

ESTIMATE OF CF/DCF RESIDENCE

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

1. C/C length of walls = $46.25 \times 2 + 42.25 \times 1 + 12.75 \times 4 + 17.00 \times 1 + 48.25 \times 4 + 7.75 \times 1$ running feet
= 403.51 running feet
= 122.99 running meter
2. C/C length of court yard wall = $46.25 \times 1 + 12.4 \times 2$
= 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 = $38 \times 1.0 \times 1.0 \times 1.2$ meter
= 45.600 cubic meter
- (ii) For walls = $(122.99 + 21.66 - 76 \times 0.5) \times 0.3 \times 0.5$
= 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 = $38 \times 1.0 \times 1.0 \times 0.1$
= 3.800 cubic meter
- (ii) For walls = $(122.99 + 21.66) \times 0.3 \times 0.1$
= 4.339 cubic meter
- (iii) For flooring in rooms = 209.395×0.1
= 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 = $26 \times (1 \times 1 + 0.30 \times 0.22) / 2 \times 0.3$
+ $12 \times (1 \times 1 + 0.22 \times 0.22) / 2 \times 0.3$
= 6.044 cubic meter
 - (ii) Columns up to plinth level = $26 \times 1.2 \times 0.30 \times 0.22 +$
 $12 \times 1.2 \times 0.22 \times 0.22$
= 2.756 cubic meter
 - (iii) Column up to roof level = $26 \times 3.1 \times 0.30 \times 0.22 +$
 $6 \times 3.1 \times 0.22 \times 0.22 +$
 $6 \times 1.8 \times 0.22 \times 0.22$
= 6.742 cubic meter
 - (iv) Beam at plinth level = $(122.99 + 21.66) \times 0.22 \times 0.22$
= 7.001 cubic meter
 - (v) Beam at door level = $122.99 \times 0.22 \times 0.15$
= 4.059 cubic meter
 - (vi) Beam at slab level = $122.99 \times 0.22 \times 0.30$
= 8.117 cubic meter
 - (vii) Chajjas = $8 \times 0.6 \times 1.5 \times 0.1$
= 0.720 cubic meter
 - (viii) Slab = 209.395×0.1
= 20.939 cubic meter
 - (ix) In stair case = $10 \times 1.20 \times 0.1$
= 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** = $(122.99 + 21.66 - 38 \times 0.22) \times 0.22 \times 0.9$
= 26.985 cubic meter
6. **Masonry in superstructure:**
- (i) In main building/courtyard = $122.99 \times 0.22 \times 2.80 + 21.66 \times 0.22 \times 1.8$
= 84.339 cubic meter
- (ii) Deduction for doors/windows = $(6 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 4 \times 1.2 \times 1.35 + 1 \times 2.1 \times 2.1 + 6 \times 0.6 \times 0.45) \times 0.22$
= 9.765 cubic meter
- (iii) Masonry in parapet = $57.30 \times 0.75 \times 0.22$
= 9.454 cubic meter
- (iv) Masonry in staircase tower = $2 \times (5.03 + 2.59) \times 2.1 \times 0.22$
= 7.041
- (v) Total Masonary = 91.069 cubic meter
7. **Plaster in 1:6 cement mortar**
- (i) In main building/courtyard = $2 \times 122.99 \times 3.3 + 2 \times 21.66 \times 1.8$
= 889.71 square meter
- (ii) In parapet wall = $2 \times 57.30 \times 0.75$
= 85.95 square meter
- (iii) In roof = 209.395 sq. m
- (iii) Deduction for doors/windows = $2 \times (6 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 4 \times 1.2 \times 1.35 + 1 \times 2.1 \times 2.1 + 6 \times 0.6 \times 0.45)$
= 88.770 square meter
- (iv) Total plaster = 1096.285 square meter

8. Centering and shuttering:

- (i) For Columns $= 26 \times 1.07 \times 4.6 + 6 \times 0.88 \times 4.6$
 $6 \times 4 \times 0.22 \times 3.3$
 $= 169.684$ square meter
- (ii) For beam at plinth level $= (122.99 + 21.66) \times 0.3$
 $= 43.395$ square meter
- (iii) For beam at door level $= 122.99 \times 0.525$
 $= 64.569$ square meter
- (v) For beam at roof level $= 122.99 \times 0.96$
 $= 118.070$ square meter
- (vi) For chajjas $= 8 \times 0.6 \times 1.5$
 $= 7.200$ square meter
- (vii) For slab $= 209.395$ sq. m
- (viii) Total shuttering $= 612.313$ 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

$$= 209.395 \text{ square meter}$$