



Bar Bending & Concreting

Level II

Learning Guide#36

Unit of Competence: produce cement concrete casting

Module Title: producing cement concrete casting

LG Code: EIS BBC2 M10 LO3-LG36

TTLM Code: EIS BBC2 TTLM 1019V1

LO3: - clean up



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

LO3. Clean up

- Disposing, reusing and recycling waste materials
- Maintaining plants, tools and equipments
- Performing good housekeeping

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 disposed of, reused or recycled
- Clean tools and equipment, checked, maintained and stored
- Practice necessary documentation accomplished

Learning Instructions

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 , **in page 3, 9, 16** ,respectively.
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3 , **in page 7 , 16. ,19,** respectively
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1, Operation Sheet 2 and Operation Sheet 3 ” **in page ---.**
6. Do the “LAP test” **in page – ---**



Fig.1 Disposal material

Construction Waste: Waste materials generated by construction activities, such as scrap, damaged or spoiled materials, temporary and expendable construction materials, and aids that are not included in the finished project, packaging materials, and waste generated by the workforce.

What is the reason to disposal material?

Material handling: damage during transport, inappropriate storage, under this category and 63.64% of the respondent affirmed this could be the most cause of material wastage.

Design. the term design comprise design change ,incomplete contract document errors in design and lack of details 80%respondents have that those can actor could for material wastage

Residual: Trim lasses from cutting material to required lengths conversion waste from cutting un economical shape sand waste from application processed 30%ofrespondents have agree this the most cause for the material waste.

3.2 Reuse/recycling from construction/demolition sites



Fig.2

By using more recycled and reused materials on your construction project, you can reduce your overall costs. There are two sources of potential cost savings - reusing construction, demolition and excavation materials, and importing recovered and recycled materials.

The most common applications of reused and recycled products are:

- reusing **excavation materials** - for example, by stabilising soils using hydraulic binders, or manufacturing quality soils by adding 'green' compost
- processing **demolition a risings** on site - for example, using mobile crushing plant to provide recycled aggregates for fill, capping and sub-base layers



- importing **recycled aggregates** that meet the same quality standards as the primary aggregates they replace
- improving **engineering properties** of materials - for example, by using bonding composites to rehabilitate existing structures
- using products with a **high recycled content**, such as recycled asphalt or cement replacement in concrete production
- concrete, which can be broken down and recycled as base course in driveways and footpaths
- masonry – concrete blocks and decorative concrete, paving stones, bricks,
- metals – reinforcing steel (rebar), structural steel, steel roofing including flashings and spouting, zinc roofing, interior metal wall studs, cast iron, aluminum, copper including flashings, spouting, claddings and pipe work, lead, electrical, plumbing fixture

Finally when cleaning up, materials such as cement, sand, paint and other liquids and solvents, **must not** be released into the storm water or sewerage disposal systems.

This should be included in the demolition specification



Self-Check 1	True or False
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Instructions: true or False(2point each)

1. Concrete, can be broken down and recycled as base course in driveways and footpaths
2. Masonry cannot be concrete blocks and decorative concrete, paving stones, bricks
- 3 . Design is the one case to construction material disposal
4. Reusing **excavation materials** stabilizing soils using hydraulic binders, or manufacturing quality soils by adding 'green' compost

Answer sheet

Name _____

Date _____

1.

2.

3.

4.

Note:

- **Satisfactory rating – above 4 points**
Unsatisfactory - below 4 points



Information sheet .2

Maintaining plants, tools and equipments

Maintaining the construction tools and equipment after each day's work. While a thorough cleaning is not required each day, a general wipe-down and removal of the heaviest construction dirt is key to extending the life of the tools .Lubricate air tools and pneumatic equipment before each day's use. Condensation in the airline creates an environment for corrosion inside pneumatic tools. Coating the internal components of these tools with air-tool oil will displace the moisture and prevent tool corrosion. Inspect and repair all construction equipment and tools at the completion of each job. Make all repairs to the equipment that are necessary for future construction work. This will prevent time being wasted repairing faulty equipment at future construction job

2.1 Keep Plant Clean

Keeping a batch plant in good condition requires a regular maintenance schedule. Due to the variety of different types of operation and layouts of plants, there is no specific plan that can apply to all plants, but there are some general steps that can help develop an effective maintenance schedule. Carefully examine the operation manuals supplied by the plant manufacturers. Take advantage of training offered by the manufacturer. Manufacturers also may recommend a specific schedule for lubrication or inspection. Make sure to pay attention to other elements of the plant, such as bearing and gear boxes, that may not be mentioned in manuals. The article also includes a Plant Maintenance Report that can be used as a guide to plant maintenance.

1. Keep Plant Clean

1. Cleanliness must be maintained in order to improve the longevity of batching **plant**.
2. Mixer should always be kept clean. Run the mixer at least once every day with stones and water in order to get it cleaned.



PLANT MAINTENANCE REPORT

Plant _____ Date _____ Week Ending _____

Maintenance Item	SUN	MON	TUE	WED	THU	FRI	SAT	Remarks or Repairs Made
1. Inspect oil and filter on air compressor and drain tank, manifolds, and all water traps.								
2. Inspect and fill all oilers on plant.								
3. Inspect all air cylinders.								
4. Inspect tension on all V-drive belts.								
5. Inspect conveyor belts for alignment and excessive wear.								
6. Perform housekeeping items, such as cleaning up dust and debris.								
1. Lubricate all bearings (ONE PUMP ONLY). Included are head and tail pulleys on all conveyors, snubber roller on loading conveyor, head and tail bearings on cement feeder screws, wheel bearing supports on turn head, etc.								
2. Lubricate all aggregate gate pivot points.								
3. Replace or blow clean all air filters on air compressor and aeration blowers.								
4. Inspect and tighten all bolts and bearing set screws.								
5. Inspect and/or adjust all belt wipers.								
6. Lubricate packing at the bottom and top ends of the cement feeder screws with oil.								
7. Inspect all bags in cement bag filters.								
1. Inspect oil level in all gear reducers.								
2. Adjust skirtboards as needed.								
3. Adjust and tighten conveyor belts as needed.								
4. Change oil in air compressor.								
1. Change oil in all conveyor gear reducers.								
2. Remove bags in cement bag filters and blow clean.								
3. Tighten or replace all V-belts as needed.								
4. Inspect scale and water meter accuracy.								
5. Inspect hanger bearings in feeder screws and replace as needed.								
6. Inspect and acidize boiler.								
7. Inspect and/or replace bin aeration pads.								



Fig.3 Concrete plant

3.2 Tools that are used in particular fields or activities may have different designations such as "instrument", "utensil", "implement", "machine", "device," or "apparatus". The set of **tools** needed to achieve a goal is "**equipment**". The knowledge of constructing, obtaining and using **tools** is technology. Construction tools and equipment suffer a lot of wear and tear. Hence, it is important to maintain them regularly. This will help increase the service life as well as the performance of the equipment. Precautionary maintenance of tools and equipment will also help reduce unwanted expenses related to broken or faulty equipment. Small problems generally lead to bigger issues if left unattended. Perform all cleaning and repair work as soon as you see any sign

Tool and Equipment Maintenance. ... Preventive maintenance is the systematic care and protection of tools, equipment, machines and vehicles in order to keep them in a safe, usable condition, limit downtime and extend productivity.

Clean, Inspect and care for tools make it a habit to clean tools after each use before you return them to storage wipe them down with a rag or old towel and be sure they are free of dust, grease and debris before you put them into their proper places. This is also an opportunity to look for any damage or defects.



Regular maintenance of equipment is an important and necessary activity. The term 'maintenance' covers many activities, including inspection, testing, measurement, replacement and adjustment, and is carried out in all sectors and workplaces. ... maintenance can be a high-risk activity

Keep tools in a dry place with low humidity – away from clothes dryers, laundries, etc. Store power tools in their original boxes or cases, and hang garden tools off the floor. If you use a toolbox or drawers, use silica gel packs to absorb moisture, or invest in anti-rust drawer liner typically, in construction, 'plant' refers to heavy machinery and equipment used during construction works. At the smaller scale, there may be some overlap between what is considered plant, small plant, tools, small tools or equipment.

General maintenance and repair workers get supplies and parts from distributors or storerooms to fix problems. They use common hand and power tools, such as screwdrivers, saws, drills, wrenches, and hammers to fix, replace, or repair equipment and parts of buildings to their proper places. This is also an opportunity to look for any damage or defects.

Steps of maintenance

1. Clean your tools. Cleaning the tools regularly is essential to their proper functioning. ...
2. Protect electrical cords. Airlines and electrical cords are prone to heavy damage since they are generally in the way of construction vehicles, and foot traffic. ...
3. Lubricate tools. ...
4. Inspect tools regularly. ...
5. Store tools with care.
6. Cleaning tools: Cleaning the tools regularly is essential to their proper functioning. ...
7. Protect electrical cords. Airlines and electrical cords are prone to heavy damage since they are generally in the way of construction vehicles, and foot traffic. ...
8. Lubricate tools. ...
9. Inspect tools regularly. ...



10. Store tools with care

Self-Check	Written Test
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Instructions: Choice the correct answer from given question

1. Which one of the following is hand tools

- A. hammer B. mixer C. vibrate D. none

2. Which one the following is equipment

- A. Vibrate B. Mixer C.A&B D. none

3. Lubricate material mainly used to `

- A. tools B. Machine C. plant D.B&C

4. Are used in particular fields or activities may have different designations

- A. tools B. Machine C. plant D.B&C

5. Which one of not part of step of maintains

A. Clean your tools

B. Lubricate tools. ...

C .Inspect tools regularly. ...

D. Store tools with care

E. none



Answer sheet

Answer sheet

Name_____

Date_____

1..

2.

3.

4.

5.



Information sheet.3	Performing good housekeeping
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3.3 Why should we pay attention to housekeeping at work?

Effective housekeeping can eliminate some workplace hazards and help get a job done safely and properly. Poor housekeeping can frequently contribute to accidents by hiding hazards that cause injuries. If the sight of paper, debris, clutter and spills is accepted as normal, then other more serious health and safety hazards may be taken for granted.

3.3.1 What is the purpose of workplace housekeeping?

Poor housekeeping can be a cause of accidents, such as:

- tripping over loose objects on floors, stairs and platforms
- being hit by falling objects
- slipping on greasy, wet or dirty surfaces
- striking against projecting, poorly stacked items or misplaced material
- cutting, puncturing, or tearing the skin of hands or other parts of the body on projecting nails, wire or steel strapping

To avoid these hazards, a workplace must "maintain" order throughout a workday. Although this effort requires a great deal of management and planning, the benefits are many.

3.3.2 What are some benefits of good housekeeping practices?

- reduced handling to ease the flow of materials
- fewer tripping and slipping accidents in clutter-free and spill-free work areas
- decreased fire hazards
- lower worker exposures to hazardous substances (e.g. dusts, vapors)



- better control of tools and materials, including inventory and supplies
- more efficient equipment cleanup and maintenance
- better hygienic conditions leading to improved health
- more effective use of space
- reduced property damage by improving preventive maintenance
- less janitorial work
- improved moral
- improved productivity

3.3.2 Workshop Safety Rules

Before you can use equipment and machines or attempt practical work in a workshop you must understand basic safety rules. These rules will help keep you and others safe in the workshop.

1. Always listen carefully to the teacher and follow instructions.
2. Do not run in the workshop, you could 'bump' into another pupil and cause an accident.
3. Know where the emergency stop buttons are positioned in the workshop. If you see an accident at the other side of the workshop you can use the emergency stop button to turn off all electrical power to machines.
4. Always wear an apron as it will protect your clothes and hold loose clothing such as ties in place.
5. Wear good strong shoes. training shoes are not suitable.
6. When attempting practical work all stools should be put away.
7. Bags should not be brought into a workshop as people can trip over them.
8. When learning how to use a machine, listen very carefully to all the instructions given by the teacher. Ask questions, especially if you do not fully understand.
9. Do not use a machine if you have not been shown how to operate it safely by the teacher.
10. Always be patient, never rush in the workshop.
11. Always use a guard when working on a machine.

12. Keep hands away from moving/rotating machinery.
13. Use hand tools carefully, keeping both hands behind the cutting edge.
14. Report any damage to machines/equipment as this could cause an accident.



Fig .2



Work shop



Self-Check 13	Written Test
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Directions: Answer all the questions listed below. Say true the question is correct or say false the questions in incorrect. The Answer sheet provided in the next page:

1. Poor housekeeping can frequently contribute to accidents
2. Good housekeeping slipping on greasy, wet or dirty surfaces
3. Good housekeeping practices reduced handling to ease the flow of materials



Answer sheet

Name _____

Date _____

1.

2.

3.

Note: Satisfactory rating – above 6 points

Unsatisfactory - below 6 points



OPERATION SHEET- 4.1

OPERATION TITLE:- Clean up

PURPOSE:-

- ✓ Work area is cleared and materials disposed of, reused or recycled.
- ✓ Plant, tools and equipment are cleaned, checked, maintained and stored.

CONDITIONS OR SITUATIONS FOR THE OPERATIONS:-

- the working area should be cleaned
- appropriate tool & equipment & material are gain
- Availability of proper tools and equipments

EQUIPMENT AND TOOLS

- trowel,
- hammer
- wheel barrow
- shovel ...

consumable MATERIALS

- paper

PROCEDURE,

- 1-Identifying the problem.
- 2-prepare the tools and materials.
- 3-clean the working area.

PRECAUTIONS:-

- ✓ Wear appropriate clothes, shoe, helmet etc ...
- ✓ Ensure the work area hazard free
- ✓ Free from other secondary problems like depression.

QUALITY CRITERIA:

Assured the performance of all the activities according to the information sheet

The surface finish is best appearance & attractive.



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LAP Test 1	Practical Demonstration
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Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates /guide, tools and materials you are required to perform the following tasks within 1:00 hours.

Task 1. By using the given guide identifying the problem of tools and equipments?

Task 2. .By using the given guide maintain the tools and materials

Task 3 By using the given guide Clean the working area



Annex 3

Answer keys for learning guide -10

Answer key

Self check

Information Sheet-1

1, True 2, False 3, True 4, True

Information Sheet-2

1, A 2, C 3, D 4.D 5.E

Information Sheet-3

1, True 2, True 3.True



List of Reference

Internet1. “construction hand book Details: Caps and Copings, Corbels and Racking,”
Technical Notes on Construction, 36A Revised, concrete Institute of America, 11490
Commerce Park Dr., Reston, VA 22091.

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