

ESTIMATE OF ACF/RO RESIDENCE

(Total Area = 1460 sq. ft. + Courtyard 303 sq.ft)

1. C/C length of walls = $39.25 \times 1 + 47.00 \times 1 + 34.25 \times 1 + 12.75 \times 3 + 13.75 \times 4 + 7.75 \times 1 + 29.50 \times 1 + 14.50 \times 1 + 21.75 \times 1 + 14.75 \times 1 + 8.75 \times 1$ running feet
= 310.75 running feet
= 94.717 running meter
2. C/C length of court yard wall = $29.50 \times 1 + 9.4 \times 2$
= 48.30 running feet
= 14.72 running meter
3. No. of columns = $24 + 4$ (courtyard)
= 28
4. Size of each column = 9 inches x 9 inches
5. Plinth = 0.5 meter above ground level
6. Beam at plinth level = 9 inches x 6 inches
7. Beam at door level = 9 inches x 6 inches
8. Beam at slab level = 9 inches x 12 inches
9. Thickness of slab = 4 inches

Estimate of different works

1. Excavation:

- (i) For columns = $28 \times 1.0 \times 1.0 \times 1.2$ meter
= 33.600 cubic meter
- (ii) For walls = $(94.717 + 14.720 - 56 \times 0.5) \times 0.3 \times 0.5$
= 12.216 cubic meter
- (iii) Total excavation = 45.816 cubic meter

2. Filling foundation with 1:3:6 (M-10) cement concrete:

- (i) For columns = $28 \times 1.0 \times 1.0 \times 0.1$
= 2.800 cubic meter
- (ii) For walls = $(94.717 + 14.720) \times 0.3 \times 0.1$
= 3.283 cubic meter
- (iii) For flooring in rooms = 109.437×0.1
= 10.944 cubic meter
- (iv) Total CC = 17.027 cubic meter

3. R.C.C. work in 1:1.5:3 (M-20) in columns, beams, chajjas & slab:

- (i) Columns footing = $28 \times (1 \times 1 + 0.22 \times 0.22) / 2 \times 0.3$
= 4.403 cubic meter
- (ii) Columns up to plinth level = $28 \times 1.2 \times 0.22 \times 0.22$
= 1.626 cubic meter
- (iii) Column up to roof level = $24 \times 3.1 \times 0.22 \times 0.22 +$
 $4 \times 0.22 \times 0.22 \times 1.8$
= 3.949 cubic meter
- (iv) Beam at plinth level = $(94.717 + 14.720) \times 0.22 \times 0.15$
= 3.611 cubic meter
- (v) Beam at door level = $94.717 \times 0.22 \times 0.15$
= 3.125 cubic meter
- (vi) Beam at slab level = $94.717 \times 0.22 \times 0.30$
= 6.251 cubic meter
- (vii) Chajjas = $8 \times 0.6 \times 1.5 \times 0.1$
= 0.720 cubic meter
- (viii) Slab = 135.814×0.1
= 13.581 cubic meter
- (ix) In stair case = $7.20 \times 1.20 \times 0.1$
= 0.864 cubic meter

Total RCC	= 38.130 cubic meter
4. Steel required in RCC	= 1.35 % of volume of RCC = 4040 kg
5. Masonry in foundation/plinth	= (94.717 + 14.720 – 28 x 0.22) x 0.22 x 0.9 = 20.449 cubic meter
6. Masonry in superstructure:	
(i) In main building/courtyard	= 94.717 x 0.22 x 2.80 + 14.720 x 0.22 x 1.8 = 64.174 cubic meter
(ii) Deduction for doors/windows	= (4 x 1.07 x 2.1 + 7 x 0.838 x 2.1 + 3 x 1.5 x 1.35 + 7 x 1.2 x 1.35 + 5 x 0.6 x 0.45) x 0.22 = 8.815 cubic meter
(iii) Masonry in staircase tower	= 2 x (3.6 + 2.10) x 2.1 x 0.22 = 5.267
(iv) Masonry in parapet	= 49.98 x 0.75 x 0.22 = 8.246 cubic meter
(v) Total Masonary	= 68.872 cubic meter
7. Plaster in 1:6 cement mortar	
(i) In main building/courtyard	= 2 x 94.717 x 3.3 + 2 x 14.72 x 1.8 = 678.124 square meter
(ii) In parapet wall	= 2 x 49.98 x 0.75 = 74.97 sq meter
(iii) In roof	= 135.814 sq. m
(iii) Deduction for doors/windows	= 2 x (4 x 1.07 x 2.1 + 7 x 0.838 x 2.1 + 3 x 1.5 x 1.35 + 7 x 1.2 x 1.35 + 5 x 0.6 x 0.45) = 80.142 square meter

(iv) Total plaster = 808.766 square meter

8. Centering and shuttering:

(i) For Columns = $24 \times 0.88 \times 4.6 + 4 \times 4 \times 0.22 \times 3.3$

= 108.768 square meter

(ii) For beam at plinth level = $(94.717 + 14.720) \times 0.3$

= 32.831 square meter

(iii) For beam at door level = 94.717×0.525

= 49.726 square meter

(iv) For beam at roof level = 94.717×0.82

= 77.667 square meter

(v) For chajjas = $8 \times 0.6 \times 1.5$

= 7.200 square meter

(vi) For slab = 135.814 sq. m

(vii) Total shuttering = 412.006 square meter

9. Filling foundation with moorum = 135.814×0.5

= 67.907 cubic meter

10. Wood required for frames = $0.0635 \times 0.127 \times (4 \times 5.334 +$

$7 \times 5.105 + 3 \times 8.534 + 7 \times 5.4 +$

$5 \times 2.1)$

= 1.056 cubic meter

11. Frame work for doors/window = $(4 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 +$

$3 \times 1.5 \times 1.35 + 7 \times 1.2 \times 1.35 +$

$5 \times 0.6 \times 0.45)$

= 40.071 square meter

12 Flooring = 135.814 square meter