

## UNIT - I

### INTRODUCTION

#### TECHNICAL TERMS

**1. ESTIMATE:**An estimate is the anticipated or probable cost of work and is usually prepared before the construction is taken up. It is indeed calculations or computations of various items of an engineering work.

**2. QUANTITY SURVEY:** It is the schedule of all items of work in a building. These quantities are calculated from the drawing of the building. Thus quantity survey gives quantities of work done in case of each items, when priced gives the total cost. In short, quantity survey means calculations of quantities of materials required to complete the work concerned

**3.SPECIFICATIONS :**Detailed specifications gives the nature, quality and class of work, materials to be used in the various parts of work , quality of the material, their proportions, method of preparation, workmanship and description of execution of work are required.

**4.RATES :**The rates of various items of works, materials to be used in the construction and the wages of different categories of labor (skilled and unskilled) should be available for preparing an estimate. The cost of transportation charges should also be known. As far as possible sanctioned "Schedule of Rates" shall be followed or the rates may be worked out by the "Analysis of Rates" method.

**5.SITE PLAN:** It is the plan drawn for a particular construction showing its position with respect to approaching roads, main bazars, markets and other permanent features in a populated area. It shows the location of the area under construction with respect to the other areas and on it generally the names of the owners of areas or property holders adjoining to it are also denoted. North line is also clearly marked on it.

**6. LINE PLAN** Line plan can be defined as the plan of a particular construction simply showing main features with the help of the single lines of different portions of the constructions. Details of constructions are not generally shown on this plan. This inside and outside dimensions shown on this plan should necessarily be corresponding to actual dimensions.

**7. INDEX PLAN :**This is the plan of a particular colony showing the positions of different houses in single lines their number if any position of roads, schools, market, hospitals and other features etc. this plan is generally fixed on the entrance, or at exit or in the central place of the colony, for the guidance of the inhabitants and outsiders.

**DETAILED PLAN :** This plan indicates a plan of a construction drawn to a definite scale, showing all detailed information required for its execution. Various sections and elevations are clearly drawn on this plan.

**CENTRE LINE PLAN :** This is actually a layout plan drawn to facilitate the laying out of foundation lines and other features. It is generally fixed on the entrance or at exit in the central place of the colony for the guidance of the inhabitants and outsiders.

**SUPPLEMENTARY ESTIMATE:** When some additions are done in the original work, a fresh detailed estimate is prepared to supplement the original work. This estimate is called supplementary estimate. It is also accompanied by all the papers as required in thru detailed estimate.

**ADMINISTRATIVE APPROVAL:** For any project required by the department an approval so sanction of the competent authority with respect to the cost and work is necessary at the first instance. Thus administrative approval denotes the formal acceptance by the administrative department concerned of the proposals for incurring expenditure.

**TECHNICAL SANCTION :**It means the sanction and order by the competent authority of the department for the detailed estimate design calculations quantities of work rates and cost of work..after the technical sanction of the estimate is received the work is then taken up for construction.

**COMPETENT AUTHORITY:** An officer or any other authority in the department to whom relevant powers are delegated by the government (Financial Department).

**ORDINARY MEASUREMENT BOOK:** It is measured book in which entries regarding the work done or supplies made and services performed are recorded for the purpose of making payments to the contractors or the labor. Entries in the M.B are generally recorded by the sectional officers or by any other officers deputed for the purpose

### **LUMPSUM ITEMS**

Sometimes while preparing estimate for the certain small items like front architecture or decoration work of a building it is not possible to work out detailed quantities so far such lump sum items a lump sum rate is provided.

### **PLINTH AREA**

The built up covered area of a building measured at floor level of any storey is called plinth area.

## **17. CIRCULATION AREA**

The total cost of construction including all expenditures incurred plus the cost of external services up to the end of the completion of the work is called capital cost. It also includes the cost of preliminary works, miscellaneous items and supervision charges etc.

### **1.1 GENERAL**

Estimating is the technique of calculating or computing the various quantities and the expected Expenditure to be incurred on a particular work or project. In case the funds available are less than the estimated cost the work is done in part or by reducing it or specifications are altered, the following requirements are necessary for preparing an estimate.

1. Drawings like plan, elevation and sections of important points.
2. Detailed specifications about workmanship & properties of materials etc.
3. Standard schedule of rates of the current year.

### **1.2 UNITS OF MEASUREMENTS**

The units of measurements are mainly categorized for their nature, shape and size and for making payments to the contractor and also. The principle of units of measurements normally consists the following:

- a) Single units work like doors, windows, trusses etc., is expressed in numbers.
- b) Works consists linear measurements involve length like cornice, fencing, hand rail, bands of specified width etc., are expressed in running meters (RM)
- c) Works consists areal surface measurements involve area like plastering, white washing, partitions of specified thickness etc., and are expressed in square meters (m<sup>2</sup>)
- d) Works consists cubical contents which involve volume like earth work, cement concrete, Masonry etc are expressed in Cubic metres.

[BASED ON IS 1200 REVISED]

| Sl. No. | Particulars of item                            | Units of Measurement | Units of payment |
|---------|--|----------------------|------------------|
| I       | <b>Earth work:</b>                             |                      |                  |
|         | 1. Earth work in Excavation                    | cum                  | Per%cum          |
|         | 2. Earthwork in filling in foundation trenches | cum                  | Per%cum          |
| II      | 3. Earth work in filling in plinth             | cum                  | Per%cum          |
|         | <b>Concrete:</b>                               |                      |                  |
|         | 1. Lime concrete in foundation                 | cum                  | percum           |
|         | 2. Cement concrete in Lintels                  | cum                  | percum           |

|     |  |         |             |
|-----|--|---------|-------------|
|     | 6. Cement concrete bed   | cum     | per cum     |
|     | 7. R.C. Sunshade (Specified Width & Hight)                                       | cum     | 1m          |
| III | <b>Damp Proof Course (D.P.C)</b><br>(Thickness should be mentioned)              | sqm     | persqm      |
| IV  | <b>Brick work:</b>   |         |             |
|     | 1. Brickwork in foundation   | cum     | percum      |
|     | 2. Brick work in plinth  | cum     | percum      |
|     | 3. Brick work in super structure   | cum     | percum      |
|     | 4. Thin partition walls  | sqm     | percum      |
|     | 5. Brick work in arches  | cum     | percum      |
| V   | 6. Reinforced brick work (R.B. Work)   | cum     | percum      |
|     | <b>Stone Work:</b><br>Stone masonry  | cum     | percum      |
| VI  | <b>Wood work:</b>  |         |             |
|     | 1. Door sand windows frames or chowkhats, rafters beams                          | cum     | percum      |
|     | 2. Shutters of doors and windows (thickness specified)                           | sqm     | persqm      |
|     | 3. Doors and windows fittings (like hinges, tower bolts, sliding bolts, handles) | Number  | per number  |
| VII | <b>Steel work</b>  |         |             |
|     | 1. Steel reinforcement bars etc in R.C.C. and R.B.work. quintal                  | Quintal | per quintal |
|     | 2. Bending, binding of steel Reinforcement                                       | Quintal | per quintal |
|     | 3. Rivets, bolts, & nuts, Anchor bolts, Lewis bolts, Holding down bolts.         | Quintal | per quintal |
|     | 4. Iron hold fasts   | Quintal | per quintal |
|     | 5. Iron railing (height and types specified)                                     | Quintal | per quintal |
|     | 6. Iron grills   | sqm     | per sqm     |

|      |   |                             |         |
|------|---|-----------------------------|---------|
| VIII | <b>Roofing</b>  |                             |         |
|      | 1. R.C.C. and R.B.Slab roof (excluding steel)   | cum                         | per cum |
|      | 2. L.C. roof over and inclusive of tiles or brick or stone slab etc (thickness specified) | sqm                         | per sqm |
|      | 3. Centering and shuttering form work   | sqm                         | per sqm |
| IX   | 4. A.C. Sheet roofing   | sqm                         | per sqm |
|      | <b>Plastering, points&amp;finishing</b>   |                             |         |
|      | 1. Plastering-Cement or Lime Mortar (thickness and proportion specified)                  | sqm                         | per sqm |
|      | 2. Pointing   | sqm                         | per sqm |
|      | 3. White washing, colour washing, cement wash (number of coats specified)                 | sqm                         | per sqm |
| X    | 4. Distempering (number of coats specified)   | sqm                         | per sqm |
|      | 5. Painting, varnishing (number of coats specified)                                       | sqm                         | per sqm |
|      | <b>Flooring</b>   |                             |         |
|      | 1. 25mm cement concrete over 75mm lime concrete floor (including L.C.)                    | sqm                         | per sqm |
| XI   | 2. 25mm or 40mm C.C. floor  | sqm                         | per sqm |
|      | 3. Doors and window sills (C.C. or cement mortar plain)                                   | sqm                         | per sqm |
|      | XI  | Rain water pipe /Plain pipe | 1RM     |
| XII  | Steel wooden trusses  | 1No                         | per 1No |
| XIII | Glass pannels(supply)   | sqm                         | per sqm |
| XIV  | Fixing of glass panels or cleaning  | No                          | per no. |

### 1.2.1 RULES FOR MEASUREMENT

The rules for measurement of each item are invariably described in IS- 1200.

However some of the general rules are listed below.

1. Measurement shall be made for finished item of work and description of each item shall include materials, transport, labor, fabrication tools and plant and all types of overheads for finishing the work in required shape, size and specification.
2. In booking, the order shall be in sequence of length, breadth and height or thickness.