



Masonry

Level-II

Learning Guide-67

Unit of Competence: Erect Brick and Block Structures

Module Title:- Erecting Brick and Block Structures

LG Code: EIS MAS2 M13 LO6 LG-67

TTLMCode: EIS MAS2 M13 TTLM 0919v1

LO6:- Rake/rule joints



Instruction Sheet 6	Learning Guide #67
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This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Raking joints of laid brickwork/ block work
- Brushing brickwork/ block work
- Removing excess mortar

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:**

- Rake joints of laid brickwork/ block work
- Brush brickwork/ block work
- Remove excess mortar

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 and Sheet 3 in **page,3 , 8 and 15** respectively.
4. Accomplish the “Self-check 1, Self-check t 2 and Self-check 3” in **page -6, 13 and 18** 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 -20,21 and 22**
6. Do the “LAP test” in **page – 23** (if you are ready).



Information Sheet-1

Raking joints of laid brickwork/ block work

1.1 Raing joints

Related Articles

- **1** Repair Cracked Mortar On an Exterior Brick Wall
- **2** Repair Loose Chimney Bricks
- **3** Fix Loose Brick Veneer
- **4** Take Down a Brick Facade on a Fireplace

Older brick and mortar walls commonly had raked joints, which are flat mortar joints slightly recessed from the front edge of the brick. Modern masonry joints often bring the mortar flush with the front edge to do a better job of sealing out moisture. If you need to repair mortar on a brick wall, you should maintain a similar joint with the rest of the mortar. It's a simple process to rake mortar joints. You can even make your own tool to do it.

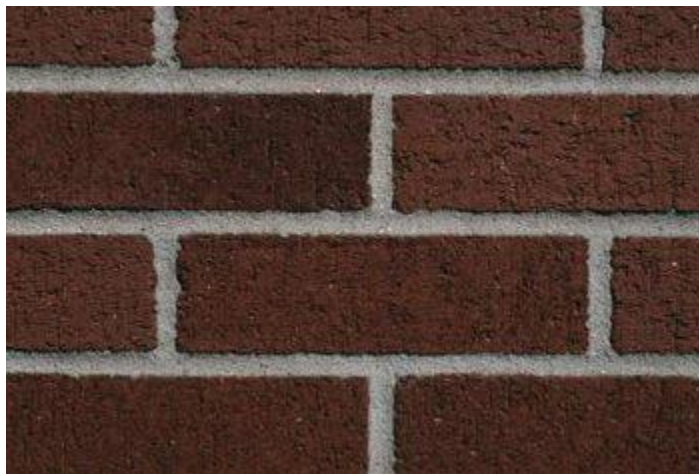
Raked Joint: The raked joint is another joint not recommended for exterior use because its ledge may allow water/snow/ice to sit on top of the brick. Due to the fact that the mortar sits back from the face of the brick, there is less cover between the face of the mortar joint and the top of the brick unit where the cores exist. Saturated mortar joints can allow water to enter the cores and permeate throughout the wall.

1.2 Raking Joints Technique



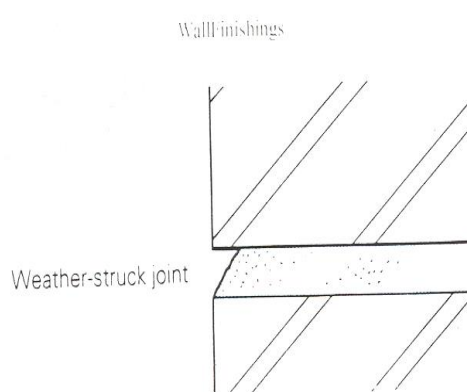
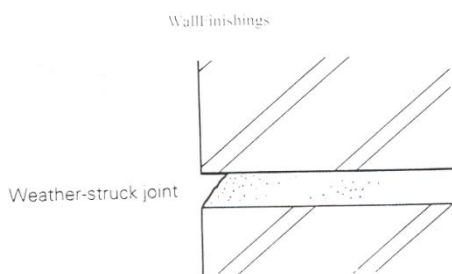
How to Rake Joints in Brick Walls

1. Preparation Of Background: - before pointing the background has to be



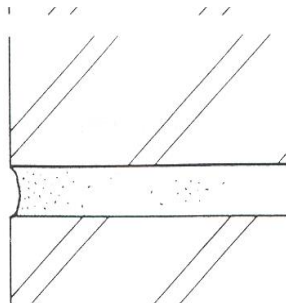
prepared by raking the joints to a depth of 10 to 20 mm to give good bond. The raked joints are brushed out to clear of the dust. The raked joints after cleaning may be made wet for avoiding loss of moisture from mortar by absorption.

2. Application Of Pointing: - The mortar will be pressed inside the joint. The finishing of the joint can be done as per the requirement.

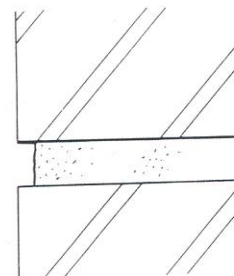




Half-round or concave joint



Recessed joint





Self-Check 1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page

I Write true if the statement is correct and false the statement is wrong

1. The racked joints are brushed out to clear of the dust
2. The racked joints after cleaning may be made wet for avoiding loss of moisture from mortar by absorption
3. racking the joints to a depth of 10 to 20 mm to give a weak joint.

II explain the question

4. Define the technique of rake/rule joint.(5p)

Note: Satisfactory rating - 4 & above points Unsatisfactory - below 4 points

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



Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions

1. _____

2. _____

3. _____

4. _____



Information Sheet-2	Brushing brickwork/ block work
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2.1 brushing brickwork/ block work

Bucket-and-brush cleaning is the most widely used method for cleaning newly constructed brick walls both small and large. A minimum amount of equipment is needed for this method, and workmen do not need to be highly skilled. The bucket-and-brush method may be used for cleaning all colors

First, clean and sweep the newly paved area, in order to remove all materials and debris seal the area with a sand binding sealant, this will ensure that the joint sand will not disappear. This will also prevent the growth of vegetation between the joints.sealing your pavers helps prevent stains from oil, grease, grime, rust, moss, algae, tire markings and day-to-days pills. The sealant allows you to clean off such stains with greater ease.

- *This tool is used for hammering nails and for splitting block or brick with the other watering the wall down before and after the wash and brushing is necessary.*



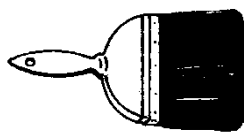


Fig 1



Fig 2

1. Brush:- Is used for wetting the building stones, cleaning fresh mortar joints of masonry wall, to clean hand use and to clean dust on tools before and after surfaces.



Brush

Fig 3

- Rake / rule Joints:- the joint having all the brick and block laid at an angle to the facing and backing the wall



2.2 techniques brush brick



The Bucket-and-Brush Brick Cleaning Method

FIG 3

Bucket-and-brush cleaning is the most widely used method for cleaning newly constructed brick walls both small and large. A minimum amount of equipment is needed for this method, and workmen do not need to be highly skilled.

Step 1 – Determine Proper Cleaning Solution

The bucket-and-brush method may be used for cleaning all colors and textures of brick. However, care must be used in selecting the proper cleaning solution for the job. Some



brick cleaning solutions are specifically made for certain types of brick. You should first test a clean sample area to determine the solution's effectiveness and ensure it does not damage the brick. The safest way to determine the proper cleaning solution for a given type of brick is to ask the brick manufacturer for his or her recommendation.

Step 2 – Wait for Mortar to Harden

You should first wait for mortar to harden before attempting to clean the brick. While industry standards generally require masonry to be seven days old before cleaning, it is possible to start cleaning operations 24-36 hours after completion of masonry work, depending on the type of brick and weather conditions.

Step 3 – Remove Large Mortar Particles

Next, remove all large mortar particles with hand tools before applying water or cleaning solutions. Use a wooden paddle or the rough edge of a brick. If necessary, chisels may be used to remove hardened mortar or concrete. This is an important part in cleaning new masonry, and you should not expect cleaning solutions alone to remove large particles of hardened mortar.

Step 4 – Protect Adjacent Surfaces

Mask and otherwise protect adjacent metal, glass, wood, and other surfaces as recommended by product manufacturers.

Step 5 – Saturate Wall With Water

Next, you should saturate the wall with clean water. The area to be cleaned must be saturated as well as all masonry areas below. A Hose should be trained upon the wall until the brick is saturated. If the wall appears to be drying on surface, reapply the water until a worker is ready to apply the cleaning solution.

Cleaning solutions containing dissolved mortar particles can be drawn into a dry masonry wall, causing future staining, so it's important to complete this step thoroughly.



Such staining from portland cement dissolved in cleaning materials is extremely difficult, if not impossible, to remove because it is insoluble in most masonry cleaning solutions.

Step 6 – Apply Cleaning Solution

Use a brush to apply the preferred cleaning solution to a saturated wall. Start cleaning at the top of wall and work down. An architect or engineer, and the brick supplier should approve the solution before use.

The concentration and method of application should be used as recommended on the container or by manufacturer. First, cover a small area using a long-handled fiber brush. Scrub the brick, not the joints. Allow the solution to remain on the wall 3-6 minutes, or as recommended on the label, as you or your workmen scrape and scrub vigorously.

Step 7 – Rinse Thoroughly

Rinse thoroughly as small areas are cleaned so that no cleaning solution is left behind. If the above procedures are followed, cleaning should be easy and trouble-free.



Self-Check 2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page

Answer the following question

1. Bucket-and-brush cleaning is the most widely used method for cleaning newly constructed brick walls both small and large
2. List down the tools used to clean out masonry walls (5 point)

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3

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Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions

1. _____
2. _____



Information Sheet-3

Removing excess mortar

3.1 removing excess mortar

Dried-on mortar over the face of brick is unsightly and can ruin the appearance of a wall. The easiest way to have clean bricks is to prevent mortar splatter during wall construction, but you can also chisel off the mortar once it's dried. For mortar that you can't remove regardless of what you do, using muriatic acid to remove the stubborn mortar may be a good solution. Irrespective of your situation, it's important that you follow the correct procedures and take safety precautions when cleaning mortar off of bricks.

Cleaning off Wet Mortar

Use the edge of a trowel to even out the mortar with the wall face. Use a forward lifting and rolling motion with the short edge of your trowel to even out the mortar with the face of the brick. Continue to do this as you lay new bricks to prevent mortar from bunching up and creating large chunks on the bricks.

You can also use a large, clean sponge to even out the mortar with the face of the bricks.





Fig 1

Rub off remaining mortar dust with a medium-soft bristle brush. The goal is to brush away dust on the face of your brick rather than wiping the mortar dust deeper into the brick. Avoid pressing down on the brush and wipe away from the surface of the brick. Use a back and forth motion until the mortar dust on the face of your wall is removed.

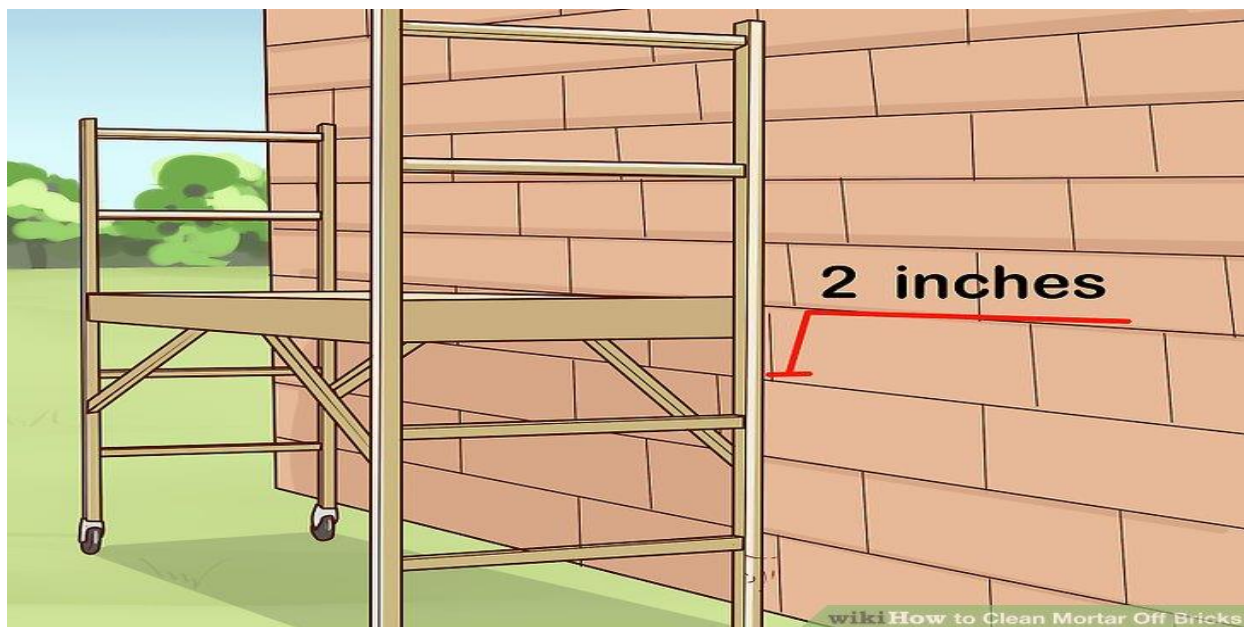


Fig 2

3_ scaffold should be set up 2 inches (5.08cm) from the wall to prevent mortar splatter at the base of your wall. Scaffold boards that are closest to the wall should be angled away and slightly downward from the wall.

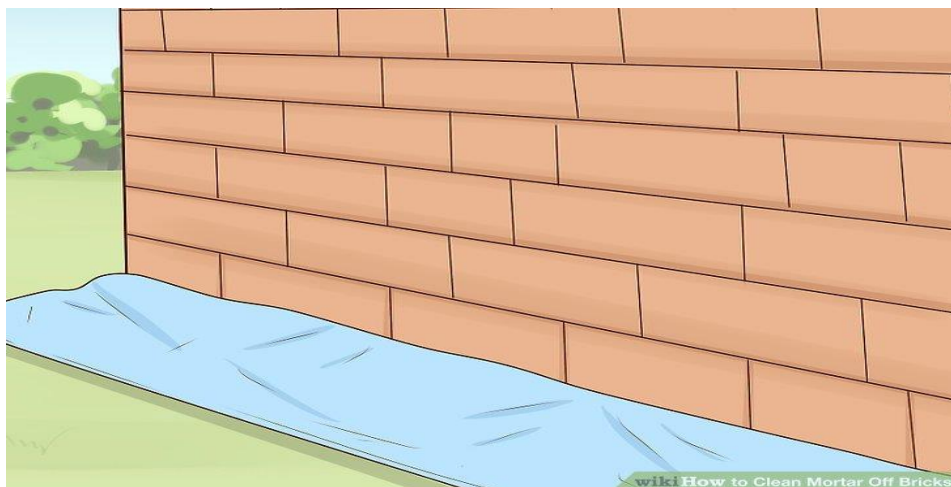




Fig 3

4. Protect the base of your wall with a drop cloth or plastic sheet. Lay down straw, fabric drop cloths, or plastic sheeting on the base of the wall to prevent mortar drippings from staining the base of your wall. These drop clothes should extend 3 to 4 feet (91.44 cm) from the base of your wall.

- You can also use plywood or oriented strand board. If any mortar drips on the wooden boards, you can reuse it as long as it didn't get dirty.



Self-Check 3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page

Answer the following question

1. Dried-on mortar over the face of brick is unsightly and can ruin the appearance of a wall
2. Scaffold boards that are closest to the wall should be angled away and slightly down ward from the wall
3. The purpose of lay down straw, fabric drop clothes is preventing mortar dripping from the base of wall

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3



Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions

1. _____

2. _____

3. _____



Operation Sheet 1

techniques of Raking joints of laid brickwork/ block work

Follow the techniques of Raking joints of laid brickwork/ block work

Procedures:

Step 1- wear personal protective clothes

Step 2- select the tools which are appropriate that work

Step 3- check the tools whether it is functional or not

Step 4- select the materials which are necessary

Step 5 based on these Procedures do the following lap test





Operation Sheet 2	techniques of Brushing brickwork/ block work
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Follow the techniques of Brushing brickwork/ block work

Procedures:

Step 1- wear personal protective clothes

Step 2- select the tools which are appropriate that work

Step 3- check the tools weather it is functional or not

Step 4-select the materials which are necessary

Step 5 based on these Procedures do the following lap test





Operation Sheet 3

techniques of removing excess mortar

Follow the techniques of removing excess mortar

Procedures:

Step 1- wear personal protective clothes

Step 2- select the tools which are appropriate that work

Step 3- check the tools whether it is functional or not

Step 4- select the materials which are necessary

Step 5 based on these Procedures do the following lap test





LAP Test 5	Practical Demonstration
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LAP Test -5

Name: _____

Date: _____

Time started: _____

Time finished: _____

Instructions: Given necessary templates /guide , workshop, tools and materials you are required to perform the following tasks within 4:00 hours

Task 1. Rake joints of laid brickwork/ block work

Task 2. Brush brickwork/ block work

Taske 3 Remove excess mortar



List of Reference Materials

<https://homeguides.sfgate.com/rake-joints-brick-walls-26907.html>

<https://www.doityourself.com/stry/bucketbrushcleaning>

<https://www.wikihow.com/Clean-Mortar-Off-Bricks>

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