

Q.1. Discuss the general principles of planning for a public building.

A. Certain general principles of planning should be carefully considered and checked before finalization of the plan of any building. These principles are discussed below:

1. **Aspect:** Aspect means to direct proper sunlight and wind in a building in such a manner that it creates a pleasant and hygienic atmosphere for its inhabitants. Proper ventilation and desirable wind movements can be achieved in a building by strategically positioning the rooms of a building and also properly positioning the windows in the rooms. Air movement in a building is absolutely necessary at the level of occupancies and use.

As per National Building Code of India 2005 (Part 3: Development Control Rules and General Building Requirements; Cl. 15.1.1 and 15.1.2; pg. 34), “Rooms shall have, for the admission of light and air, one or more openings, such as windows and ventilators, opening directly to the open air or into an open VERANDAH. Notwithstanding the area of openings obtained through the above clause, the minimum aggregate area (*see* Notes i to iii) of such openings, excluding doors inclusive of frames, shall not be less than:

- (a) one-tenth of the floor area for dry climate;
- (b) one-sixth of the floor area for wet hot climate;
- (c) one-eighth of the floor area for intermediate climate;
- (d) one-twelfth of the floor area for cold climate;

Notes:

- i. If a window is partly fixed, the openable area shall be counted.
 - ii. No portion of a room shall be assumed to be lighted, if it is more than 7.5 m away from the assumed opening for lighting that portion.
 - iii. The area of openings given in (a) to (d) above will increase by 25% in case of kitchen.
2. **Prospect:** Prospect means the outside view through the windows and doors in external walls of rooms of a building. Doors and walls in the external walls should be located in such a manner that the outside view is pleasant and cheerful such as gardens, playgrounds etc. Openings should not be provided towards unpleasant views like sewers, slums etc. But the quality of aspect may be hampered by doing so. In such situations, experienced planner may minimise the conflict between aspect and prospect.

3. **Grouping:** Grouping is the arrangement of various units of a building with reference to their function. A public building should be grouped as:

(a) Administrative area – This is the area where the administration work of the public building is carried out. This area is generally used by the workers and staff of the public building. Entry of general public is generally restricted in this area without permission. For example, the back office of a bank, the principal's room in a college etc. fall under this category.

(b) Common public area – This is the area where the general public using the public building carry out their work. The shops in a shopping mall, the classrooms in a college etc. are grouped under this category.

(c) Service area – This includes the areas of eating, toilets etc. Separate toilets should be provided for gents and ladies. They should be properly labelled and as far as possible kept a little away from the common public area. The eating areas like cafeterias or canteens should be such that cleanliness and hygiene can be easily maintained.

(d) Circulation area: Areas for vertical and horizontal movement like staircases, escalators, elevators etc. should be provided based on the capacity of the incoming public in the building. They should be well-lit and well ventilated.

(e) Other areas: These include areas like the parking lot, electricity backup room, prayer room etc. which varies from building to building depending upon various factors.

4. **Economy:** Economy is one of the most vital factors in building planning. The planner should know beforehand within how much money the construction of the building has to be completed. The plan should be completed accordingly. While planning, it should be remembered that:

(a) Shape of a square building is most economical. It provides the maximum amount of floor area with minimum amount of wall area.

(b) Bigger the size of the unit, lesser is the cost. For the same floor area, a number of smaller rooms will require more cost than a few numbers of bigger rooms.

(c) Minimum offsets should be provided. It satisfies architectural as well as other practical economic considerations.

(d) By using as many common walls as possible by arranging units side by side reduces the economy considerably.

(e) Semi-detached buildings cost less in comparison to completely detached ones.

(f) Dimensions of all rooms, doors, windows should be in multiples of the available brick size. This is known as modular planning.

(g) Local materials should be used in the construction as much as possible.

5. Roominess: Roominess is the achievement of economy of space. Planning should be such that maximum benefit can be obtained from the minimum dimensions required for the functions expected to be availed from the space. For utility, a rectangular room is better than a square room of the same floor area. Accordingly, the length to breadth ratio should be 1.2:1 to 1.5:1. In case the length of a room is more than one and a half times more than its width, it will cause a tunnel effect. The floor to floor height of a public building is generally one and a half times more than that of a residential building because it is inhabited by more occupants and a lower roof seems suffocating with so many people around.

6. Circulation: A certain amount of free space area is required for the movement through or by and access to the different areas of the public building. This is known as circulation or free space area. This includes entrance lobby, passages, corridors, staircases, elevators, escalators etc. The circulation should be so designed that it will preserve the privacy of the areas that are required not to be disturbed and also can be passed through desirable areas.

7. Flexibility: The term flexibility means provision in the original plan for its future extension or change in inside planning of the units by changing the position of partition walls. For RCC framed structure buildings, greater freedom in planning i.e. flexibility can be achieved. Future extension or development in public buildings like school, hospital, hostels etc. becomes necessary stage by stage. So the present planning for such cases should be flexible to provide the future demands.

8. Amenity and Utility Requirements: During planning, location of amenities and utilities like power backup generator, water cooler, security checking units, furniture etc. should be so arranged that it gives maximum area for movements and ease of work. Position of ceiling fans, benches/desks are of utmost importance in planning of school/college buildings. Proper provision should also be kept for fire fighting.

9. Elegance: Elegance means the external appearance of a building produced by elevation depending upon the proportion of width, height and position of doors and windows and also choice of materials. During planning a building, architectural design and composition should be visualised to create elegant structures.

10. Privacy: It is possible to protect the privacy of the staff and workers of the public building with the help of proper planning. It is not expected that the occupants of the adjoining buildings can see the happenings of a well planned building. It is not desirable that the general public using the public building intrude into the privacy and work of the staff and workers of the public building. Privacy is of two kinds: (a) external privacy and (b) internal privacy.

(a) External privacy of the whole building with reference to the surrounding buildings can be protected by placing the window sills at such a height that can cut the vision of outsiders to the working area of the public building, but does not stand against the entry of outside air. This can also be protected by screening entrance, planting trees etc.

(b) It is difficult to maintain complete internal privacy in a public building. But the same may be achieved by the use of walls, partitions, personalized cabins etc. whenever and wherever necessary.

Q.2. Discuss the principles of planning for a school building.

A. A school is an educational institution for the learning of students under the guidance of teachers. Therefore a school building should be planned in such a way so that it provides a peaceful and hygienic environment suitable for the above purpose. Its design should not only be based on the latest educational trends, but must also keep provisions for future development if it has to prove economic in the long run.

The following principles of planning may be followed to achieve the same:

1) Aspect:

The classrooms should preferably face the east to enjoy the natural lighting of the morning sun. Adequate openings must be provided for proper ventilation of the classrooms.

2) Prospect:

The classroom windows should preferably face pleasant views like that of a garden. Openings should not be provided towards unpleasant views like open sewers, garbage disposal utilities etc. Though the view is pleasant, windows should preferably not be provided towards the playground as it may distract the students' attention from the lessons.

3) **Grouping:**

A school building is grouped into the following zones based on their functional utility:

- i) **Administrative Area:** This includes the principal's room (19 m²), vice-principal's room (29 m²; for more than 960 o 1920 students: 33 m²), general office (29 m²; for more than 960 o 1920 students: 65 m²), teaching staff area including staff common room (1.8 m² for 60% of the teaching staff), store (10 m²)
- ii) **Academic Area:** This includes the classrooms [(A) for primary school age group 5 – 10 years; Std I to IV/V, floor area for classroom for 40 students per class should be 1.11 m²/student; size: 6.1 m x 7.3 m... (B) For secondary/higher secondary school age group above 10 years; floor area for classroom for 40 students per class should be 1.26 m²/student; size: 6.9 m x 7.3 m...], library (0.1 m² per student; min 50 m², max 100 m²), social science room (65 m²), craft room (65 m²), art room (65 m²), science theory room (50 m²), laboratories for higher secondary schools (physics, chemistry and biology: 96 m²)
- iii) **Service Area:** This includes the canteen (0.1 m² per student; min. 25 m²), sanitary blocks (WC: 1 for 40 male students/25 female students, Urinals: 1 for 20 students, Wash Basin: 1 for 40 students, Water taps: 1 for 50 students)
- iv) **Circulation Area:** The circulation area includes entrance halls (0.5 – 0.6 m² per student), corridors (min width 1.5 m), staircase etc. and should not be more than 24% (for single loaded corridors) and 18% (for double loaded corridors) of the total covered area of the building.
- v) **Other Areas:** This includes the parking lot (cycles: 1.1 m²/student, scooters: 3 m²/scooter, cars: 25 m²/car, buses: 60 m²/bus... parking area should be provided after determining the percentage of student/staff using different types of vehicles), electricity backup room, auditorium etc.

4) **Economy:**

The planner should know beforehand within how much money the construction of the school is to be completed in and the site location so that the proposed plan, material and construction method is the most economical.

5) **Roominess:**

For roominess, a rectangular classroom is better than a square room of the same floor area. Accordingly, the length to breadth ratio should be 1.2:1 to 1.5:1. In case the length of a classroom is more than one and a half times more than its width, it will cause a tunnel effect which hampers the roominess. The floor to floor height of a school building should not be less than 3 m for proper roominess.

6) Circulation:

Horizontal circulation through the corridors outside classrooms should be mineralized as much as possible for the peaceful conduction of classes. Elevators may or may not be provided for vertical circulation; preferably for staff members.

7) Flexibility:

Flexibility for future development must be provided in the plan as it is an utmost necessity to keep up with the changing trends in education.

8) Amenity and Utility Requirements:

During planning, location of amenities and utilities like power backup generator, water cooler, furniture etc. should be so arranged that it gives maximum area for movements and ease of work. Position of ceiling fans, benches/desks are of utmost importance in planning of school buildings. Proper provision should also be kept for fire fighting.

9) Elegance:

The proportion of width to height, position of openings and choice of materials should be such that the external appearance of the school building is elegant.

10) Privacy:

The external privacy of a school building with reference to the surrounding buildings and roads may be achieved by placing the window sills at such a height that can cut the vision of the outsiders but doesn't hamper the entry of outside air.

The internal privacy of staff members may be preserved by providing individual cubicles or cabins for them.

11) Sanitation:

The school building should be well lit by natural sunlight as much as possible. Assisted natural lighting and artificial lighting should be used whenever and wherever necessary.

The school building should be well ventilated and preferably natural, but assisted and artificial methods may also be used to achieve the same.

The plan of the school building should be such that accumulation of dust is minimized.

Adequate plumbing services for water supply, drainage of sewage and food waste should be provided.

Q.3. Discuss the principles of planning of a hospital building.

A. A hospital is a building of health for the diagnosis, treatment and recovery of patients with specialized doctors, staff and equipments. Therefore, a hospital building should be planned in such a way so that it provides a safe, private and hygienic environment suitable for the above purpose. Its design should not only be based on the latest medical treatment trends, but must also keep provisions for future developments if it has to prove economic in the long run.

The following principles of planning may be followed to achieve the same:

1. **Aspect:**

The wards for recovering patients should preferably face the east so as to enjoy the natural light of the morning sun.

2. **Prospect:**

The windows of the wards for recovering patients should preferably face pleasant views like that of gardens, children playgrounds etc. Openings should not be provided towards unpleasant views like open sewers, garbage disposal utilities etc.

3. **Grouping:**

A hospital building is grouped into the following zones based on their functional utility:

- i) **Administrative Area:** It includes the enquiry office (15 m²) and account's section (12 m²) and should be readily accessible from the entrance and the OPD.
- ii) **Out Patient Department (OPD):** This includes the emergency ward (22 m²), waiting space (40 m²), dispensary (20 m²) and consulting rooms for operation, medicine, ENT, eye, dentistry, gynaecology, pediatric, orthopaedic, mental,

family planning, venereal diseases, skin etc. (12 m² each). Emergency ward must have easy access from the main entrance. Adequate sanitary blocks should be provided in here.

- iii) **Laboratories:** This includes pathological laboratories (12 m² each) and radiological department (15 m² each).
- iv) **Operation Area:** This includes operation theatres i.e. OT (24 m² each), sterilization rooms (10 m² each), doctor's room (12 m²), nurses' room (9 m²), waiting space (at least 3 m wide). Adequate sanitary blocks should be provided in this area too.
- v) **Wards:** Separate wards need to be provided for medicine, operation, gynaecology, female, children and infectious diseases. The area required for wards are 8-10 m²/bed. It should also include nurse's room joining dispensing room (12 m²) and sanitary blocks including WC (1 for 8 beds), bathroom (2 for 1 ward) and wash basins (1 for 30 beds)
- vi) **Service Area:** This includes the canteen (minimum 25 m²) and the sanitary blocks, the details of which has already been discussed above.
- vii) **Circulation Area:** The width of the corridors should not be less than 3m. Separate elevators/lifts are to be provided for *goods and persons* (speed: 0.25 m/s to 0.50 m/s and collapsible gates) and *hospital bed lifts* (0.25 m/s to 0.50 m/s and solid sliding doors)
- viii) **Other Area:** A hospital may also include a mortuary, intensive care unit (ICU), medical college, staff quarter, parking facility etc. depending upon the size and location of the hospital.

4. **Economy:**

The planner should know beforehand the location of the hospital site and within how much money the construction of the hospital is to be completed in, so that the proposed plan, material and construction method is the most economical.

5. **Roominess:**

For roominess, a rectangular room is better than a square room of the same floor area. Accordingly, the length to breadth ratio should be 1.2:1 to 1.5:1. In case the length of a classroom is more than one and a half times more than its width, it will cause a tunnel effect which hampers the roominess. The floor to floor height of a hospital building should not be less than 3.6 m for proper roominess.

6. Circulation:

The width of the corridors should not be less than 3 m. Apart from stairs, ramps should preferably be provided for easy movement of wheelchairs and stretchers. If providing ramps are not possible, elevators should be provided pertaining to the specifications already discussed above. Circulation near the OTs and radiology dept. should be mineralized as much as possible.

7. Flexibility:

Flexibility for future development must be provided in the plan as it is an utmost necessity to keep up with the changing trends in medical treatment.

8. Amenity and Utility Requirements:

During planning, location of amenities and utilities like power backup generator (which is a must in hospitals), water cooler, furniture etc. should be so arranged that it gives maximum area for movements and ease of work. Positioning of bulky equipments is of utmost importance in the planning of hospital buildings. Proper provision should also be kept for fire fighting.

9. Elegance:

The proportion of width to height, position of openings and choice of materials should be such that the external appearance of the school building is elegant.

10. Privacy:

External privacy of a hospital building with reference to the surrounding buildings and roads may be achieved by placing the window sills at such a height that can cut the vision of the outsiders to the level of the beds in the wards.

The internal privacy of staff members may be preserved by providing individual cubicles or cabins for them inside their respective wards.

11. Sanitation:

Sanitation is of utmost importance in a hospital building. Most parts of a hospital building (like OTs, labs etc.) are artificially lit and artificially ventilated because a specific and constant amount of light and temperature is required for both the working of certain medical equipments as well as carryout critical medical procedures.

The plan of the hospital building should be such that accumulation of dust is negligible.

Proper provisions should be kept in the plan for separate disposal of different kind of wastes (pathological waste, bio hazardous waste, radioactive waste etc.). Adequate plumbing services for water supply should be provided for ensuring good health of the patients as well as the staff members of the hospital.

Q.4. What are the factors to be considered for the selection of site for a factory building? Discuss in brief the requirements of a factory building.

A. The main factors to be considered for the selection of site for a factory building are as follows:

- 1) Power and distance of electric line for the proposed site.
- 2) Availability of raw materials at the locality for running the factory
- 3) Transport facilities for raw materials and finished goods
- 4) Site element.

Site element includes the following sub-heads and they have been listed in decreasing order of importance:

- i) Labour supply and union history
- ii) Public utilities and water
- iii) Tax conditions
- iv) Freight and transport
- v) Site characteristics (soil conditions etc.)
- vi) Population mix, growth and projection
- vii) Local living facilities
- viii) Local educational facilities
- ix) Climate
- x) Human transportation
- xi) Protection: fire, police and legal
- xii) Local politics and attitude
- xiii) Local industrial mix
- xiv) Local recreational facilities
- xv) Freedom from natural disasters

The requirements of a factory building may be divided into two parts: (a) general requirements and (b) functional requirements.

(a) General requirements include the following areas:

- i) Warehouse
- ii) Manufacture
- iii) Assembly
- iv) Packing
- v) Despatch by truck or rail
- vi) Dispensing
- vii) Internal engineering
- viii) Administrative office
- ix) Security
- x) Cloak room
- xi) Employee's facilities
- xii) Cafeteria
- xiii) Urinal
- xiv) Expansion

(b) Functional requirements include:

- i) Ample headroom
- ii) Good ventilation
- iii) Ample lighting as per industrial law
- iv) Sound limitations
- v) Floors free from ground water seepage or flooding
- vi) Ease of flow of materials
- vii) Ease of personnel movement
- viii) Degree of flexibility
- ix) Ease of supervision

Q.5. Discuss the grouping of a cinema hall and a drama theatre.

A. A **cinema hall** is a public building for entertainment that contains an auditorium for viewing movies by the general public who attend by purchasing a ticket. The movie is projected with a movie projector onto a large projection screen at the front of the auditorium while the sounds are played through a number of wall mounted speakers and subwoofers. The

audience typically sit on padded seats which are set up on a sloped floor, with the highest part at the rear of the auditorium. Cinema halls typically sell soft drinks, pop corn, candy and even fast food in some cases.

The different units of a cinema hall may be grouped as below:

- i) Administrative area:** This includes **office and booking window** (4.6 m²), **projection room** (18.5 m²), **manager's office** (12 m² to 15 m²) and **store** (12 m²).
- ii) Entertainment area:** This includes the **auditorium** (area: 0.8 – 1.0 m²/chair, volume: 3.5 – 4.3 m³/chair). It should have 1 door for 200 persons. The slope of the floor should be in between 1:20 to 1:10. A distance of 450 mm should be maintained between chairs and the height of the projection screen from the floor should be between 0.9 m to 1.2 m.
- iii) Service area:** This includes the **snacks bars and tea stalls** (12 m² – 15 m² each), **WC** (1 for every 100 males up to 400; above 400, 1 for every additional 250... 1 for every 100 females up to 200; 1 for every additional 100), **urinals** (1 for 50 persons) and **wash basins** (1 for 200 persons)
- iv) Circulation area:** **Entrance** for foyer should be at least 3 m wide. *Foyer means an entrance hall or other open area in a building used by the public, especially a hotel or a theatre.*
- v) Other area:** Ample **parking space** should be provided for cars, motorcycles and cycles. **Air conditioning room** is preferably provided on each floor.

A **drama theatre** is a public building for entertainment that contains an auditorium for viewing of dramas or plays by the general public who attend by purchasing a ticket. The drama or play is performed live by actors on a stage at the front of the auditorium while the sounds are amplified by microphones atop the stage and played through a number of wall mounted speakers and subwoofers. The audience typically sit on padded seats which are set up on a sloped floor, with the highest part at the rear of the auditorium. Drama theatres typically sell soft drinks, pop corn, candy and even fast food in some cases.

The different units of a **drama theatre** may be grouped as follows:

- i) Administrative area:** This includes **ticket office** (4.6 m²), **management office** (32 - 40 m²), **dressing room** (18.5 - 22 m²), **makeup room** (37-42 m²), **costume storage** (18.5 - 22 m²), **screen storage** (32 - 40 m²), **general store** (12 m²) and **stage manager's room** (11 m²).
- ii) Entertainment area:** This includes the **stage** (minimum 290 m²) and the **auditorium** (area: 0.8 – 1.0 m²/chair, volume: 3.5 – 4.3 m³/chair). It should have 1 door for 200 persons.

The slope of the floor should be in between 1:20 to 1:10. A distance of 450 mm should be maintained between chairs and the stage height should be between 0.9 m to 1.2 m.

iii) Service area: This includes the **snacks bars and tea stalls** (12 m² – 15 m² each), **WC** (1 for every 100 males up to 400; above 400, 1 for every additional 250... 1 for every 100 females up to 200; 1 for every additional 100), **urinals** (1 for 50 persons) and **wash basins** (1 for 200 persons)

iv) Circulation area: Entrance for foyer should be at least 3 m wide. *Foyer means an entrance hall or other open area in a building used by the public, especially a hotel or a theatre.*

v) Other area: Ample **parking space** should be provided for cars, motorcycles and cycles. **Air conditioning room** is preferably provided on each floor.

Q.5. Discuss the grouping of a bank building in brief.

A. A bank is a financial establishment forming part of a national financial system. It uses money deposited by customers for savings and investment, pays it out when required, makes loans at interest and exchanges currency. In addition, many banks also offer additional services like providing lockers or vaults for storing one's valuables (such as gold and diamond jewellerys), selling of financial bonds (such as insurance policies) etc.

The different units of a bank may be grouped as below:

1. Public Area: This includes the **entrance** (minimum 2 m wide) and the **working counters** (1.5 m x 3m). The **manager's office** (9 m²) is also provided in this area, but its entry is restricted.

2. Back Office: This area includes the **back offices** (20 m²), **conference hall** (25 m²), **library** (25 m²) and the **vault** (25 m²). The security of the vault is of utmost importance. Natural ventilation and natural lighting may be provided for the other units in this area.

3. Service area: This includes the **rest lounge** (25 m²) and the **sanitary blocks** which are to be provided for the bank staff only.

4. Circulation Area: Passages must be provided from behind the working counters. Staircases shall be placed in such a manner that they are inaccessible to the general public but easily accessible for the bank staff.

5. Other Area: An **ATM Counter** (10 m²) may be provided outside the building for its easy use by the general public, not limited to customer's of the same bank. **Store rooms, AHU** etc. may be provided based need.

Q.6. Discuss the principle of grouping of a hostel building in brief.

A. A hostel is a public building primarily providing sleeping and residential quarters for large number of people, often boarding school, college or university students. They are usually located near the educational campus, where they are studying at; but usually away from busy and noisy roads. A hostel should be designed in such a manner such that a peaceful atmosphere is maintained for the lodging and studying of the students. Care should be taken to provide units for the students' recreation too.

The different units of a hostel building may be grouped as below:

i) Administrative Area: This area includes **entrance** (3 m wide), **enquiry office** (10 m²), **administrative office** (30 m²), and **waiting room/area for visitors** (20 m²). The enquiry office, administrative office and the waiting room/area for visitors should be kept near the entrance.

ii) Residential Area: This includes the **rooms for students** (single seated rooms: area – 9.3 m²/head and size – 3 m x 3.3 m, two seated rooms: area – 7.5 m²/head and size – 3.5 m x 4 m, three seated rooms – 7 m²/head and size – 4.2 m x 5 m) and **room for warden** (25 m² with attached toilet). The rooms for students should preserve privacy and face the east in order to enjoy the natural light of the morning sun and natural ventilation. Warden's room should be on the ground floor, nearer to the entrance.

iii) Common Area: This area includes **common room/recreation hall** (2-3 m²) and **dining hall** (3-4 m²/head). This area should not be grouped beside the residential area to maintain a peaceful atmosphere in the latter.

iv) **Circulation Area:** 1 m to 2 m wide **passages** must be provided along with adequate **staircases** for the easy vertical circulation from all sides. The staircases should be easily accessible from all parts of the building.

v) **Service Area:** This includes the **kitchen** (2.75 m x 3 m), **pantry** (2 m x 3 m), **store** (2 m x 3 m), **sanitary blocks** (WC: 1 for 10 males, 1 for 8 females, Bath: 1 for 10 heads each; Urinals: 1 for 25 males; Wash basins: 1 for 10 heads each). The pantry should be attached to the kitchen, which in turn should be attached to the dining area.

vi) **Other Areas:** This include the **parking lot** (cycles: 1.1 m²/head, scooters: 3 m²/head, cars: 25 m²/head) and other optional units like **library**, **electricity backup room** etc. Adequate parking space must be provided at least for bicycles and motorcycles for easy access of the students to the transportation system.

Q.7. Discuss in brief the grouping of a library building.

A. A library building holds a collection of sources of information and similar resources like books, magazines, journals etc. made accessible to a defined community for reference or borrowing. Modern libraries provide physical as well as digital access to material. Libraries range in size from a few shelves of book to a million items including DVDs, e-books, audiobooks etc.

The different units of a library building may be grouped as follows:

1. Administrative area: This area includes **entrance and moving space around delivery counter** (minimum 1.8 m wide), **book issue counter** (minimum 1.5 m wide) and **librarian's room** (minimum 9 m²)

2. Library area: The different section in a library like **reading rooms** (50 m² each), **text books section** (20 m² to 60 m²), **reference books section** (20 m² to 60 m²), **magazines and newspapers** (3 m wide at least) and **stacking space** (20 m²) are a part of this area.

3. Circulation area: At least 1.5 m wide passages and a single staircase located centrally is enough to take care of the circulation needs of a library building.

4. Service area: This includes the **sanitary blocks** (WC: 1 for 200 males up to 400; above 400, 1 for every 250. 1 for 100 females up to 200; above 200, 1 for every 150. Urinals: 1 for 50 males. Wash basins: 1 for 200 heads up to 400; above 400, 1 for every 250).

5. Other area: This may include a **parking, computing facility room, conference/meeting room, cafeteria with kitchen, stores** etc. depending upon the size and need of the library.

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