

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 9 inches
7. Beam at door level = 9 inches x 6 inches
8. Beam at slab level = 9 inches x 9 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 = $(94.717 + 14.720) \times 0.22 \times 0.22$
= 5.296 cubic meter
- (v) Beam at door level = $94.717 \times 0.22 \times 0.15$
= 3.125 cubic meter
- (vi) Beam at slab level = $94.717 \times 0.22 \times 0.22$
= 4.584 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 = 38.148 cubic meter

4. **Steel required in RCC** = 1.35 % of volume of RCC
= 4040 kg
5. **Masonry in foundation/plinth** = $(94.717 + 14.720 - 28 \times 0.22) \times 0.22 \times 0.9$
= 20.449 cubic meter
6. **Masonry in superstructure:**
- (i) In main building/courtyard = $94.717 \times 0.22 \times 2.80 + 14.720 \times 0.22 \times 1.8$
= 64.174 cubic meter
- (ii) Deduction for doors/windows = $(4 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 7 \times 1.2 \times 1.35 + 5 \times 0.6 \times 0.45) \times 0.22$
= 8.815 cubic meter
- (iii) Masonry in staircase tower = $2 \times (3.6 + 2.10) \times 2.1 \times 0.22$
= 5.267
- (iv) Masonry in parapet = $49.98 \times 0.75 \times 0.22$
= 8.246 cubic meter
- (v) Total Masonary = 68.872 cubic meter
7. **Plaster in 1:6 cement mortar**
- (i) In main building/courtyard = $2 \times 94.717 \times 3.3 + 2 \times 14.72 \times 1.8$
= 678.124 square meter
- (ii) In parapet wall = $2 \times 49.98 \times 0.75$
= 74.97 sq meter
- (iii) In roof = 135.814 sq. m
- (iii) Deduction for doors/windows = $2 \times (4 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 7 \times 1.2 \times 1.35 + 5 \times 0.6 \times 0.45)$
= 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 $= 94.717 \times 0.525$
 $= 49.726$ square meter

(iv) For beam at roof level $= 94.717 \times 0.82$
 $= 77.667$ 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 $= 135.814 \times 0.5$
 $= 67.907$ 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