

TECHNICAL REPORT ON THE STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

HELD AT

LYLIUS GLOBAL ENTERPRISES,
2, IBRAHIM DASUKA STREET, TANKE ILORIN.

PERSENTED BY:

ABDULSALAM ABDULQUDUS OLUWATOYIN

MATRIC NO: ND/23/CEC/PT/0050

SUBMITTED TO

THE DEPARTMENT OF CIVIL ENGINEERING, INTITUTE OF TECHNOLOGY (IOT), KWARA STATE POILYTCHNIC, ILORIN, KWARA STATE

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR AWARD OF NATIONAL DIPLOMA (ND) IN CIVIL ENGINEERING

FROM AUGUST TO NOVEMBER 2024

PREFACE

This is a report of four months industrial training which was done as part of the requirement needed for the award of national diploma certificate which was embarked upon by the technical student after their first year of stay in school.

It is also done to enable the student's to be exposed the practical aspect of their course of study and write down what he/she has gained during the training.

The program is aimed at correcting the incompetence in the school leaving the scientific and technical in country.

DEDICATION

This report is dedicated to the Almighty Allah, the Beneficent, the merciful, the cherisher of the universe, the uncreated creator of all creatures and the most knowledgeable who seek knowledge just from himself for giving me the opportunity, privilege an understanding to participate in the student industrial work experience scheme (SIWES).

I also dedicate this report to my amiable parent Mr. and Mrs. Abdulsalam for their financial support during the course of the program. May Allah continue to bless them (AMIN).

ACKNOWLEDGEMENT

I acknowledge with sincerity the Almighty Allah. He has been in always faithful, caring, providing, sustaining, guarding and just so good to me. Glory honor and adoration be unto Almighty Allah.

My unalloyed thanks and appreciation goes to my parent MR & MRS Abdulsalam for the caring and support that has been driving me throughout the duration of my training.

I also acknowledge my colleagues in the same department, HABEEB, IBRAHIM and others that are too numerous to mention. Also the efforts of my family, sister and brother.

I am also indebted to the entire staff of COMPANY most importantly the engineers on site for their contribution and support during the training, may Almighty Allah reward you abundantly (AMIN).

I also acknowledge the entire staffs and lecturers of civil engineering department. Most important my H.O.D Engr Na'Allah for their support, moral and academic impaction of knowledge.

TABLE OF CONTENT

	ritie	rage	
	Prefa	i	
	Dedic	ii	
	Ackno	iii	
	Table	iv-v	
	CHAP	PTER ONE	1
	1.1	Introduction Background Objective of SIWES	
	CHAP	2-4	
	2.0	Brief History of the Establishment	
	CHAP	PTER THREE	5-18
3.0	Site Experience Gained		
	3.1	Calculation of the cubic content of column and beam	
	3.2	Casting concrete (1:0.95:1.5) with the use of mixer	
	3.3	Excavator and Mixer	
	3.4	Cube test	
	3.5	Formwork for cantilever beam	
	3.6	Excavation	
	3.7	Blinding	
	3.8	Isolated and Combine footing	
	3.9	Laying of blocks	
	3.10	Spirit level	
	3.11	Damp Proof Membrane D.P.M	

CHAPTER FOUR	19-	20

- 4.1 Recommendations
- 4.2 Conclusion

Reference

CHAPTER ONE

INTRODUCTION

1.1BACKGROUND

The student industrial work experience scheme (SIWES) is a skill development program being initiated by Industrial Training Fund (ITF) in the year 1973 to solve the problem of lack of adequate practical skills preparation for employment in industries by Nigerian graduates of national institutes.

The student industrial work experience scheme (SIWES) was also founded in order to expose students to industry based skills necessary for an easy transition from the classroom to the world of work, which enable students to exposed to work methods and techniques in handling equipment and machinery that may not be available in their institutions.

The scheme started with 784 students from 11 institutions with 104 suitable courses t inception in 1974. The number of students that participated in SIWES from Universities, polytechnics and colleges of education. At the end of the year 2007 was 194,890. In the year 2008, the number of the students that participated in the scheme increased to 210,390 students with over 112 suitable courses from 219 institutions.

1.2 OBJECTIVES OF SIWES

- 1. To provide an avenue for student in the Nigeria universities to acquire experience and industrial skills during their course of study
- 2. To prepare students for the work situations they are likely to meet after graduation
- 3. To expose the students to work methods and techniques in handling equipment and machinery that may be available in their institutions
- 4. To provide the opportunity to apply their theoretical knowledge in real work situation there by bridging the gap between theory and practice
- 5. To allow the transition phase from school to the world of working environment easier and facilitate students contact for later employment opportunity

CHAPTER TWO

BRIEF HISTORY OF THE ESTABLISHMENT

Lylius integrated resources limited is an indigenous company established in 2011.

The company which was formally incorporated as Lylius global enterprises under the leadership of Mr. Julius oyinlola ovinloye as the managing director; in a quest to expand the company's horizon; the management deemed it fit to upgrade (its status to Limited Liability Company. In this effect the company's name was changed to "lylius integrated resources limited",

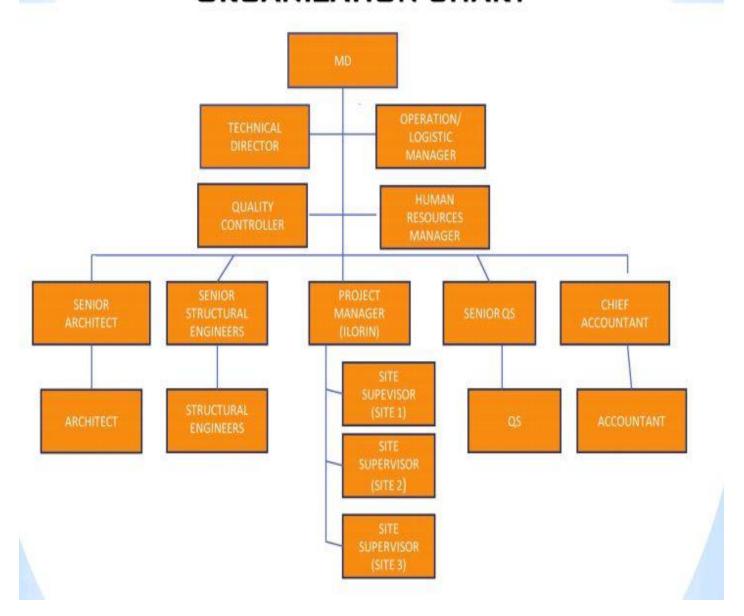
The company vision and direction is engagement in general merchandise & trading, event management, construction works and expertise in all areas of civil engineering projects.

Our professional team works towards precision and provides customized solutions to noteworthy individuals, based on their specifications and design briefs to produce environments that are unique to our clients and their tastes.

We work to attain excellence in the quality of gur engineering ano other services by staying abreast of new products and the application of latest technological innovation in the construction industry. We provide high quality construction service. Our expertise include general merchandise & trading, event management, construction works and expertise in all areas of civil engineering projects. Our clientele consists of a wide range of corporate bodies in the Nigerian economic sector and a host of others as well as individuals.

Lylius's experienced staffs are committed to set goals and are purpose driven to satisfy our clients and improve our environment.

ORGANIZATION CHART



PROJECTS

Date	Client	Project Name	Name of Contractor	Amount (N)	Completion Stag
Name of the same	Petroleum Trust Fund	Reinforced conc. Lined drain, Oloene-	Akpot Nig. Ltd. Horin [Lylius as Subcontractor]	3.85 million	300%
1997 - 1999		Kabba- Isalu-Egbe road			
	M.O.W & Transport Katsina, Katsina State	Construction of Box & Pipe Culvert	Borini Prono & Co. Ltd	11.01 million	300%
1999 - 2006			[Lylius as Subcontractor]		
	M.O.W & Transport, Horin,	Construction of Box & Pipe Culvert	Borini Prono & Co. Ltd	8 55 - III -	300%
2009 - 2010	Kwora State	(Ahmadu Bello Way, Horin)	(Lyli us as Subcontractor)	9.33 million	
2010 - 2012	M.O.W & Transport, Horin,	Interlocking paved stone walkway	Borini Prono & Co. Ltd	4.60million	300%
5010-5015	Kwara State	(Ahmadu Bello Way, Horin)	[Lylius as Subcontractor]	4 bommingn	
2011-2012	M.O.W'& Transport, Horin,	Construction of lined drain (Zulu	Borini Prono & Co. Ltd	6.88million	300%
SUMA SUME	Kwara State	Gambari Rd.) Illorin	[Lylius as Subcontractor]		
	M.O.W& Transport, Horin, Kwara State	Rehabilitation of failed Boxed Culvert/	Borini Prono & Co. Ltd	8.43 million	100%
2012		Stone Pitching (Post office (TC Road),	(Lylius as Subcontractor)		
		Harin	Irkans as agernagaernal		
2012	University of Borin	Rehabilitation of Boxed Culvert	tylius Global Enterprises	6.50 million	300%
ewaz	university of Bonin	(Permanent Site UNILORIN)			
2012	University of Barin	Construction of Fence (Mini Campus)	Lylius Global Enterprises	264 thousand	100%
2013	University of Barin	Construction of Fence at UNILORIN	Lylius Global Enterprises	5.72 million	300%
2002.0	CHARLEST OF HORSE	international ssecondary school			
2013	Modern Morgy Petraleum	Landscaping, of Modern Morgy filling	Lylius Global Enterprises	3.00 million	300%
	university and St. 1 of processing	station			
2013	Olam Nigeria Limited	Supply of building materials to Clam	Lylius Global Enterprises	60.00 million	300%
2002.2	Crain regena unities	cashew processing factory	State of rest in the Charles	AAAAA III III AII	3000
	New Techniques Construction Company (NTC)	Maintenance of Palms Shopping	Lylius Global Enterprises	4.50 million	300%
2013		Complex, Ilorin			
2011 - 2013	Enptech Nigeria Ltd	Land scaping, kerbs, interlocking and	Lylius Global Enterprises	21.80 million	100%
2000 S S S S S S S S S S S S S S S S S S		asphalt (GRA, Horin)	.,	- Anne in the same	30000
2011 - 2013	Enptech Nigeria Ltd	Reinforced Concrete drainage (GRA.	Lylius Global Enterprises	6.60 million	100%
		Horin)			
2013 - 2014	M.O.W'&Transport,	Construction of concrete lined	Lylius Global Enterprises	68.80 million	100%
RESIDENCE OF THE PARTY OF THE P	Abeokuta, Ogun State	drainage, road kerbs and walkway			
2012 - 2014	Lylius Hotels Limited	Proposed Hotel Construction including	Lylius Global Enterprises	40.00 million	100%
		all external works			
	Enptech Nigeria Ltd	Construction of road, dyke, factories,	Lylius Intergrated Resources Limited	4.00 billion	300%
2014-2017		helipad, earodrome and residence for			
- 5		Flour Mills Plc, Sunti, Niger State.			
2015 - 2017	Mrs Oyeniyi Olawunmi	Proposed Residential Construction	Lylius Intergrated	100.00 million	100%
	101 511	with all external works	Resources Limited		
2019-2019	Federal Road Maintenance	Gbugbu-Laflagi Road Maintenance	Lylius Intergrated	19.00 million	100%
	Authority	Project, Kwara State	Resources Limited	The Part of the Pa	3835550
2019-2019	Federal Road Maintenance	Ita-Ama Ogundele Road Maintenance	Lylius Intergrated	27,00 million	100%
	Authority	Project, Borin, Kwara State	Resources Limited		
2019-2020	Federal Road Maintenance	Omru-Aran - Ajase Road Maintenance	Lylius Intergrated	60.00 Million	100%
normal temporals	Authority	Project, Ilorin, Kwara State	Resources Limited		100000
020 - Till Date	Kwara State Polytechnic	Proposed Academic Building lot 3	Lylius Intergrated	195 Million	65%
			Resources Limited		
AND 100 TO 100			Lylius Intergrated	200 Million	40%
Date Usu	Lylius Hotels Limited	Proposed Extention of Lylius Hotels	Resources timited	SERVED WEST	12000

LYLIUS INTEGRATED RESOURCES LTD

CHAPTER THREE

SITE EXPERIENCE GAINED

3.1 CALCULATION OF THE CUBIC CONTENT OF COLUMN AND BEAM

Quantities of materials for one cubic meter of concrete using 1:0.95:1.5 mix ratios

Step 1: volume required is 1m3.

Step 2: at a ratio 1:0.95:1.5 (1+0.95+1.5=3.45).

Step 3: Considering 2% entrained air, the actual volume of concrete is;

- 2% of 1m3 = $2/100 \times 1m^3 = 0.02m^3$
- 1m3 0.02m3 = 0.98m3. (This means after compaction it will be 0.98m3).
- To avoid shortage after compaction, add 0.02m3 (1m3 + 0.02m3 = 1.02m3).

Step 4: Calculate the Volume of materials;

- Volume of cement required is just 1 part of $3.45 \pm 1/3.45 \times 1.02 = 0.296 \text{ m}^3$
- Volume of fine sand required is 0.95 parts of 3.45 --- $0.95/3.45 \times 1.02 = 0.281 \text{m}^3$
- Volume of coarse sand required is 6 parts of 10 --- $1.5/3.45 \times 1.02 = 0.444$ m³

Step 5: Convert required volume to weight by multiplying their densities;

- Weight of cement required is ---- 0.296m³ × 1440kg/m³=426.24kg
- weight of fine sand required is ----0.281 $m^3 \times 1600 kg/m^3 = 449.6 kg$
- weight of coarse sand required is ---- 0.444m³ × 1650kg/m³ = 732.6kg
- Weight of water required is ---- $426.24 \times 0.50 = 213.12$ kg

Step 6: For true water content multiply by the average specific density of the most water absorbing aggregate (in this case 2.6);

• True water content ---- 213.12 × 2.6 = 554.112kg (554.112litres).

Step 7: 1m3 concrete has a density of 2500kgm3.

• Weight of 1m3 at 1:0.95:1.5 is (426.24+ 449.6 + 732.6 + 554.112= 2162.55kg).

The steps above were repeated in order to calculate for other mix ratios.

Step 8: Calculate the volume column or beam which depends on the shape and size

Rectangular column volume= (L×B×H)m³ Circular column volume= (πr²h)m³

Multiply the total volume by the mass of 1m³

3.2 CASTING CONCRETE (1:0.95:1.5) WITH THE USE OF MIXER

The concrete casting process is the process of creating structures or products using concrete. The process involves preparing the mold or formwork, mixing the concrete, placing the concrete in the mold, and allowing the concrete to cure. The concrete casting process involves the following steps:

- 1. Preparing the formwork: The first step in the concrete casting process is to prepare the formwork, or the mold that will hold the wet concrete until it hardens. The formwork must be properly designed to create the desired shape and finish of the final product.
- 2. Mixing the concrete: The next step is to mix the concrete, which involves combining cement, water, and aggregate (such as sand and gravel) in the appropriate proportions. The concrete is typically mixed using a concrete mixer or by hand. A concrete mixer was used at my SIWES COMPANY. Which has 9m³ capacity and a mix ratio of 1:0.95:1.5 was adopted.
- 3. Placing the concrete in the formwork: Once the concrete is mixed, it is placed in the formwork using a variety of methods, including hand shoveling or pumping. The concrete is typically placed in layers, with each layer being compacted to remove air pockets and ensure a strong and durable final product
- 4. Finishing the surface: After the concrete is placed in the formwork, it is typically smoothed and finished to achieve the desired surface finish. This can be done using a variety of tools, such as trowels, screeds, and floats.

- 5. Curing the concrete: The concrete is then allowed to cure, or harden, which typically takes several days. During the curing process, the concrete must be protected from extreme temperature fluctuations and kept moist to ensure proper curing.
- 6. Removing the formwork: Once the concrete has cured, the formwork can be removed to reveal the final product. The formwork is typically dismantled and the materials are reused or disposed of appropriately.

The concrete casting process is an essential part of the construction industry, as it allows for the creation of a wide range of structures and products using concrete. Proper execution of each step is crucial to the success of the project and the quality of the final product.



3.3 EXCAVATOR AND MIXER

EXCAVATOR

Excavator is a heavy machine consisting of a boom stick, bucket and cab on a rotating platform known has the house. It is used for digging of trenches, material handling, demolition and river dredging.

CONCRETE MIXER

This is also a machine that has to major type namely:

- Mobile Concrete Mixer: this is used for two major purpose simultaneously.
 Mixing and transporting from the point of mixing to the point placement or usage.
- Drum concrete mixer: This is most common type of concrete mixer. It has a rotating drum that mixes the concrete. It is available in electric and gaspowered models and can handle all types of concrete projects

3.4 CUBE TEST

Cube testing is a procedure used to test the compressive strength of concrete. It involves making and curing concrete cubes, then crushing them at defined periods. This provides a straightforward check of the concrete mix's ability to resist loads which will compress it.



Step 1: Cube Preparation

Mix the Concrete: The first step in cube testing is to prepare your concrete mix according to the specifications required for your project.

Fill the Moulds: Fill the moulds with the concrete mix, ensuring it is compacted into the corners. Fill the mould in three layers, compacting each layer with a rod 35 times.

Step 2: Curing the Cubes

Cure the Cubes: Once the cubes have been formed, they should be stored in a curing tank at a temperature of 20 ± 2 degrees Celsius for a specified period, typically 7 or 28 days.

Step 3: Testing the Cubes

Prepare for Testing: After curing, the cubes should be removed from the tank and any excess concrete should be carefully removed to ensure a flat surface.

Compressive Strength Test: The cubes are then placed in a Concrete Cube Test Machine, where a load is gradually applied until the cube fails. The maximum load at which the cube fails is recorded.

Safety Considerations

Safety should be paramount in all construction-related tasks, including cube testing. Consider the following safety measures:

Proper Equipment Use: It's crucial to understand how to operate the testing machinery correctly. Incorrect use can lead to inaccurate results and even injury.

Personal Protective Equipment (PPE): Always wear appropriate safety gear, such as safety goggles, gloves, and steel-toe boots when working with concrete and heavy machinery.

Proper Handling: Be careful when handling the concrete cubes, especially when placing them in and removing them from the testing machine.

3.5 FORMWORK FOR CANTILEVER BEAM

Cantilever beam is a type of beam that is supported at one, without support at the other end. The FORMWORK is erected by the use of planks or marine boards which is supported the wall at one edge in conjunction with bamboo all over. The beam reinforcement is placed in FORMWORK with proper settings by living space all around the reinforcement to accommodate concrete cover.

3.6 EXCAVATION

This is the process of remove top soil on a site in another to attain a stabled ground. This is done before commencing the construction of foundation.

Building foundations are the most crucial structural components in any house or building, as it bear the entire load of the structure and transfer it safely into the ground below. It forms the base that supports the entire weight of the walls, floors, roof, utilities and inhabitants of the home. The primary purpose of foundations is to provide stability by evenly distributing the structural loads into the underlying soil. While building foundations this prevents uneven settlement of the building over time, which can cause major cracks and damage.

Two main types of foundations are used in residential construction, shallow and deep. Shallow foundations extend down around 1.5 meters or less and are suitable for single-family homes and low-rise buildings. They include spread footings, mat slabs, floating slabs, etc. Deep foundations go beyond 1.5 meters in depth into deeper soil or bedrock. They are required for multi-storied buildings and homes on weak or unstable soils. Piles, piers and caissons are common deep foundation systems. The type of house foundations depends on soil conditions, building loads and construction budget. A properly designed and built foundation keeps the home steady, secure and free from settlement issues.

They are required for multi-storied buildings and homes on weak or unstable soils. Piles, piers and caissons are common deep foundation systems. The type of house foundations depends on soil conditions, building loads and construction budget. A properly designed and built foundation keeps the home steady, secure and free from settlement issues.

Required Tools & Materials for Manual Excavation

- 1. A shovel for digging
- 2. A pickaxe for tough terrain
- 3. A trowel for concrete work
- 4. A spirit level for precision
- 5. Measuring tapes, string and pegs for markings,
- 6. A wheelbarrow for transport,

3.7 BLINDING

Blinding in construction to the practice of applying a layer of material, usually concrete or granular material, to the ground before laying the main structural elements of a building. This initial layer serves several crucial purposes, including providing a clean working surface and ensuring that the primary structural elements are not compromised by contaminants or environmental factors.



Purpose of Blinding

1. Creating a Level Surface

One of the primary purposes of blinding is to create a smooth, level surface for the subsequent construction phases. This layer helps to fill in any irregularities in the ground, ensuring that the foundation or other structural components are laid on a uniform surface.

2. Preventing Contamination

Blinding acts as a barrier between the ground and the concrete or other materials used in the foundation. It prevents contaminants such as soil, water, or organic materials from mixing with the concrete, which could otherwise weaken the structure or affect its durability.

3. Protecting the Foundation

By providing a clean and stable surface, blinding helps to protect the foundation from potential damage caused by shifting soil or groundwater. This is particularly important in areas with unstable or variable soil conditions.

4. Facilitating Construction

Blinding simplifies the construction process by providing a consistent and reliable base for laying subsequent layers of concrete or other materials. It helps to speed up the construction process and improve the overall efficiency of the project.

Types of Blinding Materials

1. Concrete Blinding

Concrete blinding involves pouring a thin layer of concrete over the ground to create a stable and level surface. This type of blinding is often used in more demanding construction projects where a high degree of stability and protection is required.

Advantages: Offers excellent protection against contaminants and provides a durable, level surface.

Disadvantages: More expensive and time-consuming compared to other materials.

2. Granular Blinding

Granular blinding uses materials such as sand, gravel, or crushed stone to create a level surface. This type of blinding is often used in less critical applications or where a cost-effective solution is required.

Advantages: Less expensive and easier to apply compared to concrete.

Disadvantages: May not provide as strong a barrier against contaminants or environmental factors.

3. Combination Blinding

In some cases, a combination of concrete and granular materials may be used for blinding. This approach allows for the benefits of both materials to be utilized, depending on the specific requirements of the project.

The Blinding Process

1. Site Preparation

Before applying the blinding layer, the site must be properly prepared. This includes clearing any debris, removing vegetation, and leveling the ground to ensure a smooth and stable surface.

2. Application of Blinding

Once the site is prepared, the blinding material is applied according to the specifications of the project. This typically involves spreading the material evenly over the ground and ensuring that it is compacted to create a uniform surface.

3. Curing and Setting

After the blinding material is applied, it must be allowed to cure and set properly. This ensures that the material achieves the necessary strength and stability before any further construction work is carried out.

4. Inspection

A thorough inspection is conducted to ensure that the blinding layer meets all the required specifications and standards. This may involve checking for consistency, levelness, and any potential defects that could affect the subsequent construction.

3.8 ISOLATED and COMBINED FOOTINGS

Isolated and combined footings are both types of foundation systems used in construction to support structures, but they serve different purposes and are used in different scenarios. Here's a breakdown of their differences:

Isolated Footing

Definition: An isolated footing is a type of foundation that supports a single column or load-bearing wall. It is typically a square or rectangular slab that distributes the load from the column to the soil below.

Usage: Commonly used for structures with widely spaced columns where each column can be supported independently.

Design: Isolated footings are designed to handle the vertical loads from the column and provide adequate resistance against soil settlement. They may also include reinforcement to enhance their strength.

Construction: Generally simpler and quicker to construct than combined footings, as they are independent of other footings.



Combined Footing

Definition: A combined footing supports two or more columns or walls that are closely spaced, often used when the columns are too close together for isolated footings to be practical.

Usage: Ideal for situations where columns are closely spaced or when one of the columns is subjected to less load, requiring a larger footing to distribute the total load evenly.

Design: Combined footings are designed to support multiple loads and distribute them evenly to the soil. They often have a wider footprint than isolated footings to accommodate the combined loads.

Construction: More complex than isolated footings, as they require careful design to ensure that the load distribution is balanced and that the footing can support the combined weight of the columns.



3.9 LAYING OF BLOCKS

Step 1: Build Foundation

After determining the boundaries of your project with chalk, you need to create the basis of the project. Start by making a mortar bed. Make sure that the thickness of the mortar bed is between 2.5 cm and 4 cm.

Step 2: Place Corner Block

Place corner block in the mortar bed so that it fits the borders that you have drawn with chalk. You have to be very careful at this stage.

Because the rest of the project will be shaped on this basis. Be sure to properly place the block using a variety of equipment.

Step 3: Adjust Height

Draw lines evenly spaced of approximately 1 meter on a wooden stick so that each tier of concrete blocks can be at the proper height. When you insert the blocks, take measurements with this wooden stick. Press the blocks as much as possible to make the alignment properly. If the level of blocks is low, remove and make it again with a little more mortar.

Step 4: Prepare Other Block

Place the other block on the side of the first block you have placed. To do this, apply mortar to the both sides of the concrete block with a trowel. Thanks to this mortar, the appropriate distance between the concrete blocks will be achieved.

Step 5: Place Other Block

When placing the block, be sure to leave enough space that does not exceed 1 cm between the first block and the second one. Repeat these operations on all the blocks you will line up side by side.

Step 6: Continue Laying

When you have finished laying the three blocks side by side, you can start laying another layer of concrete blocks. Before you start adding new blocks, be sure to check whether they are at balance with the spirit level.

3.10 SPIRIT LEVEL

Spirit levels are indispensable tools used to assess the alignment of surfaces, whether they're meant to be perfectly vertical (plumb) or horizontally level. The term "spirit" in their name refers to the liquid enclosed within the level's vial. This liquid, often alcohol or another low-freezing-point substance, houses an air bubble whose position serves as a precise indicator of the surface's levelness or plumpness.

How to use spirit level

Placement: Position the spirit level on the surface you want to level. Ensure it sits firmly without wobbling.

Observation: Look at the bubble inside the vial. This bubble indicates whether the surface is level or plumb.

Alignment: Adjust the surface until the bubble rests between the two guideline marks. For horizontal leveling, make sure the bubble is centered. For vertical leveling, align the bubble with the center mark.

Calibration (Optional): To ensure your spirit level is calibrated properly, place it on a flat surfaced note the bubble's position. Then, rotate the level 180 degrees and compare the bubble's position again. If the bubble shifts, you may need to adjust the vial. Most spirit levels have a screw that allows for calibration. Turn the screw until the bubble aligns in the center for both orientations.

3.11 DAMP PROOF MEMBRANE D.P.M.

Site preparation:

Level the ground and remove any debris before laying the membrane.

Measure and cut:

Measure the area and cut the damp proof membrane to size, allowing for overlaps at seams.

Laying the membrane:

Unroll the membrane on the prepared ground, ensuring it covers the entire foundation area.

Secure the membrane:

Use appropriate fasteners or adhesives to secure the membrane to the walls and overlaps, depending on the membrane type.

Concrete pouring:

Once the membrane is properly installed, pour the concrete foundation on top of it.

3.12 SANDFILLING

Sand filling refers to the process of placing and compacting sand into excavated areas, voids, or depressions in the ground. This technique is used to improve the ground conditions by filling gaps, providing a level surface, and enhancing the overall stability of the construction site. Sand filling can be applied in various

construction contexts, including foundations, embankments, and road construction.

The primary objectives of sand filling are:

- Leveling: To create a smooth and even surface for the placement of construction materials.
- Stabilization: To enhance the stability of the ground by filling voids and reducing the risk of settlement.
- Protection: To shield underlying layers from damage and contamination during construction activities.

CHAPTER FOUR

4.1 RECOMMENDATION

- 1. I would recommend that the kwara State polytechnic should improve the school by assisting the SIWES student with computer and modern technology and it would lead to create development of the school
- 2. I would recommend that the department of Civil Engineering in kwara State should expose student to practical skill and allow them to practice until they understand it perfectly well.

4.2 CONCLUSION

Student Industrial Work Experience Scheme is very Essential for all student to be able to understand what their cause of study will present to them after graduation and also learn beyond what you they will be able to learn in school.

SIWES is really helping student a lot by also allowing student to connect with people that are already practicing in the field. All thanks to the Government, Kwara State Polytechnic and my Department.

Reference

• Kwara State Polytechnic Students SIWES Manual