

How to Calculate rate analysis for plaster work Step by Step?

What is Plastering?

Plastering is done to cover the rough surface and the uneven surface of the wall or concrete structure with the help of mortar (A mixture of cement and sand) to make it regular, smooth clean, and durable by protecting from fire, heat, etc. Rate analysis for plaster work is done to calculate the actual cost required for completing work.

So here we will calculate the rate of plastering per unit area which is called rate analysis.



Let us start calculating with the help of a question.

Calculate the Rate analysis for plaster work 12 mm thick cement plaster on both sides of the wall (10 m x 10 m) using cement mortar (1:3).

Given:- Surface area of Wall (both side) = $2 \times 10 \text{ m} \times 10 \text{ m}$ (quantity of work 200 m)

$$\text{Volume of work} = 200 \times 0.012 = 2.40 \text{ m}^3$$

Cement mortar = 1:3

Step 1:- Calculation of required materials

$$\text{Volume of work} = 2.40 \text{ m}^3$$

Add extra 30% to fill up joints, unevenness

$$\text{quantity of mortar} = 1.30 \times 2.40 = 3.12 \text{ m}^3$$

Add extra 25% for voids to get dry volume of mortar

$$\text{Dry volume of mortar} = 1.25 \times 3.12 = 3.90 \text{ m}^3$$

Add extra 5% for wastage

$$\text{volume of mortar} = 1.05 \times 3.90 = 4.10 \text{ m}^3$$

Now, calculation of materials required in 4.10 m³ mortar

$$\text{Quantity of cement} = (4.10 / (3+1)) \times 1 = 1.025 \text{ m}^3$$

$$\text{No. of bags} = 1.025 \times 28.8 = 29.52 \text{ 30 Bags}$$

$$\text{Quantity of sand} = (4.10 / (3+1)) \times 3 = 3.08 \text{ m}^3$$

Step 2:- Cost of Materials

Sr. No.	Particulars of Material	Unit	Quantity	Rate (Per unit)	Amount	
					₹	P.
1.	Cement	Bag	30	400	12,000	
2.	Sand	m ³	3.08	1100	3,388	
Total cost of Materials = ₹					15,388.00	

Step 3:- Cost of Labours (Let us assume work should be done in one day)

Labour Calculation for 200 m² Plaster work

Head mason required for 1/2 for 10 m²

So, for 200 m² = 1/(200×10) x 200 = 10 Nos.

Mason required 1 for 10 m²

So, for 200 m² = 1/100 x 200 = 20 Nos.

Mazdoor required 2 for 10 m²

So, for 200 m² = 2/10 x 200 = 40 Nos.

Coolie/Woman Mazdoor required 2 for 10 m²

So, for 200 m² = 2/10 x 200 = 40 Nos.

Bhisti required 3/4 for 10 m²

So, for 200 m² = 3/(4 X 10) X 200 = 15 Nos.

Sr. No.	Particulars of Labour	Men (nos.)	Rate per day	Per day	Amount	
					₹	P.
1.	Head Mason	10	500	1 Day	5,000	
2.	Mason	20	450	1 Day	9,000	
3.	Male Mazdoor	40	350	1 Day	14,000	
4.	Coolie/Woman Mazdoor	40	300	1 Day	12,000	
5.	Bhisti	15	250	1 Day	3,750	
6.	T&P	Lump sum	500*	-	500	
7.	Scaffolding	Lump sum	500*	-	500	
Total cost of Labours = ₹ 44,750.00						

Step 4:

Total Cost = Cost of Materials + Cost of Labours

Total Cost = 15,388 + 44,750 = Rs.60,138

Step 5:

Add 1.5% of total cost for Water charges = 1.5% of 60,138 = Rs. 902.07

Add 10% of total cost for Contractor's profit = 10% of 60,138 = Rs. 6,013.80

Grand Total = Total cost + water charge + contractor's profit

Grand Total = 60138 + 902.07 + 6013.80 = 67,053.87 = Say Rs.67,054.00

Hence,

The total cost required for this Plastering work is 67,054.00

Rate per m² = (67054/200) = 335.27 = Say Rs.335

Hence, in this way, we can calculate the rate analysis for plasterwork Step by Step.

I hope this article on "Rate analysis for plaster work" remains helpful for you.

Happy Learning – Civil Concept

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