



# **FINISHING CONSTRUCTION WORK Level II**

## **Learning Guide-66**

**Unit of Competence: handle waterproofing materials**

**Module Title: handling waterproofing materials**

**LG Code: EIS FCW2 M15 LO3-LG-66**

**TTLM Code: EIS FCW2 M15 TTLM 0919v1**

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## LO 3: Prepare for mechanical handling of materials

Instruction Sheet	Learning Guide # 66
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Preparing waterproofing materials and components
- Installing load, unload Materials and components
- handling Waterproofing materials

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically you will be able to:

- Prepare and position waterproofing materials and components for mechanical handling in accordance with type of material, plant and equipment.
- Load, unload, move, locate and/or install Materials and components are in accordance with workplace procedures.
- Safely handle waterproofing materials and components are with assistance of mechanical lifting devices/hoists in accordance with workplace requirements.

### Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below
3. Read the information written in the information “Sheet Accomplish the “Self-check
4. If you earned a satisfactory evaluation from the “Self-check”.
5. Do the “LAP test”.

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## Information Sheet-1

## Preparing waterproofing materials and components

### 1.1 Preparing waterproofing materials and components

Waterproof/breathable fabrics resist liquid water passing through it, but allow water vapors to pass through. Water resistance is measured by the amount of water, in mm, which can be suspended above the fabric before water seeps through.

The Commonly used materials for waterproofing in building is cementations material, bituminous material, liquid waterproofing membrane and polyurethane liquid membrane Concrete waterproofing – best methods and materials.

Cold-applied polymer-modified bitumen is a sheet membrane composed of polymer materials compounded with asphalt and attached to a polyethylene sheet. Deifiers react with the calcium hydroxide formed in hydration, creating another by-product that increases concrete density and slows water migration.

There are two main components involved for the successful working of the flexible membrane waterproofing system, Liquid Component and Powder Component.

The liquid components acts as an acrylic emulsion and the powder component performs the function of a forming chemicals and fillers with polymer-modified cement. In order to be used, the basements of buildings require effective sealing against moisture.

The most waterproof material ever, based on lessons from nature. The surface consists of tiny ridges on top of a silicon surface, which makes water droplets bounce off the material, keeping it dry.

The material is 'super hydrophobic' or extremely water-resistant A waterproof garment is measured with two numbers. Concrete Absorb the Water. Concrete, bricks, stones and mortars are composed of crystals of carbonate, silicate, aluminates or oxides, whose surfaces are rich in oxygen atoms, which carry negative electrical charge of hydroxyl groups,



which carry both negative and positive charges. Such surfaces are polar and are also called hydrophilic. When water comes into contact with these surfaces, hydrogen bonds are formed between the surface and the water molecules. Once the building materials come in contact with water, they absorb water through their pores by the capillary action. You may call concrete 'Hard Sponge'.

- Strength of Concrete & Waterproofing

The strength of concrete is very much dependent upon the hydration reaction of cement with water. Water plays a critical role, particularly the amount used. The strength of concrete increases when less water is used to make concrete. The hydration reaction itself consumes a specific amount of water. Concrete is actually mixed with more water than is needed for the hydration reactions. This extra water is added to give concrete sufficient work-ability.

Flowing concrete is desired to achieve proper filling and composition of the forms. The water not consumed in the hydration reaction will remain in the microstructure pore space. These pores make the concrete weaker due to the lack of strength forming calcium silicate hydrate bonds. Some pores will remain no matter how well the concrete has been compacted. These pores become source of leakage in concrete. **Waterproofing Benefits**

You Must Protect Your Building's Interior from Water Damage for most of the time during construction, you may find the inner parts of your building exposed to the elements. Things like the frames, the foundations, wiring and insulation, as well as the floors. If you're using concrete and steel the hazard is less prominent, although those metal parts may still rust, and concrete can still suffer damage, but it's with wooden materials that the dangers of water really set in. If exposed to water for prolonged periods, the wood may begin to rot or become infested with mold, rendering the entire structure unsound and unfit for habitation.

Waterproofing your building materials during construction will help prevent this from occurring, promoting in your fledgling building a healthy, strong start. As you'll be better protecting your materials from damage, it also prevents expensive delays and replacements, as you will not need to be repairing continuous damage either during construction or after it has been completed.

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<b>Self-Check -1</b>	<b>Written Test</b>
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**Directions:** Give the short answer for the following questions.

1. Mention the type of components of waterproofing materials?(10 points)

**Note: Satisfactory rating - 5 points**

**Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

### Answer Sheet

1. \_\_\_\_\_
2. \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Short Answer Questions



<b>Information Sheet-2</b>	<b>Installing load, unload Materials and components</b>
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## 1.2 Installing Materials.

When building a new building where below grade structures may be at risk for water intrusions, such as basements, elevator pits, or underground garages, waterproofing is essential to keep these areas dry. Here is an article describing the installation of sheet applied waterproof membrane

- Post Mix Concrete is a rapid setting pre-mixed formulation that is specially designed for the use on a variety of posts. This high-quality product is extremely versatile and can be used for the fast setting of concrete, wooden and metal fence posts; including gate posts, decking posts, washing lines and even garden ornaments. In addition to setting in as little as 5-10 minutes, our Post Mix Concrete has other benefits such as providing a durable, hardwearing blend of materials that require little mixing and will guarantee long-lasting results. Post Mix is simple and easy to use, requiring only the addition of water which is why this is the perfect product for all homeowners.
- Applications

Application is used for fixing posts, road signs and bollards No requirement for mixing – just add water after placing. As a guide a 2.4m post should have 0.6m below and 1.8m above ground level. One 20kg bag of Reader Post Fast will secure a standard size fence post. Setting is normally in 10-15 minutes but may be longer in cold weather.

- Testing

Pro-Mix is tested in accordance with specific procedures to ensure compliance to specification prior to dispatch and are subject to the controls. Applying a masonry waterproofing product to bare interior basement walls. If your foil test showed that water is soaking through your basement walls and leaving them wet, seal the interior of the walls with a high-quality waterproof paint, such as DRYLOK White Extreme Waterproofed (available from Home Depot). Materials for installation of a sloped roof. Within this sphere we offer you roofing and waterproof materials, which are guaranteed to be of high safety

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<b>Self-Check -1</b>	<b>Written Test</b>
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**Directions:** Give the short answer for the following statements.

1. Explain Post Mix Concrete? **(10 points)**

**Note: Satisfactory rating - 8 points**

**Unsatisfactory - below 7 points**

You can ask you teacher for the copy of the correct answers.

### Answer Sheet

1. A. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Short Answer Questions



### 1.3 Identifying waterproofing materials

The material is made of strong, hard wearing woven polyethylene and is double laminated for better protection against weather. As it is waterproof it is easily washable and the design of the cover allows you to fold it away compactly for storage.

- Handling is the act of touching, feeling, holding and moving something. The act or process of packing and shipping something to someone (such as a customer). It includes the preparation, handling, sorting, stacking and disposal of waterproofing products, materials and components in the application of waterproofing systems, including the disposal of waste.
- Sorting cards are a great way to reinforce the properties of waterproof and non-waterproof materials. Use them in your classroom for a fun-filled session! Handling Waste waterproofing materials.





## Self-Check -1

## Written Test

**Directions:** Give the short answer for the following questions. Use the Answer sheet provided in the next page:

1. What the meaning of handling? (3 points)
2. Define the word sorting cards ?(6 points)

**Note: Satisfactory rating – 5 points**

**Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

### Answer Sheet

1. \_\_\_\_\_
2. **A** \_\_\_\_\_  
**B** \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Short Answer Questions

#### Reference

Https | | [www.you](https://www.youtube.com) tube.com

#### Answer sheet

LO3 Information sheet one, self-check answer one

1. Liquid component
2. Powder component.

LO3 Information sheet two, self-check answers two

1. Pre mixed formations are used for formulating designed for the use of variety.

LO3 Information sheets three, self-check answer three

1. Handling is the act of touching and holding something.
2. Sorting card is a great way to reinforce the properties of waterproof and non-waterproof materials.



No	Name of trainer	Qualification	Region	E-mail
1	Desalgn Teshome	BSC in Building Construction Technology	Oromia	desute17@gmail.com
2	Gezu Bedane	BSC in Building Construction Technology	Addis Ababa	Geze Badhane@gmail.com
3	Habtamu Abayneh	BSC in Building Construction Technology	SNNPRS	Habtishzeget05@gmail.com
4	Mihiretab Gashaw	BSC in Building Construction Technology	Addis Ababa	mihiretabgashaw@gmail.com
5	Shukri Tahir	BSC in Building Construction Technology	Somalie	Shikuretahir09@gmail.com
6	Tenagnework Kebede	BSC in Building Construction technology	Amhara	tenagnk16@gmail.com
7	Zelalem Adugna	BSC in Building Construction Technology	Dire Dawa	Zola.za@73gmail.com