Lecture-3

GEOMETRICAL DESCRIPTION OF FUNCTIONAL SPACE
Elements of Spatial Definition
1. Horizontal Elements
2. Vertical Elements
3. Openings
**Horizontal Elements Defining space**

**BASE PLANE**
A horizontal plane lying on a floor

It defines a simple field of space

**ELEVATED BASE PLANE**
A horizontal plane elevated above the ground plane

Vertical surfaces along its edges reinforce the visual separation between its field and the surrounding ground.

**DEPRESSED BASE PLANE**
A horizontal plane depressed into the ground plane

Vertical surfaces of the lowered area define a volume of space.

**OVERHEAD PLANE**
A horizontal plane located overhead

It defines a volume of space between itself and the ground plane.

*Source: Francis Ching*
1-Base Plane

- Plane shall be seen as figure must be change in color, tone, or texture
- The stronger the edge, the more distinct will be its field
- The horizontal plane creates a spatial zone or realm within its boundaries
Exterior of Glass House, New Canaan, Connecticut, 1949, Philip Johnson

Interior of Glass House, New Canaan, Connecticut, 1949, Philip Johnson
Elevated Base Plane

- Can be constructed on the existing site condition / artificially constructed above the surrounding context
- Venerate Sacred and honorific Building

The Acropolis of Athens, Greece

Pavilion of Supreme Harmony in the Forbidden City, Beijing 1627
Elevated Base Plane

• Define as a *semiprivate space, singular space*, and *volume*

**House in Bay of Islands**
Bay of Islands, New Zealand

Photographs: Patrick Reynolds
Depressed Base Plane

- Shallow interruption remain an integral part interaction and surrounding environment connectivity
- Increase the depth of the depressed field weaken the visual and define a distinct volume
- Increase above eye level, the depressed space become a separate and distinct room
1-Elements of Spatial Definition | Horizontal Element

**Depressed Base Plane**

**Protective qualities**

*Wolfsburg Cultural Center*, by Alvar Aalto, at Wolfsburg, Germany, 1958 to 1962

Defines as space for outdoor, acoustic quality
• Intermediate space to reduce the scale of room and define more intimate space

• The sunken area can also serve as a transitional space between two floor of a building

House on the Massachusetts Coast, 1948, Hugh Stubbins
• Defines field of volume
• If the columns or posts are used to support the overhead, they will aid in visually establishing the limits of the defined space
• Depressed/upgraded the field, the volume is visually reinforced
2.1.1. VERTICAL ELEMENTS

**VERTICAL LINEAR ELEMENTS**
- It defines the perpendicular edges of a volume of space

**SINGLE VERTICAL PLANE**
- It articulates the space on which it fronts

**L-SHAPED PLANE**
- It generates a field of space from its corner outward along a diagonal axis.

**PARALLEL PLANES**
- They define a volume of space between them toward both open ends.

**U-SHAPED PLANES**
- It defines a volume of space that is oriented toward the open end of the configuration

**FOUR PLANES: CLOSURE**
- They establish the boundaries of an introverted space and influence the field of space around the enclosure

SOURCE: FRANCIS CHING
Single Vertical Element

- Vertical linear element interact spatial field to the urban space along its edge
Single Vertical Plane

- Differentiate two fields
- Can be different in form, color, or texture to respond to different spatial conditions
- To define a volume, the single vertical plane need to interact with other elements/forms
- Height of a vertical plane defines different sense of enclosure
- Opening of a vertical plane could lead to define a specific orientation
L-Shaped Planes

- generates a field of space from its corner outward along a diagonal axis. The enclosed introverted field at the interior corner becomes extroverted along its outer edges.
U-Shape Plane

- Four vertical planes encompassing a field of space is the strongest type of spatial definition in architecture. Because the field is completely enclosed, its space is naturally introverted.
2.1.1. OPENINGS

Openings in the enclosing planes of the spatial field provide continuity with adjacent spaces.

**OPENINGS WITHIN PLANES**

- CENTERED
- OFF-CENTER
- GROUPED
- DEEP-SET
- SKYLIGHT

An opening located within a wall or a ceiling plane appears like a figure against the background.

**OPENINGS AT CORNERS**

- ALONG ONE EDGE
- ALONG TWO EDGES
- TURNING A CORNER
- GROUPED
- SKYLIGHT

Openings located at corners give a diagonal orientation to the space and the planes in which they are located.
2.3. ORGANIZING PRINCIPLES AND COMMON SPATIAL CONFIGURATIONS

**CENTRALIZED**
A central dominant space about which other secondary spaces are grouped

**LINEAR**
A linear sequence of repetitive spaces

**CLUSTERED**
Spaces grouped by proximity or the sharing of a common visual trait or relationship

**GRID**
Spaces organized within the field of a structural grid or another 3 dimensional framework

**RADIAL**
A central space from which linear organizations of space extent in a radial manner

SOURCE: FRANCIS CHING
2.4. SEQUENTIAL EXPERIENCE

Circulation helps to organize spaces and at the same time has a great impact as a formative idea. Elements of circulation are:

- Approach
- Entrance
- Circulation path

SOURCE: FRANCIS CHING
Circulation helps to organize spaces and at the same time has a great impact as a formative idea. Elements of circulation are:

- path/space relationship
- form of path
2.4.1. APPROACH

**Frontal Approach**
- It follows a straight axial path.
- It emphasizes the front view.

**Oblique Approach**
- Its path is re-directed to delay and prolong the sequence of approach.
- It emphasizes the effect of perspective.

**Spiral Approach**
- It follows a path around the building.
- It emphasizes the three dimensional form of a building.

SOURCE: FRANCIS CHING
2.4.2. ENTRANCE

Designing an entrance can be done in more subtle ways than punching a hole in a wall:

- change of level
- two pillars
- an overhead beam

from a simple opening to an elaborate gateway

regardless of the form of the entrance, it is best signified if perpendicular to the path of the approach
2.4.2. ENTRANCE

Entrances can be:

- flush
- projected
- recessed

- centered
- off-center
- creating its own symmetrical condition

Entrances can be visually reinforced by:

- a lower, wider, narrower opening
- extra-deep
- with ornamentation

SOURCE: FRANCIS CHING
2.4.3. CIRCULATION PATHS

1. LINEAR

All paths are linear. A straight path, however, can be the primary organizing element for a series of spaces.

2. RADIAL

3. SPIRAL

4. GRID

5. NETWORK

SOURCE: FRANCIS CHING
2.4.4. PATH-SPACE RELATIONSHIPS

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

1. Pass by spaces

2. Pass through spaces

3. Terminate in a space

SOURCE: FRANCIS CHING
A circulation space may be:

- enclosed
- open on one side
- open on both sides
- narrow
- wide
- fostering pause, rest, or viewing

It can be enlarged merging with spaces it passes through.


• *Principles of Form and Design*, Wucius Wong, ISBN 0-442-01405-8