

**LECTURE NOTE**  
**ESTIMATION & COSTING ENGINEERING 3<sup>RD</sup>**  
**SEMESTER**

**Diploma (Civil Engineering)**



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TWO-ROOM BUILDING WITH FRONT VERANDAH

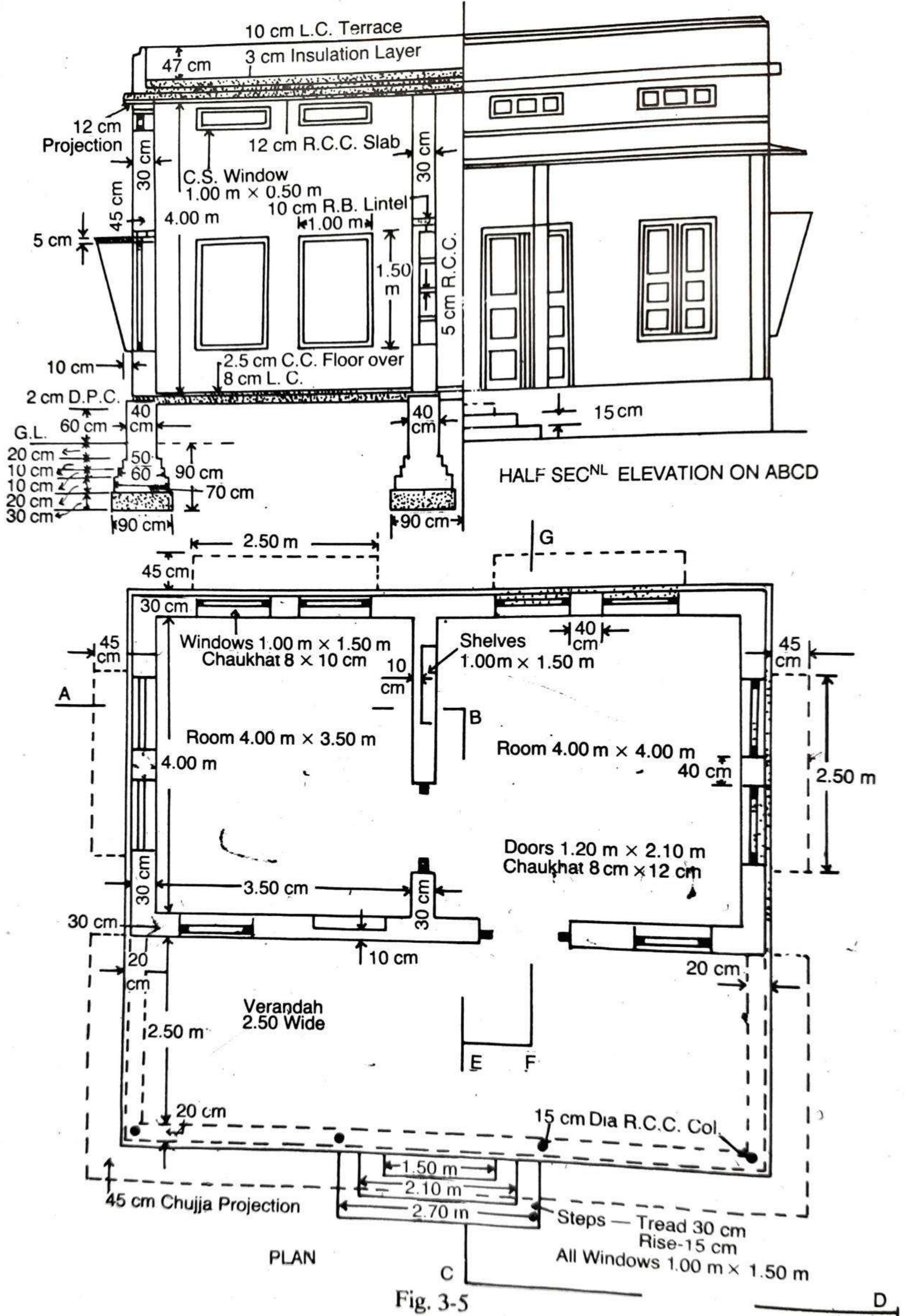
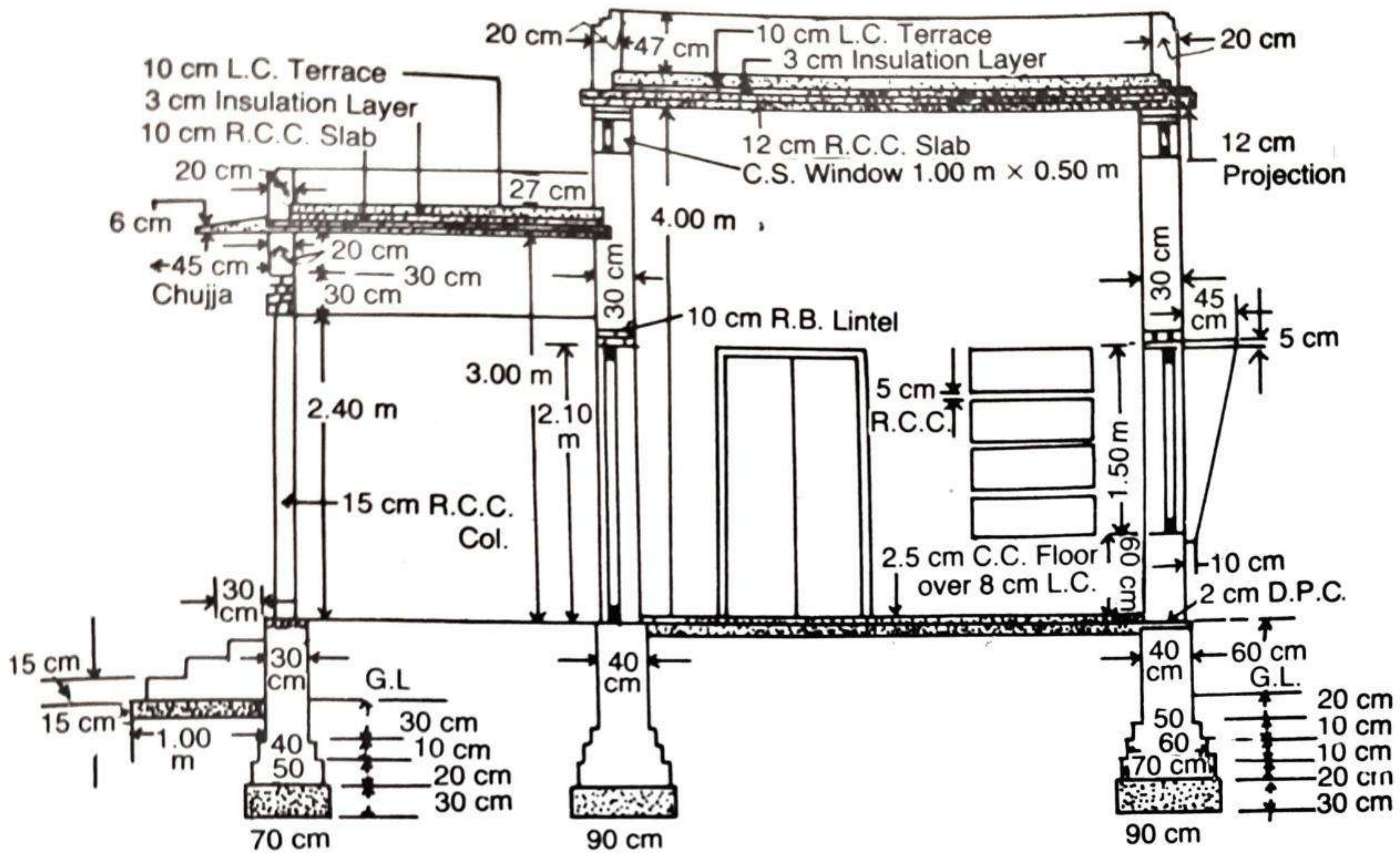


Fig. 3-5

## CROSS-SECTION OF TWO-ROOMED BUILDING



SECT<sup>NL</sup> ELEVATION ON CEFG

Fig. 3-6

**Note** — Foundation of verandah is continuous of same section.

**Centre to centre lengths —**

Room Long walls --  $3.50 + 4.00 + .30 + (2 \times \frac{.30}{2}) = 8.10$  m combined total length.

Room Short walls —  $4.00 + (2 \times \frac{.30}{2}) = 4.30$  m

Verandah Front — Extreme outer length at plinth —  $(2 \times \frac{.30}{2})$   
 $= \{ 3.50 + 4.00 + (3 \times .30) + (2 \times .05) \} - .30 = 8.20$  m

Verandah Sides —  $2.50 + \frac{.30}{2} + \frac{.20}{2} = 2.75$  m

**DETAILS OF MEASUREMENT AND CALCULATION OF QUANTITIES (Ex. 5)**

Item No.	Particulars of items and details of works	No.	Length	Breadth	Height or Depth	Quantity	Explanatory note	
1.	<b>Earthwork in excavation in foundation—</b>							
	Rooms							
	Long walls	...	2	9.00 m	.90 m	.90 m	14.58	$L = 8.10 + .90 = 9.00 \text{ m}$
	Short walls	...	3	3.40 m	.90 m	.90 m	8.26	$L = 4.30 - .90 = 3.40 \text{ m}$
	Verandah front	...	1	8.90 m	.70 m	.90 m	5.61	$L = 8.20 + .70 = 8.90 \text{ m}$
	Verandah sides	...	2	1.95 m	.70 m	.90 m	2.46	$L = 2.75 - \frac{.90}{2} - \frac{.70}{2} = 1.95 \text{ m}$
	Step	...	1	2.90 m	1.00 m	.15 m	0.44	$L = 2.70 + (2 \times .10) = 2.90 \text{ m}$
					Total	31.35	cu m	
2.	<b>Earthwork in filling in plinth—</b>							
	Room (i)	...	1	3.90 m	3.40 m	.54 m	7.16	$L = 4.00 - .10 = 3.90 \text{ m}$ $B = 3.50 - .10 = 3.40 \text{ m}$ $Ht. = 60 + 2 - 8 = 54 \text{ cm} = .54 \text{ m}$
	Room (ii)	...	1	3.90 m	3.90 m	.54 m	8.22	$L = 8.20 - .30 = 7.90 \text{ m}$ $B = 2.75 - \frac{.40}{2} - \frac{.30}{2} = 2.40 \text{ m}$
	Verandah	...	1	7.90 m	2.40 m	.54 m	10.23	
					Total	25.61	cu m	
3.	<b>Lime concrete in foundation</b>							
	Rooms —							
	Long walls	...	2	9.00 m	.90 m	.30 m	4.86	May be taken 1/3 of excavation.
	Short walls	...	3	3.40 m	.90 m	.30 m	2.75	
	Verandah front	...	1	8.90 m	.70 m	.30 m	1.87	
	Verandah sides	...	2	1.95 m	.70 m	.30 m	0.82	
Step	...	1	2.90 m	1.00 m	.15 m	0.44		
					Total	10.74	cu m	

(Ex. 5 Contd.)

Item No.	Particulars of items and details of works	No.	Length	Breadth	Height or Depth	Quantity	Explanatory note
4.	<b>I-class Brick-work in Foundation and Plinth in 1 : 6 cement mortar—</b>						
	<b>ROOMS —</b>						
	<b>Long walls —</b>						
	1st footing ...	2	8.80 m	.70 m	.20 m	2.46	$L = 8.10 + .70 = 8.80 \text{ m}$
	2nd footing ...	2	8.70 m	.60 m	.10 m	1.04	$L = 8.80 - .10 = 8.70 \text{ m}$
	3rd footing ...	2	8.60 m	.50 m	.10 m	0.86	$L = 8.70 - .10 = 8.60 \text{ m}$
	Plinth wall ...	2	8.50 m	.40 m	.80 m	5.44	$L = 8.60 - .10 = 8.50 \text{ m}$
	<b>Short walls —</b>						
	1st footing ...	3	3.60 m	.70 m	.20 m	1.51	$L = 4.30 - .70 = 3.60 \text{ m}$
	2nd footing ...	3	3.70 m	.60 m	.10 m	0.67	$L = 3.60 + .10 = 3.70 \text{ m}$
	3rd footing ...	3	3.80 m	.50 m	.10 m	0.57	$L = 3.70 + .10 = 3.80 \text{ m}$
	Plinth wall ...	3	3.90 m	.40 m	.80 m	3.74	$L = 3.80 + .10 = 3.90 \text{ m}$
	<b>VERANDAH—</b>						
	<b>Front wall (long)—</b>						
	1st footing ...	1	8.70 m	.50 m	.20 m	0.87	$L = 8.20 + .50 = 8.70 \text{ m}$
	2nd footing ...	1	8.60 m	.40 m	.10 m	0.34	$L = 8.70 - .10 = 8.60 \text{ m}$
	Plinth wall ...	1	8.50 m	.30 m	.90 m	2.30	$L = 8.60 - .10 = 8.50 \text{ m}$
	<b>Side wall (short) —</b>						
	1st footing ...	2	2.15 m	.50 m	.20 m	0.43	$L = 2.75 - \frac{.50}{2} - \frac{.70}{2} = 2.15 \text{ m}$
	2nd footing ...	2	2.25 m	.40 m	.10 m	0.18	$L = 2.75 - \frac{.40}{2} - \frac{.60}{2} = 2.25 \text{ m}$
					C.O.	20.41	

Note. — Verandah wall foundation is continuous of same section for simplicity. In practice the foundation of verandah pillars should be square and separate and in between pillars there will be plinth dwarf wall of small section.

Item No.	Particulars of items and details of works	No.	Length	Breadth	Height or Depth	Quantity	Explanatory note
					B.F.	20.41	
	Plinth wall 10 cm above footing ...	2	2.35 m	.30 m	0.10 m	0.14	$L=2.75 - \frac{.50}{2} - \frac{.30}{2} = 2.35\text{m}$
	Plinth wall remaining portion ...	2	2.40 m	.30 m	.80 m	1.15	$L=2.75 - \frac{.40}{2} - \frac{.30}{2} = 2.40\text{m}$
	Steps —						
	1st step ...	1	2.70 m	.90 m	.15 m	0.36	
	2nd step ...	1	2.10 m	.60 m	.15 m	0.19	
	3rd step ...	1	1.50 m	.30 m	.15 m	0.07	
					Total	22.32 cu m	
5.	<b>2 cm Damp proof course</b>						
	Rooms —						
	Long walls ...	2	8.50 m	.40 m	—	6.80	Length, breadth same as for plinth wall.
	Short walls ...	3	3.90 m	.40 m	—	4.68	
					Total	11.48	
	Deduct door sills ...	2	1.20 m	.40 m	—	0.96	
				Net	Total	10.52 sq m	
6.	<b>I-class Brick-work in superstructure in lime mortar—</b>						
	Rooms —						
	Long walls ...	2	8.40 m	.30 m	4.00 m	20.16	Length — Out to out.
	Short walls ...	3	4.00 m	.30 m	4.00 m	14.40	Length — In to in.
	Ver. above lintels (over pillars)—						
	Front (long) ...	1	8.40 m	.20 m	.30 m	0.50	
	Sides (short) ...	2	2.50 m	.20 m	.30 m	0.30	
	Parapet —						
	Over Rooms —						
	Long walls ...	2	8.40 m	.20 m	.60 m	2.02	Ht. = 47 + 10 + 3 = 60 cm = .60 m
	Short walls ...	2	4.20 m	.20 m	.60 m	1.01	$L=4.00 + (2 \times .30) - (2 \times .20) = 4.20\text{m}$
					C.O.	38.39	

Item No.	Particulars of items and details of works	No.	Length	Breadth	Height or Depth	Quantity	Explanatory notes
	Verandah —				B.F.	38.39	
	Front (long) ...	1	8.40 m	.20 m	.40 m	0.67	Ht. = 27 + 10 + 3 = 40 cm = 40 cm
	Side (short) ...	2	2.50 m	.20 m	.40 m	0.40	
					Total	39.46 cu m	
	<b>Deduct—</b>						
	Door openings ...	2	1.20 m	.30 m	2.10 m	1.51	
	Window openings	10	1.00 m	.30 m	1.50 m	4.50	
	C.S. Window ,, ...	12	1.00 m	.30 m	0.50 m	1.80	
	Shelves ,, ...	2	1.00 m	.20 m	1.50 m	0.60	Back of-shelf 10 cm
	R.B. lintels over—						
	Doors ...	2	1.40 m	.30 m	.10 m	0.084 (a)	10 cm bearing.
	Windows ...	10	1.20 m	.30 m	.10 m	0.360 (a)	
	C.S.Windows ...	12	1.20 m	.30 m	.10 m	0.432 (a)	Total of (a) s = 0.948 cu m
	Shelves ...	2	1.20 m	.30 m	.10 m	0.072 (a)	
					Total	9.36	
				Net	Total	30.10 cu m	
7.	<b>R. B. work in lintels</b> excluding steel and its bending but including centering and shuttering and binding steel—						
	Over doors, windows and shelves ...		Same (a) in	as for item	items no. 6 =	marked 0.948	
	Over ver. pillars—						
	Front ....	1	8.40	.20	.30	0.504	Out to out. Inside bearing 30 cm
	Sides ...	2	2.80	.20	.30	0.336	
					Total	1.788 cu m	

Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
8.	R. C. C. work in ver. columns excluding steel and its bending, but including form work and binding steel complete fair finished	4	$\pi (.15)^2$ 4	×	2.70	= 0.19 cu m	30 cm insertion into the plinth wall below floor.
9.	R.C.C. work excluding steel and its bending, but including centering and shuttering and binding steel, fair finished—						
	Roof slab rooms ...	1	8.64	4.84	.12	5.018	12 cm projections.
	Roof slab ver. ...	1	8.40	2.80	.10	2.352	10 cm inner bearing, excluding chujja.
	Chujja projections						
	Ver. front ...	1	9.30	.45	.06	0.251	Average thickness.
	Ver. sides ...	2	2.70	.45	.06	0.146	
	Sun-shed and breakers in windows—						
	Top ...	4	2.50	.45	.05	0.225	
	Bottom ...	4	2.50	.15	.05	0.075	5 cm insertion into wall.
	Sides ...	4 × 2	1.50	.50 + 15	.05	0.195	5 cm insertion and average breadth.
	Shelf slab ...	2 × 3	1.10	.20	.05	0.066	5 cm bearing.
					Total	8.328 cu m	
10.	Mild steel bars including bending in reinforcement @ 1% of R.B. and R.C.C. works ...		10.31	$\times \frac{1}{100} \times$	78.5 =	8.10q	1% of total of items 1, 8 and 9.

**Note.** — Chujjas, sun sheds, etc. may be taken under a separate item.



Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
11.	<b>10 cm Lime concrete in roof terracing complete with surface finishing—</b> Rooms ...	1	8.00	4.20	—	33.60	Clear roof area in between parapet. " " "
		1	8.00	2.50	—	20.00	
		Total					
12.	<b>3 cm thick insulation layer of sand and clay—</b> Rooms ... Verandah ...	1	8.00	4.20	—	33.60	Clear roof area. " "
		1	8.00	2.50	—	20.00	
		Total					
13.	<b>Sal wood work in chowkhat wrought framed and fixed—</b> Doors (3 cm insertion into floor) ...	2	5.46	.12	.08	0.105	{ 2 Vert.—2.13 m each. { 1 Hor.—1.20 m each. { 2 Vert.—1.50 m each { 2 Hor.—1.00 m each. { 2 Vert.—0.50 m each. { 2 Hor.—1.00 m each.
		10	5.00	.10	.08	0.400	
		12	3.00	.08	.08	0.230	
		Total					
14.	<b>4 cm thick Indian teak wood panelled door and window shutters including fittings—</b> Doors ... Windows ...	2	1.07	—	2.035	4.355	Rebate 1.5 cm.
		10	0.87	—	1.37	11.919	
		Total					
15.	<b>4 cm thick Indian teak wood glazed shutters including fittings—</b> C.S. Windows ...	12	0.87		0.37	3.863 sq m	

**Note—** Lime concrete terracing (item 11) has been taken on area basis, if required the volume can be found by multiplying the thickness.  
Door and window fittings may be taken under a separate item.

Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
16.	<b>Iron work (mild steel) in hold fasts and window gratings—</b>						
	Hold-fasts in doors	2×6	—	—	—	12 nos.	6 nos. per door.
	Hold fasts in windows	10×4	—	—	—	40 nos.	4 nos. per window.
	Hold fasts in C.S. windows	12×2	—	—	—	24 nos.	2 nos. per C.S. window.
						<b>Total</b>	76 nos. @ 1 kg each = 76 kg
	Window bars 16 mm dia. @ 1.58 kg/m—						
	Windows	10×8	1.50	—	—	120	Ver. bars at 10 cm centres approx.
	C.S. windows	12×2	1.00	—	—	24	Two horizontal bars.
						144 m	
						@ 1.58 kg	= 227.52 kg
17.	<b>12 mm thick plastering in walls 1 : 1 : 6 cement, sand, lime mortar —</b>						
	<b>INSIDE —</b>						
	<b>Rooms —</b>						
	(i)	2	3.50	—	4.00	28.00	} May be taken as inner perimeter × ht. = 15.00 × 4.00
		2	4.00	—	4.00	32.00	
	(ii)	4	4.00	—	4.00	64.00	
	Verandah inner wall	1	8.40	—	3.00	25.20	Length out to out.
	Ver. Front above cols. inner face	1	8.00	—	.60	4.80	
	Ver. Sides above cols. inner face	2	2.50	—	.60	3.00	
	Jambs sills and soffits of shelves	2	5.00	.20	—	2.00	L=2 × 1.0 + 2 × 1.5=5.0 m
Soffits of ver. lintel —							
Front	1	8.40	.20	—	1.68	No deduction for col. ends.	
Sides	2	2.50	.20	—	1.00		
					<b>Total</b>	161.68	

Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
	<b>Deduct openings in wall in between ver. and room —</b>						
	Door openings ...	2	1.20	—	2.10	5.04	One surface of each.
	Window openings ...	2	1.00	—	1.50	3.00	One surface of each.
					Total	8.04	Other doors and windows deducted from outside.
				Net	Total	153.64 sq m	Total of inside plastering.
	<b>OUTSIDE —</b>						
	Rooms —						
	Back plinth including 10 cm below G.L. ...	1	8.50	—	.75	6.38	} Ht. = .60 + .05 + .10 = .75 m These can be combined as— 1 × 8.40 × 4.75 = 39.90
	Back super-structure ...	1	8.40	—	4.00	33.60	
	Sides plinth including 10 cm below G.L. ...	2	4.70	—	.75	7.05	} These can be combined as— 2 × 4.60 × 4.75 = 43.70
	Sides super-structure ...	2	4.60	—	4.00	36.80	
	Verandah —						
	Above cols. front outer face ...	1	8.40	—	.60	5.04	
	Above cols. sides outer face ...	2	2.70	—	.60	3.24	
	Plinth front including 10 cm below G.L. ...	1	8.50	—	.70	5.95	Ht. = .60 + .10 = .70 m
	Plinth sides ...	2	2.75	—	.70	3.85	
	Wall above ver. roof Parapet —	1	8.40	—	.77	6.47	Ht. = 4.00 - 3.23 = .77 m
	Rooms —						
	Long wall outer face	2	8.40	—	.60	10.08	} These can be taken approx. in one operation as — = (total centre length + inner ht. + top width × outer ht.)  = (2 × 8.40 + 2 × 4.20) × (.47 + .20 + (.47 + .10 + .03))  = 25.20 × 1.27 = 32.00 sq m.
	Long wall inner face ...	2	8.00	—	.47	7.52	
	Long wall top face ...	2	8.40	.20	—	3.36	
	Short walls outer face ...	2	4.60	—	.60	5.52	
	Short walls inner face ...	2	4.20	—	.47	3.95	
	Short walls top face ...	2	4.20	.20	—	1.68	
					C.O.	140.49	

Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
					B.F.	140.49	
	Verandah parapet— Front wall outer face ...	1	8.40		.40	3.36	These can be taken approx. in one operation as = (Total centre length) × (inner ht. + top width × outer ht.) = (8.65 + 2 × 2.50) × [.27 + .20 + (.27 + .10 + .03)] = 13.65 × .87 = 11.88 sq m
	Front wall inner face ...	1	8.00		.27	2.16	
	Front wall top face	1	8.40	.20	.40	1.68	
	Side wall outer face	2	2.70		.40	2.16	
	Side wall inner face	2	2.50		.27	1.35	
	Side wall top face ...	2	2.50	20		1.00	
					Total	152.20	
	<b>Deduct—</b> Window openings (in outer walls) ...	8	1.00		1.50	12.00	One surface of each.
	C.S. window openings ...	12	1.00		0.50	6.00	One surface of each.
	Step from plinth wall ...	1	2.70		0.70	1.89	Including 10 cm below G.L.
	Ends of ver. side wall and lintel above col. level ...	2		.20	.60	0.24	This may be neglected.
	Ends of ver. parapet wall, from wall above ver. roof level	2		.20	.27	0.11	This may be neglected.
			Total of	deductions		20.24	
			Net	Total		131.96 sq m	Total of outside plastering.
			Grand outside	Total of inside plastering =		and 285.60 sq m	
18.	<b>20 mm thick cement plaster 1:3 in step finished cement rendered —</b> 1st step riser ...	1	4.50	—	.15	} = 1.49	Front and sides.
	2nd step riser ...	1	3.30	—	.15		Front and sides.
	3rd step riser ...	1	2.10	—	.15		Front and sides.

**Note—** No plastering in ceiling has been taken into account, R.C.C. work will be fair finished without any extra payment. If specified thin cement coarse sand plaster 1:3 may be provided and taken under a separate item.

Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
	1st step tread ...	1	3.90		.30	} 2.43	Front and sides.
	2nd step tread ...	1	2.70		.30		Front and sides.
	3rd step tread ...	1	1.50		.30		Front and sides.
	Plinth wall above						
	1st step ...	2	.30		.45	0.27	Sides.
	2nd step ...	2	.30		.30	0.18	Sides.
	3rd step ...	1	1.50		.15	0.22	Sides.
					Total	4.59 sq m	
19.	<b>2.5 cm thick c.c. 1 : 2 : 4 over and including 8 cm lime concrete floor—</b>						
	Room (i) ...	1	4.00	3.50		14.00	
	Room (ii) ...	1	4.00	4.00		16.00	
	Verandah ...	1	8.00	2.50		20.00	Sills of verandah opening have been taken under item 20.
					Total	50.00 sq m	
20.	<b>2.5 cm thick c.c. 1 : 2 : 4 floor in sills</b>						
	Door sills ...	2	1.20	.30		0.72	
	Sills of ver. opening front ...	1	8.50	.25		2.12	Including .05 m plinth outer offset. No. deduction for cols.
	Sills of ver. opening sides ...	2	2.50	.25		1.25	
					Total	4.09	
	Deduct pillars ...	4	$\pi \times (.15)^2$			0.07	This deduction may be neglected.
			4		Net		
					Total	4.02 sqm	

Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
21.	<b>White washing</b> three coats inside — Walls	Same	as for	inside	wall	153.64	
		plastering	in item	(17) =		14.00	
	Ceiling of room ...	1	4.00	3.50	—	16.00	
	Ceiling of room ...	1	4.00	4.00	—	20.00	
	Ceiling of ver. ...	1	8.00	2.50	—	20.00	
				Total		203.64 sq m	
22.	<b>Colour washing</b> two coats over one coat of white washing outside — Walls	Same	as for	outside	wall	131.96	
		plastering	in item	(17) =		8.84	Upper and lower faces and edges.
	Chujja ver. front	1	9.30	.95	—	5.13	Upper and lower faces and edges.
	Chujja ver. sides	2	2.70	.95	—	9.50	Upper and lower faces and edges.
	Sunshade and sun-breakers in windows — Top	4	2.50	.95	—	2.50	Upper and lower faces and edges.
	Bottom	4	2.50	.25	—	2.50	“ “ “ “
	Sides	8 × 2	1.50	.45 + .10 2	—	6.60	Inner and outer faces.
	Edges of sides	8	1.50	.05	—	0.60	This may be neglected.
	Outer projection of roof slab	1	26.00	.36	—	9.36	L=Outer perimeter of room. B = .12 + .12+.12=.36 m
	Deduct portion below G.L.	1	29.10	—	.10	2.91	L=Outer perimeter—Steps = 2(8.50 + 7.40) - 2.70 = 29.10 m
				Net	Total		171.58 sq m

**Note**—Lower sides of chujjas and sunshades and inner faces of sun breakers may be white washed instead of colour washing.

(Ex. 5 Contd.)

Item No.	Particulars of items and details of works	No.	Length m	Breadth m	Height or Depth m	Quantity	Explanatory notes
23.	<b>Painting doors and windows</b> two coats over one coat of priming—						
	Doors panelled ...	2 × 2¼	1.20	—	2.10	11.34	2¼ times one surface for both sides.
	Windows panelled	10 × 2¼	1.00	—	1.50	33.75	
	C.S. windows glazed ...	12 × 1	1.00	—	0.50	6.00	One surface for both sides.
	Window bars ...	10	0.84	1.34	—	11.25	} Excluding chowkhat, one flat area for over all.
	C.S. window bars	12	0.84	0.34	—	3.43	
					Total	65.77 sqm	
24.	<b>Solignum painting</b> two coats in back of chowkhat—						
	Doors ...	2	5.46	.12	—	1.31	} Lengths same for chowkhat in item (13)
	Windows ...	10	5.00	.10	—	5.00	
	C.S. windows ...	12	3.00	0.08	—	2.88	
					Total	9.19 sq m	
25.	<b>C.I. Pipe 10 cm dia.</b> (rain water spout) complete with painting ...	4	1.00	—	—	4.00	

**ABSTRACT OF ESTIMATED COST (Ex. 5)**

Item No.	Particulars of items	Quantity	Unit	Rate		Per	Amount	
				Rs.	P.		Rs.	P.
1.	Earthwork in excavation in foundation ...	31.35	cu m	350.00		% cu m	109.72	
2.	Earthwork in filling in plinth ...	25.61	cu m	275.00		% cu m	70.43	
3.	Lime concrete in foundation ...	10.74	cu m	220.00		per cu m	2362.80	
4.	1-class brickwork in foundation and plinth in 1 : 6 cement sand mortar ...	22.32	cu m	320.00		per cu m	7142.40	
5.	2 cm damp proof course (D.P.C.) 1 : 2 cement mortar with water proofing compound ...	10.52	sq m	18.00		per sq m	189.36	
6.	1-class brickwork in superstructure in lime mortar ...	30.10	cu m	320.00		per cu m	9632.00	
7.	R.B. Work in lintels with 1 : 3 cement mortar excluding steel and its bending, but including centering and shuttering and binding steel.	1.788	cu m	520.00		per cu m	929.76	
8.	R.C.C. work 1 : 1½ : 3 in verandah columns excluding steel and its bending, but including form work and binding steel complete fair finished ...	0.19	cu m	590.00		per cu m	112.10	
9.	R.C.C. work 1 : 2 : 4 in slab excluding steel and its bending, but including centering and shuttering and binding steel, complete fair finished ...	8.328	cu m	775.00		per cu m	6454.20	
10.	Mild steel including bending in reinforcement bars ...	8.10	q	515.00		per q	4171.50	
11.	10 cm Lime concrete in roof terracing complete with surface finishing ...	53.60	sq m	12.00		per sq m	643.20	
12.	3 cm thick insulation layer of sand and clay	53.60	sq m	1.50		per sq m	80.40	
13.	Sal wood work in chaukhat wrought framed and fixed.	0.735	cu m	4700.00		per cu m	3454.50	
						C.O.	35352.37	



TWO-ROOMED BUILDING WITH FRONT VERANDAH

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Item No.	Particulars of items	Quantity	Unit	Rate		Amount
				Rs.	P.	
14.	4 cm thick C.P. teak wood panelled door and window shutters including fittings ...	16.274	sq m	225.00	B.F. per sq m	35352.37 3661.65
15.	4 cm thick C.P. teak wood glazed shutters including fittings ...	3.863	sq m	200.00	per sq m	772.60
16.	Iron work in hold fasts and window gratings	3.035	quin-tal	700.00	per q	2124.50
17.	12 mm thick plastering in walls 1 : 1 : 6 cement : lime : sand mortar ...	285.60	sq m	2.90	per sq m	828.24
18.	20 mm thick cement plaster in steps finished cement rendered	4.59	sq m	16.00	per sq m	73.44
19.	20 mm thick c.c. 1 : 2 : 4 floor over and including 8 cm lime concrete ...	50.00	sq m	18.65	per sq m	932.50
20.	2.5 cm thick c.c. 1 : 2 : 4 floor in sills ...	4.02	sq m	18.00	per sq m	72.36
21.	White washing 3 coats inside ...	203.64	sq m	0.75	per sq m	152.73
22.	Colour washing 2 coats over one coat of white washing outside ...	171.58	sq m	0.82	per sq m	140.70
23.	Painting doors and windows two coats over one coat of priming ...	65.77	sq m	10.40	per sq m	684.00
24.	Solignum painting two coats	9.19	sq m	3.50	per sq m	32.16
25.	C.I. pipe 10 cm dia. rain water spouts complete with painting ...	4.00	m	27.00	per m	108.00
Total ...						44935.25
Add 3% for Contingencies ...						1348.05
Add 2% for Workcharged Establishment ...						898.70
Grand Total ...						47181.00

**Plinth Area Rate (P.A.) —**

Plinth Area = 8.40 m × 7.30 m = 61.32 sq m (Say).

$$\text{Plinth Area Rate} = \frac{\text{Total Cost}}{\text{Plinth Area}} = \text{Rs. } \frac{47181.00}{61.32} = \text{Rs } 769.42 \text{ per sq m.}$$