



# **Bar bending & concreting**

## **LEVEL II**

# **Learning Guide-24**

**Unit of Competence: Prepare for stone masonry**

**Construction process**

**Module Title: Preparing for stone masonry**

**Construction process**

**LG Code: EIS BBC2 MO7 LO3-LG-24**

**TTLM Code: EIS BBC2 TTLM 1019v1**

**LO 3: Use tools, plant and  
equipment appropriate  
for construction process**



## Instruction Sheet

## Learning Guide #24

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

- Identifying regular hand and power tools for application process
- Using hand and power tools safely and effectively to carry out processes

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:**

- Identify regular hand and power tools suitable for application process
- Use hand and power tools safely and effectively to carry out processes.

### Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 7.
3. Read the information written for each “Information Sheets given below
4. Accomplish the “Self-check after reading & understanding of each information sheet
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet
6. Lastly do the “LAP test
7. If you have any question ask your teacher



Information sheet-1	Identifying regular hand and power tools for application process
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### 3.1. Identifying regular hand and power tools for application process

- **Safety rules for hand & power tools**

There are five basic safety rules can help prevent hazards associated with the use of hand and power tools:

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use and do not use damaged tools.
- Operate tools according to the manufacturers' instructions.
- Provide and use properly the right personal protective equipment.

- ✓ **Safety tips for electric power tools:**

- Keep floors dry and clean to avoid slipping while working with or around dangerous tools.
- Keep cords from presenting a tripping hazard.
- Never carry a power tool by its cord.
- Use tools that are double-insulated or have a three-pronged cord and are plugged into a grounded receptacle

- ✓ **Hazards of Hand Tools?**

Hand tools are tools that are powered manually. Hand tools include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance.

Some examples include the following:

- If a chisel is used as a screwdriver, the tip of the chisel may break and fly off, hitting the user or other employees.



- If a wooden handle on a tool, such as a hammer or an axe, is loose, splintered, or cracked, the head of the tool may fly off and strike the user or other employees.
- If the jaws of a wrench are sprung, the wrench might slip.
- If impact tools such as chisels, wedges, or drift pins have mushroomed

heads, the heads might shatter on impact, sending sharp fragments flying toward the user or other employees.

The employer is responsible for the safe condition of tools and equipment used by employees. Employers shall not issue or permit the use of unsafe hand tools. Employees should be trained in the proper use and handling of tools and equipment.

Employees, when using saw blades, knives, or other tools, should direct the tools away from aisle areas and away from other employees working in close proximity. Knives and scissors must be sharp; dull tools can cause more hazards than sharp ones. Cracked saw blades must be removed from service.

Wrenches must not be used when jaws are sprung to the point that slippage occurs. Impact tools such as drift pins, wedges, and chisels must be kept free of mushroomed heads. The wooden handles of tools must not be splintered.

Iron or steel hand tools may produce sparks that can be an ignition source around flammable substances. Where this hazard exists, spark-resistant tools made of non-ferrous materials should be used where flammable gases, highly volatile liquids, and other explosive substances are stored or used.

- **Dangers of Power Tools?**

Appropriate personal protective equipment such as

- ✓ Safety goggles and gloves must be worn to protect against hazards that may be encountered while using hand tools.



- ✓ Workplace floors shall be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.
- ✓ Power tools must be fitted with guards and safety switches; they are extremely hazardous when used improperly. The types of power tools are determined by their power source: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated.

To prevent hazards associated with the use of power tools, workers should observe the following general precautions:

- Never carry a tool by the cord or hose.
  - Never yank the cord or the hose to disconnect it from the receptacle.
  - Keep cords and hoses away from heat, oil, and sharp edges.
  - Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
  - Keep all people not involved with the work at a safe distance from the work area.
  - Secure work with clamps or a vise, freeing both hands to operate the tool.
  - Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
  - Maintain tools with care; keep them sharp and clean for best performance.
  - Follow instructions in the user's manual for lubricating and changing accessories.
  - Be sure to keep good footing and maintain good balance when operating power tools.
  - Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts.
  - Remove all damaged portable electric tools from use and tag them: "Do Not Use."
  - **Guards** The exposed moving parts of power tools need to be safeguarded. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded.



### ✓ **Operating Controls and Switch**

The following hand-held power tools must be equipped with a constant-pressure switch or control that shuts off the power when pressure is released: drills; tappers; fastener drivers; horizontal, vertical,

Other hand-held power tools such as circular saws having a blade diameter greater than 2 inches (5.08 centimeters), chain saws, and percussion tools with no means of holding accessories securely must be equipped with a constant-pressure switch.

### ✓ **Electric Tools.**

The following general practices should be followed when using electric tools:

- Operate electric tools within their design limitations.
- Use gloves and appropriate safety footwear when using electric tools.
- Store electric tools in a dry place when not in use.
- Do not use electric tools in damp or wet locations unless they are approved for that purpose.
- Keep work areas well lighted when operating electric tools.
- Ensure that cords from electric tools do not present a tripping hazard.



stone cutting machine in...



Fantini stone extraction chain saw machines



stone cutting saw



Fig 1. Different stone power tools



Self-Check 1	Multiple Choice item
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**Directions:** Select the correct answer and encircle the letter of your choice.

1. The following expression prevent hazards associated with the use of hand and power tools except:
  - A. Keep all tools in good condition with regular maintenance
  - B Use the right tool for the job.
  - C. Examine each tool for damage before use and do not use damaged tools
  - D. None of the above
2. The Hazards of Hand Tools occurs if?
  - A. If a chisel is used as a screwdriver
  - B. the tip of the chisel may break and fly off
  - C If a wooden handle on a tool, such as a hammer or an axe, is loose
  - D. Miss use of hand tools
3. One of the following general practices should be followed when using electric tools.
  - A. Use gloves and appropriate safety footwear when using electric tools
  - B. Store electric tools in a dry place when not in use
  - C. Keep work areas well lighted when operating electric tools.
  - D. All are correct

**Note:** Satisfactory rating – 1.5 points Unsatisfactory -1.5 below 3points

**Answer Sheet**

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

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





<b>Information sheet-2</b>	Using hand and power tools safely and effectively to carry out processes
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## 2.1. Using hand and power tools safely and effectively to carry out processes

- **Hand tools safely**
  - Careless or improper hand tool use can cause injuries
    - ✓ Broken bones or bruises if tools slip, fall, or are thrown
    - ✓ Eye injuries if tools, or chips they create, fly through the air
    - ✓ Cuts, severed arteries, or amputations if saws or sharp tools slip
    - ✓ Puncture wounds if pointed tools slip
  - **Match the Tool to the Job**
    - ✓ Use a wrench, not pliers, for tightening.
    - ✓ Use a pry bar, not a screwdriver or file, to open containers.
    - ✓ Use a hammer, not a wrench or your hand, on nails.
  - **Carry Tools Carefully**
    - ✓ Transport tools in a toolbox or belt.
    - ✓ Hand tools to another person handle first; don't throw tools.
    - ✓ Carry pointed or sharp tools with the dangerous edges away from your body
    - ✓ When going up and down ladders,
    - ✓ Carry tools in a bag or bucket.
  - **Use Proper Protective Equipment**
    - ✓ Wear safety goggles if there's any chance of flying objects.
    - ✓ Wear safety shoes.
    - ✓ Wear a hard hat if people are working above you with tools.
    - ✓ Avoid wearing loose clothes or jewelry that could get caught in the tools.
  - **Use Tools Correctly**
    - ✓ Get a good grip on the tool handle.
    - ✓ Use vises to secure materials being cut, filed, screwed, etc.
    - ✓ Cut away from our body, not toward it.
- Preventative Measures**



- **Power Tool Safety**

- ✓ Never carry a tool by the cord or hose.
- ✓ Never yank the cord or the hose to disconnect it from the receptacle.
- ✓ Keep cords and hoses away from heat, oil, and sharp edges.
- ✓ Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
- ✓ The Occupational Health and Safety Administration, or OSHA, recommends that employees:
  - ✓ inspect all tools before every use
  - ✓ Never carry a tool by the cord or hose
  - ✓ Never hold fingers on the switch button when carrying a tool
  - ✓ Secure work with clamps or a vise so that both hands can operate the tool
  - ✓ Keep cords and hoses away from heat, oil, and sharp edges
  - ✓ Remain a safe distance away from anyone else working in the same area or observing your work
  - ✓ Keep good footing and maintain balance





- ✓ Wear proper clothing for the task, and avoid loose clothing, ties, and jewelry
- ✓ Disconnect tools when not in use, before maintenance or cleaning, and when changing any accessories
- ✓ Never yank the cord or hose to disconnect it
- ✓ Maintain tools with care
- ✓ Follow the manufacturer's recommendations for lubricating and changing accessories
- ✓ Remove any damaged tools from use and tag them "Do Not Use"
- ✓ Never attempt to override or remove any guard



Safe operating Power tools

- **Keep Tools in Their Proper Place at All Times**

- ✓ Always know where your tools are.
- ✓ Take special care working with tools above ground level. They could fall with great impact on someone below.
- ✓ Never place tools on the floor where they could be a tripping hazard.
- ✓ Keep sharp and pointed tools encased when not in use, so they don't puncture skin.
- ✓ Store tools in their proper places at the end of a task or shift.

**Self-Check 1****Multiple Choice item**

**Directions:** Select the correct answer and encircle the letter of your choice.

1. Careless or improper handling of tools can cause injuries:
  - A. Broken bones
  - B. Eye injuries
  - C. Cuts, severed arteries,
  - D. Puncture wounds
  - E. All are correct
  
2. One of the following is not power tool safety
  - A. Never carry a tool by the cord or hose.
  - B. Never yank the cord or the hose to disconnect it from the receptacle.
  - C. Keep cords and hoses away from heat, oil, and sharp edges.
  - D. Disconnect tools when not
  - E. None of the above
  
3. One of the following general practices should be followed when using electric tools.
  - A. Use gloves and appropriate safety footwear when using electric tools
  - B. Store electric tools in a dry place when not in use
  - C. Keep work areas well lighted when operating electric tools.
  - D. All are correct

**Note:** Satisfactory rating – 2points Unsatisfactory -2 below 3points

**Answer Sheet**

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

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



## Operation Sheet- 2 Use hand and power tools safely and effectively to carry out processes

### Procedure for using hand and power tools.

Step 1: Use Proper Protective Equipment

Step 2. Apply safety of hand tools & power tools

Step 3 .Keep Power Tool Safely

Step 4. Use Tools Correctly

Step 5. Match the tools to the Job.

Step 3. Putt/ store tools in right position

Step 4.Maintain tools carefully

### LAP Test

### Practical Demonstration

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

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

Time started: \_\_\_\_\_

Time finished: \_\_\_\_\_

**Instruction I: Given necessary templates, tools and materials you are required to perform the following tasks within 8hours.**

**Task 1. Use hand and power tools safely and effectively to carry out the processes**



## Reference:

- Handbook for rural masons  
New Delhi, March 2017
- Safety in the storage and handling of steel and other metal stock  
First published 2004  
ISBN 978 0 7276 1986 3
- Materials Handling and Storage  
U.S. Department of Labor  
Elaine L. Chao, Secretary



Name of trainers who prepared the TTLM

N0	Name	Qualification	Region	E.mail
1	Tesfaye Assegidew	MSC in CoTM	SNNPR	tesfayeasegidew@gmail.com
2	Habtamu Wendmagegn	Bsc in Civil Eng	Dire Dawa	Joniyitna9@gmail.com
3	Yazachew Geneti	Msc in CoTM	BGRS	0917858176
4	Gebresilasie Jemal	Bsc	Addis Abeba	Gebrajemal@gmail.com
5	Getachew Mohammed	MSC in CoTM	Amhara	Gerimom07@gmail.com
6	Kibryisfaw Tulema	Bsc in	Somalie	kibrutulema@gmail.com