UTM
UNIVERSITI TEKNOLOGI MALAYSIA

RESEARCH UNIVERSITY

CIVIL ENGINEERING LABORATORY

CONCRETE LABORATORY

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I/We declare that this laboratory report is my/our own work and does not involve plagiarism or unauthorized collusion. Signature(s): _____ Date: _____

Assessment *(please see overleaf for assessment rubrics)*

Scores :

UNIVERSITI TEKNOLOGI MALAYSIA
LABORATORIES MANAGEMENT UNIT
CIVIL ENGINEERING DEPARTMENT
CONCRETE LABORATORY

BRICK WORKSHOP
[BRICKS INSTALLATION METHOD]

1.0 OBJECTIVES:

In the end of this teaching, student will be able;

a) To compare between the arrangement of the first layer and second layer;
b) To estimate the total of materials that been use in correctly;
c) To plan, build a wall and understand the bonding principles;
d) To do the testing and checking accurately.

2.0 EQUIPMENT:

a) Trowel
b) Nail & String (Plumb line)
c) Scoop / Shovel
d) Spirit Level
e) Hammer & Chisel
f) L Elbow
g) Bucket

3.0 MATERIALS:

a) Bricks
b) Lime Mortar

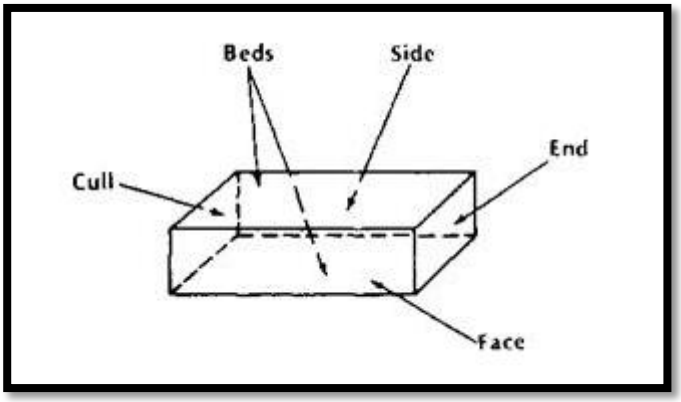
4.0. THEORY:

4.1 BRICK TERMINOLOGY

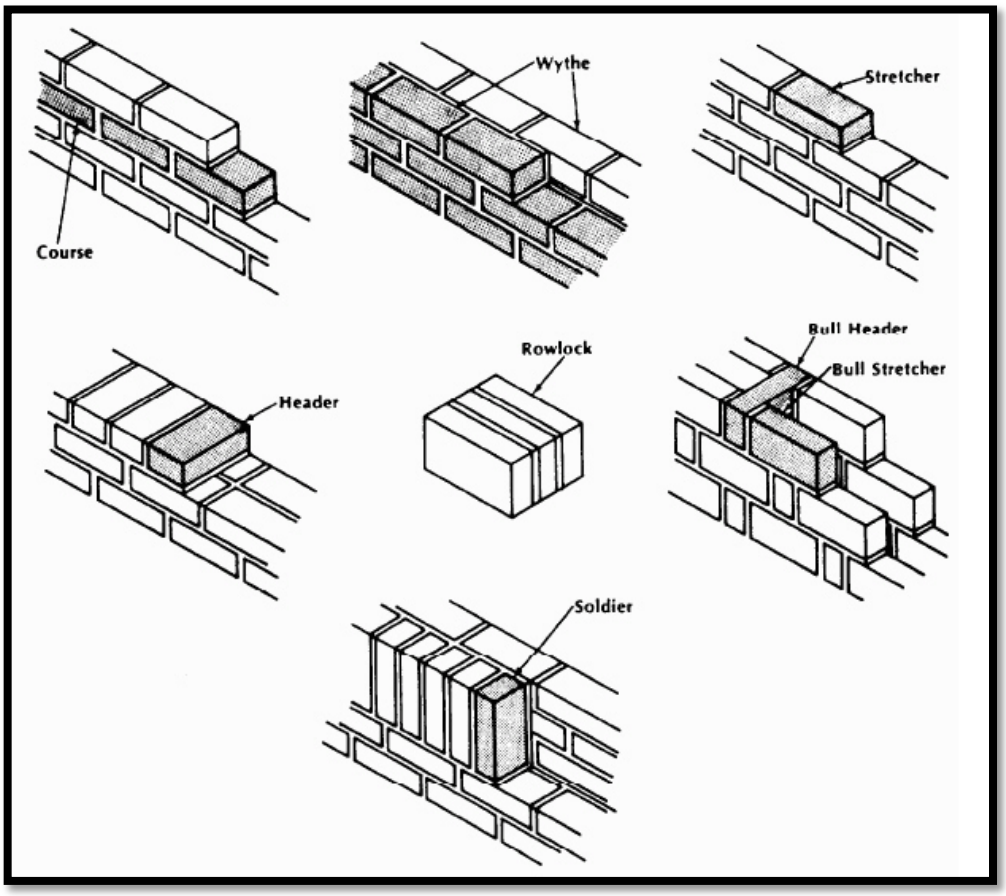
Brick masonry is construction in which uniform units of bricks laid in courses with mortar joints to form walls. Typically, rows of bricks called courses are laid on top of one another to build up a structure such as a brick wall. Bricks are kiln baked from various clay and shale mixtures. The chemical and physical characteristics of the ingredients vary considerably. These characteristics and the kiln temperatures combine to produce brick in a variety of colors and harnesses.

Standard bricks are 103 x 216 x 65 mm nominal size. Actual brick dimensions are smaller, usually by an amount equal to a mortar joint width. Mortar beds and perpends of a uniform 10 mm. Bricks weigh from 2.3 to 3.3kg, depending on the ingredients

and duration of firing. Fired brick is heavier than under-burned brick. The six surfaces of a brick are called cull, beds, side, end, and face, as shown in figure below.



4.2 MASONRY TERMS



Course	One of several continuous, horizontal layers (or rows) of masonry units bonded together.
Wythe	Each continuous, vertical section of a wall, one masonry unit thick. Sometimes called a tier.
Stretcher	A masonry unit laid flat on its bed along the length of a wall with its face parallel to the face of the wall.
Header	A masonry unit laid flat on its bed across the width of a wall with its face perpendicular to the face of the wall. Generally used to bond two wythes.
Row lock	A header laid on its face or edge across the width of a wall.
Bull header	A rowlock brick laid with its bed perpendicular to the face of the wall.
Bull stretcher	A rowlock brick laid with its bed parallel to the face of the wall.
Soldier	A brick laid on its end with its face perpendicular to the face of the wall.

5.0 PROCEDURES:

5.1 Prepare the mortar

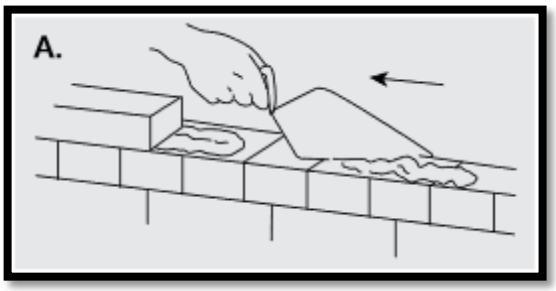
Prepare the mortar to required proportions and consistency.

5.2 Prepare the work site

Prepare the work site ensuring that the surrounding area is clean and level. An appropriate footing or base for the wall is required. This should be designed to ensure that it can support the intended wall for both vertical and lateral loads.

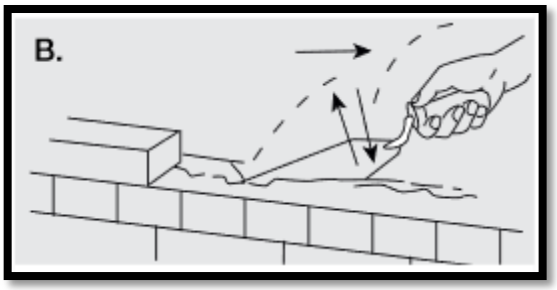
5.3 Lay the bricks

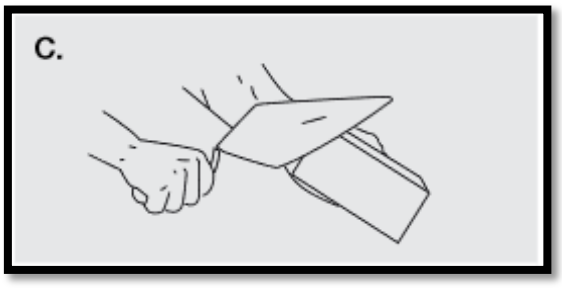
When laying bricks it is customary to work on the side of the wall which shows the finished face.



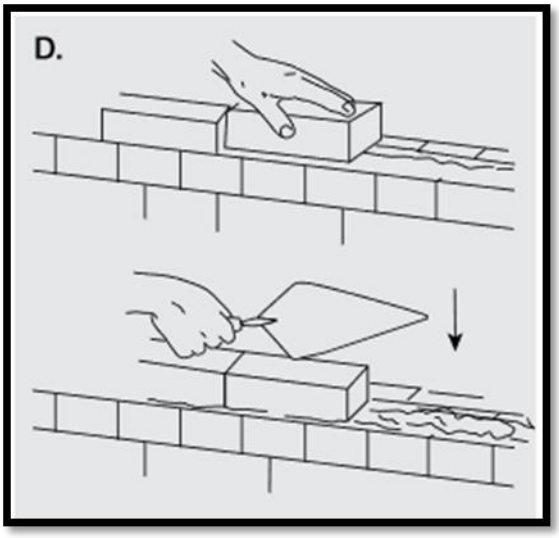
A trowel with mortar on it is held above the wall and moved in the direction of the arrow, at the same time tilting the trowel to allow the mortar to slide off and become distributed along the top of the wall.

The mortar is spread still further with the point of the trowel by a vibrating movement of the hand and by drawing the trowel in the direction of the arrow, which causes the mortar to form little ridges



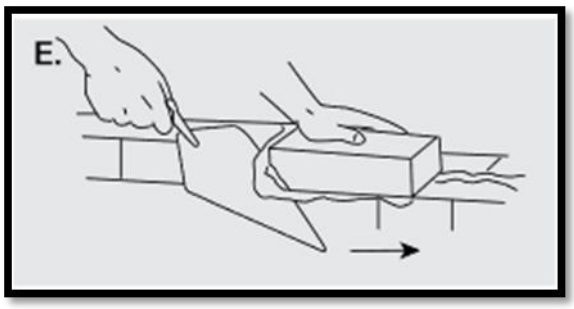


To fill the perpend mortar is applied to one end of the brick, which is to be laid. This is termed “buttering” the brick.



The “buttered” brick is then placed in position and then tapped with the trowel until it is level. A string line will assist the brick edge being level but you must also ensure the brick is level from front to back, to avoid any pronounced variable shadow effect.

All excess mortar squeezed out of the joint is then removed, by scraping it off with the trowel with an upward stroke.



Finish off the joints to the required profile. The joint finishes commonly used are shown below.