ESTIMATE OF ACF/RO RESIDENCE

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

1. C/C length of walls = 39.25 x 1 + 47.00 x 1 + 34.25 x 1 + 12.75 x 3 + 13.75 x 4 + 7.75 x 1 + 29.50 x 1 + 14.50 x 1 + 21.75 x 1 + 14.75 x 1 + 8.75 x 1 running feet = 310.75 running feet = 94.717 running meter

2. C/C length of courtyard wall = 29.50 x 1 + 9.4 x 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 x 1.0 x 1.0 x 1.2 meter
       = 33.600 cubic meter

   (ii) For walls = (94.717 + 14.720 - 56 x 0.5) x 0.3 x 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 \[= 109.437 \times 0.1\] = 10.944 cubic meter
   (iv) Total CC \[= 17.027 \text{ cubic meter}\]

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 \[= 135.814 \times 0.1\] = 13.581 cubic meter
   (ix) In stair case \[= 7.20 \times 1.20 \times 0.1\] = 0.864 cubic meter
   Total RCC \[= 38.148 \text{ cubic meter}\]
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 x 0.88 x 4.6 + 4 x 4 x 0.22 x 3.3
= 108.768 square meter

(ii) For beam at plinth level = (94.717 + 14.720) x 0.3
= 32.831 square meter

(iii) For beam at door level = 94.717 x 0.525
= 49.726 square meter

(iv) For beam at roof level = 94.717 x 0.82
= 77.667 square meter

(v) For chajjas = 8 x 0.6 x 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 x 0.5
= 67.907 cubic meter

10. Wood required for frames = 0.0635 x 0.127 x (4 x 5.334 + 7 x 5.105 + 3 x 8.534 + 7 x 5.4 + 5 x 2.1)
= 1.056 cubic meter

11. Frame work for doors/window = (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)
= 40.071 square meter

12 Flooring = 135.814 square meter