



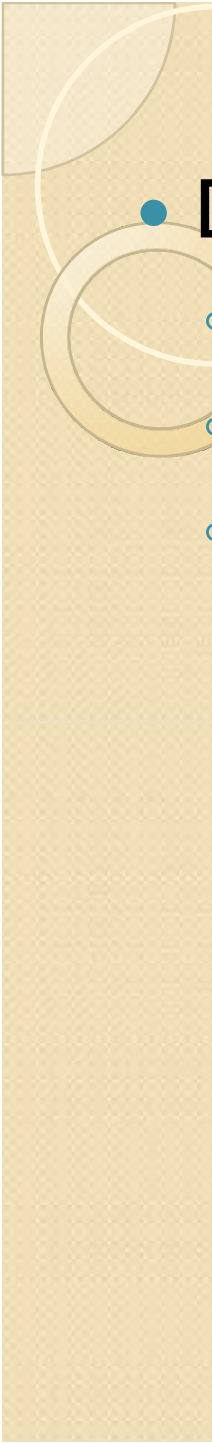
# Quantity Surveying and Valuation

Rohit Sharma



# Introduction

- Estimating is the technique of calculating or Computing the various quantities and the expected Expenditure to be incurred on a particular work or project.
- **PROCEDURE OF ESTIMATING OR METHOD OF ESTIMATING.**
  - i. Estimating involves the following operations
  - ii. Preparing detailed Estimate.
  - iii. Calculating the rate of each unit of work
  - iv. Preparing abstract of estimate

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- **Data Required To Prepare An Estimate**
    - Drawings i.e.plans, elevations, sections etc.
    - Specifications.
    - Rates.



# NEED FOR ESTIMATION AND COSTING

- Estimate give an idea of the cost of the work and hence its feasibility can be determined i..e whether the project could be taken up with in the funds available or not.
- Estimate gives an idea of time required for the completion of the work.
- Estimate is required to invite the tenders and Quotations and to arange contract.
- Estimate is also required to control the expenditure during the execution of work.



# TYPES OF ESTIMATES

- Rough cost estimate.
- Plinth area estimate.
- Cubical content estimate.
- Detailed estimate.
- Revised estimate.
- Supplementary estimate.
- Annual repair.
- Extension estimate.



# DETAILED ESTIMATES OF BUILDINGS

- UNITS OF MEASUREMENTS:

The units of measurements are mainly categorised 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:

Single units work like doors, windows, trusses etc., are expressed in numbers.

Works consists linear measurements involve length like cornice, fencing, hand rail, bands of specified width etc., are expressed in running metres (RM)



# DETAILED ESTIMATES OF BUILDINGS

- Methods of estimating quantities

The quantities like earth work, foundation concrete, brickwork in plinth and super structure etc., can be worked out by any of the following two methods:

1. Long wall - short wall method
2. Centre line method.



# Long Wall-Short Wall method

- In this method, the wall along the length of room is considered to be long wall while the wall perpendicular to long wall is said to be short wall.
- To get the measurement of materials and works length of long wall or short wall, calculate first the center line lengths of individual walls.
- Then the length of long wall, (out to out) may be calculated after adding half breadth at each end to its center line length.
- Thus the length of short wall measured into in and may be found by deducting half breadth from its center line length at each end.
- The length of long wall usually decreases from earth work to brick work in super structure while the short wall increases. These lengths are multiplied by breadth and depth to get quantities





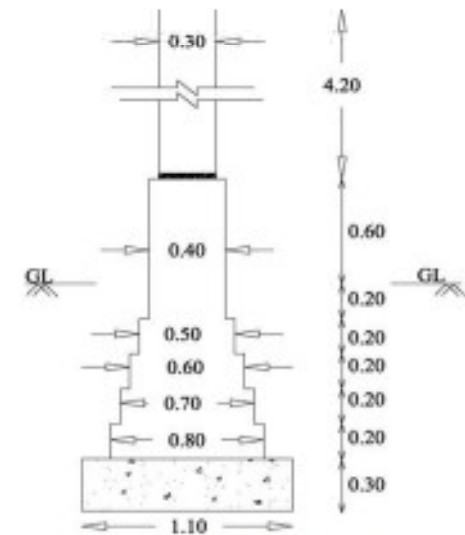
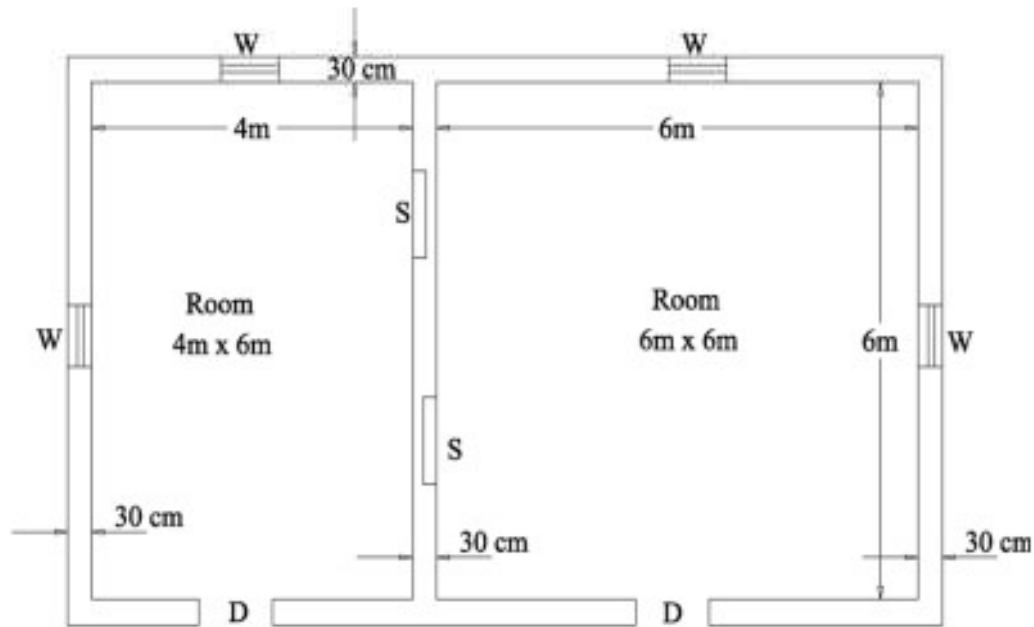
# Centre-line method

- This method is suitable for walls of similar cross sections.
- Here the total center line length is multiplied by breadth and depth of respective item to get the total quantity at a time.
- When cross walls or partitions or verandah walls join with main all, the center line length gets reduced by half of breadth for each junction.
- Such junction or joints are studied carefully while calculating total center line length.
- The estimates prepared by this method are most accurate and quick.

## Long Wall-Short Wall Method

Estimate the quantities of following items of a two roomed building given in Fig 2.2.

- Earthwork in excavation in foundation trench
- Lime concrete in foundation
- First class brick work in 1:6 cement mortar in foundation and plinth
- 2.5 cm thick DPC (1:2:4) with water proofing compound
- 1<sup>st</sup> class brick work in cement mortar superstructure



*Detail Measurement and Calculation of Quantities*

Item No.	Description	Unit	No.	L	B	H	Quantity	Explanation
1	Earthwork in excavation in foundation	cum						<u>Long wall</u> , c/c. length
	Long wall		2	11.70	1.10	1.00	25.74	$L = 10.60 + 1.10 = 11.70$
	Short wall		3	5.20	1.10	1.00	17.16	$L = 6.30 - 1.10 = 5.20\text{m}$
							Total = 42.90	
2	Lime concrete in foundation	cum						Length same for excavation
	Long wall		2	11.70	1.10	0.30	7.72	
	Short wall		3	5.20	1.10	0.30	5.15	
							Total = 12.87	
3	First class Brickwork in 1:6 cement mortar in foundation and plinth	cum						
	Long wall							
	1 <sup>st</sup> footing		2	11.40	0.80	0.20	3.65	$L = 10.60 + .80 = 11.40\text{m}$
	2 <sup>nd</sup> footing		2	11.30	0.70	0.10	1.58	$L = 10.60 + .70 = 11.30\text{m}$
	3 <sup>rd</sup> footing		2	11.20	0.60	0.10	1.34	$L = 10.60 + .60 = 11.20\text{m}$
	4 <sup>th</sup> footing		2	11.10	0.50	0.10	1.11	$L = 10.60 + .50 = 11.10\text{m}$
	Plinth wall above footing		2	11.00	0.40	0.80	7.04	$L = 10.60 + .40 = 11.00\text{m}$
	Short wall							
	1 <sup>st</sup> footing		3	5.50	0.80	0.20	2.64	$L = 6.30 - .80 = 5.50\text{m}$
	2 <sup>nd</sup> footing		3	5.60	0.70	0.10	1.18	$L = 6.30 - .70 = 5.60\text{m}$
	3 <sup>rd</sup> footing		3	5.70	0.60	0.10	1.03	$L = 6.30 - .60 = 5.70\text{m}$
	4 <sup>th</sup> footing		3	5.80	0.50	0.10	0.87	$L = 6.30 - .50 = 5.80\text{m}$
	Plinth wall above footing		3	5.90	0.40	0.80	5.66	$L = 6.30 - .40 = 5.90\text{m}$
							Total = 26.10	

Item No.	Description	Unit	No.	L	B	H	Quantity	Explanation
4	2.5 mm thick DPC	sqm						
	Long Walls		2	11.00	0.40	--	8.80	L=10.60+.40=11.00m
	Short wall		3	5.90	0.40	--	7.08	L=6.30-.40=5.90m
	Deduct door sills		(-) 2	1.20	0.40	--	(-) 0.96	
							Total =	14.92
5	1 <sup>st</sup> class brick work in lime mortar in superstructure	cum						
	Long Walls		2	10.90	0.30	4.20	22.47	L=10.60+.30=10.90m
	Short wall		3	6.00	0.30	4.20	22.68	L=6.30-.30=6.00m
	Deduct for door opening		(-) 2	1.20	0.30	2.10	(-) 1.51	
	Deduct for windows opening		(-) 4	1.00	0.30	1.50	(-) 1.80	
	Deduct for shelves		(-) 2	1.00	0.20	1.50	(-) 0.60	Back of shelves 10 cm thick wall
	Deductions for lintel over doors		(-) 2	1.50	0.30	0.15	(-) 0.14	Bearing 15 cm
	Deductions for lintel over windows		(-) 4	1.30	0.30	0.15	(-) 0.23	Bearing 15 cm
	Deductions for lintel over shelves		(-) 2	1.30	0.30	0.15	(-) 0.12	Bearing 15 cm
							Total =	45.75