

PENANG SANGAM HIGH SCHOOL

P.O.BOX 44, RAKIRAKI

LESSON NOTES-22

School: PENANG SANGAM HIGH

Year/Level: 11

Subject: APPLIED TECHNOLOGY

Strand	AT 11.6: APPLIED ENGINEERING
Sub Strand	AT11.6.1 CARPENTRY JOINERY
Content Learning Outcome	AT11.6.1.1 Demonstrate knowledge of safety, materials, tools and processes and develop practical skills in simple joinery works.

BUILDING PRELIMINARIES

Before the building of any type, large or small, can be commenced, permission must be sought and given by the local authority. In the case of a house the building must be sited on the section with due consideration to distances from boundaries, storm-water drainage, sewage disposal and, for the owner's own satisfaction, sited to gain the best use of the sun, view, access, etc.

This application form must be accompanied by the following:

- Site Plan
- Building Details
- Specifications

Setting out Foundations

Two types of foundation are outlined for the workshop or shed. These are a concrete foundation with a concrete floor and pile foundation with the wood floor.

Profiles

Profiles are temporary guides made up of about 75×25mm or larger battens fixed to stakes driven into the ground. They are set up at each corner of the proposed building but with a clearance of

450 to 500mm to allow room to move about when setting out.

Lines

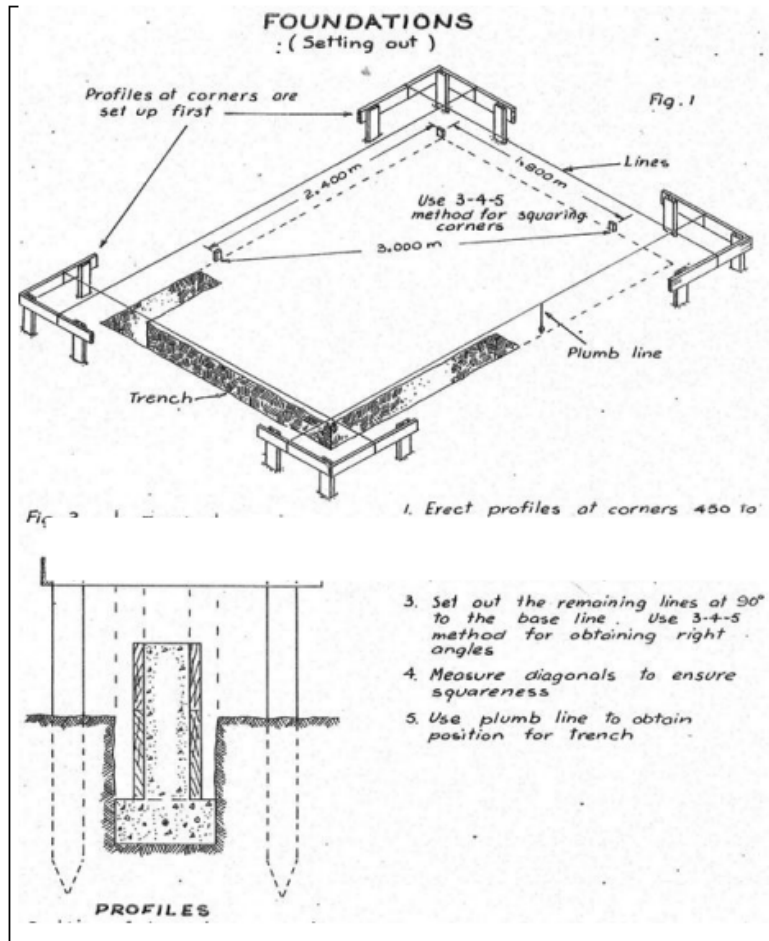
A base line or setting-out line is stretched across the tops of two of the profiles in the required position for one side or one end of the shed.

A second line is then stretched and fixed at right angles to the base line. To obtain this right angle, the 3-4-5 method is used.

To use this method, two small pegs are driven into the ground directly below the base line, one being placed at the corner which is to contain the right angle. A plumb bob and line are used for this. These pegs should be 1.8m apart to form the first side of the 3-4-5 triangle.

Foundations

Foundations for concrete wall and floor. When a concrete wall extends round a structure, as in this case, it is called a continuous concrete foundation wall.



The trench

This is dug to a depth of 300mm and is 350mm wide (fig. 1). If the soil is inclined to be loose, it is wise to 'box' the sides of the trench. This will prevent the loose soil breaking away and falling into the trench.

Concrete

Concrete is run into the trench to a depth of 100mm (fig. 2). Boxing may be used to make a straight, neat job of the footing but is not usually necessary.

Reinforcing

A 10mm diameter mild steel rod, usually marked D for deformed, and R for plain round on plans, is necessary to provide reinforcing to the wall and footing. It is laid in the centre of the footing and must continue around the building and is kept up off the ground by means of a piece

of concrete (biscuit).

Boxing

The boxing—or formwork as it is often called—for the concrete walls is erected with the bottom edge resting on the footing. The boxing is held firmly in place by means of braces, cleats and walers and fixed pegs driven into the ground.

Concrete

The concrete is mixed and placed as explained in the later section on concrete. To obtain a bond between the wall and the footing, the top of the footing should be left rough and starting rods left protruding.

Holding-down Bolts

These are required to hold the bottom plate of the shed to the concrete wall. They should be placed near the corners of the shed and approximately 1.4m apart along the walls.

Removing Boxing

When the concrete has set, the boxing is removed and the space around the wall filled with soil. To provide a solid foundation for the concrete floor, about 100mm of earth inside the shed walls should be removed and replaced with the hard fill of shingle or scoria and well tamped down.

Concrete-block Base Wall

Instead of boxing up a concrete wall, the wall may be constructed of concrete blocks laid on top of the footing. This is often an easier method of construction, the result being much the same except that the walls will be thicker

Pile Foundations for Wood Floor

The foundations for this type of construction consist of rows of 200×200mm concrete piles set into the ground to support bearer plates and floor joists, on to which is nailed to tongue and

grooved wood flooring or a particle board or plywood flooring.

SHORT ANSWER QUESTIONS

1. Define the terms:

a) Concrete:

b) Reinforcing:

c) Lines:

THE END