

II. Planning of Industrial Structure

General

The industrial structures can be classified into 3 categories.

- 1) Factory buildings (or) Engineering Workshops
- 2) Godowns and warehouses
- 3) Welfare buildings (canteen, first-aid medical unit, etc)

Planning aspects

The following are the main factors which are to be considered while planning the industrial structure.

- 1) Functional aspects
- 2) Lighting
- 3) Materials of construction
- 4) Mechanical layout
- 5) Number of floors
- 6) Site conditions
- 7) Ventilation

Requirements of big industrial units

The size of industrial unit is generally decided by the number of workers or labourers employed by the unit and accordingly, the industrial unit is required to provide various facilities for the smooth functioning of the industrial concern. The following are the requirements of big industrial units.

- 1) Canteen
- 2) Cloak room
- 3) Drinking water
- 4) Entrance
- 5) Loading and unloading platforms
- 6) Medical aid
- 7) Office
- 8) Sanitary block
- 9) Storage

Sheet for pitched roof coverings

The two varieties of commonly used sheets for pitched roof coverings are as below.

- 1) Asbestos cement sheets
- 2) Galvanized iron sheets

1. Asbestos cement sheets

The cement is mixed with 15% of asbestos fibres and the paste so formed is pressed under rollers with grooves or teeth. This is known as AC sheets. These are cheap, fire resisting, light in weight and sound proof.

2. Galvanized iron sheets

It is produced by pressing flat wrought iron plates between rollers. With grooves or teeth and then they are galvanized with a coat of zinc. There are commonly known as GI sheets.

Comparison between AC sheets and GI sheets

No	AC sheets	GI sheets
1.	Breakable	Not breakable
2.	Cheap	Costly
3.	Do not corrode	Easily corroded
4.	Fire-resisting	Not fire resisting
5.	Not affected by acid	Affected by Acids

* * * * *

Lighting

The industrial structures should be designed and planned to get the maximum benefit of deep light. It is natural that human eyes are used day light and experience has proved the fact that industrial operations can be carried out most effectively in light illumination without glare.

The duration of natural light during day-time varies considerably all over the year and for shifts having working hours other than this period, it becomes necessary to provide artificial lighting. The main source for artificial lighting is electricity, and it should not glare, well diffused and indirect as far as possible.

Ventilation

It is necessary to provide adequate ventilation to all the industrial structures. The term ventilation is used to indicate circulation of air and thus by ventilation, polluted or vitiated air is frequency replaced by the fresh air. The ventilation may either be natural or artificial.

It should be remembered that excess ventilation results in discomfort and hence, it is desirable to provide controllable ventilators where there are chances of excess ventilation to occur. The measurement of ventilation is made in terms of air changes per hour. (i.e.) the replacement of air by volume in comparison with the cubical contents of the structure during each hour. Depending upon the type of industry, operating condition etc., the number of air changes may vary from 3 to 30 per hour.

III. Planning of Public Buildings

The Public buildings such as

Libraries
Schools
Commercial centres
Hotels
Banks
Theatres
Public markets
Town Halls
Museums, etc.

These buildings must be planned beautifully and on imposing sites so as to truly express their purpose and also to serve the needs of the people to town.

Types of Public Buildings

1. Banks
2. Commercial centres
3. Educational Institutions
4. Hotels
5. Libraries
6. Temples
7. Theatres

Miscellaneous Public Building

1. Bus stations
2. Club Houses
3. Hospitals
4. Hostels
5. Post Office
6. Town Halls

1. **Bus Stations**

Every bus station will have to be planned to serve the need of the locality. The following components to be needed for a bus station.

1. Canteen and stall
2. Office and administrative units

3. Parking of buses
4. Repairing facilities
5. Waiting Halls

2. Club houses

A club house is a meeting place for people of neighbouring area for recreation and amusement. The club house consists of indoor games, outdoor games, swimming pool, health centre, residential rooms, etc.,

3. Hospitals

Depending upon the size of city, the type of hospital is decided. For the purpose of classification the buildings for health may be termed as dispensaries, clinics, maternity homes, nursing homes, laboratories, child welfare centres, etc.

4. Hostels

The hostel buildings are designed to provide lodging and boarding facilities and in our country, they are mainly meant for the students.

5. Post office

The provision of a post office building is considered to be an essential amenity for every town or suburban areas. The requirements of a post office is,

1. Public space
2. Residential accommodation
3. Sorting room
4. Telephone booth
5. Working space

6. Town Halls

It is a hall used to conduct public meeting, arranging lectures and seminars, etc.,

General requirements of public buildings

1. This type of buildings must be planned beautifully and on imposing sites.
2. To serve the needs of the people of town.
3. The buildings have proper provision of circulation makes the building comfortable and convenient.
4. As a matter of fact the economic factor is to be considered.
5. Proper sanitation facilities.

Landscape Architecture

Landscape design is the job of landscape architect who is specially trained for exploiting fully the potentialities of open space.

The competent landscape architect is trained in various disciplines of science such as geology, soil mechanics, ecology, arboriculture, forestry, topography, colour effects, etc.

For a fairly big projects, it is worthwhile to combine the services, to town planner and landscape architect.

Object (or) purpose of landscape architecture

1. In the over-crowded town of today, with a high densities of population, landscape architecture decorates towns with gardens, parks, recreational open spaces, tree lined avenues and streets.
2. The proper landscaping imparts beauty and it results into a good setting of the buildings.

3. Provisions of trees around buildings results, into many practical advantages. The trees relieve eye strain, reduce glare on paving surfaces and wall, lower surrounding temperature, absorb carbon dioxide and give out oxygen act as a wind breakers etc.,
4. Urban landscaping is intended for developing an agreeable cheerful, pleasant and attractive environment.

* * * * *

UNIT - 3

BUILDING DRAWINGS

Preparation of plan, section and elevation of buildings with specifications for the given line drawing to suitable Scale.

1. A Reading room with R.C.C flat roof.
2. A House with single bed room and attached bathroom with R.C.C. flat roof.
3. A residential building with two bed rooms with R.C.C. flat roof.
4. A house with single bed and hall with partly tiled and partly R.C.C. flat roof.
5. A Two roomed house with RCC slope roof with gable ends.
6. A House with fully tiled roof with hips and valleys.
7. A Small workshop with north light steel roof truss (6 to 10m Span) over R.C.C. Columns.
8. A Primary health center for rural area with R.C.C roof.
9. A Village Library building with R.C.C flat roof.
10. A small Restaurant building with R.C.C flat roof.
11. A Single storeyed School building with R.C.C flat roof.
12. A Bank building with R.C.C flat roof.

* * * * *

PLATE NO. 11.

A READING ROOM WITH RCC PLAT ROOF

Specifications : The following specifications correspond to the line plan of a reading room with RCC flat roof.

1. **Foundation** : The foundation for all main walls will be in cement concrete 1:4:8 mix, 600 wide and 200 thick laid at 600 below ground level. The masonry footing will be in RR masonry in cement mortar 1:5, the first footing being 400 x 400 for all walls.
2. **Basement** : The basement will be in RR masonry in cement mortar 1:5, 200 wide and 300 thick above ground level for all walls and is filled with clean sand to a depth of 150. A damp proof course in cement mortar 1:3, 20 thick will be provided for all walls at basement level.
3. **Superstructure** : All walls will be in brick work in cement mortar 1:5, using first class bricks, 200 thick. The height of all walls will be 3000 above floor level. All the walls including basement will be plastered smooth and cement mortar 1 : 4 externally and 1 : 6 internally for 12.5 thick. Parapet walls, 200 thick and 450 high will be provided all round.
4. **Roofing** : The roofing will be of RCC 1:2:4 mix, 100 thick flat slab over the room. A weathering course in brick jelly lime concrete 1:5:9 mix plastered with combination mortar 75 thick over the slab.
5. **Doors, Windows etc.,**
D - Flush door : 1500 x 2100
W - Window panelled : 1200 x 1200

6. **Lintel** : All internal wall openings will be provided with RCC lintels, 1:1.5:3 mix ; 150 thick. All external wall openings will be provided with RCC lintel-cum-sunshade, 1:1.5:3 mix, 600 wide, and 150 thick.,
7. **Flooring** : The flooring will be in cement concrete 1 : 4 : 8, 1 thick and plastered smooth with cement mortar 1: 3, 20 thick.
8. **Steps** : Steps will be in brick work in cement mortar 1:5 laid on 1800 x 450 x 150 thick cement concrete 1:4:8 footing, Rise 1. Tread 300.

Note

1. Any other dimensions found necessary may be assumed suitable making clear indications of the same.
2. All dimensions indicated are in millimetre.

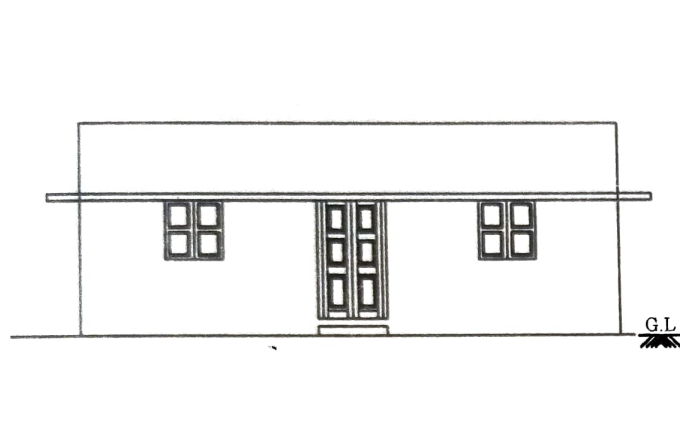
Draw to a suitable scale the following views with complete dimension and details.

1. Plan at window sill level.
2. Section on 'AB'
3. Front elevation.

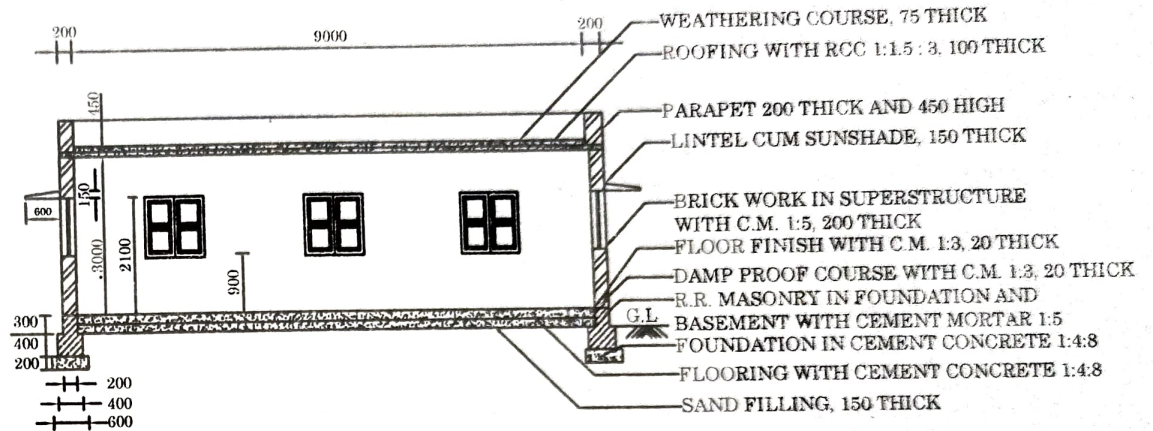
* * * * *

A READING ROOM WITH RCC FLAT ROOF

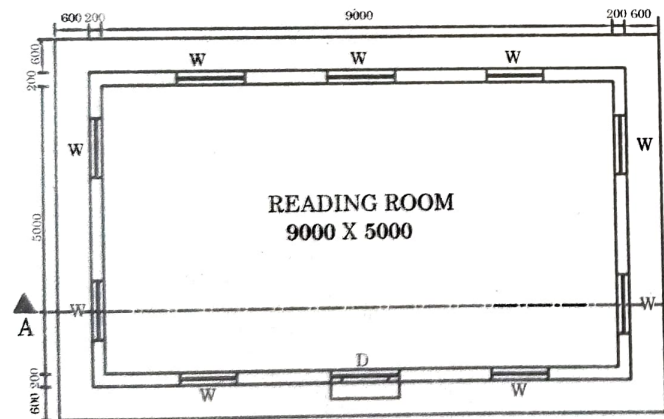
PLATE No : 11



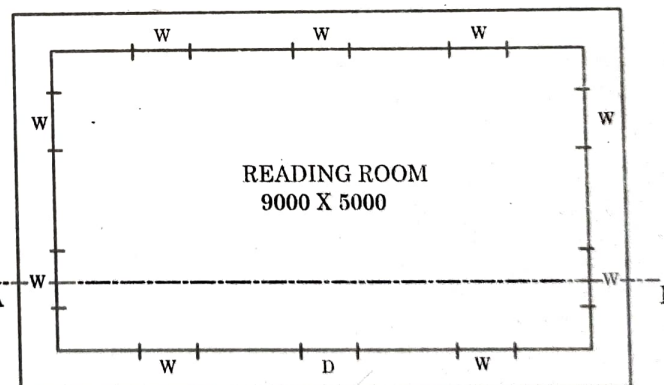
ELEVATION



SECTION ON AB



PLAN



LINE PLAN

REFERENCE		
TYPE	DESCRIPTION	SIZE
D	FLUSH DOOR	1500 x 2100
W	WINDOW PANELLED	1200 x 1200
	STEPS	
	RISE	150
	TREAD	300

All dimensions in mm
NOT TO SCALE

PLATE NO. 12
HOUSE WITH SINGLE BED ROOM AND
ATTACHED BATH ROOM WITH RCC FLAT ROOF

Specifications : The following specifications correspond to the line plan of a house with single bed room and attached bathroom with RCC flat roof.

1. **Foundation** : The foundation for all main walls and verandah retaining walls will be in cement concrete 1:4:8 mix, 1000 wide and 200 thick laid at 1100 below ground level. The masonry footing will be in cement mortar 1:6, the first footing being 700 x 400 and the second being 400 x 500 for all walls and verandah retaining walls.
2. **Basement** : The basement will be in brick work in cement mortar 1:6, 200 wide and 600 height above ground level for all main walls and verandah retaining walls and is filled with clean sand to a depth of 450. A damp proof course in cement mortar 1:3,20 thick will be provided for all walls at basement level.
3. **Superstructure** : All walls will be in brick work in cement mortar 1:5, using first class bricks, 200 thick. The height of main walls will be 3000 above floor level. The height of roof at verandah portion will be 2700. The partition wall in WC and bath will be 100 thick in brick work in cement mortar 1:5 using country bricks and carried up to a height of 2000. One brick pillar 200 x 400 will be provided in the verandah. All the walls including basement will be plastered smooth and cement mortar 1 : 4 externally and 1 : 6 internally for 12.5 thick. Parapet walls, 200 thick and 600 high will be provided all round.
4. **Roofing** : The roofing will be of RCC 1:1.5:3 mix, 125 thick flat slab over the room. A weathering course 75 thick, consists of two course of flat tiles set in cement mortar 1:3 mixed with crude oil will be provided over the slab.

5.	Doors, Windows etc.,	
D ₁	- Panelled door	: 1100 x 2100
D ₂	- Panelled door	: 900 x 2100
W ₁	- Glazed window	: 1200 x 1200
W ₂	- Glazed window	: 1500 x 1200
V ₁	- Ventilator glazed	: 900 x 450
V ₂	- Ventilator glazed	: 1500 x 450
J	- R.C. Jolly	: 2400 x 1200
CB	- Cupboard	: 300 depth
S ₁	- Shelf	: 200 depth
S ₂	- Cooking Platform	: 300 depth

6. **Lintel** : All internal wall openings will be provided with RCC lintels, 1:1.5:3 mix ; 150 thick and all external wall openings will be provided with RCC lintel-cum-sunshade, 1:1.5:3 mix, 450 wide, and 150 thick. 50 thick and 600 wide R.C.C. lofts shall be provided in bed, kitchen and utility.
7. **Flooring** : The flooring will be in cement concrete 1 : 4 : 8, 130 thick and plastered smooth with cement mortar 1:3, 20 thick for all the portions.
8. **Steps** : Steps will be in brick work in cement mortar 1:5 laid on 800 x 150 thick cement concrete 1:4:8 footing. Rise 200, Tread 300.

Note

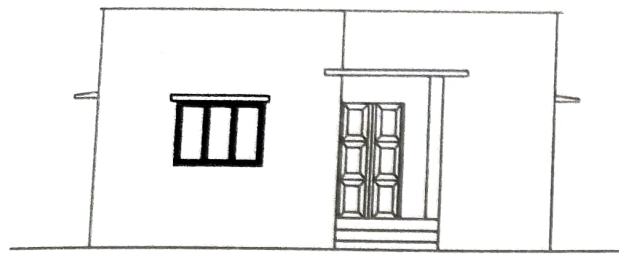
1. Any other dimensions found necessary may be assumed suitable making clear indications of the same.
2. All dimensions indicated are in millimetre.

Draw to a suitable scale the following views with complete dimensions and details.

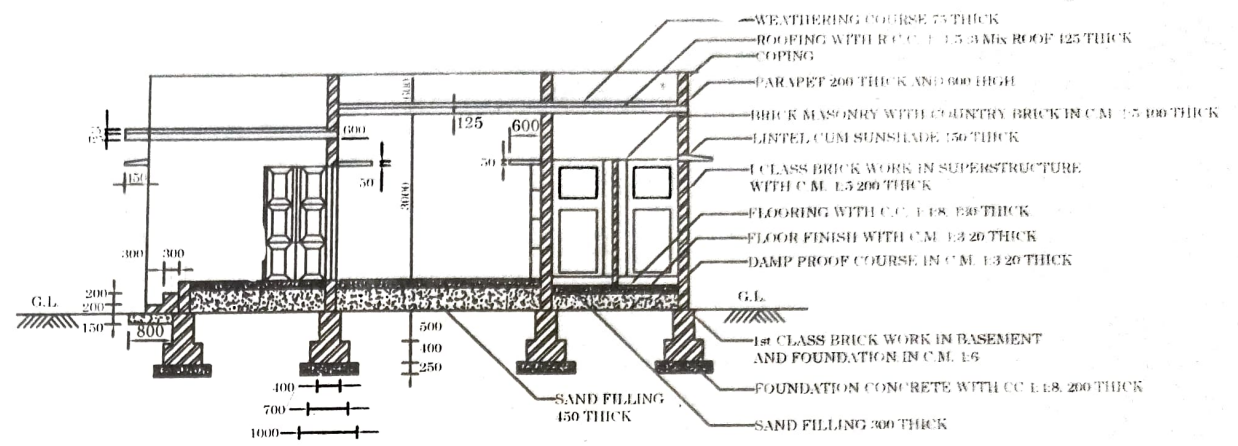
1. Plan at window sill level
2. Section on 'ABCD'
3. Front elevation.

* * * * *

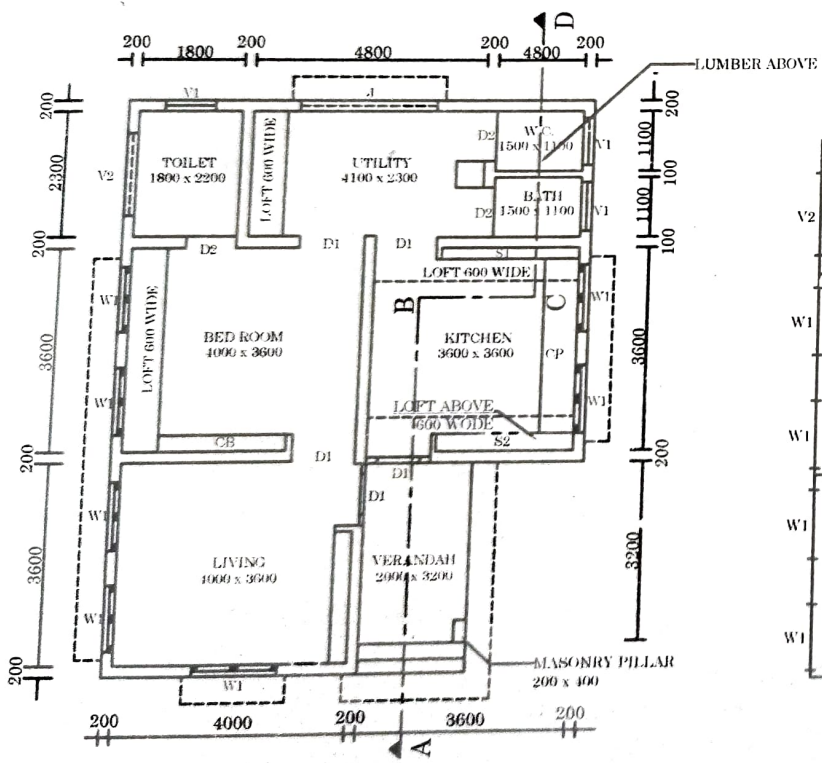
A SINGLE BED ROOMED BOUSE WITH RCC ROOF



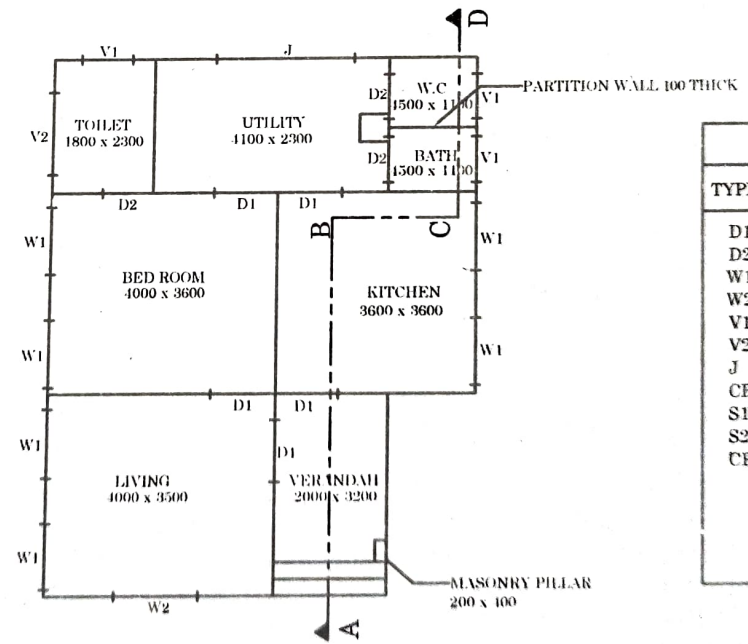
FRONT ELEVATION



SECTION ON ABCE



PLAN



LINE PLAN

REFERENCE		
TYPE	DESCRIPTION	SIZE
D1	PANELLED DOOR	1100 x 2100
D2	PANELLED DOOR	900 x 2100
W1	PANELLED WINDOW	1200 x 1200
W2	GLAZED WINDOW	1500 x 1200
V1	VENTILATOR (GLAZED)	900 x 450
V2	VENTILATOR (GLAZED)	1500 x 450
J	R.C. JOLLY	2400 x 1200
CB	CUPBOARD	300 DEPTH
S1	SHELF	200 DEPTH
S2	SHELF	300 DEPTH
CP	COOKING PLATFORM	450 WIDTH
STEPS		
	RISE	200
	TREAD	300

All dimensions in mm
NOT TO SCALE

PLATE NO.13

RESIDENTIAL BUILDING WITH TWO BED ROOMS WITH R.C.C. FLAT ROOF

Specifications : The following specifications correspond to the line plan of a residential building with two bed rooms with R.C.C. flat roof.

1. **Foundation** : The foundation for all main walls will be in cement concrete 1:4:8 mix, 1200 wide and 300 thick laid at 1500 below ground level. The masonry footings will be in brick work in cement mortar 1:6, the first footing being 900 x 400, second being 700 x 400 and third being 400 x 400 for all main walls. The foundation for verandah retaining wall will be in cement concrete 1:4:8, 1000 wide and 200 thick laid at 1100 below ground level. The masonry footings will be in brick work in cement mortar 1 : 6, first footing being 700 x 400 and second being 400 x 500 for verandah retaining wall.
2. **Basement** : The basement will be in I class brick work in cement mortar 1: 5 and 450 height above ground level for all main walls and verandah retaining walls. The basement will be 200 wide for main walls and verandah retaining wall. The basement will be filled with clean sand to a depth of 300. A damp proof course in cement mortar 1:3,20 thick will be provided for all walls at basement level.
3. **Superstructure** : All walls will be in I class brick work in cement mortar 1:5, using first class bricks; 200 thick. The partition walls will be 100 thick in brick work in cement mortar 1 : 5, using first class bricks. The height of all walls will be 3000 above floor level. The height of roof at verandah portion will be 2700. One brick pillar (300 x 200) is provided in verandah. All the walls including basement will be plastered smooth with cement mortar* 1.4 externally and 1 : 6 internally for 12.5 thick. Parapet walls 200 thick and 600 high will be provided all-round.
4. **Roofing** : The roofing will be of R.C.C. 1:1.5:3 mix, 125 thick flat slab over the rooms. A weathering course in

brick jelly lime concrete plastered with combination mortar 1 : 5 : 9 mix, 75 thick will be provided over the slab.

5. **Doors, Windows etc.,**

D	-	Flush door	:	1000 x 2100
D ₁	-	Panelled door	:	900 x 2100
W ₁	-	Window glazed	:	1200 x 1200
V	-	Ventilator glazed	:	1200 x 450
O	-	Opening	:	1200 x 2100
CB1	-	Cupboard	:	400 depth
CB2	-	Cupboard	:	300 depth
S	-	Shelf	:	200 depth

6. **Lintel** : All internal wall openings will be provided with R.C.C. lintel, 1:1.5:3 mix; 150 thick and all external wall openings will be provided with R.C.C. lintel-cum-sunshade, 1:1.5:3 mix, 150 thick and the sunshade will be 450 wide, 50 thick and 600 wide. R.C.C. lofts shall be provided in bed rooms and kitchen.
7. **Flooring** : The flooring will be in cement concrete 1:4:8, 130 thick and plastered smooth with cement mortar 1: 3, 2d thick for all the portions.
8. **Steps** : Steps will be in brick work in cement mortar 1:5 laid on a 800 x 150 cement concrete 1:4:8 footing. Rise 150, Tread 300.

Note

1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimetre.

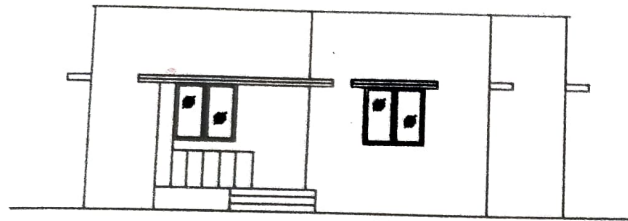
Draw to a suitable scale the following views with complete dimensions and details.

1. Plan at window sill level
2. Sectional elevation on 'ABCD'
3. Front elevation.

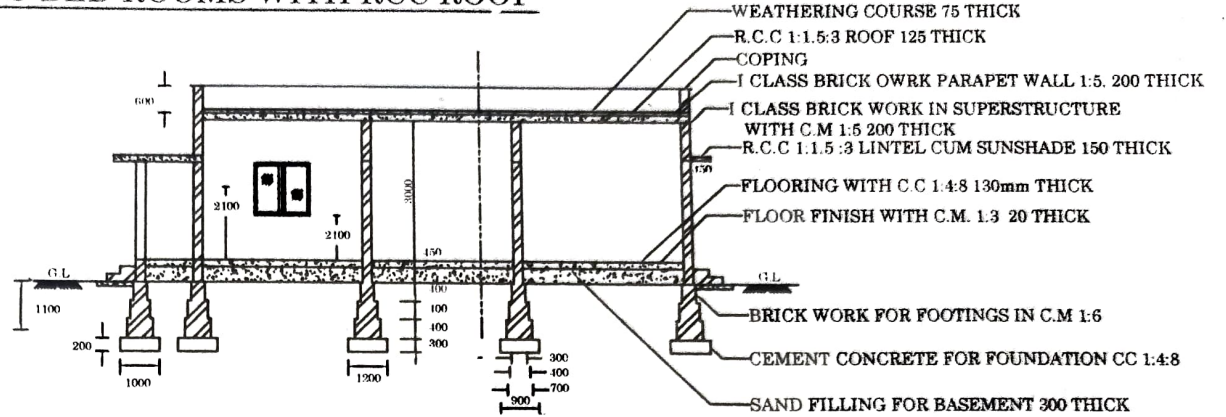
* * * * *

A RESIDENTIAL BUILDING WITH TWO BED ROOMS WITH RCC ROOF

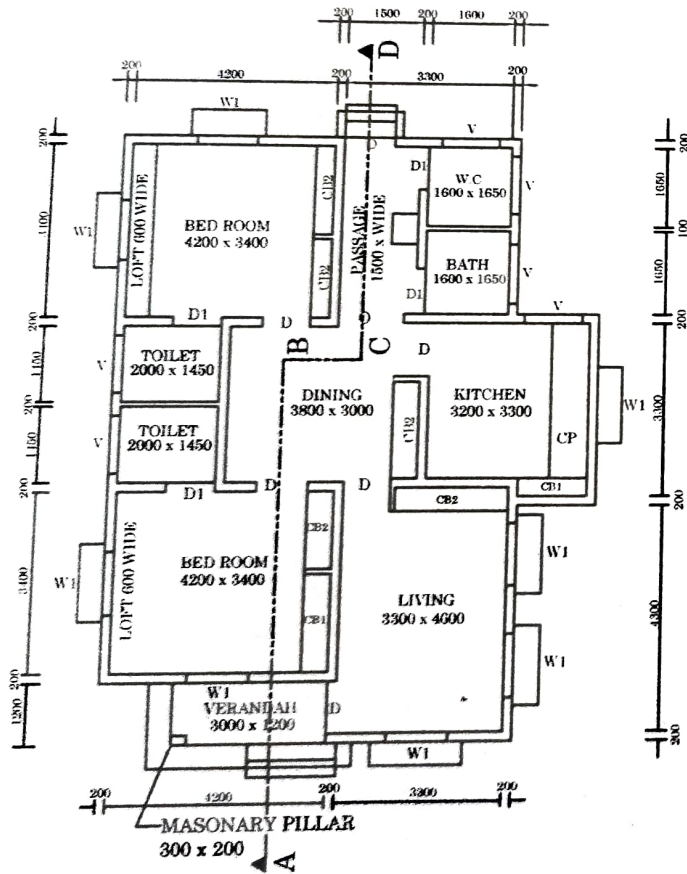
PLATE No - 13



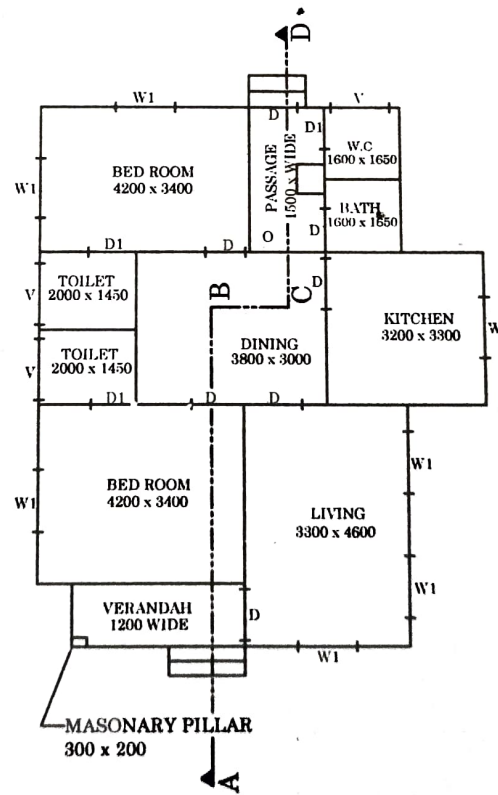
FRONT ELEVATION



SECTION ON ABCD



PLAN



LINE PLAN

REFERENCE		
TYPE	DESCRIPTION	SIZE
D1	FLUSH DOOR	1000 x 2100
D2	PANELLED DOOR	900 x 2100
W2	WINDOW (GLAZED)	1200 x 1200
V	VENTILATOR GLAZED	1200 x 450
O	OPENING	1200 x 2100
CB1	CUPBOARD	400 DEPTH
CB2	CUPBOARD	300 DEPTH
S	SHELF	200 DEPTH
STEPS:		
	RISE	150
	TREAD	300

All dimensions in mm
 NOT TO SCALE

PLATE NO. 14

HOUSE WITH SINGLE BED AND HALL WITH PARTLY TILED AND PARTLY R.C.C. FLAT ROOF

Specifications : The following specifications refer to the line plan of a house with single bed and hall with partly tiled and partly R.C.C. flat roof.

1. **Foundation :** The foundation for all main walls will be in cement concrete 1:4:8 mix, 1000 wide and 300 thick laid at 1100 below ground level. The masonry footing will be in brick work in cement mortar 1:5, first footing being 800 x 400 and the second being 600 x 400 for all main walls.
2. **Basement :** The basement will be in brick work in cement mortar 1:5, 400 thick above ground level for all main walls and is filled with clean earth to a depth of 300. A damp proof course, in cement mortar 1:3:20 thick will be provided for all walls at basement level.
3. **Superstructure :** All main walls will be in brick work in cement mortar 1: 5, using country bricks 200 thick. The height full wall in the terraced portion will be 3000 above floor level. The minimum height of wall in the tiled portion will be 2800 above floor level all other walls will be raised to suit the slope of the roof the partition walls in passage, bath and WC will be 100 thick in cement mortar, using country bricks and carried up to the height of the roof. All the walls including basement will be plastered smooth with cement mortar 1:4 externally and 1:6 internally for 12.5 thick. Parapet walls 200 thick and 600 high will be provided all-round the terrace.
4. **Roofing :** The roofing will be of R.C.C. 1 : 1.5 : 3 mix, 125 thick flat slab over study, bed, living and drawing rooms. A weathering course in brick jelly lime concrete plastered with combination mortar 1:5:9 mix, 75 thick will be provided over the slab. The roofing over other rooms will be with mangalore tiles laid on country wood reepers, 50 x 12.5, at 150 C/C. The reepers will be nailed to common rafters, 50 x 100, at 600 C/C. The pitch of roof will be 1600. The lower end of the roofing in kitchen and dining will be resting on wall purlin 100 x 150, placed on corbel stone 150 x 300 x 350 fixed in the main wall at a height of 2800 from floor level. The eaves projection will be 450 beyond the outer face of walls. Lime mortar border (1:3), 200 wide and 100 thick will

be provided at suitable spacing. A GI gutter will be provided at the junction of tiled roof and terraced roof wall.

5. **Doors, Windows etc.,**
- | | |
|----------------------------------------|---------------|
| D ₁ - Door fully panelled | : 1000 x 2100 |
| D ₂ - Door fully panelled | : 900 x 2100 |
| W ₁ - Window fully panelled | : 1200 x 1250 |
| V - Ventilator glazed | : 600 x 900 |
| O - Opening | : 1000 x 2100 |
| R - Racks | : 300 depth |
| S - Shelf | : 200 depth |
| CB - Cupboard | : 300 depth |

6. **Lintel :** All openings in the tiled portion and all internal wall openings in the terraced portion will be provided with R.C.C. lintel, 1:1.5:3 mix; 150 thick. All the external wall openings in the terraced portion will be provided with R.C.C. lintel-cum-sunshade, 1:1.5:3 mix, 150 thick and 450 wide, 50 thick and 600 wide R.C.C. 1:1.5:3, 10 fts will be provided in store, kitchen, bed room and study.
7. **Flooring :** The flooring will be in cement concrete 1 : 5 : 10, 130 plastered smooth with cement mortar 1:3.20 thick for all the portions.
8. **Steps :** Steps will be brick work in cement mortar 1: 5 laid on a 800 x 100 cement concrete 1:4:8 footing. Rise 150, Tread 300.

Note

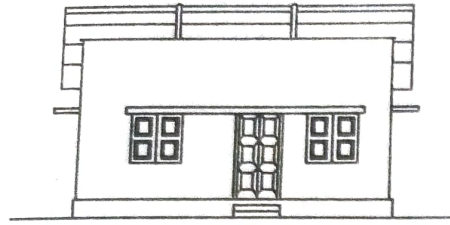
1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimeter.

Draw to a suitable scale (1:80), the following views with complete dimensions and details.

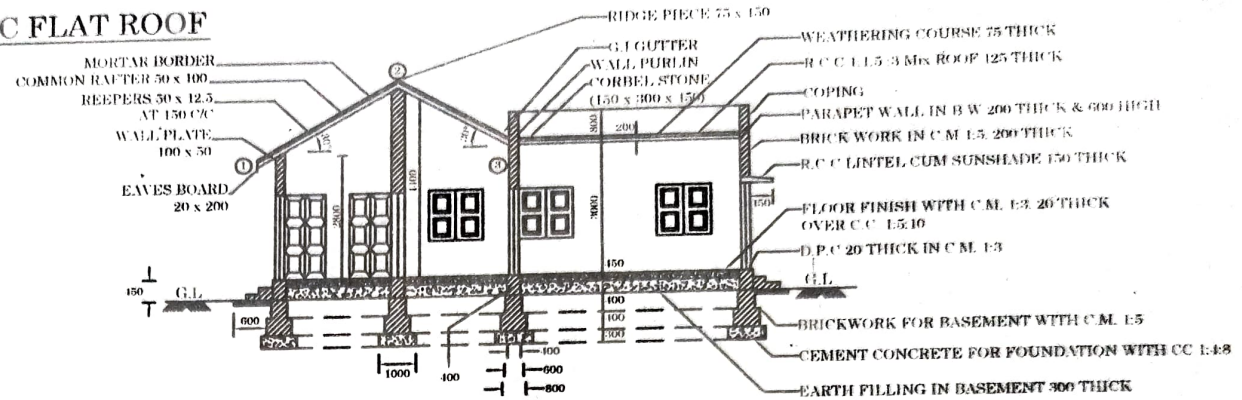
1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation.

* * * * *

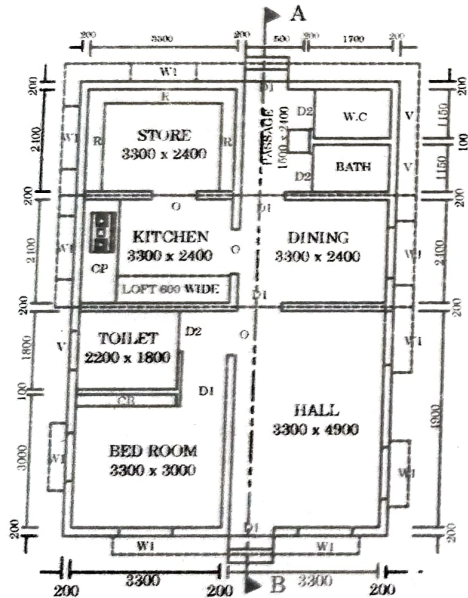
A HOUSE WITH SINGLE BED & HALL WITH PARTLY TILED AND PARTLY RCC FLAT ROOF



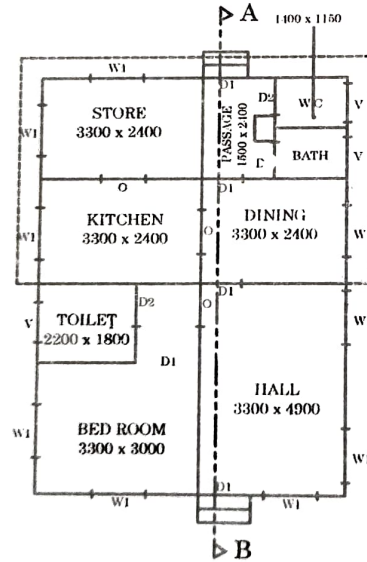
FRONT ELEVATION



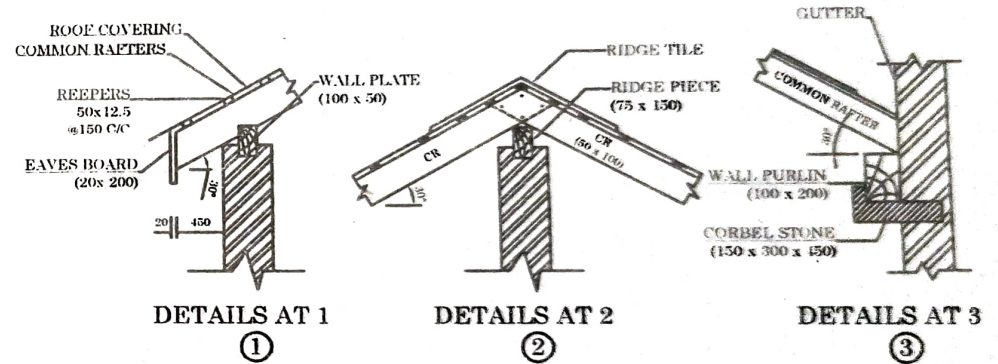
SECTION ON AB



PLAN



LINE PLAN



REFERENCE		
TYPE	DESCRIPTION	SIZE
D1	FLUSH DOOR	1000 x 2100
D2	PANELLED DOOR	900 x 2100
W1	PANELLED WINDOW	1200 x 1200
V	VENTILATOR GLAZED	900 x 600
CP	COOKING PLATFORM	750mm WIDTH
O	OPENING	1000 x 2100
R	RACKS	300 DEPTH
S	SHELF	200 DEPTH
CR	CUPBOARD	750 WIDTH
STEPS:		
	RISE	150
	TREAD	300

**All dimensions in mm
NOT TO SCALE**

PLATE NO. 15

A FULLY TILED GABLED HOUSE

Specifications : The following specifications correspond to the line plan of a fully tiled gabled house.

1. **Foundation :** The foundation for all main walls will be in plain cement concrete 1:4:8 mix, 800 x 200 laid at 1000 below ground level. The masonry footing will be in brick work in cement mortar 1:5. The first footing being 500 x 400 and the second being 400 x 400 for all main walls.
2. **Basement :** The basement will be in brick work in cement mortar 1:5, 300 x 450 above ground level for all walls and is filled with clean earth to a depth of 300. A damp proof course, in cement mortar 1: 3, 20 thick will be provided for all walls at basement level.
3. **Superstructure :** All main walls will be in brick work in cement mortar 1:5, 200 thick. The height of all walls will be 2700 and raised to suit the slope of the roof. The thickness of partition walls in WC and bath are 100 and are raised to suit the roof. All the walls including the basement shall be plastered smooth with cement mortar 1: 4 externally and 1:6 internally for 12.5 thick.
4. **Roofing :** The roofing for all the rooms will be with couple roof covered by mangalore tiles laid on country wood reepers, 50 x 12.5, at 150 centre to centre. The reepers will be nailed to common rafters, 50 x 100 at 750 centre to centre. The slope of roof will be 30°. The lower end of common rafters will be resting on wall plates, 150 x 100. The lower end of common rafters will be fixed with eaves board, 25 x 200. The eaves projection will be 450 beyond the outer face of walls.. Lirne mortar borders (1 : 3), 200 wide and 150 thick will be provided at suitable spacing.

5. **Doors, Windows etc.,**

D ₁	- Flush door	:	1900 x 2100
D ₂	- Panelled door	:	900 x 2100
W ₁	- Glazed window	:	900 x 1200
W ₂	- Glazed window	:	1200 x 1200
V	- Ventilator	:	600 x 450
O	- Opening	:	1000 x 2100
CB	- Cupboard	:	300 depth
S	- Shelf	:	200 depth
CP	- Cooking Platform	:	750 mm width

6. **Lintel :** All the openings will be provided with 150 thick R.C.C. 1:1.5:3 mix lintels. Lofts 75 thick and 600 wide will be provided in bed room and kitchen.
7. **Flooring :** The flooring will be in cement concrete 1: 5:10 mix, 130 thick and finished smooth with cement plaster using cement mortar 1: 3, 20 thick for all the rooms.
8. **Steps :** Steps will be in brick work in cement mortar 1:5 mix, laid on cement concrete footing 1:5:10 mix, 100 thick. Rise will be 150 and the tread 300.

Note

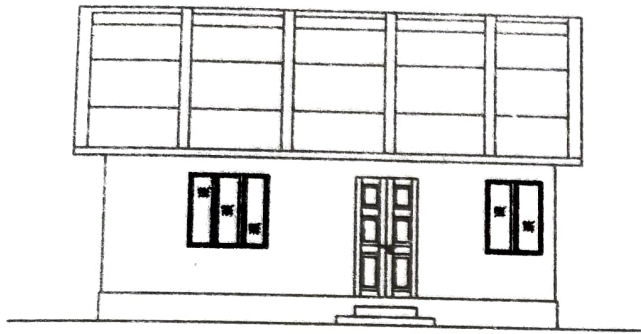
1. Any other data found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimetre.

Draw to a suitable scale (1:50), the following views with complete dimensions and details.

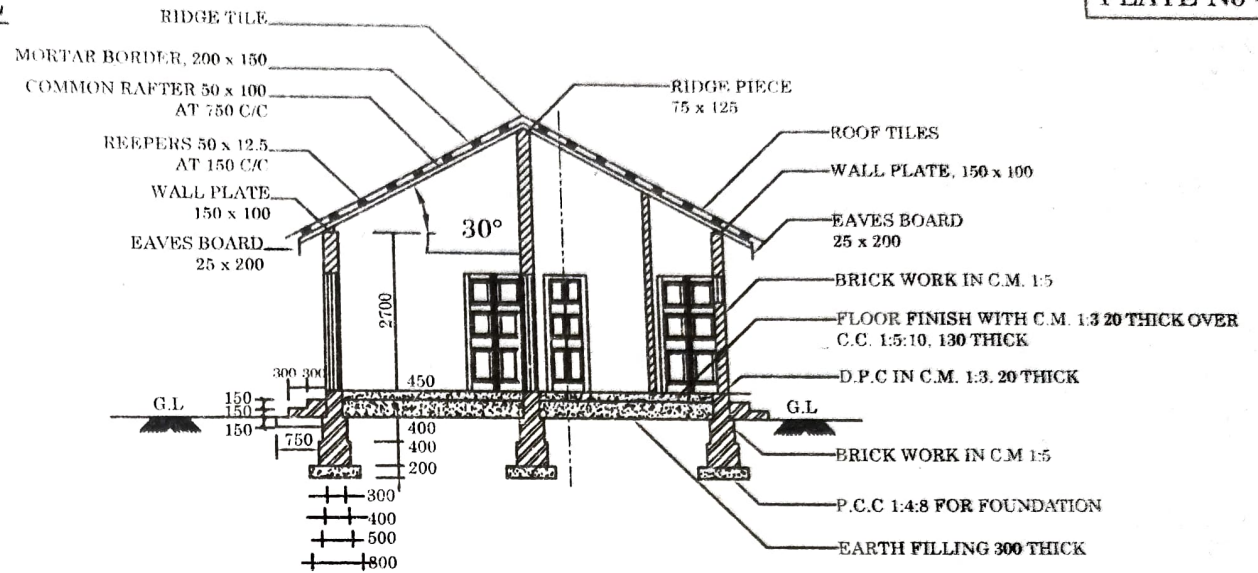
1. Plan at window sill level
2. Sectional elevation on 'ABCD'
3. Front elevation.

* * * * *

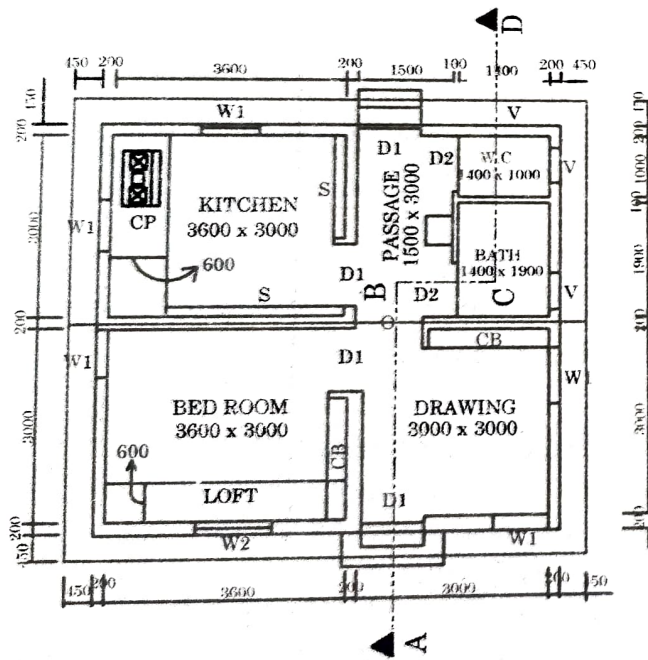
A FULLY TILED GABLED HOUSE



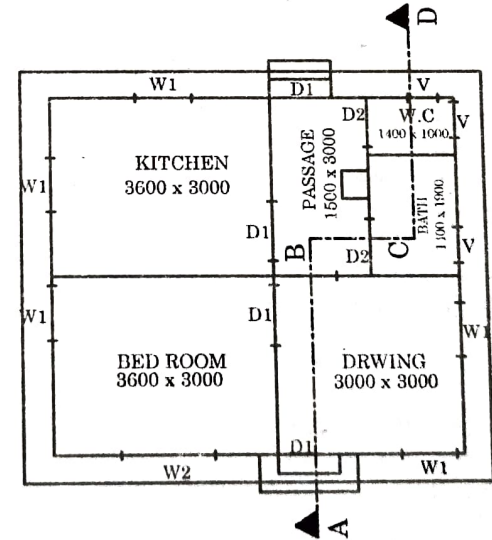
FRONT ELEVATION



SECTION ON ABCD



PLAN



LINE PLAN

REFERENCE		
TYPE	DESCRIPTION	SIZE
D1	PANELLED DOOR	1000 x 2100
D2	PANELLED DOOR	900 x 2100
W1	GLAZED WINDOW	900 x 1200
W2	GLAZED WINDOW	1000 x 1200
V	VENTILATOR	600 x 450
O	OPENING	1000 x 2100
CB	CUPBOARD	300 DEPTH
S	SHELF	200 DEPTH
CP	COOKING PLATFORM	750 WIDTH
STEPS:		
	RISE	150
	TREAD	300
	SLOPE OF ROOF	30°

All dimensions in mm
NOT TO SCALE

PLATE NO. 16

A HOUSE WITH FULLY TILED ROOF WITH HIPS AND VALLEYS

Specifications : The following specifications correspond to the line plan of a house with fully tiled roof with hips and valleys.

1. **Foundation :** The foundation for all main walls will be in cement concrete 1:5; 10 mix, 900 wide and 200 thick, laid 600 below ground level. The masonry footings will be in random rubble masonry in cement mortar 1:5, size 600 x 400 for all walls.
2. **Basement :** The basement will be random rubble masonry in cement mortar 1:5, 400 x 450 above ground level for all walls and is filled with earth filling, 300 thick, a damp proof course, in cement mortar 1:3, 20 thick will be provided for all walls at basement level.
3. **Superstructure :** All main walls will be in brick work in cement mortar 1:5, 200 thick. The partition wall in between bath and water closet will be in brick work in cement 1:5, 100 thick. All the walls will be raised to suit the slope of the roof. Partition walls will be built over flooring concrete. The height of main walls will be 2400 above floor level. All the walls including the basement will be plastered smooth with cement mortar 1 : 4 externally and 1 : 6 internally for 12.5 thick.
4. **Roofing :** Couple roof will be provided for all rooms. The roofing for all the rooms will be with niangalore tiles laid on reepers, 50 x 12.5, at 150 c/c. The reepers will be nailed to common rafters, 50 x 100 spaced at 600 C/C. The pitch of roof will be 1/3 span. The lower end of common rafters will be resting on wall plates, 150 x 100. Eaves boards, 25 x 200 will be nailed to the bottom end of common rafters. The eaves projections will be 450 from the face of walls. Suitable lime mortar borders, 200 x 150 will be provided.

5. Doors, Windows etc.,

D ₁	- Flush door	: 1100 x 2000
D ₂	- Panelled door	: 900 x 2000
O	- Opening	: 1200 x 2000
W ₁	- Panelled window	: 1500 x 1200
W ₂	- Panelled window	: 1000 x 1200
W ₃	- Panelled window	: 1000 x 1200
V	- Ventilator with glass louvres	: 900 x 500

6. **Lintel :** All openings will be provided with 150 thick R.C.C. 1 : 1.5 : 3 mix lintels. **Flooring:** The flooring will be in cement concrete 1:5: 10 mix, 130 thick and the top finished smooth with cement mortar 1 : 3, 20 thick plaster for all the rooms.
7. **Steps :** Steps will be in brick work in cement mortar 1:5 mix, laid on 800 x 100 cement concrete 1 : 5 : 10 mix footing, Rise = 150. Tread = 300.

Note

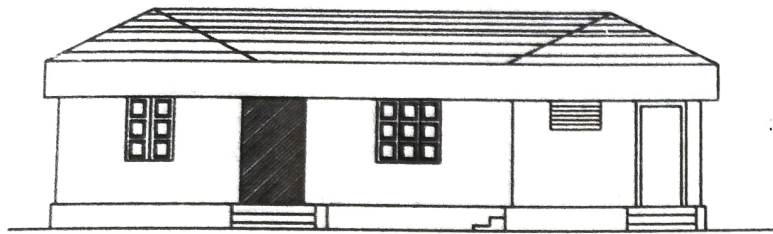
1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimetres.

Draw to a suitable scale the following views with complete dimensions and details.

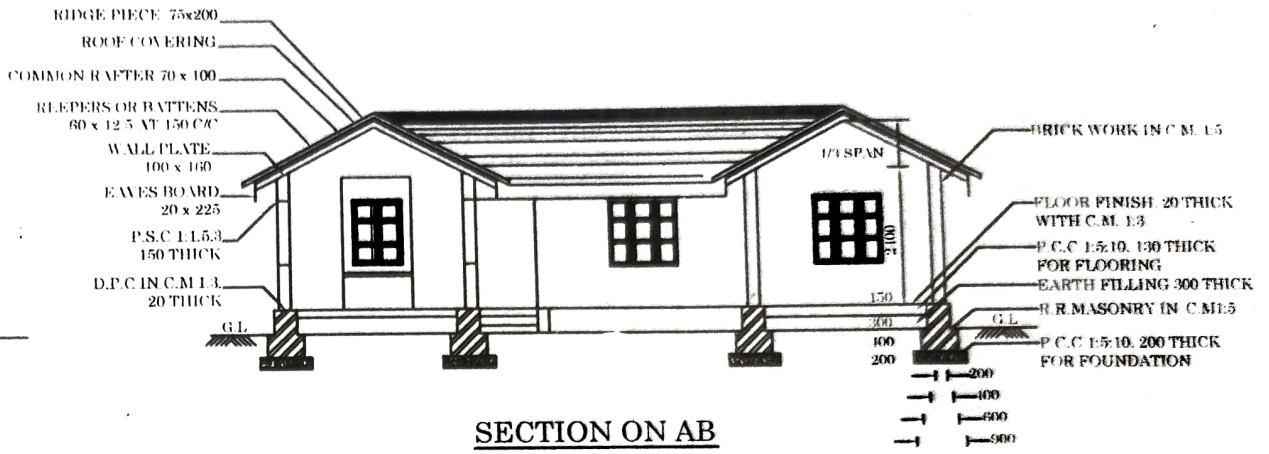
1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation.

* * * * *

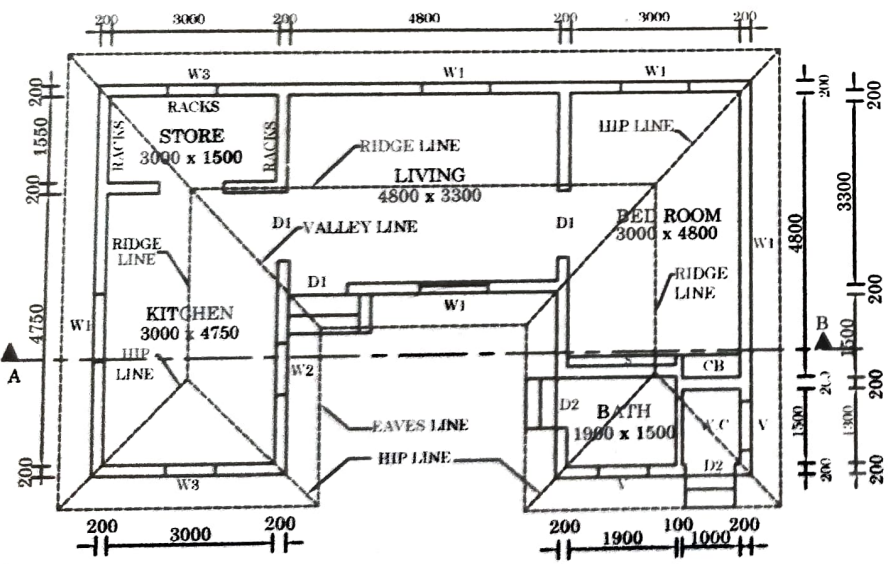
A FULLY TILED HOUSE WITH HIPS & VALLEYS



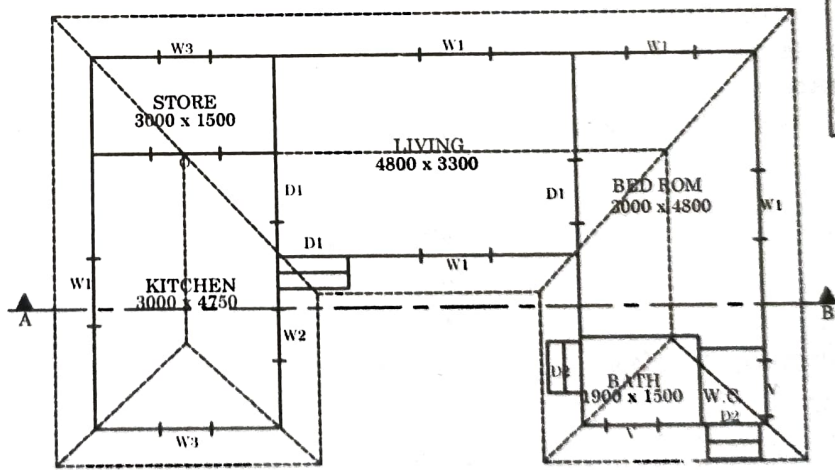
FRONT ELEVATION



SECTION ON AB



PLAN



LINE PLAN

REFERENCE		
TYPE	DESCRIPTION	SIZE
D1	FLUSH DOOR	1100 x 2100
D2	FLUSH DOOR	900 x 2000
O	OPENING	
W1	PANELLED WINDOW	1800 x 1200
W2	PANELLED WINDOW	1200 x 1200
W3	PANELLED WINDOW	900 x 1200
V	VENTILATOR WITH GLASS LOUVERS	900 x 300
<u>STEPS:</u>		
	RISE	150
	TREAD	300
	PITCH	1/3 SPAN

All dimensions in mm
NOT TO SCALE

WORKSHOP BUILDING WITH STEEL ROOF TRUSS

Specifications : The following specifications correspond to the line plan of a workshop building with steel flat roof

1. **Foundation** : The foundation for all main wall will be in cement concrete 1:5:10 mix, 900 x 200 thick, laid at 600 below ground level. The masonry footing will be in brick work in cement mortar 1:5, 500 wide and 400 thick for all walls.

2. **Basement** : The basement will be in brick work in cement mortar 1:5, 400 x 450 thick above ground level for all walls and is filled with earth, 300 thick.

3. **Superstructure** : All the pillars, 300 x 300 and 4000 high at 3000 C/C will be in brick work in cement mortar 1:5, for 4000 high. All the walls and the pillars including the basement will be plastered smooth with cement mortar 1:4 externally and 1:5 internally for 12.5 thick.

4. **Roofing** : The roofing will be of asbestos cement sheet laid on steel truss as designed. The trusses will be spaced at 3000 centre to centre. They are 5 bays. Eaves projections will be 600 beyond the outer face of walls.

5. **Doors, Windows etc.,**

RS	Rolling shutter	: 3000 x 2400
D ₁	Steel door	: 1000 x 2000
D ₂	Steel door	: 800 x 2000
W ₁	Fixed glazed peeping window	: 1500 x 1450
W ₂	Glazed window	: 1000 x 1200
V	Glazed Ventilator	: 1000 x 500

6. **Lintel** : All external wall openings will be provided with R.C.C. 1:1.5:3 mix, lintel-cum-sunshade, 150 thick and 600

wide. All internal wall openings will be provided with 150 thick R.C.C. 1:1.5:3 mix lintels.

7. **Flooring** : The flooring will be in cement concrete 1:3:6 mix, 130 thick, and the top plastered smooth with cement mortar 1:3, 20 thick for all the portions.

8. **Steps** : Steps will be in brick work in cement mortar 1:5 mix, on 500 x 3700, 150 thick cement concrete 1:5:10 mix footing. Rise = 150. Tread = 300. Ramp in cement concrete 1:4:8, 3000 x 2000 will be provided.

The accommodation consists of the following :

i.	Manager room	: 2800 x 2800
ii.	Office	: 2800 x 4300
iii.	Toilets	: 2800 x 1800
iv.	Verandah	: 1800 wide
v.	Workshop	: 11800 x 9100

Note

1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimetre.

Draw to a suitable scale, (1:80), the following views with complete dimensions and details.

1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation

• • • • •

PLATE NO. 22
PRIIARY HEALTH CENTRE FOR RURAL AREA WITH
R.C.C. ROOF

Specifications : The following specifications correspond to the Plan of a primary health centre for rural area with R.C.C. roof.

1. **Foundation** : The foundation for all main walls will be in cement concrete 1:4:8 mix, 1100 wide and 300 thick, laid at 1200 below ground level. The masonry footings will be in brick work in cement mortar 1:6, the first footing being 800 x 500 and the second being 500 x 400 for all main walls and verandah retaining wall.
2. **Basement** : The basement will be in brick work in cement mortar 1:5, 300 wide and 450 thick above ground level for all main walls and verandah retaining wall. It is filled with clean sand to a depth of 300. A damp proof course, in cement mortar 1:3, 20 thick will be provided for all walls at basement level.
3. **Superstructure** : All main walls will be in brick work in cement mortar 1:5, using stock bricks 200 thick. The height of all main walls will be 3600 above floor level. The partition walls in toilets will be 100 thick in brick work in cement mortar 1:5, using first class bricks and carried up to a height of 2500. Masonry pillars in brick work in cement mortar 1:5, using first class bricks, 300 * 200 will be provided in the verandah. R.C.C. beams 1:1.5:3 mix, 200 x 300 will be provided over the pillars. Parapet walls 200 thick and 600 high will be provided all-round. All the walls including basement will be plastered smooth with cement mortar 1:5 externally and 1:6 internally for 12.5 thick.
4. **Roofing** : The roofing will be of R.C.C. 1:1.5:3 mix, 150 thick flat slab. A weathering course 7.5 thick, consisting of two courses of flat tiles set in cement

mortar 1:3 mixed with crude oil will be provided over the slab.

D	- Flush door	: 1100 x 2100
D ₁	- Panelled door	: 900 x 2100
O	- Opening	: 1200 x 2100
W ₁	- Window glazed	: 1500 x 1200
W ₂	- Window glazed	: 1000 x 1200
V	- Ventilator (glazed louvres)	: 1000 x 450
C	- Counter	: 600 x 750
CG	- Collapsible gate	: 3000 x 2100

6. **Lintel** : All internal wall openings will be provided with R.C.C. lintel 1:1.5:3 mix, 150 thick and all external wall openings will be provided with lintel - cum - sunshade 1:1.5:3 mix, 150 thick.
7. **Flooring** : The flooring will be in cement concrete 1:4:8, 130 thick, the top plastered smooth with cement mortar 1:3, 20 thick for all the portions.
8. **Steps** : Steps will be in brick work in cement mortar 1:5 on a 800 x 150 cement concrete 1:4:8 footing. Rise = 200. Tread = 300.

Note:

1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimeter.

Draw to a suitable scale, (1:100) the following views with complete dimensions and details.

1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation.

* * * * *

PLATE NO. 18

A LIBRARY BUILDING WITH R.C.C. FLAT ROOF

Specifications : The following specifications correspond to the line plan of a library with R.C.C. flat roof.

1. **Foundation** : The foundation for all main walls will be in cement concrete 1:4:8 mix, 1200 wide and 200 thick, laid at 1600 below ground level. The masonry footings will be in brick work in cement mortar 1:5, the first footing being 900 x 400, the second being 700 x 500 and the third being 600 x 500 for all main walls and verandah retaining wall.
2. **Basement** : The basement will be in brick work in cement mortar 1:5, 200 wide and 600 thick above ground level for all main walls and verandah retaining walls. It is filled with clean sand to a depth of 450. A damp proof course, in cement mortar 1:3, 20 thick will be provided for all walls at basement level.
3. **Superstructure** : All main walls will be in brick work in cement mortar 1:5, using stock bricks 200 thick. The height of all main walls will be 3600 above floor level. The partition walls in toilets will be 200 thick in brick work in cement mortar 1:5, using first class bricks. Parapet walls 200 thick and 600 high will be provided all-round. All the walls including basement will be plastered smooth with cement mortar 1:4 externally and 1:6 internally for 12.5 thick.
4. **Roofing** : The roofing will be partly of R.C.C. 1:1.5:3 mix, 150 thick flat slab. A weathering course 7.5 thick, consisting of two courses of flat tiles set in cement mortar 1:3 mixed with crude oil will be provided over the slab.

5. Doors, Windows etc.,	1100 x 2100
D ₁ - Flush door:	
D ₂ - Panelled door	: 1000 x 2100
W ₁ - Window glazed	: 1200 x 1200
W ₂ - Window glazed	: 1500 x 1200
V - Ventilator glazed	: 600 x 450
C - Counter	: 2200 x 1500
J - R.C.C. jolly work	: 2200 x 1800

6. **Lintel** : All internal wall openings will be provided with R.C.C. lintel 1:1.5:3 mix, 150 thick and all external wall openings will be provided with lintel-cum-sunshade 1:2:4 mix, 150 thick.
7. **Flooring** : The flooring will be in cement concrete 1:5:10, 130 thick, the top plastered smooth with cement mortar 1:3, 20 thick for all the portions.
8. **Steps** : Steps will be in brick work in cement mortar 1:5, on a 1400 x 150 cement concrete 1:4:8 footing. Rise = 150. Tread = 250.

Note

1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimetre.

Draw to a suitable scale, the following views with complete dimensions and details.

1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation

* * * * *

A RESTAURANT BUILDING WITH R.C.C. FLAT ROOF

Specifications : The following specifications correspond to the line plan of a restaurant with R.C.C. flat roof.

1. **Foundation :** The foundation for all main walls will be in cement concrete 1:4:8 mix, 1400 wide and 300 thick, laid at 1500 below ground level. The masonry footings will be in brick work in cement mortar 1:6, the first footing being 1000 x 400, the second being 700 x 400 and the third being 400 x 400 for all walls.
2. **Basement :** The basement will be in brick work in cement mortar 1:6, 300 x 450 above ground level for all walls and is filled with clean earth to a depth of 300. A damp proof course, in cement mortar 1:3, 20 thick will be provided for all walls at basement level.
3. **Superstructure :** All main walls will be in brick work in cement mortar 1:5, 200 thick. The height of all main walls will be 3000 above floor level. The partition walls will be 100 thick in brick work in cement mortar 1:5, for 2200 high, constructed over the flooring concrete. All the walls including basement shall be plastered smooth with cement mortar 1:3 externally and 1:6 internally and 12.5 thick. Parapet walls 200 thick and 450 high will be provided in cement mortar 1:5 all round.
4. **Roofing :** The roofing shall be of R.C.C. 1:2:4 mix, 150 thick flat slab over the rooms. A weathering course 7.5 thick, consisting of two courses of flat tiles set in cement mortar 1:3 mixed with crude oil will be provided over the slab.

5. Doors, Windows etc.,	
D ₁ - Rolling steel shutter	2000 x 2200
D ₂ - Flush door	1200 x 2200
D ₃ - Door glazed	1400 x 2200
D ₄ - Door panelled	800 x 1800
D ₅ - Door panelled	800 x 1200
D ₅ - Half door glazed	1400 x 1450
W ₁ - Window glazed	1000 x 1450
W ₂ - Window glazed	1100 x 300
V ₁ - Ventilator glazed	5000 x 1450
J - R.C. jolly works	1200 x 2200
O - Opening	

6. **Lintel :** All internal wall openings will be provided with R.C.C. lintel 1:1.5:3 mix, 150 thick and all external wall openings will be provided with lintel-cum-sunshade 1:2:4 mix, 150 thick.
7. **Flooring :** The flooring will be in cement concrete 1:5:10, 130 thick, the top plastered smooth with cement mortar 1:3, 20 thick for all the portions.
8. **Steps :** Steps will be in brick work in cement mortar 1:5, on a 1400 x 150 cement concrete 1:4:8 footing. Rise = 150. Tread = 250.

Note

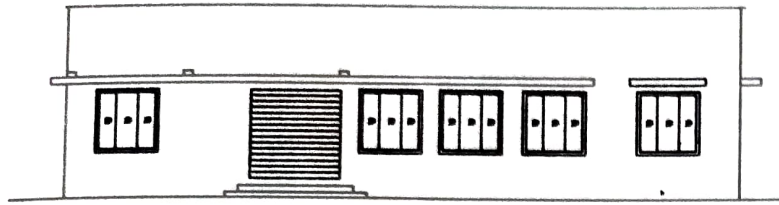
1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimetre.

Draw to a suitable scale, the following views with complete dimensions and details.

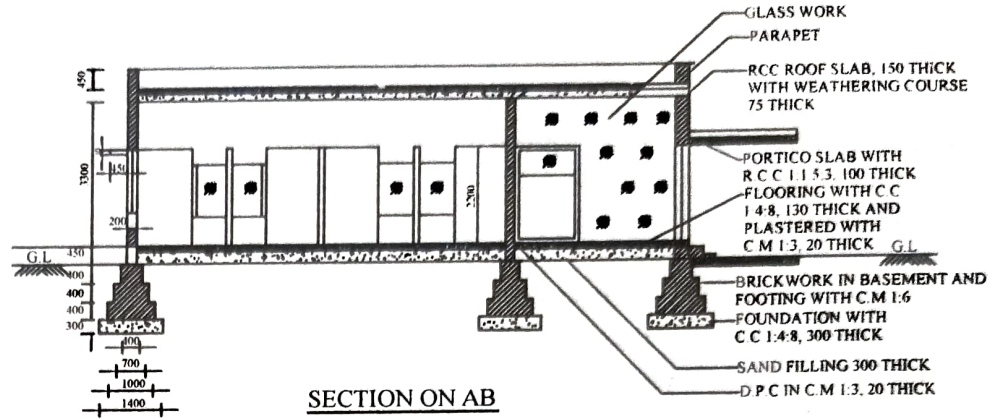
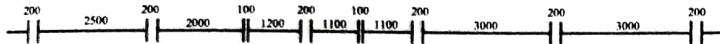
1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation

* * * * *

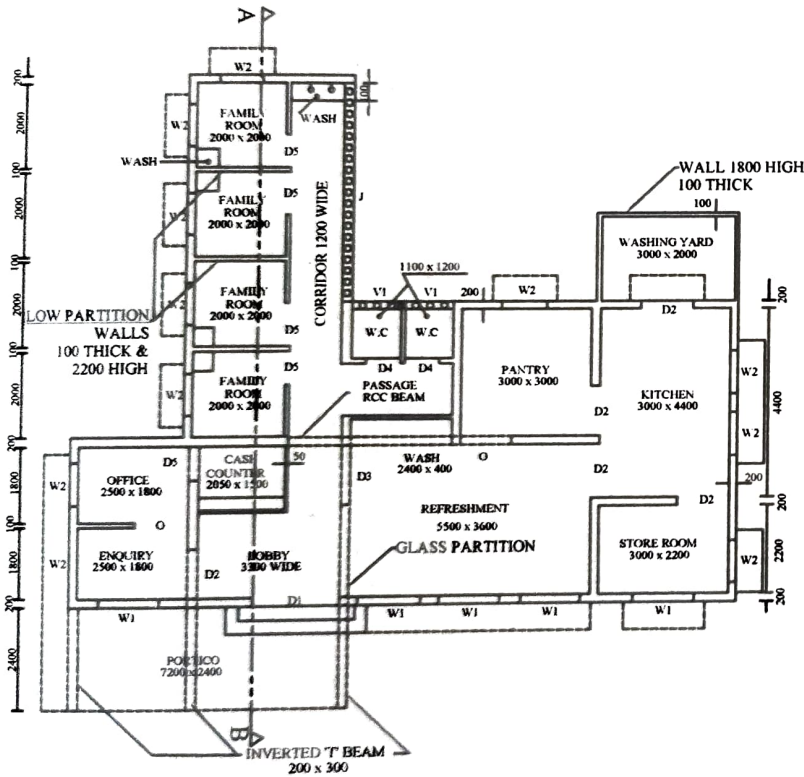
A RESTAURANT



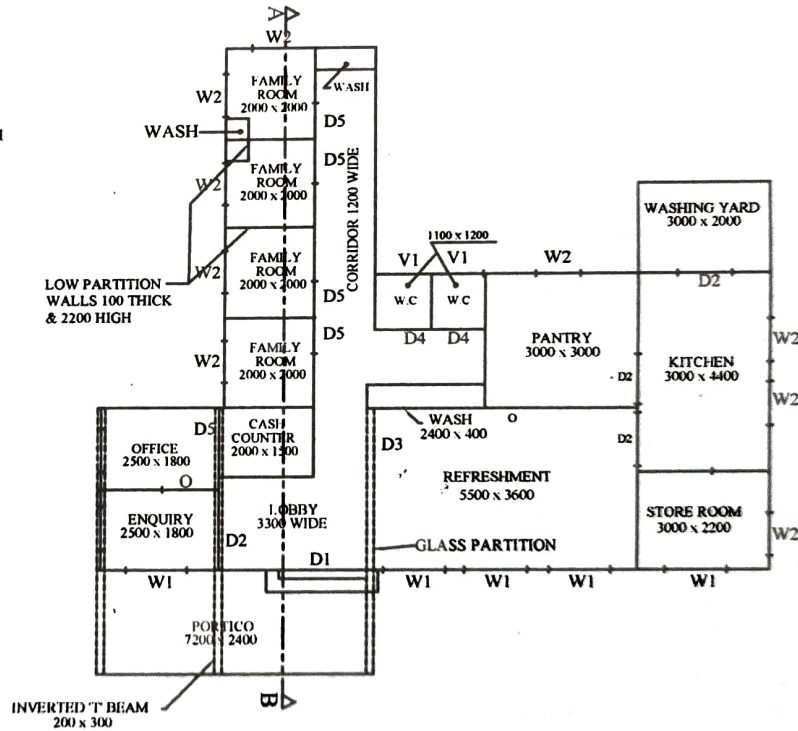
FRONT ELEVATION



SECTION ON AB



PLAN



LINE PLAN

REFERENCE		
TYPE	DESCRIPTION	SIZE
D1	ROLLING STEEL SHUTTER	2000 x 2200
D2	FLUSH DOOR	1200 x 2200
D3	DOOR GLAZED	1400 x 2200
D4	DOOR PANNELLED	800 x 1800
D5	HALF DOOR GLAZED	800 x 1200
W1	WINDOW (GLAZED)	1400 x 1450
W2	WINDOW (GLAZED)	1000 x 1450
V1	VENTILATOR GLAZED	1100 x 300
J	RC JOLLY WORK	5000 x 1450
O	OPENING	1200 x 2200
STEPS:		
	RISE	150
	TREAD	300

All dimensions in mm
NOT TO SCALE

PLATE NO. 20

A SINGLE STOREYED SCHOOL BUILDING WITH R.C.C. FLAT ROOF

Specifications : The following specifications correspond to the line plan of a Single storeyed school building with R.C.C. flat roof.

1. **Foundation** : The foundation for all main wall will be in cement concrete 1:4:8 mix, 1000 wide and 300 thick, laid at 1100 below ground level. The masonry footing will be in brick work in cement mortar 1:6. The first footing being 700 x 400 and the second being 500 x 400 for all walls and verandah retaining walls.
2. **Basement** : The basement will be in brick work in cement mortar 1:6, 200 wide and 600 thick above ground level for all main walls and is filled with clean sand to a depth of 300. A damp proof course in cement mortar 1 :3, 20 thick will be provided for all walls at a basement level.
3. **Superstructure** : All walls will be in brick work in cement mortar 1:5, using first class bricks, 200 thick. The height of main walls will be 3600 above floor level. The partition wall in WC and bath will be in 100 thick in brick work in cement mortar 1:5, using country bricks. All the walls including basement will be plastered smooth with cement mortar 1:4 externally and 1:6 internally for 12.5 thick, Parapet walls 200 thick and 600 high will be provided all round.
4. **Roofing** : The roofing will be of R.C.C. 1:2:4 mix, 150 thick flat slab over the rooms and verandah. A weathering course

100 thick, consists of two course of flat tiles set in cement mortar 1: 3 mixed with crude oil will be provided over the slab.

5. **Doors, Windows etc.,**

D ₁	- Flush door	: 1200 x 2200
D ₂	- Panelled door	: 800 x 2000
W	- Glazed window	: 1500 x 1450
V	- Ventilator	: 800 x 300
C.G.	- Collapsible gate	: 2000 x 2200

6. **Lintel** : All external wall openings will be provided with 150 thick R.C.C. 1:2:4 mix, lintel-cum-sunshade, and will be 450 wide. All internal wall openings will be provided with 150 thick R.C.C. 1:2:4J mix lintels.

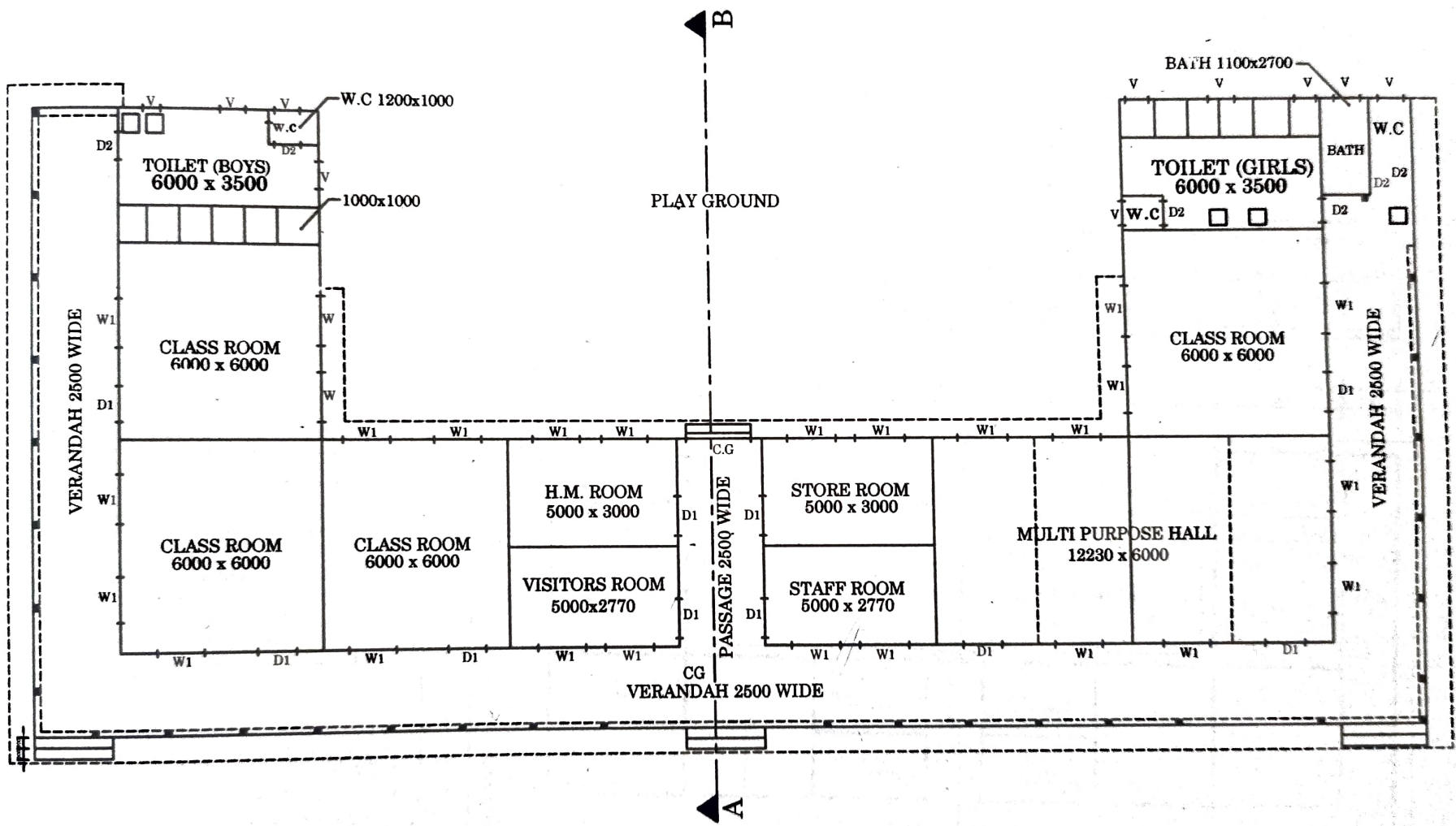
Note

1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimeters.

Draw to a suitable scale, (1:80), the following views with complete dimensions and details.

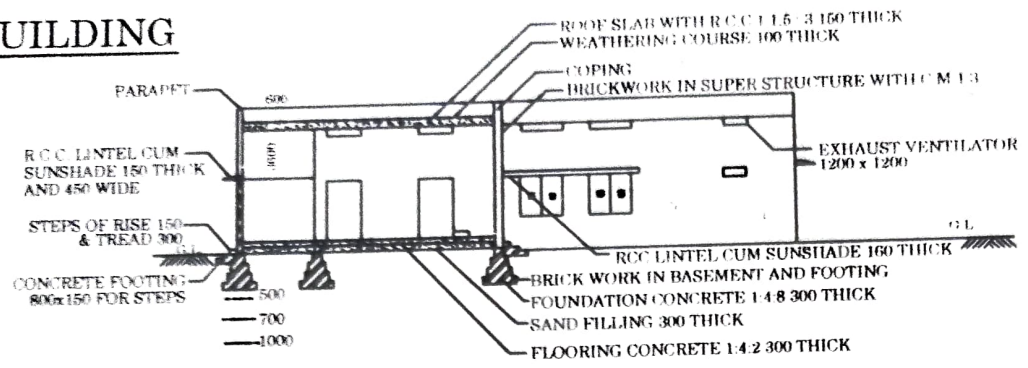
1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation

* * * * *

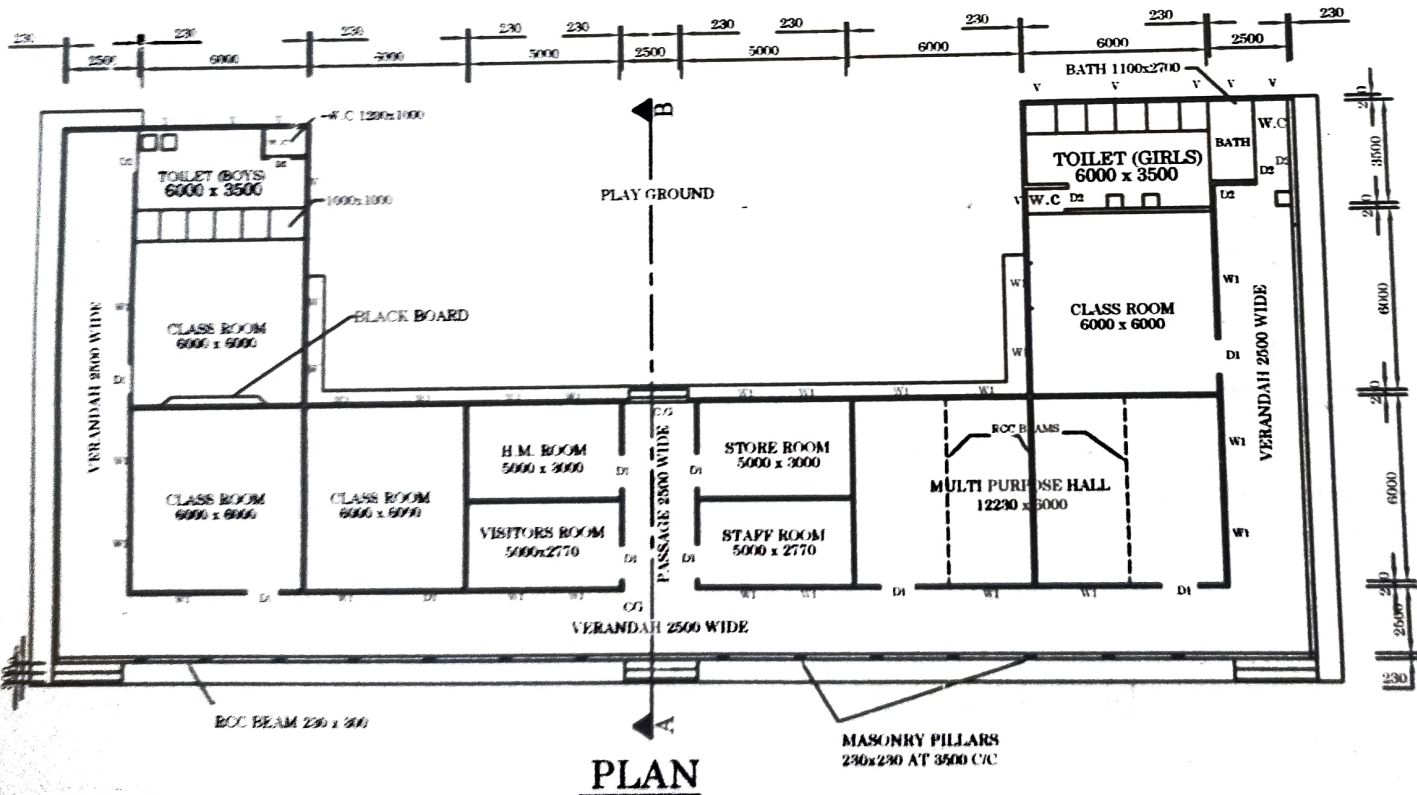
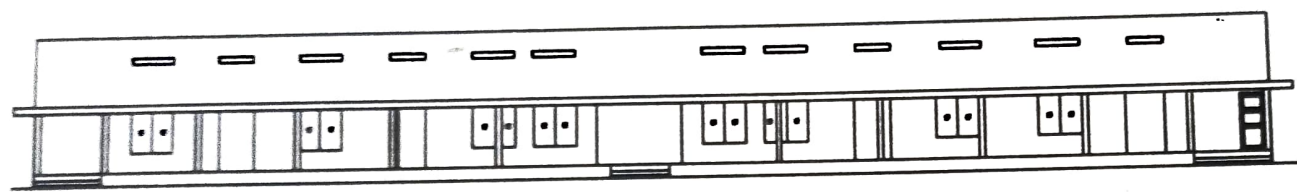


LINE SKETCH

A SCHOOL BUILDING



SECTION ON AB



PLAN

REFERENCE		
TYPE	DESCRIPTION	SIZE
D1	FLUSH DOOR	1200 x 2200
D2	PANELLED DOOR	800 x 2000
W1	WINDOW GLAZED	1500 x 1450
V	VENTILATOR	800 x 300
C.G.	COLLAPSIBLE DOOR	2200 x 1500
STEPS:		
	RISE	150
	TREAD	300

**All dimensions in mm
NOT TO SCALE**

BANK BUILDING WITH RCC ROOF

Specifications :

The following specifications correspond to the line plan of a Bank Building with R.C.C. Roof.

1. **Foundation** : The foundation for all main wall will be in plain cement concrete 1:4:8 mix, 1400 wide and 300 thick, laid at 1500 below ground level. The masonry footings will be in brick work in cement mortar 1:6. The first footing being 1000 x 400, the second being 700 x 400 and the third being 400 x 400 for all walls.
2. **Basement** : The basement will be in brick work in cement mortar 1:6, 300 x 450 above ground level for all walls and is filled with clean earth to a depth of 300. A damp proof course in cement mortar 1:3, 20 thick will be provided for all walls at basement level.
3. **Superstructure** : All walls will be in brick work in cement mortar 1:5, 230 thick. The height of all walls will be 3000 above floor level. The partition walls will be 100 thick in brick work in cement mortar 1:5, for 3050 high, constructed over the flooring concrete. All the walls including basement shall be plastered smooth with cement mortar 1:3 externally and 1:6 internally for 12.5 thick. Parapet walls 230 thick and 600 high will be provided in cement mortar 1:5 all around.
4. **Roofing** : The roofing shall be of R.C.C. 1:1.5:3 mix, 150 thick slab over the rooms. A weathering course in brick jelly lime, concrete and plastered with combination mortar 1:5:9 mix, 75 thick shall be provided over the slab.

5. Doors, Windows, etc.,

MD	- Main Door	- 4000 x 2100
D	- Door	- 1000 x 2100
D ₁	- Door 1	- 900 x 2100
O	- Opening	- 900 x 2100
W	- Window	- 900 x 2100
V	- Ventilator	- 1000 x 600
CD	- Collapsible Door	- 4500 x 1200

6. **Lintel** : All internal wall openings will be provided with RCC lintel 1:1.5:3 mix, 150 thick and all external wall openings will be provided with R.C.C. lintel-cum sunshade 1:2:4 mix, 600 wide and 150 thick.
7. **Flooring** : The flooring will be in cement concrete 1:4:8, 130 thick, plastered smooth with cement mortar 1:3, 20 thick for all the portions.
8. **Steps** : Steps will be in brick work in cement mortar 1:5, laid on 800 x 150 cement concrete 1:4:8 footing, Rise = 180, Tread = 300.

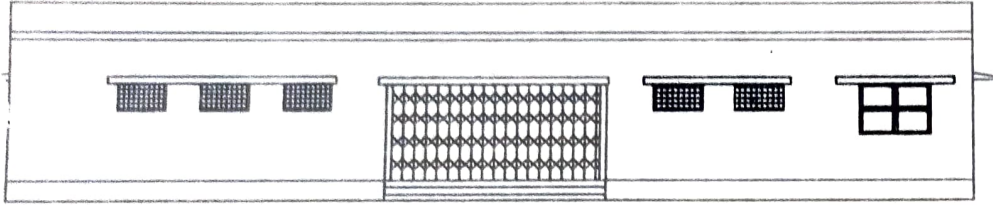
Notes:

1. Any other dimensions found necessary may be assumed suitably making clear indications of the same.
2. All dimensions indicated are in millimeters.

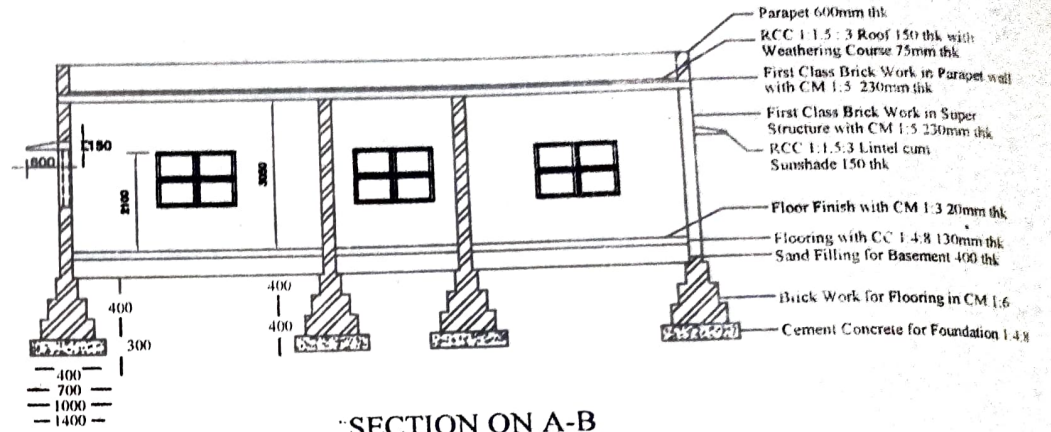
Draw to a suitable scale, the following views with complete dimensions and details.

1. Plan at window sill level
2. Sectional elevation on 'AB'
3. Front elevation

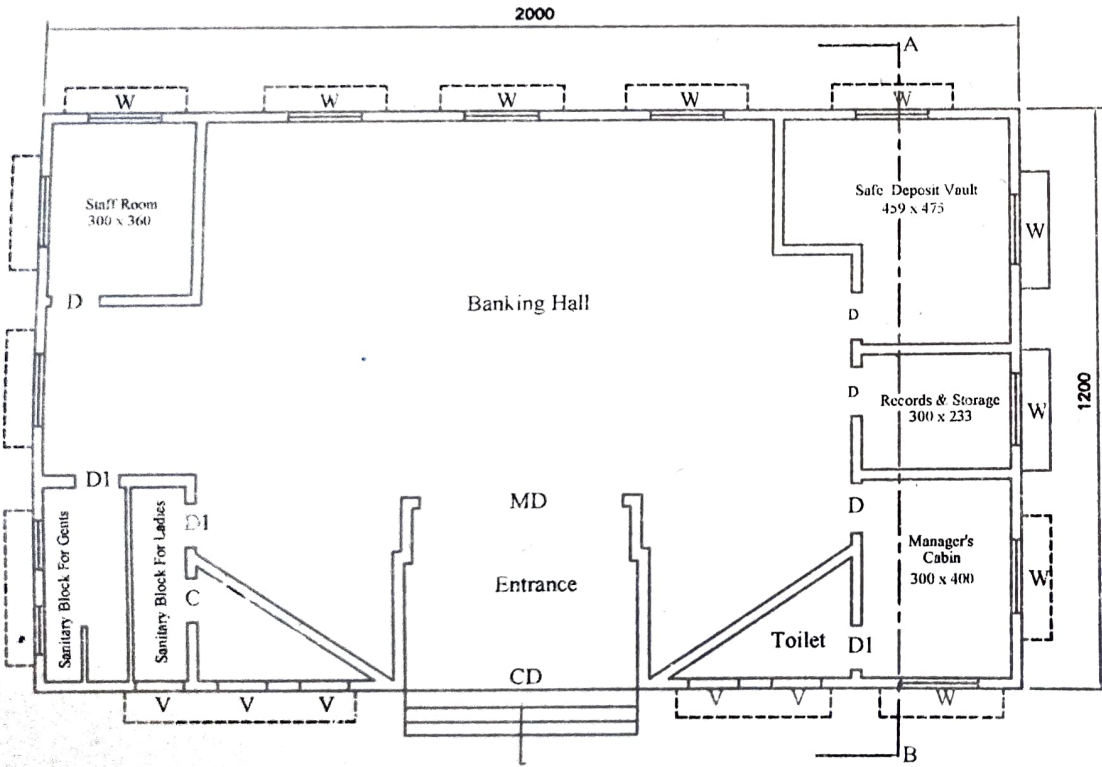
* * * * *



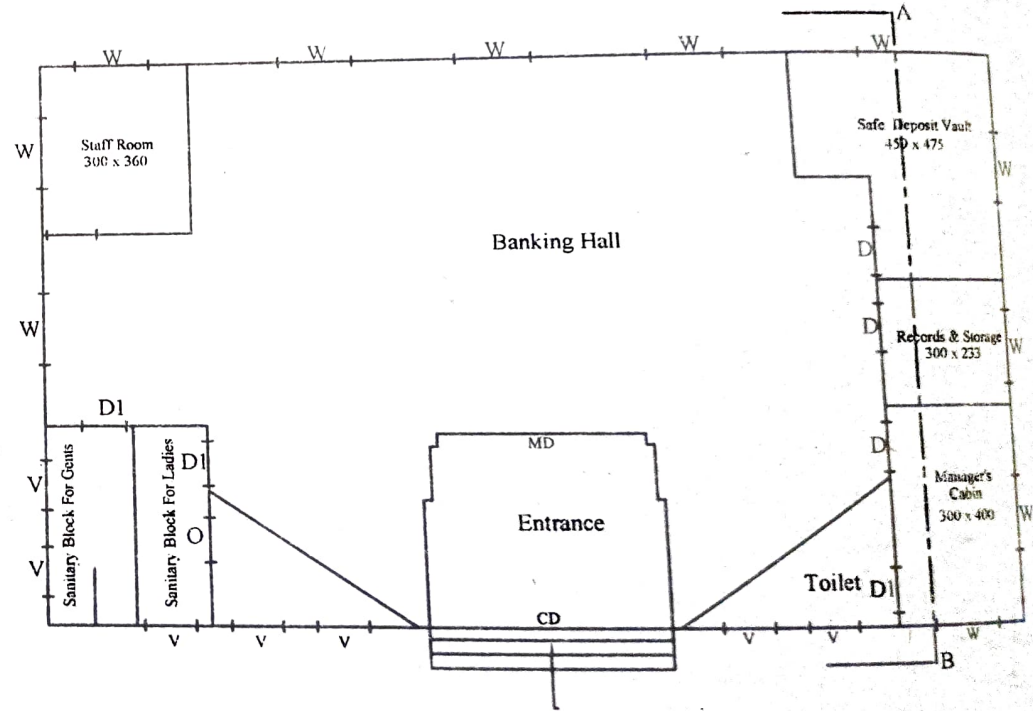
ELEVATION



SECTION ON A-B



PLAN



LINE PLAN