ESTIMATE OF RANGE OFFICE

(Total Area = 1475 sq. ft. + Porch 120 sq feet)

1. C/C length of walls in office = 40.75 x 3 + 35 x 3 + 12.75 x 1 + 
   11.5 x 3 + 6.75 x 1 running feet
   = 281.25 running feet
   = 85.73 running meter

2. No. of columns in office = 26
3. No. of columns in porch = 2
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 roof level = 9 inches x 9 inches
9. Thickness of slab = 4 inches

Estimate of different works

1. Excavation:
   (i) For columns = (26 + 2) x 1.0 x 1.0 x 1.2 meter
       = 33.600 cubic meter
   (ii) For walls = (85.73 - 64 x 0.5) x 0.3 x 0.5
        = 8.060 cubic meter
   (iii) Total excavation = 41.660 cubic meter

2. Filling foundation with 1:3:6 (M-10) cement concrete:
   (i) For columns = (26+ 2) x 1.0 x 1.0 x 0.1
       = 2.800 cubic meter
   (ii) For walls = 85.73 x 0.3 x 0.1
       = 2.572 cubic meter
   (iii) For flooring in rooms = 12.59 x 10.90 x 0.1
       = 13.723 cubic meter
   (iv) Total CC = 19.095 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 = \( 28 \times 0.22 \times 0.22 \times 3.1 \)  
       = 4.201 cubic meter  
   
   (iv) Beam at plinth level = \( (85.73 + 9.753) \times 0.22 \times 0.22 \)  
       = 4.621 cubic meter  
   
   (v) Beam at door level = \( (85.73 + 9.753) \times 0.22 \times 0.15 \)  
       = 3.151 cubic meter  
   
   (vi) Beam at roof level = \( 85.73 \times 0.22 \times 0.22 \)  
       = 4.149 cubic meter  
   
   (vii) Chajjas = \( 4 \times 0.6 \times 1.5 \times 0.1 \)  
       = 0.36 cubic meter  
   
   (viii) Slab = \( (12.59 \times 10.90 + 3.60 \times 3.0) \times 0.1 \)  
       = 14.803 cubic meter  
   
   (ix) Total RCC = 37.314 cubic meter  

4. **Steel required in RCC** = 1.25 % of volume of RCC  
   = 3660 kg  

5. **Masonry in foundation/plinth** = \( (85.73 - 24 \times 0.22) \times 0.22 \times 0.9 \)  
   = 15.929 cubic meter  

6. **Masonry in superstructure:**
   
   (i) In main building = \( 85.73 \times 0.22 \times 2.85 \)  
       = 53.752 cubic meter  
   
   (ii) Deduction for doors/windows = \( (5 \times 1.07 \times 2.1 + 6 \times 0.838 \times 2.1 + 4 \times 1.5 \times 1.35 + 2 \times 1.2 \times 1.35 + 9 \times 0.6 \times 0.45) \times 0.22 \)  
       = 7.824 cubic meter  
   
   (iii) Total Masonary = 45.928 cubic meter
7. **Plaster in 1:6 cement mortar**
   
   (i) In main building
   
   \[ \text{Area} = 2 \times 85.73 \times 3.2 \]
   
   \[ = 548.672 \text{ square meter} \]
   
   (ii) In roof
   
   \[ \text{Area} = 12.59 \times 10.90 + 3.60 \times 3.00 \]
   
   \[ = 148.031 \text{ square meter} \]
   
   (iii) Deduction for doors/windows
   
   \[ \text{Area} = 2 \times (5 \times 1.07 \times 2.1 + 6 \times 0.838 \times 2.1 + 
   
   4 \times 1.5 \times 1.35 + 2 \times 1.2 \times 1.35 + 
   
   9 \times 0.6 \times 0.45) \]
   
   \[ = 71.128 \text{ square meter} \]
   
   (iv) Total plaster
   
   \[ = 625.575 \text{ square meter} \]

8. **Centering and shuttering:**
   
   (i) For Columns in main building
   
   \[ \text{Area} = 28 \times 4 \times 0.22 \times 4.6 \]
   
   \[ = 113.344 \text{ square meter} \]
   
   (ii) For beam at plinth level
   
   \[ \text{Area} = (85.73 + 9.753) \times 0.3 \]
   
   \[ = 28.645 \text{ square meter} \]
   
   (iii) For beam at door level
   
   \[ \text{Area} = 85.73 \times 0.525 \]
   
   \[ = 45.009 \text{ square meter} \]
   
   (iv) For beam at roof level
   
   \[ \text{Area} = (85.73 + 9.753) \times 0.66 \]
   
   \[ = 63.019 \text{ square meter} \]
   
   (v) For chajjas
   
   \[ \text{Area} = 4 \times 0.6 \times 1.5 \]
   
   \[ = 3.600 \text{ square meter} \]
   
   (vi) For slab
   
   \[ \text{Area} = 12.59 \times 10.90 + 3.60 \times 3.00 \]
   
   \[ = 148.031 \text{ square meter} \]
   
   (vii) Total shuttering
   
   \[ = 401.648 \text{ square meter} \]

9. **Filling foundation with moorum**
   
   \[ \text{Volume} = 12.59 \times 10.90 \times 0.5 \]
   
   \[ = 68.616 \text{ cubic meter} \]
10. **Wood required for frames**

\[
0.0635 \times 0.127 \times (5 \times 5.334 + 4 \times 5.105 + 4 \times 8.534 + 2 \times 5.4 + 9 \times 2.1)
\]

= 0.895 cubic meter

11. **Frame work for doors/window**

\[
(5 \times 1.07 \times 2.1 + 6 \times 0.838 \times 2.1 + 4 \times 1.5 \times 1.35 + 2 \times 1.2 \times 1.35 + 9 \times 0.6 \times 0.45)
\]

= 35.564 square meter

12. **Flooring**

\[
12.59 \times 10.90 + 3.60 \times 3.00
\]

= 148.031 square meter