Principles of Architectural and Environmental Design
EARC 2417

LECTURE 4
CIRCULATION “MOVEMENT THROUGH SPACE”

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Circulation definition & Elements

The circulation path is the space that links the other spaces of a building or any other interior or exterior spaces

1. **Approach:** The distant view

2. **Entrance:** From outside to inside

3. **Configuration of the Path:** The Sequence of Spaces

4. **Path-space Relationships:** Edges, Nodes, and Terminations of the Path

5. **Form of the Circulation Space:** Corridors, Halls, Galleries, Stairways and Rooms
1- The building approach.

- The first phase of the circulation system of a building is the path that we use to approach the entrance.
- It can be **long** where we need **long time** to pass, and, in other cases, it can be **short** where we need **short time** to pass.
- If continued into the building, the relationship between inside and outside will be strengthened.
- The building approach can be frontal, oblique or spiral.
a. Frontal approach

- This kind leads directly to the building’s entrance along a straight axial path.
- It usually terminates with the entrance of the frontal façade of the building.
b. Oblique approach

- In this case, the effect of the perspective is strong on the front facade of the building that we aim to arrive.
- The path can be redirected one or more times to delay and prolong the sequence of the approach.
- If a building is approached at an extreme angle, its entrance can project beyond its facade to be more clearly visible.
c. **Spiral approach**

- This kind of paths prolongs the approach to the building and, at the same time, provide an over whole idea about the building by moving around it.
- Accordingly, the entrance may be viewed from the front or it may be hidden until the point of arrival.
A building approach
A building approach
A building approach
2- Building entrance

- It is the space from which we penetrate from one space to another.
- Its concept is more than punching a hole in a wall.
- It can be determined by vertical or horizontal elements.
- It can range from a simple hole to an elaborate, articulated gateway.
- It is preferred to be designed perpendicular to the path of the approach.
2- Building entrance

• Entrances can be classified into three groups:

1. **Flush entrances**, which maintain the continuity of its plane surface.

2. **Projected entrances**, which provide shelter, provide an exterior added space and announce their function to the approach.

3. **Recessed entrances**, which also provide shelter and form.
2- Building entrance

- The form of the entrance can be similar to the form of the interior space or it can differ to emphasize its character as a place.
- An entrances can be distinguished according to its location with respect to the frontal façade:
  1. It can be centered within the frontal plane of a building.
  2. It can be placed off-center and create its own symmetrical condition about its opening.
External entrances

Internal entrance

Antalya/ Turkey
2- Building entrance

• The location of the entrance, relative to the space entered, will determine the configuration of the path within the space and the pattern of the activities within the space.

• Entrances can be reinforced by:
  1. Changing the dimensions (lower, wider, narrower) from the anticipated.
  2. Making the entrance extra-deep or circuitous.
  3. Articulating the opening with decorative ornaments.
2- Building entrance
3- Configuration of the path

- The movement path is always linear.
- This means that there is a starting point and an end point.
- Human has much more freedom than vehicles or even than bicycles in changing direction in his movement path.
- Vehicles need the path to be smooth, but dimensionally limited.
- Pedestrians, on the other hand, require a greater volume of space than their bodily dimensions, and greater freedom of choice along the path.
3- Configuration of the path

• Crossing of the paths is always a point of decision-making for the person approaching it. Which path?
• Paths can be classified into major and minor paths.
• The characteristics of continuity and scale of the paths can distinguish major paths from the secondary paths. In addition, major paths lead to major spaces.
• Sometimes, the nature of a path’s configuration influences the organizational pattern of the spaces it links. In other times, the nature of a path’s configuration is influenced by the organizational pattern of the spaces it links.
3- Configuration of the path

Five types:

1- The linear configuration: The straight path is the primary organizing element for a series of spaces. It can be curvilinear or segmented, intersect other paths, have branches, or form a loop.

2- The radial configuration: different linear paths extend from a central common point.

3- The spiral configuration: It is a single continues path that originates from a central point, revolves around it in a spiral way.
3- Configuration of the path

4- The grid configuration: consists of two sets of parallel paths that intersect at regular intervals creating square or rectangular spaces.

5- The network configuration: consists of random paths that connect different points in space.

6- The composite configuration: Usually, it is the configuration used in buildings which usually used a combination of the preceding patterns. It is supposed to be designed carefully to avoid creating any confusion. Important points in any pattern are centers of activity, entrances to rooms and halls, and places for vertical circulation provided by stairways, ramps, and elevators.
3- Configuration of the path

linear

radial
3- Configuration of the path

Radial Configurations

City on a Plain

City on a Hill

Plans of Ideal Cities, 1451–64,
Francesco di Giorgi Martini
3- Configuration of the path
4- Path-space relationship

Paths may be related to the spaces they link in different ways:

1. The path pass by spaces:
   - The identity of each space is maintained.
   - The configuration of the path is flexible.
   - Mediating spaces can be used to link the path with the spaces.
4- Path-space relationship

2. The path pass through spaces:
   • The path may pass through a space axially, obliquely, or along its edge.
   • The path will determine the configuration of the space.
4- Path-space relationship

3. The paths terminate in a space:
   • The location of the space establishes the path.
   • The relation is used to approach and enter functionally or symbolically important spaces.
5- Form of the circulation space

- Circulation space forms an integral part of any building organization.
- Its volume of space cannot be ignored anywhere.
- It can behave as functional space, corridor for example, linking many other spaces.
- Its volume, form and scale must accommodate the movement of people in addition to their facilities and services.
5- Form of the circulation space

The form of a circulation path depends on:

- The definition of its boundaries.
- The relationship with the spaces it links.
- The articulation of its scale, proportion, light and view.
- The opening of the entrances coming into it.
- The changing in levels with stairs and ramps.
Paths’ boundaries “Malaysia”
5- Form of the circulation space

• A circulation space can be either enclosed, open on one side or open on both sides.

• The circulation space can be enlarged by merging with the spaces it passes through.

• The circulation path in a large space can be random, without form or definition. It is determined by the activities or the furniture within the space.
The configuration of a stairway determines the direction of our path as we ascend or descend its steps. There are several basic ways in which to configure the runs of a stairway.

- straight-run stair
- L-shaped stair
- U-shaped stair
- circular stair
- spiral stair
Reference:

Thank you