

ESTIMATE OF FOREST GUARD QUARTER

1. C/C length of walls in quarter = $28.75 \times 3 + 21.75 \times 3 + 10.75 \times 1$ running feet
= 160.75 running feet
= 49 running meter
2. C/C length of court yard walls = $10.6 \times 2 + 21.75 \times 1$ running feet
= 42.95 running feet
= 13.09 running meter
3. No. of columns in quarter = 12
4. No. of columns in courtyard = 3
5. Size of each column = 9 inches x 9 inches
6. Plinth = 0.5 meter above ground level
7. Beam at plinth level = 9 inches x 6 inches
8. Beam on door/windows = 9 inches x 6 inches
9. Beam at roof level = 9 inches x 9 inches
10. Thickness of slab = 4 inches

Estimate of different works

1. Excavation:

- (i) For columns = $(12 + 3) \times 1.0 \times 1.0 \times 1.2$ meter
= 18.000 cubic meter
- (ii) For walls = $[(49 + 13.09) - 38 \times 0.5] \times 0.3 \times 0.5$
= 6.464 cubic meter
- (iii) Total excavation = 24.464 cubic meter

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

- (i) For columns = $(12 + 3) \times 1.0 \times 1.0 \times 0.1$
= 1.5 cubic meter

- (ii) For walls = $(49 + 13.09) \times 0.3 \times 0.1$
= 1.563 cubic meter
- (iii) For flooring in rooms = $8.84 \times 6.86 \times 0.1$
= 6.06 cubic meter
- (iv) Total CC = 9.123 cubic meter

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

- (i) Columns footing = $15 \times (1 \times 1 + 0.22 \times 0.22) / 2 \times 0.3$
= 2.359 cubic meter
- (ii) Columns up to plinth level = $15 \times 1.2 \times 0.22 \times 0.22$
= 0.871 cubic meter
- (iii) Column up to roof level = $12 \times 0.22 \times 0.22 \times 3.1$
= 1.800 cubic meter
- (iv) Column in court yard = $3 \times 0.22 \times 0.22 \times 1.8$
= 0.261 cubic meter
- (v) Beam at plinth level = $(49 + 13.09) \times 0.22 \times 0.15$
= 2.049 cubic meter
- (vi) Beam at door level = $49 \times 0.22 \times 0.15$
= 1.617 cubic meter
- (vii) Beam at roof level = $49 \times 0.22 \times 0.22$
= 2.372 cubic meter
- (viii) Chajjas = $5 \times 0.6 \times 1.5 \times 0.1$
= 0.450 cubic meter
- (ix) Slab = $(8.84 \times 6.86 + 1.5 \times 3.3) \times 0.1$
= 6.559 cubic meter
- (x) Total RCC = 18.338 cubic meter

4. Steel required in RCC = 1.25 % of volume of RCC
= 1799 kg

5. Masonry in foundation/plinth = $(49 + 13.09) \times 0.22 \times 0.9$
= 12.294 cubic meter

6. Masonry in superstructure:

- (i) In main building = $49 \times 0.22 \times 2.85$
= 30.723 cubic meter
- (ii) In bath/toilet = $3.0 \times 0.22 \times 2.1$
= 1.386 cubic meter
- (iii) In courtyard = $13.09 \times 0.22 \times 1.8$
= 5.184 cubic meter
- (iv) Deduction for doors/windows = $(3 \times 1.07 \times 2.1 + 4 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 2 \times 1.2 \times 1.35 + 0.9 \times 1.35 + 3 \times 0.6 \times 0.45) \times 0.22$
= 5.526 cubic meter
- (v) Masonry in parapet wall = $31.40 \times 0.75 \times 0.22$
= 5.181 cubic meter
- (vi) Total Masonary = 36.948 cubic meter

7. Plaster in 1:6 cement mortar

- (i) In main building = $2 \times 49.0 \times 3.0$
= 294 square meter
- (ii) Parapet wall = $2 \times 31.40 \times 0.75$
= 47.10 square meter
- (iii) In bath/toilet = $2 \times 3.1 \times 2.1$
= 13.02 square meter
- (iv) In courtyard = $2 \times 13.02 \times 1.8$
= 46.872 square meter
- (v) In roof = $8.84 \times 6.86 + 1.5 \times 3.3$
= 65.59 square meter
- (v) Deduction for doors/windows = $2 \times (3 \times 1.07 \times 2.1 + 4 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 2 \times 1.2 \times 1.35 + 0.9 \times 1.35 + 3 \times 0.6 \times 0.45)$
= 50.236 square meter
- (vi) Total plaster = 416.346 square meter

8. Centering and shuttering:

- (i) For Columns in main building = $12 \times 4 \times 0.22 \times 4.6$
= 47.52 square meter
- (ii) For columns in courtyard = $3 \times 4 \times 0.22 \times 3.3$
= 8.712 square meter
- (iii) For beam at plinth level = $(49 + 13.09) \times 0.3$
= 18.627 square meter
- (iv) For beam at door level = $13 \times 2 \times 0.15 \times 1.5$
= 5.85 square meter
- (vi) For chajjas = $5 \times 0.6 \times 1.5$
= 4.5 square meter
- (vii) For slab = $8.84 \times 6.86 + 1.5 \times 3.3$
= 65.59 square meter
- (viii) Total shuttering = 150.799 square meter

9. Filling foundation with moorum

$$= 8.84 \times 6.86 \times 0.5$$

$$= 30.321 \text{ cubic meter}$$

10. Wood required for frames

$$= 0.0635 \times 0.127 \times (3 \times 5.334 + 4 \times 5.105 + 3 \times 8.534 + 2 \times 5.4 + 1 \times 4.5 + 3 \times 2.1)$$

$$= 0.674 \text{ cubic meter}$$

11. Frame work for doors/window

$$= 3 \times 1.07 \times 2.1 + 4 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 2 \times 1.2 \times 1.35 + 0.9 \times 1.35 + 3 \times 0.6 \times 0.45$$

$$= 25.120 \text{ square meter}$$

12. Flooring

$$= 8.84 \times 6.86 + 1.5 \times 3.3$$

$$= 65.59 \text{ square meter}$$