Estimating & Costing -1

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Problems on Plinth Area Method

Example 3.1: Prepare an approximate estimate of building project with total plinth area of all building is 800 sqm. and from following data.

i) Plinth area rate Rs. 4500 per sqm
ii) Cost of water supply @7½%of cost of building.
iii) Cost of Sanitary andElectrical installations each @ 7½% of cost of building.
iv) Cost of architectural features @1% of building cost.
v) Cost of roads and lawns @5% of building cost.
vi) Cost of P.S. and contingencies @4% of building cost.

Determine the total cost of building project.

Solution :

Data given:

Plinth area = 800m².

Plinth area rate = Rs. 4500 per Sqm.

∴ Cost of building = 800 x 4500 = Rs. 36,00,000=00

Add the cost of the water supply charges @7½%

$$= \frac{36,00,000 \times 7.5}{100} = 2,70,000 = 00$$

Add the Cost of Sanitary and electrical installation @ 15%

$$= \frac{36,00,000 \times 15}{100} = 5,40,000 = 00$$

Add the cost of archetectural features @1%

$$= \frac{36,00,000 \times 1}{100} = \quad 36,000 = 00$$

Example 3.2 : The plinth area of an appartment is 500 sqm. Detemine the total cost of building from the following data:

a) Rate of construction = Rs.1230/--per m^3.

b) The height of appartment = 16.25 m

c) Water Supply, Sanitary and Electrical installations each at 6% of building cost.

d) Architectural appearance @ 1% of building cost.

e) Unforeseen item @2% of Building cost.

f) P.S. and contingencies @4% of building.

Solution :

a) The Cost of building = cubic content x cubic rate

$= 500 \times 16.25 \times 1230 =$ Rs. 99,93,750/-

b) Provision for water supply, sanitary and

Electrical installations water supply and sanitation each @ 6%

$$= \frac{99,93,750 \times 18}{100} = \text{Rs.}17,98,875/-$$

i.e total percent = 3×6 = 18% building cost

c) Architectural appearance @1%$= \frac{99,93,750 \times 1}{100} =$ Rs. 99,937/-

Example 3.3: The plinth area and plinth area rate of a residential building are 100 sqm and Rs. 5000/- respectively. Determine the total cost of building assuming suitable provisions.

Solution :

Cost of building = 100 x 5000 = Rs.5,00,000

Cost of water supply and

sanitary fittings @15% = $\frac{5,00,000 \times 15}{100}$ = Rs. 75,000

Cost of Electrification @7½% = $\frac{5,00,000 \times 7.5}{100}$ = Rs. 37,500

Cost of Roads & Lawns @5% = $\frac{5,00,000 \times 5}{100}$ = Rs. 25,000

Cost of P.S.& contingencies@4% = $\frac{5,00,000 \times 4}{100}$ = Rs. 20,000

Total Cost Rs. 6,57,500/-

Example 3.4 : Prepare an approximate Extimate of a proposed building from the follwoing?

Plinth area of the building = 226 sqm.

Cost of the structure = 2500 per sqm.

Water supply and sanitary arangements = 12½%

Fluctuation of rates 5% = $\frac{5,65,000 \times 5}{100}$ = Rs. 28,250

Pettysupervision charges 3%= $\frac{5,65,000 \times 3}{100}$ = Rs.16,950

Total Cost Rs. = 7,19,750.00

Problem on Cubical content Method:

Example 3.5 : Prepare the rough estimate for a proposed commertial comples for a municipal corporation for the following data.

Plinth Area = 500m²/floor
Ht of each storey = 3.5m
No.of storeys = G+2
Cubical content rate = Rs. 1000/m³

Provided for a following as a peecentage of structured cost

a) water supply & Sanitary arrangement -8%
b) Electrification -6%
c) Fluctuation of rates - 5%
d) Contractors profit - 10%
e) Petty supervision & contingencies - 3%

Sol : Cubical content = No.of storeys (Plinth Area x height of each storey)
= 3(500x3.5) = 5250m³

Structural cost = Cubical content x cubical content rate
= 5250 x 1000 = 52.5 Lakhs

other provisons:-

a) Water supply and sanitation = 52.5x8/100 = Rs.4.2 Lakhs

Problems on Unit Base Method:

Example 3.6: Prepare an approximate estimate or rough cost estimate of a hospital building for 50 beds. The cost of construction altogether for each bed is Rs. 60,000/-. Determine the total cost of hospital building.

Solution:

No. of beds = 50

Cost of construction = Rs. 60,000/-

Total Cost of Hospital building = 50x 60,000= **Rs. 30,00,000/-**

Example 3.7: To prepare the rough cost estimate of a hostel building which accommodate 150 students. The cost of construction including all provisions is Rs. 15,000/- per student. Determine total cost of building.

Solution :

No.of students= 150

Cost of construction including all L.S. provisions = Rs. 15,000/-

Total Cost of hostel building =150 x 15000 = Rs. 22,50,000/-

(Rupees twenty two lakhs, fifty thousands only)

EXERCISE

I. SHORT ANSWER QUESTIONS:

1. List the factors to be consider while preparing detailed estimate and explain breifly?
2. What are the differences between plinth area method and Unit base method?
3. List the requirements of data preparation.

II ESSAY TYPE QUESTIONS :

1. Prepare the approximate cost of building project (group HOuseing)