Finishing Construction

Works Level II

Learning Guide-42

Unit of Competence: Manually sand plaster work

Module Title: Manually sand plaster work

LG Code: EIS FCW2 M07 LO1-LG-42

TTLM Code: EIS FCW2 M07 TTLM 0919v1

LO 1: Plan and prepare

Instruction Sheet	Learning Guide #42

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Obtaining, confirming and applying work instructions
- Following safety ***(***OHS***)*** requirements in accordance with safety plans and policies.
- Identifying and implementing signage and barricade requirements
- Selecting Tools and equipment for carry out tasks
- Calculating material quantity requirements
- Identifying, obtaining, preparing, safely handling and locating Materials.
- Identifying and applying Environmental requirements statutory and legislative authority

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Obtain work instructions and operational details using relevant information***,*** confirm and apply for planning and preparation purposes.
- Follow Safety ***(***OHS***)*** requirements in accordance with safety plans and policies.
- Identify and implement signage and barricade requirements
- Select tools and equipment to carry out tasks are consistent with the requirements of the job, check for serviceability and rectify or report any faults prior to commencement.
- Calculate material quantity requirements in accordance with plans and specifications and quality requirements.
- Identify, obtain, prepare Materials appropriate to the work application, safely handle and locate ready for use.
- Identify environmental requirements for the project in accordance with environmental plans and regulatory obligations and apply.

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
4. Accomplish the “Self-checks, in each information sheets.
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

Information Sheet-1	Obtaining, confirming and applying work instructions

1.1. Work instructions

Introduction:-In construction site identify plan location and specification according to work instructions techniques. A work instruction is a document that provides specific instructions to carry out any activity. It's a step by step guide to perform a single instruction. A work instruction contains more detail than a procedure and is only created if detailed step by step instructions are needed. Work instruction including plans, specification and quality requirement etc.

1.1.1. Plan

A drawing showing technical details of a building, machine, etc., with unwanted details omitted, and often using symbols rather than detailed drawing to represent doors, valves, etc. The plans for many important buildings were once publicly available.

A set of intended actions, usually mutually related, through which one expects to achieve a goal. He didn't really have a plan; he had a goal and a habit of control.
A two-dimensional drawing of a building as seen from above with obscuring or irrelevant details such as roof removed, or of a floor of a building, revealing the internal layout; as distinct from the elevation.

1.1.2. **Specification**

Specification is defined as the designation or statement by which written instructions are given distinguishing and/or limiting and describing the particular trade of work to be executed. In short specification is a statement of particular instructions of how to execute some task. Specification is one of the contract documents.

Specifications are written based on the prepared design, drawings, general and scientific trends of workmanship, quality expected equipment involved and materials tobeusedfor the particular trade of work. The specifications should clearly specify:-

1. Design and drawing
2. Labor employment
3. Materials to be used
4. Construction method
5. Equipment used

Specifications should be clear, concise, and brief descriptions of what is required to execute the proposed trade of work. The information that is needed for construction is usually conveyed by two basic communication lines. They are Drawings (pictorial) and Specifications (written).

In so doing the methods of communication should complement each other and neither should overlap or duplicate the other. Specifications are devices for organizing the information depicted on the drawings and they are written descriptions of the legal and technical requirements forming the contract documents.

Their differences that the drawings should generally show the following:

1) Dimensions, extents, size, shape, and location of component parts

2) Location of materials, machineries, and fixtures

3) Interaction of furniture, equipment' sand space

4) Schedules of finishes, windows and doors

Specifications generally describe the following:-

1. Type and quality of materials, equipments, labor or workmanship

2. Methods of fabrication, installation and erection

3. Standards, codes and tests

4. Allowance, submittals and substitutions
5. Cost included, insurance and bonds
6. Project records and site facilities.

Types of Specifications

In general, specifications can be broadly classified into four categories as follows:

1. **Manufacturer's specification:** Manufacturers prepare specification of their product for the guidance of their users, which may include property description and installation guide lines.
2. **Guide Specification:** Specifications prepared by an individual or group of individuals based on manufacturer's specifications, established trends of workmanship, service and laboratory tests and research findings to be used as guide lines for preparation of contract specifications.
3. **Standard Specification:** Specifications which are intended to be used as a reference standard in the construction of a project. The guide specification which has been standardized by a recognized authority is considered as standard specification.
4. **Contract (Project) Specification:** the specification prepared for a particular project to accompany the drawings and other contract documents.

1.1.3. quality requirements

Quality planning documents are used by organizations to ensure that quality At the highest level, quality goals and plans should be integrated with overall strategic to applicable standards, practices, procedures, and work instructions,

Quality in construction industry can be defined as the attainment of acceptable levels of performance from construction activities. This performance would be attained when the activity meets the requirements of client or owners

1.1.4. Material Safety Data Sheets (MSDS)

- **What is included in the MSDS?**

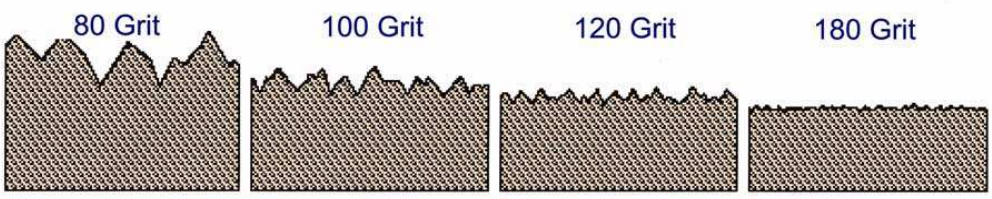
A Material Safety Data Sheet (MSDS) is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product. It is an essential starting point for the development of a complete health and safety program.

- **What is a MSDS and what is its purpose?**

One way that consumers and workers are informed of the risks is by use of material safety data sheets. A material safety data sheet (or MSDS) is a document that provides workers with procedures for safely handling or working with a particular substance.

1.1.5. Safe sanding plaster work

A sanded surface is nothing more than progressively finer and more numerous scratches. Therefore, skipping grit leaves deep valleys that successive grits are hard-pressed to remove.



A general rule for the use of sandpaper is as follows - the finer the sandpaper used, the lighter the stain color will be. Conversely, the coarser the sandpaper used the darker the stain color will be.

Remember that a coarser sanding job will look less refined than the smoother surface that comes from progressing through increasingly finer grits of sandpaper. Final sanding will bring

the surface to the desired smoothness. Sanding must be thorough, even and with the grain of the plaster. If these criteria are met, no further sanding will be necessary.

Since there are so many grades of sandpaper available, some knowledge of what the various designations mean and a little practice are useful in order to take advantage of this important tool. This chart is based on our experience and is intended as a guideline only.

The number of identification or grit number on the back of sandpaper sheets indicates the smallest opening through which the abrasive particles will pass. For sandpaper marked 220 the abrasive particles will pass through a screen with 220 openings per linear inch.

The designation "Open Coat" indicates a particle distribution to prevent the paper from clogging. The adhesive used on wet or dry sandpaper is resistant to water, oils and paint thinner.

- The adhesive used on standard sandpaper is water sensitive.
- Cabinet grade sandpaper is backed with heavy paper.
- Finishing grade is backed with more pliable paper.

The types of abrasives commonly used for furniture finishing are garnet, aluminum oxide and silicon carbide. In general, red garnet paper is used primarily for hand sanding. Grey to white aluminum oxide is used for either hand or power sanding; black silicon carbide is the abrasive of choice for very fine sanding in the plaster working field.

Falling objects can cause injury to your head, body and feet, and to someone working in the area below you, or members of the public passing close to the site. Make sure no debris could fall from height and place objects in a safe place. Use a suitable Shute for materials going into a skip.

Make sure all necessary precautions are taken as follows:

- ✓ Brick guards kept in position on scaffold lifts.
- ✓ Waste materials removed from scaffolding and placed in skip.
- ✓ Protective foot wear (with steel toe caps & midsoles)
- ✓ Supplied and worn at all times.
- ✓ Safety helmets to be worn and chin strap used when required.
- ✓ Encourage other workers to wear safety hats, protective clothing and foot wear.

Self-Check -1	Written Test

Directions: Answer all the questions listed below.

1. ----------is nothing more than progressively finer and more numerous scratches. What about sanding

   A. Sanding surface C. painting surface

   B. Plastering surface D. all

2. Specifications which are intended to be used as a reference standard in the construction of a project
   A. Manufacturer's specification
   B. Contract (Project) Specification
   C. Standard Specification:
   D. none
3. Contract (Project) Specification: the specification prepared for a particular project to accompany the drawings and other contract documents
   A. Manufacturer's specification
   B. Contract (Project) Specification
   C. Standard Specification:
   D. none
4. A work instruction is a document that provides specific instructions to carry out any activity.
   A. Plan
   B. Specification
   C. Work instruction
   D. Material

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------
4. ----------

Information Sheet- 2	***Follow Safety*** (***OHS***) requirements

1.2. Safety (OHS)

Safety is to protect our self, co-worker, tools, equipment's & materials from danger or risk.

Safety Engineering: - may be defined as the application of the arts and sciences of engineering and education for the prevention of accidents and the conservation of health, life and property. It includes the following factors investigation, research, and analysis of accident and health problems, invention and design of physical means of preventing accidents and occupational illnesses, and the development and direction of educational programs designed to create and maintain safety awareness at every level of the organization.

Accident: - may be defined as an unplanned, non-controlled, and an undesirable event or a sudden mishap which interrupts an activity or a function.

Injury:- may be defined as the bodily hurt sustained as the result of the accident, such as a laceration, abrasions, bruise, puncture, wound, foreign body, fracture, etc.

Unsafe Act: may be defined as a departure from an accepted, normal or correct procedure or practice, an unnecessary exposure to a hazard, or conduct minimizing the degree of safety normally present. Not every unsafe act produces an accident. This is an important consideration in safety work. Generally a supervisor has ample opportunity to correct the unsafe act before an accident occurs.

Lighting: The term 'emergency lighting' is a collective name. This includes the emergency evacuation lighting and the replacement lighting.

Traffic control: Traffic control devices are markers, signs and signal devices used to inform, guide and control traffic, including pedestrians, motor vehicle drivers and bicyclists. These devices are usually placed adjacent to, over, or along the highways, roads, traffic facilities and other public areas that require traffic control.

Trip hazards: Recognize the Hazards Common causes of slips, trips, and falls include: Messy, cluttered work areas. Tools, materials, cords, and other items lying on the floor in places where people walk. Poor visibility caused by inadequate lighting or burned-out bulbs. ... Spills and wet floors.

working at heights

- Agree scaffolding requirements at contract stage, including appropriate load rating and provision of loading bays
- Supervisor to check with the Principal Contractor that the correct scaffold is provided and inspected.
- Workers instructed not to interfere with or misuse scaffold
- Ladders in good condition, adequately secured (lashed) and placed on firm surface.
- Brick guards kept in position on scaffold lifts
- Waste materials removed and placed in skip.

use of firefighting equipment

What is fire?

Fire is the rapid oxidation of a material in the exothermic chemical process of combustion, releasing heat, light, and various reaction products. The flame is the visible portion of the fire. If hot enough, the gases may become ionized to produce plasma. Depending on the substances alight, and any impurities outside, the color of the flame and the fire's intensity will be different.

Workplace environmental requirements and safety.

A healthy work environment is about more than being safe. A Healthy workplace is one where employees in addition to feeling secure and enjoying a safe physical work environment; feel recognized for the work they do. Enjoy a positive social environment that encourages respect, fosters a sense of belonging and purpose.

Self-Check -2	Written Test

Directions: Answer all the questions listed below.

1. -------- is to protect our self, co-worker, tools, equipment's & materials from danger or risk.

   A. Safety C. Injury

   B. Accident D. Engineering safety

2. --------- is defined as an unplanned, non-controlled, and an undesirable event or a sudden mishap which interrupts an activity or a function.

   A. Safety C. Injury

   B. Accident D. Engineering safety

3. The bodily hurt sustained as the result of the accident, such as a laceration, abrasions, bruise, puncture, wound, foreign body and fracture

   A. Safety C. Injury

   B. Accident D. Engineering safety

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------
4. ----------

Information Sheet-3	**Identifying and implementing Signage and barricade requirements**

1.3. identifying and implementing Signage and barricade requirements

1.3.1. GENERAL REQUIREMENTS

A variety of situations exist at Council worksites where barricading and/or safety signage are required. Barricading and safety signage draw attention to hazardous objects and situations that may affect health and safety, reducing the potential of injury to personnel and damage to property. Examples include warning tape, mesh barrier, road barriers, traffic control signs, emergency signage, mandatory PPE signs and precautionary signage.

Barricading and safety signage shall be used:

- when there are no other practical control measures available to control a hazard;
- as an interim measure until a more effective way of controlling the risk can be used or the hazard is no longer present; and
- as a secondary control measure to supplement higher level control measures.

The type and number of barricading or safety signage erected must be assessed adequately and positioned to be suitable for the intended purpose.

Barricading Requirements

Barricading is one of the risk control measures used to protect personnel from hazard such as:

- being struck by falling objects, material movements or plant;
- fall from height, including falling into open excavations or penetrations;
- fall from unprotected edges (e.g. removed flooring, walkways, stairs and handrails);
- exposure to hazardous substances, process or activities;

- unauthorized entry into a confined space or other restricted work areas; and
- Any potentially hazardous work processes, such as hot works, demolition work, scaffolding, radiation work and work involving asbestos.

Barricading may also be used as part of incident management and emergency response procedures.

➢ Selection of Barricade

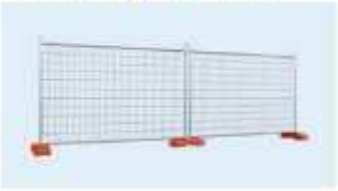
The following factors are to be considered as part of a risk assessment when selecting the type of barricade (soft or hard):

- risk associated with the hazard;
- required strength of the barrier (e.g. impact potential); and
- The amount of clearance provided from the hazard by the barricade.

Barricading shall be used to manage the risk of fall from height greater than two meters and excavations greater than 1.5 meters deep.

All barricading shall be designed, installed and used in accordance with the relevant Australian Standards and the recommendations of the manufacturer. Where barricades are supported by star pickets, the star pickets shall be protected by using a suitable cap fitted to the star pickets.

APPENDIX 1 – Types of Barricading

Type	Purpose	Condition / Requirements
Soft Barricading		
Caution Tape 	Demarcates areas that require personnel to be warned of identified hazards prior to entry.	Access permitted, caution required. Persons requiring access must make sure they familiarise themselves with the hazards, risk-assess the situation and proceed into the area only if confirmed that it is safe to do so. **Not** suitable for medium, high or extreme risk hazards, e.g. electrical hazards, falling objects, unprotected edges.
Danger Tape 	Demarcates areas and/or equipment where there is an immediate threat to people, equipment and/or the environment.	Personnel shall **not** enter or work within an area that is demarcated with Danger Tape, unless authorised. Suitable to restrict access from hazards.
Mesh Barrier and Bunting Flags 	High visibility soft barricading options where a solid barricade is not required. Delineate work areas that require authorised access, or used to highlight the boundary of a work area.	May be used in conjunction with appropriate barricading tape. Mesh shall be installed with the top edge at a height between 900mm – 1200mm. Can be used with capped star pickets and/or barricade stands.
Double Sided Floor Stands 	Identify related hazards where caution is required, e.g. slip hazard.	Stands shall be placed in a prominent position.
Traffic Cones 	Demarcate areas where work is taking place on roads and ground, e.g. clean-up, spills, survey or mobile plant.	Person requiring access must familiarise themselves with the hazards, risk-assess the situation and proceed into the area if confirmed that it is safe to do so.
Hard Barricading		
Temporary Fencing 	Demarcates areas with restricted access, often used for security purposes. Also useful where there is no structure to fix barricading tape.	Used in conjunction with appropriate barricading tape and information tag.

Safety Signage Requirements

Safety signs are erected to warn workers or the public of specific hazards and to communicate necessary precautionary measures and emergency actions. Safety signage, in accordance with Ethiopian work Health and Safety Regulation required for:

- construction sites;
- confined spaces;
- asbestos;
- hazardous areas;
- hazardous chemicals;
- site specific Personal Protective Equipment (PPE) requirements;
- fire protection equipment;
- emergency and first aid information;
- emergency eyewash shower; and
- Traffic management and pedestrian control.

Signage Classification and Use

Safety signage's are classified and shall be used according to their function as follows:

Type	Use	Example
1. Regulatory Signs – Signs containing instructions that if ignored could either be an offence at law, or a breach of site safety rules, safety procedures or other directions.		
Principal contractor construction site signage	Any principal contractor for a construction project must be identified with signage. At a minimum, the sign must: • Identify the principal contractor's name and telephone contact numbers (including an after hours telephone number); • Identify the location of the site office for the project, if any; and • Be clearly visible from outside the workplace, or the work area of the workplace, where the construction project is being undertaken.	
Mandatory Signs	Signs that specify that an instruction MUST be carried out. Symbols (or pictograms) are white on a blue circular background and indicate the minimum standard of compliance required for the workplace where it is displayed. The sign's wording is in black lettering on the white background. Multiple symbols may be on the sign.	 

Type	Use	Example
Prohibition Signs	Signs that specify behaviour or actions, which are not permitted. The round shape with a slash should be depicted in red over the action symbol in black. The sign's wording is in black lettering on the white background.	
Limitation or Restriction Signs	Signs that place a numerical or other defined limit on an activity. The most common signs are speed restriction signs. The signs have a symbolic Red circle shape with black writing or symbol on it and may also be on the roadway surface.	
2. Hazard Signs – Signs advising of hazards.		
Danger Signs	Signs warning of a particular hazard or hazardous condition that is likely to be life-threatening. (The word 'DANGER' shall be in white featured inside a red ellipse inside black rectangle. The sign's wording shall be in black lettering on the white background.)	
Warning Signs	Signs warning of a hazard or hazardous condition that is not likely to be life-threatening. (The hazard symbol shall be black on a yellow background and a triangle should be depicted around the hazard symbol. The sign's wording shall be in black lettering on the yellow background.)	
3. Emergency Information Signs		
Muster Point, First Aid Locations, etc	Signs indicating the location of, or directions to, emergency related facilities such as exits, safety equipment or first aid facilities. (They feature a white symbol and/or wording on a green background.)	 
4. Fire Signs		
Fire-fighting Equipment Locations, etc	Signs advising the location of the alarms and fire-fighting facilities. (Fire signs shall comprise a red rectangle with white symbol and/or wording.)	 

Type	Use	Example
5. Hazardous Chemicals Placards		
Placards	Placards alert the emergency services and other persons to the presence of hazardous chemicals and provide information about them.	
6. General Information Signs		
Other signs not contained within the categories listed above	These signs are used to communicate information of a general nature (e.g. housekeeping)	

Self-Check -3	Written Test

Directions: Answer all the questions listed below.

1. ---------- is one of the risk control measures used to protect personnel from hazard.
   A. Barricading
   B. Safety signs
   C. Regulatory sign
   D. Engineering safety
2. --------- are erected to warn workers or the public of specific hazards and to communicate necessary precautionary measures and emergency actions
   A. Barricading C. Regulatory sign
   B. Safety signs D. Regulatory sign

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. ----------
2. ----------
3. ----------

Information Sheet-4	selecting *Tools and equipment* for carry out tasks

1.4. Selecting tools and equipment for carry out tasks

Tools and equipment

Broad knives: a tool like a putty knife but with a larger and broader blade.

fig.1.4.1. *Broad knives*

Brooms: – this hand tool applies after the pouring of concrete to make it in a good surface.

fig.1.4.2. *Brooms*

Electric screw guns: A drill has a chuck to hold drill bits and other bits used to screw in almost any kind of fastener. Screw guns are used only for fastening screws and are not designed to drill holes. There is an adjustable nose, versus a chuck, on the screw gun that sets the depth of the screw.

fig.1.4.3. *Electric screw guns*

hand and power drills: A drill is a tool fitted with a cutting tool attachment or driving tool attachment, usually a drill bit or driver bit, used for drilling holes in various materials or

fastening various materials together with the use of fasteners. The attachment is gripped by a chuck at one end of the drill and rotated while pressed against the target material**.**

fig.1.4.4. hand and power drills

Hand saws: it used to cut pieces of wood into different shapes. This is usually done in order to join the pieces together and carve a wooden object.

fig.1.4.5. *Hand saws*

Keyhole saws: is a long, narrow saw used for cutting small, often awkward features in various building materials. There are typically two varieties of keyhole saw: the fixed blade type and retractable blade type.

fig.1.4.6. *Keyhole saws*

Measuring tapes and rules: A tape measure or measuring tape is a flexible form of ruler. It consists of a ribbon of cloth, plastic, fiber glass, or metal strip with linear-measurement markings. It is a common measuring tool. Its flexibility allows for a measure of great length to be easily carried in pocket or toolkit and permits one to measure around curves or corners

Paint brushes: a tool made of bristles set in a handle and used for cleaning, smoothing, or painting and an act of smoothing or scrubbing with a brush.

Plasterboard hammers: A drywall hammer, like its name, is specially used for putting up or taking down drywall. As opposed to a standard hammer, it often comes with a serrated front face, which makes it more suitable for connecting with the nails and driving them properly into place.

fig.1.4.7. *Plasterboard hammers*

Plasterer trowels: is a hand trowel used for leveling, spreading and shaping mortar on the wall, floor and ceiling. They come in several shapes and sizes depending on the task.

fig.1.4.8. *Plasterer trowels*

T squares -squares are also used to measure and cut drywall. Drywall T-squares are typically made of aluminum and have a 48-inch (1,200 mm) long tongue.

Higher-end table saws are often equipped with T-square fences. This table saw fences are attached to a rail only on the front side of the table unlike traditional fences which clamp to both the front and the rear of the table.

A T-square has two components - the long shaft called the "blade" and the short shaft called the "stock" or "head". The T-square usually has a transparent edge made of plastic which should be free of nicks and cracks in order to provide smooth, straight lines.

fig.1.4.8. *T squares*

Taping knives: A taping knife or joint knife is a drywall tool with a wide blade for spreading joint compound, also known as "mud". It can be used to spread mud over nail and screw indents in new drywall applications and is also used when using paper or fiberglass drywall tape to cover seams. Other common uses include patching holes, smoothing wall-coverings and creating specialty artistic wall finishes. Common sizes range from 15cm to 30cm wide (five to 12 inches). Spackle knives are a smaller version, used for patching small holes.

fig.1.4.9. *Taping knives*

Trestles: Trestle supports are used for work on a large area if little or no adjustment of height is required (e.g., for plastering the ceiling of a room). The trestles may be of special design or simply wooden sawhorses of the type used by carpenters.

Fig.1.4.9. *Trestles*

Self-Check -4	Written Test

Directions: Answer all the questions listed below.

1. ------- is the hand tool applies after the pouring of concrete to make it in a good surface
   A. Brooms C. Plasterboard hammers
   B. Keyhole saws D. Plasterer trowels
2. ---------- is a long, narrow saw used for cutting small, often awkward features in various building materials.
   A. Brooms C. Plasterboard hammers
   B. Keyhole saws D. Plasterer trowels
3. ---------- is specially used for putting up or taking down drywall.
   A. Brooms C. Plasterboard hammers
   B. Keyhole saws D. Plasterer trowels
4. --------- is a hand trowel used for leveling, spreading and shaping mortar on the wall, floor and ceiling.
   A. Brooms C. Plasterboard hammers
   B. Keyhole saws D. Plasterer trowels

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------
4. ----------

Information Sheet-5	Calculating Material quantity requirements

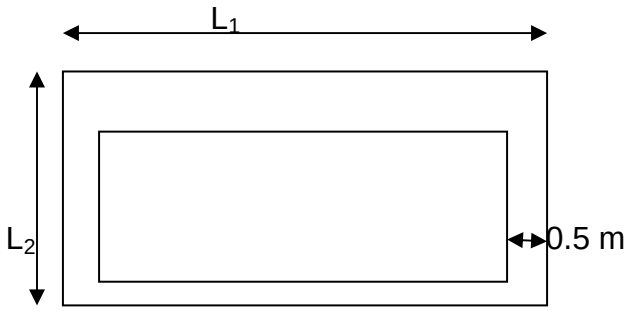
1.5. Calculating Material quantity requirements

Measurement of plaster sanding works

The measurement of quantities involves measuring of lengths, calculations of areas, volumes, or counting the no of pieces depending on the nature of work and items used.

Linear measurement

Linear measurements are taken in perimeter computation. To calculate the area of sanding plaster work for both external and internal walls the perimeter of the building has to be computed first.



There are four approaches for computation of the perimeter

1. **Separate (individual) wall method**

   In this method the out – to- out measure it taken for longer walls and into – to in measure for shorter walls.

   For instance $L_1 = 15$ m

   $L_2 = 12$ m

   t = 0.5 m

   $L_1 = 15$ m and $l_2 = 12 - 2(0.5) = 11$m

   There four perimeter = $2 (L_1) + 2 (l_2) = 2 (15) + 2 (11) = 52$

   This method is applicable when t is is constant, i.e the thickness of walls are equal.

2. **Center line method**

   In this method the perimeter is equal to the sum of total length of centerlines of booth longer and shorter walls.

L_1 = 15-2(½) (0.5) = 14.5m

L_2 = 12- 2(½) (0.5) = 11.5m

There four perimeter =2(L_1) + (L_2) = 2(14.5)+ 2 (11.5) = 52 m

3. **External length**

The sum of all external dimensions less the thicknesses of all corners gives the perimeter

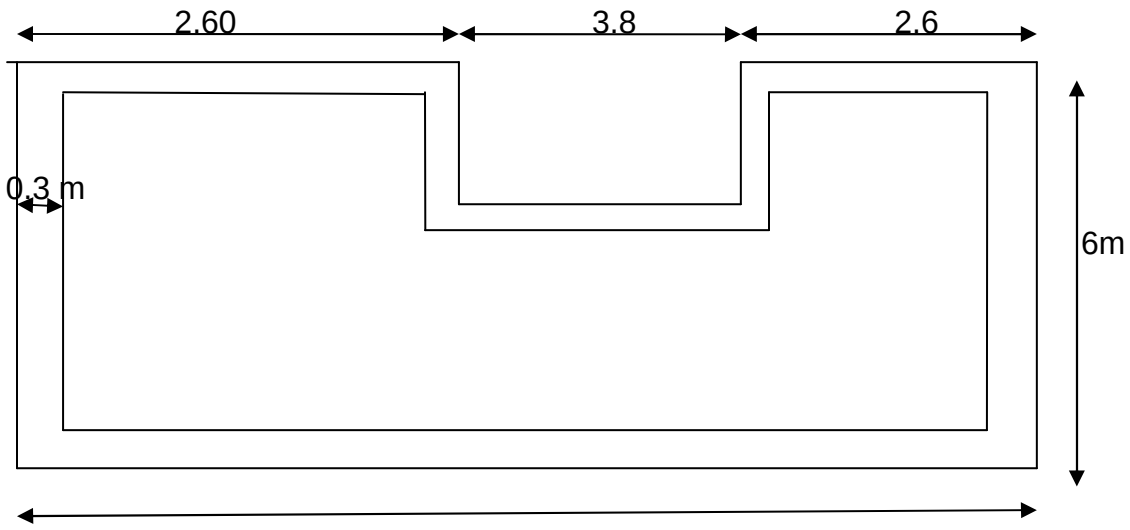
P = 2 (L_1 + L_2) -4(t) = 2 (15+ 12) -4(0.5) = 54 -2 = 52 m

4. **Internal lengths**

Perimeter equals to sum of internal dimensions plus the thicknesses of the corners

P = 2 (l_1 + l_2) + 4 (t) = 2 (14 + 11) + 4 (0.5) = 50 + 2 = 52 m

Example 2 calculates the perimeter of the following figure using different methods.



Solutions

1. perimeter = 2 (9) + 2 (5.4) + 2 (1.5)= 31.8 m
2. perimeter = 8.70 + 2 (5.7) + 2 (1.5) + 2(2.30) + 4.1 = 31.8 m
3. perimeter = 2 (9+ 6) + 2 (1.5) - 4 (0.3)= 31.8 m
4. perimeter = 2 (8.4 +5.4) + 2 (1.5) + 4 (0.3)= 31.8 m

Area measurement

In works like plaster finishing a real measurement is required. While measuring the area of the irregular plot the irregular area is broken into a number off regular figures that best describe

the irregular plot and the areas of the regular figures is computed and summed to give the area of the irregular one.

Sanding plastering work according to Ethiopian standard

1. **2** coats of plastic emulsion paint to internal newly plastered surface
   - Priming coat to fill the process of the surface to prepare smooth
   - Brush for plastic paint 40x140mm =1pcs/500
   - Sand paper =0.01m2/

2. 3 coats of plastic emulsion paint to internal newly plastered surface
   - Priming coat to fill the process of the surface to prepare smooth
   - Brush for plastic paint 40x140mm =1pcs/500
   - Sand paper =0.01m2/m

3. 2 coats of plastic emulsion paint to external newly plastered surface
   - Priming coat = 62.5gm/m^2
   - Brush for plastic paint 40x140mm =1pcs/500
   - Sand paper =0.01m^2/

4. Coats of plastic emulsion paint to external newly plastered surface
   i. Priming coat = 62.5gm/m^2
   Brush for plastic paint 40x140mm =1pcs/500m^2
   Sand paper =0.01m^2/m^2

DESCRIPTION	GRIT #	GRADE	USE
Very Fine	600	10/0	Polishing and finishing after staining
	400	0/9	
	360	8/0	
	320	7/0	
	280		
Fine Medium Fine		6/0	Finish sanding before staining
	220	5/0	
	180	4/0	
	150	3/0	
	120		
Medium	100	2/0	Removing rough texture
	70	1/0	
	60	1/2	
Coarse	50	1	Distressing, rounding and rough plaster areas
	40	1	
	36	1.5	
Very Coarse	30	2.5	Very rough unfinished wall and ceiling
	24	3	
	20	3.5	

workplace operations and procedures

Safety Procedures

As both belt and disk sanders can cause serious skin burns with incorrect use, Operators must be thoroughly trained in the safe handling of this piece of equipment.

Pre-Operation

i. Wear safety glasses or goggles, or a face shield (with safety glasses or goggles) when operating a sander.
ii. Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
iii. Wear protective footwear
iv. Wear a respiratory protection (e.g. dust mask) where required, during sanding operations and clean up.
v. Have the dust extracting system turned on and connected to the sander. Because of the dust created when sanding wood, the fire and explosion hazard is considerable.
vi. Check that the sander does not have a torn belt or ripped sandpaper disk. The work could get caught and kick back work pieces.
vii. Make sure that the sanding belt tracks properly.
viii. Keep the work area free of debris (tripping and slipping hazards)
ix. Keep hands away from abrasive surfaces.
x. Hold small or thin pieces of stock in a jig or holding device to prevent injuries to the fingers and hand.

Safety Operation

1. Before plugging-in a portable sander be sure that the switch is in the "OFF" position to avoid injury.
2. Be aware of where the cord is relation to your work. Damaged cords can result in electrical shock. A sander should not be used in a damp or wet location.
3. When adjusting the tracking on a portable belt sander, be sure that the sander is supported and positioned to avoid contact with the operator.
4. The sander should be used away from the body.
5. Do not force a portable sander. The weight of the sander provides enough force for a job.
6. Excessive pressure could result in the overheating of equipment and kickback of the material being sanded.
7. Do not force a portable sander. The weight of the sander provides enough force for a job.
8. Excessive pressure could result in the overheating of equipment and kickback of the material being sanded.
9. Do not force a portable sander. The weight of the sander provides enough force for a job.
10. Excessive pressure could result in the overheating of equipment and kickback of the material being sanded.
11. As with all power equipment, do not leave the machine running. Ensure that the machine has come to a complete stop before leaving the machine.
12. Make sure that the sanding machine travels in the correct direction. Arrows on the back of the belt indicate the direction of travel that prevents your work from catching the belt's joint.

Self-Check -5	Written Test

Directions: Answer all the questions listed below.

1. Which method the out – to- out measure it taken for longer walls and into – to in measure for shorter walls

   A. Separate (individual) wall method
   B. External length
   C. Internal length
   D. Center line method

2. Which method the perimeter is equal to the sum of total length of centerlines of booth longer and shorter walls

   A. Separate (individual) wall method
   B. External length
   C. Internal length
   D. Center line method

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------

Information Sheet-6	identifying the Materials appropriate to the work application

1.6. Identifying the Materials appropriate to the work application

1.6.1. Materials

A. beads

Plasterers' beads have become an indispensable part of plastering operations. Use of the appropriate beads greatly reduces the time taken in forming sharp corner joints, ends stops and other details. Moreover they offer protection and reinforcement to vulnerable plaster edges.

2) cement render

Cement rendering is the application of a premixed layer of sand and cement to brick, concrete, stone, or mud brick. It is often textured, colored, or painted after application. It is generally used on exterior walls but can be used to feature an interior wall.

Depending on the 'look' required, rendering can be fine or coarse, textured or smooth, natural or colored, pigmented or painted.

The cement rendering of brick, concrete and mud houses has been used for centuries to improve the appearance (and sometimes weather resistance) of exterior walls. It can be seen in different forms all over southern Europe. Different countries have their own styles and traditional colors

3) fiber cement sheets

The name fibro or fibrolite is short for "fibrous (or fibre) cement sheet", more commonly called "asbestos cement sheet" or "AC sheet". It is a building material in which asbestos fibers are used to reinforce thin rigid cement sheets.

Fiber cement siding is a building material used to cover the exterior of a building in both commercial and domestic applications. Fiber cement is a composite material made of cement reinforced with cellulose fibers.

4) finishing materials

Finishing Materials. (in construction), materials and items used to improve the service and decorative qualities of buildings and structures, as well as to protect structural members from atmospheric and other effects. ... A traditional finishing material is natural stone, which is durable and has an attractive appearance.

5) Plasterboard

What is plasterboard?

Plasterboard is a panel made of calcium sulfate dehydrate (gypsum) usually pressed between a facer and a backer. It is **used** to make interior walls and ceilings. This '**Drywall**' construction became popular as a quicker alternative to traditional lath and plaster.

6) plaster glass sheets

Plaster Glass (GRG) is a strong, durable and lightweight material suitable for building architectural curves, angles or contemporary 'sculpture'. The material consists of super-fine casting plaster, reinforced with continuous filament glass fiber strands and galvanized metal channel

7) Water resistant plasterboard.

It is specifically designed to tolerate moist and humid conditions. Its silicone additives along with its water repellent liners help achieve a product that is perfect for use in, Bathrooms and kitchens where levels of humidity are significantly higher.

Self-Check -6	Written Test

Directions: Answer all the questions listed below.

1. Plasterers' beads have become an indispensable part of plastering operations. **True**
2. Cement rendering is the application of a premixed layer of sand and cement to brick, concrete, stone, or mud brick. It is often textured, colored, or painted after application.
3. Plasterboard is a composite material made of cement reinforced with cellulose fibers.
4. Fiber cement is a panel made of calcium sulfate dehydrate (gypsum) usually pressed between a facer and a backer.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------
4. ----------

Information Sheet-7	Identifying Environmental requirements

1.7. ***Environmental requirements***

- **Clean-up management**

Cleaning is the process of removing unwanted substances, such as dirt, infectious agents, and other impurities, from an object or environment. Cleaning occurs in many different contexts, and uses many different methods. Several occupations are devoted to cleaning.

Cleaning and disinfection generally consists of six steps:

- **Pre-clean** - remove excess food waste by sweeping, wiping or pre-rinsing.
- **Main clean** - loosens surface waste and grease using a detergent.
- **Rinse** - remove loose food waste, grease and detergent.
- **Disinfection** - kill the bacteria with disinfectant or heat

Dust

Definitions and Concepts

Airborne contaminants occur in the gaseous form (gases and vapors) or as aerosols. In scientific terminology, an aerosol is defined as a system of particles suspended in a gaseous medium, usually air in the context of occupational hygiene, is usually air. Aerosols may exist in the form of airborne dusts, sprays, mists, smokes and fumes. In the occupational setting, all these forms may be important because they relate to a wide range of occupational diseases.

Airborne dusts are of particular concern because they are well known to be associated with classical widespread occupational lung diseases such as the pneumoconiosis, as well as with systemic intoxications such as lead poisoning, especially at higher levels of exposure. But, in the modern era, there is also increasing interest in other dust-related diseases, such as cancer, asthma, allergic alveoli is, and irritation, as well as a whole range of non-respiratory illnesses, which may occur at much lower exposure levels. This document aims to help reduce the risk of these diseases by aiding better control of dust in the work environment.

The first and fundamental step in the control of hazards is their recognition.

But recognition requires a clear understanding of the nature, origin, mechanisms of generation and release and sources of the particles, as well as knowledge on the conditions of exposure and possible associated ill effects. This is essential to establish priorities for action and to select appropriate control strategies. Furthermore, permanent effective control of specific hazards like dust needs the right approach to management in the workplace

Dust as an occupational hazard

According to the International Standardization Organization (ISO 4225 - ISO, 1994), "Dust: small solid particles, conventionally taken as those particles below 75 µm in diameter, which settle out under their own weight but which may remain suspended for some time".

According to the "***Glossary of Atmospheric Chemistry Terms***" (IUPAC, 1990), "Dust: Small, dry, solid particles projected into the air by natural forces, such as wind, volcanic eruption, and by mechanical or man-made processes such as crushing, grinding, milling, drilling, demolition, shoveling, conveying, screening, bagging, and sweeping. Dust particles are usually in the size range from about 1 to 100 µm in diameter, and they settle slowly under the influence of gravity."

Examples of the types of dust found in the work environment include:

- **mineral dusts,** such as those containing free crystalline silica (e.g., **as quartz), coal and cement dusts;**
- **metallic dusts,** such as lead, cadmium, nickel, and beryllium dusts;
- **other chemical dusts,** e.g., many bulk chemicals and pesticides:
- **organic and vegetable dusts,** such as flour, wood, cotton and tea dusts, pollens;
- **biohazards,** such as viable particles, moulds and spores

Dusts are generated not only by work processes, but may also occur naturally, e.g., pollens, volcanic ashes, and sandstorms. Fibrous dusts, such as asbestos and other such materials have been shown to present special health problems primarily related to the shape of the particles

Major Source of Dust Generation

- Blasting
- Mucking & Haulage
- Drilling & Bolting
- Ore passes
- Crushers
- Conveyors Systems
- Backfill Process
- Road Headers
- Shotcreting
- Fresh Intake Mine Dust

Noise

1. **Industrial Noise**

Although the problem of noise was recognized centuries ago, for example Ramazini in 1700 described how workers who hammer copper have their ears injured due to exposure to the sound. The extent of the problem, which was caused by such noise, was not felt until the industrial revolution in England. The increasing mechanization in industries, farms, transport and others are likely to be more intense and sustained than any noise levels experienced outside the work place.

Industrial noise problems are extremely complex. There is no “standard " program that is applicable to all situations. However, industries are responsible to consider and evaluate their noise problems and to take steps toward the establishment of effective hearing conservation procedures.

The effectiveness of hearing conservation program depends on the cooperation of employees, supervisors, employers, and others concerned. The management responsibility is to take measurements, initiating noise control measures, undertaking the audiometer testing

of employees, providing hearing protective equipment with sound policies, and informing employees of the benefits to be derived from a hearing conservation program

General Class of Noise Exposure

There are three general classes into which occupational noise exposure may be grouped.

1. **Continuous noise**: Normally defined as broadband noise of approximately constant level and spectrum to which an employee is exposed for a period of eight hours per day or 40 hours a week.
2. **Intermittent Noise**: This may be defined as exposure to a given broadband sound pressure level several times during a normal working day

The effects of noise on humans can be classified into two types:

- Non auditory effect
- Auditory effect

2. Prevention of noise exposure

OSHA requires a five phase hearing conservation program for industry:

1. Noise Monitoring
2. Audiometric (Hearing) Testing
3. Employee Training
4. Hearing Protectors
5. Recordkeeping

Vibration: Vibration causes vascular disorders of the arms and bony changes in the small bones of the wrist. Vascular changes can be detected by X-ray examination of the wrist. The most common findings is rarefaction of the lunate bone.

Self-Check -7	Written Test

Directions: Answer all the questions listed below.

1. Normally defined as broadband noise of approximately constant level and spectrum to which an employee is exposed for a period of eight hours per day or 40 hours a week.
   A. Prevention of noise exposure
   B. Continuous noise
   C. Intermittent Noise
   D. All
2. The exposure to a given broadband sound pressure level several times during a normal working day
   A. Prevention of noise exposure
   B. Continuous noise
   C. Intermittent Noise
   D. All

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------

List of Reference Materials

1. Barricading and Signage Document Number – OHS-PROC-134
2. [2] J. Broomfield, Corrosion of Steel in Concrete: Understanding, Investigation and Repair, Taylor & Francis, New York, NY, USA, 2nd edition, 2007.
3. BUILDING CONSTRUCTION HANDBOOK Tenth edition Roy Chudley And Roger Greeno
4. BUILDING CONSTRUCTION HANDBOOK Seventh edition R. Chudley MCIOB and R. Greeno BA (Hons) FCIOB FIPHE FRSA
5. Sanding and finishing ALBARAA wood Marquetry spacialist
6. Application Guide (Air Atomized Spraying). International . yachtpaint.com
7. Guide to machinery and equipment safety .queensland govemewnt

Finishing Construction

Works Level II

Learning Guide-43

Unit of Competence: Manually sand plaster work

Module Title: Manually sand plaster work

LG Code: EIS FCW2 M07 LO2-LG-43

TTLM Code: EIS FCW2 M07 TTLM 0919v1

LO 2: Determine work requirements.

Instruction Sheet	Learning Guide #43

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- inspecting Work area
- Specify level of finish in the contract or note job order and record and report or rectify any mismatches between quality of fixing and finishing as appropriate.
- selecting Personal protective equipment suitable for the task

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Inspect work area to determine work requirements.
- Specify level of finish in the contract or note job order and record and report or rectify any mismatches between quality of fixing and finishing as appropriate.
- Select personal protective equipment suitable for the task based on manufacturers' recommended and employer-approved specification.

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
4. Accomplish the “Self-checks, in each information sheets**.**
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

Information Sheet-1	Inspecting Work Area

2.1. Inspecting work area

A **workplace inspection** is a planned event in which the **workplace** is **inspected** to identify potential hazards. It is the best way of proactively identifying hazards before they have the ability to cause an injury.

Why are work place inspections important?

Workplace inspections help prevent incidents, injuries and illnesses. Through a critical examination of the workplace, inspections help to identify and record hazards for corrective action. Health and safety committees can help plan, conduct, report and monitor inspections. Regular workplace inspections are an important part of the overall occupational health and safety program and management system, if present.

How do you plan for inspection?

Planning is essential for an effective inspection.

What to Examine

Every inspection must examine who, what, where, when and how. Pay particular attention to items that are or are most likely to develop into unsafe or unhealthy conditions because of stress, wear, impact, vibration, heat, corrosion, chemical reaction or misuse. Include areas where no work is done regularly, such as parking lots, rest areas, office storage areas and locker rooms.

Workplace Elements

Look at all workplace elements – the people, the environment, the equipment and the process. The environment includes such hazards as noise, vibration, lighting, temperature, and ventilation. Equipment includes materials, tools and apparatus for producing a product or

a service. The process involves how the worker interacts with the other elements in a series of tasks or operations.

How are inspections actually done?

Discuss the planned inspection route before undertaking the inspection. Review where inspection team members are going and what they are looking for.

For example, during the inspection, "huddle" before going into noisy areas. This discussion eliminates the need for arm waving, shouting and other unsatisfactory methods of communication.

For inspections, wear personal protective equipment (PPE) where required. If you do not have PPE and cannot get any, do not enter the area. List this as a deficiency during the inspection. Re-inspect the area when PPE is provided.

Observation

Look for deviations from accepted work practices. Use statements such as: "a worker was observed operating a machine without a guard." Do not use information derived from inspections for disciplinary measures.

Some common poor work practices include:

- using machinery or tools without authority
- operating at unsafe speeds or in other violation of safe work practice
- removing guards or other safety devices, or making the devices ineffective
- using defective tools or equipment or using tools or equipment in unsafe ways
- using hands or body instead of tools or push sticks
- overloading, crowding, or failing to balance materials or handling materials in unsafe ways, including improper lifting
- repairing or adjusting equipment that is in motion, under pressure, or electrically charged

- failing to use or maintain, or improperly using, personal protective equipment or safety devices
- creating unsafe, unsanitary, or unhealthy conditions by improper personal hygiene, by using compressed air for cleaning clothes, by poor housekeeping, or by smoking in unauthorized areas
- standing or working under suspended loads, scaffolds, shafts, or open hatches
- discussion with or observation of workers who may be overloaded, fatigued, working in conflict with others, or working in isolation (working alone)

Inspection Principles

When conducting inspections, follow these basic principles:

- Draw attention to the presence of any immediate danger - other items can await the final report.
- Shut down and "lock out" any hazardous items that cannot be brought to a safe operating standard until repaired.
- Do not operate equipment. Ask the operator for a demonstration. If the operator of any piece of equipment does not know what dangers may be present, this is cause for concern. Never ignore any item because you do not have knowledge to make an accurate judgment of safety.
- Look up, down, around and inside. Be methodical and thorough. Do not spoil the inspection with a "once-over-lightly" approach.
- Clearly describe each hazard and its exact location in your rough notes. Allow "on-the-spot" recording of all findings before they are forgotten. Record what you have or have not examined in case the inspection is interrupted.
- Ask questions, but do not unnecessarily disrupt work activities. This interruption may interfere with efficient assessment of the job function and may also create a potentially hazardous situation.
- Consider the static (stop position) and dynamic (in motion) conditions of the item you are inspecting. If a machine is shut down, consider postponing the inspection until it is functioning again.

- Consider factors such as how the work is organized or the pace of work and how these factors impact safety.
- Discuss as a group, "Can any problem, hazard or accident generate from this situation when looking at the equipment, the process or the environment?" Determine what corrections or controls are appropriate.
- Do not try to detect all hazards simply by relying on your senses or by looking at them during the inspection. You may have to monitor equipment to measure the levels of exposure to chemicals, noise, radiation or biological agents.
- Take a photograph if you are unable to clearly describe or sketch a particular situation.

Self-Check -1	Written Test

Directions: Give short answer.

1. -------- is a planned event in which the **workplace** is **inspected** to identify potential hazards
   A. Examine
   B. workplace inspection
   C. Both
   D. None
2. -------is every inspection must examine who, what, where, when and how.
   A. Examine
   B. workplace inspection
   C. Both
   D. None

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------

Information Sheet- 2	Recording and reporting or rectifying level of finish as specified in the contract or job order is noted and any mismatches

2.2. Recording and reporting or rectifying level of finish as specified in the contract or job order is noted and any mismatches

Plasterer or sander can report level of finish or job order and mismatches independently. Level of finish or job order and mismatches of the must be reported as quickly as possible, and always within daily, weekly and monthly using the job recording form.

Reporting

All level of finish or job order and mismatches at work, (environmental) must be reported

When you report a level of finish or job order and mismatches you must identify yourself, by logging in as normal. The report is sent automatically once the job recording form has been completed

The occupational health and safety executive or environmental adviser decides on the basis of the report whether further investigation level of finish and/or reporting to the competent authority is required. If necessary, this person will organize this investigation level of finish along with internal experts and the prevention officer/occupational health & safety officer.

Level of finish or job order and mismatches at work and environmental are reported by supervisor, Forman and the occupational health and project coordinator.

If the plaster is only slightly uneven in spots, you can get away with using a block hand sander. If the plaster is horribly uneven, you may need to use an electric sander. Use a fine grade of sandpaper either way, and work slowly.

Easy-to-work-with, quick-setting and inexpensive, plaster provides a common way to patch walls and ceilings. For a smooth, professional finish on your plaster repair, consider wet sanding. Not only does wet sanding make less of a mess than dusty dry sanding, it's gentle and relatively non-abrasive.

Self-Check -2	Written Test

Directions: Answer all the questions listed below.

1. Level of finish or job order and mismatches at work and environmental are reported by only supervisor

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------

Information Sheet-3	**selecting Personal protective equipment suitable for the task**

2.2. . What is PPE?

PPE in this guidance notes means equipment that is intended to be worn or otherwise used by a person at work and that protects the person against one or more risks arising from chemical or chemical operation to the person's safety or health. It includes any addition or accessory to the equipment designed to meet a similar objective.

Selection of suitable PPE

It is very important that suitable PPE is used. PPE should be selected with great care. Wrongly selected PPE may give a false sense of safety and the wearer may be at higher risk of injury or ill health than if no PPE is used.

Based on the results of PPE assessment, the employer of a workplace should select suitable PPE for use by employees. Suitable PPE should satisfy the following conditions:

- It complies with relevant legal requirements.
- It is appropriate for the risks involved and appropriate in the circumstances prevailing at the place where exposure to the risks may occur.
- It is effective to prevent or adequately control the risks involved without increasing the overall risk.
- It takes account of ergonomic requirements and the state of health of the person or persons who may use it.
- It is capable of fitting the wearer properly, if necessary, after adjustments within the range for which is designed.
- There is no compatibility problem with other pieces of PPE used simultaneously

Monitoring the proper use of PPE

To ensure protection of employees against chemical hazards according to plan, the PPE must be properly used. An employer should take all reasonable steps to ensure that any PPE provided to his employees is properly used. Employees should not misuse or damage the equipment. The in-house safety rules should explicitly indicate circumstances under which should PPE is used.

Types of PPE (personal protective equipment)

Helmet

It is used to Protects the carrier from down falling items. It should be a must for everybody who works or moves on a building site.

Fig.2.2.1.*Helmet*

Ear protection

- It is used to protect the carrier from damages of the ears. Continuously working in a very noisy environment harms the eardrums forever. Once the eardrums are damaged there is no way of restoring the sense of hearing again.

Fig.2.2.2. *Ear Protection*

Safety boots

- Safety boots are equipped with three safety measures. It must have:

- ❖ Toes protection hood

  A steel hood to protect the toes from down falling heavy thing

- ❖ A steel layer inside the soles protects the carrier from stepping into a tuned up nail.
- ❖ Benzene and oil resistant soles

Fig.2.2.3.Safety boots

Safety goggles

- It is used to Protects the carrier from down falling items. It should be a must for everybody who works or moves on a building site.

Fig.2.2.4. *Safety goggle*

Knee pads

It used to protect the knees during long time kneeling.

Fig.2.2.5. *Knee pads*

Gloves

It used to protect the hands from the aggressive attack of the cement, very important.

Fig.2.2.5. *Gloves*

- **Monitoring the proper use of PPE is effected by**:

a) observation, supervision and inspection of employees in performing their jobs;

b) Consultation with employees, so as to understand the underlying reasons of any non-compliance in using PPE.

In ensuring proper use of PPE, the following aspects should be monitored:

a) The employees follow instructions as laid down in the in-house safety rules and use the PPE provided to them whenever required.

b) The PPE is used only after adequate training has been given to the user.

c) The PPE is in good working condition.

d) The PPE is properly worn and correctly fitted to the wearer.

e) The PPE is properly cleaned and stored after use.

f) The maintenance schedule of the PPE is strictly followed

Self-Check -3	Written Test

Directions: Answer all the questions listed below.

1. It is used to Protects the carrier from down falling items.
   A. Ear protection
   B. Safety goggles
   C. Helmet
   D. none
2. It is used to protect the carrier from damages of the ears.
   A. Ear protection
   B. Safety goggles
   C. Helmet
   D. none
3. It is used to Protects the carrier from down falling items.
   A. Ear protection
   B. Safety goggles
   C. Helmet
   D. none

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. ----------
2. ----------
3. ----------

List of Reference Materials

1. Barricading and Signage Document Number – OHS-PROC-134
2. [2] J. Broomfield, Corrosion of Steel in Concrete: Understanding, Investigation and Repair, Taylor & Francis, New York, NY, USA, 2nd edition, 2007.
3. BUILDING CONSTRUCTION HANDBOOK Tenth edition Roy Chudley And Roger Greeno
4. BUILDING CONSTRUCTION HANDBOOK Seventh edition R. Chudley MCIOB and R. Greeno BA (Hons) FCIOB FIPHE FRSA
5. Sanding and finishing ALBARAA wood Marquetry spacialist
6. Application Guide (Air Atomized Spraying). International . yachtpaint.com
7. Guide to machinery and equipment safety .queensland govemewnt

Finishing Construction

Works Level II

Learning Guide-44

Unit of Competence: Manually sand plaster work

Module Title: Manually sand plaster work

LG Code: EIS FCW2 M07 LO3-LG-44

TTLM Code: EIS FCW2 M07 TTLM 0919v1

LO 3: Sand joins.

Instruction Sheet	Learning Guide #44

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Gaining work site access using approves workplace methods based on the risk assessment
- Sanding floats and required dust protection or warning signs are set up for use.
- Completing Sanding

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Gain work site access using approves workplace methods based on the risk assessment for the task, site and circumstance.
- Sanding floats and required dust protection or warning signs are set up for use.
- Complete sanding to required standard of finish.

Learning Instructions:

6. Read the specific objectives of this Learning Guide.
7. Follow the instructions described below
8. Read the information written in the information Sheet
9. Accomplish the “Self-checks, in each information sheets.

10. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

11. If you earned a satisfactory evaluation proceed to “Operation sheets and LAP Tests if any”. However, if your rating is unsatisfactory, ask your teacher for further instructions or go back to Learning Activity.

Information Sheet-1	Gaining work site access using approves workplace methods based on the risk assessment

3.1. **Gain work site access using approves workplace methods based on the risk assessment**

A work method statement sometimes referred to as a safe work method statement or SWMS or a safe work procedure, is a part of a workplace safety plan. It is primarily used in plaster to describe a document that gives specific instructions on how to safely perform a sanding and related task, or operate a piece of sander.

In many countries it is law to have work method statements, or similar, in place to advise employees and contractors on how to perform sanding and related tasks safely.

The statement is generally used as part of a safety induction and then referred to as required throughout a workplace; they should outline all the hazards that are likely to be encountered when undertaking a task or process and provide detailed guidance on how to carry out the task safely.

- **Risk assessment**: the overall process of hazard identification, risk analysis, and risk evaluation.
- **Hazard identification** – the process of finding, listing, and characterizing hazards.
- **Risk analysis**: a process for comprehending the nature of hazards and determining the level of risk.

  Notes:

  1. Risk analysis provides a basis for risk evaluation and decisions about risk control.
  2. Information can include current and historical data, theoretical analysis, informed opinions, and the concerns of stakeholders.
  3. Risk analysis includes risk estimation.

Risk evaluation – the process of comparing an estimated risk against given risk criteria to determine the significance of the risk.

Risk control – actions implementing risk evaluation decisions.

Note: Risk control can involve monitoring, re-evaluation, and compliance with decisions.

The benefits of assessing and managing risks

The effective systematic management of *risks* improves worker health and safety, as well as productivity.

Eliminating and controlling *risks* in the workplace helps to:

- prevent and reduce the number and severity of workplace injuries, illnesses and associated costs
- promote and improve worker health, wellbeing and capacity to work, and
- Helps to foster innovation and improve quality and productivity of work.

Self-Check -1	Written Test

Directions: Choose the best answer.

1. **---------** a process for comprehending the nature of hazards and determining the level of risk.

   A. Hazard identification C. Risk analysis

   B. Risk evaluation D. all

2. **----------is** the process of comparing an estimated risk against given risk criteria to determine the significance of the risk.

   A. Hazard identification C. Risk analysis

   B. Risk evaluation D. all

3. **--------is** the process of finding, listing, and characterizing hazards.

   A. Hazard identification C. Risk analysis

   B. Risk evaluation D. all

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------

Information Sheet- 2	**Sanding floats and required dust protection or warning signs are set up for use.**

3.1. Sanding floats and required dust protection or warning signs are set up for use.

Sanding floats

Sanding float is a tool used to smooth surfaces by abrasion with sandpaper. Sanders have a means to attach the sandpaper and a mechanism to move it rapidly contained within housing with means to hand-hold it.

What Is Dust Protection?

To Intellectual Homes, dust protection is a critical step to separate the space between the clients's living area and the construction project. When developing our dust protection plan for a new project, we consider elements that go beyond dust control to include important factors such as child safety, overall site security, heating and AC zones, weather protection, pet safety, worker safety and accessibility to the project area.

Warning sign

A warning sign is a type of sign which indicates a potential hazard, obstacle or condition requiring special attention.

Self-Check -2	Written Test

Directions: Choose the best answer.

1. ----------is a tool used to smooth surfaces by abrasion with sandpaper.

A. Sanding floats
B. dust protection
C. A warning sign
D. all

2. ---------- is a critical step to separate the space between the clients's living area and the construction project.

A. Sanding floats
B. dust protection
C. A warning sign
D. all

3. --------- is a type of sign which indicates a potential hazard, obstacle or condition requiring special attention.

A. Sanding floats
B. dust protection
C. A warning sign
D. all

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ---------
2. ----------
3. ----------

Information Sheet-3	Completing Sanding

. **3.3. Completing Sanding**

Sanding and finishing

1. Prepare the Area

Cupboards, doorways, closets and any other areas or items where you are working should be protected from dust with plastic. Remove wall hangings, light fixtures, window coverings and anything else in the area that could be dirtied or damaged by your work. Putty nail holes from carpet (tack strip). This step also helps you find any metal staples or nails left over from carpet removal and such. Use a wood filler that is stainable and is the color of the floor. Prior to rough-sanding, remove quarter-round and/or baseboards for installations over wooden based subfloors.

2. Start with the Rough Sanding

The first step when sanding older floors is to choose an aggressive grit (like 24 grit paper) to level the board's one to another and remove imperfections if possible. The result is a fresh looking wood floor. We call this process rough-sanding. Don't be afraid to use new belts, and more than one.

On a newer floor, you might start with a less aggressive 50 grit. In handling the belt sander, the machine MUST be moving when you gently set the drum down into action to avoid digging holes in the floor that won't come out. As you near the wall, be extremely careful to pull up the drum BEFORE you hit the wall. You will be sanding forward and backward. Use care in your backward motion so you pull up the drum before you run into the wall.

3. Rough sand the Edges

Now you will sand along the walls, in the closets, and anywhere else the belt sander could not reach, using an Edge Sander. Start with a 24 grit on your Edge Sander and change your disc often. Level the floor and go over imperfections as needed. Work the machine in circles or figure eights and with the grain as much as possible. Don't allow the machine to dig into the corners. Use extra care in those areas. Level sand out any drum marks.

4. Medium Sanding with Belt Sander and Edge Sander

Use the same procedure as above with 50 or 60 grit. The purpose of this step is to remove the deep cuts and grooves from the rough sanding.

5. Fine Cut with Belt Sander and Edge Sander

Use the same procedure as above with 80 or 100 grit. The purpose of this step is to smooth the floor in preparation for buffing.

6. Scrape Corners

The goal to scraping a corner is to remove old finish and level corner with the rest of the floor. The best way to achieve this is by having a very sharp scraper. We achieve this with a good, metal, 5cm-wide file you can find at a hardware store. Or you can flip your edge sander over, turn it on with 100 grit sand paper on, and gently grind the scraper to produce a sharp edge. Watch to keep the scraper level, not angled, and not to remove too much metal.
Sharpen often, after every corner if needed. We liken it to sharpening a pencil, shaving the wood in the corners. You will have shavings. You can hand sand corners with 100grit to blend.

7. **Buffing**

Use 100 grit screen under your buffer pad to blend the edges with the rest of the floor to get the surface as smooth as possible. Remember, there is two sides to a screen - so flip midway through - and use more than one screen for a larger area. Buff slowly and thoroughly. This machine does not dig like a sander, so don't worry about going over areas too much.

The more you go over it, the smoother it gets. We recommend machines that have multiple discs buffing in opposite directions to give a scratch free finish.

8. **Vacuum and Cleanup**

Thoroughly vacuum the floor and other areas with wand and crevice device. We recommend a hair bristle or felt-bottomed wand to protect the floor. Use care if you use a plastic wand. Tack the floor with a damp cloth to remove any leftover dust particles. Your floor is now ready for staining, sanding sealer, hardwax oil finish or a first coat of polyurethane.

Self-Check -3	Written Test

Directions: Choose the best answer.

1. The first step when sanding older floors is to choose an aggressive grit (like 24 grit paper) to level the board's one to another and remove imperfections if possible
   - **A.** Start with the Rough Sanding
   - **B.** Edge Sander
   - **C.** both

2. ------- is to use the same procedure as above with 50 or 60 grit.
   - A. Start with the Rough Sanding
   - B. Edge Sander
   - C. both

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. ----------
2. ----------

List of Reference Materials

1. Barricading and Signage Document Number – OHS-PROC-134
2. [2] J. Broomfield, Corrosion of Steel in Concrete: Understanding, Investigation and Repair, Taylor & Francis, New York, NY, USA, 2nd edition, 2007.
3. BUILDING CONSTRUCTION HANDBOOK Tenth edition Roy Chudley And Roger Greeno
4. BUILDING CONSTRUCTION HANDBOOK Seventh edition R. Chudley MCIOB and R. Greeno BA (Hons) FCIOB FIPHE FRSA
5. Sanding and finishing ALBARAA wood Marquetry spacialist
6. Application Guide (Air Atomized Spraying). International . yachtpaint.com
7. Guide to machinery and equipment safety .queensland govemewnt

Finishing Construction

Works Level II

Learning Guide-45

Unit of Competence: Manually sand plaster work

Module Title: Manually sand plaster work

LG Code: EIS FCW2 M07 LO4-LG-45

TTLM Code: EIS FCW2 M07 TTLM 0919v1

LO 4: Inspect work and cleanup work area.

Instruction Sheet	Learning Guide #45

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Inspecting the completing sanding work
- Reporting and identifying Problems
- Brushing down Sand area.

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Inspecting the Complete sanding work for compliance with workplace and customer requirements, including contracted level of finish.
- Identify and report problems.
- brush down Sand area

Learning Instructions:

12. Read the specific objectives of this Learning Guide.
13. Follow the instructions described below
14. Read the information written in the information Sheet
15. Accomplish the “Self-checks, in each information sheets**.**
16. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

Information Sheet-1	Inspecting the completing sanding work

4.1. Inspecting the completing sanding work

4.1.1. Completing a workplace inspection

Work place inspection use a check list help identify hazards. Using the checklist and looking at the area of concern is the best way to go about doing an inspection. Once hazards are identified, solutions are required to be put in place to ensure the hazard is controlled.

After each inspection, the dates on the workplace safety inspection schedule wall poster are to be adjusted as required before it is printed in color and displayed in a prominent in the area as a very visible, bright reminder of when the next inspection is due.

A workplace inspection is a planned event in which the workplace is inspected to identify potential hazards. It is the best way of proactively identifying hazards before they have the ability to cause an injury.

Who can do a workplace inspection?

Anybody can do a workplace inspection. Ideally though, an inspection would involve an experienced person form the area, a safety and health representative or safety officer and the supervisor of the area. Al least one the team should be independent of the specific area.

Inspection frequency and the workplace safety inspection schedule wall poster

The work place safety inspection schedule wall poster which is located on the testing, tagging and workplace inspections webpage includes a method of assessing risks presented by different types of workplace.

Self-Check -1	Written Test

Directions: say true or false:

1. Work place inspection use a check list help identify hazards. Describe the function inspection.
2. A workplace inspection is a planned event in which the workplace is inspected to identify potential hazards.
3. Who can do a workplace inspection? (5 points)

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ---------
2. ---------

Information Sheet- 2	Reporting and identifying *Problems*

4.2. Reporting and identifying *Problems*

What is reporting?

A simple **reporting procedure** will help you obtain important information about health and safety issues in the workplace identify problems when they arise, and address them. Safety **reporting procedures** make it simpler for you and your workers to manage safety issues and prevent recurrences of incidents and injuries.

***Problems*:** A matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome

Problem analysis is focused on **identifying** cause and effect. It can be very difficult to determine what cause is and what effect is. For example, a **problem** that initially looks like a human error may be a latent human error that is the result of a poorly designed user interface, system or process.

How do you write a problem analysis?

Steps

1. Describe the "ideal" state of affairs. ...
2. Explain your problem. ...
3. Explain your problem's financial costs. ...
4. Back up your assertions. ...
5. Propose a solution. ...
6. Explain the benefits of the solution. ...
7. Conclude by summarizing the problem and solution. ...
8. For academic work, don't forget a thesis statement

Self-Check -2	Written Test

Directions: Choose the best answer.

1. ------ a matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome.
   A. ***Problems***
   B. Problem analysis
   C. both
2. ----- is focused on identifying cause and effect.

   A. Problems

   B. Problem analysis
   C. both

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------

Information Sheet-3	Brushing down Sand area.

4.3. Brushing down Sand area.

4.3.1. Brush Sanding System

The brushes are to be used, when you need a harder and more aggressive sanding.

The brushes are available in two varieties (narrow and wide) and give a newly developed aggressive sanding, when sanding with brushes.

For example you get the same effect on flat items with the new wider support-brushes as you get with band sanding. With the advantage, there is no sanding through on stained items and on UV-lacquer items. Therefore with the use of the unique Flex sanding system you will save a lot on your lacquer consumption

The support-brushes are also adaptable to the Flex Trim system. It is quick and easy to change from a soft sanding to a harder sanding.

Support-brushes are not only used to increase the aggressiveness and hardness of the sanding. They can also be used as a back-up when doing hand sanding on different machines.

Narrow support-brushes the narrow support-brushes are suitable when a more aggressive sanding is needed on profiled items. The small support-brushes can be used on almost any item, as they are aggressive without losing their flexibility.

Therefore, the small brushes are suitable on wood sanding and intermediate sanding, where a more aggressive sanding is needed.

Wider support-brushes the wide support-brushes are mainly used for flat items, but they can also be used for items with large soft profiles as they give a very even sanding. The wide support-brushes have the same effect on flat items as a band sander, but will last much longer.

Self-Check -3	Written Test

Directions: Say true or false:

1. The brushes are to be used, when you need a harder and more aggressive sanding.
2. The narrow support-brushes are suitable when a more aggressive sanding is needed on profiled items.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. ----------
2. ----------

List of Reference Materials

1. Barricading and Signage Document Number – OHS-PROC-134
2. [2] J. Broomfield, Corrosion of Steel in Concrete: Understanding, Investigation and Repair, Taylor & Francis, New York, NY, USA, 2nd edition, 2007.
3. BUILDING CONSTRUCTION HANDBOOK Tenth edition Roy Chudley And Roger Greeno
4. BUILDING CONSTRUCTION HANDBOOK Seventh edition R. Chudley MCIOB and R. Greeno BA (Hons) FCIOB FIPHE FRSA
5. Sanding and finishing ALBARAA wood Marquetry spacialist
6. Application Guide (Air Atomized Spraying). International . yachtpaint.com
7. Guide to machinery and equipment safety .queensland govemewnt

Finishing Construction

Works Level II

Learning Guide-46

Unit of Competence: Manually sand plaster work

Module Title: Manually sand plaster work

LG Code: EIS FCW2 M07 LO5-LG-46

TTLM Code: EIS FCW2 M07 TTLM 0919v1

LO 5: Clean up.

Instruction Sheet	Learning Guide #46

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Disposing of, reusing cleaning of work area materials
- Cleaning up and contained Sanding dust
- Removing Non-toxic materials
- Using dust suppression procedures of minimize health risk
- Cleaning, checking, maintaining and storing of tools and equipment

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Clear work area and materials for dispose of, reuse or recycle in accordance with legislation, regulations, and codes of practice and job specification.
- Clean up and contain for Sanding dust and disposal in accordance with approved workplace procedures, with any hazardous material identify for separate handling.
- Remove Non-toxic materials using correct procedures.
- Using Dust suppression procedures to minimize health risk to work personnel and others
- Clean, check, maintain and storing Tools and equipment in accordance with manufacturer recommendations and standard work practices.

Learning Instructions:

17. Read the specific objectives of this Learning Guide.
18. Follow the instructions described below
19. Read the information written in the information Sheet
20. Accomplish the “Self-checks, in each information sheets.
21. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

Information Sheet-1	Disposing of, reusing cleaning of work area materials

5.1. Disposing of, reusing cleaning of work area materials

Disposal methods adopted depend on the nature of the material. To obtain this information, a comprehensive sampling and analysis program is required so that the correct route for disposal can be determined. For an old tip, sampling should also ascertain the odor levels, presence of methane, groundwater levels and leach ate quality.

Solid inert wastes

Solid inert waste found on plastering work site usually consists of building rubble, but may also include as demolition material timber, cement, sand, lime, plastic and lath metals . Such wastes should be reused, recycled, or disposed of to a landfill site licensed to take such wastes.

Contaminated Material and wastes

To ensure that all contaminated material uncovered on a construction site are excavated and disposed of in an environmentally responsible manner. Suggested measures

- Assay material uncovered on-site prior to disposal.
- Excavate material in a manner which avoids off-site environmental problems.
- Seal remaining contaminated material or wastes, where only part of the tip has been excavated, to ensure that there is no off-site effect now or in the future.
- Transport odorous wastes in covered vehicles.
- Dispose of contaminated material in a land fill licensed to take the type of contaminated material or wastes uncovered.

Recyclability

Recyclability measures a material's capacity to be used as a resource in the creation of new products. Steel is the most commonly recycled building material, in large part because it can be easily separated from construction debris by magnets.

Many building materials that cannot be reused in their entirety can be broken down into recyclable components. Often, it is the difficulty of separating rubble from demolition that prevents more materials from being recycled.

Waste Disposal Collect, store, and remove combustible waste products at the end of each workday or at the end of each work shift. Use only noncombustible containers to dispose of waste and rubbish and equip them with fitted or self-closing covers. Promptly remove and dispose of spills of flammable or combustible liquids. Place scrap lumber in containers and do not allow it to accumulate in work areas. Remove or bend over protruding nails unless the scrap lumber is placed directly in containers for removal.

When choosing between waste minimization options, the following hierarchy for waste management is preferred:

i. waste avoidance and/or reduction
ii. Reuse
iii. Recycling Diverting the waste stream in these ways means that waste treatment and waste disposal options can be reduced. Plastering work sites should pursue this hierarchy and seek out waste reduction opportunities. To identify opportunities it is necessary to consider all aspects of the project and the wastes it generates. Waste can be minimized by using improved technology, recycled or reused on-site, or by making purchasing decisions that favor recycled products. Wherever possible, include performance measures and targets for reduction, reuse and recycling options in the environmental management plan

Waste minimization opportunities include:

- obtaining construction materials, paints, lubricants and other liquids in reusable packaging or containers
- using noise barriers made from recycled materials
- Using overburden to construct temporary noise barriers.
- using contaminated water out of sediment dams for dust suppression and irrigating adjacent vegetated land
- sending waste concrete from demolition activities to a concrete recycler instead of landfill
- segregating and recycling solid wastes generated by construction activities, offices and mess-rooms
- collecting lubricating oil from the construction vehicle fleet and sending it to a recycle

Self-Check -1	Written Test

Directions: Say true or false.

1. Disposal methods adopted depend on the nature of the material.
2. Recyclability measures a material's capacity to be used as a resource in the creation of new products.
3. Waste Disposal Collect, store, and remove combustible waste products at the end of each workday or at the end of each work shift.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. ----------
3. ----------

Information Sheet- 2	Cleaning up and contained Sanding dust

5.2. Cleaning up and contained Sanding dust

Remove heavy dust after sanding from ceiling, floor, or appliance vents with a soft-brush vacuum attachment or electrostatic mop then dampen a microfiber cloth and wipe the surface. Rinse removable, washable air-conditioning filters well in hot soapy water and air-dry before reinstalling

Fortunately, there are a few simple steps you can take to clean everything up and finally enjoy your new space.

It's not just unsightly to leave the dust lying around. Left unattended, it can end up in your air ducts. So, it's important that you clean up the dust up as soon as possible.

First, there are a number of items you'll need to get the job done:

- Face masks
- A vacuum (plus an extra filter or two)
- Dust mops or towels
- A broom, plus dust mop treatment
- A mop
- Cleaner for your specific floor material
- Soft towels
- Used dryer sheets

As you get underway, remember that you want to minimize the amount of dust you kick up into the air. Besides spreading dust around and adding to your cleanup effort, it can also contribute to respiratory problems. Because of this risk, make sure to wear a face mask while performing your cleanup.

Start at the Top

With that in mind, the first step you should take is to vacuum up as much of the dust as possible. Vacuuming it will remove most of the dust, particularly the loose material that's more likely to shift around if you tried to sweep it up. Don't vacuum in random directions. Instead, start from the ceiling and work down towards the floor, moving in long sideways movements as you go. Take care of the ledges at the top of window and door frames at the same time. Light fixtures and ceiling fan blades could also use a bit of vacuuming while, closer to the ground, lamp shades and electronics should be similarly taken care of.

Once this part of the process has been completed, you're in a good position to start cleaning with soap and warm water over the same spaces. Damp towels will allow you to clean up the remaining dust without merely spreading it around. Any section you've vacuumed over will need to be cleaned in this manner, too. That goes for the air vents as well. Don't be afraid to remove the vent covers and get right in there.

Careful with the Floors

Cleaning the floors will depend more on the type of floor surface. A carpeted floor will typically trap much more dust in it and can be handled with a vacuum, plus a dust brush extension. If you like, you can even use a steam cleaner to more vigorously clean up the ingrained dust. An added bonus that comes with steam cleaning is that less dust will be kicked up into the air.

If you're cleaning a hard-surfaced floor, vacuuming or sweeping is a necessary first step. Don't go straight to cleaning up the dust with a damp mop. You risk scratching the surface with the fine grains of dust you're moving around. A treated dust mop is another option you can use to safely remove the fine particles. Along the baseboards, used dryer sheets are very effective at getting into the nooks and crannies, gathering up dust.

Once the floor dust is gathered up as well as possible, a damp – not wet – mop can be applied to the floor, using a cleaner appropriate to the surface material.

Self-Check -2	Written Test

Directions: Say true or false.

1. Cleaning up and contained sanding dust are remove heavy dust after sanding from ceiling, floor, or appliance vents with a soft-brush

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------

Information Sheet-3	Removing Non-toxic materials

5.3. Removing Non-toxic materials

What is non toxic waste?

A non-toxic substance is any substance that may create a non-health hazard and is a nuisance or is aesthetically objectionable.

The following is an example of a Federal Statute defining Non toxic Materials:

Nontoxic materials means “materials for product water contact surfaces utilized in the transporting, processing, storing, and packaging of bottled drinking water, which are free of substances which may render the water injurious to health or which may adversely affect the flavor, color, odor, or bacteriological quality of the water.”

Nontoxic things aren't poisonous. It's generally safe to eat or breathe nontoxic substances, and they don't harm the environment. ... Toxic waste poisons the groundwater or makes nearby animals sick, but nontoxic waste tends to break down without any negative consequences.

Environmental Health and Safety Office

The Environmental Health and Safety Office shall arrange the collection of hazardous chemical waste from generators in a safe and timely manner. This shall be primarily being accomplished through the Chemical Waste Collection. The EHS Office will:

- assist university waste generators with inquiries regarding hazardous chemical safety, storage, and disposal;
- accept feedback from stakeholders on a continuous basis so as to improve the program and ensure its effectiveness;
- coordinate with external contractors to ensure the proper recycling and/or disposal of the chemical wastes;

- Ensure that the university chemical waste program is concurrent with all federal, provincial and municipal regulations, and; serve as a liaison to regulators on behalf of the University.

Storage

It is important to store chemicals based on their chemical properties to avoid unintended reactions. Materials should never be stored based on alphabetical order. Materials should be stored in cabinets designed for the chemical hazards that they present.

Containers

Chemical waste must be packaged in a manner that permits it to be stored and transported without the danger of leakage, explosion, or escape of hazardous vapors.

There are various types of containers that may be used to contain routine chemical waste. Containers may only be filled to 80% of the total volume capacity to allow for vapor expansion and to reduce the potential for spills occurring from moving overfilled containers. Unless waste is being added, all containers must be kept closed and stored in an appropriate location until collection. The containers should be stored based on the hazards of the waste, and away from direct sunlight and ignition sources.

Self-Check -3	Written Test

Directions: choose the best answer.

1. --------- is any substance that may create a non-health hazard and is a nuisance or is aesthetically objectionable
   A. Storage
   B. non-toxic substance
   C. both
2. --------- is important to store chemicals based on their chemical properties to avoid unintended reactions.
   A. Storage
   B. non-toxic substance
   C. both

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. ----------
2. ----------

Information Sheet-4	Using dust suppression procedures of minimize health risk

5.4. Using dust suppression procedures to minimize health risk

Dust Generation

Workplace dust may originate from a variety of materials, some examples of which include:

- quartz materials such as some kinds of rock, shale and gravel which may contain crystalline silica;
- metals of various types;
- powdered foodstuffs such as flour;
- sand, cement and other loose (dry) raw materials;
- coal and other mined materials;
- wood;
- man-made wood-based products such as fibreboard and MDF;
- rubber;
- dry soil; and
- animal feedstuffs

The term dust is also sometimes ‘loosely’ used to include other airborne materials (pollutants) such as welding fumes vapors from chemicals, mould spores, and isocyanides.

Accordingly, work sectors that will most likely be associated with the generation of dust include:

- civil engineering and building (especially in dry weather);
- demolition;
- foundry works;
- mining and quarrying;
- textiles and mills;
- bakeries; and
- Wood machining.

Ensure adequate ventilation of the workplace. Wear personal protection equipment including safety glasses, gloves, earmuffs and respiratory masks. Clean the workplace at regular intervals. Avoid kicking up dust.

Control the dust

Even if you stop some dust this way, you may do other work that could still produce high dust levels. In these cases the most important action is to stop the dust getting into the air. There are two main ways of doing this:

- **Water –** water damps down dust clouds. However, it needs to be used correctly. This means enough water supplied at the right levels for the whole time that the work is being done. Just wetting the material beforehand does not work.
- **On-tool extraction** – removes dust as it is being produced. It is a type of local exhaust ventilation (LEV) system that fits directly onto the tool. This 'system' consists of several individual parts – the tool, capturing hood, extraction unit and tubing.

  Use an extraction unit to the correct specification (i.e. H (High) M (Medium) or L (Low) Class filter unit). Don't just use a general commercial vacuum.

Control (the risks)

Use the following measures to control the risk.

Stop or reduce the dust

Before work starts, look at ways of stopping or reducing the amount of dust you might make. Use different materials, less powerful tools or other work methods. For example you could use:

- the right size of building materials so less cutting or preparation is needed;
- silica-free abrasives to reduce the risks when blasting;
- a less powerful tool – e.g. a block splitter instead of a cut-off saw;
- a different method of work altogether – eg a direct fastening system

Self-Check -4	Written Test

Directions: Say true or false.

1. On-tool extraction is removes dust as it is being produced.
2. Reduce of dust before work starts; look at ways of stopping or reducing the amount of dust you might make. Use different materials, less powerful tools or other work methods.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____
2. _____

Information Sheet-5	**Cleaning, checking, and maintaining of tools and equipment**

5.5. **Cleaning, checking, and maintaining of tools and equipment**

5.5.1. Tools and equipment

- Only tools and equipment which are in good condition may be used.
- Tools shall only be used for the purpose for which they were designed.
- Employees shall make frequent inspections of tools and equipment, and immediately remove from service any items found defective. The following are examples of the types of defects which should be looked for:
    A. Split, broken, cracked, or splintered wooden handles.
    B. Mushroomed heads on chisels or impact drills.
    C. Wrench jaws which slip or do not hold.
    D. Frayed cords damaged or modified grounding plugs, or broken insulation on electrical tools.
    E. Rounded edges on sharp-edged tools.
    F. Dull cutting tools.
- When using hand tools, the employee shall place himself in such a position that he will avoid injury if the tool slips.
- Only soft faced hammers (brass, plastic, rubber, or similar materials) shall be used on highly tempered steel tools such as cold chisels, star drills, etc. Proper eye protection must be worn when performing such an operation.
- Files, rasps, and other tools having sharp tangs shall be equipped with approved handles.
- Tools which are not in use shall be placed where they will not present a tripping or stumbling hazard.
- Pointed tools shall never be carried edge or point up in pockets.

- Tools shall not be thrown from one worker to another, or to another working location.
- Extensions shall not be used on wrenches to gain leverage unless the wrench is designed to be used in such a fashion.
- When cutting wire or any other material under tension, the material being cut shall be secured to prevent the ends from snapping free.
- All power tools must be properly grounded before their use.
- Gloves shall not be worn when operating lathes, drill presses, power saws, or similar equipment. Loose clothing must not be worn and long sleeves should be rolled up prior to operation.
- Hooks, brushes, vacuums, or special tools shall be used to remove dust or chips. Compressed air shall not be used.
- All machinery must be turned off when unattended.
- Maintenance, repairs, adjustments, and measurements must not be made while saws, lathes, grinders, and similar equipment are in operation.
- Compressed air shall never be used to dust off clothing, or be directed toward another person.
- Saw blades, gears, sprockets, chains, shafts, pulleys, belts, and similar apparatus shall not be operated without the proper guarding.
- Safety glasses, goggles, or face shields shall be worn when operating power tools

Checking and maintenance

- Before every use, look for signs of damage to blasting equipment and power tools.
- Before use, check compressed air lines; check that any compressed air cutout works properly.
- At least once a week, check the condition and operation of blasting equipment.
- At least once a quarter, maintain the equipment according to the manufacturer's instructions.
- Keep this information in your testing logbook.

Use care when handling hawks and trowels as the edges can become sharp with use. Keep the surfaces of application tools clean during use and when the work is done. Ensure that application tools are dry before storing them. Never use a trowel for chipping or chopping.

Store material

Hazardous materials stored at your site that are being used for their intended purpose are not considered “wastes” and may be stored on site indefinitely. However, once the material is no longer usable, the material is con-sidered a waste and RCRA storage requirements (e.g., time limit before a permit is needed) apply.

Self-Check -5	Written Test

Directions: Say true or false.

1. Maintenance is not before every use look for signs of damage to blasting equipment and power tools.
2. When using hand tools, the employee shall place himself in such a position that he will avoid injury if the tool slips.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____
2. _____
3. ----------

List of Reference Materials

1. Barricading and Signage Document Number – OHS-PROC-134
2. [2] J. Broomfield, Corrosion of Steel in Concrete: Understanding, Investigation and Repair, Taylor & Francis, New York, NY, USA, 2nd edition, 2007.
3. BUILDING CONSTRUCTION HANDBOOK Tenth edition Roy Chudley And Roger Greeno
4. BUILDING CONSTRUCTION HANDBOOK Seventh edition R. Chudley MCIOB and R. Greeno BA (Hons) FCIOB FIPHE FRSA
5. Sanding and finishing ALBARAA wood Marquetry spacialist
6. Application Guide (Air Atomized Spraying). International . yachtpaint.com
7. Guide to machinery and equipment safety .queensland govemewnt

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	A. A	Geze Badhane@gmail.com
3	Habtamu Abayneh	BSC in Building Construction technology	SNNPRS	Habtishzeget05@gmail.com
4	Mihiretab Gashaw	BSC in Building Construction technology	A. A	mihiretabgashaw@gmail.com
5	Shukri Tahir	BSC in Building Construction technology	Somalie	Shikuretahir09@gmail.com
6	Tenagnework Kebede	BSC in Building Construction technology	Amhara	tenagnekebede@gmail.com
7	Zelalem Adugna	BSC in Building Construction technology	Dire Dawa	Zola.za@73gmail.com