TRADE OF PLASTERING

PHASE 2

Module 1

SLABBING, RENDERING, FLOATING AND SKIMMING

UNIT: 8

Floating to Dots and Screeds

Produced by

SOLAS

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Introduction

Welcome to this section of your course which is designed to introduce you the learner, to plasticizer, orthographic projection and calculations using fractions.

Unit Objective

By the end of this unit each apprentice will be able to:

- State the function and use of plasticizer
- Interpret and draw orthographic projection
- Estimate and calculate areas using fractions

1.0 State the Function and Use of Plasticizer

Key Learning Points

- Function and use of plasticizer

1.1 Plasticizer

These are materials which are added to plastering mixes and mortars to assist their workability. They are mostly based on resins and they have the property of entraining millions of microscopic air bubbles in the air. The air bubbles in turn act as ball-bearing cushions to overcome the friction of the sand or aggregate.

These air bubbles remain in the mortar after it has set, and this is an advantage in certain cement mixes where they help to break up the capillary channels and therefore reduce or prevent penetration of moisture. The air bubbles also, in certain instances provide expansion chambers for any expansion of water in freezing conditions.

Other types of plasticizers are straightforward lubricants based on artificial soap-like liquids which act as greasy lubricators to overcome the friction of the aggregates.

Catalyst

A chemical change brought about in a substance by an agent which itself remains unchanged.

When gypsum plasters are mixed with just enough water to complete the hydration of the gypsum, maximum strength results. This illustrates the importance of the correct amount of water. Similarly, this applies to sand/cement mixes.

Ad-Mixes

A plaster mix consists of an inert material which is the aggregate, a cementitious material for a binder, and water. However, the cementitious materials are usually compounded with other materials during manufacture for specific reasons. Basically, pure Portland cement mortars are harsh and set slowly, pure lime mortars are weak. Any material other than the aggregate, binder and water added to a plaster either during manufacture or in the field is called an 'ad-mix'. Ad-mixes may be divided into those that affect the setting action, those affecting plasticity and workability, those that affect strength and those that affect colour.

A plaster mix contains basic ingredients usually described as: an aggregate (usually sand) a cementing material (binder) and water. These basic ingredients are often supplemented by other materials added either in manufacture or at the job site. Any ingredient, other than the three basic ones is called an 'Admixture' or 'Ad-Mix'. They are added to the mix to change or modify it as situations demand.

2.0 Interpret and Draw Orthographic Projection

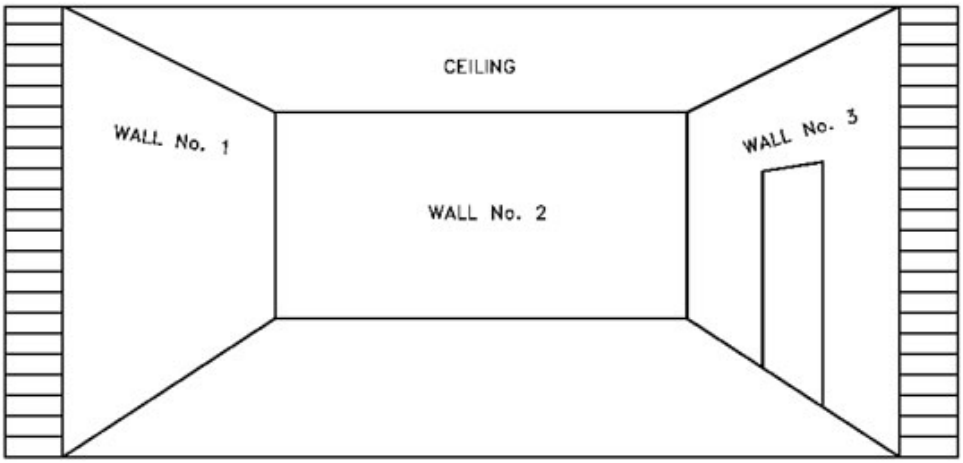
Key Learning Point

- Orthographic projection of cubicle, 1st and 3rd angle projection

2.1 Orthographic Projection of Cubicle

The drawing is a very important means of communicating information in the construction industry. The ability to read and interpret architectural drawing is essential to such craftsmen as plasterers, carpenters, plumbers, etc.

Drafting is frequently called a 'Universal language' because it communicates ideas in graphic or picture form, and a drawing made in Germany can as easily be understood by a Dubliner, as by a Berliner. It is also the 'language of the manufacturing industry' because drawings provide the information needed for the manufacture of the components.



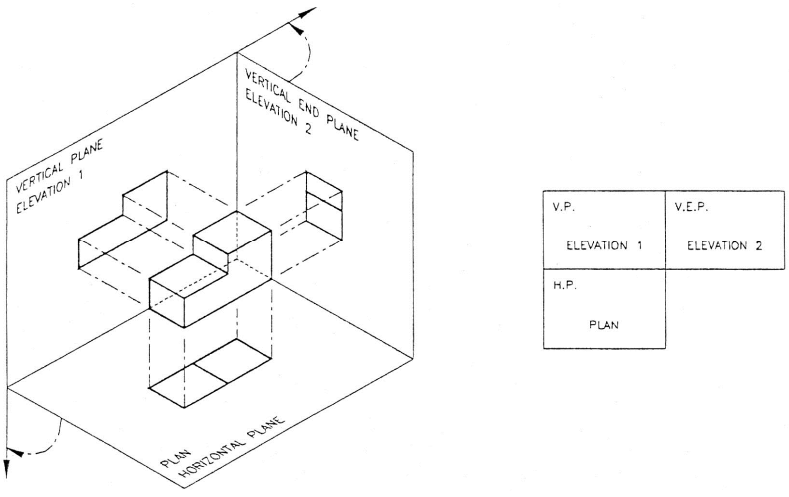
Free Hand Sketching

Sketching is a convenient and quick method of putting ideas into visual form. It can be described as a rough draft of an idea. They can be done using rules and set squares, or graph paper can be used. A good sketch shows the shape of the object, and provides dimensions and special instructions, and above all it must be in good proportion.

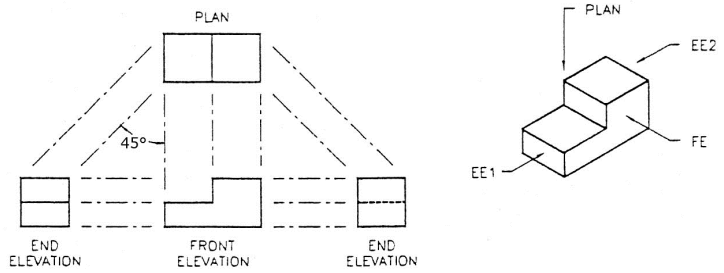
Orthographic Projection

Engineering drawings are always drawn in what is known as orthographic projection. For the presentation of detailed drawings this system has been found to be far superior to all others. In its simplest form it comprises **Plan, Front** and **Side Elevations**, it has, however, the disadvantage of being difficult to understand by people not trained in its usage.

Orthographic Projection has 2 forms, **First and Third** angle. First angle is traditionally used by Irish and British Industry, American and most continental countries use **Third** angle.



1st Angle Projection

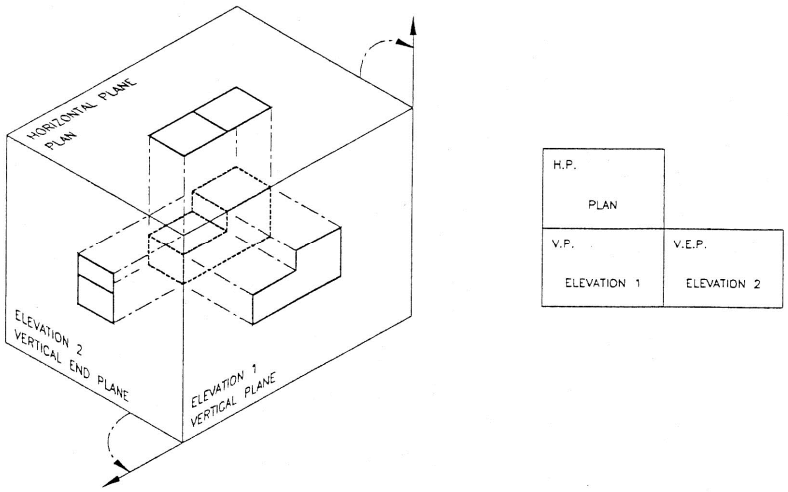


Third Angle Orthographic Projection

With **Third Angle** projection what you see from the left you draw on the left, what you see on the right you draw on the right and what you see from above you draw above.

Third angle projection is a more natural view.

Projection Methods



Third Angle Projection

ISO 2594 defines two projection methods applying to building drawings, namely:

The Direct Orthographic Projection Method

Direct Orthographic Projection is the representation of an object obtained by the intersection at right angles of projection lines with a plane.

The view shows the side of the object which faces the artist's eye. It is the method generally used.

The Mirrored Orthographic Projection Method

Mirrored Orthographic Projection is the reproduction of the image, in a mirror, of an object when the mirror is parallel to the horizontal plane

Other Projection Methods used in the presentation of drawings include the following: isometric, perspective, oblique, planometric, etc.

3.0 Estimate and Calculate Areas using Fractions

Key Learning Points

- Fractions: simple problem-solving using fractions and ratios
- Calculation of wall surface areas

3.1 Fractions: Simple Problem-Solving

Find the sum of the following

a) 3/8 + 5/8 + 7/8

b) 5/16 + 3/8 + 5/32

c) 15/8 + 21/8 + 101/4

Find the difference between the following

a) 7/8 -5/8

b) 7/32 -3/16

c) 13/8 -7/8

d) 247/64 - 179/64

Find the product of the following

a) 1/2 × 1/4 × 1/3

b) 11/2 × 3/16 × 7/8

c) 211/32 × 53/25

d) 17/8 × 21/3 × 63/5

Find the quotient of the following

a) 7/8 ÷ 1/32

b) 124/9 ÷ 42/3

c) 1207/10 ÷ 157/20

d) 121/2 ÷ 11/4

3.2 Calculation of Wall Surface Areas

Fractions should not be thought of as belonging exclusively to the imperial system of measurements of feet and inches, but rather as another method of expressing parts of a whole in the same way as the numbers following the decimal place.

If you broke a bar of chocolate into two pieces of the same size and gave one piece to a friend, he or she would half have of the bar. This could be written as a fraction. The lower number (2) is called the denominator and is saying that the bar is in two parts while number (1), known as the numerator, indicates the number of parts of the chocolate bar that have been given away.

Rain washed plaster off a freshly completed wall leaving an area of 2.4m². 5/8 of the total area was washed off, how many metres would have to be replaced?

2.4 = ⅜

⅛ = 0.8

⅝ = 0.8x5 = 4.0

Total area of wall: 2.4+4 = 6.4m^2

Area to be replaced = 4m^2

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