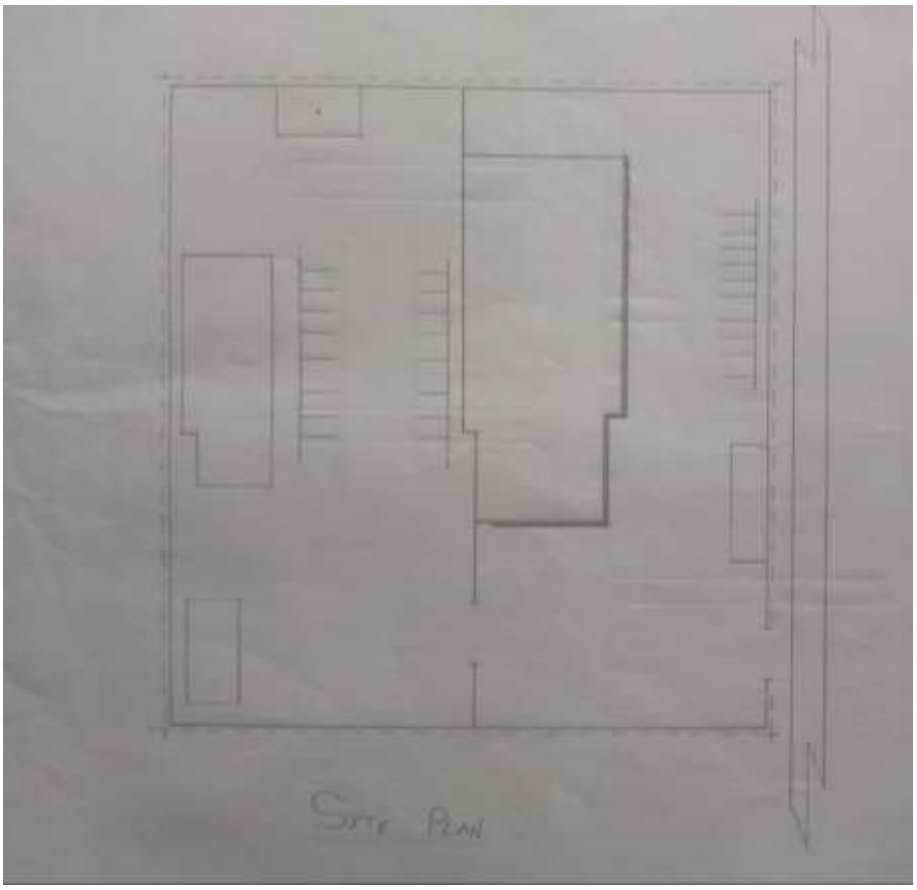


Plate 3.1.3: Site plan of case study one Schubbs Dental Clinic

Plate 3.1.4: Inner show of case study one Schubbs Dental Clinic

Plate 3.1.5: Outer view of case study one Schubbs Dental Clinic

Plate 3.1.6: Outer view of case study one Schubbs Dental Clinic

Plate 3.1.7: Outer view of case study one Schubbs Dental Clinic

Plate 3.1.8: Signage of case study one Schubbs Dental Clinic

MERIT

- Well organized units
- Calm and peaceful environment
- Wide range of service
- High qualified team

DEMERIT

3.4 CASE STUDY TWO

BOZID DENTAL CLINIC,

Oyo Ibadan

BOZID DENTAL CLINIC's headquarters is located at SUITE 58, JOSBEED MALL ASHI-BODIJA ROAD IBADAN, IBADAN NORTH, OYO, IBADAN NORTH, OYO STATE

BOZID DENTAL CLINIC was incorporated in IBADAN NORTH, Nigeria with Registration Number OY63105. It was registered on 28 Aug 2014 and it's current status is unknown. Company's registered office address is SUITE 58, JOSBEED MALL ASHI-BODIJA ROAD IBADAN , IBADAN NORTH, OYO.

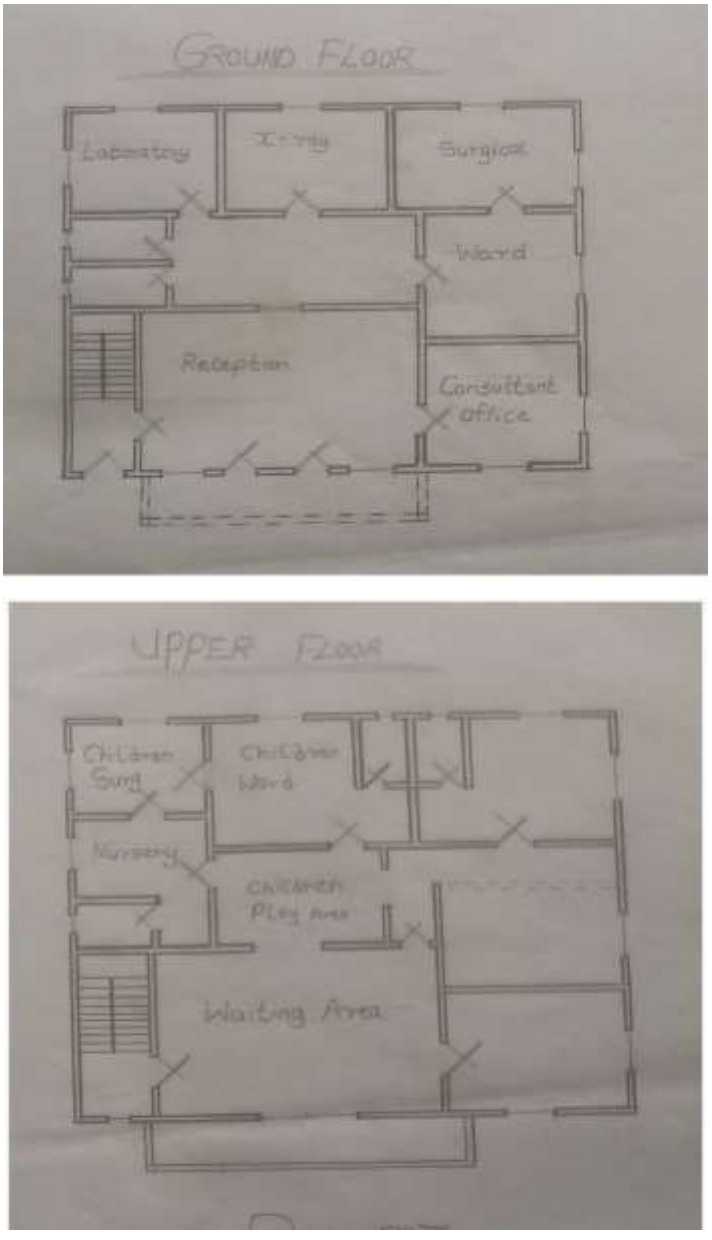


Plate 3.2.1: Floor plan of case study two Bozid Dental Clinic

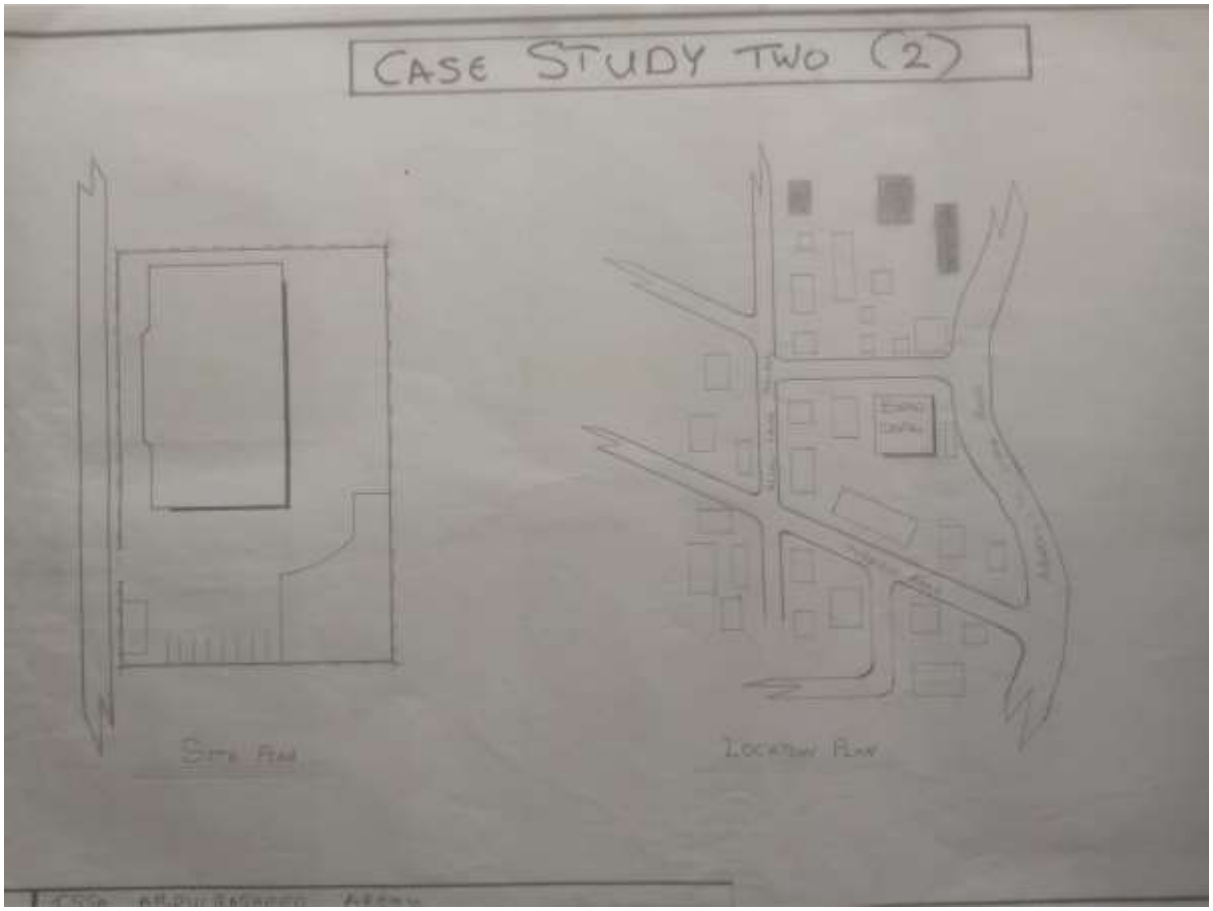


Plate 3.2.2: Site and Locational plan of case study two Bozid Dental Clinic

Plate 3.2.3: Inner view of case study two Bozid Dental Clinic

Plate 3.2.4: Inner view of case study two Bozid Dental Clinic

Plate 3.2.5: Reception view of case study two Bozid Dental Clinic

Plate 3.2.6 Signage of case study two Bozid Dental Clinic

MERIT

- Proper care of patient
- Well arrange of their facilities
- Easy access role from the gate

DEMERIT

- No space for future expansion
- Both ground and upper floor are two different apartment and they are accused differently
- Lack of sufficient storage facilities

3.5 CASE STUDY THREE

EMIRATE DENTAL CLINIC,

Ilorin Kwara

25 May 2022 — The objective of this study is to criticallyinvestigate Ilorin Emirate type of administration in Isinland 1836-1947 as typical example of Ilorin .

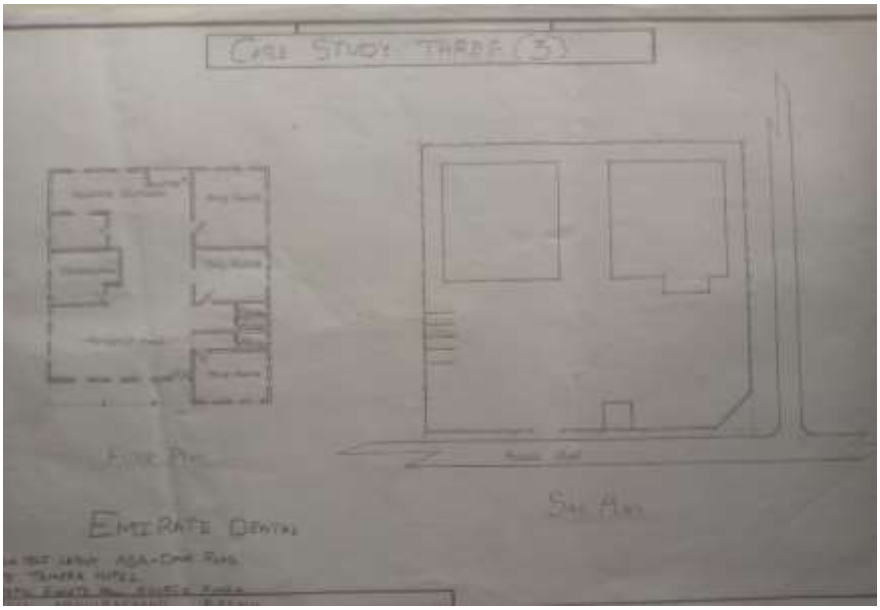


Plate 3.3.1: Floor plan and site plan of case study three Emirate Dental Clinic

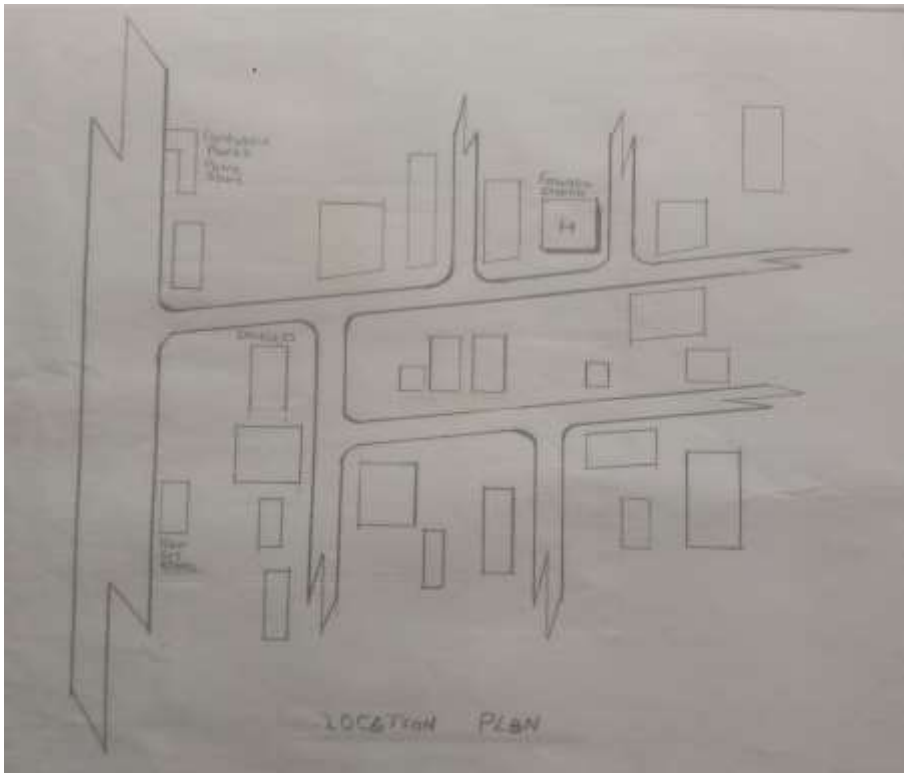


Plate 3.3.2: Locational plan of case study three Emirate Dental Clinic

Plate 3.3.3: Inner view of case study three Emirate Dental Clinic

Plate 3.3.4: Outer view of case study three Emirate Dental Clinic

Plate 3.3.5: Outer view of case study three Emirate Dental Clinic

MERIT

- Adequate parking space
- Availability of dental services to patients
- Easy access role from the gate

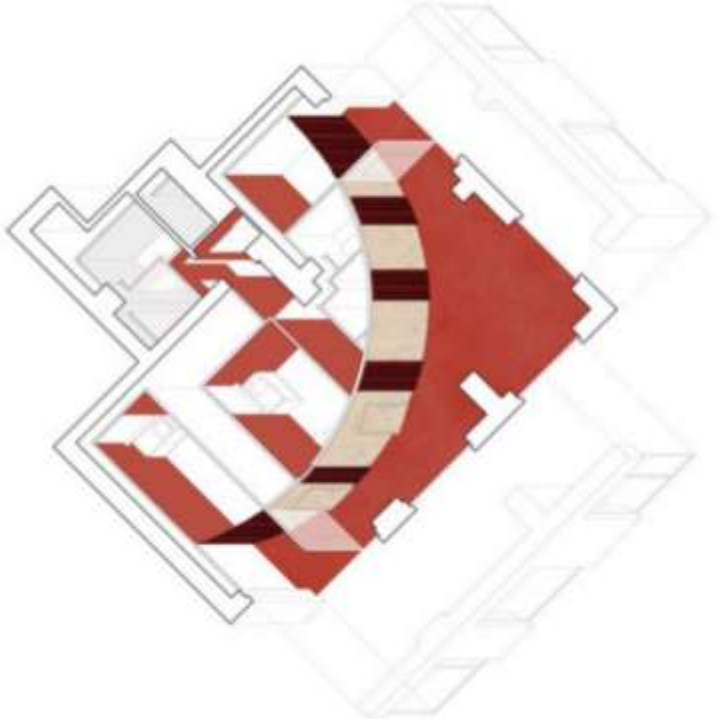
DEMERIT

- It is not proposly built for a dental clinic
- Lack of training facilities
- Lack of proper sterilization equipment

3.6 **CASE STUDY FOUR** (ONLINE CASE STUDY)

IMPRESS DENTAL

Brushfield street, London




Book Now
Wheelcake Island
Players Social -
Spitalfields Bar,...
Group Table
Football Bookings
Marvin Browne
Clothing store
Ollie Quinn
Optician
Sara Sherwood
Brushfield St
The Gun Spitalfields
Less busy than usual
UNIQLO
Impress
Crispin St
White's Row
Raven Row


Impress


Esperti in ortodonzia invisibile

CASE STUDY FIVE (ONLINE CASE STUDY)

TRUST DENTAL CLINIC

United State


RUST DENTAL CLINIC


TRUST DENTAL

CHAPTER FOUR

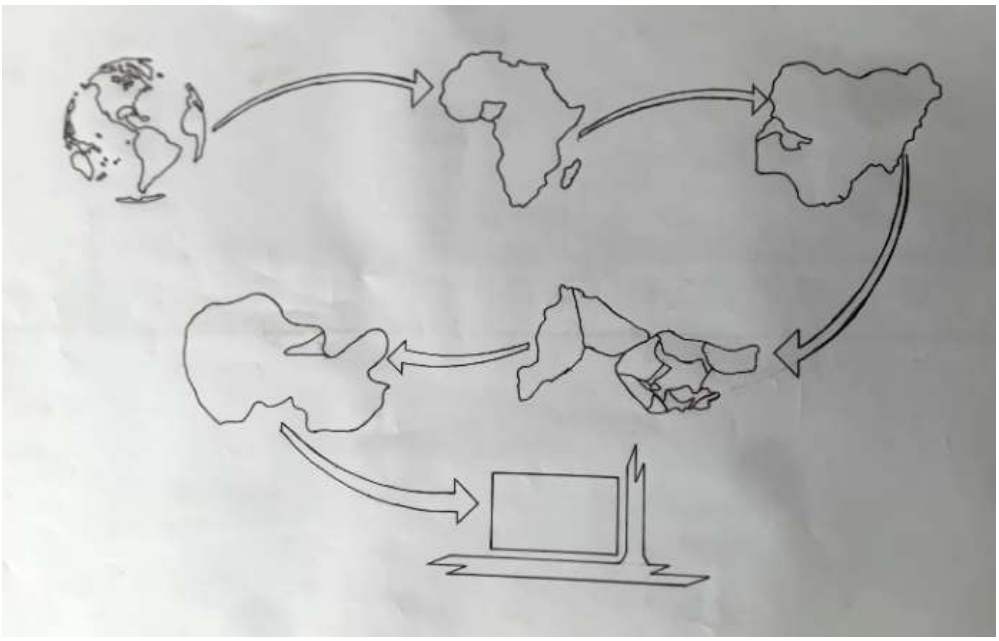
4.0 STUDY AREA / PROJECT SITE AND DESIGN CRITERIA

4.1 SITE LOCATION AND DESCRIPTION

4.1.1 SITE LOCATION

The proposed site is located in Ilorin South local government, Kwara State, Nigeria. It is assumed to be situated along kulende sango area, near Item 7, easily accessible from the central business district, government hospital and academic institutions.

The surrounding developments include residential buildings, a few healthcare facilities, educational institutions and minor commercial activities. This makes it an ideal location to serve both public and private clients seeking dental care.

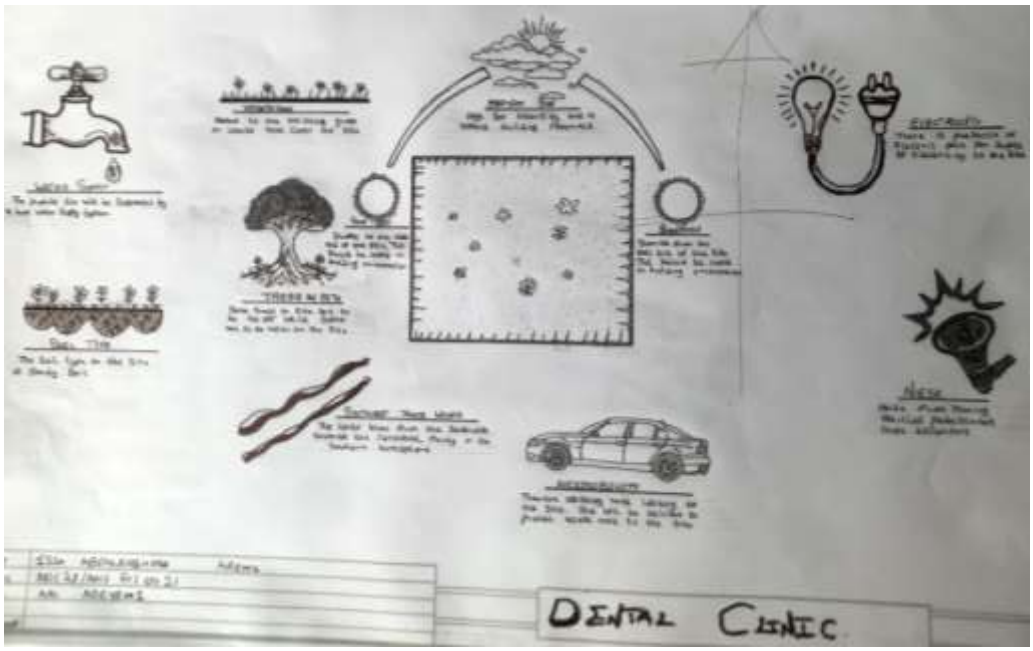


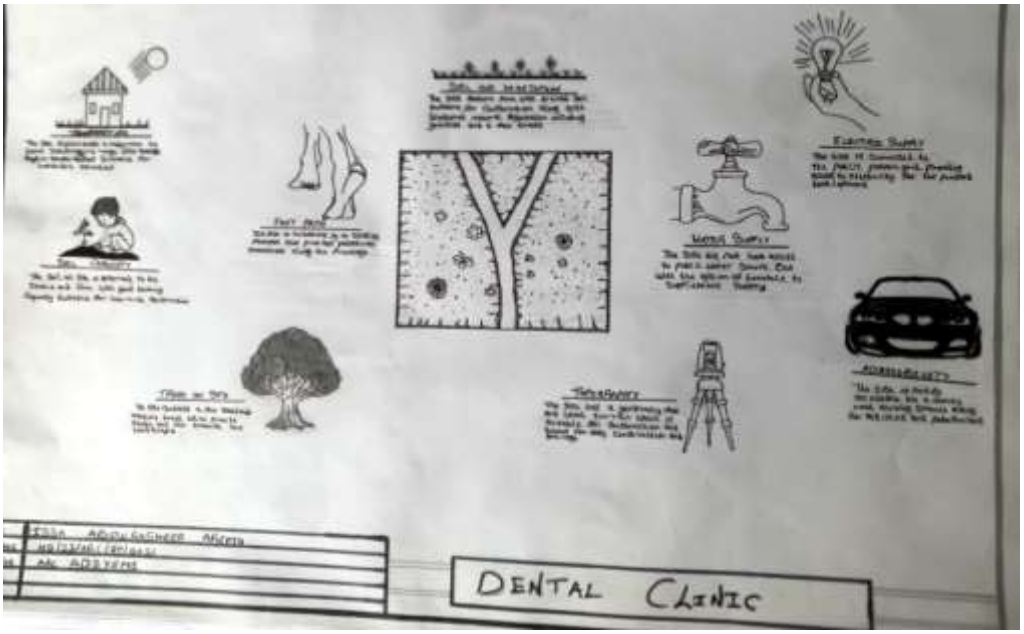
4.1.2 SITE SELECTION CRITERIA

- Accessibility by road and proximity to main public transportation routes
- Quiet and healthy environment conducive to medical operations
- Flat terrain for ease of construction
- Availability of basic infrastructure (water, electricity, drainage)
- Safety and security of surrounding neighborhood
- Potential for future expansion

4.2 SITE INVENTORY AND ANALYSIS

FEATURE	OBSERVATION
Topography	Generally flat with gentle slopes for natural drainage
Soil Condition	Assumed to be laterite soil, stable for foundation design
Climate	Tropical wet and dry climate; high solar intensity; seasonal rainfall
Wind Direction	Predominantly south-western wind — useful for natural Ventilation planning
Sun Path	East–West exposure with longer western heat gain — needs solar shading
Noise	Minimal external noise; buffer landscaping can enhance sound protection
Views	Moderate views — opportunity for landscaped gardens around waiting areas





4.3 CLIMATIC AND ENVIRONMENTAL DATA (BASED ON ILORIN REGION)

- Average Temperature: 25°C – 34°C
- ANNUAL RAINFALL: 1,200 mm – 1,500 mm
- HUMIDITY: 60–80%
- SUNRISE/SUNSET: Ranges from 6:30 am to 6:45 pm throughout the year
- PREVAILING WINDS: From southwest (rainy season) and northeast (dry harmattan wind)

DESIGN IMPLICATIONS:

- Emphasis on shading devices for west-facing walls
- Use of cross ventilation and shaded courtyards
- High ceilings and operable windows for heat escape
- Covered walkways to connect functional zones

4.4 PROJECT GOALS / DESIGN BRIEF

The proposed dental clinic is expected to provide:

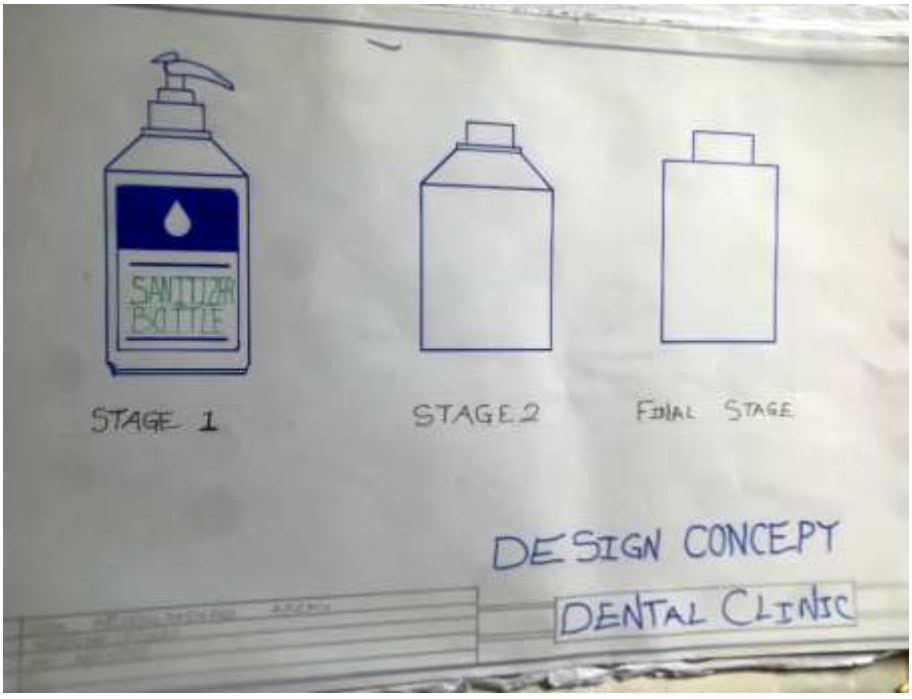
- A modern oral healthcare facility
- Functional zoning for different dental specialties
- A hygienic, comfortable and energy-efficient environment
- Flexible spaces adaptable to future technology and staff needs
- Facilities for patient education, diagnostics, minor surgery and recovery

CIRCULATION PATTERNS:

- One-way movement from waiting → operatory → discharge
- Dirty-to-clean sterilization loop
- Staff circulation separate from patient flow
- Courtyards used for light, airflow and privacy buffer

4.5 CONCEPTUAL DEVELOPMENT (PREVIEW)

The form will take inspiration from medical sanitizer bottle, symbolizing cleanliness, care and precision — with one central courtyards (cut yards) serving as lungs of the structure to draw in natural light and air. Zoning will radiate around these cut yards, ensuring every room has either direct or indirect access to daylight and cross ventilation.



CHAPTER FIVE

DESIGN APPROACH / DESIGN REALIZATION

5.1 CONCEPTUAL DESIGN IDEA

Design Inspiration: Medical Sanitizer Bottle

The form of the building draws its symbolism from medical sanitizer bottle — the sanitizer bottle, widely associated with hygiene, safety and care, offers a strong symbolic and functional foundation for designing a dental clinic. As a concept, it inspire not only the aesthetic and spatial design but also the operational philosophy of cleanliness, precision and user centered care.

These courtyards serve as natural light wells, improve cross ventilation and visually separate clinical from administrative or public zones.

5.1.2 CORE DESIGN PRINCIPLES

- FUNCTIONALITY: Clear zoning for public, clinical and restricted areas
- FLEXIBILITY: Modular operatory rooms and convertible training/meeting spaces
- PATIENT-CENTERED DESIGN: Visual privacy, calming finishes, child-friendly spaces
- ENVIRONMENTAL SUSTAINABILITY: Use of courtyards for passive cooling and lighting
- COMPLIANCE: Conforming to NDLEA, NCDC and national healthcare facility guidelines

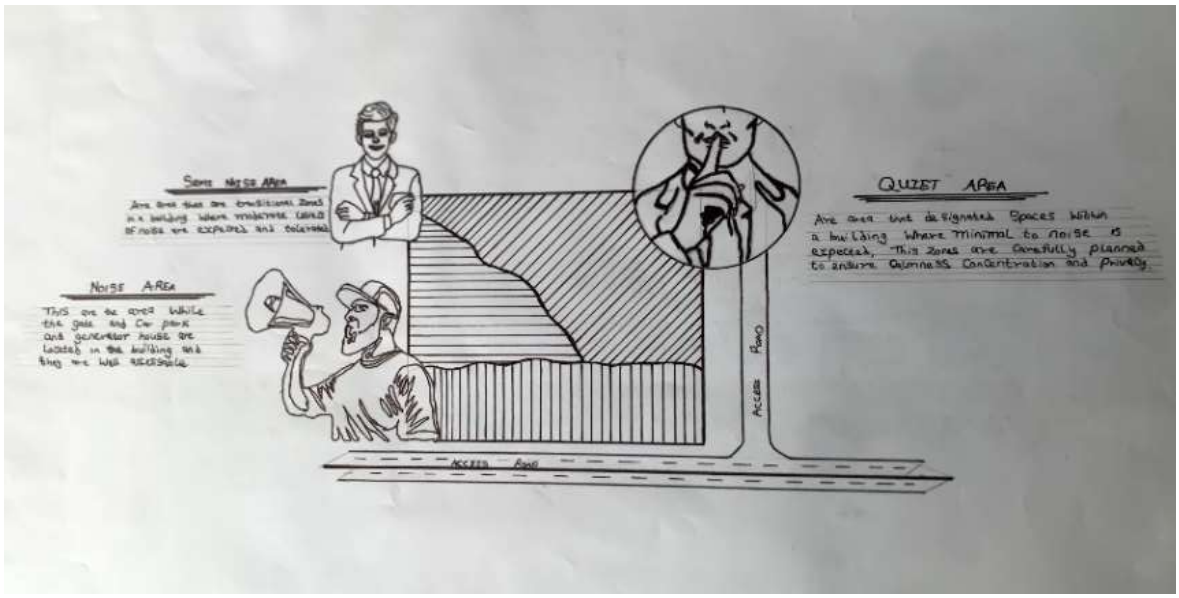
5.2 DESIGN PROCESS OVERVIEW

STAGE 1: SITE ZONING & MASSING

- Building mass was shaped to wrap around two central cut yards for light and air
- North–south orientation used to reduce solar heat gain on main walls
- Public-facing functions placed in the front (east), service/core areas to the back (west)

STAGE 2: SPATIAL ARRANGEMENT

- Public Area (Zone A): Entrance, reception, waiting, records
- Clinical Area (Zone B): Operatory rooms, pediatric zone, oral surgery, X-ray
- Support Area (Zone C): Pharmacy, staff lounge, training room, sterilization
- Service Area (Zone D): Generator, waste disposal, water tanks (positioned externally)



5.3 TECHNOLOGICAL AND ENVIRONMENTAL CRITERIA

5.3.1 CONSTRUCTION METHOD AND MATERIALS

- FOUNDATION: Reinforced concrete strip foundation (due to stable laterite soil)
- WALLS: Sandcrete block walls (150–225 mm thick), rendered and painted
- ROOF: Long-span aluminum roofing with roof insulation layer
- CEILINGS: Acoustic ceiling tiles in clinical rooms, PVC in toilets
- FLOORING: Non-slip ceramic tiles (for easy cleaning and infection control)
- WINDOWS/GLAZING: Aluminum casement windows with mosquito netting and frosted glass in private zones
- DOORS: Flush doors (solid core for operatory and surgery rooms)

5.3.2 BUILDING SERVICES INTEGRATION

SERVICE	DESIGN PROVISION
Circulation	Central hallway loop connecting all zones, with emergency exits at rear
Ventilation	Cross ventilation through operable windows and courtyards; ceiling fans in zones
Lighting	LED energy-saving fixtures; skylights above waiting area and courtyards
Plumbing	Dual plumbing lines with backflow preventers; rainwater harvesting tank
Electrical	Backup generator and inverter system for power stability
Waste Disposal	Segregated clinical waste room with proper drainage and soakaway system
Fire Protection	Fire extinguishers, smoke detectors and wide corridor access for emergency rescue
Acoustics	Sound insulation between treatment rooms and external walls

5.4 ENVIRONMENTAL PERFORMANCE STRATEGIES

- NATURAL LIGHTING: Every functional space is either directly lit by the courtyard or via side windows
- PASSIVE COOLING: Building orientation and courtyards reduce thermal buildup
- SHADING DEVICES: Sun breakers and external blinds on west-facing walls
- LANDSCAPE INTEGRATION: Soft landscaping around courtyards and entrances improves microclimate
- WATER MANAGEMENT: Rainwater harvesting + greywater reuse for landscaping

5.5 BEHAVIORAL AND SOCIAL CONSIDERATIONS

- ANXIETY REDUCTION DESIGN: Nature views from waiting and pediatric areas, warm color scheme
- INCLUSION: Ramp access at all entries, accessible restrooms, large signage for visibility
- PRIVACY: Separate consult rooms and visual separation from operatory to public zones
- CHILDREN'S EXPERIENCE: Playful finishes, color-coded corridors, wall art in pediatric unit

5.6 CONCLUSION AND RECOMMENDATIONS

CONCLUSION

This project has successfully examined the architectural planning and design of a functional, sustainable and patient-centered dental clinic suited to the growing healthcare needs of Kwara State. Through a detailed analysis of relevant literature, real-world case studies, site conditions and environmental factors, a holistic solution was developed — merging healthcare efficiency with spatial aesthetics and sustainability.

The use of a medical sanitizer bottle-inspired concept supported by central courtyards proved effective in organizing the functional zones, enhancing natural ventilation and delivering architectural symbolism. The proposed facility accommodates key dental departments such as general dentistry, oral surgery, orthodontics and radiology — all while ensuring user comfort, infection control and regulatory compliance.

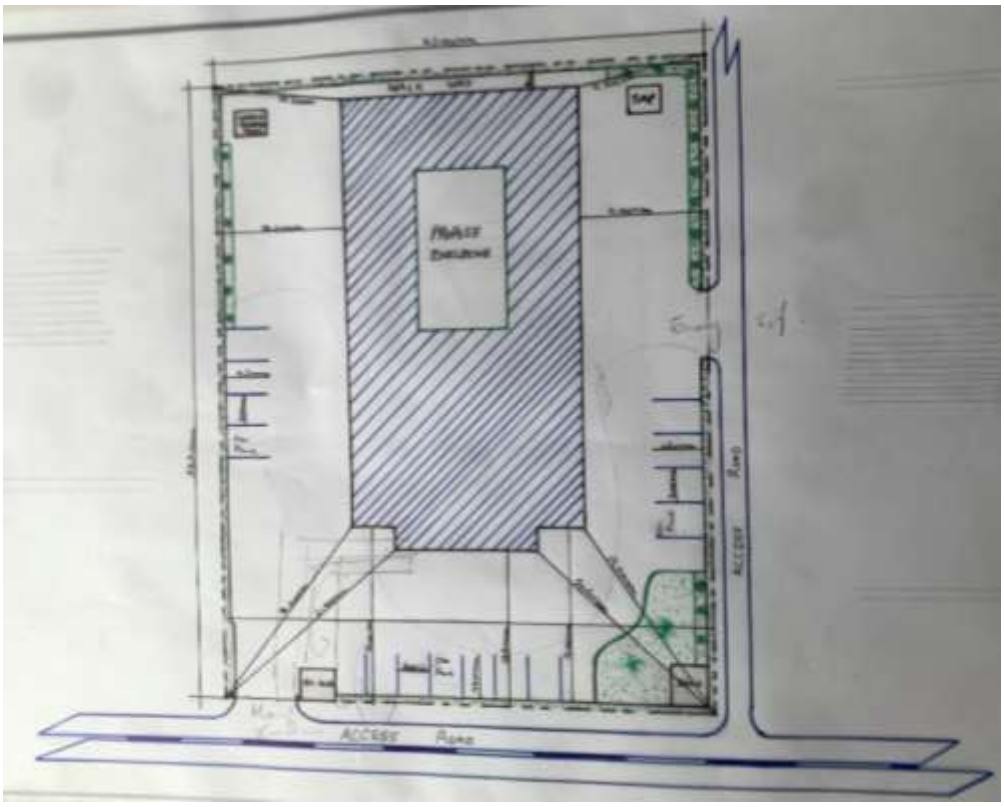
This dissertation also contributes to academic knowledge by demonstrating how architecture can respond to health-related anxieties, space limitations and evolving technology in medical practice.

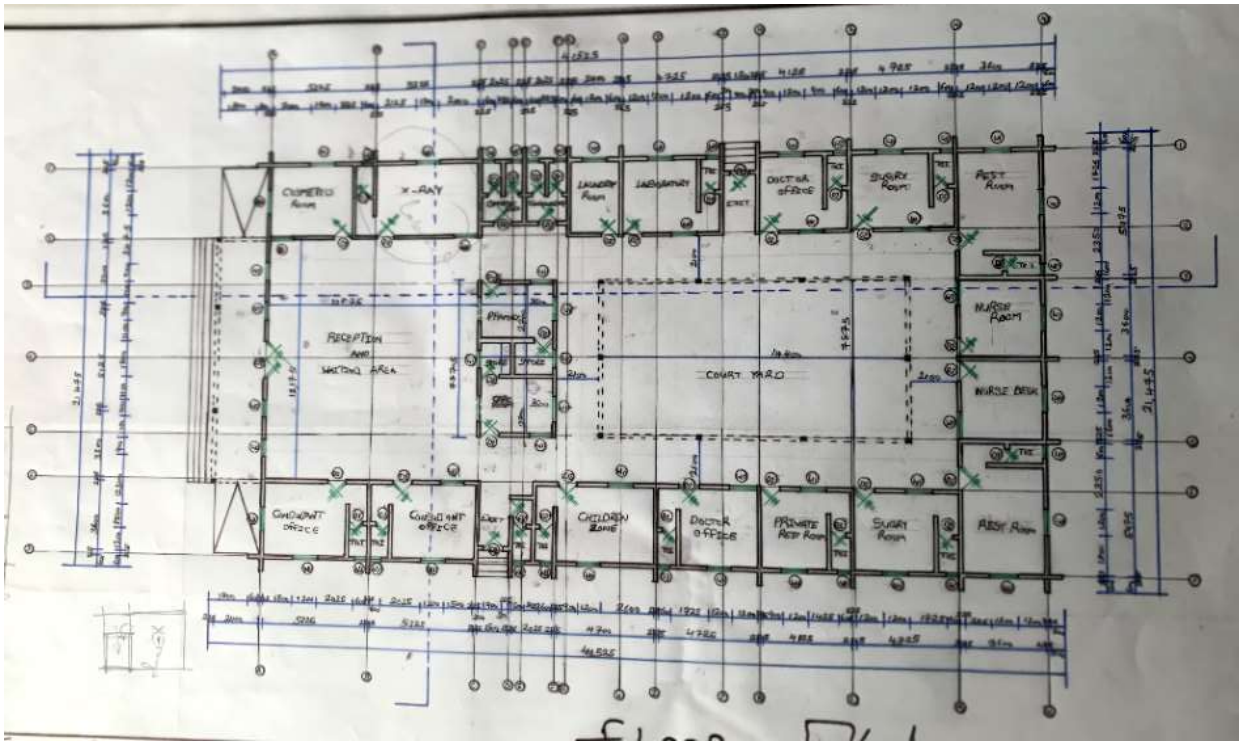
RECOMMENDATIONS

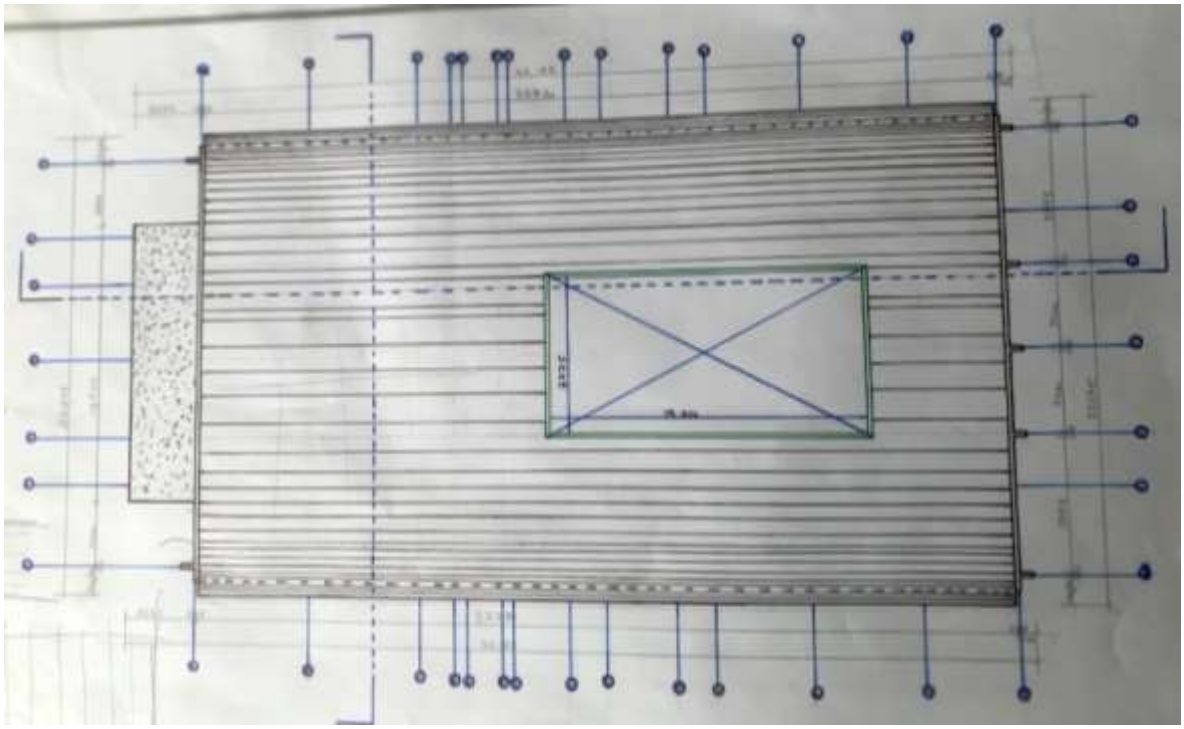
FOR FUTURE RESEARCH AND DEVELOPMENT

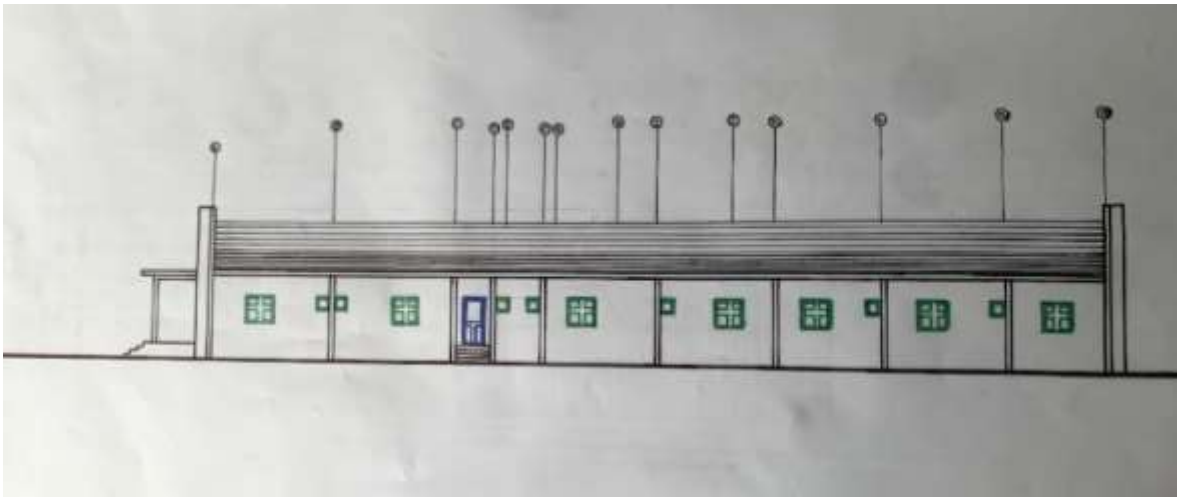
- Future research could explore the integration of smart health technologies in dental clinic architecture (e.g. AI-assisted diagnostics, digital scheduling, smart sterilization).
- Investigation into biophilic healing environments and their effects on patient recovery in dental settings is recommended.
- Further studies could also include post-occupancy evaluations of existing dental clinics to gather empirical feedback from patients and staff.
- For Policy and Practice
- Government and private stakeholders should invest in purpose-built dental clinics that meet modern healthcare standards.
- Design regulations for dental clinics in Nigeria should be updated and enforced by health and planning authorities.
- Local materials should be innovatively utilized in medical architecture to reduce cost and promote sustainability.

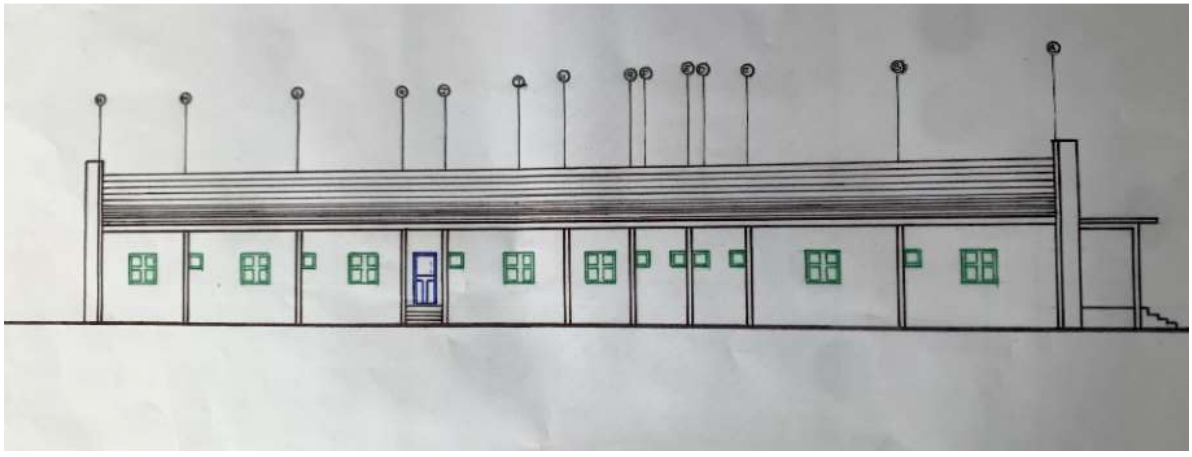
APPENDICES

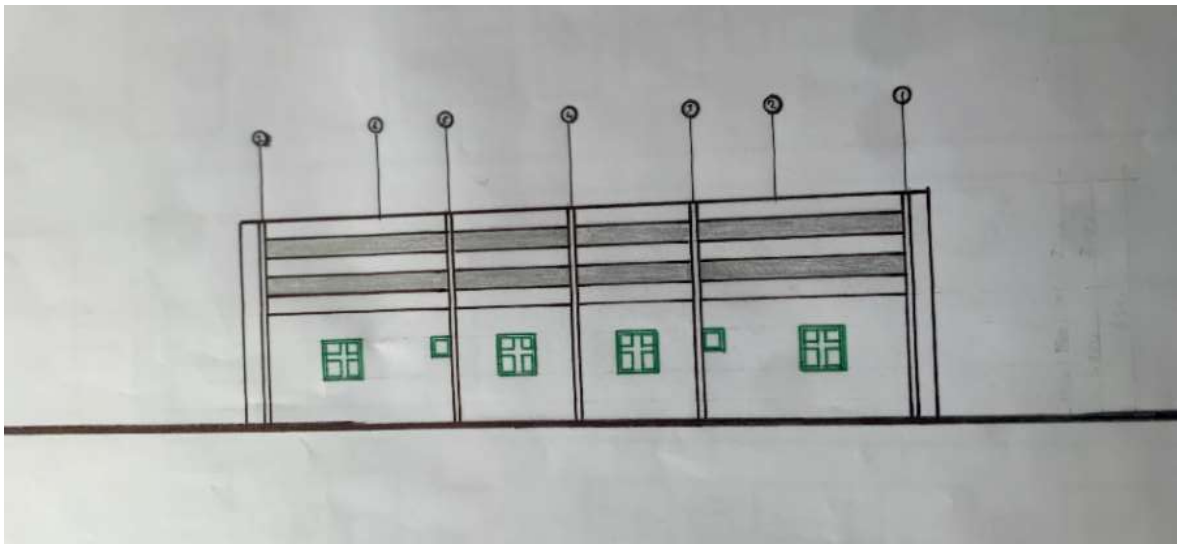

ACCESS ROAD

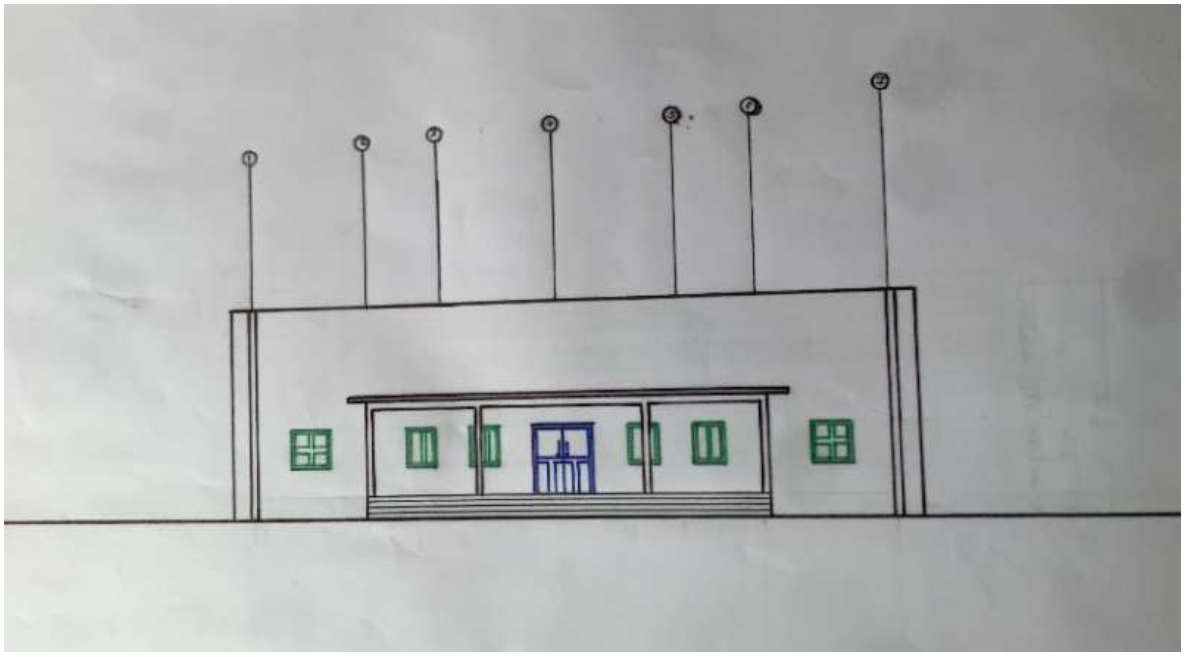

RECEPTION AND WAITING AREA
COURT YARD
NURSE ROOM
NURSE DESK
CHILDREN ZONE
DOCTOR OFFICE
PRIVATE REST ROOM
REST ROOM

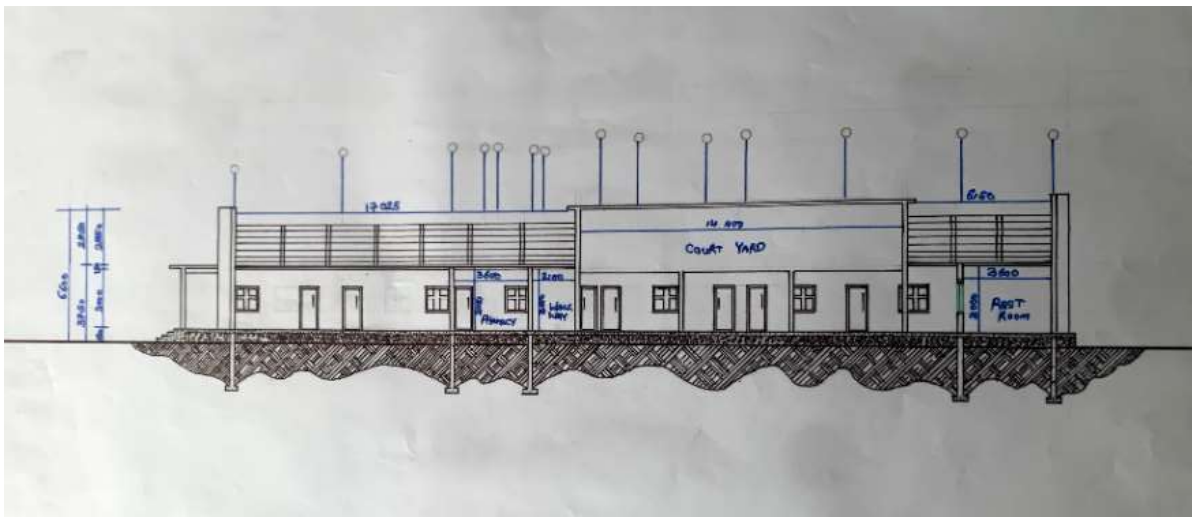


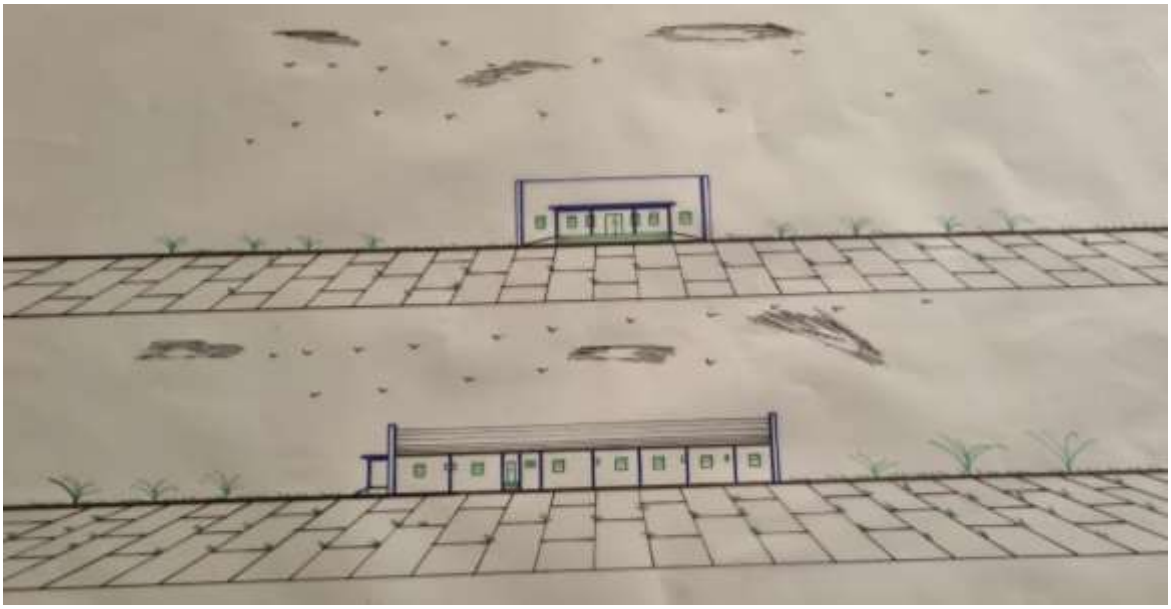









COURT YARD
REST Room



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