

3RD SEM./CIVIL ./ 2024 (W)

TH4 Estimation & Cost Evaluation-I

Full Marks: 80

Time- 3 Hrs

**Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks**

1. Answer **All** questions 2 x 10
 - a. Define circulation area of a building.
 - b. Outline the format of details of measurement form.
 - c. Write down the units of following items
(i) DPC (ii) Reinforcement (iii) plastering (iv) wood work in chowkhat
 - d. Calculate the weight of a 20 mm diameter bar of 1m length
 - e. Outline the hierarchy of Engineering Dept. in State Govt.
 - f. Define Salvage value.
 - g. When Centre line method of estimating is preferred.
 - h. What do you mean by revised estimate.
 - i. What is the multiplying factor for painting in both side surface of a panelled and flush door?
 - j. What do you mean by "Schedule of Rate".

2. Answer **Any Six** Questions 5 x 6
 - a. Find out quantity of dry materials required for 200 sqm of Cement Concrete flooring in 1:2:4 proportion.
 - b. Estimate the quantity of Wood work in shutter for a Door of size 1.2mX 2.0m and for a Window of size 1m x 1.5 m. Size of chowkhat 8cmX12cm. Assume any other suitable data.
 - c. Find out the cost of 4 cum of brick work in foundation and plinth (1:6) with 20cm x 10 cm x 10 cm bricks with suitable rates of material and labour as per PWD Orissa Rate.
 - d. Briefly outline the duties and responsibilities of a Junior Engineer.
 - e. Write short notes on 2.5 x 2
 - (a) Administrative approval
 - (b) Workcharged establishment
 - f. Calculate quantity of earthwork and Brickwork from Figure1.
 - g. Calculate the quantity of dry materials required for 12 mm thick cement mortar plastering (1:6) in wall for 200 sqm.

Answer Any Three Questions

- 3 Find out the quantities of following item of work from Figure 2 using Centre Line method 10
 (a) Brick work in foundation and plinth
 (b) Brickwork in superstructure
- 4 a Find out quantity of first class brickwork in cement mortar from Figure 3 5
 b Briefly explain the types of estimate. 5
- 5 Find out the quantities of following item of work from Figure 4 3+3+4
 (a) Earthwork in excavation
 (b) Brickwork in foundation and plinth
 (c) Brickwork in superstructure
- 6 a Analyse the rate for 10 cum of cement concrete 1:5:10 in foundation. 7
 b What do you mean by depreciation. 3
- 7 Write short notes on 2.5 x 4
 (a) Technical sanction
 (b) Plinth area
 (c) Lead and Lift
 (d) Contingencies

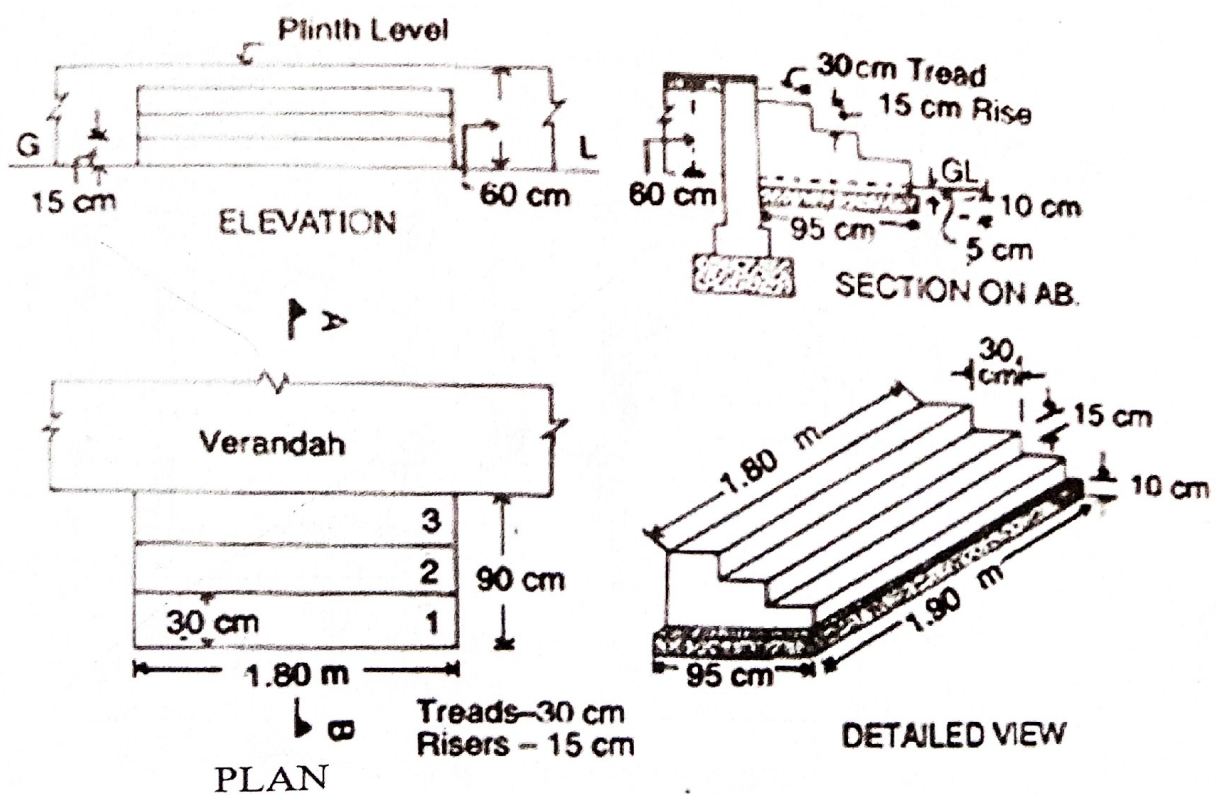


Figure 1

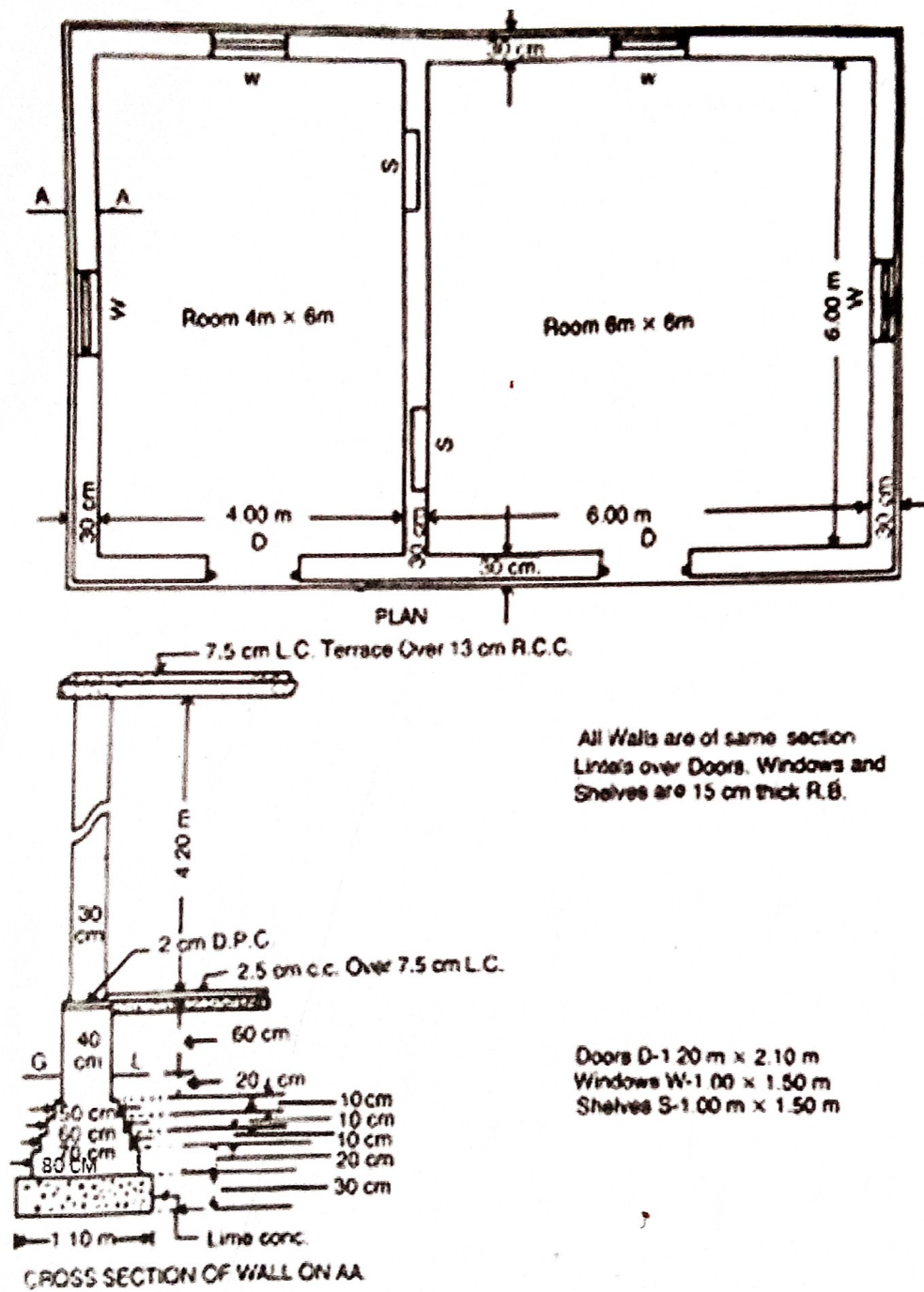


Figure 2

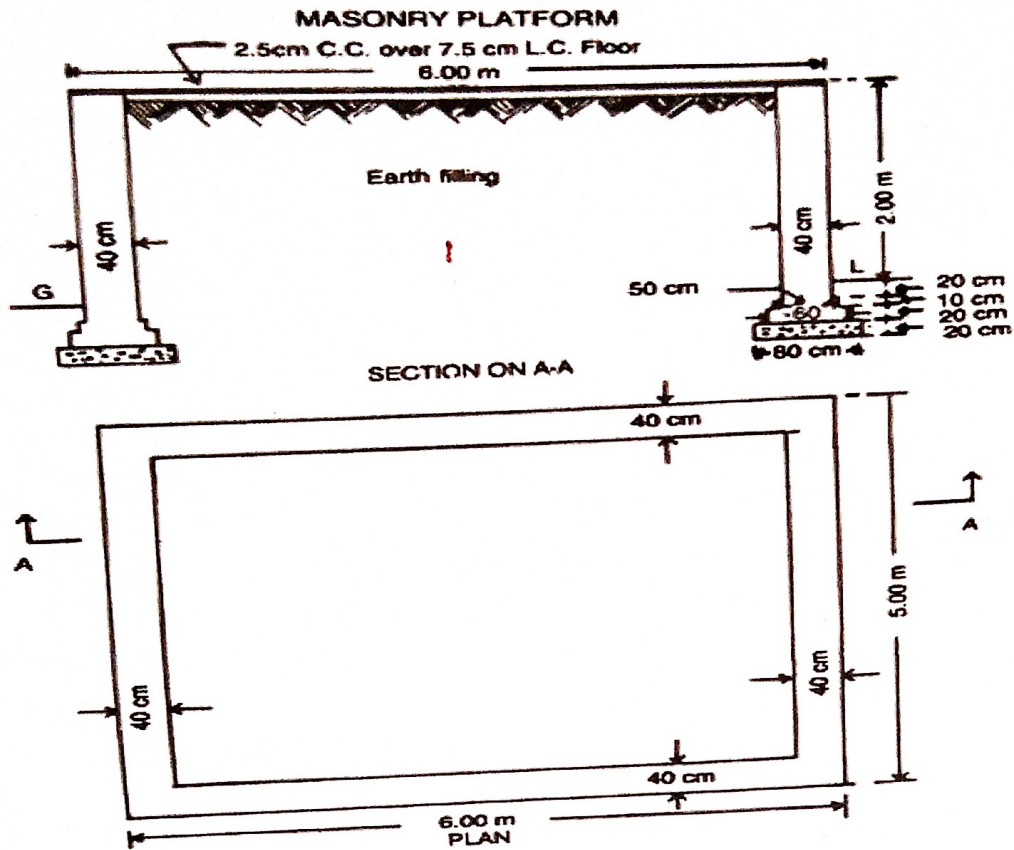


Figure 3

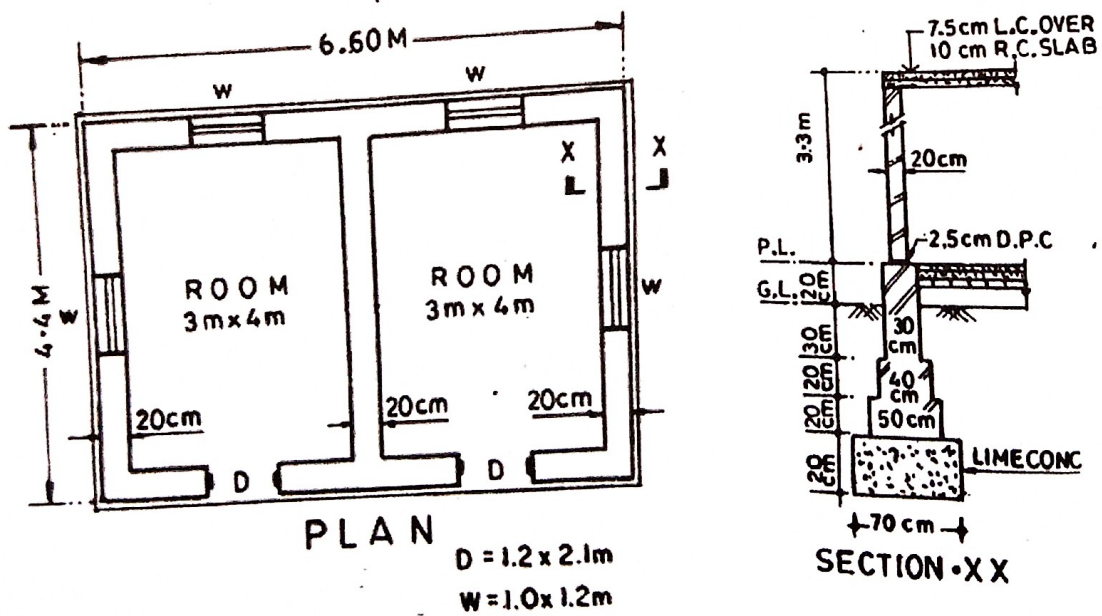


Figure 4

3rd Sem./ Civil/ 2021(W)

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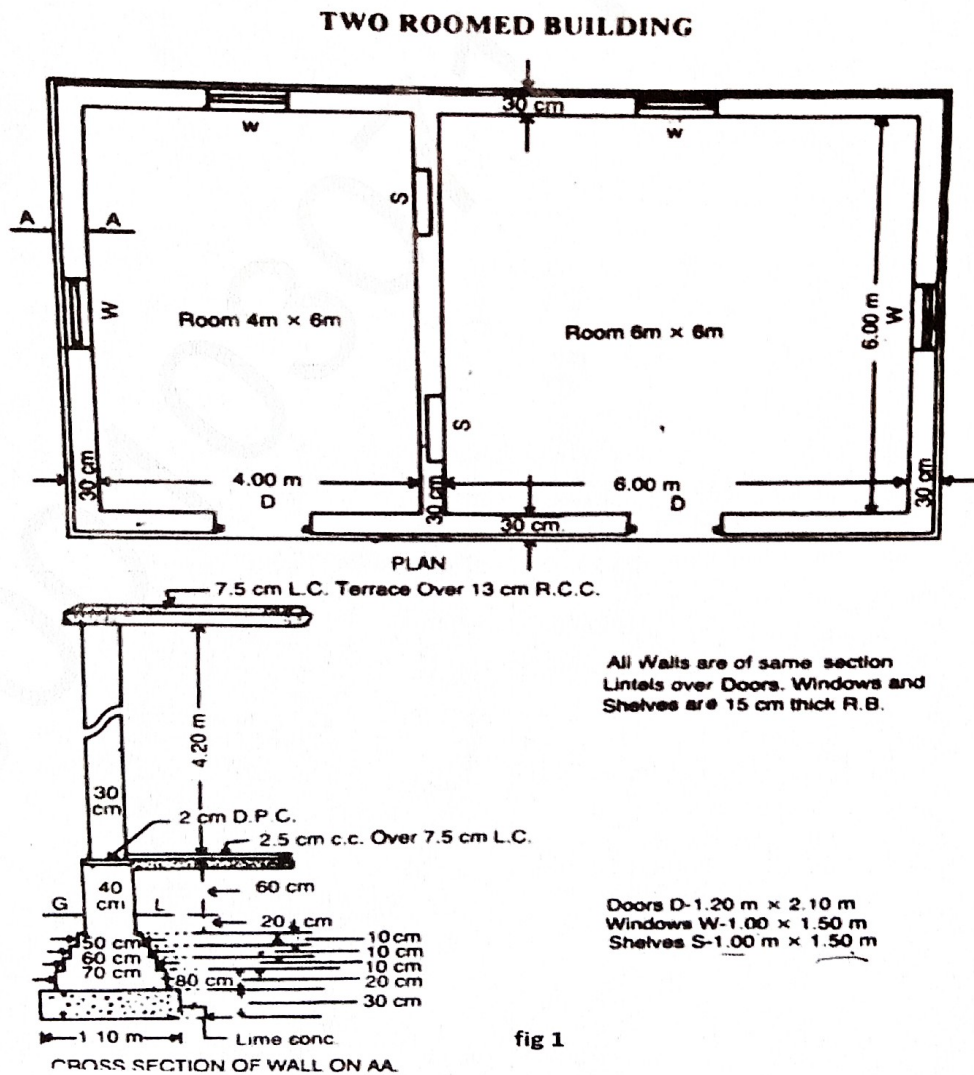
1. **Answer All questions** 2 x 10
 - a. State the actual and nominal size of a standard modular bricks .
 - b. Mention the multiplying factor for painting work in case of fully glazed window and flush door.
 - c. What do you mean by out turn?
 - d. When centre line method of estimating is preferred?
 - e. Calculate the amount of plastering required for a 5mX 4m room having 30 cm thickness and 3m height?
 - f. Define Lead and Lift.
 - g. Calculate the additional length of bent up bar for 45° cranked bar?
 - h. Write down the units of the following items
 - i. Honey comb brick work
 - ii. Collapsible gate
 - iii. Stone Masonary
 - iv. Flooring
 - i. Classify labourers according to OPWD.
 - j. What is the standard weight of 20mm dia. Bar of 1m length?

2. **Answer Any Six Questions** 5x6
 - a. Calculate the quantity of dry material for 10m³ of cement concrete with proportion 1:3:6 ?
 - b. Draw the hierarchy of Engineering department in State Govt.
 - c. Calculate the quantities of dry material required for 100sqm ,12mm thick plastering with proportion 1:6 ?
 - d. Mention the duties and responsibilities of Assistant Engineer.
 - e. Calculate Sal wood work in chowkhat for door and window size of 1.2mX2.1m and 1mX1.5 m? Size of chowkhat 10cmX 8cm .Assume any suitable data.
 - f. Estimate the following items from Fig No 1 by centre line Method. 2 ½ +
 - i. Earth work in Excavation 2½
 - ii. Brick work in foundation and plinth
 - g. Calculate the dry materials required for 450m² of 25mm thick DPC in cement concrete of Proportion (1:1.5:3)?

3. **Calculate the following items of work from Fig No 2.** 5+5
 - i. Earthwork in excavation in foundation.
 - ii. Earth work in filling in plinth..

4. **Calculate the cost of 10cum of brickwork in foundation and plinth with 20×10×10cm brick with cement sand mortar 1:6 ?**

- 5 Estimate the quantities of the following items of a residential building from fig-3 6+4
- First class brick work in foundation and plinth.
 - 2.5 cm Damp proof course.
- 6 Estimate the quantities of the following items of a building from fig-4 6+4
- 12 mm thick inside plastering in walls (1:6)
 - Painting doors and windows
- 7 Write short notes on : [5X2] 2 ½ x 4
- Plinth area Estimate
 - Contingency
 - Work charged establishment.
 - Scrap value and Salvage Value



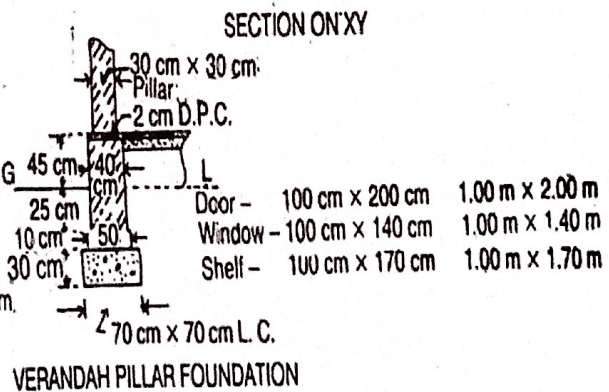
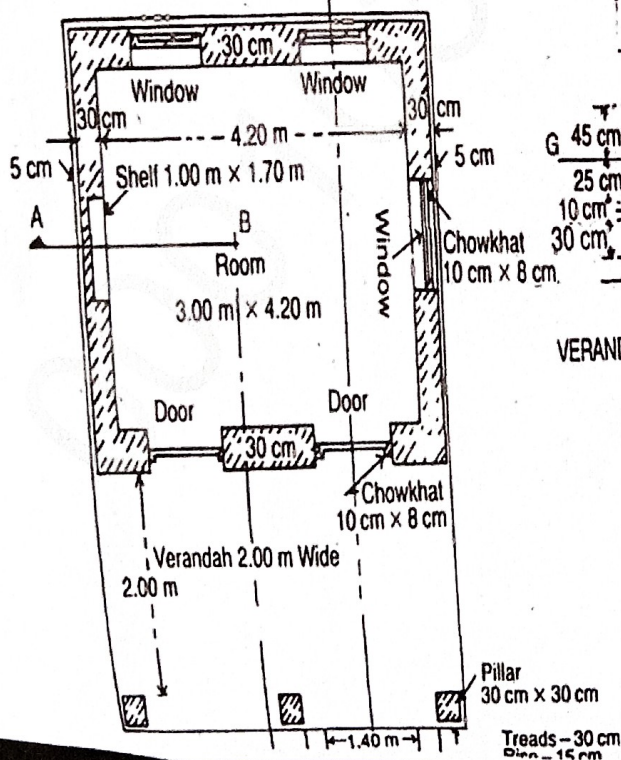
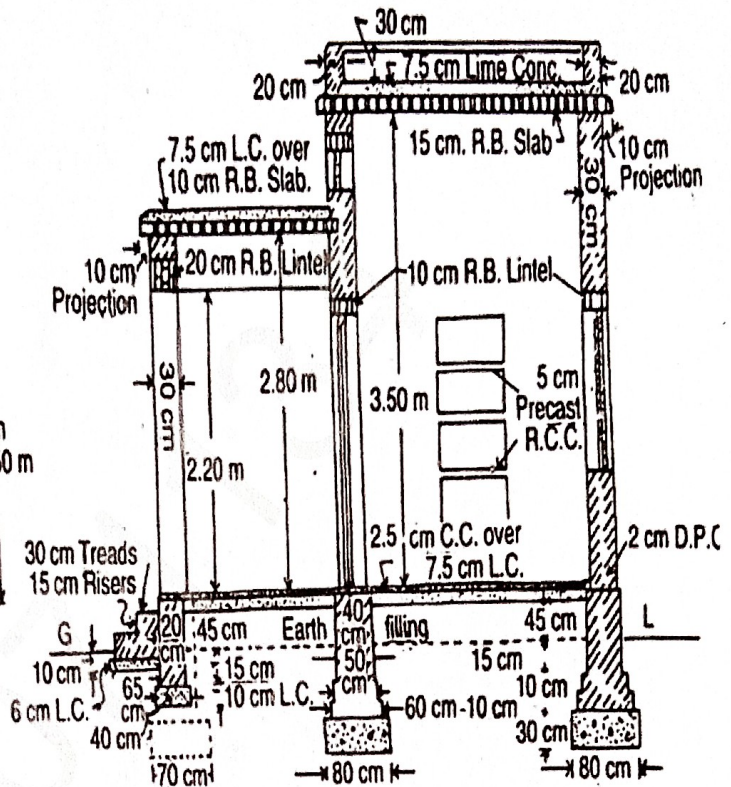
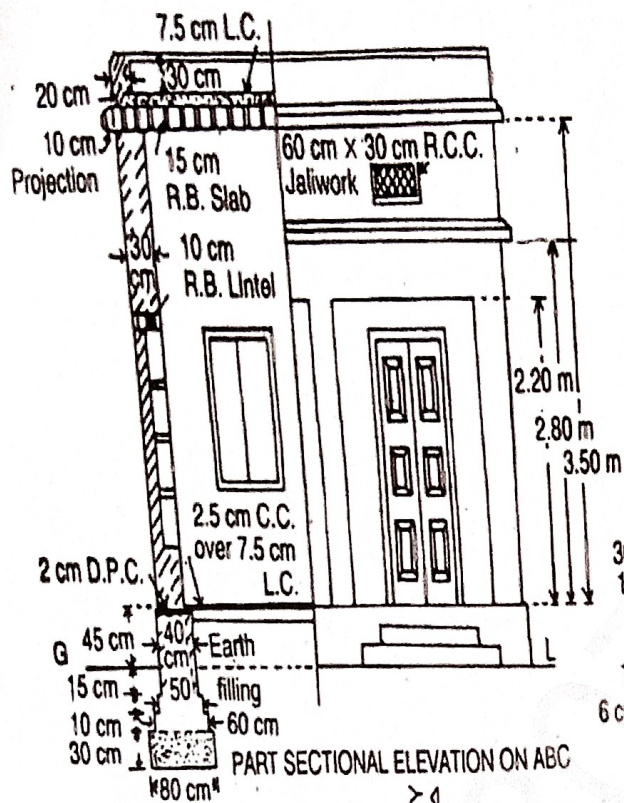
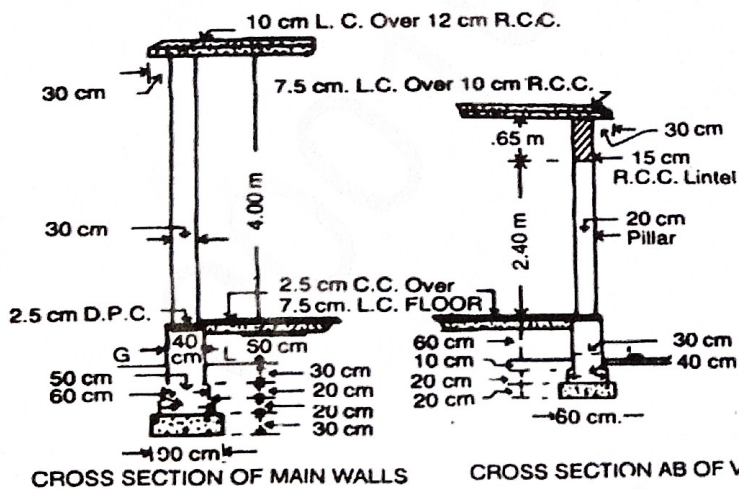
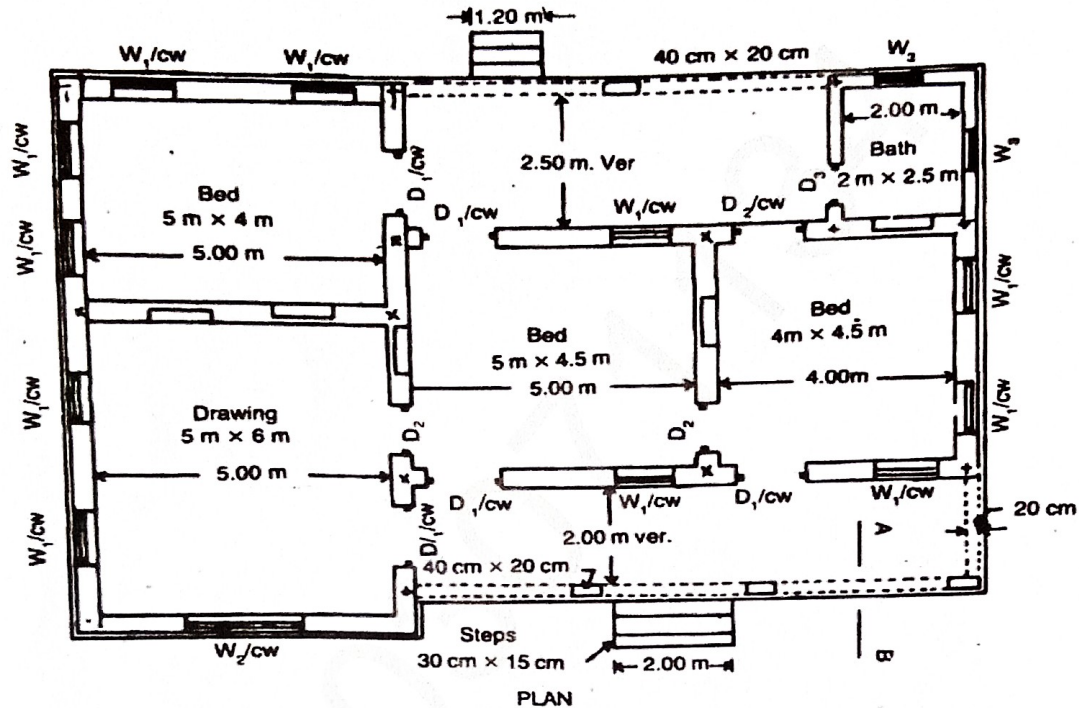


Fig 2

RESIDENTIAL BUILDING



Doors:-
 D_1 - 120 cm $\times$ 210 cm (1.20 m $\times$ 2.10 m)
 D_2 - 100 cm $\times$ 200 cm (1.00 m $\times$ 2.00 m)
 D_3 - 75 cm $\times$ 180 cm (.75 m $\times$ 1.80 m).

Windows:-
 W_1 - 100 cm $\times$ 150 cm (1.00 m $\times$ 1.50 m)
 W_2 - 200 cm $\times$ 150 cm (2.00 m $\times$ 1.50 m)
 W_3 - 75 cm $\times$ 120 cm (.75 m $\times$ 1.20 m)
 C.W. - 75 cm $\times$ 60 cm (.75 m $\times$.60 m).

Shelves:-
 S - 100 cm $\times$ 150 cm (1.00 m $\times$ 1.50 m)
 Lintel Over Doors, Windows Etc.
 15 cm R.B.

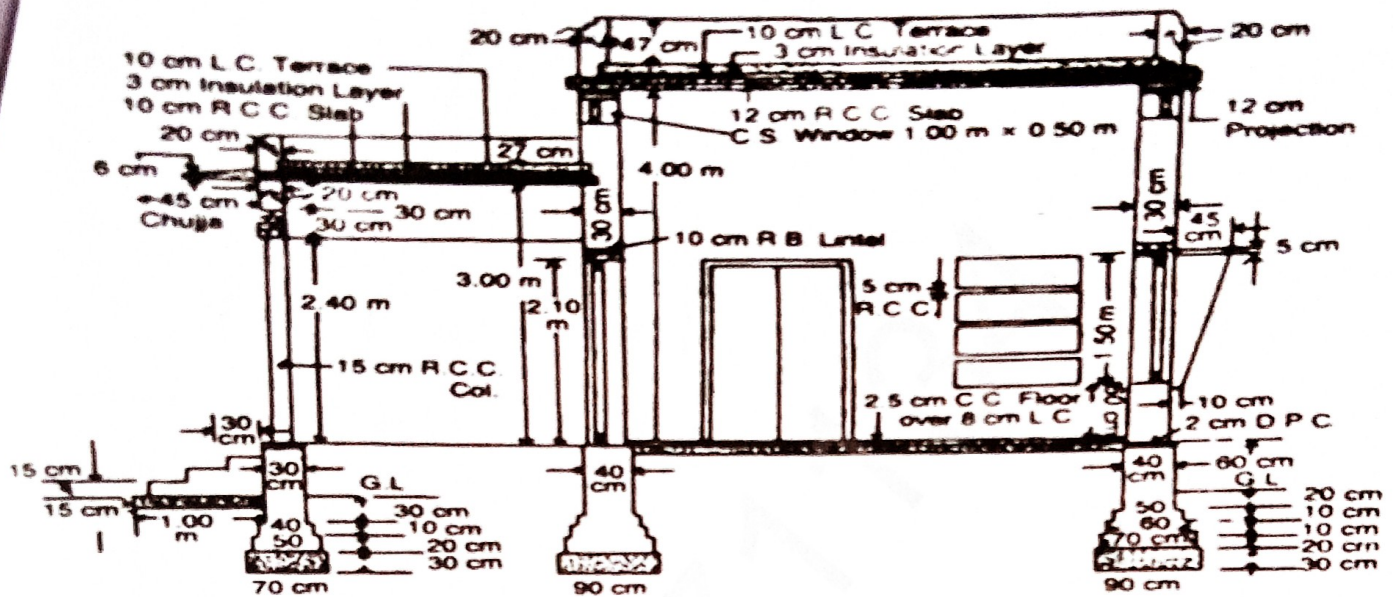
All walls of Drawing Rooms and
 Bed Rooms have same section
 Note—No beam has been shown in the plan.

Bath Room Walls have
 similar section

fig 3

TWO-ROOM BUILDING WITH FRONT VERANDAH

CROSS-SECTION OF TWO-ROOMED BUILDING



SECTION ELEVATION ON CEFG

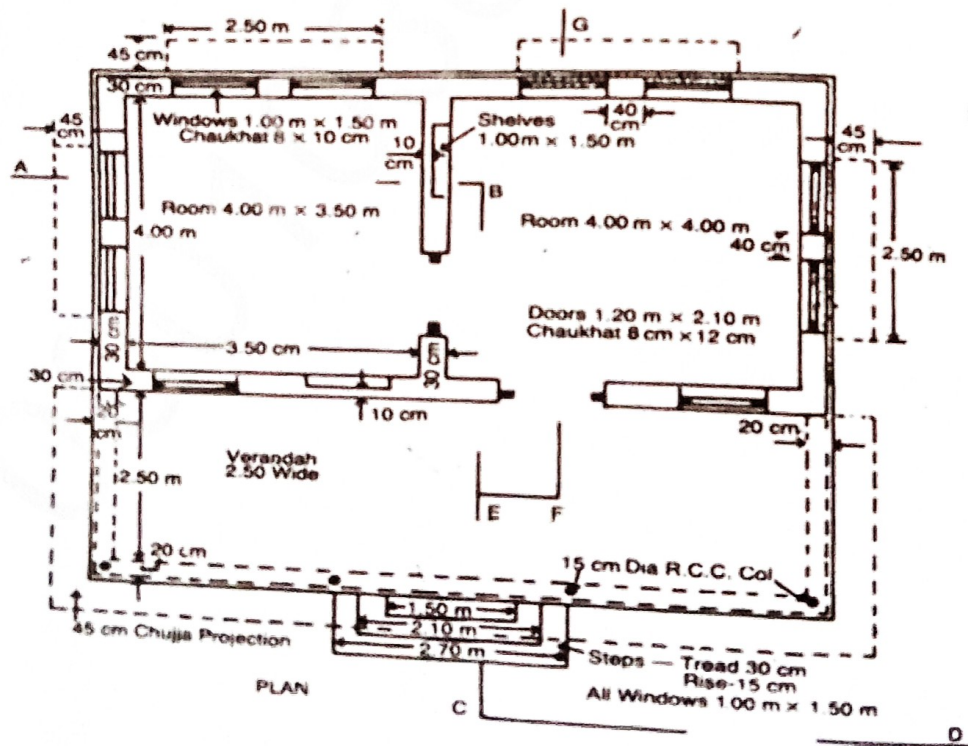


FIGURE-04