



# **PROFESSIONAL PRACTICE COMPETENCE EVALUATION (PPCE)**

# **PROJECT PORTFOLIO**

<b>NAME OF CANDIDATE:</b>	<b>ONWUKWE, CHUKWUEMEKA OZIOMA STANISLAUS</b>
<b>CANDIDATE'S NUMBER:</b>	<b>PPCE/APR24/295</b>
<b>DATE OF SUBMISSION:</b>	<b>19TH APRIL 2024</b>
<b>PROGRAMME NAME:</b>	<b>PROFESSIONAL PRACTICE COMPETENCE EVALUATION (PPCE)</b>
<b>PROGRAMME VERSION:</b>	<b>APRIL 2024 – PPCE</b>

**SUPERVISOR: ARC. DR. STEVE I.NWANKWO**

## ATTESTATION

I, Arc. Dr. Steve I. Nwankwo, hereby attest that I actively participated in all that is contained in this report. All information and data herein are true reflections of activities and processes for this project.

I participated from the project conception stage to the preliminary design stage. I declare that the above statements are true and accurate to my knowledge.

**Arc. Dr. Steve I. Nwankwo**


*Principal Consultant, Graceplan Consultants*

**Candidate's supervisor**




## SUPERVISOR IDENTIFICATION FORM

Professional Practice Competence Examination/Supervisor's Identification Form

  
**ARCHITECTS REGISTRATION COUNCIL OF NIGERIA (ARCON)**  
 Email: registrar@arconigeria.gov.ng, arconsecret@arconigeria.gov.ng Website: www.arconigeria.gov.ng

Professional Practice Competence Examination PPCE



**SUPERVISOR IDENTIFICATION FORM**  
*[Note that this form must be filled separately by each supervisor under whom the candidate has worked during the period(s) under review]*

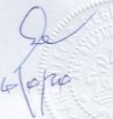


Full Name (Surname First)	Arc. Dr. Steve I. Nwankwo		
ARCON No.	F/2269		
Year of ARCON Reg.	24th November, 2006		
Contact Address	Plot 5, No 43 Isikwato road, Aladinma N/E, Pofub, Owerri, Imo State		
Establishment Name and Address	Graceplan Consultants		
Position in Establishment	Principal Consultant		
Phone Number	Work	Mobile	Other
	08036740929		
Email Address	graceplan10@gmail.com		
State of Origin/LGA	Abia		
Signature of Supervisor/Date	  		

Figure 1: Supervisor Identification Form: Page 1

**SUPERVISOR RELATIONSHIP WITH CANDIDATE**  
*[Note that this form must be filled separately by each supervisor under whom the candidate has worked during the period(s) under review]*


Full Name OF CANDIDATE (Surname First)	Onwukwe Chukwunemeka Ozioma Stanislaus		
Supervisor's Relationship to Candidate (tick as appropriate)	Employer	Head of Department	Other: please specify in detail
	<input checked="" type="checkbox"/>		
Describe the mode/frequency of your supervisory roles	Regular Employer/Employee Relationship (Full time)		
ATTESTATION (by Supervisor)	I, <u>Arc. Dr. Steve I. Nwankwo</u> affirm that I take professional responsibility for each project that I have signed as supervisor for the candidate stated above. I am willing to provide documentary evidence to affirm same if necessary. I also oblige the Council the opportunity to affirm same. I understand that any false information/declaration constitutes professional misconduct which is liable for disciplinary action.		
Signature/Date	 6/4/24		
FOOTNOTES	1. All Supervisors are required to attach a recent copy of their Curriculum Vitae to this form as at time of candidate's submission. 2. Supervisors must be fully licensed and financial architects and must have attained a minimum of 5 years post-registration experience. 3. Supervisors must have direct involvement with the project(s) submitted by the candidate. 4. Supervisors are required to sign off on the portfolio report where they supervised the candidate. 5. In the event that the candidate does not have physical access to the supervisor, a letter must be written by the supervisor stating the candidate's name, project he/she supervised the candidate on and the period of supervision. The letter should clearly state reason(s) why the supervisor could not be physically accessed. 6. FALSE DECLARATION(S) MAY RESULT IN THE WITHDRAWAL OF LICENSE OF THE SUPERVISOR.		

Figure 2: Supervisor Identification Form: Page 2

## SUPERVISOR'S CURRICULUM VITAE

### CURRICULUM VITAE OF Dr. Arc. Steve Ikpendu Nwankwo

SEX: Male  
PLACE OF BIRTH: Eziana Nneato Umunneochi  
DATE OF BIRTH: May 24, 1966  
STATE OF ORIGIN: Abia State  
MARITAL STATUS: Married  
NAME OF SPOUSE: Mrs. Chidiuto V. Nwankwo  
RELIGION: Christianity  
NATIONALITY: Nigerian  
LANGUAGES: English and Igbo  
PERMANENT HOME ADDRESS: Plot 5 No 43 Isuikwuato Road,  
Aladinma Northern Extension,  
Prefab Owerri, Imo State

Contact Email & Phone Numbers: stephen.nwankwo@futo.edu.ng and [graceplan10@gmail.com](mailto:graceplan10@gmail.com),  
08036740929, and 08072420966

Contact Address: Department of Architecture, Federal University of Technology, Owerri or  
Plot 5 Isuikwuato Road, Aladinma Northern Extension Owerri, Imo State

#### SCHOOL ATTENDED, DATES AND ACADEMIC QUALIFICATIONS

SCHOOL ATTENDED	DATE	ACADEMIC QUALIFICATION
Boys' secondary school Ogbunka	1984	WAEC Certificate
University of Nigeria Nsukka	1991	B.Sc. [Hons] Architecture [Second Class Upper Division]
University of Nigeria Nsukka	1994	M.Sc. Architecture
Abia State University Uturu	2013	Ph.D. Architecture

#### ACADEMIC DISTINCTIONS AND AWARDS FROM UNIVERSITY OF NIGERIA NSUKKA

- (1) Arc. O.O. Balogun Annual prize to the best designer in studio [Second year B.Sc. class] for the session 1988/89
- (2) Nigerian Institute of Architects Annual prize to the best all-round third-year student in the Department of Architecture for the session 1989/90
- (3) Arc. O.O. Balogun Annual prize to the best designer in studio II (Third Year B.Sc. Class) for the session 1989/90
- (4) Mass Design and Associate prize to the best all-round student in B.Sc Design Examination for the session 1990/91.

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**Figure 4:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 1.

- (5) Arc. O.O Balogun Annual prize to the best designer in studio III (Final year B.Sc. Class for the session 1990/91)
- (6) Nigerian institute of Architects prize to the best all-round fifth year student in Architecture for the session 1991/92

#### OTHER AWARDS AND COMMENDATIONS

- (7) Award of academic excellence and recognition from Amalato-Ukwu Autonomous Community Eziana Nneato Umunneochi Abia State, 2013
- (8) Award of academic excellence and recognition from Industrial Administration of Nigeria, 2013
- (9) Award of excellence and for an outstanding service unto God in recognition of sacrificial giving in support of soul winning in 2012 by the Assemblies of God Church Ikenegbu Owerri, Imo State.
- (10) Certificate of honor in recognition of efforts and unquantifiable contributions in finance and soul winning during 2014 October Enlargement Campaign by the Assemblies of God Church Ikenegbu Owerri, Imo State.
- (11) Award of honor as a man of worth in defending the Christian faith by the women of worth, Okigwe District Assemblies of God Nigeria.
- (12) Commendation letter for total commitment in achieving NUC full accreditation for the Department of Architecture in 2019, Federal University of Technology, Owerri by the School of Environmental Sciences.
- (13) Commendation letter for total commitment in achieving ARCON full accreditation for the Department of Architecture in 2019, Federal University of Technology, Owerri by the School of Environmental Sciences.

#### National Youth Service Corp Certificate 1994/1995.

#### WORK EXPERIENCE

Position Held	Company	Date
Project Architect	Zldos Consortium Nig. Ltd Jos, Plateau State	1994/95
Project Architect	Design Heights Consultants Owerri Imo State	1999-2007
Principal Consultant	Graceplan LTD Owerri Imo State	2008- date

#### TEACHING EXPERIENCE/PRESENT EMPLOYMENT

Lecturer:	Dept. of Architecture	July 1995 to August 6th, 2016
University:	Abia State University Uturu, Abia State Nigeria	P.M.B. 2000
Lecturer :	Dept. of Architecture	August 7th 2016-Date

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**Figure 3:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 2.



**University:** Federal University of Technology Owerri, Imo State  
**Present Position:** Senior Lecturer/Head, Department of Architecture FUTO.

#### TEACHING EXPERIENCE

1995-2016 Abia State University, (ABSU) Uturu, Nigeria  
 1995-1998 Assistant Lecturer  
 1998-2001 Lecturer II  
 2001-2004 Lecturer I  
 2004-2016 Senior Lecturer

2016-Date Federal University of Technology Owerri

2016-Date Senior Lecturer

**TAUGHT/TEACHES COURSES** Architectural Design/Studio; Introduction to Architecture, Advanced Architectural Graphics and Lettering, Building Structures, Working Drawing and Detailing, Others are Acoustics and Noise Control, Building Contract and Arbitration, Contract Law, Building Components and Methods, and Building Climatology in both undergraduate and postgraduate levels, Fundamentals of Design, etcetera

2017-Date Imo State University, (IMSU) Owerri, Nigeria  
 Adjunct Senior Lecturer

**TEACHES:** Advanced Architectural Design/Studio, Postgraduate Project Supervision, Advanced Building Components and Methods at postgraduate level.

#### SUCCESSFUL CO-SUPERVISION PH.D.

1) Obasi Samuel Chidi Emele (04/PG/PHD//ARCH/5273 research work titled "A Study of Consistent Elements in Cross River Igbo Traditional Residential Architecture"

2) Okorie Kasiemobi Collins (10/PG/PHD/ARCH/7199 research work titled "Design Strategy for the Needs of People with Physical Challenges in Public Low and Medium Cost Housing in Yola, Nigeria"

#### SUCCESSFUL SUPERVISION M.Sc.

1) Onyeike Christian Chibuzo (08/PG/M.Sc./ARC/52352 research Project titled" Design of Rehabilitation Center for the Physically Challenged Uturu Nigeria"

2) Uwadi Nnaemeka Chibueze (08/PG/M.Sc./ARC/52285) research Project titled" Design of Shopping Mall Enugu Nigeria"

3)Ota Solomon Udochukwu (08/PG/M.Sc./ARC/52355) research Project titled" Design of Ceramics Manufacturing Factory Ishiagu Nigeria"

4) Nwokenta Chigozie (08/PG/M.Sc./ARC/52271) research Project titled" Design of Film Village Abuja Nigeria"

5) Nwachukwu Mary Ogadinma (08/PG/M.Sc./ARC/52237) research Project titled" Design of Amanyarabo Palace Ogu/Bolo Okirika Nigeria"

6) Ndukwe Victor (08/PG/M.Sc./ARC/52280) research Project titled" Design of Renewable Energy Research Center Abia State University Nigeria"

7) Ekwunife Christian Chijioke(08/PG/M.Sc./ARC/52469) research Project titled" Design of Performing Art Theatre Abakiliki Nigeria"

8)Chukwu George Uchechi(08/PG/M.Sc./ARC/52306) research Project titled" Design of Abia State International Airport Umuahia Nigeria"

9) Anagbogu Paul(08/PG/M.Sc./ARC/52361) research Project titled" Design of Igbo Heritage Museum Igboukwu Nigeria"

10) Ibem Chijioke(08/PG/M.Sc./ARC/52278) research Project titled" Design of Ex-Militant Camp Ohafia Nigeria"

11) Udenkwere Uchechukwu(08/PG/M.Sc./ARC/52289) research Project titled" Design of Indoor Sports Complex Enugu Nigeria"

#### POSTGRADUATE RESPONSIBILITY

Postgraduate Coordinator, Faculty of Environmental Studies, Abia State University Uturu from July 2015 till April 2016.

#### TEACHING AND RESEARCH AREAS:

[1] Design Process and Methods [2] Building and Environmental Technology  
 [3]Environmental and Behavioral Impacts [4] Architectural History and Theory

#### EXTERNAL EXAMINATIONS

External Examiner to the Department of Architecture, University of Uyo, Akwa Ibom State from 2013/2014, 2014/2015, 2015/2016 ( B.Sc., M.Sc.)

External Examiner to the Department of Architecture, Imo State University Owerri from 2013/2014, 2014/2015, 2015/2016, 2016/2017 (B.Sc.)

External Examiner to the Department of Architecture, Nnamdi Azikiwe University Owerri from 2016/2017(B.Sc.)

External Examiner to the Department of Architecture, Federal Polytechnic, Nekede Owerri from 2016/2017, 2017/2018(ND/HND)

#### PROFESSIONAL MEMBERSHIP

Member - Association of Architecture Educators in Nigeria [AARCHES]

Member - Nigerian Institute of Architects with registration number M2331

-Architects Registration Council of Nigeria [ARCON] with registration number F2269

**Figure 5:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 3.

**Figure 6:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 4.

17. Nwankwo S.I.& Okonkwo M.M.&Iwuagwu B. Assessment of Nature and Extent of Post-Occupancy Modification of Public Buildings in Trans-Egbo Housing Estate Owerri Nigeria. *Journal of the Association of the Architectural Educators in Nigeria*
18. Nwankwo S.I.& Okonkwo M.M.&Iwuagwu B.Increasing Housing Affordability In Aba Metropolis: A Panacea For Healthy Living Environment. *Journal of the Association of the Architectural Educators in Nigeria*
1. Steve Ikpendu Nwankwo, Chidiuto V. Nwankwo, Marcellinus U. Okafor. **An Investigation of Incessant Building Collapse in Selected Cities of Nigeria.** *The International Journal of the Constructed Environment*(2015).Volume 6, Issue 2, pp.17-39. [www.constructedenvironment.com](http://www.constructedenvironment.com), ISSN 2154-8587.
2. Steve Ikpendu Nwankwo, Joseph Ogbogu Diogu, Chidiuto V. Nwankwo, **Consumer Participation in Public Housing Design and Development: A Panacea for Post-occupancy Modification of Residential Buildings in Owerri, Nigeria.** *The International Journal of the Constructed Environment* Volume 5, 2015, [www.constructedenvironment.com](http://www.constructedenvironment.com), ISSN 2154-8587© Common Ground,
3. Nwankwo Stephen Ikpendu & Onyegiri I. & Odim O. **Customization in Public Housing Design and Development in Owerri, South-Eastern Nigeria: An Antidote to Consumer Dissatisfaction.** *Journal of the Nigerian Institute of Architects*, (2016) *J-NIABSC* 1(1):1-27.
4. Nwankwo Stephen Ikpendu.& Kalu K. & Odim O. [2016], **Pre-Design Geophysical and Geotechnical Studies of Project Sites in Uyo South-South Nigeria: A Panacea for Building Collapse.** *Journal of the Nigerian Institute of Architects*, (2016) *J-NIABSC* 1(1):pp.81-92.
5. Nwankwo Stephen Ikpendu & Onyegiri I. (2011). **Sustainable Architecture in Nigeria: A Redress from Traditional Perspective.** *Journal of the Association of the Architectural Educators In Nigeria (AARCHES) Journal* (2011) Vol.10(2):pp.104-119
6. Stephen Ikpendu Nwankwo & Ben Ugochukwu Iwuagwu B. **Increasing housing affordability in Aba metropolis: a panacea for healthy living environment.** *Journal of Building Pathology and Rehabilitation* (2018) 3:4 <https://doi.org/10.1007/s41024-018-0033-5> pp.1-9.
7. Nwankwo Stephen , Ibeneme Sabinus Ikechukwu I, Ibe Kalu Kalu , Eluwa Ndiadamaka Nchedo , Chinyem Felix Iwebunor , Bulus Joseph Azi , Echendu Obi Kingsley. **Electrical Resistivity and River Flow Velocity Studies of Ebonyi River**

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**Figure 7:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 7.

- Bridge Sites at Onicha- Oshiri and Idembia Areas, Southeastern Nigeria. *Journal of Civil, Construction and Environmental Engineering* (2017) Vol.2 No.2 pp 59-65.
8. Nwankwo S.I. Ibene S.I., Kalu K.K. **Geoelectrical and Geotechnical Evaluation of Foundation Beds at Naze, Owerri South Eastern Nigeria.** *International Journal of Engineering Science and Technology Research* (2014) vol, 4, no. 3 77-94
9. Nwankwo Stephen Ikpendu. **The Deterioration of Building Material Finishes in South-Eastern Nigeria: Ensuring Sustainable Architectural Design** *Journal of Nigeria Nigerian Institute of Architects Enugu State Chapter* (2017) VOL. 7 NO. 1 pp.7-27.
10. Nwankwo S.I., Diogu J.O. & Nwankwo C.V. [2014], **Post-Occupancy Evaluation of Operational Factors as Veritable Tools for Improving Public Residential Buildings in South-Eastern Nigeria.** *International Journal of Advanced Scientific and Technical Research* 4[1] 451-470.
11. Nwankwo S.I. Diogu J.O. & Nwankwo C.V [2014], **Post-Occupancy Evaluation of Modification of Residential Buildings for Effective and Efficient Mass Housing Delivery: Case Study of Owerri Urban, South-Eastern Nigeria.** *International Journal of Engineering Research and Applications* (2014) Vol.4, Issue2 pp. 5-26.
12. Nwankwo S.I.& Okonkwo M.M. [2012], **Towards Advancing Methodology of Public Residential Building Diagnosis in South-East Nigeria through Mathematical Model Development and Applications** *Journal of the Association of the Architectural Educators in Nigeria* (2012) vol.11 NO. 1: 121-138
13. Steve Ikpendu Nwankwo, Patrick Chinyeaka Nwachukwu, Bon C Okoro, Joachim Chinonye Osuagwu, **Correlation of surface geophysical and logging data of some selected boreholes in Imo state, south eastern Nigeria** *Journal of Geography and Geology*. (2015) Vol.7 No.4 pp 1-6
14. Nwankwo Stephen Ikpendu. **Performance Appraisal of Parapet Building Style in Tropical Climate of South-Eastern Nigeria: Ensuring Environmentally Sensitive Design.** *Journal of Nigeria Nigerian Institute of Architects Enugu State Chapter* (2016) VOL. 6 NO. 2 pp.65-86
15. Nwankwo Steve Ikpendu & Kalu K. Ibe. **Integration of Triaxial and Atterberg Investigations in Residential Design Considerations in Ihechiowa Arochukwu South-Eastern Nigeria** *Journal of Nigeria Nigerian Institute of Architects Enugu State Chapter* (2016) VOL. 6 NO. 2 pp.39-65
16. Nwankwo Stephen Ikpendu. **Assessment of Rapidly Disappearing Igbo Traditional Architecture in South-Eastern Nigeria: Determining Characterized and Consistent Elements** *Journal of Nigeria Nigerian Institute of Architects Enugu State Chapter* (2017) *Journal* Vol. 7 No. 1. Pp.36-54

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**Figure 8:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 8.

17. Nwankwo Stephen Ikpendu. **Investigation of Frequent Post-Occupancy Modification of Residential Buildings in Public Housing Estates in Aba Metropolis Abia State, Nigeria** *Journal of Nigeria Nigerian Institute of Architects Enugu State Chapter*(2016) *Journal Vol. No. 2*.Pp.1-21
18. Nwankwo Stephen Ikpendu.& Okonkwo M.M. & Iwuagwu Ben Ugochukwu. **Assessment of Nature and Extent of Post-Occupancy Modification of Public Buildings in Trans-Egbo Housing Estate Owerri Nigeria.** *Journal of Nigeria Nigerian Institute of Architects Enugu State Chapter*(2017) *Journal Vol.7 No. 2*.Pp.73-86.
19. Stephen Ikpendu Nwankwo Anuba Basil Ofulumel, Sabinus Ikechukwu Ibeneme, Donatus Maduka Orazulike, Ibrahim Vela Haruna, Sani Aishatu, Diugo Okechukwu Ikorol, Nnaemeka Oluchukwu Ezetoha, Joseph Azi Bulus. **The Gboko Limestone, Yandev, Benue State, Nigeria: Geology, Geochemistry and Industrial Potentials.** *Geomaterials*, 7, 51- 63. <https://doi.org/10.4236/gm.2017.72005>
20. Nwankwo Stephen.Ikpendu, Diogu J.O. & Obasi S.C. **Evaluation of Students Design Studio Performance in Schools of Architecture towards Ensuring Qualitative Architectural Education in Nigeria,7th International Conference of Education, Research and Innovation, Seville - 17th-19th November 2014 pp 4187-4197.**
21. Nwankwo Steve I, Okafor Marcellinus U., Marcel-Okafor Udochukwu O. S., and Nwokocha Remygius K. **Souls of Past Heroes, Gains of Today and Actions for Tomorrow: Lessons from Comparative Study of Indoor Thermal Comfort Conditions of Traditional and Contemporary Building Types in the Dry Season at Okigwe, Nigeria** Nigeria organized by International Union of Architects(UIA) in Seoul South Korea between 7th- 10th September, 2017 Pp 0-0853
22. Stephen Nwankwo, Stephen Russo,Charlie Ledward, Claire Bonham. **Designing City Resilience 2015: City X The Emerging City** International Conference entitled 50<sup>th</sup> Anniversary of Commonwealth Association of Architects(CAA) organized by Royal Institute of British Architects held at 66<sup>th</sup> Portland Place, London between 16<sup>th</sup> and 17<sup>th</sup> June, 2015
23. Stephen Ikpendu Nwankwo, C.V.Nwankwo &. **Analysis of the Performance of Residential Investment Real Estate in Owerri, Imo State from Year 2000-2013** in Chima et al (Eds.): *Contemporary Issues in the Nigerian Built Environment* Pp277-298
24. Nwankwo Stephen Ikpendu and Moses M.Okonkwo. **Theoretical and Conceptual Issues in Building Post-Occupancy Modification**, Association of the Architectural Educators in Nigeria AARCHES-J, Monographic Series No 3 2012.

**Figure 9:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 9.

25. Nwankwo Stephen Ikpendu and Moses M.Okonkwo. **Housing Post-Occupancy Evaluation Methodology in Nigeria.** Association of the Architectural Educators in Nigeria AARCHES-J, Monographic Series No 4 2012.
26. Nwankwo S. I. Okoye K. C., Odime O. O., **Evaluating The Physically Challenged Satisfaction With Modification Of Rest Rooms In Public Housing Estates In Yola.** *Journal of Nigerian Institute of Architects.* JNIAABSC, Vol.1, No.3, June, 2018, pp 143-156
27. Nwankwo S. I. Okoye K. C., Odime O. O., **Assessment Of The Physically Challenged Satisfaction With Modification Of Building Entrances In Public Housing Estates In Yola.** *Journal of Nigerian Institute of Architects.* JNIAABSC, Vol.1, No.2, January 2018, pp 97-110.
28. Nwankwo S. I. Obasi, S. C. E., Odime, O. O., , Alozie, M.C. **Security And Environmental Safety In The Design Of The Ohafia And Abiriba Traditional Residential Architecture.** *Journal of Nigerian Institute of Architects.* JNIAABSC, Vol.1, No.2, January 2018, pp 253-276.
29. Stephen Ikpendu Nwankwo, C.V.Nwankwo &. **Investigation Of Factor Variables Affecting Investment Residential Real Estate Returns In Owerri, South-Eastern Nigeria.** *Journal of the Environment (JOE)*, Vol.4, Issue 1, March, 2017. pp154-165.
30. Stephen Ikpendu Nwankwo, C.V.Nwankwo &. **The Impact Of Climate Change On Urban Slums In Nigeria.** *The Climatologist and the Nigerian Environment: A Sustainable Perspective.* chapter 22, pp359-370.
31. Nwankwo, Steve I, Okpoechi, Chinwe U. and. **Improving Maintainability Of Public Buildings In Owerri Nigeria.** West Africa Built Environment Research (WABER) Conference. 10th Anniversary Conference, 5-7 August 2019, Accra, Ghana pp669-681.
32. S.I .Nwankwo and V. Nwankwo. **Post-Occupancy Modification Of Residential Buildings in Public Housing Estates in Aba Metropolis Abia State, Nigeria.** pp 70=92

#### CONFERENCES ATTENDED

- Nwankwo S.I., Diogu J.U. & Obasi S.C. [2014] **Evaluation of Students Design Studio Performance in Schools of Architecture towards Ensuring Qualitative Architectural Education in Nigeria,7th International Conference of Education, Research and Innovation Seville - 17th-19th November 2014 pp 4187-4197.**
- Nwankwo S.I. Okafor M.U.& Nwankwo C.V.[2014], 'Investigation into Frequent Building Collapse in Rapidly Urbanizing Areas of Nigeria'. *International Conference of the Constructed Environment from 16<sup>th</sup>-17<sup>th</sup> Oct.2014 at Philadelphia USA*

**Figure 10:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 10.



Nwankwo S.I. Diogu J.O. & Nwankwo C.V [2014], Consumer Participation in Public Housing Design and Development: A Panacea for Post-Occupancy Modification of Residential Buildings in South-Eastern Nigeria, *International Conference of the Constructed Environment from 16<sup>th</sup>-17<sup>th</sup> Oct.2014 at Philadelphia USA*

Nwankwo S.I International Conference entitled 50<sup>th</sup> Anniversary of Commonwealth Association of Architects[CAA] organized by Royal Institute of British Architects held at 66<sup>th</sup> Portland Place, London between 16<sup>th</sup> and 17<sup>th</sup> June, 2015

Nwankwo Steve I.Okafor Marcellinus U., Marcel-Okafor Udochukwu O. S., and NwokochaRemygius K Comparative Study of Indoor Thermal Comfort Conditions of Traditional and Contemporary Building Types in the Dry Season of Okigwe, Nigeria organized by International Union of Architects(UIA) in Seoul South Korea between 7th-10th September, 2017

## BOOKS

Nwankwo S.I. et al [2015], *Designing City Resilience 2015: City X The Emerging City*, London, AECOM Publications

## BOOK CHAPTER

Nwankwo S.I. & Nwankwo C.V. [2016], Post-Occupancy Modification of Residential Buildings in Public Housing Estate in Aba Metropolis Abia State, Nigeria in Eze et al (Eds.): *Contemporary Issues on Environmental Development*.

Analysis of the Performance of Residential Investment Real Estate in Owerri, Imo State from Year 2000-2013 in Chima et al (Eds.): *Contemporary Issues in the Nigerian Environment*

## MONOGRAPH

**Figure 12:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 11

## CREATIVE SCIENTIFIC WORKS

Design, Supervision And Contract Administration Of Radiology Department, At Federal Neuropsychiatric Hospital Enugu [2020]

Design, Supervision And Contract Administration Of Male And Female Wards At Federal Neuropsychiatric Hospital Enugu [2021]

Design Supervision And Contract Administration Of ASUU Secretariat, Federal University of Technology Owerri, Imo State [2021]

- [1] Design and Construction of Diamond Bank Plc Building Complex Okigwe Branch, Imo State [2013]
- [2] Design and Construction of International Paper Mill Ltd at Industrial Layout Onitsha Road Owerri, Imo State for Mr. Felix Osuji [1998]
- [3] Design of First Step International School Owerri, Imo State for Mr.&Mrs Onyema Nwankwo[1995]
- [4] Design and Construction of Assemblies of God church Ikenegbu, Owerri for the Trustees of Assemblies of God Nigeria [1995]
- [5] Design and Construction of Miracle centre cafeteria Okpoto, Ebonyi State for the Trustees of Assemblies of God Nigeria [2003]
- [6] Design and Construction of Sure Foundation Bible Church, Nneato Umunneochi L.G.A for Dr. A. O. Ofoegbu [2004]
- [7] Design and Construction of Residential Complex at Uzoagba Imo State for Major General S. A. Owuama [2008]
- [8] Design and Construction of Civic Center for Umueme Community Uzoagba Ikeduru Imo State [2008]
- [9] Design and Construction of Multipurpose Complex at Orji Owerri Imo State for Major General S. A. Owuama [2011]
- [10] Design and Construction of Sixty-Four Room Students Hostel Block at Nekede for Dr. S. I. Nwankwo [2013]
- [11] Design and Construction of Residential Country Home at Nneato Umunneochi L.G.A. for Dr. S. I. Nwankwo [2007]
- [12] Design and Construction of Residential Complex For Sir&Lady Kenneth Ofoegbu at Independence Republic Layout Enugu [2009]
- [13] Design and Construction of Residential Complex for Mr&Mrs Ozoemelam Akubuiro at Orodo Mbaitolu L.G.A Imo State [2009]
- [14] Design and Construction of Residential Complex for Sir & Lady Betram Chukwu at Owerri Imo State [2009]
- [14] Design and Construction of Residential Block of Six Flats at Ikenegbu Owerri Imo State for the Trustees of Assemblies of God Nigeria [2010]
- [15] Design and Construction of Residential Complex for Engr & Mrs Okwudiri Onyeama at Nneato Umunneochi L.G.A Abia State [2011]

**Figure 11:** Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 12.

- [16] Design of Residential Complex for Dr & Mrs Mbadiwe Onyeama at Emene Enugu [2009]
- [17] Design and Construction of Residential Block of Six Flats at Egbu Owerri Imo State for Elder&Mrs Anthony Chiaka[2003]
- [18] Design of Residential Complex at Mbieri Mbaitolu Owerri Imo State for Barr.&Mrs Ngozi Etto [2004]
- [19] Design and Construction of Residential Complex at Umueze 11 Ehime Mbano Imo State for Barr.&Mrs Okey Ehieze [2003]
- [20] Design and Construction of Residential Complex at Egbeada Owerri Imo State for Major General S. A. Owuama [2008]
- [21] Design and Construction of Residential Complex at Umueme Uzoagba Ikeduru L.G.A.Imo State for Major General S. A. Owuama [2014]
- [22] Design of Laboratory Complex at Abia State University Uturu for Abia State Government [2001]
- [22] Design of Laboratory Complex at Abia State University Uturu for Abia State Government [2001]
- [23] Design and Construction of Sixty Room Students Hostel Block at Nekede for Mr & Mrs Nmezi Basil [2013] Etc.

**PRESENT RESEARCH CONCENTRATION:** Environmental and Social Impact in Architecture with focus on Post-Occupancy Evaluation of Constructed Environment.

**EXTRA CURRICULUM ACTIVITIES:** Reading and Research

**REFEREES**

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 08036878527

Figure 13: Curriculum Vitae of Supervisor: Dr. Steve I. Nwankwo. Page 13.




# PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

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a. COVER: PROJECT ‘A’

PROJECT A: (STAR PROJECT)
WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE), ABUJA (9°05'41"N 7°25'17"E)
CANDIDATE'S NAME
ONWUKWE, CHUKWUEMEKA OZIOMA STANISLAUS
CANDIDATE NUMBER
PPCE/APR24/295
PROGRAM NAME
PROFESSIONAL PRACTICE COMPETENCE EXAMINATION (PPCE)
PROGRAM VERSION
PPCE APRIL 2024
SUBMISSION DATE
APRIL, 2024
SUPERVISOR'S NAME
ARC. STEVE I. NWANKWO (Ph.D.)
SUPERVISOR'S SIGNATURE
<div><div></div><div><div>6/4/24</div><div>Arc. Dr. Steve I. Nwankwo</div></div></div> <div>SUPERVISOR'S NAME</div>



**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS  
INITIATIVE (WHER INITIATIVE)**

**Project Design Data Sheet:**

**Table 1:** Project Design Data Sheet: WHER INITIATIVE project

<b>PROJECT:</b>	<b>CONSTRUCTION OF WHER INITIATIVE OFFICE BUILDING, PLOT NO. 422, KADO DISTRICT, CADASTRAL ZONE, ABUJA.</b>			
<b>S/n</b>	<b>Name</b>	<b>Designation</b>	<b>Firm</b>	<b>Address</b>
1.	Akudo Oguaghamba	Employer	WHER INITIATIVE	Ado J.G. Muhammad Crescent, Abuja
2.	Arc. Steve I. Nwankwo	Principal Architect	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
3.	Arc. Ogbuokiri Obinna A.C.	Project Architect	Cartouche Shelters Limited	No. 67 Okigwe Road, Owerri, Imo State
4.	<b>Onwukwe, Chukwuemeka Ozioma Stanislaus</b>	<b>Resident Architect (candidate)</b>	<b>Graceplan CONSULTANTS</b>	<b>No. 5 Aladinma Northern Extension, Isiukwuato street, Owerri, Imo State.</b>
5.	QS. Onwuakpoke Romanus	Project Quantity Surveyor/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
6.	Engr. Akpata, A. I.	Project Structural Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
7.	Engr. Uche Okoro	Project Mechanical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
8.	Engr. John Dike	Project Electrical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.

**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS  
INITIATIVE (WHER INITIATIVE)**

**Project Construction Data Sheet:**

**Table 2:** Project Construction Data Sheet for the WHER INITIATIVE project

<b>PROJECT:</b>	<b>CONSTRUCTION OF WHER INITIATIVE OFFICE BUILDING, PLOT NO. 422, KADO DISTRICT, CADASTRAL ZONE, ABUJA.</b>			
<b>S/n</b>	<b>Name</b>	<b>Designation</b>	<b>Firm</b>	<b>Address</b>
1.	Akudo Oguaghamba	Employer	WHER INITIATIVE	Ado J.G. Muhammad Crescent, Abuja
2.	Arc. Steve I. Nwankwo	Principal Architect	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
3.	Arc. Ogbuokiri Obinna A.C.	Project Architect	Cartouche Shelters	No. 67 Okigwe Road, Owerri, Imo State
4.	Engr Joel Oguike	Major Contractor	ANETTE CONSTRUCTION	10, Okigwe road , Owerri, Imo State.
		Domestic Sub-contractors		
5.	<b>Onwukwe, Chukwuemeka Ozioma Stanislaus</b>	<b>Resident Architect (candidate)</b>	<b>Graceplan CONSULTANTS</b>	<b>No. 5 Aladinma Northern Extension, Isiukwuato street, Owerri, Imo State.</b>
6.	Joseph Akoro	Project Manager/Clerk of Works	WHER INITIATIVE	Ado J.G. Muhammad Crescent, Abuja
7.	QS. Onwuakpoke Romanus	Project Quantity Surveyor/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
8.	Engr. Akpata, A. I.	Project Structural Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
9.	Engr. Uche Okoro	Project Mechanical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
10.	Engr. John Dike	Project Electrical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.



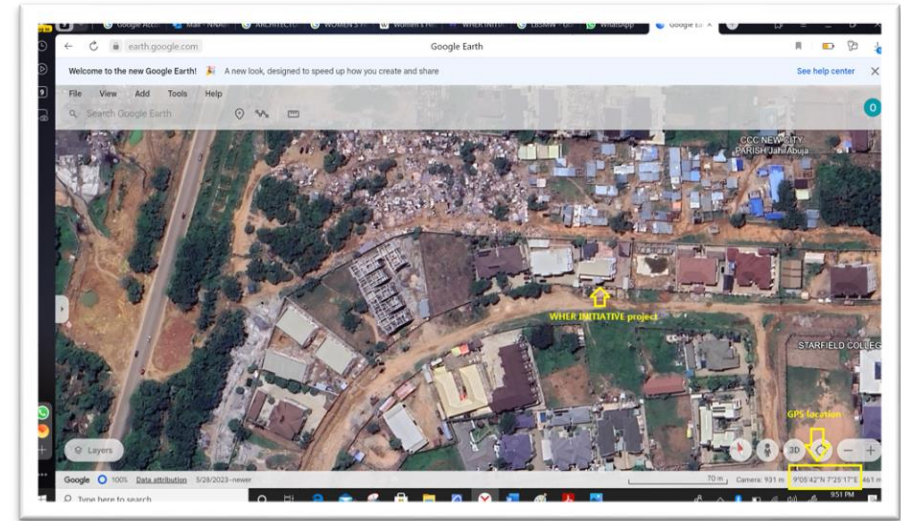
## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### STAR PROJECT A:

### WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER), ABUJA

#### b. INTRODUCTION

Women's Health and Equal Rights Initiative (WHER) is a Nigerian feminist organization led by a non-profit collaboration. They are focused on promoting an extensive conceptual knowledge of sexuality and sexual orientation among women. It provides a platform for the promotion of the well-being and protection of the rights of women while opening access to health and other support services to women through advocacy, education, empowerment, and psychosocial support. Women's Health and Equal Rights (WHER) Initiative is the first organization in Nigeria that specially handles women's issues as regards rights as regards sexuality. It was founded in 2011 in Abuja by Akudo Oguaghamba. As a partner in the Solidarity Alliance for Human Rights and other membership-based alliance of individuals and organizations working on protecting and promoting the human rights of sexual and gender minorities, WHER is actively engaged with advocacy for the



**Figure 14:** Screenshot of GPS location clearly showing the WHER office building.

Source:

<https://earth.google.com/web/search/9°05%2741%22N+7°25%2717%22E/@9.09501166,7.42123546,462.42727343a,174.32039357d,51.2719396y,21.59195415h,2.18823435t,0r/data=CigiJgokCV35Lo6cwERAEYLwknmhvkRAGYvZTOld2ABAIQak1nMssABAOgMKATA>

advancement and realization of human rights and equal access to opportunities for marginalized women in Nigeria. They have implemented mental health and human rights training, financial empowerment workshops, consciousness-raising, and community edutainment activities. Their innovative

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

Sister2Sister initiative is focused on training and building leaders nationwide to provide counseling and peer support. They also coordinate local community networks in their respective cities. The building is located along Ado J.G. Muhammad Crescent Street at exactly ber 422. The building is bounded on the north-west and south-east by residential buildings. See Figure 1. On the southwest, there is an undeveloped plot (as of January 2021). This plot is directly across the street. The WHER office complex was officially opened on the **2nd day of October 2021**.

### c. INCEPTION

The WHER Project was conceived by Akudo Oguaghamba who invited the Principal Architect to Abuja in January 2021 for preliminary discussions. Along the line, negotiations progressed up to the point when the brief was received with a mandate to design a befitting office complex for the WHER Initiative.

The briefing aimed to build a close working relationship with the employer and extract information on spaces needed to meet their needs. The first draft of the brief was prepared and

presented to the employer by the design team made up of the principal and the project architect who happens to be this candidate. This happened on the second visit. After the presentation, the draft was discussed and the employer made some changes and suggestions. All such reviews were noted. The brief was also fine-tuned alongside a few preliminary sketches for the employer's approval.

### d. BRIEF TAKING

Design of an office complex that will serve as the headquarters of WOMEN'S HEALTH AND EQUAL RIGHT INITIATIVE (WHER), ABUJA to be located at Ado J.G. Muhammad Crescent, Abuja.

The brief identified the following spaces on the ground floor plan. They include:

- a. Reception,
- b. Lounges at the ground and first floor,
- c. Training Hall,
- d. Library,
- e. Kitchen and

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### f. Dining.

For the first floor, the employer requested that the following spaces be located. They include:

- a. General offices,
- b. Single offices and
- c. Lounge.

The second floor is expected to house:

- a. Conference room, and
- b. Office of the director and its secretary and

The employer also specifically requested an open terrace that could serve as a podium during any of their outdoor functions.

There are key issues we considered during the briefing meetings with the employer. These include:

- a. Large office spaces for the administrative staff to encourage interaction and quick dissemination of information regarding their type of work which involves social participation.
- b. We established the budget available for the project and the time frame for delivery.

c. We made some effort to prioritize time, cost, and quality by setting sketchy timelines for the completion of the substructure, ground floor, first floor, second floor, and roof of the building.

d. We tried to understand the risks involved, quantify them, and crosscheck with the budget of the employer.

e. Identifying the cost of the project throughout construction and how the current economic downturn could affect progress.

f. Identifying the options in quality of types of furnishing, size of spaces, etc.

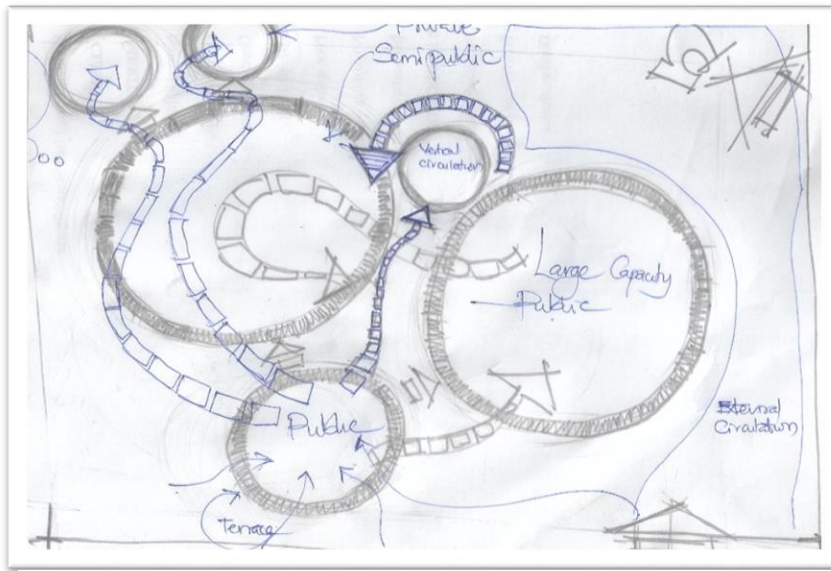
g. Ensuring that the budget of the client will be able to accomplish the project.

h. We tried to establish how to cart away vegetation and site rubble so as not to impede construction processes.

## e. CONCEPT DESIGN

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

This stage involves deciphering opportunities and constraints within the proposed site, and then developing architectural solutions at a conceptual level. The outputs are usually space planning and site planning diagrams and plans and initial 3d concept drawings.



**Figure 15:** Doodle diagram of the design conception.  
*Source: Graceplan CONSULTANTS*

An analysis of local authority regulations, orientation, views, levels, relationship with neighboring sites, and available utilities and service routes all helped make decisions on the project's direction

With instructions and guidelines from the principal, after the brief had been signed off by the client, I started the concept designs.

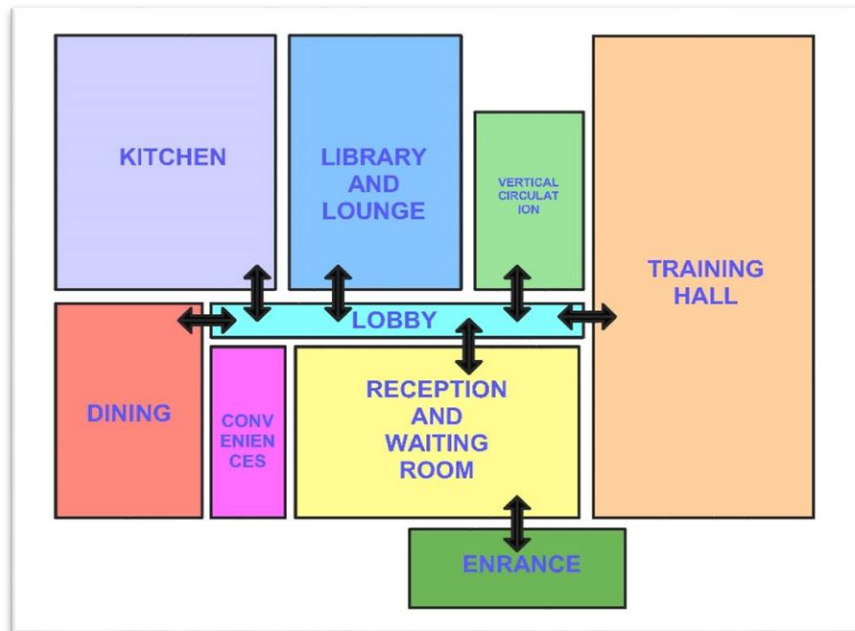
### Building concept:

The concept adopted for this project is a rectilinear configuration of modular spaces. These spaces are supposed to house –

- a) A hall-like design unit for the 30- capacity training hall,
- b) Library space,
- c) Large Entrance,
- d) Large kitchen and dining and
- e) conveniences.

The approach is to ensemble a fully functional habitat for varied purposes including training and administrative purposes which must have proper cross-ventilation, circulation between spaces, natural lighting, and adequate requirements for each space with recesses that simulate proper shading mechanisms.

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)



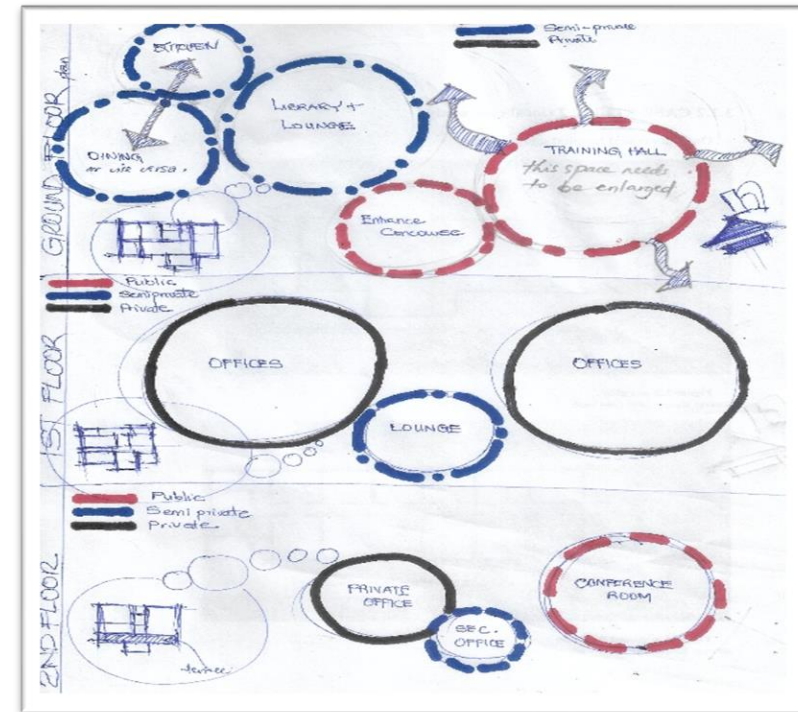
**Figure 16:** Flow chart designation for the ground floor plan.

Source: Graceplan CONSULTANTS

### Space zoning for the WHER facility

Zoning was done considering the needs of the employer which is to give importance to training, connectivity between spaces, and at the same time escalate social integration. To this end, zoning was done to assign **private areas** majorly to the offices. The **semi-private zone** was earmarked for the conference room and library spaces while the **public areas** included

spaces like the training hall, reception, and lounges.



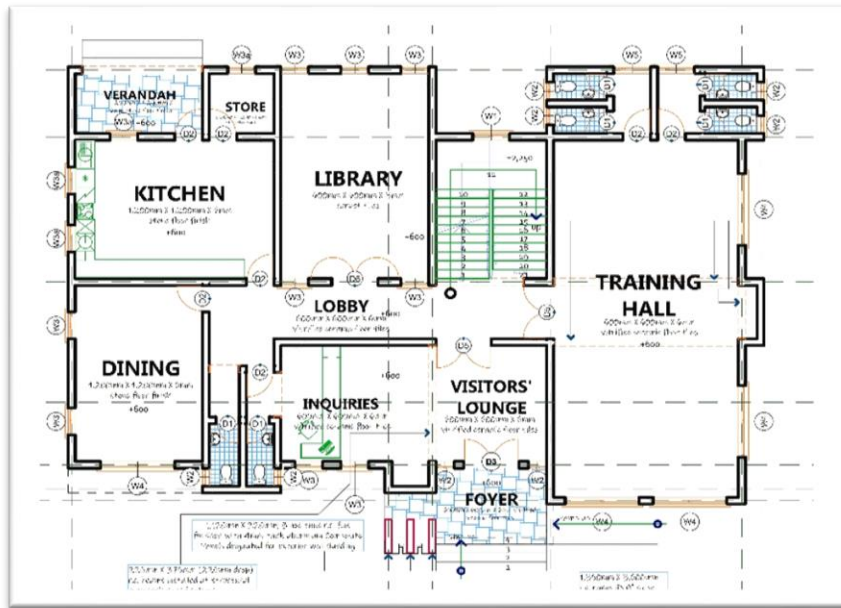
**Figure 17:** Bubble diagram of the intended scheme.

Source: Graceplan CONSULTANTS

The attached figures buttress the zoning arrangements on different floors. The doodle diagram, as shown in Figure 2, shows the design conception with possible movement routes of persons from one space to the other. The bubble diagram, as shown in Figure 4, shows how the candidate zoned spaces as

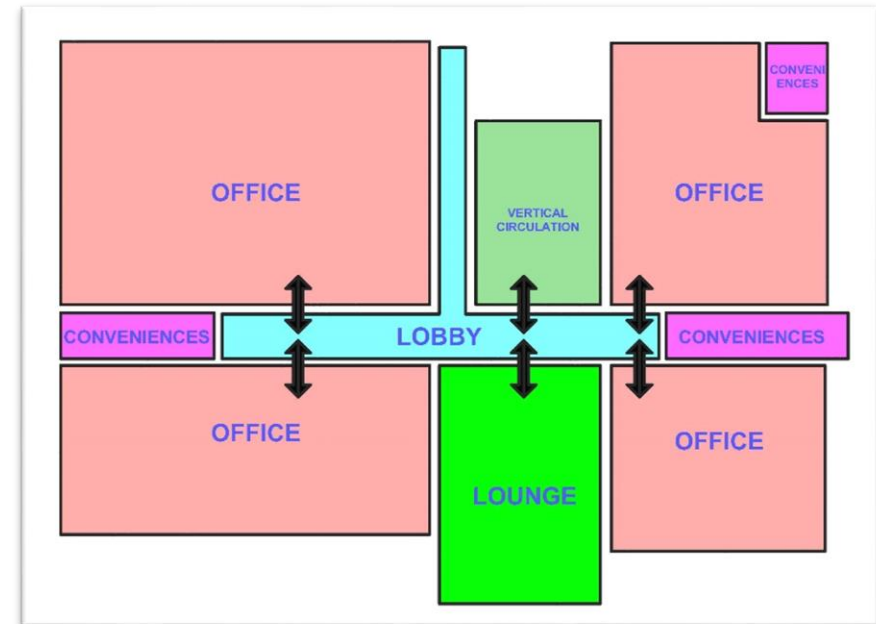


## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)



**Figure 18:** Outline-approved ground floor plan design  
Source: Graceplan CONSULTANTS

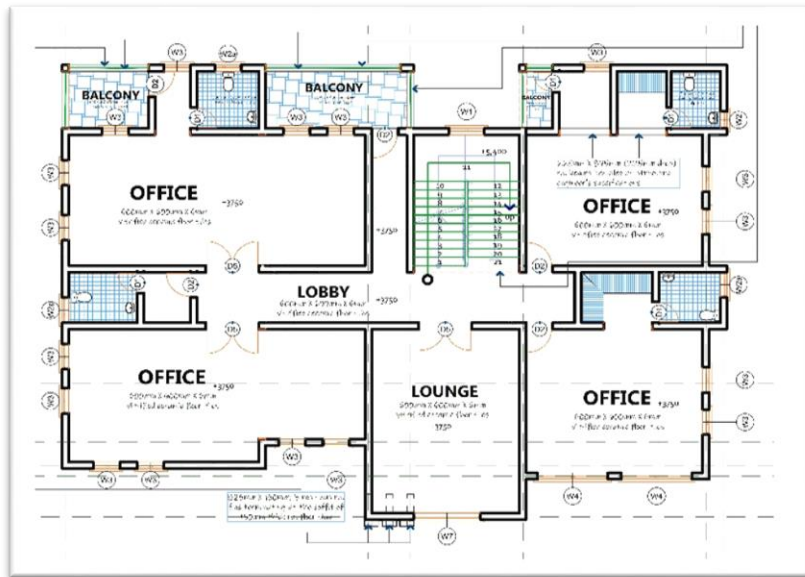
requested by the employer in the brief taking. The flow chart for the ground floor plan shows graphical thought processes consummated during design. As shown in Figure 3, color codes were adopted to further designate spaces where certain activities will occur. This arrangement is a deduction from the bubble diagram. Figures 6 and 8 show flow chart designations for the first and second-floor plans. All such design sequences were closely supervised and critiqued by the principal architect.



**Figure 19:** Flow chart designation for the first-floor plan.  
Source: Graceplan CONSULTANTS

As can be seen in the flow charts, most of the spaces that fall within the purview of the public zone are located on the ground floor. This would enable frequent users to locate areas that are commonly used for daily activities. Decibels are also better managed at this level making it possible for staffers to concentrate more on their administrative expectations. The semi-public spaces are located at tucked-away zones on the

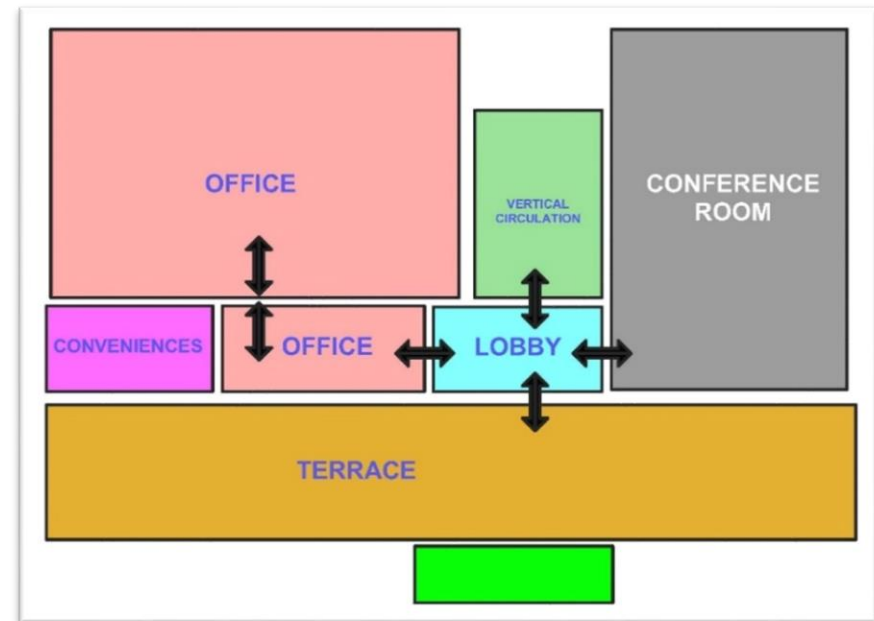
## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)



**Figure 20:** Outline-approved first floor plan.

Source: Graceplan CONSULTANTS

ground and first floors while areas that demand so much concentration and quietude were zoned at upper levels including the second-floor plan. These flow charts paved the way for the design developments. It is pertinent to note that all sketches for the design developments were done with the survey plan. All concept designs were agreed upon, outline-approved, and signed off by the employer for design development. This candidate must however submit here that the employer was not so comfortable with the translucent



**Figure 21:** Flow chart designation for the second-floor plan.

Source: Graceplan CONSULTANTS

covering over the open terrace. They wanted the terrace to be unobstructed with any roof structure reason being that they would use such space for rallies, balloon displays, banners, and campaigns. The Principal Architect engaged the employer extensively on the hazards of rain and moisture-related deteriorations if they insisted on their



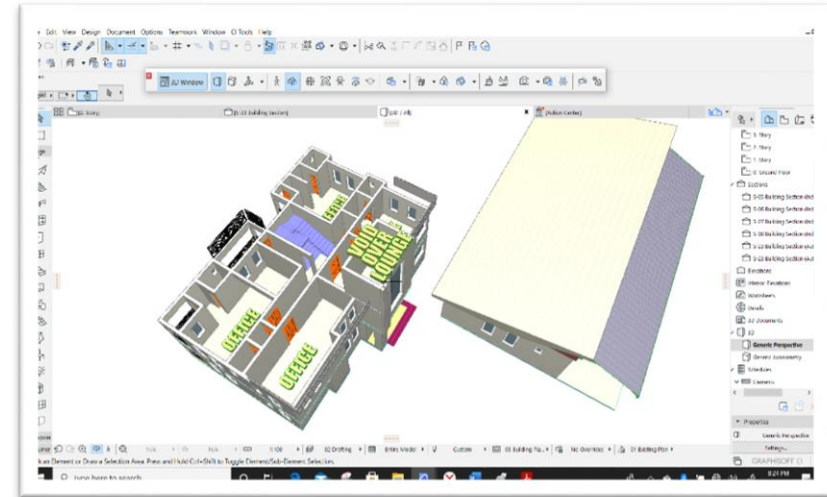
## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)



**Figure 24:** Another rendered final presentation of the WHER office complex

*Source: Graceplan CONSULTANTS*

See Figures 10 and 11 for rendered 3-dimensional projections of the design presentation. Figures 12 and 13 show 3D de-construction simulations at the ground and first floors.



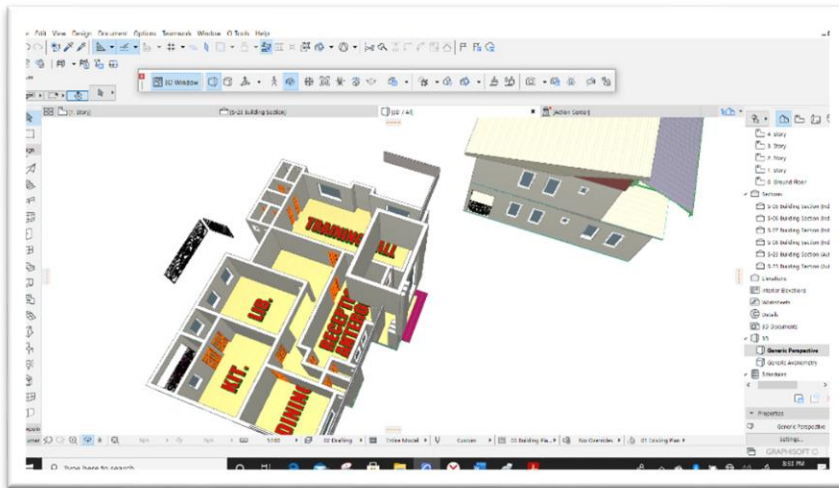
**Figure 25:** Design 3D de-construction showing the various spaces at the first-floor level.

*Source: Graceplan CONSULTANTS*

This allowed the design process to adequately take into consideration the real-



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)



**Figure 26:** Design 3D de-construction showing the various spaces at the ground-floor level.

Source: Graceplan CONSULTANTS

life spatial effects of the various spaces.

Efforts were also made to adopt these conceptual drawings and other design information for the preparation of preliminary cost estimates based on a square meter of roof area, floor space, the number of fittings, and furnishing required.

### **f. CONSULTANT SELECTION AND COORDINATION**

The employer is not conversant with building matters. To this end, he gave the principal architect the approval to appoint

consultants, better still, appoint consultants he has been working with. The principal architect exploited this caveat by fronting consultants who are in-house professionals with Graceplan CONSULTANTS. This negated the need for laborious pre-qualification exercises that involved :

- a. Dissemination of open calls,
- b. determination of potential pool of consultants,
- c. distribution of clients' brief, budget, project timeline, specific design development, and scope of services expected to potential pool of consultants,
- d. Request for references,
- e. Request for hourly rates/fees to be applied to different tasks.
- f. Appraisal of entries, and
- g. Selection of consultant.

However, the employer appointed the clerk of works who, incidentally, is doubling as the project manager.



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### g. DESIGN DEVELOPMENT

The design development commenced after the brief had been signed off by the employer and the concept design was fully approved and accepted. The entire design team consisting of the consultants which includes the principal architect and this candidate, alongside other consultants (Electrical, mechanical, structural Engineer) visited the site with representatives of the WHER Initiative for inspection, measurements, observations, and extraction of soil samples for soil tests. My principal entirely directed me in all assignments and under his supervision had the responsibility to carry out the following tasks:

- a. preliminary site analysis,
- b. final ratification of conceptual design/design sketches that have been approved,
- c. commencement and completion of detailed working drawings,
- d. partaking in the tendering process, and
- e. full mobilization to site and supervision roles.

### Schedule of accommodation

This section shows the Schedule of Accommodation for major spaces contained in the brief.

**Table 3:** Schedule of Accommodation for the WHER office complex.

S/ N	SPACE	FUNCTIONS	MINIMUM AREA REQUIRED (m <sup>2</sup> )			NO. REQUIRE D	AREA PROVIDE D
			Ground floor plan	First-floor plan	Second-floor plan		
1	Entrance lobby	Access point to the building or portion of the building used by residents for ingress and egress.	6.928	0	0	1	6.928
2	Training hall	High-activity area designed for the sole purpose of training, instructions, and social networking.	44.444	0	0	1	44.444
3	Reception and anteroom	High-activity area designed for the sole purpose of receiving inquiries from visitors, documentatio	19.871	0	0	1	19.871

**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS  
INITIATIVE (WHER INITIATIVE)**

		n, and booking of appointments .					
4	Library	Study space dedicated to literary works and materials on the WHER initiative.	18.040	0	0	1	18.040
5	Kitchen	Area for preparation of edible consumables.	19.115	0	0	1	19.115
6	Dining	Proximal space to the kitchen where food is served to staffers and users of the facility.	14.148	0	0	1	14.148
7	Conference Hall	Entirely private zone for meetings and internal dissemination of information among staffers.	0	0	35.799	1	35.799
8	Offices	Exclusive areas for administrative assignments.	0	93.336	39.295	5	132.631

9	Lounge	Space for relaxation and informal discussion	0	19.770	0	1	19.770
10	Suspended Terrace	Provision for reach-outs, campaigns, and outdoor activities accessible from the second floor.	0	0	52.429	1	52.429
11	Secretary's office	The space that serves the Director's office is the first port of call for visitors who have an appointment with the Director.	0	0	8.115	1	8.115

*Source: Graceplan CONSULTANTS*

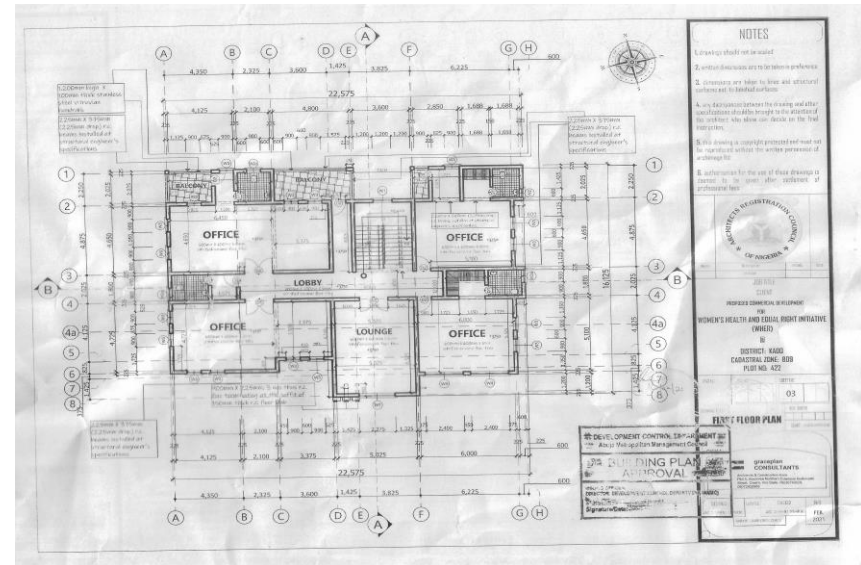
The design development continued with the preliminary sketches done by this candidate under the close supervision and critique of the principal architect. The provision of spaces was completely tailored to the brief agreed upon and signed off by the representative of the employer - Akudo Oguaghamba.

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### Final design/working drawing

The principal architect and this candidate, alongside the design team, had a round table meeting where the concept designs and preliminary sketches were presented to the employer and other consultants. The sketches were discussed; corrections and inputs made by the employer together with observations contributed by other professionals.

The Principal Architect tasked this candidate to effect all corrections. The employer later signed off on the approved final design sketch in a subsequent presentation with the design team on the 1<sup>st</sup> of February 2021.



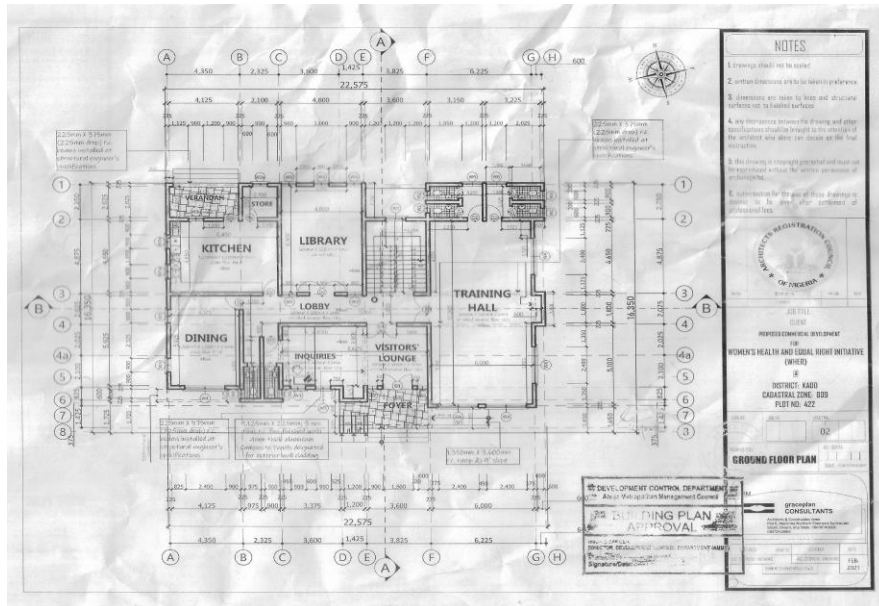
**Figure 27:** Working drawing of the first-floor plan located at +3.75m ssl.

*Source: Graceplan CONSULTANTS*

This candidate, alongside other consultants including the structural engineer, mechanical engineer, electrical engineer, and quantity surveyor, was tasked by the Principal Architect to produce architectural, structural, mechanical, and electrical working drawings, specifications, and bills of quantities respectively.

This candidate did the drafting of the complete architectural working drawings including the detail sheets.

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)



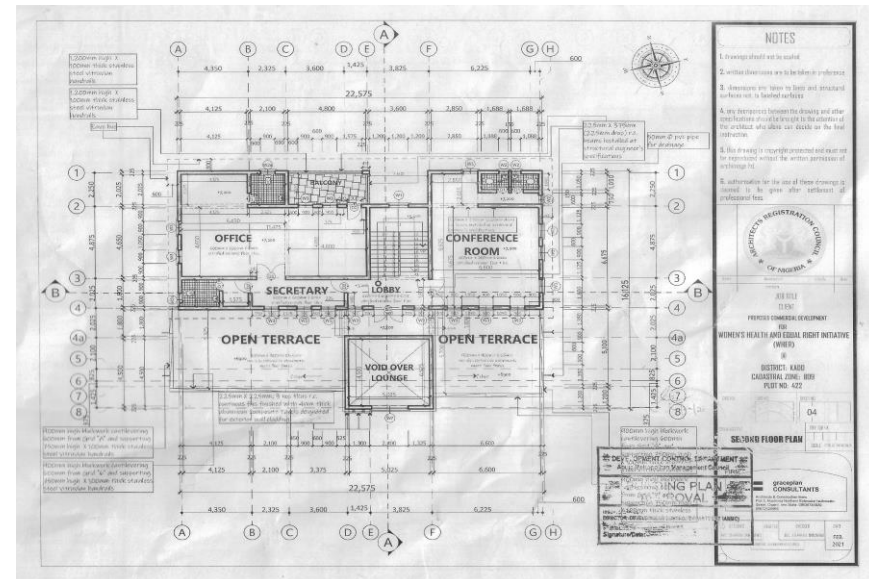
**Figure 28:** Working drawing of the ground floor plan located at +0.6m ssl.

*Source: Graceplan CONSULTANTS*

### Plans

The ground floor plan is an array of spaces majorly catering to the needs of training members in the various dispensations of the initiative, documentation of new members, retrieval of archival materials, and sundry activities bothering the entertainment of guests and staffers. See Figure 14.

The first-floor plan houses spaces majorly for administrative purposes. This is where most of the offices are located including a lounge section where certain guests could be attended to. See Figure 15.



**Figure 29:** Working drawing of the second-floor plan located at +7.2m ssl.

*Source: Graceplan CONSULTANTS*

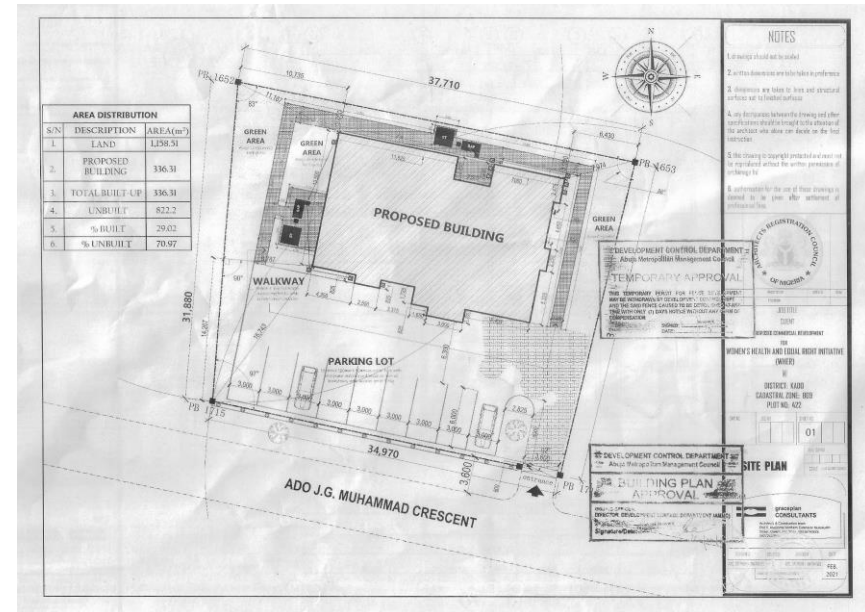
The second-floor plan is an exclusive floor for the director of the WHER initiative. This floor houses a sprawling office for the director and the secretary. A special addition – a covered terrace was included after a drawn-out tussle with the employer

**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)**

who wanted the terrace to be free of any roof covering. This space would enable the official to address outdoor participants of various functions from the comfort of the proximal lobby on the second floor. See Figure 16.

## Orientation

A lot of thought was given to orientation, as its proper management will improve significantly thermal comfort and indoor environmental conditions of the spaces. It is also important to focus on the space that is billed to have a lot of human traffic and plan the orientation to aerate such space as much as possible. Because the facility is an office complex, the design team took into consideration the small window of office hours, which runs from 8:30 am to 3:30 pm. Within these hours, solar insolation and build-up of heat indoors are minimal. To this end, the training, which is billed to house a lot of users, is orientated to have unrestricted access to the trade winds.



**Figure 30:** Working drawing of the site plan showing orientation.

Source: Graceplan CONSULTANTS

Most of the offices enjoy this orientation, including the conference room. See Figure 17. Issues of low thermal comfort and indoor air quality may not reach complaint level as occupants are billed to leave for their respective homes by the time the sun has reached maximum westerlies.



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### Solar controls

Natural and artificial mechanisms were employed which include wide roof overhangs, heat-absorbing (tinted) glazed panels to windows, and shades from surrounding horticulture. These also reduced glare thus improving the economy in the Heating, Ventilating, and Air Conditioning system of the building.

### Structure and form

The structural framework of the building is a three-story building of reinforced concrete frame, with sandcrete hollow block, aluminum, glass, and Medium Fibre Board (MFB) partition walls. The roofing comprises long-span aluminum roofing sheets fixed on wooden trusses.

### Integral décor and finishes

There was careful use of plaster differences and brick slip cladding to adorn the façades of the building in an aesthetically pleasing manner. Walls, depending on the location, were finished with bright paint colors that can enhance the environment.

### Services

For proper upkeep of the building, the following were given due consideration in the design;

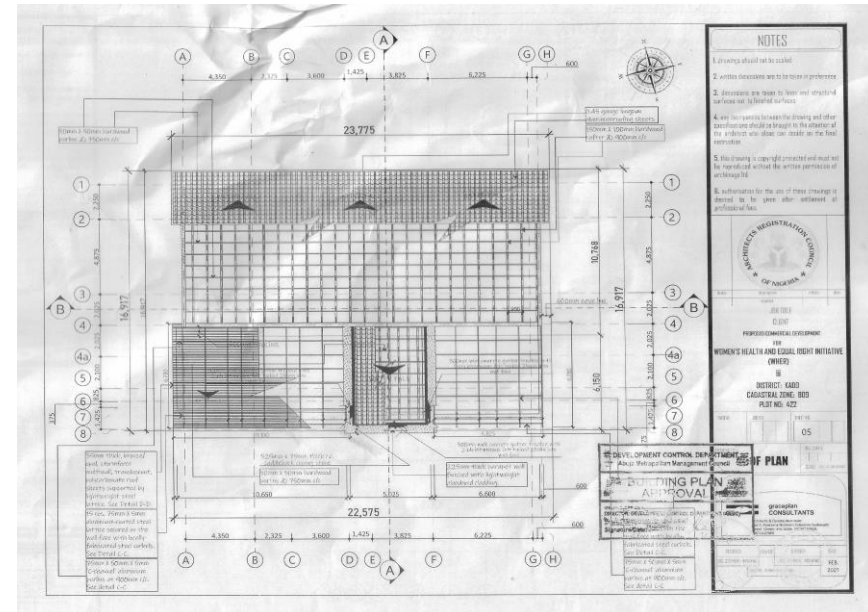
- a. **Water supply:** Water is supplied directly from the private water reticulation system. This is supplied into a tank from where distribution to the various toilet sections of the building is done by gravity. The distribution channels are 25mm diameter UPVC pipes.
- b. **Sewage Disposal:** Piping to the central sewage system was not feasible. Localized piping was done from various inspection chambers to septic tanks and finally to soak-away pits.
- c. **Air-conditioning:** The function of the air-conditioning system is to provide comfort for the occupants by providing the requisite amount of fresh air at the proper temperature and humidity. From the climatic factor analyzed, Natural ventilation is adequate to keep the user comfortable in other spaces during the hot season.

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

- d. **Electricity supply:** Just as the other buildings within the Ado J.G. Crescent, electricity would be supplied to the WHER INITIATIVE office building directly from Abuja Electricity Distribution Company (AEDC). Apart from this, provision for an auxiliary power supply is made from a stand-by generator located for easy accessibility.

### The roof plan

The roof is a 3-part mono-pitched roofing system: the main roof (17 ° slope), the translucent roof (15 ° slope), and the parapet-enclosed roof systems (13 ° slope). The main roof and the parapet-enclosed roof systems have the same covering - 0.45-gauge long-span aluminum roofing sheets. In contrast, the translucent roof system has a 35mm thick, bronze/opal, stormforce multiwall, and polycarbonate roof sheets as the covering.



**Figure 31:** Working drawing of the roof plan showing 3-part mono-pitched roofing systems.

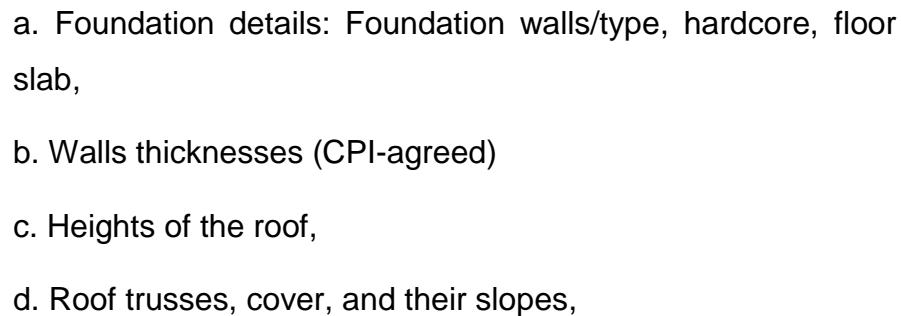
*Source: Graceplan CONSULTANTS*

As enclosed with a parapet wall with a low slope, the roof system is retrofitted with a concrete gutter to channel off stormwater. See Figure 18.

### Sections

Cross-sectional drawings were produced to show the various details of the drawings such as:

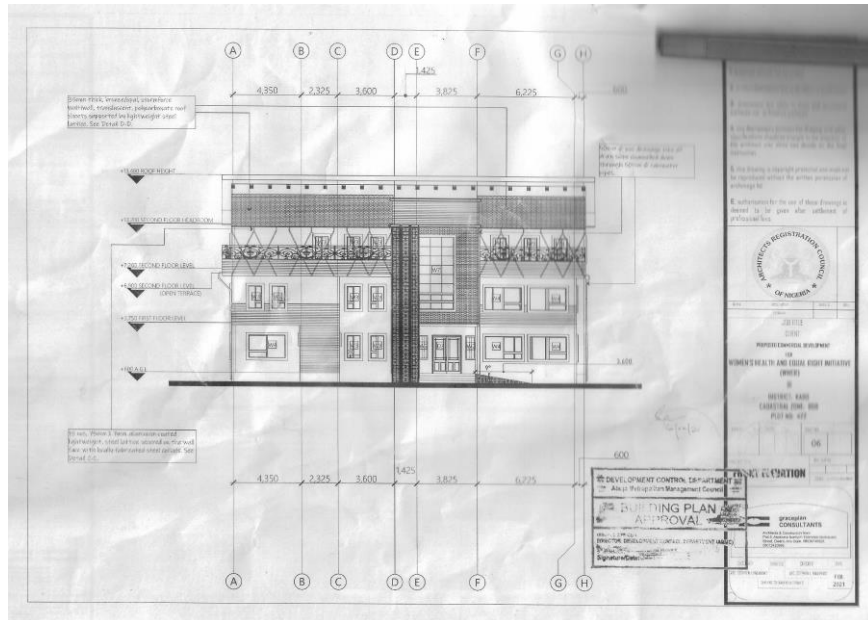
- e. Ceiling type.
- f. Lintels (insitu -cast)
- g. Building components levels and general heights,
- h. Dimension: Internal and external; roof member dimensions and



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### Elevations

The elevations are clearly expressed in simple geometric forms of squares and rectangles. They are characterized by masonry units with recesses and grooves that adorn the wall edges. The



**Figure 34:** Working drawing: Front elevation showing levels and wall finishes.

*Source: Graceplan CONSULTANTS*

external walls are to be finished with high-quality emulsion paint on smooth-rendered walls. The drawings of the elevations provide other information such as:

- Building components levels and general heights,
- Finishing on walls,
- External dimensions.

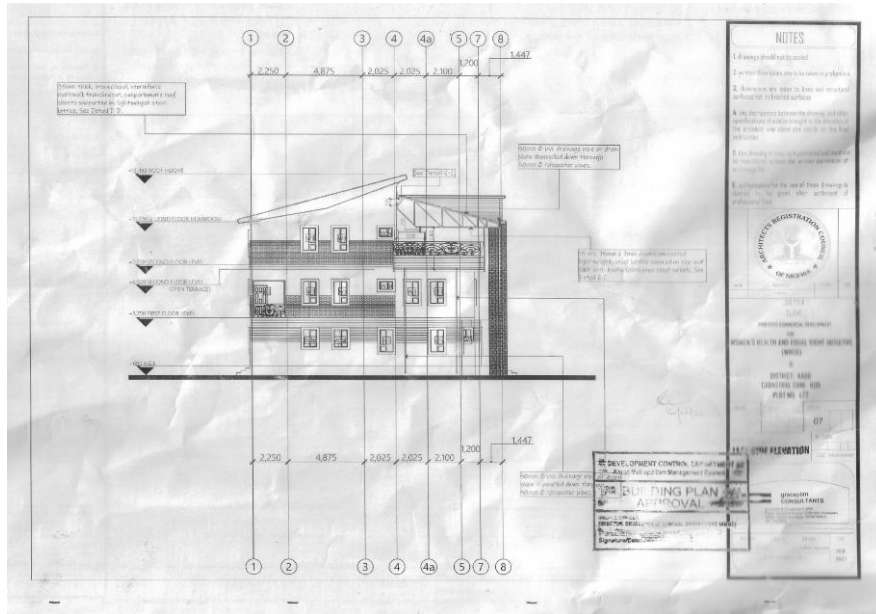
See Figures 21 and 22.

### h. SPECIFICATIONS

Specifications were developed alongside the design, increasing the level of detail as the design progressed. Aspects of the works were generally specified by-products and workmanship. Standard of products and attributes were stated giving room for equivalent alternatives. The workmanship of craftsmen must also comply with the code of practice and standards. A schedule of specifications, detailing the quality, size, and standard of various components/parts and elements of the building ranging from concrete work, metal work, roofing, doors and windows, fittings and fixtures, finishing materials, joinery, and ironmonger to building services was prepared and given to the Quantity Surveyor to work with before presentation to the employer. Due to the small timeline window and urgency of the project, the specification format adopted was performance specification. The prescriptive specification was

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

presented to the employer who signed off on it after adjustments to fit into their budget.



**Figure 35:** Working drawing: Left-side elevation showing levels and wall finishes.

*Source: Graceplan CONSULTANTS*

There were areas of incomplete specifications, which were discussed with the Quantity surveyor and other relevant professionals.

### i. BUDGET ESTIMATES

The preliminary budget estimate was developed by the quantity surveyor. Using the floor area of the drawings signed off and approved by the employer, the Quantity Surveyor developed an approximate budget for review. After the first review of the budget estimate, the floor area of the design had to be reviewed slightly to fit into the cost projection of the employer.

The quantity surveyor went ahead to do a final more detailed budget estimate using the working drawings and specifications. ₦105,500,000.00 was the estimated budget as agreed with the employer barring any variations.

### j. CONSTRUCTION DOCUMENTATION

Construction documentation is the detailed set of drawings, specifications, and other documents prepared by Graceplan CONSULTANTS to communicate the design intent and technical requirements of the building project to contractors, and other stakeholders involved in the construction process. These drawings met all relevant codes, standards, and regulations. They include:

a) **Architectural Drawings:** These detailed drawings, as



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

prepared by this candidate, showed the layout, dimensions, and specifications of various building components such as floor plans, elevations, sections, and details.

- b) **Structural Drawings:** Prepared by the consultant structural engineer, these drawings provide information about the building's structural framework, including the foundation, columns, beams, slabs, and other load-bearing elements. They ensure that the building is structurally sound and capable of supporting its intended loads.
- c) **Mechanical and Electrical (M&E) Drawings:** M&E drawings outline the layout and specifications of mechanical (HVAC), electrical, plumbing, and fire protection systems within the building. They include details about equipment, ductwork, piping, wiring, fixtures, and other components necessary for the building's functioning.
- d) **Specifications:** This has been exhaustively treated in (h).

- e) **Contracts and Legal Documents:** These include agreements between the client, architect, consultants, contractors, and other parties involved in the project. They outline the rights, responsibilities, and obligations of each party, as well as the terms and conditions governing the project's execution. These clauses were well-versed in the construction drawings.

### f) **Permitting and Regulatory Documentation:**

The process for obtaining a planning permit in Abuja would generally involve the following steps:

**Preparation:** Before applying for a planning permit, the applicant needs to submit:

- a. Certificate of Occupancy
- b. Title Deed
- c. Registered Survey Plan and Layout Plan showing the plot
- d. 3 sets of complete working drawings: Architectural, Structural, Electrical, and Mechanical drawings with concomitant calculation sheets.

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

- e. Soil Test Report
- f. Site Analysis Report and
- g. Receipted payments of all sundry charges for development purposes.
- g) **Submission of Application:** The applicant submits the planning permit application along with all required documents to the appropriate authority. To this end, the employer submitted all necessary documentation to the **Department of Development Control of the Abuja Metropolitan Management Council (AMMC)**. This was done on the 15<sup>th</sup> of February, 2021.

### k. TENDER PROCESS

The tender process commenced on the 16<sup>th</sup> of February, 2021. These steps include:

- a) **Preparation of Tender Documents:** The principal architect and his team in collaboration with the client, prepare detailed tender documents that include drawings, specifications, schedules, an invitation to tender, instructions to persons tendering, information about persons tendering, conditions of contract, form of

tender and tentative project timeline. See Figure 23.

- b) **Invitation to Tender:** Selective tendering was adopted for the nomination of the major contractor. 3 bidders were selected for the exercise based on their competence and integrity. Moreover, the employer did not have the liberty of time to deliver the project.
- c) **Pre-Tender Meetings and Site Visits:** Pre-tender meetings and site visits were arranged to allow potential bidders to clarify any queries, inspect the site conditions, and better understand the project requirements before submitting their bids.
- d) **Submission of Tender Bids:** Contractors submit their tender bids to the project manager after 4 weeks. The bids typically include pricing information, proposed construction methodologies, schedules, qualifications, and any other required documentation.
- e) **Bid Evaluation and Selection:** Opening of tenders was carried out by the client in the presence of the principal architect and the resident quantity surveyor. Evaluation of received bids based on predetermined criteria such

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

as price, quality, experience, reputation, and compliance with the tender requirements approved 2 tenders which were sent to the architect and QS for appraisal.

- f) **Award of Contract:** Thorough appraisal of the QS on tender sums, tender analysis, rates, comparison with official estimates, completion time, category of registration of the contractor, work performance, and experience and capacity to deliver gave reasons to recommend Engr Joel Oguike's (ANETTE CONSTRUCTION) for appointment as the major contractor for the WHER INITIATIVE project.

### I. CONTRACT MANAGEMENT

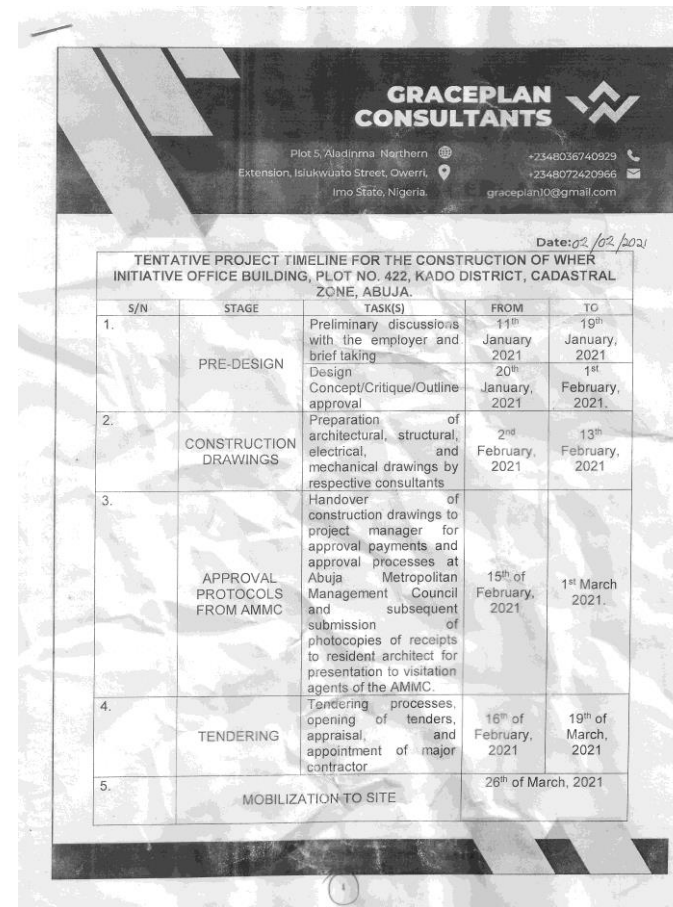
The contract was administered by way of the **Design-Bid-Build Contract**.

After the appointment of the major contractor, a date was fixed for the site to be handed over to him. On that day a small ceremony was organized after which a certificate of handover was issued to the contractor.

#### The Project Timeline

As mentioned in (k) sub-section (a), the principal architect made available to the major contractor, a summarized project

timeline to guide him to fit his program of works for a realizable closure by September 2021. This employer harped on this



**Figure 36:** Tentative Project Timeline for the WHER INITIATIVE project; page 1.

Source: Graceplan CONSULTANTS

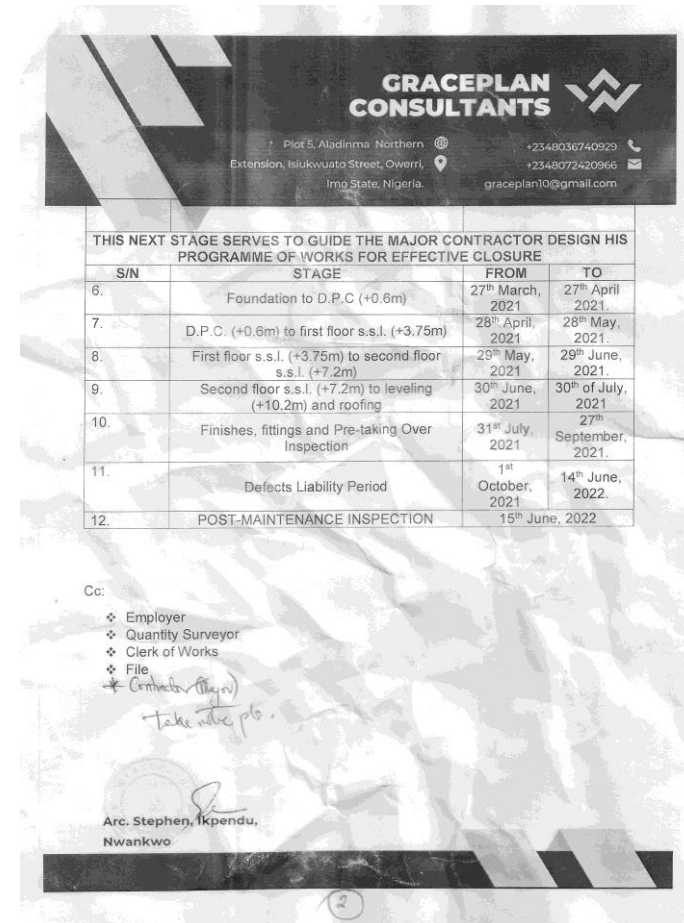
## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

period of closure and enjoined the principal architect to work towards it.

### Supervision

This candidate was assigned **Resident Architect** for the project. Specific job deliverables include, but are not limited to:

- a) Routing inspections and progress of works report,
- b) Making sure that closures for tasks do not deviate from respective timelines,
- c) Taking Inventory of materials on site,
- d) Deliver Architect's Instructions,
- e) Preparation of certificates
- f) Review and clarify ambiguities in the working drawings, and
- g) Take records of site meetings.



**Figure 37:** Tentative Project Timeline for the WHER INITIATIVE project; page 2.

Source: Graceplan CONSULTANTS



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

<b>GRACEPLAN CONSULTANTS</b> Plot 5, Aladinma Northern Extension, Isikwuato Street, Owerri, Imo State, Nigeria. +2348036740929 +2348072420966 graceplan10@gmail.com			
Date: 26 <sup>th</sup> April, 2021			
<b>MINUTES OF THE SECOND SITE MEETING HELD ON 26<sup>TH</sup> APRIL, 2021.                  CONSTRUCTION OF WHER INITIATIVE OFFICE BUILDING, PLOT NO. 422,                  KADO DISTRICT, CADASTRAL ZONE, ABUJA.</b>			
VENUE:	Star of Africa Hotel (Abuja), 456 Ado J. G. Muhammad Cres, Gwarinpa, Abuja 900108, Federal Capital Territory		
PRESENT:	Arc. Stephen I. Nwankwo	Principal Architect	Graceplan CONSULTANTS
	Akudo Oguaghamba	Employer	WHER INITIATIVE
	Engr Joel Oguike	Major Contractor	ANETTE CONSTRUCTION
	Joseph Akoro	Domestic Sub-contractors	WHER INITIATIVE
	Onwukwe, Chukwuemeka Ozioma Stanislaus	Project Manager	Graceplan CONSULTANTS
	Q.S. Onwuakpoko Romanus	Resident Architect (candidate)	Graceplan CONSULTANTS
	Engr. Akpata, A. I.	Quantity Surveyor	Graceplan CONSULTANTS
	Engr. Uche Okoro	Structural Engineer	Graceplan CONSULTANTS
	Engr. John Dike	Mechanical Engineer	Graceplan CONSULTANTS
		Electrical Engineer	Graceplan CONSULTANTS
S/NO.	ITEM		ACTION
1.	The meeting was declared open by the principal architect at 11:15 am		
2.	Minutes of previous meeting held on 29 <sup>th</sup> March 2021.		
3.	The principal architect noted that there was yet to receive the contractor's programme of works as discussed in the last meeting. He (principal architect) noted, though that the delay could be positive considering new developments from the employer.		Graceplan CONSULTANTS
4.	The employer reiterates the need to step down the translucent roofing system's fabrication and mounting, citing directives from overseas partners.		WHER INITIATIVE

**Figure 38:** Minutes of site meeting held on the 26th day of April, 2021: page 1.

Source: Graceplan CONSULTANTS

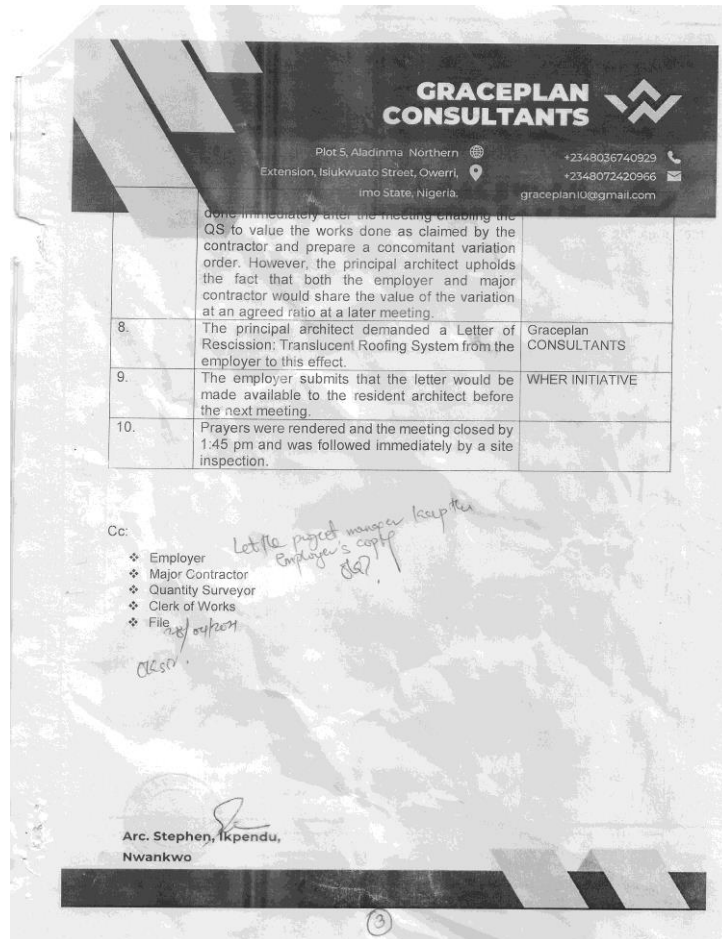
<b>GRACEPLAN CONSULTANTS</b> Plot 5, Aladinma Northern Extension, Isikwuato Street, Owerri, Imo State, Nigeria. +2348036740929 +2348072420966 graceplan10@gmail.com			
Date: 26 <sup>th</sup> April, 2021			
5.	The major contractor raised the issue of already mobilizing domestic subcontractors who have already commenced the fabrication of the lightweight steel lattice. As for the installers of the multiwall polycarbonate sheets, they are awaiting the framework design of the lattice for them to prepare their installation protocols. To this end, he is demanding for variation.		ANETTE CONSTRUCTION
6.	(a). With the major contractor's submission, a lengthy discourse ensued amongst all parties including informed attempts by the principal architect to convince the employer to reverse her decision. (b). Failure of proceedings in subsection (a). (c). Final adjudication of the QS: The employer's request had some financial effect on the contract (positive) and contractor (negative). To this end, the instruction could be regarded as a variation order. (d). Value of the (negative) variation will be determined on inspection and valuation. (e). The employer insists that the variation will not be honored since the major contractor has not made available the programme of works. According to the employer, the schedule would have shown whether the contractor was actually in the period dedicated to such fabrication works.		All parties
7.	Vis-à-vis subsection 6e, the principal architect noted that the contractor may have wanted to quicken the pace of the work but cautions on prompt delivery of site documentation to forestall issues such as this. He directs the QS and the project manager in the company of the contractor to visit and inspect work done so far by the nominated contractor undertaking the fabrication works. This will be		Graceplan CONSULTANTS

**Figure 39:** Minutes of site meeting held on the 26th day of April, 2021: page 2.

Source: Graceplan CONSULTANTS

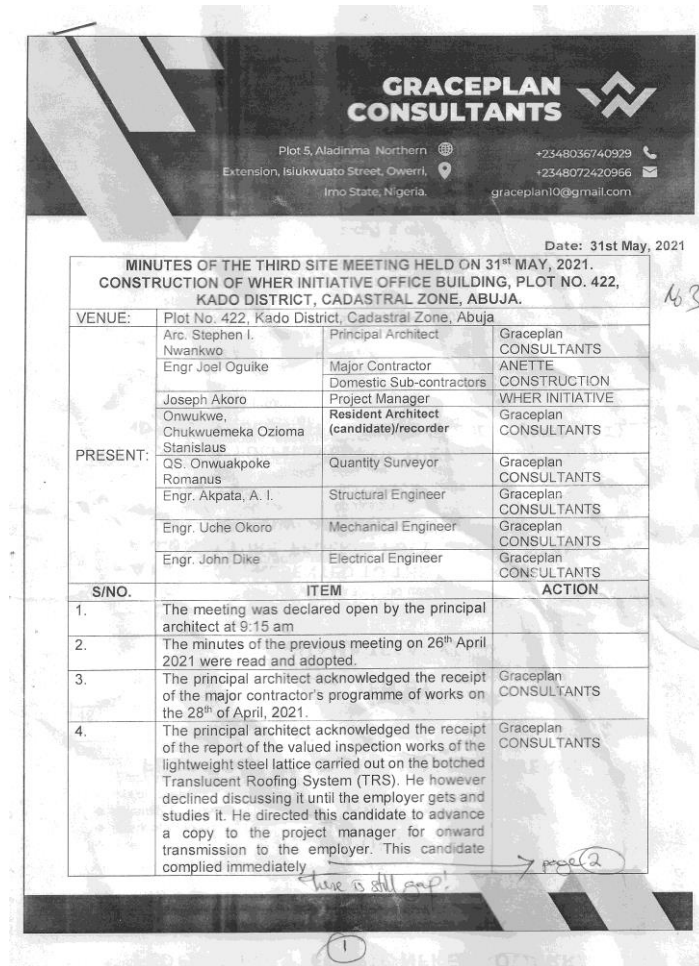


## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)



**Figure 40:** Minutes of site meeting held on the 26th day of April, 2021: page 3.

Source: Graceplan CONSULTANTS



**Figure 41:** Minutes of site meeting held on the 31st day of May, 2021: page 1.

Source: Graceplan CONSULTANTS

The ultimate objective was to protect the client's interests and

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

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	with the directive by advancing a copy to the project manager.	
5.	The project manager acknowledges receipt of the valued inspection works of the lightweight steel lattice.	WHER INITIATIVE
6.	The principal architect expresses satisfaction with the progress of work but points out that this candidate is a bit sloppy with the management of construction drawings on site. The drawings were shredded due to handling. He then directed this candidate to laminate all the drawings including the receipted documents.	Graceplan CONSULTANTS
7.	This candidate assents to carry out the task immediately after the site meeting.	Graceplan CONSULTANTS
8.	The principal architect noted that the adjoining road was almost blocked with coarse aggregates and instructed the major contractor to direct the domestic suppliers properly in order not to obstruct free traffic.	
9.	The major contractor noted the observation and promised to resolve the issue.	
10.	The principal architect reiterates the need for the Letter of Rescission: Translucent Roofing System. <i>Replacement of the</i>	Graceplan CONSULTANTS
11.	The project manager informed the quorum that the letter was ready but yet to be signed by the employer. He promised to advance the letter to the resident architect as soon as it was ready.	WHER INITIATIVE
12.	The meeting closed by 11:15 am and was followed immediately by a site inspection.	

Cc:

- ❖ Employer
- ❖ Major Contractor
- ❖ Quantity Surveyor
- ❖ Clerk of Works
- ❖ File

Arc. Stephen, Ikpendu, Nwankwo

**Figure 42:** Minutes of site meeting held on the 31st day of May, 2021: page 2.

Source: Graceplan CONSULTANTS

maintain the professional bearing of the principal architect. This

candidate focused on this mandate as soon as construction started on the 1<sup>st</sup> of March, 2021.

### Site meetings

Monthly site meetings were agreed upon though except for emergencies. The meetings were followed by a joint site inspection to check the progress and quality of works and materials, especially focusing on problem areas mentioned during the meeting. See figures 25 to 29 for site meetings recorded by this candidate.

### Progress Reports / Conflict Management

This candidate prepared quarterly reports as indicated in the contract. Arbitration was agreed to be deployed if both parties could not resolve contractual disputes at the local level.

### Valuation and certificates

Interim valuation procedures were conducted when the contractor reached a certain level of work as stated in the condition of the contract. The contractor was issued with an Advanced Payment Guarantee (APG) of 10% after mobilizing to the site. The process is carried out when the contractor writes an application for valuation to be carried out, requesting

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

for valuation containing a document showing estimated work done and the situation of the site. After verification by the resident quantity surveyor, the valuation was sent to this candidate to prepare the certificate, with authorization from the principal architect. These certificates were then forwarded to the employer, through the project manager for approval.

### Architect's Instructions

Several instructions were issued to the contractor during the construction stage. Some arose due to changes necessitated by

- client's volte-face on scope,
- wrong material supplied,
- working drawings not properly followed,
- Quality of materials supplied etc.

Some of these instructions led to variations in the contract sum.

**GRACEPLAN CONSULTANTS**

Plot 5, Aladinma Northern Extension, Isikwuato Street, Owerri, Imo State, Nigeria.

+2348036740923  
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graceplan10@gmail.com

DATE: 27<sup>TH</sup> APRIL, 2021

**ARCHITECT'S INSTRUCTIONS**

TO: Engr Joel Oguike Contractor ANETTE CONSTRUCTION, 10, Okigwe Road, Owerri, Imo State.

**CONSTRUCTION OF WHER INITIATIVE OFFICE BUILDING, PLOT NO. 422, KADO DISTRICT, CADASTRAL ZONE, ABUJA.**

S/NO.	ITEM	REMARKS (INDICATE IF V.O.)
1.	Issue stop work and disengagement notices to domestic subcontractors handling the construction of the lightweight steel lattices and installation of the translucent polycarbonate multiwall roof system. <i>Emp. Joel, pls take note of this.</i>	V.O.
2.	Make available the programme of works on or before the 3 <sup>rd</sup> day of May, 2021.	Not V.O.
3.	Direct suppliers of fine and coarse aggregate to dump appropriately at designated points in order not to constitute encumbrances to passersby.	Not V.O.

Cc: *Still expect the contractor pls. Treat as important.*

- ❖ Employer
- ❖ Resident QS
- ❖ Clerk of works
- ❖ Consultants
- ❖ Project file

Arc. Stephen, Ikpendu, Nwankwo

**Figure 43:** Architect's Instructions delivered and copied to respective parties.

Source: Graceplan CONSULTANTS



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### m. CLOSEOUT

Closeout proceedings of the WHER INITIATIVE project commenced in September 2021. At this time, the contractor has redeemed all issues in the punch list. The final inspection follows to make sure that all works have been completed by the contract document and applicable standards before the taking over. The principal architect issues the Certificate of Practical Completion and communicates with the employer to advance one moiety to the contractor. The Defects

The liability Period commences immediately while the employer initiates arrangements and preparations for the opening ceremony of the office building as stated earlier in the INTRODUCTION. This candidate can submit that the employer only complained of two striking issues during the 9-month defects liability period:

- chalking paint defects around the kitchen area and,
- blocked 50mm  $\varnothing$  waste pipe of the kitchen sink.

**GRACEPLAN CONSULTANTS**

Plot 5, Aladinma Northern Extension, Isikwuato Street, Owerri, Imo State, Nigeria. +2349036740929 +2348072420966 graceplan10@gmail.com

CERTIFICATE OF MAKING GOOD DEFECTS			
FROM:	Arc. Stephen I. Nwankwo	Principal Architect	Graceplan CONSULTANTS
TO:	Engr Joel Oguike	Contractor	ANETTE CONSTRUCTION, 10, Okigwe Road, Owerri, Imo State.
TITLE OF PROJECT:	CONSTRUCTION OF WHER INITIATIVE OFFICE BUILDING, PLOT NO. 422, KADO DISTRICT, CADASTRAL ZONE, ABUJA.		
In accordance with clause 15.5, I/We hereby certify that all outstanding works and defects appearing during the defects liability period in respect of the above-named project have been completed and/or made good.			
Signed: _____		Date: 16/06/22	
Architect			

Copies to:

- ❖ Contractor (Original)
- ❖ Employer
- ❖ Quantity Surveyor
- ❖ Clerk of works
- ❖ Consultants
- ❖ Project file

*P/S: file this copy and reflect under the e/c.*

**Figure 44:** Certificate of Making Good Defects dated 16th June, 2022.

Source: Graceplan CONSULTANTS

The principal communicated with the contractor who quickly mobilized his domestic subcontractors to make good the

## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

defects. After further inspections, the principal issued the Certificate of Making Good Defects. See Figure 28.

### **Final Account**

This candidate was no longer in Abuja when the final account was prepared by the QS and issued to the employer by the architect as he has relocated to the main office in Owerri, Imo State. The final account was issued around July 2022 and contained a summary of the final account of variation orders, prime cost and provisional sums, provisional quantities, fluctuation claims, and contingency sums. Ultimately, the employer will see the revised contract sum and the final cost of the WHER INITIATIVE project. The final account and concomitant final payment certificate pave the way for the contractor to receive the 2<sup>nd</sup> moiety.

### **n. CONCLUSION, LESSONS LEARNT**

Concluding an effective building contract administration and construction project involves ensuring that all contractual obligations are met, the project is successfully delivered to the employer's satisfaction, and valuable lessons are learned to improve future project outcomes. Effective project conclusion

requires attention to detail, clear communication, and a commitment to continuous improvement in project management practices.

This candidate must submit the following nuggets as lessons learned:

#### **Apt Alternative:**

The **Design-Build Contract** would have been better. This declaration is informed upon observed antics played out by the contractor towards the employer's volte face in the translucent roofing system. The contractor contributed immensely to the debacle. This would have been avoided if the employer hired one entity that would be responsible for the design and construction. Graceplan CONSULTANTS had the capacity.

#### **Client Handover and Acceptance:**

This involves formal acceptance of the completed work, including any necessary documentation, manuals, and keys. Clear communication and coordination during the handover process are essential for ensuring the employer's satisfaction.



## PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)

### Financial Closeout and Settlement:

This includes resolving any outstanding invoices, change orders, and other financial obligations to ensure that all parties are fairly compensated for their work. Failure to do this, over time, has proven to be damaging to career growth.

### Documentation and Record-Keeping:

Documentation cannot be over-emphasized. All project-related documents, including contracts, drawings, specifications, permits, warranties, inspection reports, instructions, etc. must be organized, archived, and provided to the employer and the principal architect for record-keeping. It is the only evidence that proves one's capacity.

**Communication and Stakeholder Feedback:** Effective communication with all project stakeholders throughout the project lifecycle is crucial. Gathering feedback from all parties provides valuable insights into project performance, employer satisfaction, and areas for improvement.

**Continuous Improvement and Implementation of Best Practices:** Lessons learned from this project will be used to

drive continuous improvement in construction project management processes and practices.



**Figure 45:** Casting of oversite concrete has reached near completion. The project architect can be seen issuing instructions to the labourers. This candidate is the photographer.

*Source: Graceplan CONSULTANTS*

## **PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)**

**Celebration of Success and Recognition:** Recognizing and celebrating the successful completion of the project, along with the contributions of all project team members, fosters a positive project culture and motivates team members for future projects. Acknowledging achievements and milestones helps build morale and strengthens team cohesion.

**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)**



**Figure 47:** *Plastering and fixing of windows in progress. The same goes for some level of brickfacing on the parapet wall.*

*Source: Graceplan CONSULTANTS*



**Figure 46:** Placement of the 150mm thick oversite concrete.

*Source: Graceplan CONSULTANTS*



**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)**



**Figure 49:** Handrails have been fixed, plastering near completion and window architrave fixed.

*Source: Graceplan CONSULTANTS*



**Figure 48:** Another shot of the blockwork in advanced stage.

*Source: Graceplan CONSULTANTS*

**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS  
INITIATIVE (WHER INITIATIVE)**



**Figure 51:** Blockwork and fencing in advanced stage.

*Source: Graceplan CONSULTANTS*



**Figure 50:** Blockwork in advanced stage.

*Source: Graceplan CONSULTANTS*



**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)**



**Figure 53:** The foyer adorned with balloons during the opening ceremony.

*Source: Graceplan CONSULTANTS*



**Figure 52:** Interior of the training hall filled with guests during the opening ceremony.

*Source: Graceplan CONSULTANTS*

**PROJECT 'A' (STAR PROJECT): WOMEN'S HEALTH AND EQUAL RIGHTS INITIATIVE (WHER INITIATIVE)**



**Figure 55:** Daytime shot of the WHER INITIATIVE office complex. This was hours after it was officially opened for business.

*Source: Graceplan CONSULTANTS*



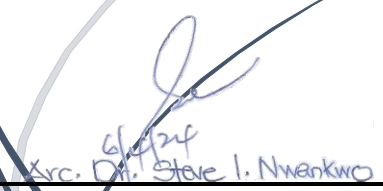
**Figure 54:** Night-view of the WHER INITIATIVE office building. The lighting system was being tested as a form of post-maintenance inspection.

*Source: Graceplan CONSULTANTS*

# PROJECT 'B'

**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**

**a. COVER: PROJECT 'B'**

<b>PROJECT B:</b>
<b>PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU &amp; NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE</b>
<b>CANDIDATE'S NAME</b>
ONWUKWE, CHUKWUEMEKA OZIOMA STANISLAUS
<b>CANDIDATE NUMBER</b>
PPCE/APR24/295
<b>PROGRAM NAME</b>
PROFESSIONAL PRACTICE COMPETENCE EXAMINATION (PPCE)
<b>PROGRAM VERSION</b>
PPCE APRIL 2024
<b>SUBMISSION DATE</b>
APRIL, 2024
<b>SUPERVISOR'S NAME</b>
ARC. STEVE I. NWANKWO (Ph.D.)
<b>SUPERVISOR'S SIGNATURE</b>
 <hr/> SUPERVISOR'S NAME



**PROJECT TITLE**  
**PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**





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**Project Design Data Sheet:**

**Table 4:** Project Design Data Sheet: Residential Building Project, Abia State

PROJECT:	<b>PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU &amp; NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE</b>			
S/n	Name	Designation	Firm	Address
1.	Engr. Kalu & Nwanne Amogu	Employer	Private Developers	Ohafia, Abia State
2.	Arc. Steve I. Nwankwo	Principal Architect	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
3.	<b>Onwukwe, Chukwuemeka Ozioma Stanislaus</b>	<b>Resident Architect (candidate)</b>	<b>Graceplan CONSULTANTS</b>	<b>No. 5 Aladinma Northern Extension, Isiukwuato street, Owerri, Imo State.</b>
4.	QS. Onwuakpoke Romanus	Project Quantity Surveyor/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
5.	Engr. Akpata, A. I.	Project Structural Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
6.	Engr. Uche Okoro	Project Mechanical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
7.	Engr. John Dike	Project Electrical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.



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**Project Construction Data Sheet:**

**Table 5:** Project Construction Data Sheet: Residential Building Project, Abia State

PROJECT:	<b>PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU &amp; NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE</b>			
S/n	Name	Designation	Firm	Address
1.	Engr. Kalu & Nwanne Amogu	Employer	Private Developers	Ohafia, Abia State
2.	Arc. Steve I. Nwankwo	Principal Architect	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
3.	Samuel Nwakunna	Clerk of Works	Private Individual	Abia State University, Uturu
4.	Ohaegbulam Onyekachi	Major Contractor	RB Construction Company	334 Eni Njoku road, Ebem-Ohafia, Abia State
		Domestic Sub-contractors		
5.	<b>Onwukwe, Chukwuemeka Ozioma Stanislaus</b>	<b>Resident Architect</b>	<b>Graceplan CONSULTANTS</b>	<b>No. 5 Aladinma Northern Extension, Isiukwuato street, Owerri, Imo State.</b>
6.	QS. Onwuakpoke Romanus	Project Quantity Surveyor/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
7.	Engr. Akpata, A. I.	Project Structural Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
8.	Engr. Uche Okoro	Project Mechanical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
9.	Engr. John Dike	Project Electrical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.

## PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE

### PROJECT 'B':

**PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA, OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**

#### b. INTRODUCTION

The employer is a couple that resides in Canada. They are indigenes of Ebem-Ohafia in Ohafia Local Government Area of Abia State. The site is relatively close to the Umah Ukpai Private Polytechnic, stony, and lies on a terrain that can be adjudged to be slightly sloppy. See Figure 38. The couple needed a country home that is located away from their homestead, thus the inception of this project which they are sitting at Ali-Efi, a distant settlement from Ebem.

As at the time of this technical report, one-half of the employer, who, consequently is the main financier of the project, was declared deceased. The news of the loss was received on the 6<sup>th</sup> of January, 2020.

#### c. INCEPTION

The residential building project was conceived by Engr. Kalu



**Figure 56:** Screenshot of GPS location clearly showing the location of the project.

Source:

<https://www.google.com/maps/place/5°37'47.6%22N+7°51'01.3%22E/@5.629881,7.8494466,444m/data=!3m2!1e3!4b1!4m4!3m3!8m2!3d5.629881!4d7.850357?entry=ttu>

Amogu who called up the Principal Architect gave putting up a befitting country home for him at Ebem Ohafia. These preliminary discussions commenced in August 2019. Along the line, negotiations progressed up to the point when the brief was received with a mandate to advance a creative design that would fit his taste.

All through the brief-taking, communication between the principal architect and the employer was by email, phone calls,

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and short message services. Physical dialogues were completely non-existent.

**d. BRIEF TAKING**

The employer was not really in tune with the designation of architectural spaces. The principal deciphered his needs based on discussions on what his lifestyle looked like and his daily chores. From such dialogue, the brief identified the following spaces on the ground floor plan. They include:

- a) Lounge,
- b) Dining,
- c) Kitchen - spacious enough to contain a breakfast island,
- d) Laundry,
- e) Store
- f) 2 bedrooms that must be ensuite.

For the first floor, the employer requested for:

- d. 3 ensuite bedrooms,
- e. A master bedroom that must have evoked grandeur.

The employer also specifically requested to have a void over the foyer and the lounge. One other special requirement was an Archimedean staircase which must take him up to a large lobby concourse from a second entrance from the ground floor. In fact, as an engineer, he sent images of how such a staircase would look like. He also wanted visual access to the staircase from the lounge.

Finally, he loved space and would want the design to respect outdoor conviviality. He gave specifics on how to handle his outdoor spaces, types of tuft to use on the lawns and the kerb stones to be used as dividers. The brief taking was finalized and signed off by the employer through the principal architect's email on the 5<sup>th</sup> of August, 2019. The process was relatively flawless only that there were network issues that hampered transmission. This was a major hiccup when images were being transmitted. Unfortunately, the issue had to be managed by tagging images with dates and times for parties to reconcile real-time blackouts.

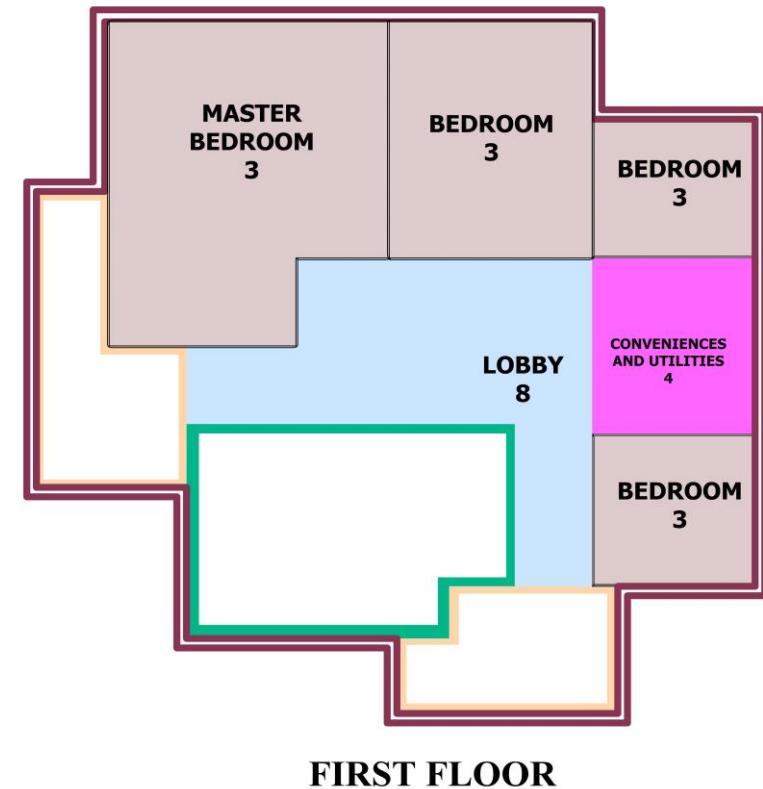
**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**

**e. CONCEPT DESIGN**

This stage involved the need to integrate the employer's aspirations, site context, functional requirements, architectural expression, and sustainability goals. This task was entrusted to this candidate who undertook the task through the following procedures:

1. **Site Visitation:** Conduct a thorough analysis of the site, considering factors such as location, topography, orientation, views, climate, zoning regulations, and neighboring properties. There was a rather worrying observation where it was noticed that most buildings around the vicinity had structural issues with their foundation ranging from gaping cracks to misaligned footings.
2. **Spatial Planning:** Determine the functional requirements of the residential building, including the number and types of spaces needed, such as bedrooms, bathrooms, living areas, kitchen, dining, and storage. This informed the development of a spatial plan that efficiently organizes these spaces to meet the

needs of the employer. See Figures 39 and 40.

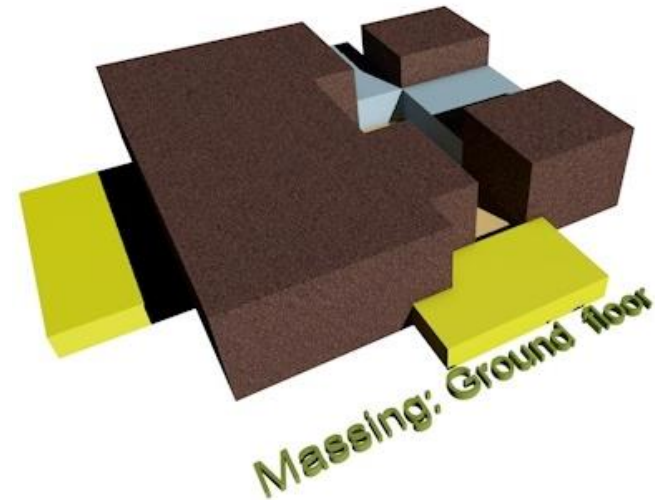


**Figure 57:** Intended spatial arrangement for the first-floor level.

*Source: Graceplan CONSULTANTS*

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3. **Architectural Style and Aesthetics:** This candidate engaged in critique sessions with the principal architect over the kind of architectural style and aesthetics the employer was expecting. To this end, I considered factors such as architectural traditions, regional context, site characteristics, and the employer's preferences to develop a design concept that reflects the desired aesthetic vision.
4. **Massing and Form:** This candidate explored different massing and form options, considering factors such as scale, proportion, usage indices, etc



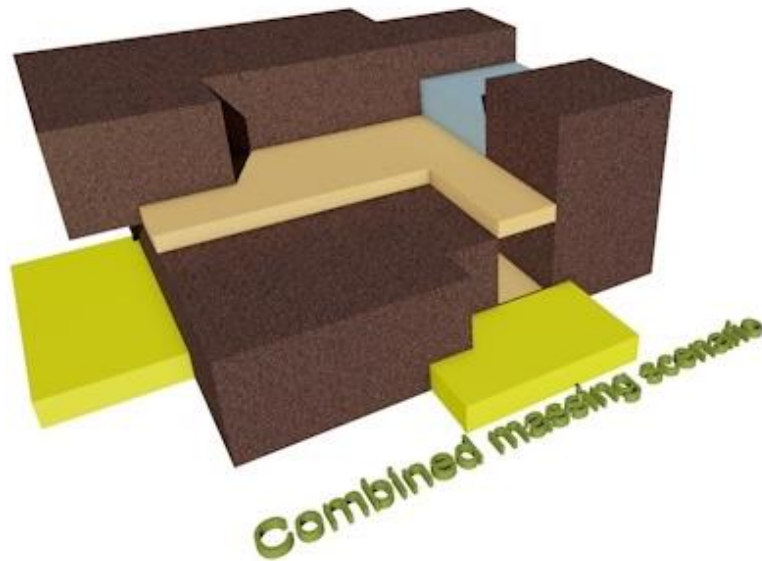
**Figure 58:** Massing scenario for the ground floor area.

*Source: Graceplan CONSULTANTS*

Experiment with spatial volumes, fenestration patterns, and exterior materials combined with color codes to create a visually appealing and functional design. See Figures 40, 41, and 42.



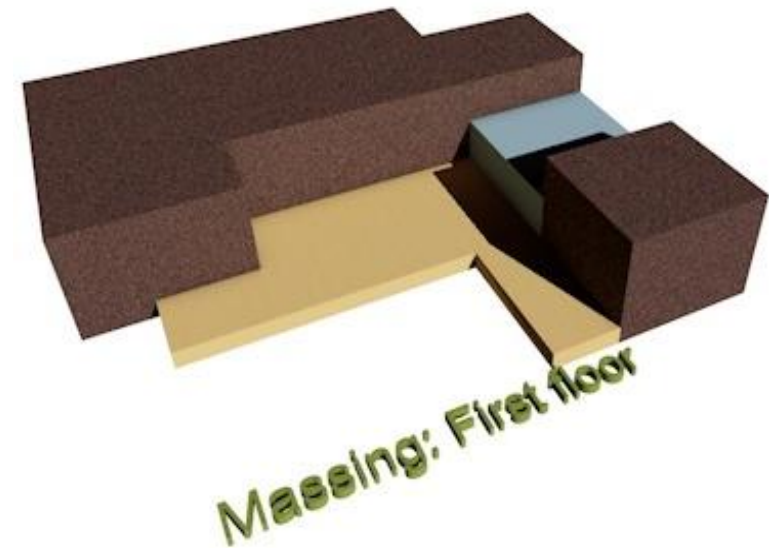
**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**



**Figure 59:** Combined massing scenario of the scheme.

*Source: Graceplan CONSULTANTS*

5. **Spatial Relationships and Circulation:** This candidate made attempts to define the spatial relationships and circulation patterns within the building ensuring that the layout promotes efficient flow between spaces while maintaining privacy, flexibility, and connectivity between indoor and outdoor areas.
6. **Daylighting and Natural Ventilation:** This candidate Integrated daylighting and natural ventilation strategies

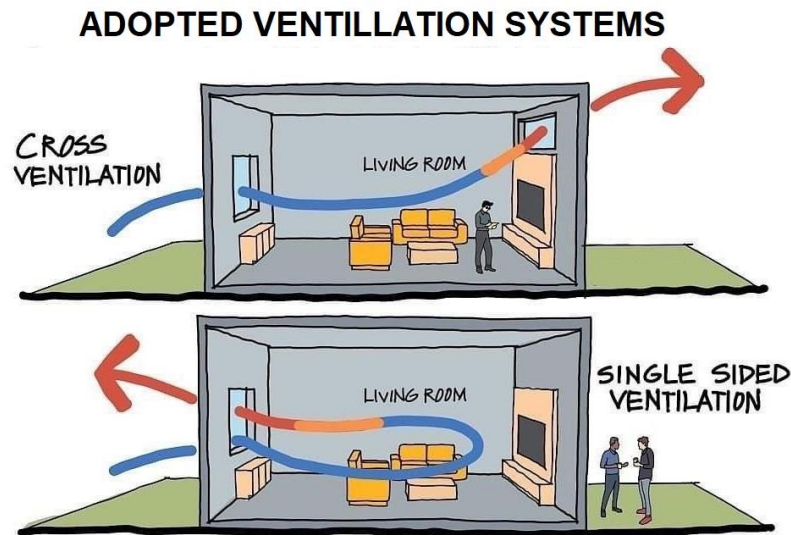


**Figure 60:** Massing scenario for the first-floor area.

*Source: Graceplan CONSULTANTS*

Into the design to enhance occupant comfort, energy efficiency, and indoor environmental quality. Consideration of orientation, window placement, shading devices, and passive design principles was made to optimize natural light and airflow throughout the bedrooms except for one bedroom that has single-sided ventilation. See Figure 43.

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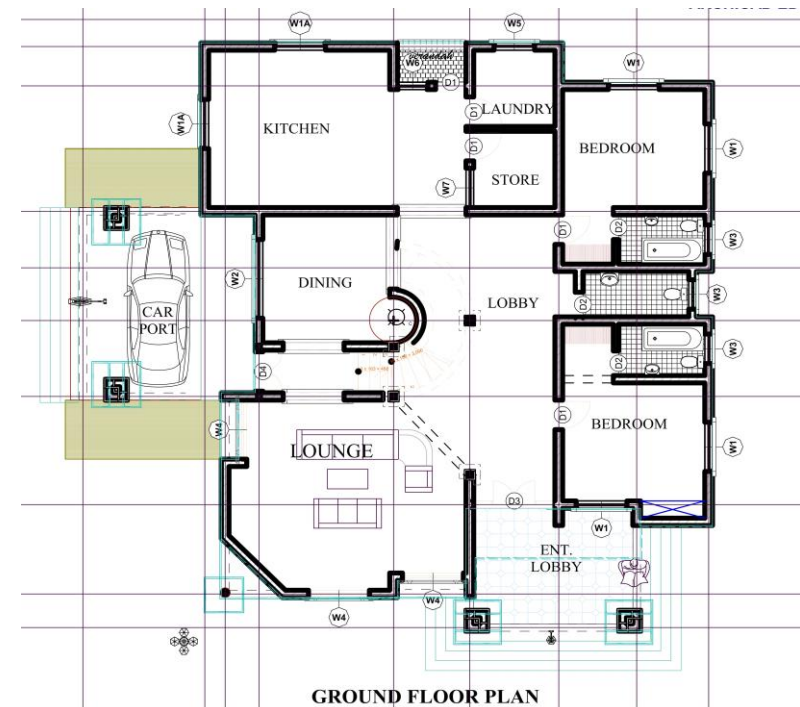


**Figure 61:** Ventilation systems adopted in Project 'B'.

Source: Graceplan CONSULTANTS

7. **Outdoor Spaces and Landscape Integration:** The sketch design was also complemented with balconies, to enhance communication with great outdoors and improve the overall living experience. Integration of landscape elements, vegetation, and hardscaping features helped create functional and visually appealing outdoor environments.
8. **Client Collaboration and Feedback:** All through the

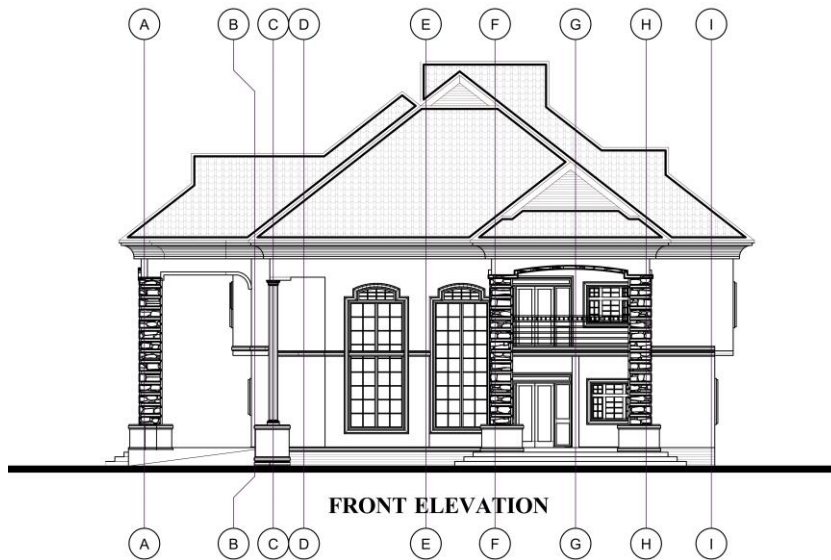
concept design, this candidate submitted to superior critiques of the principal architect who collaborated closely with the employer throughout the concept design process, soliciting feedback, addressing concerns, and refining the design to align with their vision and expectations.



**Figure 62:** Outline approved sketch of the ground floor plan.

Source: Graceplan CONSULTANTS

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**Figure 63:** Outline approved sketch of the front elevation.

*Source: Graceplan CONSULTANTS*

Such visualizations, sketches of the floor plans and elevations, and 3D models helped to communicate the design concepts effectively to the employer thus facilitating decision-making.



**Figure 64:** 3D model adopted to facilitate decision-making.

*Source: Graceplan CONSULTANTS*

The exhaustive session of the concept design was well consummated thus eliciting outline approval of the sketch on 16<sup>th</sup> August 2019.

#### **f. CONSULTANT SELECTION AND COORDINATION**

Due to the need to fast-track delivery of the project on time, the employer gave the principal architect the approval to appoint consultants. To this, the principal architect fronted consultants who are in-house professionals with Graceplan

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CONSULTANTS. To this end, there were no laborious pre-qualification exercises including:

- a. Dissemination of open calls,
- b. determination of potential pool of consultants,
- c. distribution of clients' brief, budget, project timeline, specific design development, and scope of services expected to potential pool of consultants,
- d. Request for references,
- e. Request for hourly rates/fees to be applied to different tasks.
- f. Appraisal of entries, and
- g. Selection of consultant.

However, the employer appointed the clerk of works.

**g. DESIGN DEVELOPMENT**

The design development commenced after the concept design and sketches were fully approved and accepted by the employer. The entire design team consisting of the consultants

which includes the principal architect and this candidate, alongside other consultants (Electrical, mechanical, structural Engineer) visited the site. At this stage, the employer made known to us the clerk of works who will serve as his representative for site inspection. I was entirely directed by the principal architect in all assignments and under his supervision had the responsibility to carry out the following tasks:

- a. preliminary site analysis,
- b. final ratification of conceptual design/design sketches that have been approved,
- c. commencement and completion of detailed working drawings,
- d. partaking in the tendering process, and
- e. full mobilization to site and supervision.

**Schedule of accommodation**

This section shows the Schedule of Accommodation for major spaces contained in the brief and reflected in the signed-off concept design and sketches:

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**Table 6:** Schedule of Accommodation for the proposed residential building for Engr. Kalu & Nwanne Amogu, Asaga-Ohafia, Abia State.

S/N	SPACE	FUNCTIONS	MINIMUM AREA REQUIRED (m <sup>2</sup> )		NO. REQUIRED	AREA PROVIDED
			Ground floor plan	First-floor plan		
1	Entrance lobby	Access point to the building or portion of the building used by residents for ingress and egress.	16.831 m <sup>2</sup>	0	1	16.831 m <sup>2</sup>
2	Lounge	High-activity area designed for comfort and relaxation within and typically designed for socializing,	36.850 m <sup>2</sup>	0	1	36.850 m <sup>2</sup>
3	Kitchen	Area for preparation of edible consumables.	36.480 m <sup>2</sup>	0	1	36.480 m <sup>2</sup>
4	Dining	Proximal space to the kitchen where food is served to staffers and users of the facility.	15.518 m <sup>2</sup>	0	1	15.518 m <sup>2</sup>
5	Bedrooms	Exclusively for privacy and personal use.	40.964 m <sup>2</sup>	94.356 m <sup>2</sup>	4	135.32 m <sup>2</sup>

6	Carport	The space that primarily serves for the containment of automobiles	27.120 m <sup>2</sup>	0	1	27.120 m <sup>2</sup>
7	General lobby	For circulation between spaces	40.009 m <sup>2</sup>	44.887 m <sup>2</sup>	2	84.896 m <sup>2</sup>
8	Store	For storage purposes	5.760 m <sup>2</sup>	0	1	84.896 m <sup>2</sup>
9	Laundry	For laundry purposes	5.580 m <sup>2</sup>	0	1	84.896 m <sup>2</sup>

*Source: Graceplan CONSULTANTS*

The design development continued with the preliminary sketches done by this candidate under the close supervision and critique of the principal architect. The provision of spaces was completely tailored to the brief agreed upon and signed off by the employer. This was done through e-mail.

#### **Final design/working drawing**

The principal architect and this candidate, alongside the design team, had a round table meeting where the concept designs and preliminary sketches were presented to the employer and other consultants via Zoom. The sketches were discussed; corrections and inputs made by the employer together with observations contributed by other professionals. Several



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sessions of the online presentations were made and after each session, this candidate would effect corrections accordingly.

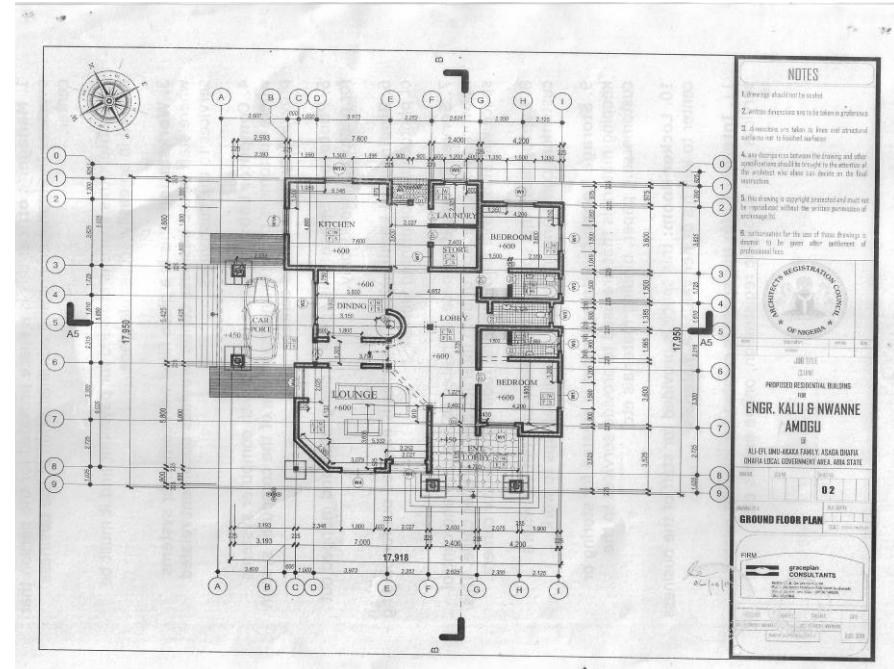
The employer later signed off on the approved final design sketch after the last presentation that aligned with the projected budget of the employer. The signoff happened on 16<sup>th</sup> August 2019. This marked the commencement of the construction drawings.

This candidate, alongside other consultants including the structural engineer, mechanical engineer, electrical engineer, and quantity surveyor was tasked by the Principal Architect to produce architectural, structural, mechanical, and electrical working drawings, specifications, and bills of quantities respectively.

This candidate did the drafting of the complete architectural working drawings.

### Plans

The ground floor plan is an array of spaces majorly catering to the reception of visitors, chores, and public engagements. The expansive lobby flows into the lounge and dining, creating an open and overflowing space, typical of Canadian homesteads. Once one steps into the lobby, the person is more or less within earshot of the lounge. See Figure 48.

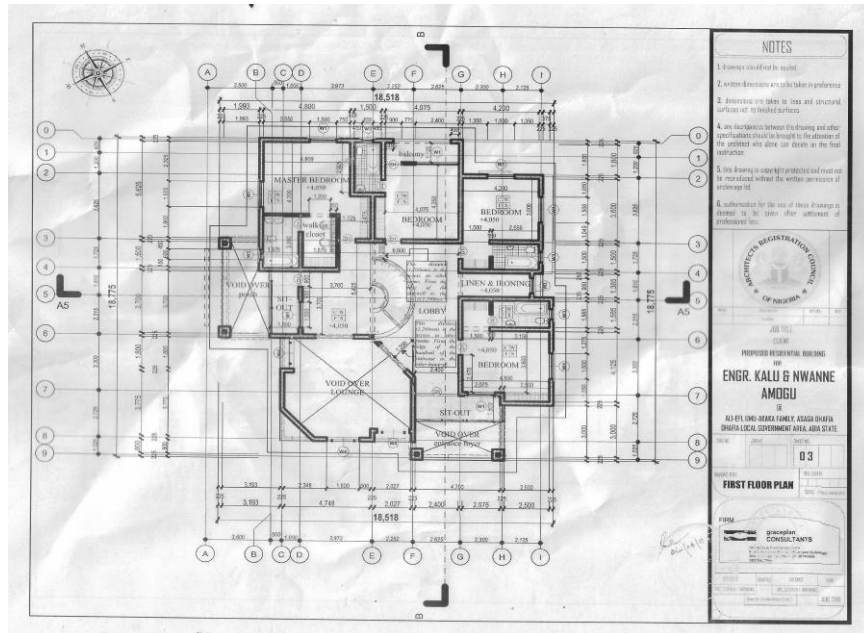


**Figure 65:** Project 'B': Ground floor plan of the Proposed Residential Building.

*Source: Graceplan CONSULTANTS*

The first-floor plan houses spaces majorly for privacy. All 4 bedrooms, including the master bedroom, are located on this level. Also, at this level, one will see several voids indicating

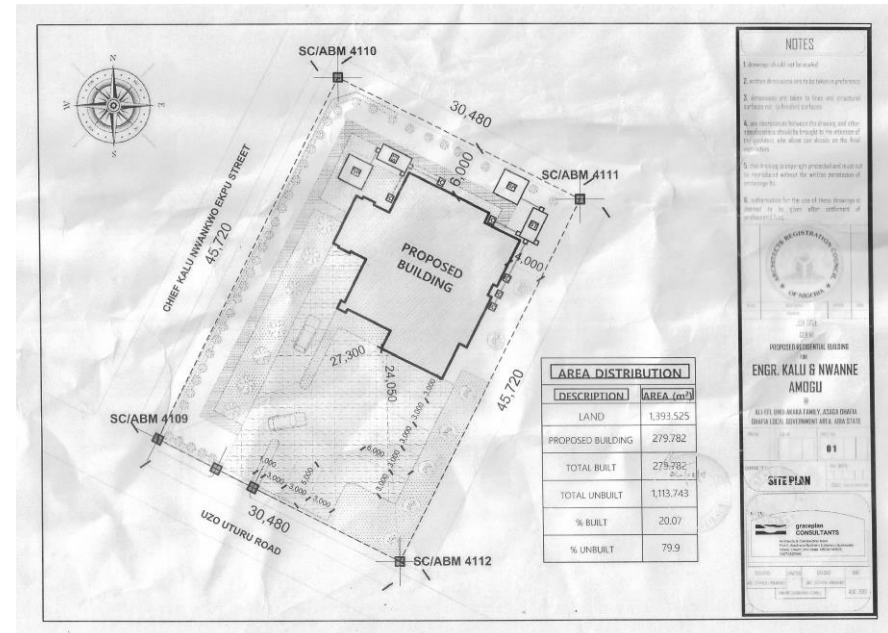
# **PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**



**Figure 67:** Project 'B': First floor plan of the Proposed Residential Building.

Source: Graceplan CONSULTANTS

that the employer loves uncluttered spaces.



**Figure 66:** Project 'B': Site plan of the Proposed Residential Building.

Source: Graceplan CONSULTANTS

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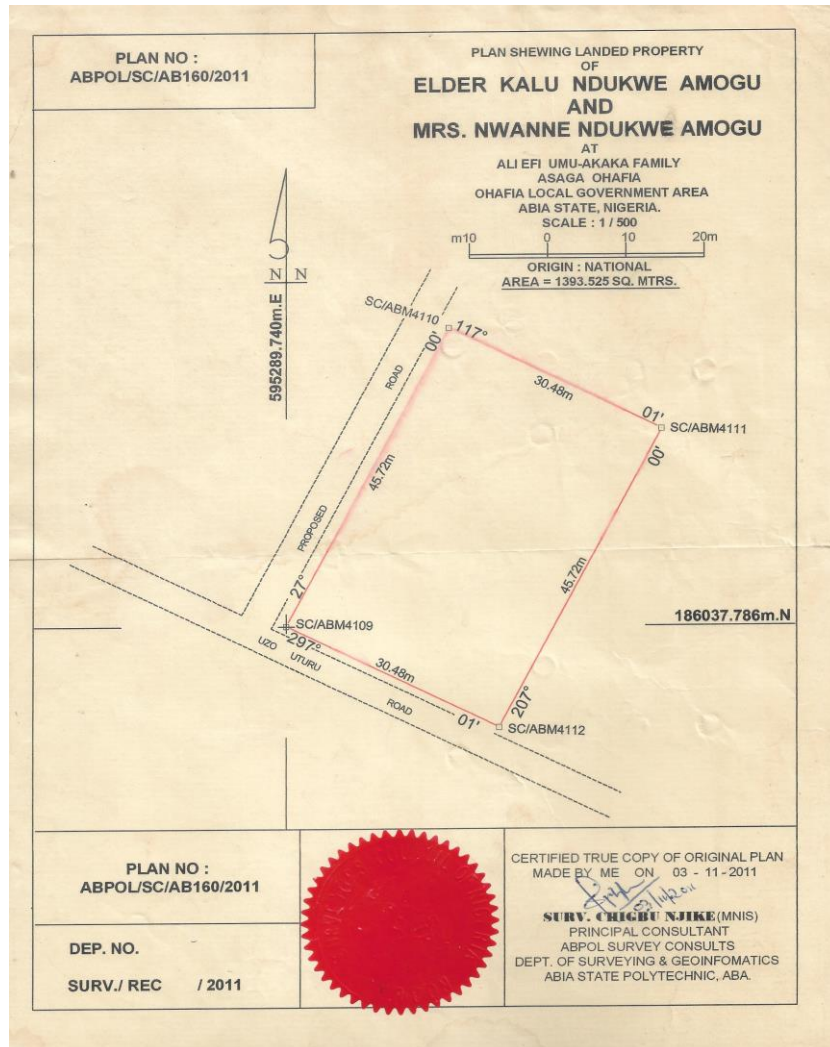


Figure 68: Survey plan of Project 'B'.

Source: Graceplan CONSULTANTS

### Orientation

Since the bedrooms constitute the largest volume of space, it is appropriate to orientate the building in such a way as to allow as much of the southwest and northeast trade winds through them. This way, occupants will have as much thermal comfort as possible. Moreover, such spaces are where the users spend most of their time. The orientation also makes sure that heat pools from the hardscapes are not channelled into the interiors during the warm seasons.

### Solar controls

Natural and artificial mechanisms were employed which include wide roof eaves, heat-absorbing (tinted) glazed panels to windows, and shades from surrounding horticulture.

### Structure and form

The structural framework of the building is a two-storey building of reinforced concrete frame, with sandcrete hollow block, aluminum, glass, and wood. The roofing comprises long-span aluminum roofing sheets fixed on wooden trusses.

### Integral décor and finishes

There was careful use of mortar renderings to adorn the façades of the building in an aesthetically pleasing manner.

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Walls, depending on the location, would be finished with bright paint colors that can enhance the environment.

**Services**

For proper upkeep of the building, the following were given due consideration in the design;

- a. **Water supply:** Water is supplied directly from the private water reticulation system. This is supplied into a tank from where distribution to the various toilet sections of the building is done by gravity. The distribution channels are 25mm diameter UPVC pipes.
- b. **Sewage Disposal:** Localized piping was done from various inspection chambers to septic tanks and finally to soak-away pits.
- c. **Air-conditioning:** The function of the air-conditioning system is to provide comfort for the occupants by providing the requisite amount of fresh air at the proper temperature and humidity. From the climatic factor analyzed, Natural ventilation is adequate to keep the user comfortable in other spaces during the hot season.

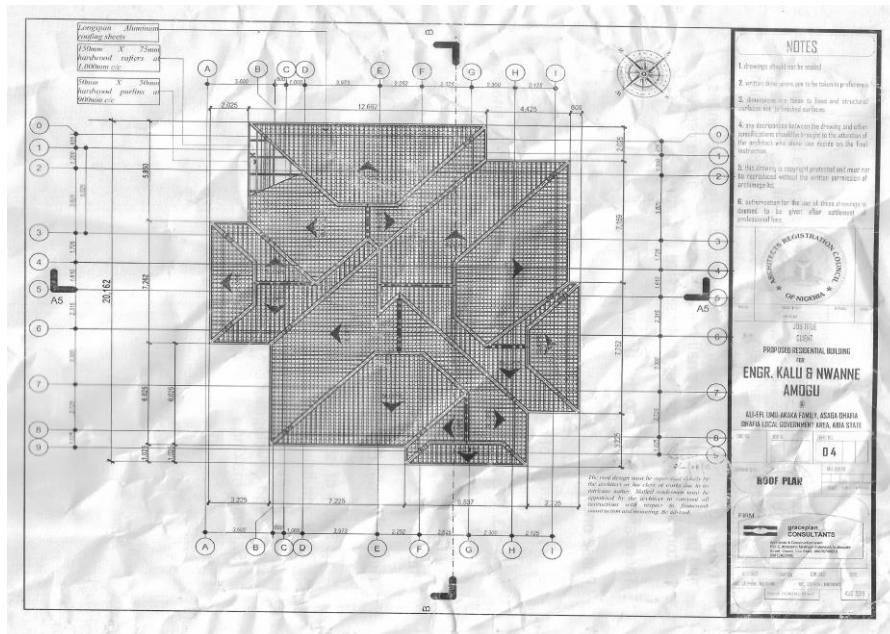
- d. **Electricity supply:** Just as the other buildings within the Ebem-Ohafia axis, electricity would be supplied to the university staff quarters directly from Enugu Electricity Distribution Company (EEDC). Apart from this, provision for an auxiliary power supply is made from a stand-by generator located for easy accessibility.

**The roof plan**

The roof is a pitched roofing system whose maximum height equals 6.45m with a 38° slope. The roof has 0.45-gauge long-span aluminum roofing sheets as covering.



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**Figure 69:** Project 'B': Roof plan of the Proposed Residential Building.

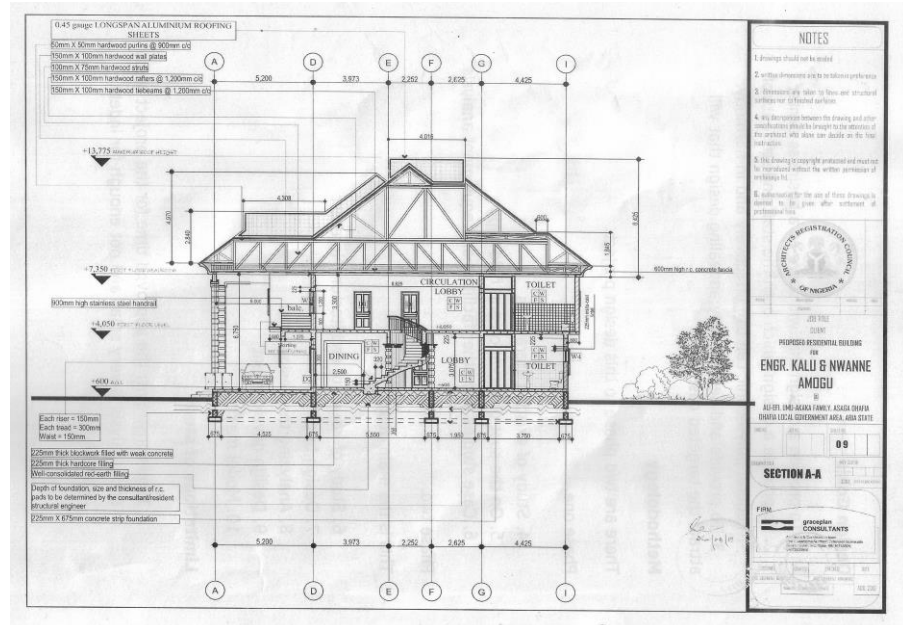
Source: Graceplan CONSULTANTS

See Figure 51.

## Sections

Cross-sectional drawings were produced to show the various details of the drawings such as:

a. Foundation details: Foundation walls/type, hardcore, floor slab,



**Figure 70:** Project 'B': Section A-A of the Proposed Residential Building.

Source: Graceplan CONSULTANTS

b. Walls thicknesses (CPI-agreed)

c. Heights of the roof,

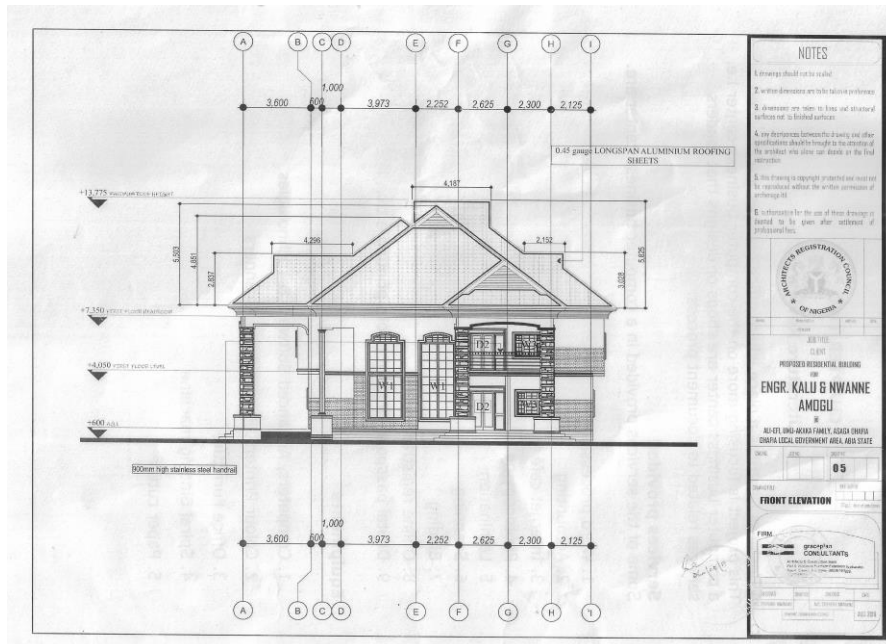
d. Roof trusses, cover, and their slopes,

e. Ceiling type.

f. Lintels (insitu -cast)



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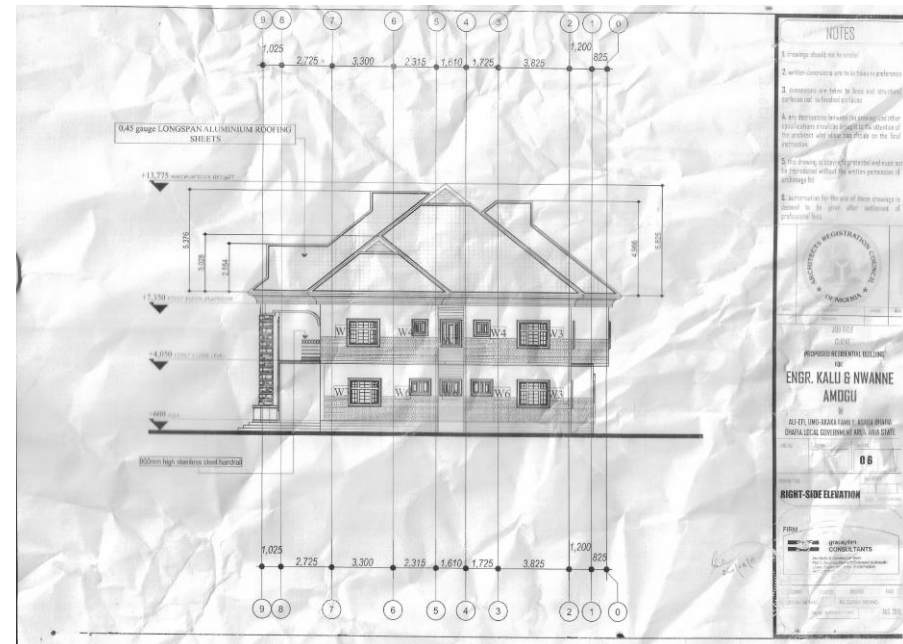


**Figure 72:** Project 'B': Front elevation of the Proposed Residential Building.

Source: Graceplan CONSULTANTS

- g. Building components levels and general heights,
  - h. Dimension: Internal and external; roof member dimensions
- Elevations**

The elevations are clearly expressed in simple geometric forms of squares, rectangles, and triangles (the roof section). They



**Figure 71:** Project 'B': Right-side elevation of the Proposed Residential Building.

Source: Graceplan CONSULTANTS

are characterized by masonry units with recesses and grooves that adorn the wall edges. The external walls are to be finished with high-quality emulsion paint on smooth-rendered walls. The drawings of the elevations provide other information such as:

- d. Building components levels and general heights,
- e. Finishing on walls,

# PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE

f. External dimensions.

See Figures 53 and 54.

## h. SPECIFICATIONS

A schedule of prescriptive specifications, detailing the quality, size, and standard of various components/parts and

materials, joinery, and ironmongery was prepared and given to the Quantity Surveyor to work with before presentation to the employer. The principal made sure the employer signed off on them thus forming part of the tender documents.

## i. BUDGET ESTIMATES

The preliminary budget estimate was developed by the Quantity Surveyor. The employer sent by email a list of finishes the couple would like to be used in the lounge, kitchen, and bedrooms. The budget was reviewed severally due to the constant changes the employer made on such finishes.

The quantity surveyor went ahead to do a final more detailed budget estimate using the working drawings and reviewed the finishes schedule.

₦110,650,000.00 was the estimated budget as agreed with the employer barring any variations.

## j. CONSTRUCTION DOCUMENTATION

Construction documentation zipped and emailed to the employer on the 30th of August, 2019 included:

- a. **Architectural Drawings:** These are detailed drawings that depict the layout, dimensions, and specifications of various building components such as floor plans,

ROOM	FINISHES	DESCRIPTION	NOTES
EXTERNAL	WALLS	Plaster and finish with white emulsion paint.	1. All works shall be in accordance with the specifications of the relevant standards.
LOUNGE	FLOOR	Polished concrete floor with white emulsion paint.	2. All works shall be in accordance with the specifications of the relevant standards.
	WALLS	Plaster and finish with white emulsion paint.	3. All works shall be in accordance with the specifications of the relevant standards.
BEDROOMS	FLOOR	Polished concrete floor with white emulsion paint.	4. All works shall be in accordance with the specifications of the relevant standards.
	WALLS	Plaster and finish with white emulsion paint.	5. All works shall be in accordance with the specifications of the relevant standards.
KITCHEN	FLOOR	Polished concrete floor with white emulsion paint.	6. All works shall be in accordance with the specifications of the relevant standards.
	WALLS	Plaster and finish with white emulsion paint.	7. All works shall be in accordance with the specifications of the relevant standards.
BATHROOMS	FLOOR	Polished concrete floor with white emulsion paint.	8. All works shall be in accordance with the specifications of the relevant standards.
	WALLS	Plaster and finish with white emulsion paint.	9. All works shall be in accordance with the specifications of the relevant standards.

**NOTES**

- All works shall be in accordance with the specifications of the relevant standards.
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**ABIA STATE REGISTERED ARCHITECTS & ENGINEERS**

**PROPOSED RESIDENTIAL BUILDING**  
**ENGR. KALU & NWANNE AMOGU**  
 ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE

Scale: 1:30  
 Date: 13/08/2019

**Figure 73:** Project 'B': Finishes specifications as part of the prescriptive specifications of the Proposed Residential Building.

Source: Graceplan CONSULTANTS

elements of the building ranging from concrete work, metal work, roofing, doors and windows, fittings and fixtures, finishing

**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE  
AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA  
LOCAL GOVERNMENT AREA, ABIA STATE**

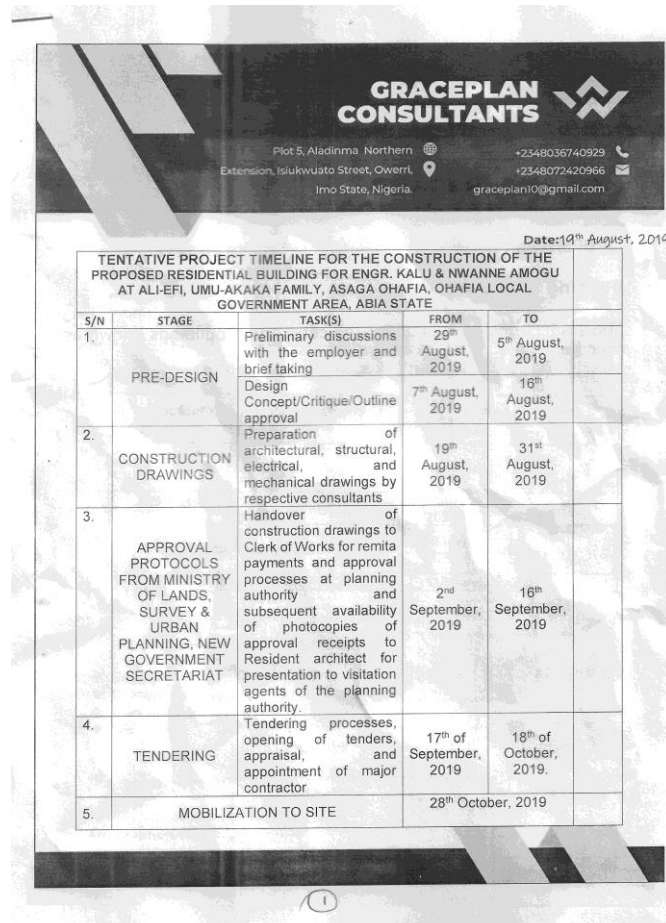
elevations, sections, and details. These drawings were done by this candidate.

- b. Structural Drawings:** Prepared by the consultant structural engineer, these drawings provide information about the building's structural framework, including the foundation, columns, beams, slabs, slab reinforcement details, etc.
- c. Mechanical and Electrical (M&E) Drawings:** M&E drawings outlined details of equipment, ductwork, piping, wiring, fixtures, and other components necessary for the building's functioning.
- d. Specifications:** This has been exhaustively treated in (h) above.
- e. Contracts and Legal Documents:** These outline the rights, responsibilities, and obligations of each party, as well as the terms and conditions governing the project's execution.
- f. Permitting and Regulatory Documentation:**  
The process for obtaining a planning permit in Abia State would generally involve the submission of the following

requirements to the Ministry of Lands, Survey, and Urban Planning, New Government Secretariat, Ogurube Layout, Umuahia:

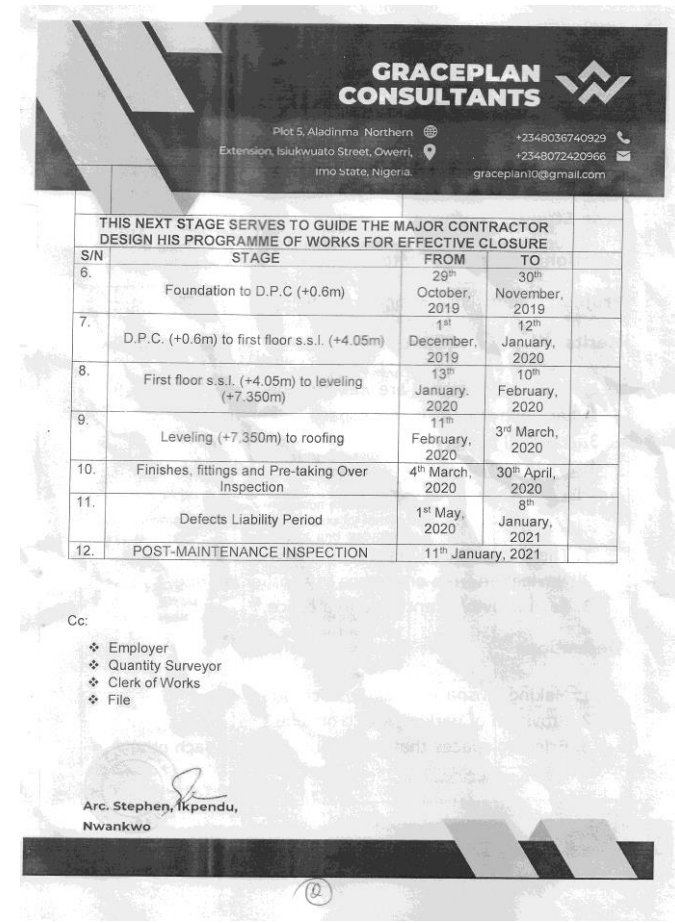
- a) Customary Rights of Occupancy from Ohafia L.G.A.
- b) Title Deed
- c) Registered Survey Plan and Layout Plan showing the plot
- d) 4 sets of complete working drawings: Architectural, Structural, Electrical, and Mechanical drawings with concomitant calculation sheets.
- e) Soil Test Report
- f) Site Analysis Report and
- g) Receipted payments of all sundry charges for development purposes.

**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**



**Figure 74:** Tentative Project Timeline for the Construction of the Proposed Residential Building Project for Engr. Kalu & Nwanne Amogu at Ali-Efi, Umu-Akaka Family, Asaga Ohafia, Ohafia L.G.A., Abia State; page 1.

Source: Graceplan CONSULTANTS



**Figure 75:** Tentative Project Timeline for the Construction of the Proposed Residential Building Project for Engr. Kalu & Nwanne Amogu at Ali-Efi, Umu-Akaka Family, Asaga Ohafia, Ohafia L.G.A., Abia State; page 2.

Source: Graceplan CONSULTANTS



**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE  
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**g. Submission of Application:** The employer directed the drawings to be handed over to the Clerk of Works, who incidentally was his nephew for submission to the planning authority in Umuahia. This was after he had communicated to the principal architect his approval. The principal architect advised that the directive be communicated in writing to effect the handover. The employer complied. The drawings were later handed over to the Clerk of Works on the 31<sup>st</sup> of August, 2019.

#### **k. TENDER PROCESS**

##### **The Project Timeline**

The tender discussions commenced on the 17<sup>th</sup> of September, 2019. The employer was directly involved with the appointment of the major contractor. Basically a negotiated tender, the employer submitted that he has had a long-term business relationship with the contractor he had in mind thus the selection. The principal architect and his team did not play much role in the tender process. To this end, the employer upheld the involvement of **RB Construction Company** as the major contractor. The principal architect recognized the contractor on the 20<sup>th</sup> of September, 2019 when he made available a tentative project timeline for the contractor which

the employer had earlier endorsed. Mobilization to the site took place after the first site meeting – a familiarization meeting between the principal architect and his team, the contractor, the domestic sub-contractors, the foreman, and the clerk of works.

#### **n. CONCLUSION, LESSONS LEARNT**

This candidate must submit the following nuggets as lessons learned:

##### **Virtual Clientele:**

The project exposed this candidate to rudiments involved in handling virtual employers. Due to no fault of theirs, there are situations where communication is hampered or entirely lost due to glitches and network issues. The solution lies in tagging every communication thread with a date and time to bridge communication gaps.

##### **Fluid instructions:**

This candidate learned that it is vital to appreciate and understand right from the onset, the psychology of employers especially those who could have a penchant for continuously changing their requests at the construction documentation stage. To this end, the principal architect added a caveat that

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could attract some variation if counter instructions are issued after construction drawings are completed.

**Determination by contractor:**

As the contractor was selected based on negotiations between him and the employer, the principal architect was apt to

**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**



**Figure 77:** Excavation stage: The foundation was stepped to compensate for the sloped site.

*Source: Graceplan Consultants - Site works of Project 'B' at Asaga Ohafia.*



**Figure 76:** Adhering to the consultant structural engineer's instructions: Boarding for the r.c. 225mm X 225mm underground beams. The resident architect checks for proper alignment of rebars.

*Source: Graceplan Consultants - Site works of Project 'B' at Asaga Ohafia.*



**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**

recognize the contractor as '*selected via a negotiated tender*' during the first site meeting which was recorded. The financial involvement in taking up the contract and type of contract was entirely between him and the employer.



**Figure 79:** Blockwork in progress at Project 'B' site as at December, 2019.

*Source: Graceplan Consultants - Site works of Project 'B' at Asaga Ohafia.*

This raised serious bottlenecks when the employer was



**Figure 78:** Almost at the +4.050m levels with the formwork of the r.c. beams in place as at January, 2020.

*Source: Graceplan Consultants - Site works of Project 'B' at Asaga Ohafia.*



**PROJECT 'B': PROPOSED RESIDENTIAL BUILDING FOR ENGR. KALU & NWANNE AMOGU AT ALI-EFI, UMU-AKAKA FAMILY, ASAGA OHAFIA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE**

confirmed deceased during the COVID-19 pandemic as he found it difficult to claim his entitlements after declaring his intentions of determining the contract.



**Figure 81:** Boarding in preparation of the r.c. first floor deck. As at January 2020. At this time, the COVID-19 pandemic has started affecting vehicular movement.

*Source: Graceplan Consultants - Site works of Project 'B' at Asaga Ohafia.*

**Figure 80:** Almost at +7.35m ssl levels. As at February 2020. At this time, the COVID-19 lockdown was about to take full effect. This principal architect communicated this candidate to take record of stage of works and prepare to temporarily close site.


*Source: Graceplan Consultants - Site works of Project 'B' at Asaga Ohafia.*



# PROJECT 'C'

**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**

**a. COVER: PROJECT 'C'**

<b>PROJECT 'C':</b>
<b>PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE</b>
<b>CANDIDATE'S NAME</b>
ONWUKWE, CHUKWUEMEKA OZIOMA STANISLAUS
<b>CANDIDATE NUMBER</b>
PPCE/APR24/295
<b>PROGRAM NAME</b>
PROFESSIONAL PRACTICE COMPETENCE EXAMINATION (PPCE)
<b>PROGRAM VERSION</b>
PPCE APRIL 2024
<b>SUBMISSION DATE</b>
APRIL, 2024
<b>SUPERVISOR'S NAME</b>
ARC. STEVE I. NWANKWO (Ph.D.)
<b>SUPERVISOR'S SIGNATURE</b>
 Arc. Dr. Steve I. Nwankwo SUPERVISOR'S NAME



**PROJECT TITLE**

**PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE**



**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**

**Project Design Data Sheet:**

**Table 7:** Project Design Data Sheet for The Proposed Maisonette for Mr. Egwuchukwu Avatus @ Uhu-Ohii, Aboha Ohii, Owerri-West L.G.A., Imo State.

<b>PROJECT: PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE</b>				
<b>S/n</b>	<b>Name</b>	<b>Designation</b>	<b>Firm</b>	<b>Address</b>
<b>1.</b>	Mr. Egwuchukwu Avatus	Employer	Private Developers	Douala, Cameroon
<b>2.</b>	Arc. Steve I. Nwankwo	Principal Architect	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
<b>3.</b>	<b>Onwukwe, Chukwuemeka Ozioma Stanislaus</b>	<b>Resident Architect (candidate)</b>	<b>Graceplan CONSULTANTS</b>	<b>No. 5 Aladinma Northern Extension, Isiukwuato street, Owerri, Imo State.</b>
<b>4.</b>	QS. Onwuakpoke Romanus	Project Quantity Surveyor/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
<b>5.</b>	Engr. Florence Ejikere	Project Structural Engineer/Consultant	Flo Services	No 22 Isdore Close, Odoakpu, Onitsha, Anambra State.
<b>6.</b>	Engr. Uche Okoro	Project Mechanical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
<b>7.</b>	Engr. John Dike	Project Electrical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.



**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**

**Project Construction Data Sheet:**

**Table 8:** Project Construction Data Sheet for The Proposed Maisonette for Mr. Egwuchukwu Avatus @ Uhu-Ohii, Aboha Ohii, Owerri-West L.G.A., Imo State.

<b>PROJECT:</b>	<b>PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE</b>			
<b>S/n</b>	<b>Name</b>	<b>Designation</b>	<b>Firm</b>	<b>Address</b>
<b>1.</b>	Mr. Egwuchukwu Avatus	Employer	Private Developers	Douala, Cameroon
<b>2.</b>	Arc. Steve I. Nwankwo	Principal Architect/Major Contractor	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
<b>3.</b>	<b>Onwukwe, Chukwuemeka Ozioma Stanislaus</b>	<b>Resident Architect</b>	<b>Graceplan CONSULTANTS</b>	<b>No. 5 Aladinma Northern Extension, Isiukwuato street, Owerri, Imo State.</b>
<b>4.</b>	Esther Kenneth	Clerk of Works	AJK Stability	The Federal Polytechnic Nekede Owerri, Imo State.
<b>5.</b>	QS. Onwuakpoke Romanus	Project Quantity Surveyor/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
<b>6.</b>	Engr. Florence Ejikere	Project Structural Engineer/Consultant	Flo Services	No 22 Isdore Close, Odoakpu, Onitsha, Anambra State.
<b>7.</b>	Engr. Uche Okoro	Project Mechanical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
<b>8.</b>	Engr. John Dike	Project Electrical Engineer/Consultant	Graceplan CONSULTANTS	No. 5 Aladinma Northern Extension, Isiukwuato Street, Owerri, Imo State.
<b>9.</b>	Egwuchukwu Vitalis	Nominated sub-contractor – Electricals	Vitals Technologies	Irete, Owerri-West, Imo State.

**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**

<b>10.</b>	Obi Okeke	Nominated sub-contractor – Mechanicals	Obi Ventures	No. 223 New Market road, Owerri, Imo State.
<b>11.</b>	Anyanwu Chinedu A.	Nominated sub-contractor – Masonry and concreting	AJK Stability	Owerri, Imo State

## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.

### PROJECT 'C':

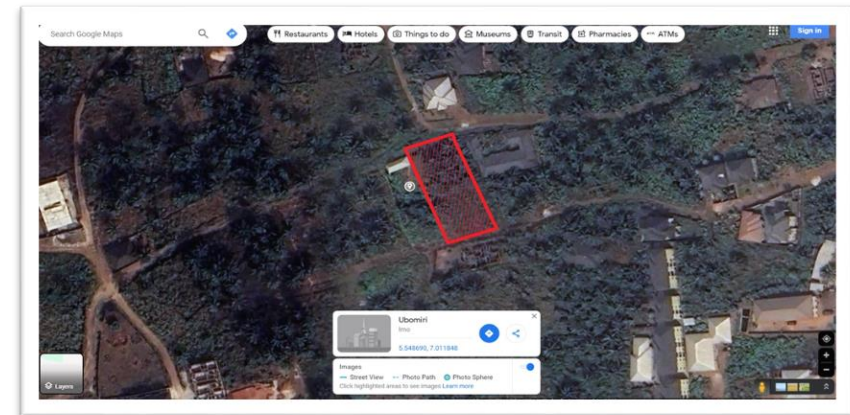
#### PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE

##### b. INTRODUCTION

The employer is an indigene of Awommamma in Oru East Local Government Area of Imo State but is resident in Doula, Cameroon. The site can be accessed from 2 axes – the Aboha Ohii axis and Ubomiri. See Figure 63. The figure, culled from Google Earth, is only showing the site. It may not be able to show the status of the building as the construction started on the 14<sup>th</sup> of February, 2024.

##### c. INCEPTION

The residential building project was conceived by the employer who called up the Principal Architect, intimating him on the project. The preliminary discussions commenced on the 13<sup>th</sup> of December, 2023. Along the line, negotiations progressed up to the point when the brief was received with a mandate to proffer a design for the inhabitation of tenants.



**Figure 82:** Screenshot of GPS location clearly showing the location of the project. As at the time of submission of this technical report, the project which was initiated in 2024, is yet to be captured by google earth.

Source:

<https://www.google.com/maps/@5.5485158,7.0118423,187m/data=!3m1!1e3?entry=ttu>

All through the brief-taking, communication between the principal architect and the employer was physical and in real-time. This was because the employer was available during the yuletide.

## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.

### d. BRIEF TAKING

The employer was direct. He wanted a tenancy arrangement for single persons that consisted of 6 units. Each unit should have:

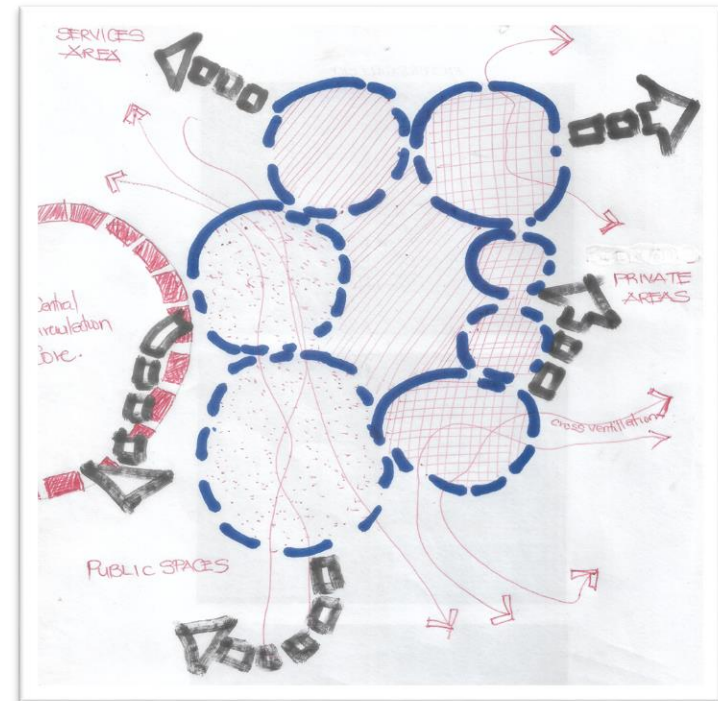
- a. 2 bedrooms ensuite
- b. Dining,
- c. Kitchen
- d. Visitor's toilet and
- e. Lounge

He was succinct on the fact that all 6 single tenants should have a parking space. The brief taking was finalized on the 26<sup>th</sup> of November, 2023. He tasked the principal architect to come up with sketches as quickly as possible enable sign them off before going back to his station in Cameroon.

### e. CONCEPT DESIGN

This task was entrusted to this candidate who undertook the task through the following procedures:

1. **Site Visitation:** This candidate conducted a thorough analysis of the site, considering factors such as location, topography, orientation, views, climate, zoning regulations, and neighboring properties.



**Figure 83:** Bubble diagram of a unit of habitation.

Source: Graceplan CONSULTANTS



**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**



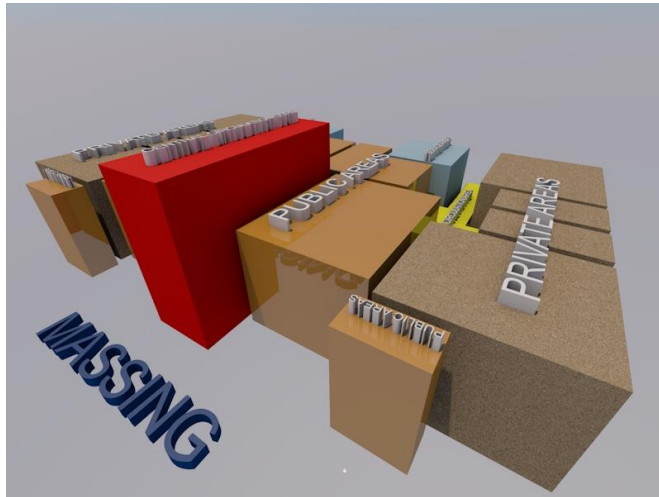
**Figure 84:** Survey plan of Project 'C' showing site constraints with respect to size.

*Source: Graceplan CONSULTANTS*

The site was quite tight. Invariably, the front would face the longer side of the site which is not bounded by an access road.

2. **Spatial Planning:** The functional requirements of the building type were minimal considering its commercial nuance. This informed the development of a spatial plan that efficiently organizes these spaces to meet the needs of the employer. See Figure 64.
3. **Architectural Style and Aesthetics:** The employer was not expecting any architectural style per se. He wanted a direct approach that would suit his budget yet float ROI for his investment. However, this candidate, guided by the principal put into consideration aesthetics and space as much as the site could offer.

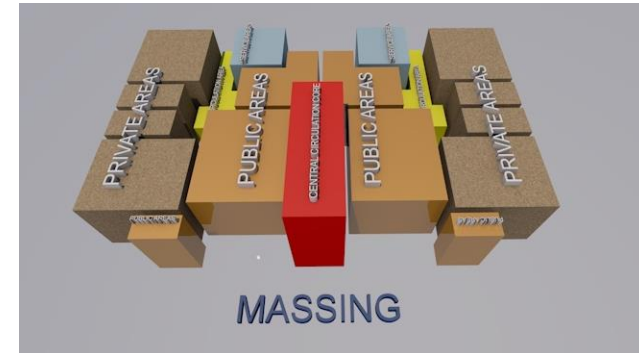
**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**



**Figure 85:** Massing scenario for Project 'C'

*Source: Graceplan CONSULTANTS*

4. **Massing and Form:** This candidate explored different massing and form options, considering factors such as scale, proportion, usage indices, etc Experiment with spatial volumes, fenestration patterns, and exterior materials combined with color codes to create a visually appealing and functional design. See Figures 65 and 66.
5. **Spatial Relationships and Circulation:** This candidate made attempts to define the spat



**Figure 86:** Massing scenario for Project 'C'.

*Source: Graceplan CONSULTANTS*

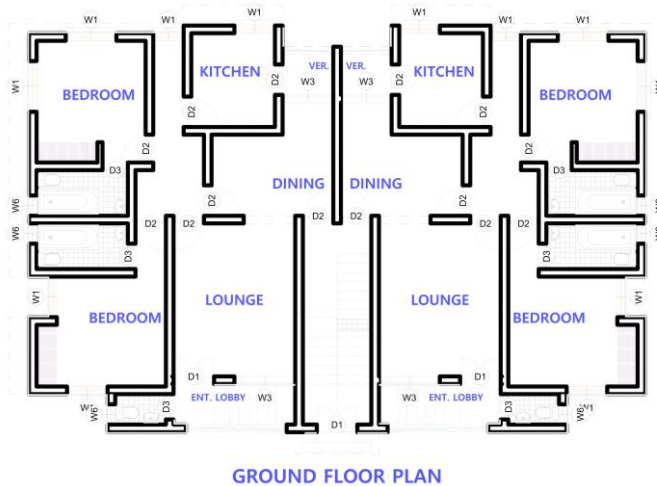
- ial relationships and circulation patterns within the building ensuring that the layout promotes efficient flow between spaces while maintaining privacy, flexibility, and connectivity between indoor and outdoor areas.
6. **Daylighting and Natural Ventilation:** This candidate Integrated daylighting and natural ventilation strategies into the design to enhance occupant comfort, energy efficiency, and indoor environmental quality. This is supported by the strategy of having cross-ventilation in all the bedrooms.
  7. **Client Collaboration and Feedback:** All through the

**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**

concept

design,

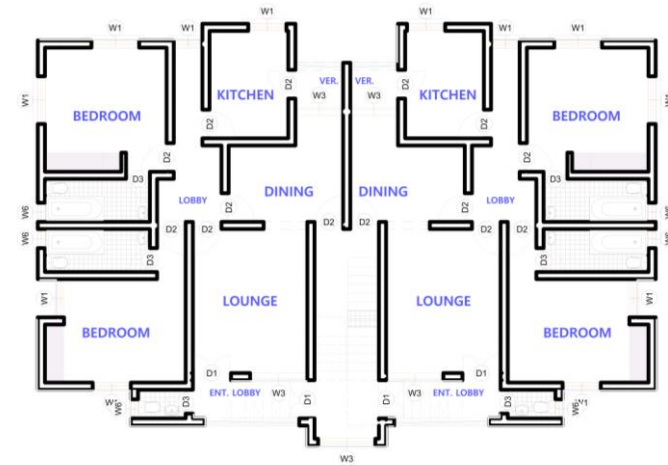
this



**Figure 87:** Outline approved sketch of the ground floor plan as at 15<sup>th</sup> December, 2023.

*Source: Graceplan CONSULTANTS*

candidate submitted to superior critiques of the principal architect who collaborated closely with the employer throughout the concept design process, soliciting feedback, addressing concerns, and refining the design to align with his budget.

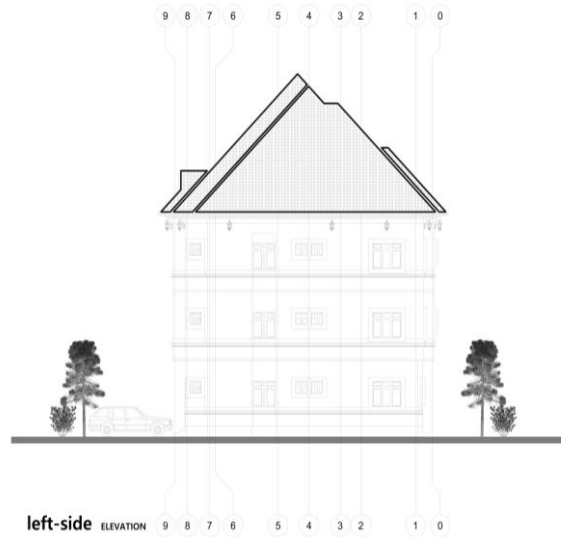


**Figure 88:** Outline approved sketch of the first and second floor plans at 15<sup>th</sup> December, 2023.

*Source: Graceplan CONSULTANTS*

Such visualizations, sketches of the floor plans and elevations, and 3D models helped to communicate the design concepts effectively to the employer thus

**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**



**Figure 89:** Outline-approved sketch of the side elevation.

*Source: Graceplan CONSULTANTS*



**Figure 90:** Outline-approved sketch of the front elevation.

*Source: Graceplan CONSULTANTS*

The exhaustive session of the concept design was well facilitating decision-making.



## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OVERRI-WEST L.G.A., IMO STATE.



**Figure 91:** 3D presentation of the proposed Project 'C'

*Source: Graceplan CONSULTANTS.*

consummated thus eliciting outline approval of the sketch on 16<sup>th</sup> August 2019.

### **f. CONSULTANT SELECTION AND COORDINATION**

- a. The employer, who is supposed to appoint the consultants, is not conversant with building matters. This informed his decision to allow the principal architect to front his team of consultants for the contract. To this end, this candidate was appointed to resident supervision

roles, while the principal was engaged in normal service. It must be noted that another consultant was appointed to replace Engr. Akpata A.I. who was on sick leave. The normal process of:

- h. Dissemination of open calls,
- i. determination of potential pool of consultants,
- j. distribution of clients' brief, budget, project timeline, specific design development, and scope of services expected to a potential pool of consultants,
- k. Request for references,
- l. Request for hourly rates/fees to be applied to different tasks.
- m. Appraisal of entries, and
- n. Selection of consultant

was adopted to appoint Engr. Florence Ejikere as the consultant structural engineer. All appointments of consultants,

## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.

including the clerk of works, put effective closure to the contract administration team.

### g. DESIGN DEVELOPMENT

The design development commenced after the concept design and sketches were approved and signed off by the employer. I was directed by the principal architect in all assignments and under his supervision, had the responsibility to carry out the following tasks:

- preliminary site analysis,
- final ratification of conceptual design/design sketches that have been approved,
- commencement and completion of detailed working drawings,
- partaking in the tendering process, and
- full mobilization to site and supervision.

### Final design/working drawing

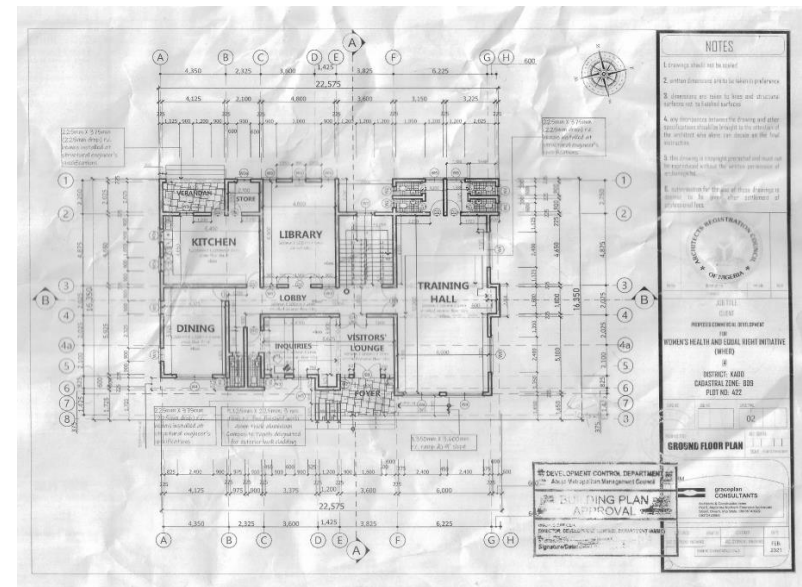
The design team, including this candidate, was tasked by the Principal Architect to produce architectural, structural,

mechanical, and electrical working drawings, specifications, and bills of quantities respectively.

This candidate did the drafting of the complete architectural working drawings.

### Plans

The ground floor plan houses two units separated by a central vertical circulation system. Each unit has two bedrooms that

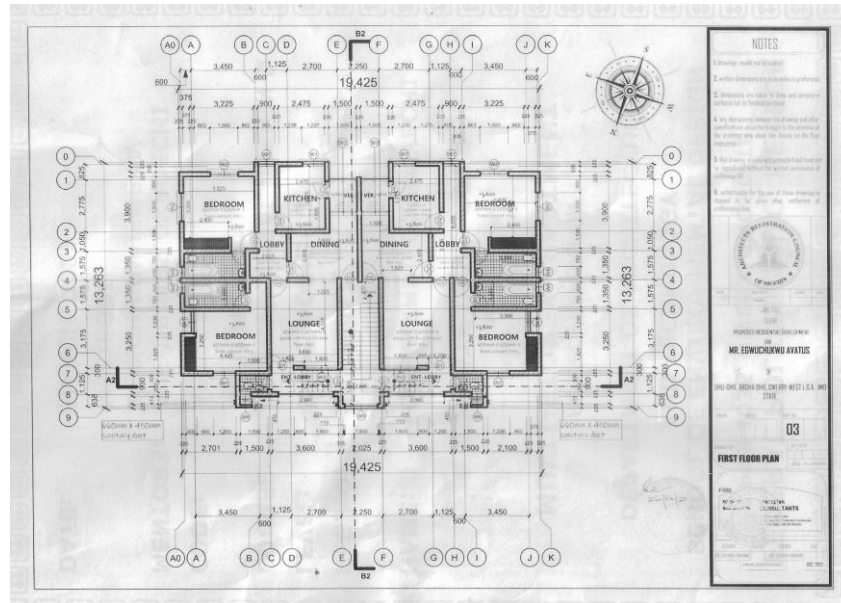


**Figure 92:** Project 'C': Approved ground floor plan of the proposed maisonette.

are *Source: Graceplan CONSULTANTS*

## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A, IMO STATE.

ensuite, a kitchen, dining, and a lounge. A visitor's toilet is also attached to each of the units. See Figure 73.



**Figure 93:** Project 'C': Approved first floor plan of the proposed maisonette.

*Source: Graceplan CONSULTANTS*

The first-floor and second-floor plans are exactly like the ground-floor plan. The only addition is the 600mm cantilevers that added some space to the bedrooms.

### Orientation

Since the bedrooms constitute the largest volume of space, it is appropriate to orientate the building in such a way as to allow as much of the southwest and northeast trade winds through them. This way, occupants will have as much thermal comfort as possible. However, it must be stated that the morphology of the site constituted some level of constraints in achieving cross-

## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.

ventilation in all the spaces.

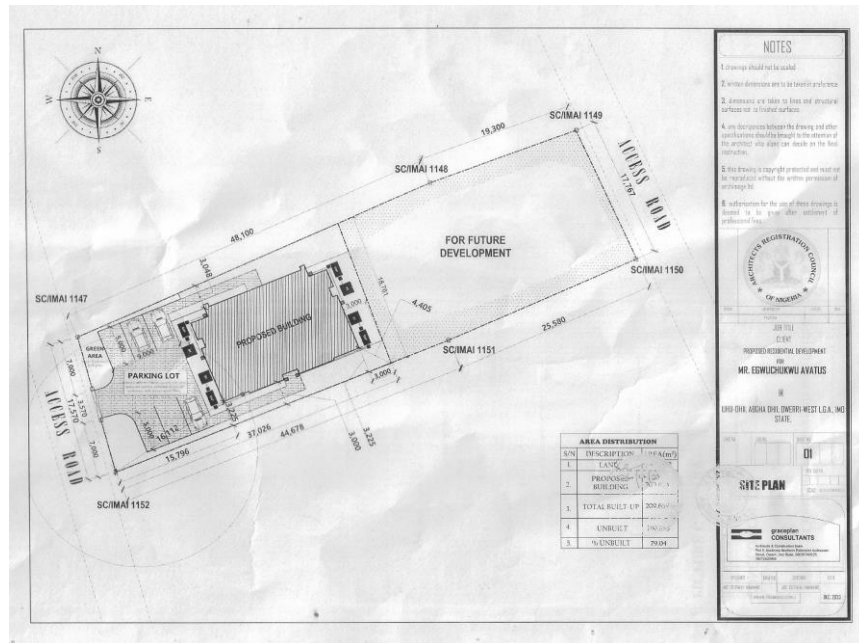


Figure 94: Project 'C': Site plan of the proposed maisonette.

Source: Graceplan CONSULTANTS

### Structure and form

The structural framework of the building is a two-storey building of reinforced concrete frame, with sandcrete hollow block, aluminum, glass, and wood. The roofing comprises long-span aluminum roofing sheets fixed on wooden trusses.

### Integral décor and finishes

19mm – 25mm thick mortar renderings will be used to finish the façades of the building in an aesthetically pleasing manner. Walls, depending on the location, would be finished with emulsion suspensions and tiles that can enhance the environment.

### Services

For proper upkeep of the building, the following were given due consideration in the design;

- Water supply:** Water will be supplied directly from the private water reticulation system.
- Sewage Disposal:** Localized piping was done from various inspection chambers to septic tanks and finally to soak-away pits.
- Air-conditioning:** Natural ventilation is adequate to keep the user comfortable in other spaces during the hot season.
- Electricity supply: Connection to Enugu Electricity Distribution Company (EEDC)** is billed to supply

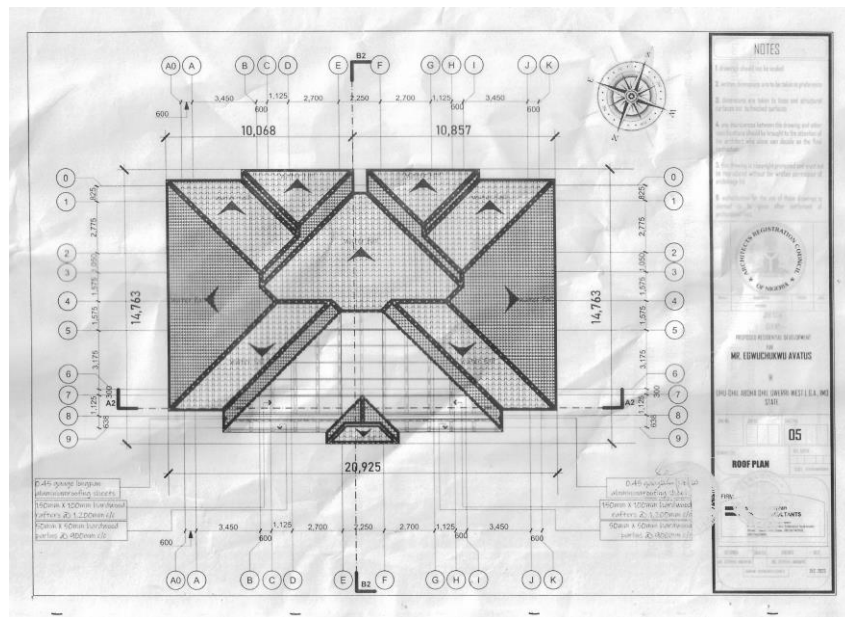


## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OVERRI-WEST L.G.A, IMO STATE.

power. Tenants are not expected to operate fossil generators.

### The roof plan

The roof is a pitched roofing system whose maximum height equals 6.45m with a 45° slope. The roof has 0.45-gauge long-span aluminum roofing sheets as covering.



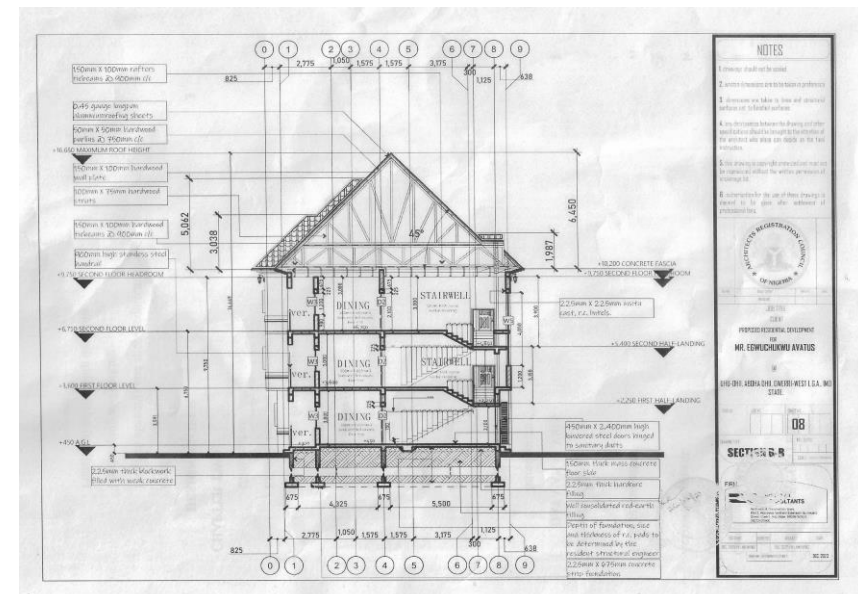
**Figure 95:** Project 'C': Roof plan of the proposed maisonette.

Source: Graceplan CONSULTANTS

See Figure 76.

### Sections

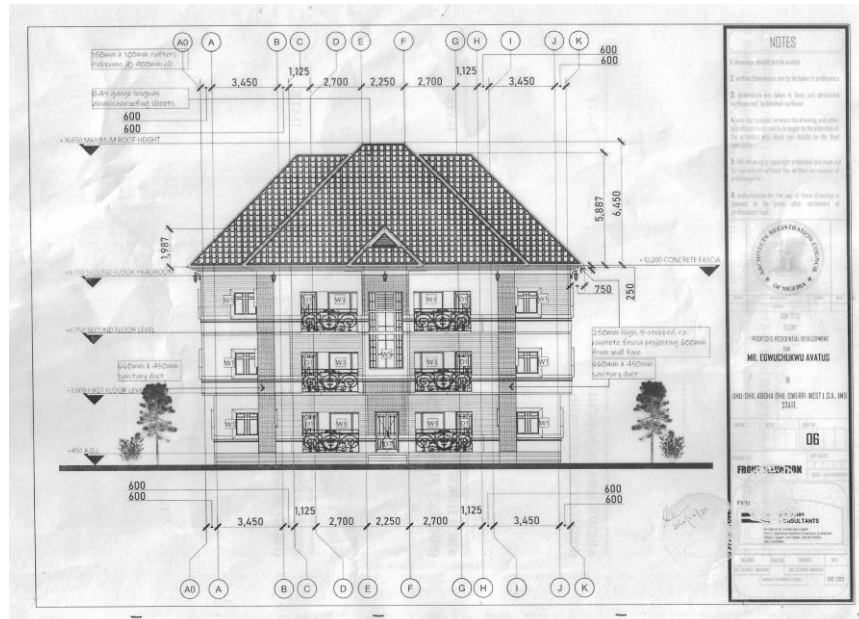
Cross-sectional drawings were produced to show the various details of the drawings, from the roof to the foundation. See Figure 77.



**Figure 96:** Project 'C': Section B-B of the proposed maisonette.

Source: Graceplan CONSULTANTS

# PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A, IMO STATE.

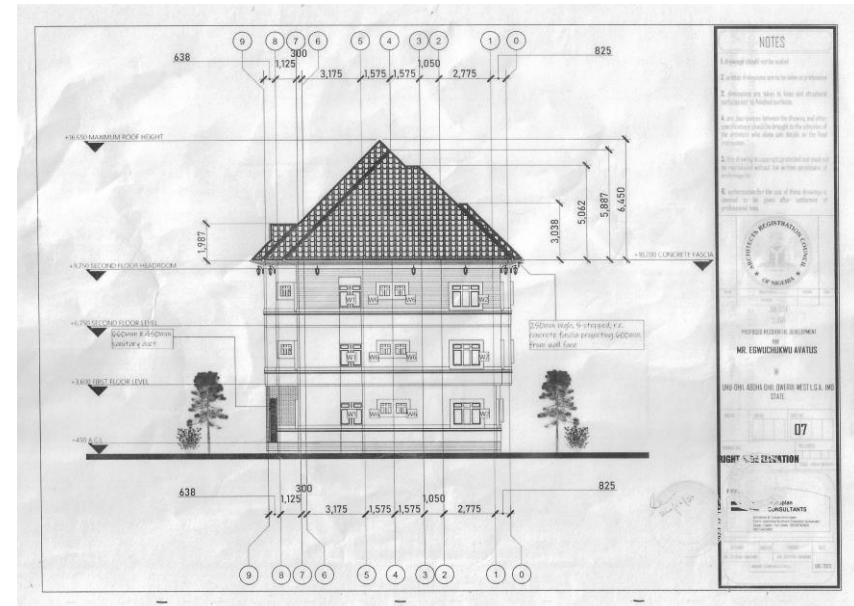


**Figure 97:** Project 'C': Front elevation of the proposed maisonette.

Source: Graceplan CONSULTANTS

## Elevations

The elevations were clearly expressed in simple geometric forms of squares, rectangles, and triangles (the roof section).



**Figure 98:** Project 'C': Right-side elevation of the proposed maisonette.

Source: Graceplan CONSULTANTS

They are characterized by masonry units with recesses and grooves that adorn the wall edges. See Figures 78 and 79. All design development processes were concluded on the 31<sup>st</sup> of December, 2023.

## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.

### h. SPECIFICATIONS

A schedule of prescriptive specifications, detailing the quality, size, and standard of various components/parts and elements of the building ranging from concrete work, metal work, roofing, doors and windows, fittings and fixtures, finishing materials, joinery, and ironmongery was prepared and given to the Quantity Surveyor to work with before presentation to the employer. The principal made sure the employer signed off on them thus forming part of the tender documents.

### i. BUDGET ESTIMATES

The preliminary budget estimate was developed by the Quantity Surveyor. The employer reviewed a list of finishes that should be used in the lounge, kitchen, and bedrooms. The budget was reviewed severally due to the changes the employer made to finishes at the staircase and handrails.

The quantity surveyor went ahead to do a final more detailed budget estimate using the working drawings and the finishes schedule.

### j. CONSTRUCTION DOCUMENTATION

Construction documentation included:

- h. Architectural Drawings:** These are detailed drawings that depict the layout, dimensions, and specifications of various building components such as floor plans, elevations, sections, and details.
- i. Structural Drawings:** Prepared by the consultant structural engineer: foundation, columns, beams, slabs, slab reinforcement details, etc.
- j. Mechanical and Electrical (M&E) Drawings:** M&E drawings outlined details of equipment, ductwork, piping, wiring, fixtures, and other components necessary for the building's functioning.
- k. Specifications:** This has been exhaustively treated in (h) above.
- l. Submission of Application:** The employer facilitated planning approval with the Owerri Capital Development



**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A, IMO STATE.**

**KCOMPASS INTEGRATED SOLUTION LTD**  
**OCDA E-APPLICATION** 01080  
 5b Abdulazeez Farouk Street Isolo, Lagos  
 Phone: 08035501018

EA. Date: 16/12/2024  
 Received From: Mr. Ekwuchukwu Avatus  
 The Sum Of: Ten Thousand Naira Kobo  
 Being (Description Of Payment) OCDA E-APPLICATION  
 Location: Uhu-Ohii, Aboha Ohii, Owerri-West L.G.A.  
 # 10,000  
 Payee's signature: [Signature] Manager's signature: [Signature]

**KCOMPASS INTEGRATED SOLUTION LTD**  
**AUTOMATION / DIGITALIZATION / ARCHIVING** 01080  
 5b Abdulazeez Farouk Street Isolo, Lagos  
 Phone: 08035501018

AUT. Date: 16/12/2024  
 Received From: Mr. Ekwuchukwu Avatus  
 The Sum Of: Twenty Seven Thousand Three Hundred and Fifty Naira Kobo  
 Being (Description Of Payment) OCDA Automation, Digitalization And Archiving Of Building Approval  
 Location: Uhu-Ohii, Aboha Ohii, Owerri-West L.G.A.  
 # 27,325  
 Payee's signature: [Signature] Manager's signature: [Signature]

**Figure 99:** Project 'C' OCDA approval payments: Digitalization and Archiving of Building Approval.

Source: Graceplan CONSULTANTS

**OWERRI CAPITAL DEVELOPMENT AUTHORITY**  
 Reside State Secretariat, Port Harcourt Road, PMB 1247 Imo State, Nigeria.  
 website: www.ocda.im.gov.ng Email: info@ocda.im.gov.ng  
 Hotlines: 08187969014, 08143737405

**CASH RECEIPT** No: 11444  
 Date: 17/12/2024  
 Received from: Mr. Ekwuchukwu Avatus  
 The Sum of: Eighty two thousand Naira Kobo  
 Being payment for: Plan Reg, plan prep, Survey Charting, Certificate of fitness  
 at: Uhu-Ohii, Aboha Ohii, Owerri-West L.G.A.  
 Signed: [Signature] For: OCDA

**OWERRI CAPITAL DEVELOPMENT AUTHORITY**  
 Reside State Secretariat, Port Harcourt Road, PMB 1247 Imo State, Nigeria.  
 website: www.ocda.im.gov.ng Email: info@ocda.im.gov.ng  
 Hotlines: 08187969014, 08143737405

**CASH RECEIPT** No: 11445  
 Date: 17/12/2024  
 Received from: Mr. Ekwuchukwu Avatus  
 The Sum of: One hundred thousand One hundred and Seventy Naira Kobo  
 Being payment for: Inspection fee  
 at: Uhu-Ohii, Aboha Ohii, Owerri-West L.G.A.  
 Signed: [Signature] For: OCDA

**Figure 100:** Project 'C' OCDA approval payments: Inspection, Plan registration, Plan preparation, Survey, Charting and Certificate of Fitness.

Source: Graceplan CONSULTANTS



**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**

**OWERRI CAPITAL DEVELOPMENT AUTHORITY**  
Reside State Secretariat, Port Harcourt Road, PM 9 1247 Imo State, Nigeria.  
website: www.ocda.im.gov.ng Email: info@ocda.im.gov.ng  
Hotline: 08167969014, 08143797405

**CASH RECEIPT** No: 11446 Date: 16/01/2024

Received from Mr. Ekwuchukwu Avatus  
The Sum of Forty thousand Naira (40,000) kobo  
Being payment for Fencing Permit  
Uhu Ohii Aboka Ohii On. West L.G.A

Signed: [Signature] For Developer  
Signed: [Signature] For OCDA

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**OWERRI CAPITAL DEVELOPMENT AUTHORITY**  
Reside State Secretariat, Port Harcourt Road, PM 9 1247 Imo State, Nigeria.  
website: www.ocda.im.gov.ng Email: info@ocda.im.gov.ng  
Hotline: 08167969014, 08143797405

**CASH RECEIPT** No: 9552 Date: 16/01/2024

Received from Mr. Ekwuchukwu Avatus  
The Sum of Twenty nine thousand five hundred and twenty Naira (29,500) kobo  
Being payment for City Circle 19,500 Search fee 10,000  
Uhu Ohii Aboka Ohii On. West L.G.A

Signed: [Signature] For Developer  
Signed: [Signature] For OCDA

**Figure 101:** Project 'C' OCDA approval payments: Fencing Permit and Search fee.

Source: Graceplan CONSULTANTS

**CHIDEX CONSULT**  
Office: Km 3 Egbu Road  
Owerri North L.G.A, Imo State  
Email: tchidex@yahoo.com  
PL: Chidi

**RECEIPT** NO: 0423 Date: 16-01-2024

CLIENT NAME: Mr. Ekwuchukwu Avatus  
SITE LOCATION: Uhu Ohii Aboka Ohii On. West L.G.A  
JOB DESCRIPTION: Site Analysis Report (SAR)  
AMOUNT: One hundred thousand N100,000:K  
Client's Sign: [Signature] Manager's Sign: [Signature]

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**EAZTECH GEOTECHNICAL ENGINEERING**  
Geotechnical (soil) Engineers \* Structural Engineers \* Civil Engineers \* Geologist  
Head Office: 11/14, Road Orji  
Owerri, Imo State  
Nigeria

**OFFICIAL RECEIPT** 0016 Date: 16-01-2024

Received from Mr. Ekwuchukwu Avatus  
Uhu Ohii, Aboka Ohii, Owerri West L.G.A  
The sum of: Thirty thousand Naira (30,000) kobo  
Being payment for Letter of Structural Fitness

Client's Signature: [Signature] For: Eaztech Geotechnical Engineering: [Signature]

**Figure 102:** Project 'C' OCDA approval payments: Site Analysis Report & Letter of Structural Fitness.

Source: Graceplan CONSULTANTS

**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A, IMO STATE.**

**ASSESSMENT UNIT  
TOWN PLANNING DEPARTMENT  
OWERRI CAPITAL DEVELOPMENT AUTHORITY  
PROVISIONAL CALCULATION**

CLIENT: MR. EGWUCHUKWU AVATUS

LOCATION: UHU-OHII, ABOHA OHII, OWERRI WEST LGA

TYPE OF BUILDING: RESIDENTIAL [TWO STOREY BUILDING]

NAME OF THE SITE ENGINEER/BUILDER:

VOLUME:  $19.425 \times 13.263 \times 16.2 \div 24 = 100,170$

1. Registration Fee	-	N20,000.00
2. Inspection Fee	-	N 100,170.00
3. Plan Preparation fee	-	N16,000.00 per plot
4. Survey Services fee	-	N16,000.00 per plot
5. Charting fee	-	N10,000.00
6. Certificate of fitness	-	N 20,000.00 Per Building
7. Approval Fee	-	N110,000.00 per plot
8. Fencing Permit	-	N40,000.00 per plot
9. OCDA -E- Application Fee	-	N10,000.00
10. OCDA- Automation Fee	-	N 27,325.00
11. Processing Fee	-	N50,000.00
12. City Guide	-	N19,520.00
13. Search Fee	-	N10,000.00

**OTHER DOCUMENTS/REQUIREMENTS** N 449,015.00

14. 3 Sets of Building Plan and original copy of assessment sheet	
15. Three (3) Years Tax Clearance	
16. Registered Power of Attorney	
17. Survey Plan	
18. A valid E-mail Address	
19. Site Analysis Report	- N100,000.00
20. Letter of structural fitness	- N30,000.00
21. Environmental Impact Analysis Report	- N200,000.00
22. Soil Test (for buildings above three floors)	
23. Integrity Test	- N250,000.00
24. Maximum tree Planting for Environmental Protection	
25. An undertaking to build according to OCDA specification / approved plan	

**GRAND TOTAL** N 829,015.00

Sign: [Signature] SD 4, 99)

**Figure 103: Project 'C' OCDA approval payments: Provisional Calculations.**

Source: Graceplan CONSULTANTS

**OCDA**  
Reside State Secretariat, Port Harcourt Road, PMB 1067 Imo State, Nigeria  
Website: www.ocda.gov.ng | Email: info@ocda.gov.ng  
Hotline: 0706 565 6935, 0803 7094387

Full Name: EGWUCHUKWU AVATUS

Serial No: OCDA/Gen/Jan/07

Date: 16 JAN - 2024

**ACKNOWLEDGMENT LETTER**

This is to acknowledge the receipt of your payment for the STRUCTURAL INTEGRITY & RELIABILITY test(s) of your building located at UHU-OHII, ABOHA OHII, OWERRI WEST LGA

While assuring you of our resolve at ensuring that your building(s) conforms to extant standards and guidelines in line with best practices, please accept the assurance of the General Manager, OCDA.

**ACKNOWLEDGMENT**

I, [Signature]  
Hereby acknowledge receipt of your letter No. OCDA/Gen/Jan/07  
Date: 16 JAN 2024 Sign: [Signature]

**OCDA**

**Figure 104: Project 'C' OCDA approval payments: Structural Integrity and Reliability.**

Source: Graceplan CONSULTANTS

Authority on his own. This was after he had



## PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.

communicated to the principal architect his approval. The planning approval processes commenced on the 7<sup>th</sup> of January, 2024, and lasted till the 29<sup>th</sup> of January, 2024. Receipts of payments done and concluded before mobilization to the site can be sighted in figures 80-86.

### n. CONCLUSION, LESSONS LEARNT

This candidate must submit the following nuggets as lessons learned:

#### **Entrepreneurial Clientele:**

These genre of clients are more concerned with ROI. They are 'shylock' investors that are all out to get the maximum from the minimum. Such clients can find it quite difficult to respect standards in housing development.

**Design-Build Contracts Vs Others:** This candidate observed that such contracts are faster in deployment.

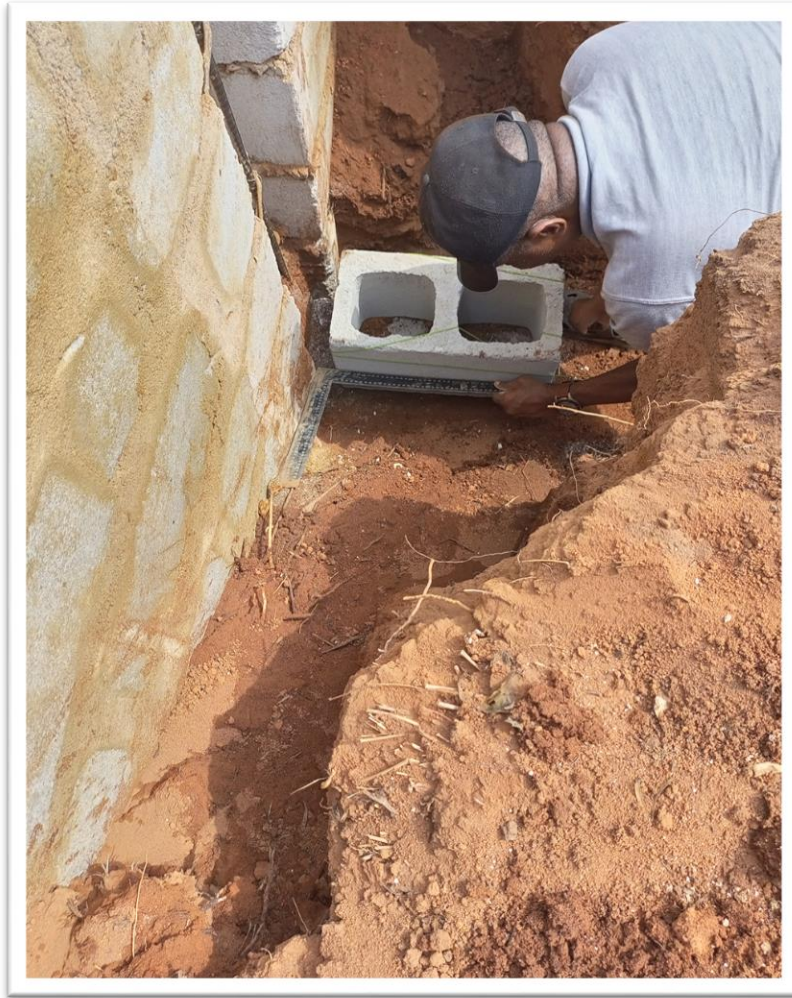


**Figure 105:** Project 'C' - This candidate assisting in site works.

*Source: Graceplan CONSULTANTS*



**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**



**Figure 107:** Project 'C' - This candidate assisting in site works.

*Source: Graceplan CONSULTANTS*



**Figure 106:** Project 'C' - This candidate overseeing some specialist works.

*Source: Graceplan CONSULTANTS*

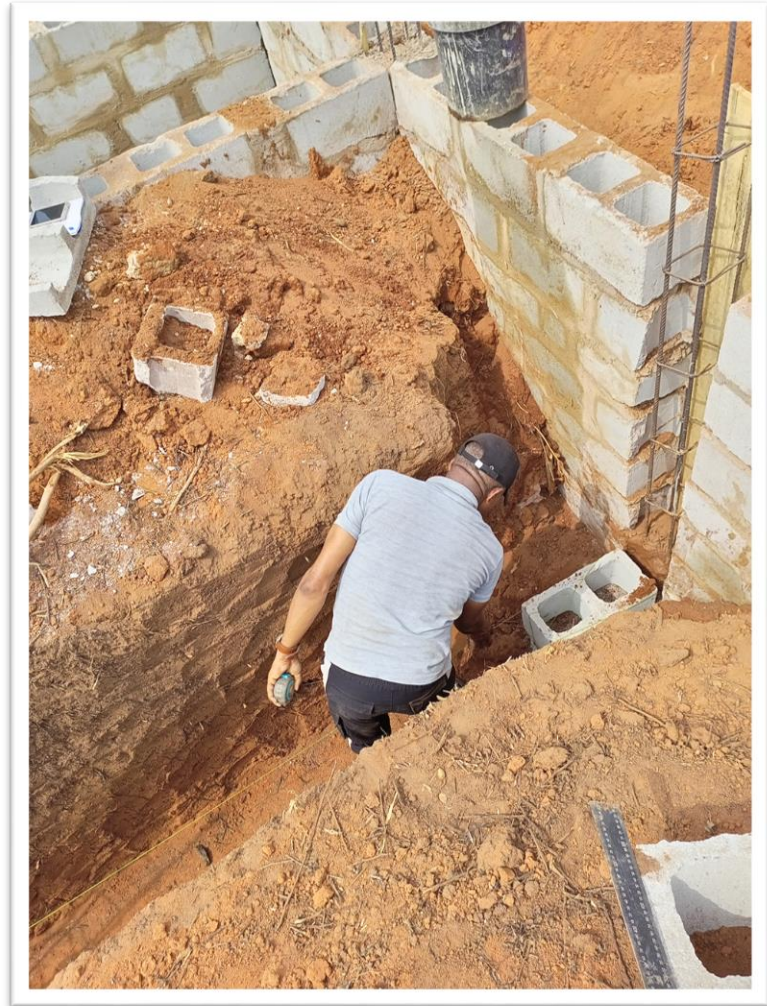


**PROJECT 'C': PROPOSED MAISONETTE FOR MR. EGWUCHUKWU AVATUS AT UHU-OHII, ABOHA OHII, OWERRI-WEST L.G.A., IMO STATE.**



**Figure 109:** Project 'C' - This candidate pointing out some issues to the nominated sub-contractor – AJK Stability.

*Source: Graceplan CONSULTANTS*



**Figure 108:** Project 'C' - This candidate assisting in level reconciliations.

*Source: Graceplan CONSULTANTS*

**THE END**