Lecture 3

Form & Space

Form Defines Space

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We can define space using:

- **Horizontal Elements**
  - Base plane
  - Overhead plane

- **Vertical Elements**
  - Linear vertical element
  - Vertical plane
  - L-shape configuration
  - U-shape configuration
  - Parallel planes
  - 4 planes (enclosure)

The form and enclosure of each space in a building either **determines** or is **determined** by, the form of the spaces around it.
A-Defining Space With Horizontal Elements

1. **Base Plane:** A horizontal plane laying as a **figure** on a contrasting background defines a simple field of space. This field can be **visually reinforced** in the following ways.

   a. Elevated Base Plane: A horizontal plane elevated above the ground plane establishes vertical surfaces along its edges that reinforce the visual separation between its field and the surrounding ground.

   b. Depressed Base Plane: A horizontal plane depressed into the ground plane utilizes the vertical surfaces of the lowered area to define a volume of space.

2. **Overhead Plane:** A horizontal plane located overhead defines a volume of space between itself and the ground plane.
3. horizontal spaces

Overhead plane

Elevated plane

Base plane
A simple field of space may be defined by a horizontal plane laying as a figure on a contrasting background.

A change in color or texture between its surface and the plane upon which it lies.
A - Defining Space With Horizontal Elements

1. The Base Plane

The stronger the edge definition of the horizontal plane is, the more articulate will be its field.

The strongest definition

The weakest definition

Functional zones
A horizontal plane elevated above the ground plane established vertical surfaces along its edges that reinforce the visual separation between its field and the surrounding ground.

Elevating a portion of the base plane will create a field of space within a larger spatial context.

The change in level along the edge of the elevated plane defines the boundaries of its field and interrupts the flow of space across its surface.
A change in form, color, or texture for the elevated plane, make it distinct from its surroundings. -- strong definition
A special place is established by a platform in an artificial lake surrounded by the emperor's living and sleeping quarters.

Elevated base plane reinforced by vertical elements and overhead plane.
The degree to which spatial and visual continuity is maintained between an elevated space and its surroundings depends on the scale of the level change.

1. Edge of the field is well-defined,
   • Visual and spatial continuity is maintained,
   • Physical access is easily accommodated.

2. Visual continuity is maintained;
   • spatial continuity is interrupted;
   • physical access requires the use of stairs.

3. Visual and spatial continuity is interrupted;
   • The elevated plane is transformed into a sheltering element for the space below.
The ground plane can be elevated to provide a platform or stage that structurally and visually supports a building’s form. The elevated ground plane can be a pre-existing site condition, or it can be artificially constructed to deliberately raise a building above its surrounding context or enhance its image in the landscape.

An elevated plane can define a transitional space between the exterior and interior of a building. Combined with a roof plane, it develops into the semi-private realm of a porch or veranda.
b- Elevated Base Plane
Lankawi- Malaysia

Same elevated plane seen from different points
b- Elevated Base Plane
Lankawi- Malaysia

Elevated base plane over water

Elevated base plane in a garden
b- Elevated Base Plane

- An elevated floor plane can define an interior spaces that serves as a retreat from the activity around it. It can be a platform for viewing the surrounding space.

- It can be elevated over sea water.

Lankawi- Malaysia
A horizontal plane depressed into the ground plane utilizes the vertical surfaces of the depression to define a volume of space.

The boundaries of the field are defined by the vertical or inclined surfaces of depression.

These boundaries are not disguised, as in the case of an elevated plane, but visible edges that begin to form the walls of the space.
c. Depressed Base Plane

Antalya- Turkey
The field of space can be further articulated by contrasting the surface treatment of the depressed area and the surrounding base plane.

A contrast can be in form, geometry, color, texture, or orientation.
An area within a large room can be sunken to reduce the scale of the room and define a more intimate space within it. The elevated area can also serve as a transitional space between the sunken area and the other level of a building.
The degree of spatial continuity between the depressed field and surrounding area depends on the scale of the level change.

1. The depressed field can be an interruption of the ground or floor plane and remain an integral part of the surrounding space.

2. Increasing the depth of the depressed field weakens its visual relationship with the surrounding space, and strengthens its definition as a distinct volume of space.
3- Once the original base plane is above our eye-level, the depressed field becomes, in effect, a separate and distinct room in itself.
The major overhead element of a building is its **roof plane**.

- It shelters the building’s interior spaces from **sun**, **rain**, **snow**…
- It can affect the **building’s overall form** and the form of its spaces.
Defining Space With Horizontal Elements

2. The Overhead Plane

- A horizontal plane located overhead defined a volume of space between itself and the ground plane.

- A shade tree gives similar definition.

- Since the edges of this field are established by the edges of the overhead plane, the form of the space is determined by the plane’s shape, size, and height above the ground plane.

- These characteristics are determined by the structural system.
A - Defining Space With Horizontal Elements

2. The Overhead Plane

- Vertical linear elements, such as posts or columns support the overhead plane, and aid in visually establishing the limits of the defined space without disrupting the flow of space through the field.

- The overhead plan articulate the space into zones. And it contain lights and sound treatments.
2. The Overhead Plane

Restaurant - Antalia

Hotel - Penang - Malaysia

Thailand airport
Form from inside & outside related to the structural system
2. The Overhead Plane

KL Airport

Turkey-Antalia
B-Defining Space With Vertical Elements

Vertical forms are:

- More active in our visual field than horizontal planes,
- Provide a strong sense of enclosure
- Supports for a building’s floor and roof planes.
- Control the visual and spatial continuity between a building’s interior and exterior environment.
- Control the flow of air, light, noise, through a building’s interior spaces.
1. Linear vertical elements can define the vertical edges of a volume of space.

2. A vertical plane will articulate the space in front of it.

3. An “L”-Shaped configuration of planes generates a field of space from its corner outward along a diagonal.
4. Parallel planes define a volume of space between them that is axially oriented toward the open ends of the configuration.

5. A “U”-Shaped configuration of planes defines a volume of space that is oriented toward the open end of the configuration.

6. Four planes enclose an isolated space, and articulate the field of space around the enclosure.
B-Defining Space With Vertical Elements
1-Defining space with linear vertical element

Using columns to assure the entrance.

Using trees to define a path.
1. Defining Space With Vertical Elements

Using columns to define an entrance.

Hotel- Penang-Malaysia

USM Malaysia
The height of a plane, relative to our height and eye-level, is the critical factor.

When 60 cm high, a plane can define the edge of a field but provides little or no sense of enclosure for the field.

When waist-level high, it begins to provide a sense of enclosure while allowing for visual continuity with surrounding spaces,

When it approaches our eye-level in height, it begins to divide one space from another.

Above our height, a plane interrupts visual and spatial continuity between two fields and provides a strong sense of enclosure. -- privacy
The surface colour, texture, and pattern of a plane affect its visual weight, scale, and proportion.

A vertical plane can be the primary face of the space and gives it a specific orientation.
- It can front the space and define a plane of entry into it.
- It can be a free standing element within a space and divide the volume into two separate but related areas.
B-Defining Space With Vertical Elements

2- Defining Space With Single Vertical Plane/ wall partitions
1. The two planes of the configuration define two edges, its other edges remain ambiguous unless further articulated by additional vertical elements, manipulations of the base plane, or an overhead plane.

2. The definition is weakened. The two planes will be isolated from each other, and one will appear to slide by and visually dominate the other.

3. The field becomes more dynamic in nature and organize itself along the diagonal of the configuration.
B-Defining Space With Vertical Elements
3- defining space with L – Shaped Configuration of Planes

L shape for school plan.

L shape for commercial center
1. The spatial field can be **visually** expanded by extending the base plane beyond the open ends of the configuration.

2. The definition of the spatial field can be **visually reinforced**, by manipulating the base plane or adding overhead elements to the composition.

3. The expanded field can, in turn, be **terminated** by a vertical plane whose width and height is equal to that of the field.

4. If one of the parallel planes is **differentiated** from the other by a change in form, color, or **texture**, a secondary axis, perpendicular to the flow of the space, will be established within the field. Openings in one or both of the planes will also introduce secondary axes to the field and transform the directional quality of the space.
B-Defining Space With Vertical Elements

4- Defining Space With Parallel Vertical Planes

Parallel planes defining a commercial street.

Parallel planes defining a road.

Turkey-Antalia
It has an inward focus as well as outward orientation.

It allows the field to have visual and spatial continuity with adjoining space.

The definition of the space can be increased using columns or overhead element.

The plane opposite the open end will be the principal element among the three planes of the configuration.
B-Defining Space With Vertical Elements

5- defining space with U Shaped Configuration of Planes
B-Defining Space With Vertical Elements
6-defining space with 4 planes: closure

- The strongest type of spatial definition.
- Visual and spatial continuity can be obtained using openings.
- Increasing the openings can weaken the enclosure.
- One of the planes can dominate when having different size, shape, openings or texture.
Thank you

Reference: