ESTIMATE OF CF/DCF RESIDENCE

(Total Area = 2251 sq. ft. + Courtyard 600 sq.ft)

1. C/C length of walls = 46.25 x 2 + 42.25 x 1 + 12.75 x 4 + 
   17.00 x 1 + 48.25 x 4 + 7.75 x 1 running feet
   = 403.51 running feet
   = 122.99 running meter

2. C/C length of court yard wall = 46.25 x 1 + 12.4 x 2
   = 71.05 running feet
   = 21.66 running meter

3. No. of columns = 38

4. Size of each column = 26 nos. of size 12 inches x 9 inches
   = 12 nos. of size 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 12 inches

9. Thickness of slab = 4 inches

Estimate of different works

1. Excavation:
   (i) For columns = 38 x 1.0 x 1.0 x 1.2 meter
       = 45.600 cubic meter
   (ii) For walls = (122.99 + 21.66 - 76 x 0.5) x 0.3 x 0.5
       = 15.997 cubic meter
   (iii) Total excavation = 61.597 cubic meter
2. **Filling foundation with 1:3:6 (M-10) cement concrete:**
   (i) For columns = 38 x 1.0 x 1.0 x 0.1
       = 3.800 cubic meter
   (ii) For walls = (122.99 + 21.66) x 0.3 x 0.1
        = 4.339 cubic meter
   (iii) For flooring in rooms = 209.395 x 0.1
        = 20.939 cubic meter
   (iv) Total CC = 29.078 cubic meter

3. **R.C.C. work in 1:1.5:3 (M-20) in columns, beams, chajjas & slab:**
   (i) Columns footing = 26 x ( 1 x 1 + 0.30 x 0.22 )/2 x 0.3
       + 12 x ( 1 x 1 + 0.22 x 0.22 )/2 x 0.3
       = 6.044 cubic meter
   (ii) Columns up to plinth level = 26 x 1.2 x 0.30 x 0.22 +
       12 x 1.2 x 0.22 x 0.22
       = 2.756 cubic meter
   (iii) Column up to roof level = 26 x 3.1 x 0.30 x 0.22 +
       6 x 3.1 x 0.22 x 0.22 +
       6 x 1.8 x 0.22 x 0.22
       = 6.742 cubic meter
   (iv) Beam at plinth level = (122.99 + 21.66) x 0.22 x 0.22
       = 7.001 cubic meter
   (v) Beam at door level = 122.99 x 0.22 x 0.15
       = 4.059 cubic meter
   (vi) Beam at slab level = 122.99 x 0.22 x 0.30
       = 8.117 cubic meter
   (vii) Chajjas = 8 x 0.6 x 1.5 x 0.1
       = 0.720 cubic meter
   (viii) Slab = 209.395 x 0.1
       = 20.939 cubic meter
   (ix) In stair case = 10 x 1.20 x 0.1
       = 1.200 cubic meter

Total RCC = 57.578 cubic meter
4. **Steel required in RCC** = 1.50 % of volume of RCC
   = 6780 kg

5. **Masonry in foundation/ plinth**
   = (122.99 + 21.66– 38 x 0.22) x 0.22 x 0.9
   = 26.985 cubic meter

6. **Masonry in superstructure:**
   (i) In main building/courtyard
   = 122.99 x 0.22 x 2.80 + 21.66 x 0.22 x 1.8
   = 84.339 cubic meter

   (ii) Deduction for doors/windows
   = (6 x 1.07 x 2.1 + 7 x 0.838 x 2.1 +
       3 x 1.5 x 1.35 + 4 x 1.2 x 1.35 +
       1 x 2.1 x 2.1 + 6 x 0.6 x 0.45 ) x 0.22
   = 9.765 cubic meter

   (iii) Masonary in parapet
   = 57.30 x 0.75 x 0.22
   = 9.454 cubic meter

   (iv) Masonary in staircase tower
   = 2 x (5.03 + 2.59) x 2.1 x 0.22
   = 7.041

   (v) Total Masonary
   = 91.069 cubic meter

7. **Plaster in 1:6 cement mortar**
   (i) In main building/courtyard
   = 2 x 122.99 x 3.3 + 2 x 21.66 x 1.8
   = 889.71 square meter

   (ii) In parapet wall
   = 2 x 57.30 x 0.75
   = 85.95 square meter

   (iii) In roof
   = 209.395 sq. m

   (iii) Deduction for doors/windows
   =2 x (6 x 1.07 x 2.1 + 7 x 0.838 x 2.1 +
       3 x 1.5 x 1.35 + 4 x 1.2 x 1.35 +
       1 x 2.1 x 2.1 + 6 x 0.6 x 0.45)
   = 88.770 square meter

   (iv) Total plaster
   = 1096.285 square meter
8. Centering and shuttering:

(i) For Columns

\[= 26 \times 1.07 \times 4.6 + 6 \times 0.88 \times 4.6 \]
\[6 \times 4 \times 0.22 \times 3.3\]

\[= 169.684 \text{ square meter}\]

(ii) For beam at plinth level

\[= (122.99 + 21.66) \times 0.3\]

\[= 43.395 \text{ square meter}\]

(iii) For beam at door level

\[= 122.99 \times 0.525\]

\[= 64.569 \text{ square meter}\]

(v) For beam at roof level

\[= 122.99 \times 0.96\]

\[= 118.070 \text{ square meter}\]

(vi) For chajjas

\[= 8 \times 0.6 \times 1.5\]

\[= 7.200 \text{ square meter}\]

(vii) For slab

\[= 209.395 \text{ sq. m}\]

(viii) Total shuttering

\[= 612.313 \text{ square meter}\]

9. Filling foundation with moorum

\[= 209.395 \times 0.5\]

\[= 104.697 \text{ cubic meter}\]

10. Wood required for frames

\[= 0.0635 \times 0.127 \times (6 \times 5.334 +\]
\[7 \times 5.105 + 3 \times 8.534 + 4 \times 5.4 +\]
\[1 \times 8.4 + 6 \times 2.1)\]

\[= 1.096 \text{ cubic meter}\]

11. Frame work for doors/window

\[= (6 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 +\]
\[3 \times 1.5 \times 1.35 + 4 \times 1.2 \times 1.35 +\]
\[1 \times 2.1 \times 2.1 + 6 \times 0.6 \times 0.45)\]

\[= 44.385 \text{ square meter}\]

12 Flooring

\[= 209.395 \text{ square meter}\]