

MODULE: PADAS301QUALITY AREA SKIMMING

COMPETENCE: PADAS301PERFORM AREA SKIMMING

Purpose statement

This is a core module which describes the performance outcomes, skills and knowledge required to perform area skimming

LEARNING UNITS	LEARNING OUTCOMES
1. Prepare the working area	1.1. selection of PPE 1.2. selection of tools for surface preparation 1.3. selection of equipment for surface preparation 1.4. selection of materials for surface preparation 1.5. identification of defects 1.6. cleaning of work area
2. Apply skimming techniques	2.1. repair of defects 2.2. mixing of stucco paste 2.3. application of stucco paste 2.4. sanding of skimmed surface 2.5. checking of work
3. Clear the work place	3.1. cleaning of tools and equipment 3.2. cleaning of the workplace 3.3. storage of tools and equipment

LEARNING UNIT1: PREPARE THE WORKING AREA

LEARNING OUTCOME1.1 PREPARE THE WORKING AREA

Definition and Function of PPE: Personal protective equipment is protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection. Protective equipment may be worn for job-related occupational safety and health purposes, as well as for sports and other recreational activities.

In order for PPE to function the way it was meant to and protect the wearer fully, it must be donned and doffed properly.

➤ Advantages and disadvantages

Some specific advantages of PPE: Personal protective equipment are what keeps workers safe in doing in their jobs.

- ✓ High wearing rate
- ✓ Reduced losses

- ✓ Comfort

➤ **Disadvantages of PPE:**

- ✓ Reduced efficiency
- ✓ Requires impressions to be taken by a professional
- ✓ Regular maintenance
- ✓ Hygiene problems during shaping if hands are not clean

Types of PPE for area skimming works:

Protection gear such as:

- Safety goggles,
- Gloves,
- Overalls, or old clothes,
- Dust mask,
- Helmet,
- Safety shoes,
- Ear protection, and
- Knee pads (knees take quite a bit of punishment when laying a tile floor).



1. Cup face mask



2. Ear defenders



3. Rigger gloves



4. Rubber gloves



5. Safety helmet



6. Anti mist scratch resistance glass



7. Overalls 8. Knee pads

Five advantages of wearing Personal Protective Equipment used at work

1. A person who wears PPE in work feels better and more comfortable

It increases the quality of your workday.

Think of PPE as a support system of sorts for the work your job requires you to do. It may be more physically demanding or slightly more hazardous than your average desk job, but the equipment is provided to make you feel that physical risk is minimal.

2. PPE protects our body against injuries in the workplace

Long-term conditions may result from a failure to protect yourself.

Feeling fine at the end of your shift doesn't pass for the fact that you've properly protected your body. Exposure to different chemicals and compounds on the job can have long-term effects on your body, with mesothelioma being a great example.

3. PPE keeps away the harmful dust which can affect our face. You only have one pair of eyes.

Safety glasses are probably one of the most common (and effective!) forms of PPE. This is because any substance, whether corrosive or not, and any material, sharp or not, can be hazardous when it comes in contact with your eyes.

4. Proper use of PPE can help prevent illnesses resulting from contact with several hazards

It keeps you from being liable for your own injuries.

One common speed bump that workers' compensation attorneys deal with on the regular is an individual's decision not to wear PPE, regardless of the fact that they were provided with it by their employer. This often makes the liability for a workplace illness or injury more of a gray area.

5. To keep our internal clothes clean

The primary purpose of work wear overalls is to protect the user from harsh elements or substances that are part and parcel of the job. Whether your workers are dealing with harsh chemicals or they're out at sea; it is of the utmost importance that their skin is kept dry and comfortable. Work overalls - if worn correctly - provide excellent protection against the abovementioned elements.

Five disadvantages At work place without wearing Personal Protective Equipment

At work place without wearing Personal Protective Equipment employees are at risk of

1.Exposure to Chemicals

Your employees may be at risk of health hazards if their jobs include exposure to chemicals. Substances that can harm your workers include fumes, gases, liquids, solids, dust, vapors and corrosives. Whether your employees are at risk of ingesting the substance, inhaling it or absorbing it through the skin, you have a responsibility to ensure the risks are minimized. These types of hazards can be in any type of business you run, from manufacturing to retail.

2.The Risk of Fire

Fire is a risk for your business, no matter what type of company you are running. The Seattle Fire Department Fire Prevention Division estimates 70,000 to 80,000 fires occur in businesses in the U.S. each year. Knowing where your fire extinguishers are, holding fire drills and informing employees of your emergency escape routes can ensure safety.

3.Repetitive Use Injury

When your employees repeat the same actions throughout the day, such as typing or rolling dough, or washing windows, they are at risk of repetitive use injury. The parts of the body that suffer from repetitive use are the back, shoulders, forearms, wrists and hands. Ensuring adequate breaks from job duties can reduce the risk of injury.

4.Injury due to Electrical Hazards

People who work directly with electricity, including electricians and engineers, are at risk of injury; personnel who work with electrical equipment in the office are also at risk of injury. Even an office worker making a fix with power tools outdoors can sustain electrical injury during adverse weather. You can minimize the risk of injuries by using one extension cord or power strip per connection, keeping liquids clear of electrical equipment and conducting regular safety examinations.

5.Accidental Falls and Falling Objects

If your employees work at elevated heights, they may be at risk of accidental falls. Anytime objects are stored at or above head level, there is a risk of injury caused by falling objects. Wearing safety gear including a hard hat or harness, and installing guardrails or a safety net can reduce the risk of injury. Instruct employees on the safe use of equipment.

USAGE AND MAINTENANCE OF PPE FOR SKIMMING WORKS

- 1.Examination or checking
2. repair
- 3.Replace
- 4.cleaning

LEARNING OUTCOME 1.2 USE TOOLS AND EQUIPMENT FOR SURFACE PREPARATION

Preparation of surface for skimming: -

- ✓ First clean the surface perfectly, remove any debris or extra mortar is there.
- ✓ Then roughen the wall so that the mortar can adhere with the brick masonry perfectly.
- ✓ If there is any hole then fill it with appropriate material before plastering.
- ✓ Before plastering cure the wall perfectly at least 6 hours before.

CLASSIFICATION OF TOOLS AND EQUIPMENT AND MATERIALS FOR SURFACE PREPARATION:

1.Cutting tools/machines:Are hand tools or machines used to reduce or cut unwanted material during surface preparation.

Example:panga,

2.Cleaning tools/equipment:Are hand tools or machines used to remove unwanted materials(piece of bricks,mortar,glass...) during surface preparation.

Removal of any waste on working area after work for make your job to be smart and avoid accident at workplace.

Examples: Spades,hoe, Wheel barrow,pan



SKIMMING TOOLS AND EQUIPMENT

- i) **Tape measure:** is used for taking measurements
- ii) **Building cord:** is used for straightening the surface to be skimmed
- iii) **Mortar pan:** is used for carrying mixed mortar
- iv) **Coping saw:** for cutting during surface preparation
- v) **Trowel:** for placing, spreading mortar and smoothing the surface
- vi) **Spirit level:** for taking horizontal and vertical level to the surface
- vii) **Joint spacer:** used for making regular joint
- viii) **Hawk. A hawk :** is used by the professionals to carry the plaster with them as they move down the wall.
- ix) **Utility Knife/Scissors:** Used for cutting and designing the surface.
- x) **Sponge/Sandpaper:** Used for finishing, cleaning and smooth the surface



LEARNING OUTCOME 1.3: SELECT MATERIALS FOR SKIMMING WORKS

Materials used for area skimming are:

1. Sand
2. Cement
3. Water
4. Admixtures
5. Stucco
6. Lime Cable manager

1. CHARACTERISTICS OF SAND USED FOR AREA SKIMMING

- ✓ It should be clean and free from coatings of clay and silt.
- ✓ It should be free from hygroscopic salts.
- ✓ It should have coarse, angular, hard and sharp grains.
- ✓ It should not contain organic matter.
- ✓ It should be strong and durable.
- ✓ It should be chemically inert
- ✓ It should be well sieved

2. CHARACTERISTICS OF CEMENT USED FOR AREA SKIMMING

- ✓ Fineness of cement.
- ✓ Soundness.
- ✓ Consistency.
- ✓ Strength.
- ✓ Setting time.
- ✓ Heat of hydration.
- ✓ Bulk density

3. CHARACTERISTICS OF WATER USED FOR AREA SKIMMING

- ✓ It Should be colorless
- ✓ It Should be free from impurities
- ✓ It Should be free from hygronomic salts
- ✓ It Should be chemically inert
- ✓ It Should be natural water from springs

4. ADMIXTURES:

Are chemicals or minerals materials used to change the properties of mortar used area skimming. Are classed according to function. There are five distinct **classes** of chemical **admixtures**:

- 1. Air-entraining admixtures:** cause small stable bubbles of **air** to form uniformly through a mortar mix. The bubbles are mostly below **1 mm** diameter with a high proportion below **0.3 mm**.
- 2. Water-reducing admixtures:** are chemical **admixtures** designed to **reduce** the **water: cement ratio** of mortar without adversely affecting the rheological properties. **One** major benefit of these materials is that they provide up to **15%** of the **water** in a mortar mix design.

- 3. Retarding admixture** decreases the initial rate of reaction between cement and water, and hence, retards the setting time of concrete.
- 4. Accelerating admixtures** can be used to increase either the rate of stiffening or setting of the mortar or the rate of hardening and early strength gain to allow earlier formwork striking and demoulding.
- 5. Plasticizers** (super plasticizers).or water reducers are chemical **admixtures** that can be added to mortar mixtures to improve workability. They are used in mortar to reduce the water without affecting the workability.

LEARNING OUTCOME 1.4 IDENTIFY DEFECTS

- 1) **CRACKS** : Building cracks are most common type of problem in any type of building. So, it is important to understand the causes and the measures to be taken for prevention. Though cracks in concrete cannot be prevented entirely but they can be controlled by using adequate material and technique of construction and considering design criteria. We all dream of a house structurally safe and esthetically beautiful but it is not so easy.

Causes:

Cracking results from the following reasons:

- ✓ Imperfect preparation of the background;
- ✓ Structural defects in building;
- ✓ Discontinuity of surface;
- ✓ Movements in the background due to its thermal expansion or rapid drying;
- ✓ Movements in the plaster surface itself; due to expansion or shrinkage;
- ✓ Excessive shrinkage due to application of thick coat;
- ✓ Faulty workmanship.

Some of the main causes for poor construction practices and inadequate quality of buildings are given below:

- Improper selection of materials.
- Selection of poor quality, cheap materials.

- Inadequate and improper proportioning of mix constituents of concrete, mortar etc.
- Inadequate control on various steps of concrete production such as batching, mixing, transporting, placing, finishing and curing
- Inadequate quality control and supervision causing large voids (honey combs) and cracks resulting in leakages and ultimately causing faster deterioration of concrete.
- Improper construction joints between subsequent concrete pours or between concrete framework and masonry.
- Addition of excess water in mortar mixes.
- Poor quality of plumbing and sanitation materials and practices.

2) HOLE

HOLE :The mechanical action of rubbing, scraping, scratching, gouging or erosion.

Probable Causes: Removal of a portion of the surface of the coating or in severe cases removal to expose the substrate by contact with another object such as the use of metal chains for lifting, cargo, fenders, or the grounding of a ship.

Prevention:Use of abrasion resistant coatings formulated with particular regard to resins and extender pigments. With severe cases of abrasion the effects will only be reduced or limited by an abrasion resistant coating

3)DAMPNESS

3)DAMPNESS :Structural **dampness** is the presence of unwanted moisture in the structure of a **building**, either the result of intrusion from outside or condensation from within the structure. A high proportion of damp problems in **buildings** are caused by condensation, rain penetration or rising damp

Effects of dampness in buildings:

1. Causes rotting of wood.
2. Causes corrosion of metallic fixtures.
3. Deteriorate electric installations.
4. Deteriorate carpet & furniture's.
5. Causes spots on the floors and walls.

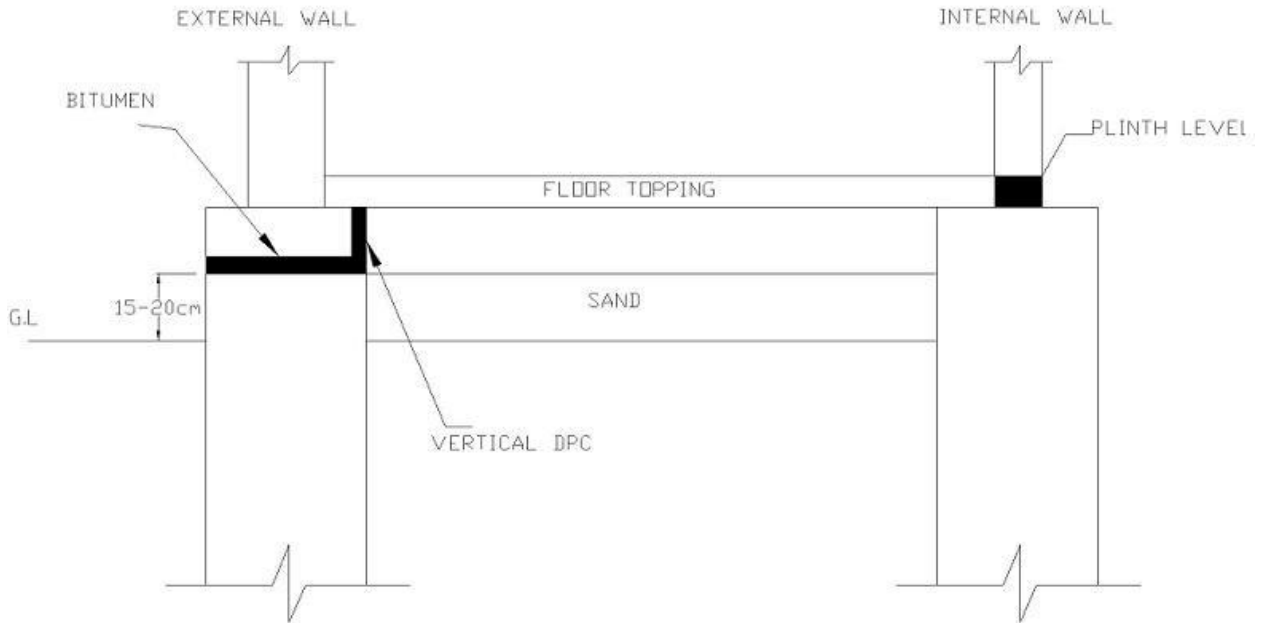
6. Causes peeling off and removal of plaster.
7. Causes bleaching and blistering of paints.
8. Causes efflorescence.
9. Dangerous for the health of occupants.
10. Reduce the life of structures

Causes of dampness in buildings

1. Rain penetration
2. Level of site
3. Drain ability of soil
4. climate condition
5. Defective orientation of building
6. Moisture entrapped during construction
7. Defective construction e.g. joints

Method of preventing dampness

1. By surface treatment i.e. by providing damp proof paint
2. By integral water proofing method
3. By special devices i.e. by providing chajjas & by providing cavity walls etc
4. By providing DPC (Damp proof course)



4)UNEVEN SURFACE

4)UNEVEN SURFACE: The surface which is not leveled,smooth,uniform or varying in quality.

CAUSES:

- ✓ inability of the topcoat to bond smoothly to a glossy coat underneath.
- ✓ Inadequate sealing of surfaces with varying porosity,uneven application,temperature variations during drying. Painting over a paint film that is not dry or that is too soft can cause uneven gloss.

SOLUTION:

- ✓ Remove old paint completely by scraping and sanding. Use a power washer for large areas,then painting with a high-quality primer followed by a top-quality exterior paint
- ✓ If the surface is extremely porous, a prime coat is necessary; otherwise, another finish coat, spread uniformly, might correct the problem. Some unevenness can be expected on rough surfaces, but additional coats will give better uniformity. If moisture contact has caused flattening, or if temperature variation has occurred, you will have to apply another coat of paint when moisture is not present and/or when changes in temperature are less likely. If the undercoat was not dry, allow the flattened paint to dry hard

and apply another finish coat. To make sure the paint is dry, scratch the surface with a thumbnail.

Others defects that can appear on surface:

- ✓ Efflorescence
- ✓ Uneven surface
- ✓ Flaking
- ✓ **Rust Stains**
- ✓ Pooping
- ✓ Crazing
- ✓ Peeling
- ✓ Blistering of plastered surface

LEARNING OUTCOME 1.5. CLEAN THE SURFACE TO BE SKIMMED

• **Cleaning the surface:**

- ✓ By water
- ✓ By brush
- ✓ By air compressor
- ✓ By sand

EXERCISES FOR LEARNING UNIT 1

1. By using examples classify the tools and equipment used for surface preparation?
2. Differentiate tools from equipment used in Area skimming?
2. what are advantages of proper usages of tools for area skimming?
3. what do you understand by maintenance of equipment used for area skimming?
4. What are the uses of the following tools and equipment:
 - a) Spirit level:
 - b) Pan:
 - c) Straight edge:
 - e) sponge:
 - f) Trowel:
5. Describe 4(four) major defects that can appear on surface?
6. What are 5 effects of dampness in building?
7. What are the causes of dampness in building?
8. What do you understand by uneven surface?
9. What are the causes of uneven surface?

LEARNING UNIT 2: APPLY SKIMMING TECHNIQUES

LEARNING OUTCOME 2.1. APPLY STUCCO PASTE

- **STUCCO** is defined as the fine plaster made in sand , cement & water used for coating wall or molding into architectural decoration.
- **Plaster** is a building material used for the protective or decorative coating of walls and ceilings and for molding and casting decorative elements.
- **Plastering** is the process of covering rough walls and uneven surfaces in the construction of houses and other structures with a plastic material, called plaster, which is a mixture of lime or cement concrete and sand along with the required quantity of water.

PURPOSE OF PLASTERING

- 1.To provide even, smooth, regular, clean and durable finished surface with improved appearance.
- 2.To preserve and protect the surface.
- 3.To cover up the use of porous materials of the masonry work

COATS OF PLASTER:

- 1.First coat
- 2.Second coat
- 3.Third coat

1.FIRST COAT

The first coat is of coarse stuff finished fair with the darby float and scoured. A thin coat of setting stuff is then laid on, and trowelled and brushed smooth. Two-coat work is described as render and set on walls, and lath, plaster and set, or lath, lay and set on laths.can called Adhesion coat.

2.SECOND COAT

Your second coat of plaster can be applied two to four hours after the first coat can called leveling coat.

How to apply your second coat of plaster

- ✓ Check the first coat. Press the area you first started your first coat and see how the plaster reacts.
- ✓ Apply your second coat. During this second phase of plastering, apply the plaster in exactly the same way as you did on the first.
- ✓ Even coating.

- ✓ Stick to a single path of movement.
- ✓ Leave to dry.

3. THIRD COAT

Called also finishing coat which are the final usually white coat of plastering applied to walls and ceilings.

Process of plastering work:

- ✓ After this prepare the mortar mix
- ✓ Then put dots on the wall to make sure even layering of plasters on the wall.
- ✓ These dots are patch of plasters.
- ✓ This is patches are putted to do the even layering of plaster
- ✓ Then put the first layer of plaster coat on wall & then second layer.
- ✓ Then level the surface by flat wooden edges.
- ✓ The leave it for settle down ,after that do the curing process.



REQUIREMENTS OF GOOD STUCCO

- ✓ It should adhere to the background and should remain adhered during all climatic changes.
- ✓ It should be cheap and economical.
- ✓ It should be hard and durable.
- ✓ It should be possible to apply it during all weather conditions.
- ✓ It should effectively check the entry or penetration of moisture from the surfaces.
- ✓ It should possess good workability.

STUCCO TYPES:

- ✓ **Pre-mixed stucco:** Is the type of stucco which is mixed in an early stage in the manufacturing and distribution process and are manufactured in stucco industries.
- ✓ **In situ made** Is type of stucco which is made in place where it is going to be used (at site).

STUCCO MIXING METHODS

Produce uniform and good stucco, it is necessary to mix cement and fine sand, first in dry condition and then in wet condition after adding water.

The following methods are used:

- a) **Manual mixing or hand mixing:** Is the method of overturning stucco ingredients by using small tools/hand tools such as hoe, spade in the place.
- b) **Machine mixing by using:** Is the method of overturning stucco ingredients by using machine such as dry mortar plant or mortar mixer in the place.

MORTAR

Mortar is defined as mixtures of binding materials (cement, lime), fine aggregate, water and admixtures if necessary.

STEPS OF MIXING MORTAR

Step 1

Measure the recommended water amount for the number of bags to be added to the

mixer and pour half of the water into the mixer (an 80-pound bag of Mason Mix will require about 5 quarts of water). If using liquid cement color, add to the mixing water.

NOTE: add the water to the mixer before adding the dry mix.

Step 2

Add the dry mix into the mixer and allow the mortar to mix for about a minute, then add the remaining water as necessary.

Step 3

Continue to mix for 3-5 minutes, until a uniform, workable consistency is achieved.

Step 4

Let the mortar sit undisturbed for about 3-5 minutes to allow the fine aggregate in the mix to fully saturate

TIP: if additional water is needed, add small amounts of water sparingly.

Step 5

Test the consistency of the mortar by gently “snapping” the trowel downward to remove any excess mortar. The proper consistency is achieved when the wet mortar will "hang" on a trowel held at a 90° angle.

- **TECHNIQUES OF APPLYING STUCCO PASTE**

1st step:Prepping Your Wall

- Remove paintings, rugs and anything that isn't too heavy to carry from the area around the place you plan to stucco.
- Wash the surface with a mixture of household detergent and warm water.
- Protect faceplates, fixtures, window sills and other paneling with painter's tape.
- Fill gouges, holes and cracks with spackling compound.

2nd step: Choosing the Stucco

1. Choose stucco or textured paint from a hardware or paint store.

- When purchasing stucco paint for outdoor surfaces, you can choose fine, medium or coarse sand stucco. Consult the paint specialists about which option would be best for your building.

2. If you want, mix the stucco yourself. Stucco is usually made out of Portland cement, sand, hydrated lime, and water. You can do pretty well by mixing cement to sand and then adding enough water, slowly, to get the stucco to the consistency of wet peanut butter.

3. If you're doing a small job and only need to patch up stucco, consider getting pre-mixed stucco patch. Pre-mix stucco patch can come in either textured or un-textured form, and comes ready to go, for ease of application. If you're only patching up a slight area and don't want to spend a lot of time mixing, this might be the right way to go.

3rd step :Applying the Stucco to the Wall

- a) Spread some stucco on a sheet of plywood to experiment with the kind of texture you would like to create
- b) Prep your wall to receive the stucco.
- c) Apply the scratch coat of stucco using a trowel and a hawk, if necessary.
- d) Apply the second coat, also known as the brown coat or leveling coat.
- e) Go over the brown coat with a darby or feather edge to smooth it.
- f) Apply the finish coat, texturing or "floating" the stucco as desired.

LEARNING OUTCOME 2.2 SAND THE SKIMMED SURFACE

sand the skimmed surface:Is the techniques used to make the surface smooth for providing good appearance.

Methods of sanding:

- ✓ **Manual sanding:**Is the method of smoothing surface by using hand sand papers
- ✓ **Machines sanding:**Is the method of smoothing surface by using grinding machine and Sanding machine PDAs

LEARNING OUTCOME 2.3. INSPECT THE SKIMMED SURFACE

• Quality of skimmed surface you may check the:

- ✓ Smoothness of the surface
- ✓ Squareness of corners and edges

EXERCISES FOR LEARNING UNIT 2

1. Define STUCCO used for finishing the wall?
2. Explain how can you check the quality of skimmed surface of STUCCO?
3. State 2 procedures of repairing defects before applying the finishing?
4. Explain 2 stucco types?
5. Explain 2 methods used for mixing stucco?
6. Explain 2 methods of sanding a wall during finishing works?
7. What are main purposes of using sanding techniques?
8. Explain how can you evaluate the quality of skimmed surface

LEARNING UNIT 3: FINISH THE SKIMMING WORK

LEARNING OUTCOME 3.1: CLEAN TOOLS , EQUIPMENT AND WORKING AREA

Safety precautions

General Precautions

- ✓ Your safety is your personal responsibility.
- ✓ Always follow the correct procedures.
- ✓ Never take shortcuts.
- ✓ Take responsibility and clean up if you made a mess.
- ✓ Clean and organize your workspace.
- ✓ Ensure a clear and easy route to emergency exits and equipment.
- ✓ Be alert and awake on the job.

➤ How do you maintain the efficiency of tools and equipment?

Steps

1. Clean your tools. Cleaning the tools regularly is essential to their proper functioning.

2. Protect electrical cords.
3. Lubricate tools.
4. Inspect tools regularly.
5. Store tools with care.

➤ **How do I protect my hand tools from rust?**

1. Control humidity. If your hand tools are susceptible to rust, try adding a moisture-absorbing gel pack to your toolbox or drawer.
2. Avoid getting tools wet.
3. Apply a protective coating.

Employ my rust removal-and-prevention formula

➤ **Effective cleaning is done for:**

- 1) Preparation. Remove loose dirt and food particles. ...
- 2) Cleaning. Wash with hot water (60 °C) and detergent. ...
- 3) Air drying.

Methods of cleaning tools and equipment

1. Wet cleaning

Eg. By using water and oil

2. Dry cleaning

Eg. By using brush and air compressor

LEARNING OUTCOME 3.2 APPLY STORING TECHNIQUES

Storage procedures:

- Selection of area for storing tools and equipment

- Prioritize tools and equipment
- Separate tools and equipment
- Discard unused tools and equipment

EXERCISES FOR LEARNING UNIT 3

1. Describe briefly how do you protect the hand tools from rust?
2. Explain how do you maintain the efficiency of tools and equipment?
3. Explain why do you need to finish the skimming work?
4. Explain how can check the effective cleaning of tools and equipment before storing?

END OF MODULE!!!!!!!