ESTIMATE OF REST HOUSE

(Total Area = 1962 sq. ft. + Courtyard 278 sq.ft )

1. C/C length of walls
   = 55.25 x 1 + 39.75 x 1 + 46.50 x 1 + 
   31.00 x 1 + 6.75 x 3 + 39.25 x 2 + 
   14.75 x 5 running feet
   = 345 running feet
   = 105.16 running meter

2. C/C length of court yard wall
   = 26.75 x 1 + 8.75 x 1
   = 35.50 running feet
   = 10.82 running meter

3. No. of columns
   = 34

4. Size of each column
   = 22 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

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Estimate of different works

1. Excavation:
   
   (i) For columns
   = 34 x 1.0 x 1.0 x 1.2 meter
   = 40.800 cubic meter

   (ii) For walls
   = (105.16 + 10.82 - 64 x 0.5) x 0.3 x 0.5
   = 12.597 cubic meter

   (iii) Total excavation
   = 53.397 cubic meter
2. Filling foundation with 1:3:6 (M-10) cement concrete:
   (i) For columns       = 34 x 1.0 x 1.0 x 0.1
                   = 3.400 cubic meter
   (ii) For walls       = (105.16 + 10.82) x 0.3 x 0.1
                   = 3.479 cubic meter
   (iii) For flooring in rooms = 182.51 x 0.1
                   = 18.251 cubic meter
   (iv) Total CC       = 25.13 cubic meter

3. R.C.C. work in 1:1.5:3 (M-20) in columns, beams, chajjas & slab:
   (i) Columns footing = 34 x ( 1 x 1 + 0.22 x 0.22 )/2 x 0.3
                   = 5.346 cubic meter
   (ii) Columns up to plinth level = 34 x 1.2 x 0.22 x 0.22
                   = 1.974 cubic meter
   (iii) Column up to roof level = 34 x 0.22 x 0.22 x 3.1
                   = 5.101 cubic meter
   (iv) Beam at plinth level = (105.16 + 10.82) x 0.22 x 0.22
                   = 5.612 cubic meter
   (v) Beam at door level = 105.16 x 0.22 x 0.15
                   = 3.470 cubic meter
   (vi) Beam at slab level = 105.16 x 0.22 x 0.30
                   = 6.940
   (vii) Chajjas        = 6 x 0.6 x 1.5 x 0.1
                   = 0.540 cubic meter
   (viii) Slab          = 182.51 x 0.1
                   = 18.251 cubic meter
   (ix) Total RCC      = 47.234 cubic meter

4. Steel required in RCC          = 2.00 % of volume of RCC
                   = 7415 kg
5. **Masonry in foundation/plinth**
   \[= (105.16 + 10.82 - 34 \times 0.22) \times 0.22 \times 0.9 \]
   \[= 21.483 \text{ cubic meter} \]

6. **Masonry in superstructure:**
   (i) **In main building**
   \[= (105.16 + 10.82) \times 0.22 \times 2.90 \]
   \[= 73.995 \text{ cubic meter} \]

   (ii) **Deduction for doors/windows**
   \[= (4 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 9 \times 1.2 \times 1.35 + 4 \times 0.6 \times 0.45) \times 0.22 \]
   \[= 9.663 \text{ cubic meter} \]

   (iii) **Deduction for masonry in verandah**
   \[= (19.812 \times 2.1 \times 0.22) \]
   \[= 9.153 \]

   (iv) **Total Masonary**
   \[= 55.179 \text{ cubic meter} \]

7. **Plaster in 1:6 cement mortar**
   (i) **In main building**
   \[= 2 \times (105.16 + 10.82) \times 3.4 \]
   \[= 788.664 \text{ square meter} \]

   (ii) **In roof**
   \[= 182.51 \text{ sq. m} \]

   (iii) **Deduction for doors/windows**
   \[= 2 \times (4 \times 1.07 \times 2.1 + 7 \times 0.838 \times 2.1 + 3 \times 1.5 \times 1.35 + 9 \times 1.2 \times 1.35 + 4 \times 0.6 \times 0.45) \]
   \[= 87.845 \text{ square meter} \]

   (iv)**Total plaster**
   \[= 883.329 \text{ square meter} \]

8. **Centering and shuttering:**
   (i) **For Columns in main building**
   \[= 34 \times 4 \times 0.22 \times 4.6 \]
   \[= 137.632 \text{ square meter} \]

   (ii) **For beam at plinth level**
   \[= (105.16 + 10.82) \times 0.3 \]
   \[= 34.794 \text{ square meter} \]
(iii) For beam at door level

= 105.16 x 0.525

= 55.209 square meter

(iii) For beam at roof level

= 105.16 x 0.96

= 100.954 square meter

(iv) For chajjas

= 6 x 0.6 x 1.5

= 5.400 square meter

(v) For slab

= 182.51 sq. m

(vi) Total shuttering

= 516.499 square meter

9. **Filling foundation with moorum**

= 182.51 x 0.5

= 91.26 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 + 9 x 5.4 + 4 x 2.1)

= 1.126 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 + 9 x 1.2 x 1.35 + 4 x 0.6 x 0.45)

= 43.922 square meter

12 **Flooring**

= 182.51 square meter