



A TECHNICAL REPORT

ON

STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

UNDERTAKEN AT

ONIYANGI APEH-GLOBAL CONSULT

BY

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ND/23/ARC/PT/0014

SUBMITTED TO THE DEPARTMENT OF MASS COMMUNICATION,

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IN PARTIAL FULFILMENT OF AWARD OF ORDINARY NATIONAL

DIPLOMA IN THE DEPARTMENT OF ARCHITECTURAL

TECHNOLOGY

CERTIFICATION

I certify that **ONOVO KINGSLEY CHUKWUDI with Matric Number ND/23/ARC/PT/0014** of Institute of Environmental Studies, Department of Architectural Technology, Kwara State Polytechnic, Ilorin. Carried out is long essay under my supervision.

DEDICATION

This report is dedicated to God for His enabling strength he bestowed on me, giving me knowledge and understanding with the grace of getting through with the Four (4) months Student Industrial Work Experience Scheme (SIWES) training at Oniyangi Apeh-Global Consult.

This is also dedicated to my parent Mr. and Mrs. ONOVO, siblings, friends, and Oniyangi Apeh-Global Consult staffs.

ACKNOWLEDGEMENT

I am grateful to God the sole provider of knowledge, Wisdom, Love, Mercy and Grace for his protections on embarking and completing the program.

I also appreciate space and form and their entire of the firm who offered me timely criticism and corrections that led me through the various steps and stages during the program.

I appreciate my parents, Mr. and Mrs. ONOVO, My siblings and friends for their unquantifiable love and financial assistance during this period. May God bless us and reap the fruit of our labor.

Moreover, I express my profound gratitude and immense thanks to all my lectures, who are worthy of emulation. I hereby pray to ALMIGHTY GOD to crown their effort with is abundant blessings and continue to elevate their status to the highest position both in like ten and hereafter

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CHAPTER ONE

1.0 INTRODUCTION: BRIEF HISTORY OF SIWES

The **Students Industrial Work Experience Scheme (SIWES)** is a Nigerian government initiative designed to provide students in higher institutions with practical, hands-on work experience in industries related to their course of study. The scheme aims to bridge the gap between theoretical knowledge acquired in the classroom and the practical skills required in the workplace. It is a compulsory program for students, particularly in technical, vocational, and professional courses, and typically involves industrial attachments lasting between 3 to 6 months. SIWES helps to prepare students for the demands of the job market by exposing them to real-world work environments and enhancing their employability after graduation.

1.1 Origin of SIWES:

SIWES was introduced by the Nigerian government in 1973 by the **Industrial Training Fund (ITF)**. The scheme was created to improve the employability of Nigerian graduates by equipping them with hands-on experience in industries related to their field of study.

1.2 OBJECTIVES OF SIWES

The main goal of SIWES is to expose students to real-world work environments, enhance their practical skills, and prepare them for employment after graduation. It also helps foster collaboration between academic institutions and industries.

1.3 IMPLEMENTATION OF SIWES

Initially, it was aimed at students in technical and vocational fields, but over time, it expanded to cover various disciplines. The program involves students undergoing mandatory industrial training for a specified period, typically between 3 to 6 months.

1.4 DEVELOPMENT of SIWES

Over the years, the scheme has undergone various reforms to improve its effectiveness. These include establishing guidelines for employers, academic institutions, and students, ensuring proper monitoring and evaluation, and integrating digital tools for assessment.

1.5 CURRENT STATUS OF SIWES

SIWES is a compulsory part of the academic curriculum for most higher institutions in Nigeria, and students in different fields participate in industrial attachments to gain practical experience before graduation.

CHAPTER TWO

2.0 DRAWING INSTRUMENT

These are instruments used in drawing and construction of lines in architecture. Drawing are;

1. Pencil

- **Purpose:** Used for sketching, drawing, and initial design work.
- **Types:** Different hardness grades (e.g., H, B) for varying line qualities.

2. Ruler (Scale)

- **Purpose:** Used to measure and draw straight lines.
- **Types:** A regular ruler and a **scale ruler** (with different scales like 1:100, 1:200) are commonly used in architectural drafting.

3. T-Square

- **Purpose:** Used for drawing horizontal lines and creating a reference edge for the drafting board.
- **Design:** A long, straight edge with a perpendicular head that aligns with the edge of the drawing board.

4. Set Square (Triangle)

- **Purpose:** Used to draw precise vertical and angled lines (commonly 30°, 45°, and 60°).

- **Types:** Right-angle set squares (90°), 45° set squares, and 30°-60° set squares.

5. Compass

- **Purpose:** Used for drawing arcs and circles.
- **Design:** A tool with two arms, one holding the pencil and the other with a pointed end for anchoring.

6. Protractor

- **Purpose:** Used for measuring angles.
- **Design:** Typically a semi-circular or circular instrument marked with degrees.

7. French Curve

- **Purpose:** Used to draw smooth curves that are not part of a circle.
- **Design:** A template with various curved edges for producing free-form curves.

8. Templates

- **Purpose:** Used for drawing standardized symbols and shapes (e.g., windows, doors, electrical symbols).
- **Design:** Thin, transparent sheets with pre-cut shapes and forms.

9. Drawing Board

- **Purpose:** Provides a flat, smooth surface for drawing.
- **Design:** Typically a large, flat board with a perpendicular edge for aligning T-squares.

10. Dividers

- **Purpose:** Used to measure distances or transfer measurements.
- **Design:** Similar to compasses but with two points that can be adjusted for measurement.

11. Eraser

- **Purpose:** Used to erase pencil marks or mistakes.
- **Types:** Regular erasers, kneaded erasers (which are soft and moldable), and precision erasers.

12. Drawing Pens (Technical Pens)

- **Purpose:** Used for ink drawings, creating precise, clean, and uniform lines in final architectural drawings.
- **Design:** These pens are available in various tip sizes for different line thicknesses.

2.1 HOW TO SET A PAPER

1. Choose the Right Paper Size

- **Standard Sizes:** Architectural drawings typically follow standard paper sizes. The most common sizes include:
 - **A0 (841 x 1189 mm)**
 - **A1 (594 x 841 mm)**
 - **A2 (420 x 594 mm)**
 - **A3 (297 x 420 mm)**
 - **A4 (210 x 297 mm)**
- **Select Paper Based on Drawing Requirements:** Depending on the scale of your project, select an appropriate paper size. Larger drawings (e.g., site plans) may require A1 or A0, while smaller details or sections may be done on A3 or A2.

2. Set the Drawing Orientation

- **Landscape or Portrait:** Decide whether the drawing should be in landscape or portrait orientation. This depends on the layout of your design and how it fits on the page.
 - **Portrait:** Typically for designs that have a vertical aspect.
 - **Landscape:** Suitable for wider, horizontal layouts or plans.

Most architectural drawings use landscape orientation, but always consider the size of the project.

3. Draw Margins

- **Establish Clear Margins:** Draw consistent margins around the edges of the paper. This helps to keep the drawing neat and ensures that important details are not cut off when printing.
- **Standard Margin Size:** A common margin size is 10mm to 20mm from each edge of the paper. For larger drawings (e.g., A1 or A0), you may go slightly larger, depending on preference.

4. Set the Title Block

The title block is essential in architectural drawings and should be placed in the bottom-right corner or along the bottom of the page. The title block includes the following information:

- **Project Title:** The name of the project or design.
- **Scale:** Indicating the scale of the drawing (e.g., 1:100, 1:50).
- **Drawing Number:** Unique reference number for the drawing.
- **Date:** Date the drawing was created.
- **Architect's Name or Firm Name:** The name of the architect or company responsible for the design.

- **Revision Details:** If applicable, space for revision numbers or comments.
- **Sheet Number:** If multiple sheets are part of the project, the sheet number should be included.

The title block is typically 70-100mm high (depending on the size of the paper) and spans the full width of the paper or part of it.

5. Set a Scale

- **Choosing the Right Scale:** The scale is an important part of architectural drawings, as it determines how the drawing will be represented on paper.
 - **Common Scales:**
 - **1:100** for site plans or floor plans.
 - **1:50** for detailed floor plans.
 - **1:20 or 1:10** for larger detail drawings or sections.
- Ensure the scale is indicated clearly on the drawing, usually near the title block.

6. Establish Gridlines (Optional)

- **Using Gridlines:** For complex projects, especially large ones, gridlines can help align different parts of the design and maintain proportionality.

- **Aligning Grids:** Use light pencil marks for the gridlines, ensuring they are evenly spaced.

7. Set Up Layers (If Using CAD Software)

- If you're working digitally, it's essential to set up layers in your CAD (Computer-Aided Design) software to organize different parts of the drawing (e.g., walls, doors, furniture).
- Assign each layer a color, line type, or thickness for clarity.

8. Start Drawing

- Begin your drawing by outlining the major components, such as the walls, doors, and windows. Ensure that you use the correct scale, line types (thick for walls, thin for dimensions, etc.), and symbology (hatching for walls, dashed lines for hidden elements).

9. Add Dimensions and Details

- **Dimension Lines:** Add dimension lines to show the size of rooms, walls, or other features. Make sure the dimensions are clear and easy to read.
- **Annotations:** Add text for labels, notes, and specifications.

10. Review and Finalize

- Once you finish the drawing, double-check the scale, alignment, and accuracy of all measurements.

- Make sure all essential information, such as title block details, revision history, and scale, is included.

11. Prepare for Printing

- If the drawing is for printing, check the layout in your software to ensure everything fits well on the selected paper size. Make sure the drawing is aligned properly to avoid cutting off important parts.
- If working manually, ensure the drawing is clean, and all pencil marks are erased (if necessary), leaving only the final lines.

2.2 SCALE READING AND LINES

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2.3 DESIGN BRIEF AND DESIGN SCOPE

Design brief these are scope brought by the client you are designing for.

Design scope these are what the architect and the client want to be on site but mostly it is provided by the architect.

2.4 ARCHITECTURAL DRAWINGS AND TYPES OF DRAWINGS

Architectural drawing these are drawings that are designed by Architect which are to be presented or erected on site.

TYPES OF DRAWINGS.

presentation drawings

Working drawings

Presentation drawing; are drawings that shows the furniture arrangements the landscape of the land is going to be the vegetation's and so on.

Working drawings; are drawings that shows the exact dimensions of the building and land and shows the details where needed.

2.4 THINGS TO BE CONSIDERED BEFORE DESIGNING

- Building orientation
- Functionality
- Cross ventilation
- Set back
- Aesthetics.

***Building orientation;** building is to be well and properly oriented on site considering the climatic effect on the building.

***Functionality;** the building must be easily accessible in such a way that it will be easy for the occupant to moves in easily and go out without distraction.

***Cross ventilation;** a building must be well cross ventilated most especially Rooms facing the north-east on a site.

CHAPTER THREE

3.0 WORKDONE AT ONIYANGI AFEH-GLOBAL CONSULT

A SHOP PLAN FOR A SMALL RETAIL SHOP

- **Front Wall:**

- One **main door** centered, leading into the store's entry.
- Two **large windows** on either side of the door for natural light and display space.

- **Side Walls:**

- A **service door** at the rear for staff entry.
- **Small windows** on the side walls for light, placed near the top to avoid obstructing display space.

- **Interior:**

- **Small office door** or **storage room door** located in the back corner of the shop.
- **Windows** can be positioned for display or staff areas based on the layout and space usage.

3.1 FOUNDATION

Foundation is the sub structure part of the building in which the load from the super structure is transferred to

TYPES OF FOUNDATION

Types of Foundations for a Shop

Shallow Foundations:

- **Strip Foundation:** This is the type of shallow foundation used in commercial buildings. It is used when the building load is relatively low, and the soil at a shallow depth has sufficient strength.
- **Design:** A continuous strip of concrete, typically below the walls of the shop.

Suitable For: Small to medium-sized shops on firm ground.

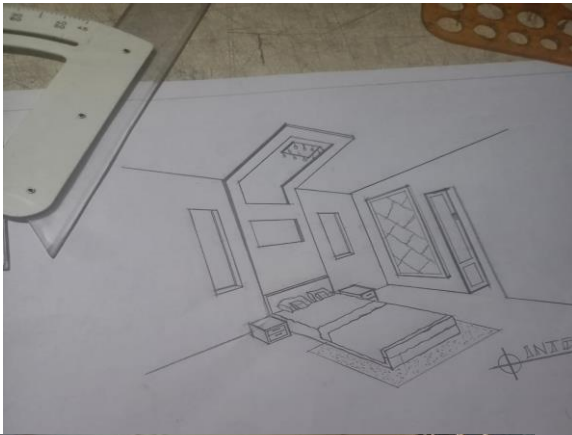
3.2 CONCRETE COLUMN

A **concrete column** is a vertical structural element that transfers loads from the upper parts of a building (such as floors, roofs, or beams) to the foundation. In a **shop plan**, concrete columns are often used to support the weight of the structure, especially in larger or multi-story buildings where the load is significant. Concrete columns are also used in open-plan layouts to provide structural stability without obstructing space for products or customers.

A reinforced concrete column is a column that comprises of reinforcement, Concrete and aggregate. it has particles like stirrup or ring which is usually of 8mm and 225 by 225mm distance to each other etc.

3.3 ALLOCATION OF SPACES AND CALCULATION

Spaces are allocated through the calculation of live load and dead load in the building e.g the furniture's in the bedroom. furniture's which are to be in the bedroom are to be calculated and know the overall of the Percentage the furniture will take and the remaining left unused area. This same method will be used to calculate for all the remaining unit and even the main building and the unused area of the site.





CHAPTER FOUR

SUMMARY

The **Student Industrial Work Experience Scheme (SIWES)** is a compulsory program designed to provide students in Nigeria with practical experience in their field of study. It serves as a bridge between theoretical knowledge gained in academic institutions and the practical skills required in the industry

Student industrial training experiences scheme (SIWES) provide student with appreciable skill designed to expose or equip them with real life working experience. Student knowledge increase maturely and understanding of their own career goals and for the progress of the nation.

CONCLUSION

My industrial attachment with Kwara state polytechnic Institute has been one of the most interesting productive and instructive experience in my life.

Through this training, I have gained new insight and more comprehensive understanding about the real industrial working conditions and practice. It has also improved my soul and functional skills.

As a result of the program, I am now more confident to build my future career which I have already started with Kwara state polytechnic

RECOMMENDATION

I recommend that SIWES should provide places for industrial attachment for student, Industrial Training Fund (ITF) should pay some allowance to student and the company should provide safety equipment to prevent further environment and health hazards.

Institution should be encouraged to create financial autonomy for institution based SIWES unit directorate.

CONCLUSION

In conclusion as a student of Architectural Technology, I have been able to obtain the relevant and effective practical training and experience in a duration of four months (4) have been to know what presentation and working drawing are meant to be and so much more.

Finally, I would like to state that the SIWES program is a relevant and necessary program for all students that must an advantage for each student's professional prior to graduation.