Tishk International university
Interior design department
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FORM, SPACE & ORDER

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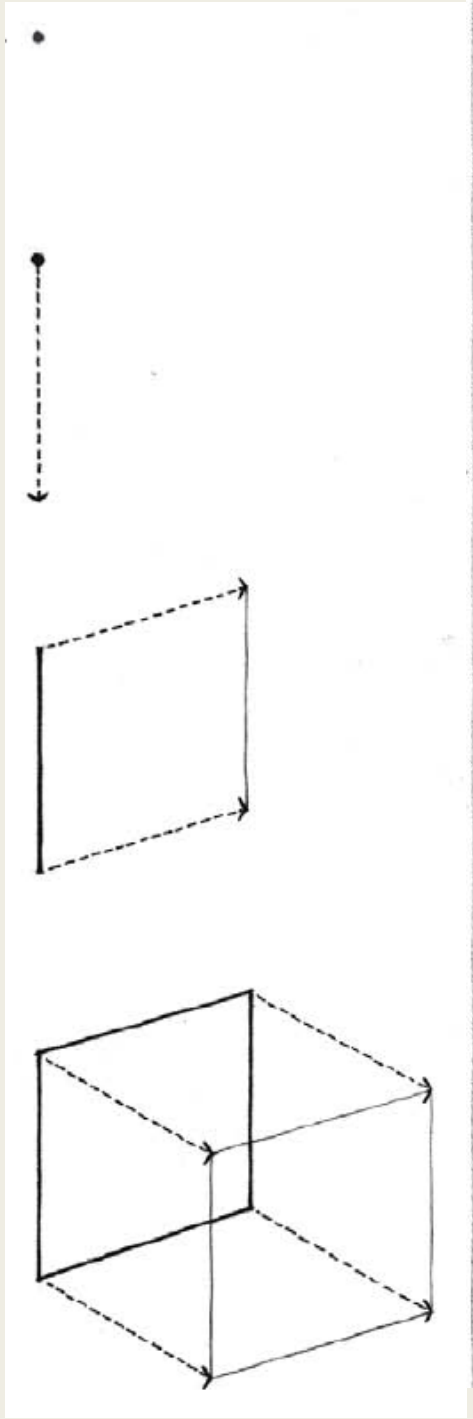
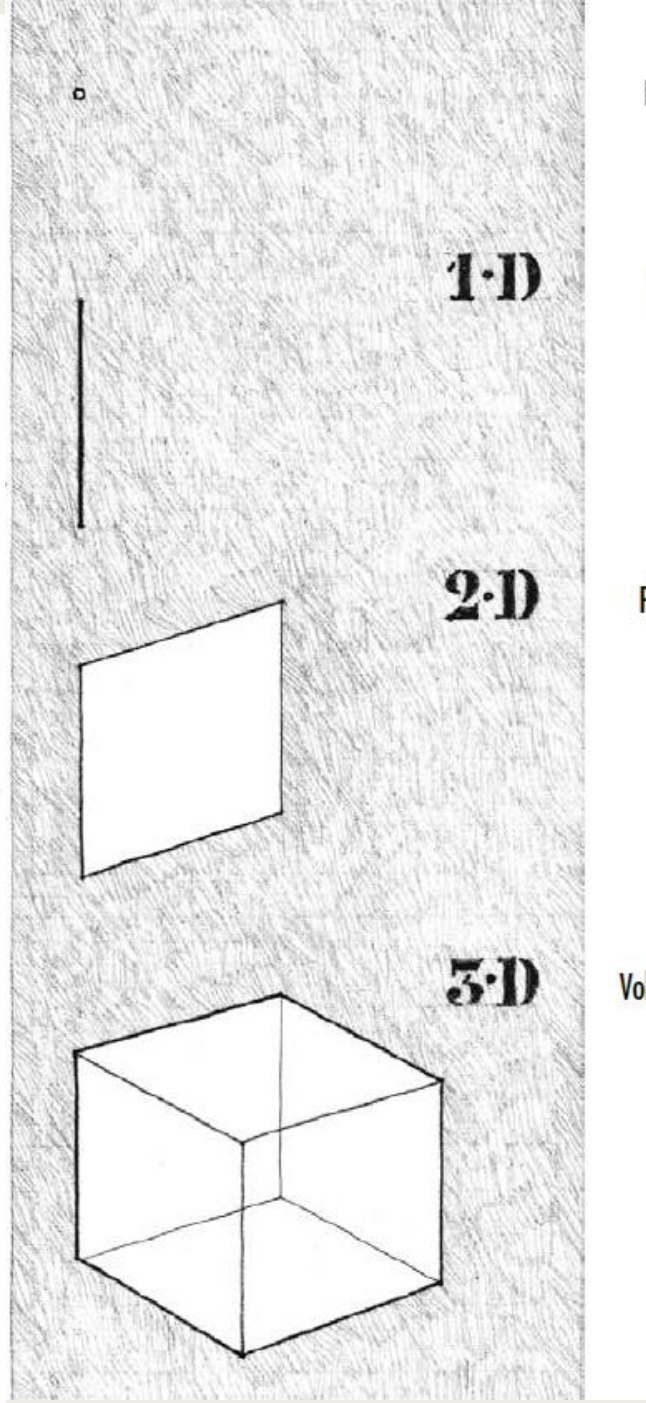
Primary Elements

“All pictorial form begins with the point that sets itself in motion… The point moves . . . and the line comes into being—the first dimension. If the line shifts to form a plane, we obtain a two-dimensional element. In the movement from plane to spaces, the clash of planes gives rise to body (three-dimensional) . . . A summary of the kinetic energies which move the point into a line, the line into a plane, and the plane into a spatial dimension.” Paul Klee 1961

- **Point** indicates a position in space.
- A point extended becomes a **Line** with properties of:
  - length
  - direction
  - position
- A line extended becomes a **Plane** with properties of:
  - length and width
  - shape
  - surface
  - orientation
  - position
- A plane extended becomes a **Volume** with properties of:
  - length, width, and depth
  - form and space
  - surface
  - orientation
  - position



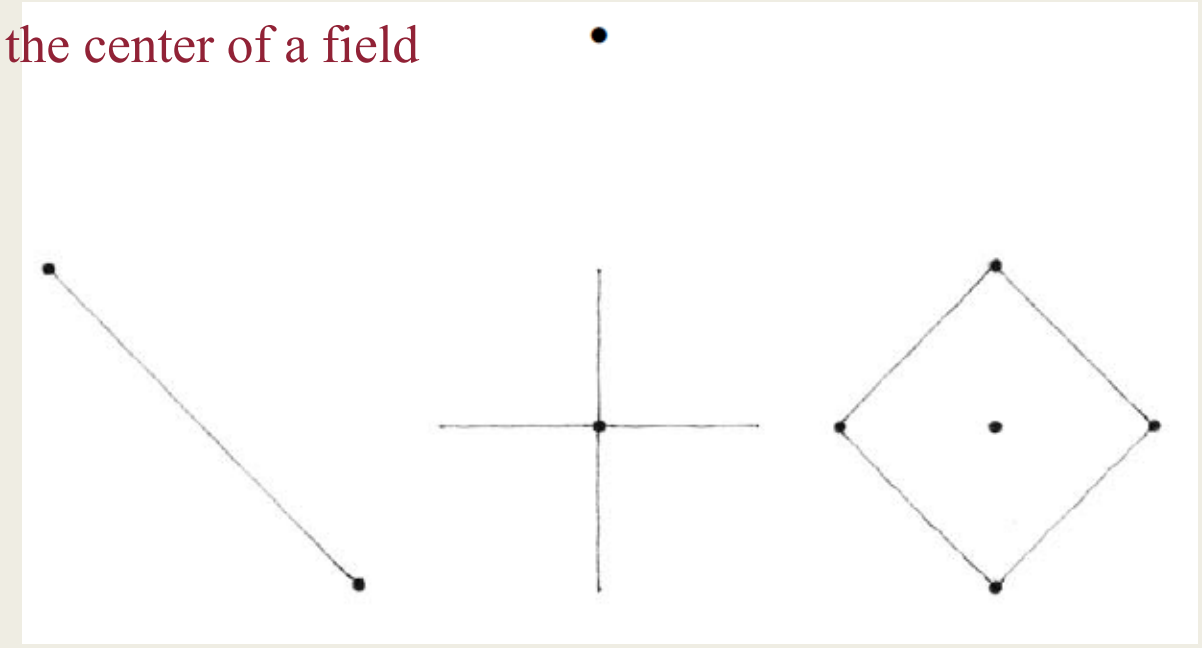


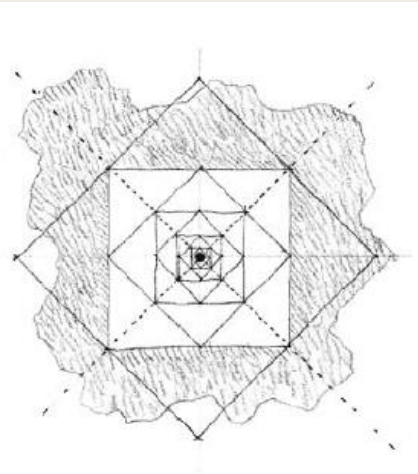
1. POINT

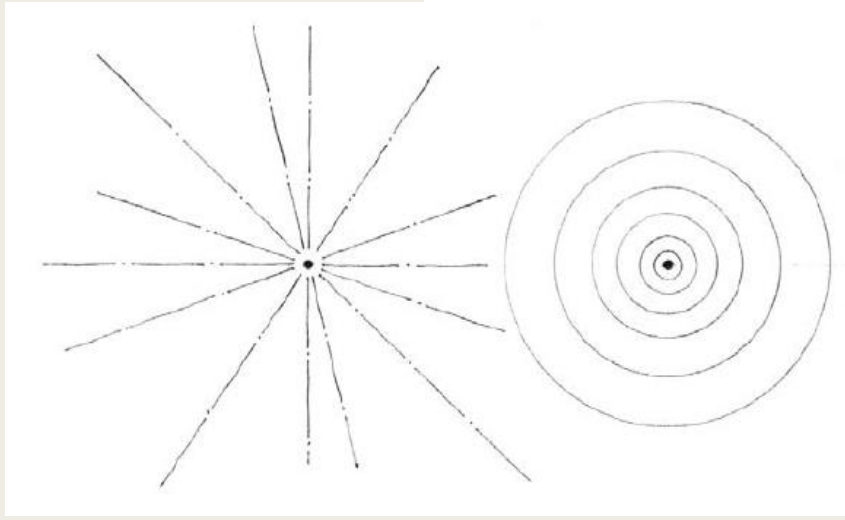
A point marks a position in space. Conceptually, it has no length, width, or depth, and is therefore static, centralized, and directionless.

As the prime element in the vocabulary of form, a point can serve to mark:

- the two ends of a line
- the intersection of two lines
- the meeting of lines at the corner of a plane or volume
- the center of a field





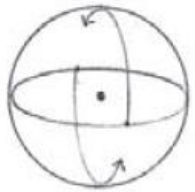


Point elements

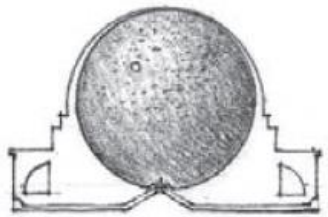
- A point has no dimension.
- To visibly mark a position in space or on the ground plane, a point must be projected vertically into a linear form, as a column, obelisk, or tower.
- Any such columnar element is seen in plan as a point and therefore retains the visual characteristics of a point.
- Other point-generated forms that share these same visual attributes are the:

• circle

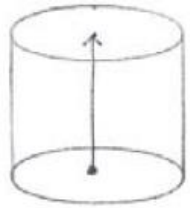
Tholos of Polycleitos, Epidauros, Greece, c. 350 B.C.



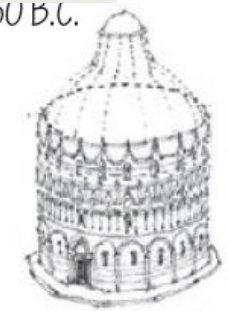
• sphere



Cenotaph for Sir Isaac Newton, Project, 1784, Étienne-Louis Boulée



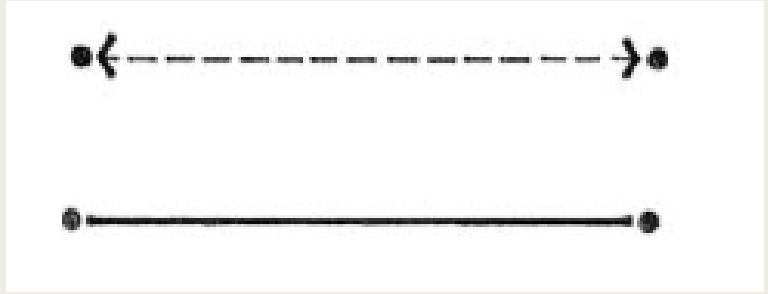
• cylinder



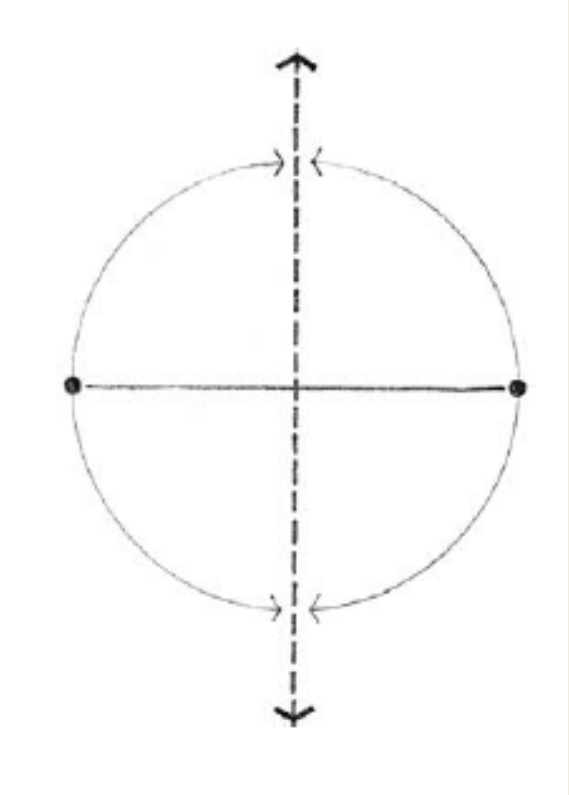
Baptistery at Pisa, Italy, 1153–1265, Dioti Salvi

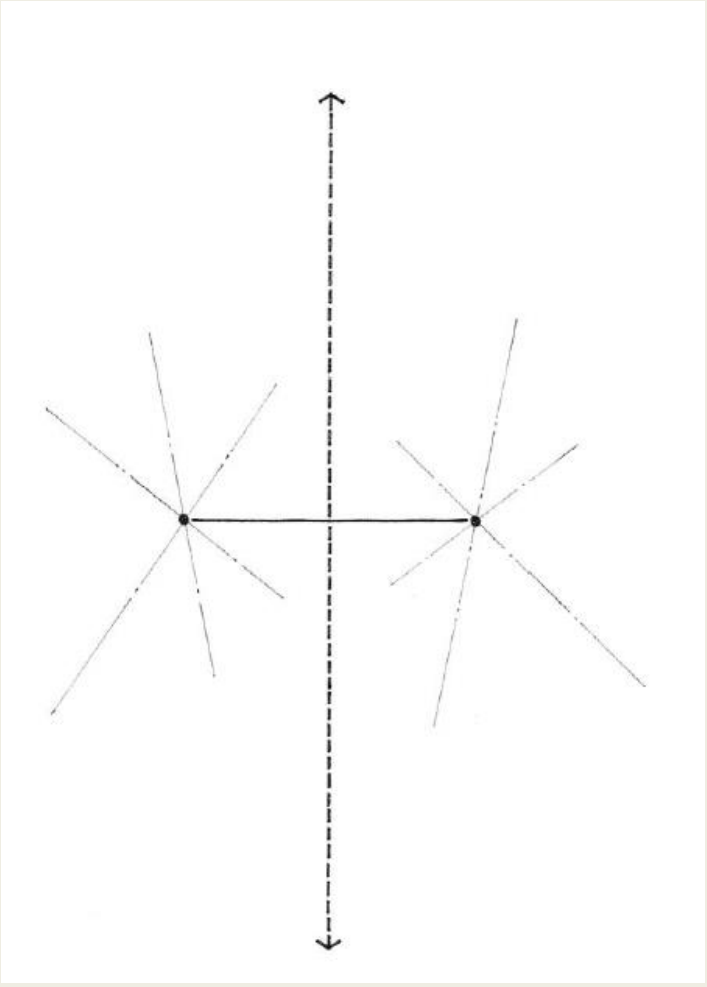
TWO POINTS

- Two points describe a line that connects them.
- Although the points give this line finite length, the line can also be considered a segment of an infinitely longer path.



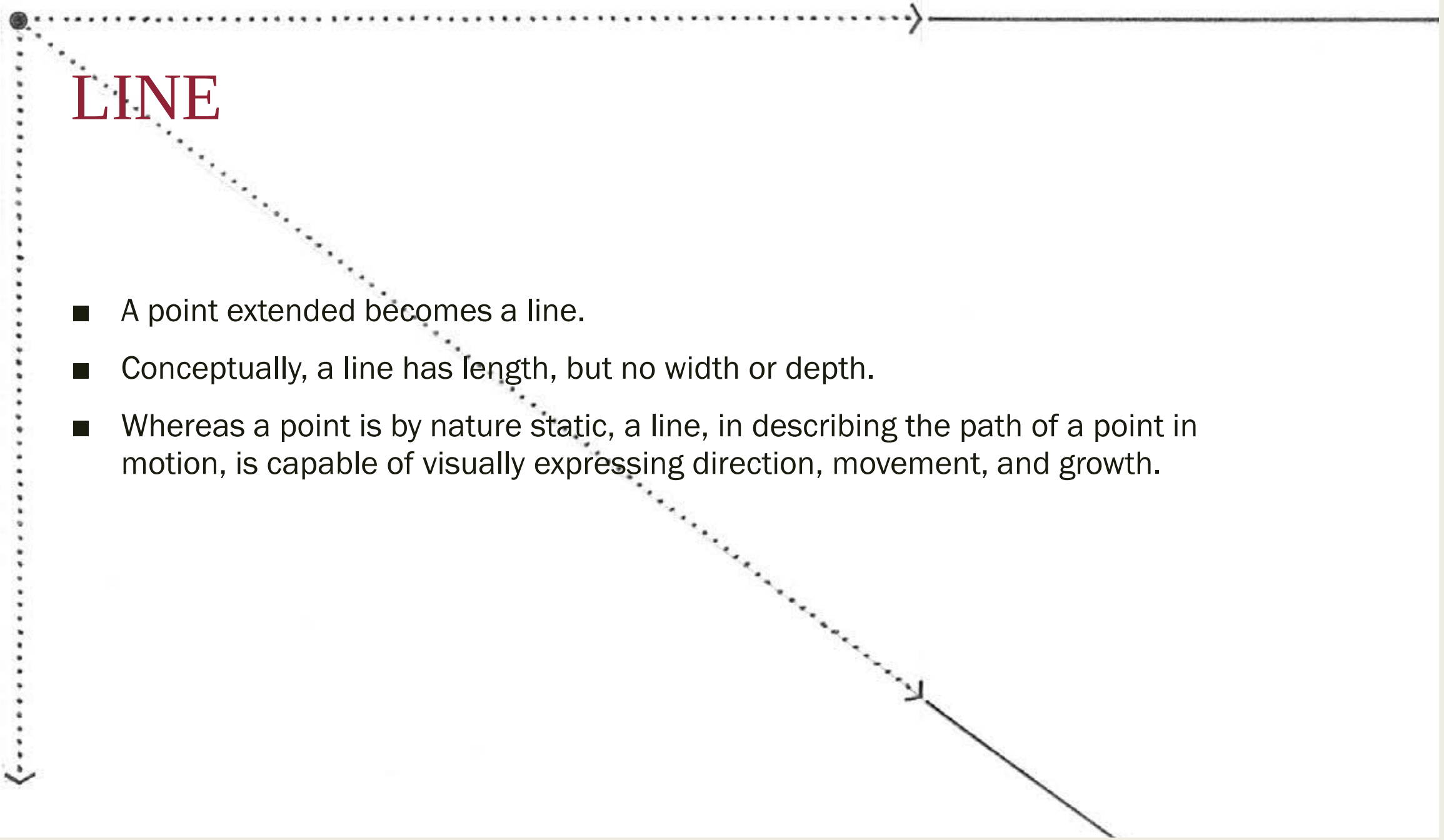
- Two points further suggest an axis perpendicular to the line they describe and about which they are symmetrical.
- Because this axis may be infinite in length, it can be at times more dominant than the described line.
- In both cases, however, the described line and the perpendicular axis are optically more dominant than the infinite number of lines that may pass through each of the individual points.





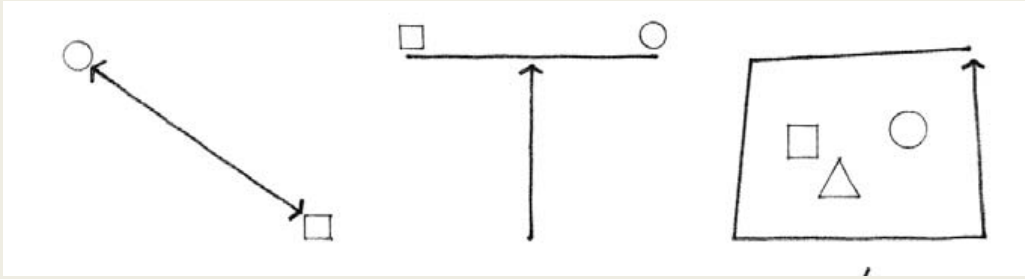
LINE

- A point extended becomes a line.
- Conceptually, a line has length, but no width or depth.
- Whereas a point is by nature static, a line, in describing the path of a point in motion, is capable of visually expressing direction, movement, and growth.

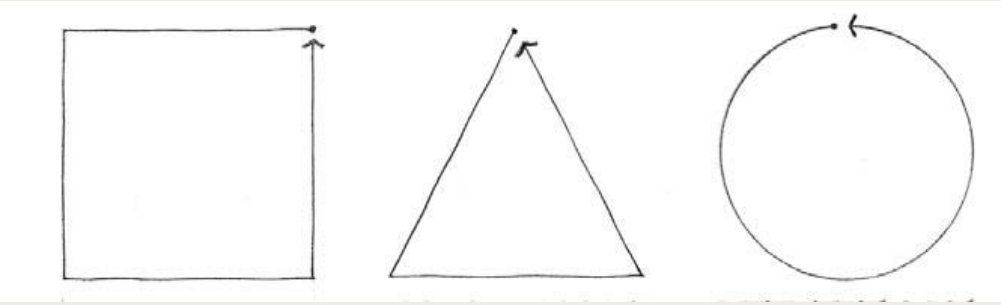


- A line is a critical element in the formation of any visual construction.
- It can serve to:

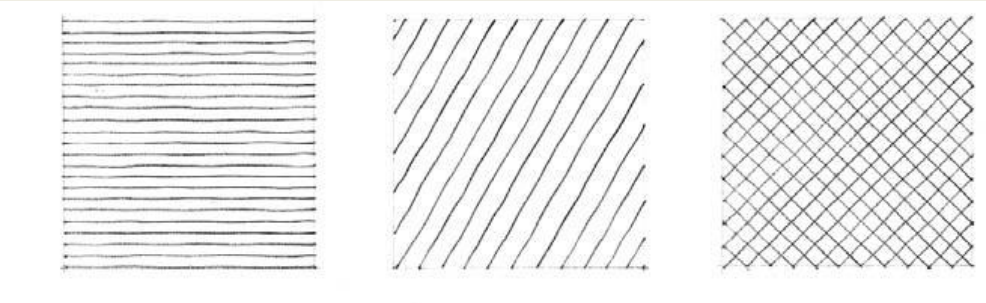
• join, link, support, surround, or intersect other visual elements



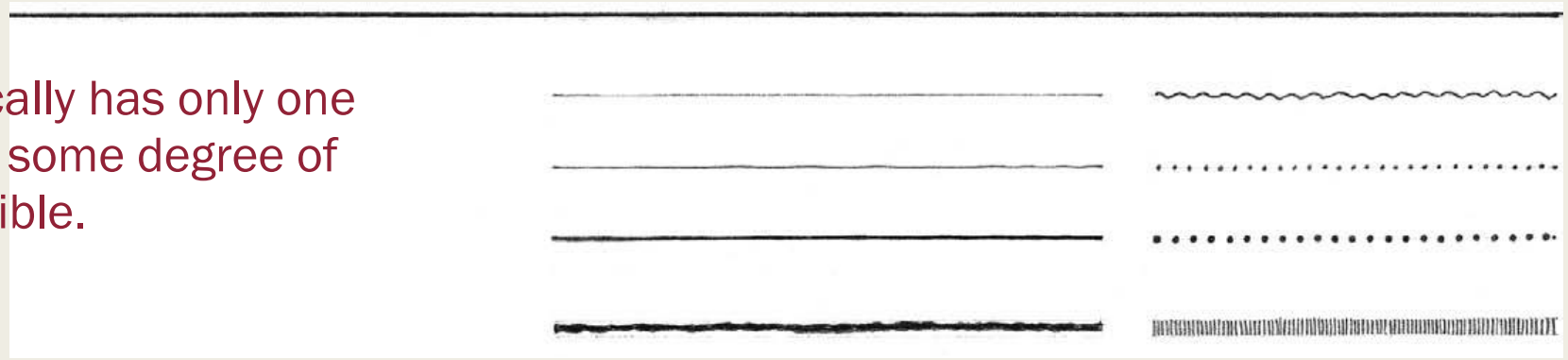
• describe the edges of and give shape to planes



• articulate the surfaces of planes

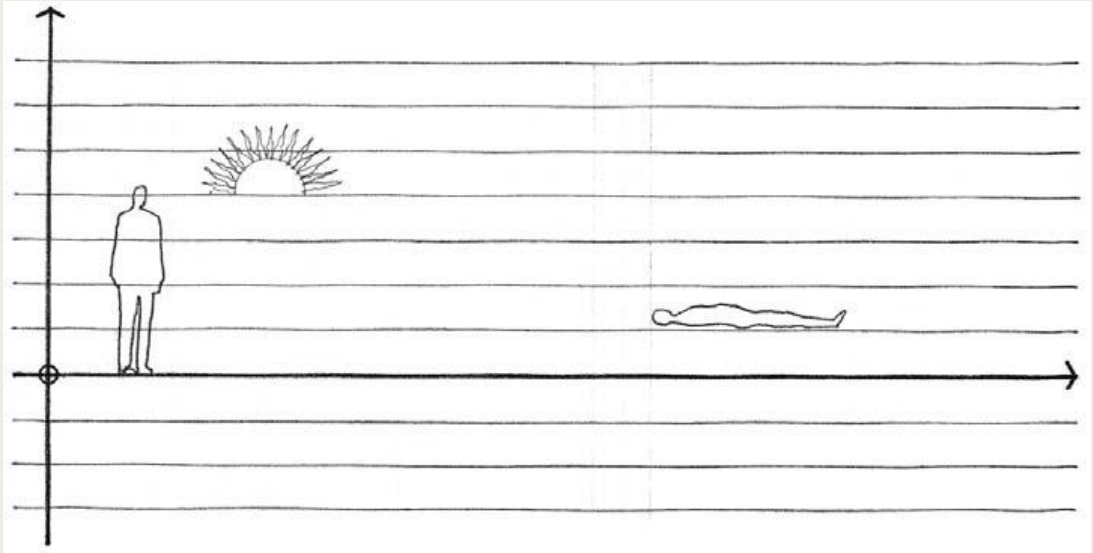


- Although a line theoretically has only one dimension, it must have some degree of thickness to become visible.

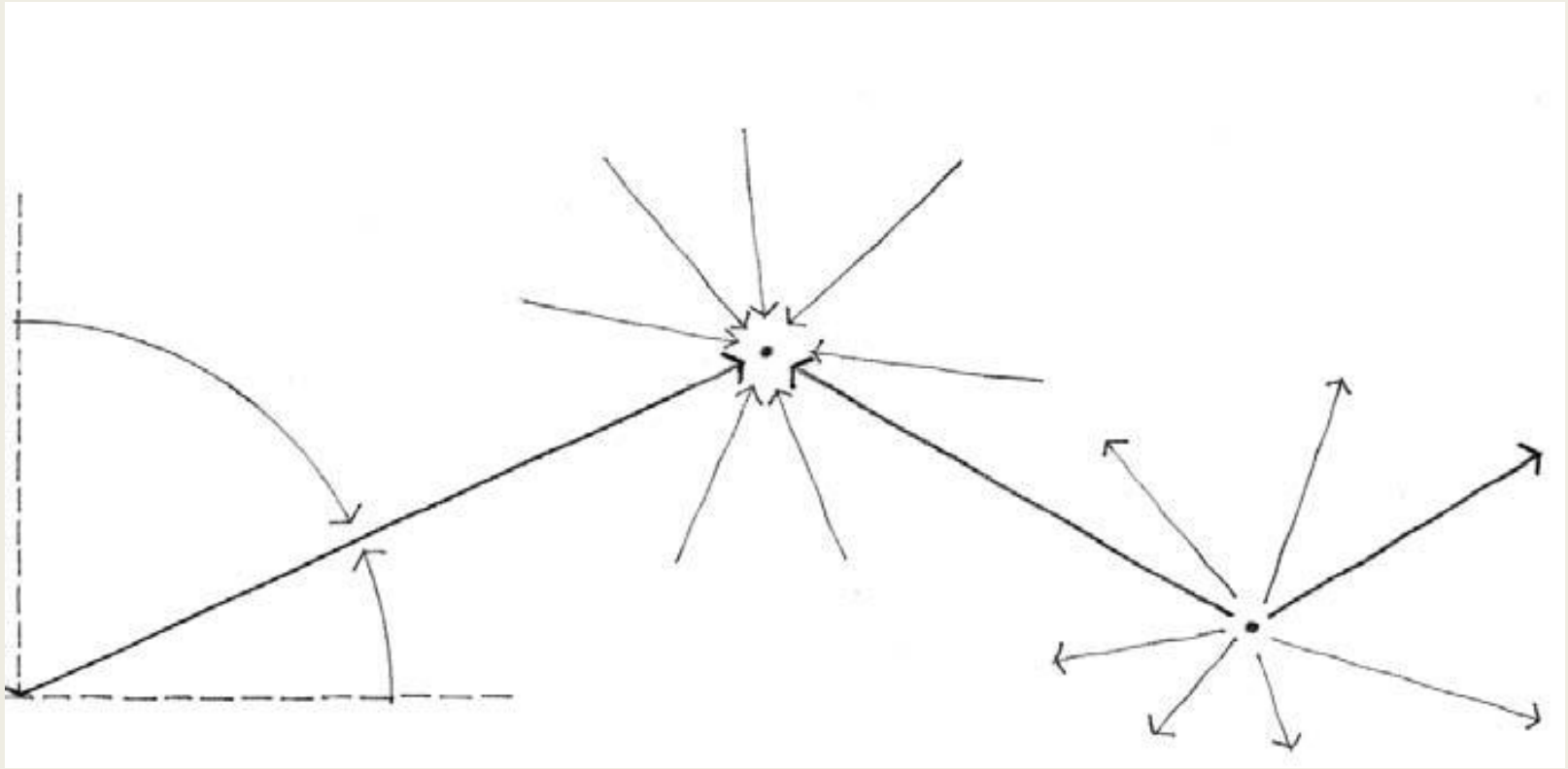


- Even the simple repetition of similar elements, if continuous enough, can be regarded as a line. This type of line has significant textural qualities.

- The orientation of a line affects its role in a visual construction.
- While a vertical line can express a state of equilibrium with the force of gravity, symbolize the human condition, or mark a position in space,
- horizontal line can represent stability, the ground plane, the horizon, or a body at rest.

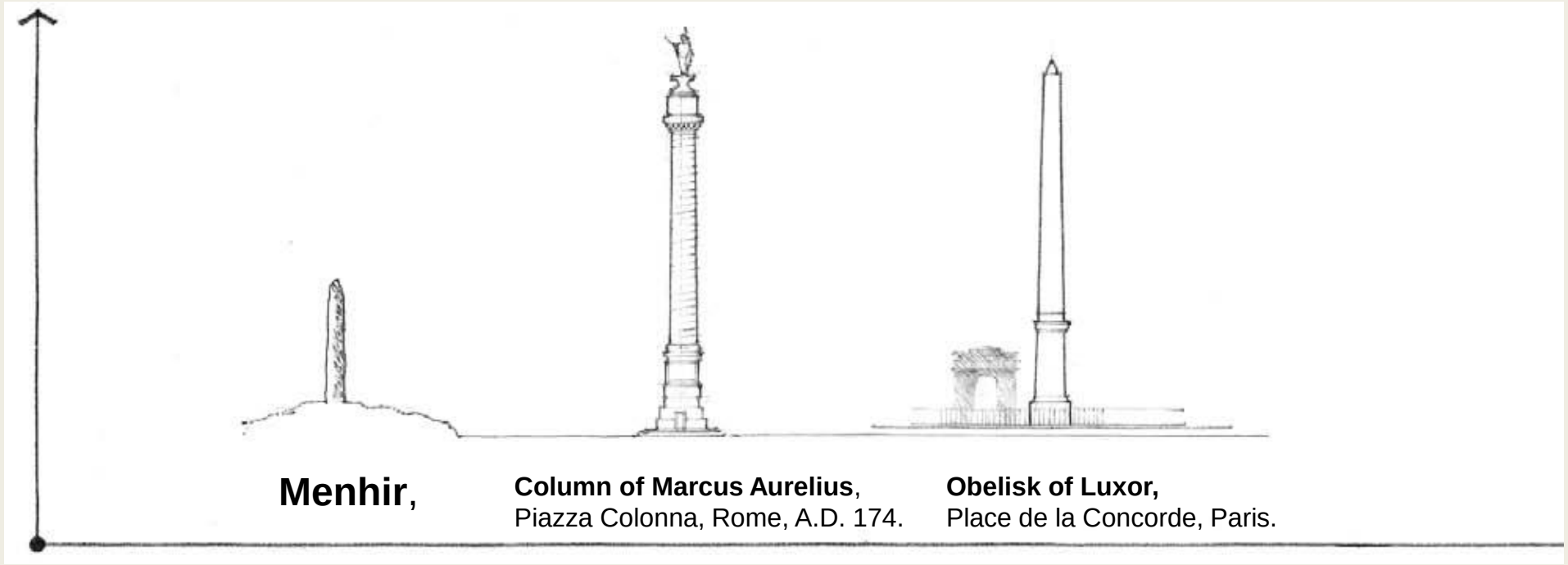


- An oblique line is a deviation from the vertical or horizontal.
- It may be seen as a vertical line falling or a
- horizontal line rising.
- In either case, whether it is falling toward a point on the ground plane or rising to a
- place in the sky, **it is dynamic and visually active in its unbalanced state.**



LINEAR ELEMENTS

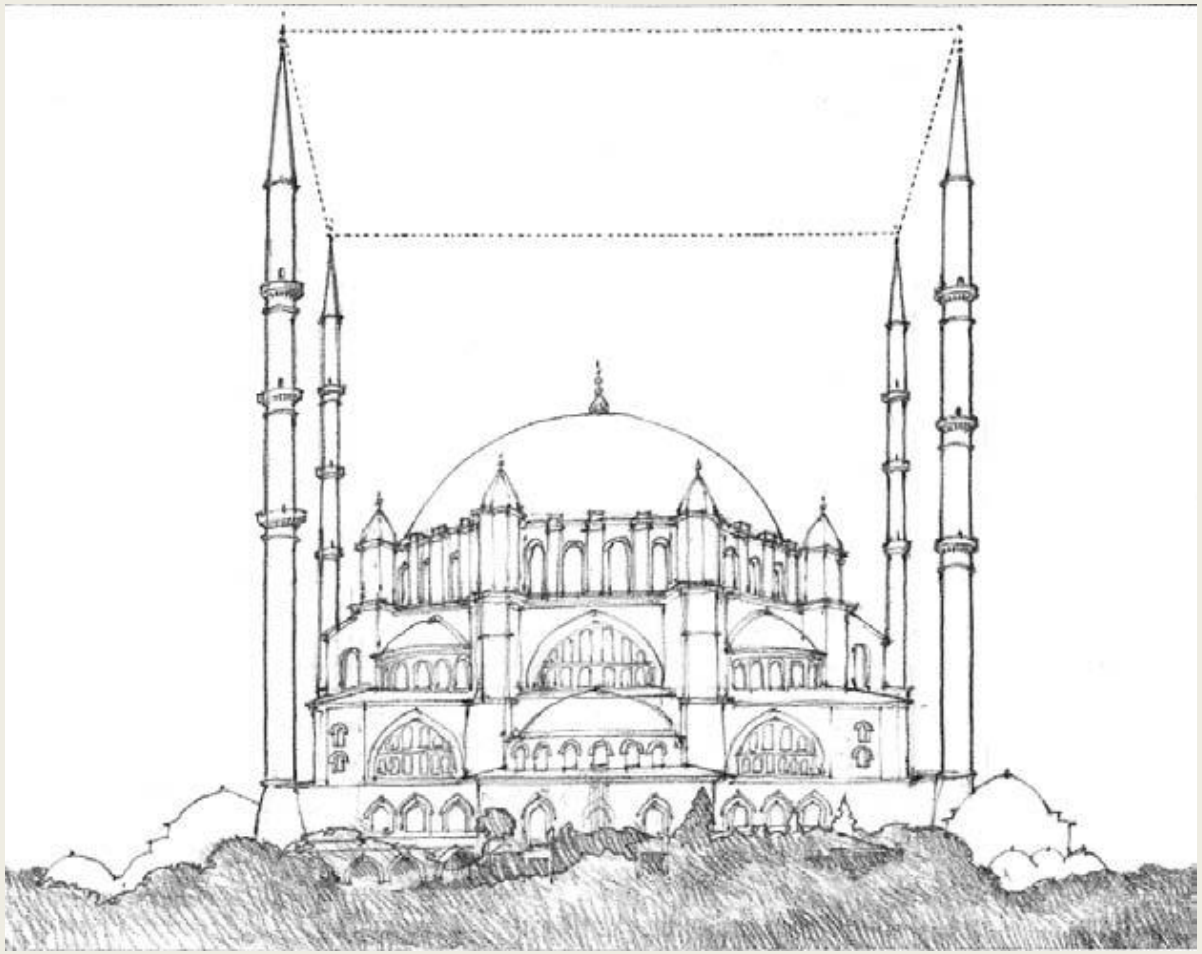
- Vertical linear elements, such as columns, obelisks, and towers, have been used throughout history to commemorate significant events and establish particular points in space.



Menhir,

Column of Marcus Aurelius,
Piazza Colonna, Rome, A.D. 174.

Obelisk of Luxor,
Place de la Concorde, Paris.



Selim Mosque, Edirne, Turkey,
A.D. 1569–75

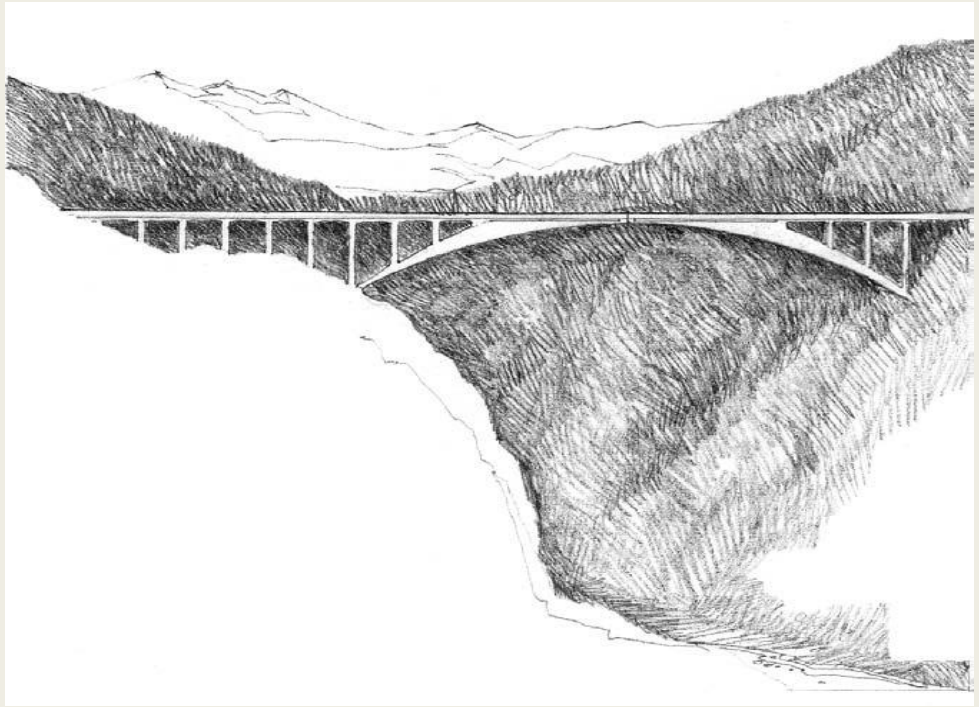
- Vertical linear elements can also define a transparent volume of space.
- In the example illustrated to the left, four minaret towers outline a spatial field from which the dome of the Selim Mosque rises in splendor.

- Linear members that possess the necessary material strength can perform structural functions.
- In these three examples, linear elements:

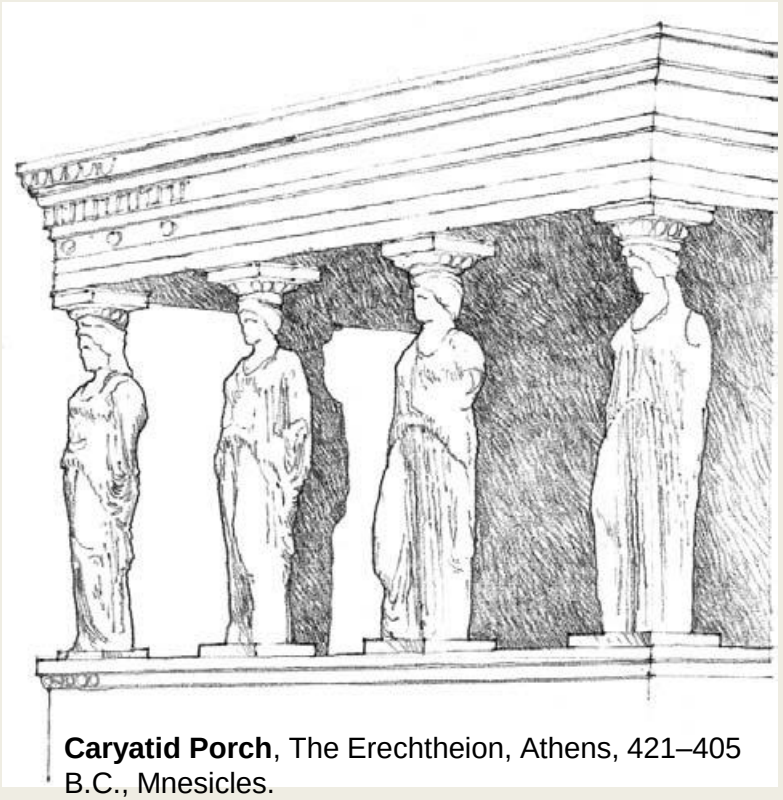
• express movement across space

• provide support for an overhead plane

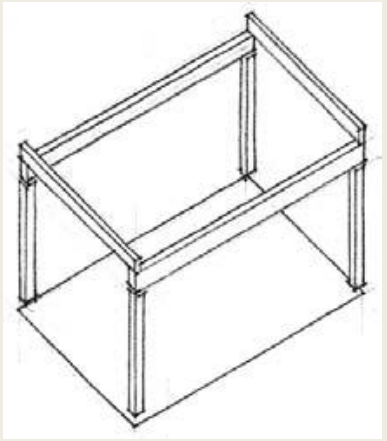
• form a three-dimensional structural frame for architectural space

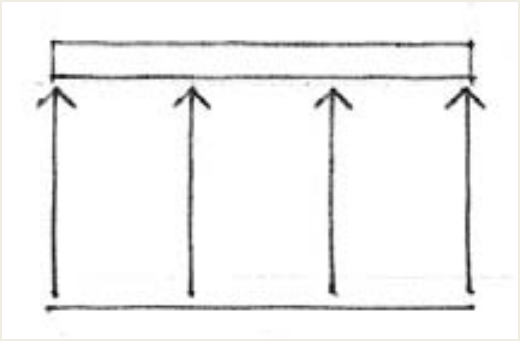


Salginatobel Bridge, Switzerland, 1929–30, Robert Maillart.
Beams and girders have the bending strength to span the space between their supports and carry transverse loads.



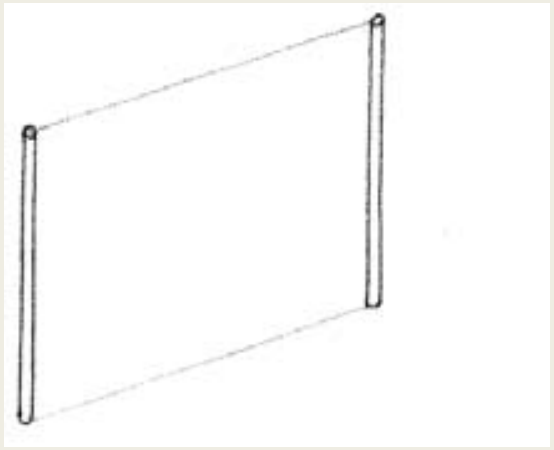
Caryatid Porch, The Erechtheion, Athens, 421–405 B.C., Mnesicles.
The sculptured female figures stand as columnar supports for the entablature.

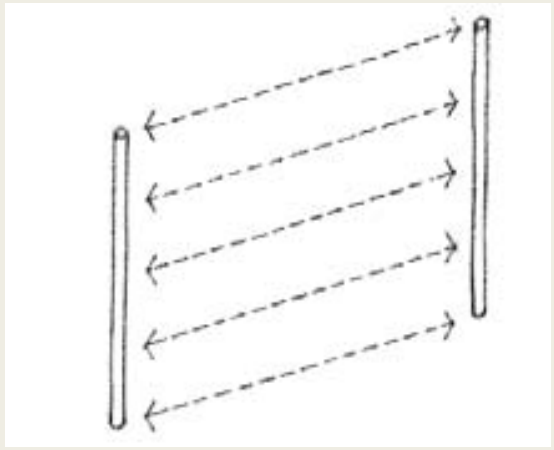


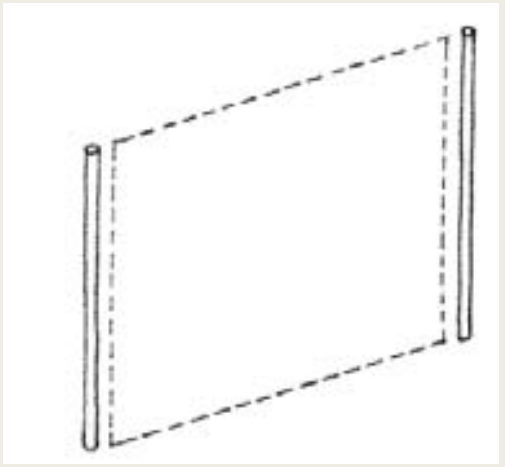


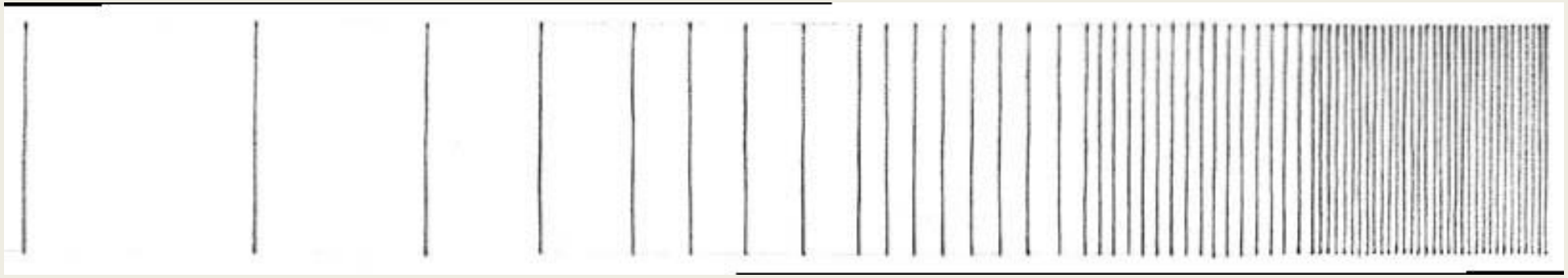
Katsura Imperial Villa, Kyoto, Japan, 17th century.
Linear columns and beams together form a three-dimensional framework for architectural space.

FROM LINE TO PLANE

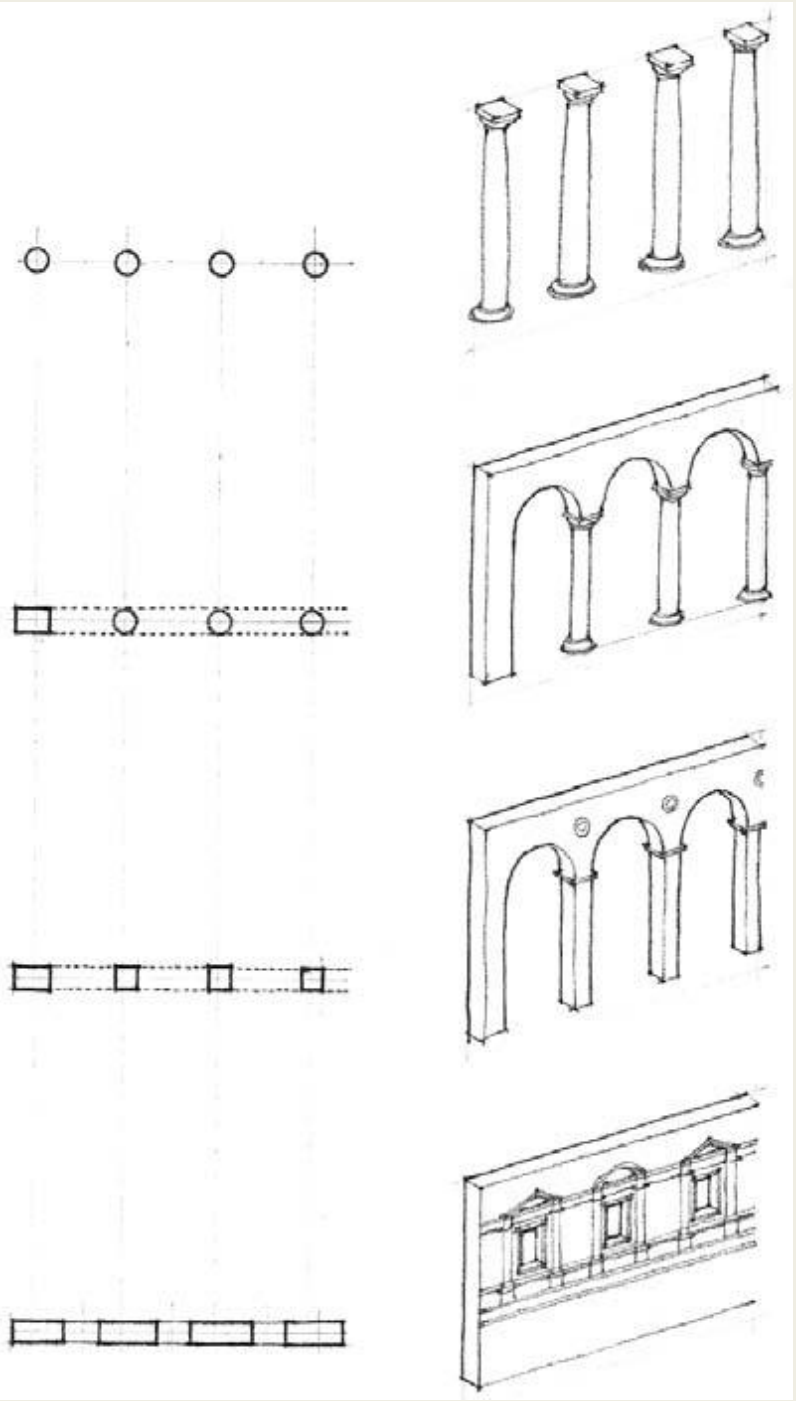






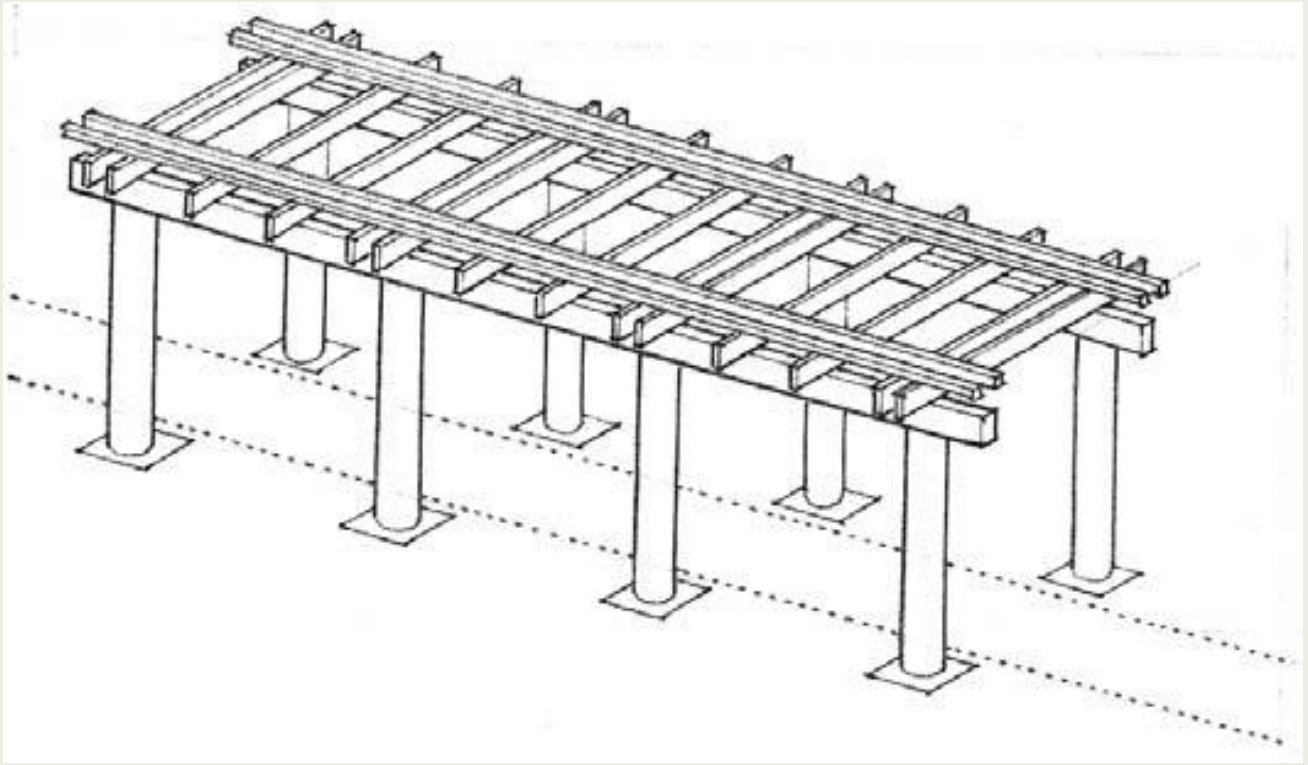


- Two parallel lines have the ability to visually describe a plane.
- The closer these lines are to each other, the stronger will be the sense of plane they convey.
- A series of parallel lines, through their repetitiveness, reinforces our perception of the plane they describe.
- The diagrams illustrate the transformation of a row of round columns, initially supporting a portion of a wall, then evolving into square piers which are an integral part of the wall plane, and finally becoming pilasters—remnants of the original columns occurring as a relief along the surface of the wall.



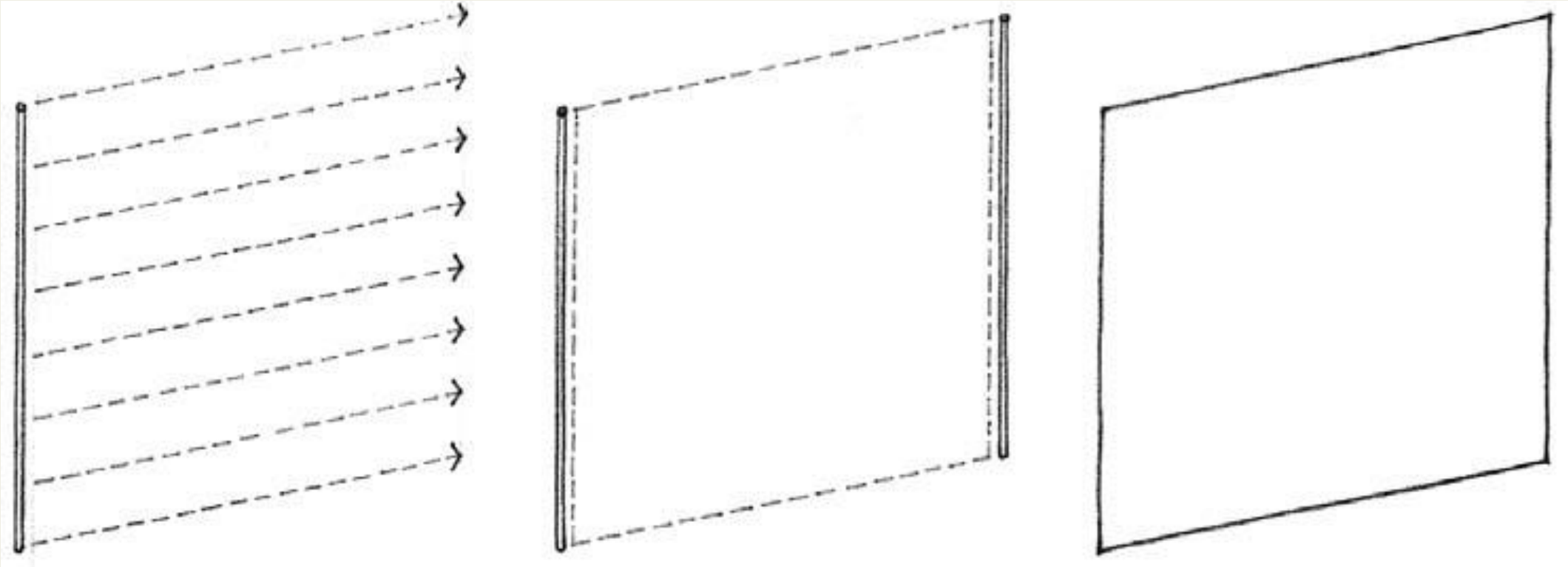
- The linear members of trellises and pergolas can provide a moderate degree of definition and enclosure for outdoor spaces while allowing filtered sunlight and breezes to penetrate.

- Vertical and horizontal linear elements together can define a volume of space

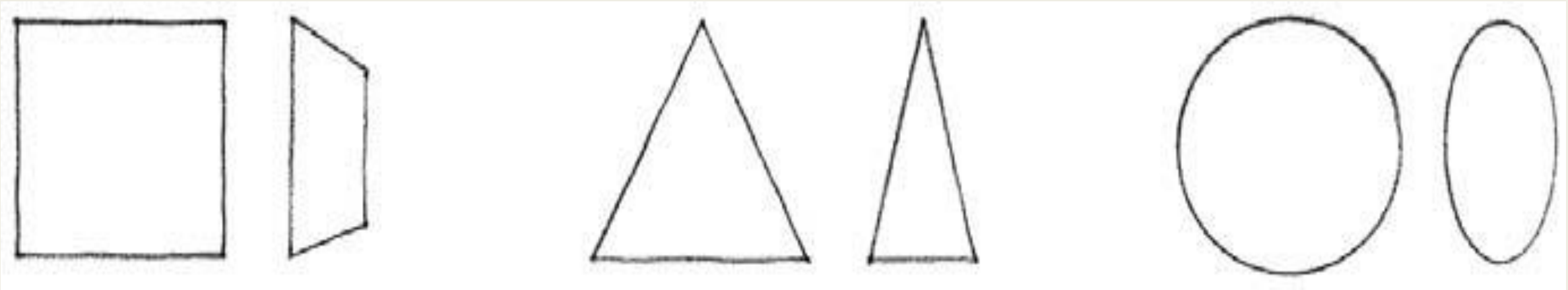


PLANE

- A line extended in a direction becomes a plane.
- A plane has length and width, but no depth.

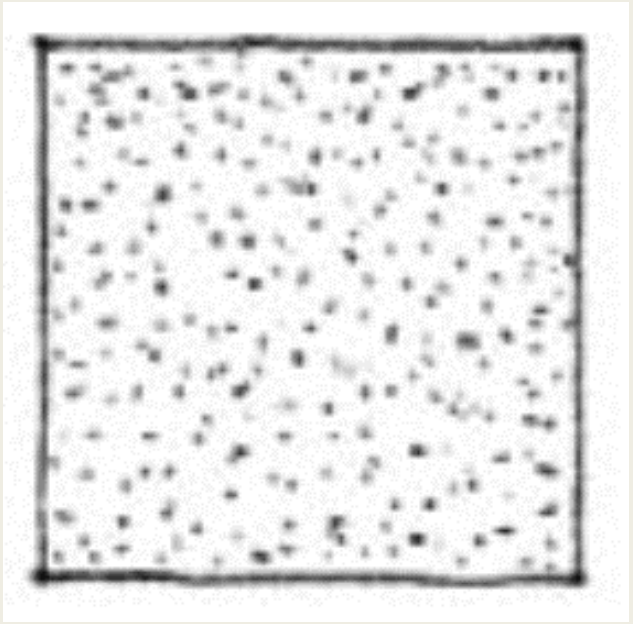


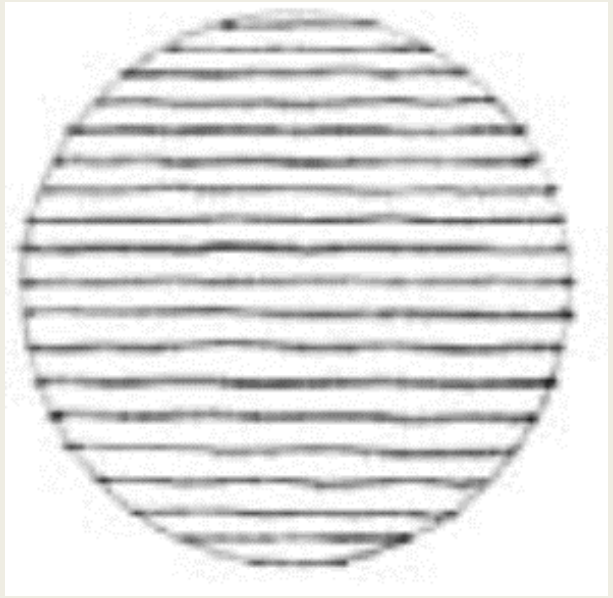
- Shape is the primary identifying characteristic of a plane.
- It is determined by the contour of the line forming the edges of a plane.



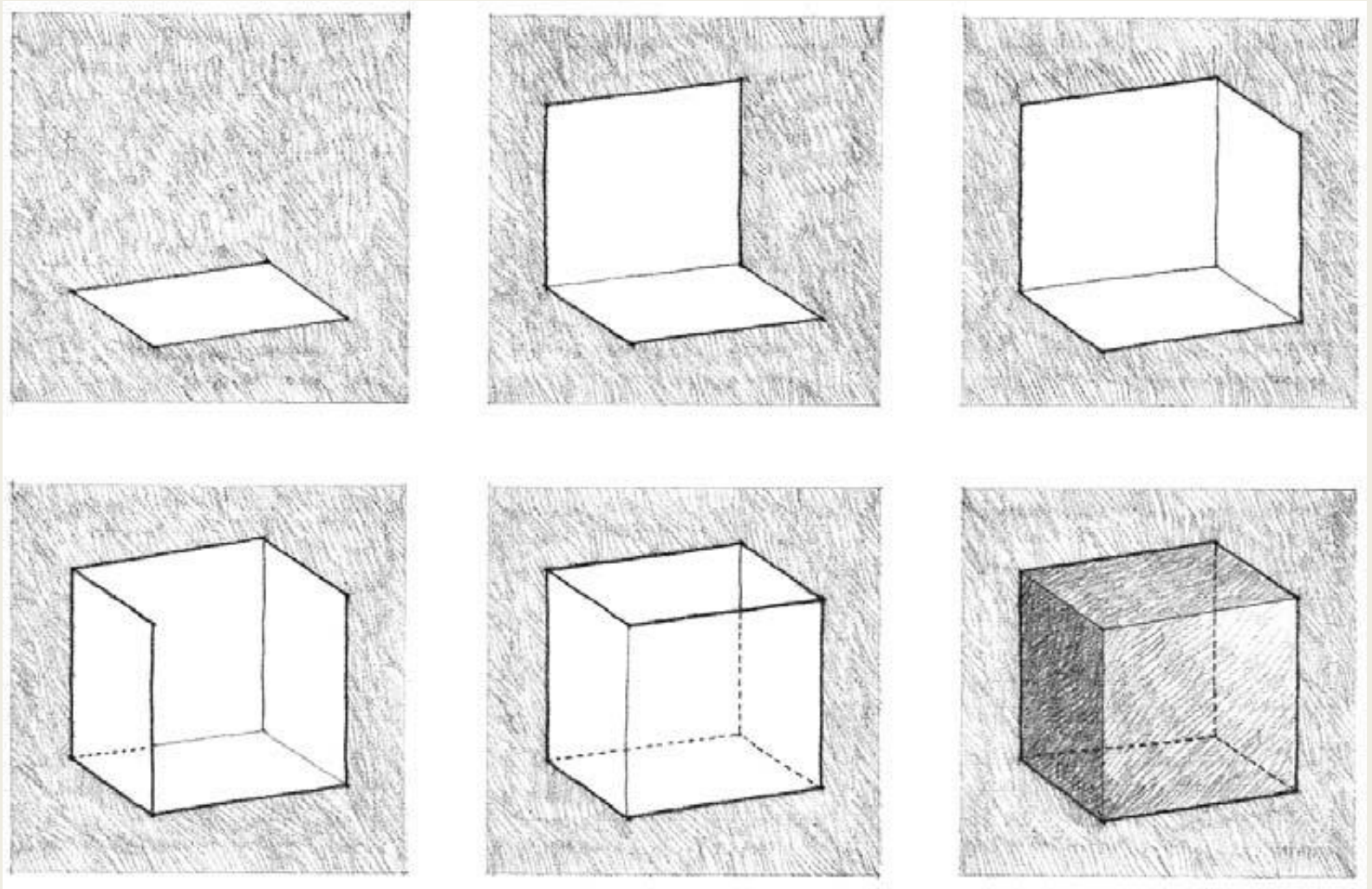
“We see the true shape of a plane only when we view it frontally”

- The supplementary properties of a plane—its surface color, pattern, and texture—affect its visual weight and stability.

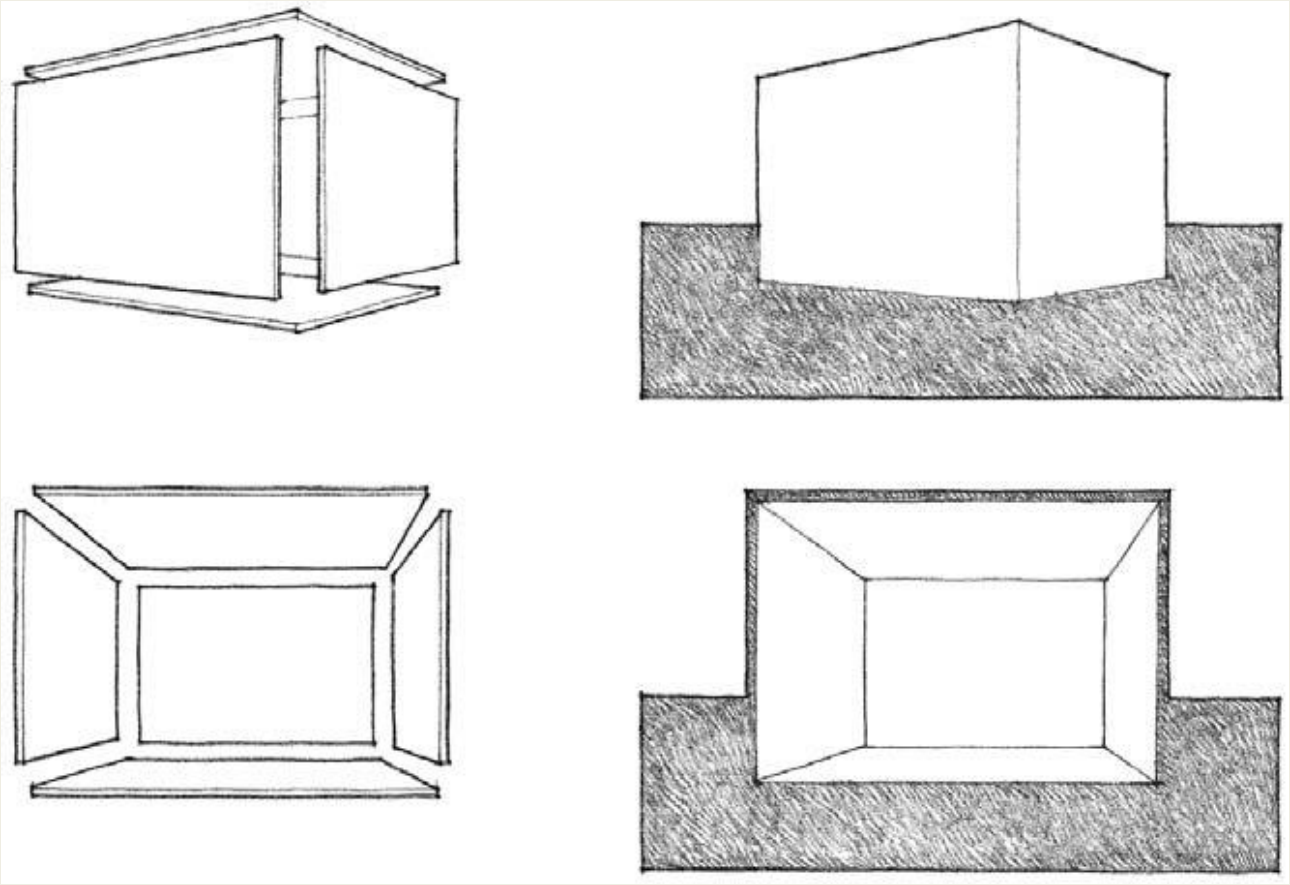




In the composition of a visual construction, a plane serves to define the boundaries of a volume.



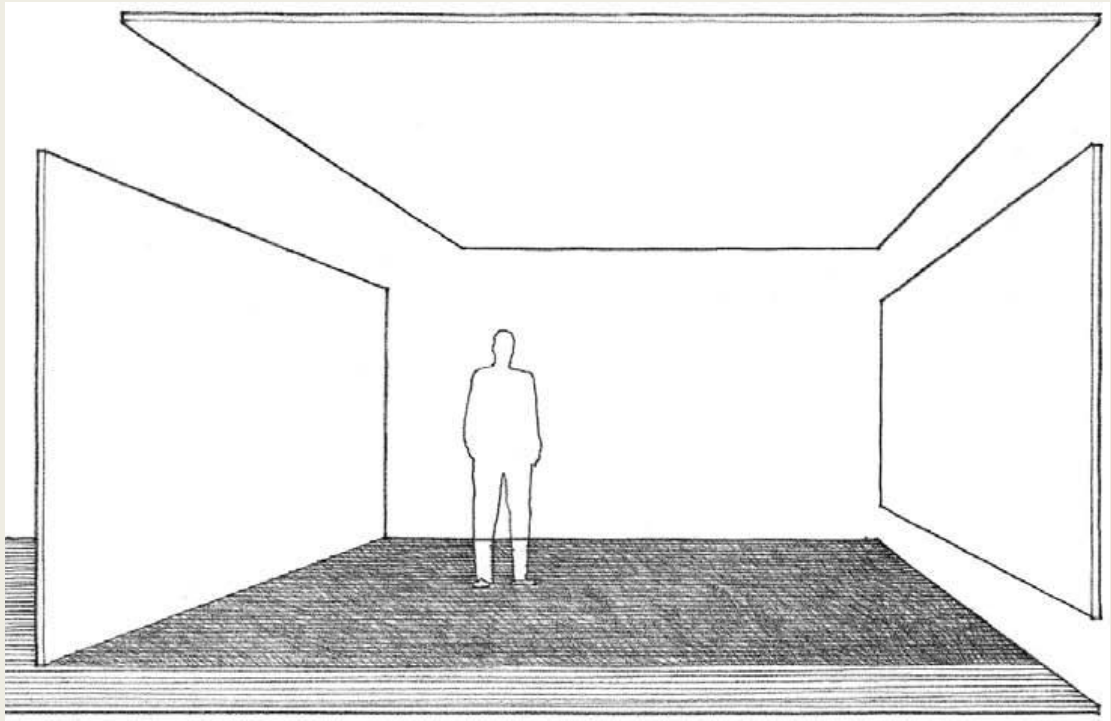
- Planes in architecture define **three-dimensional volumes** of mass and space.
- The properties of each plane—size, shape, color, texture —as well as their spatial relationship to one another ultimately determine the visual attributes of the form they define and the qualities of the space they enclose.



- In architectural design, we manipulate three generic types of planes:

- **Overhead Plane**

The overhead plane can be either the roof plane that shelters the interior spaces of a building from the climatic elements, or the ceiling plane that forms the upper enclosing surface of a room.



- **Wall Plane**

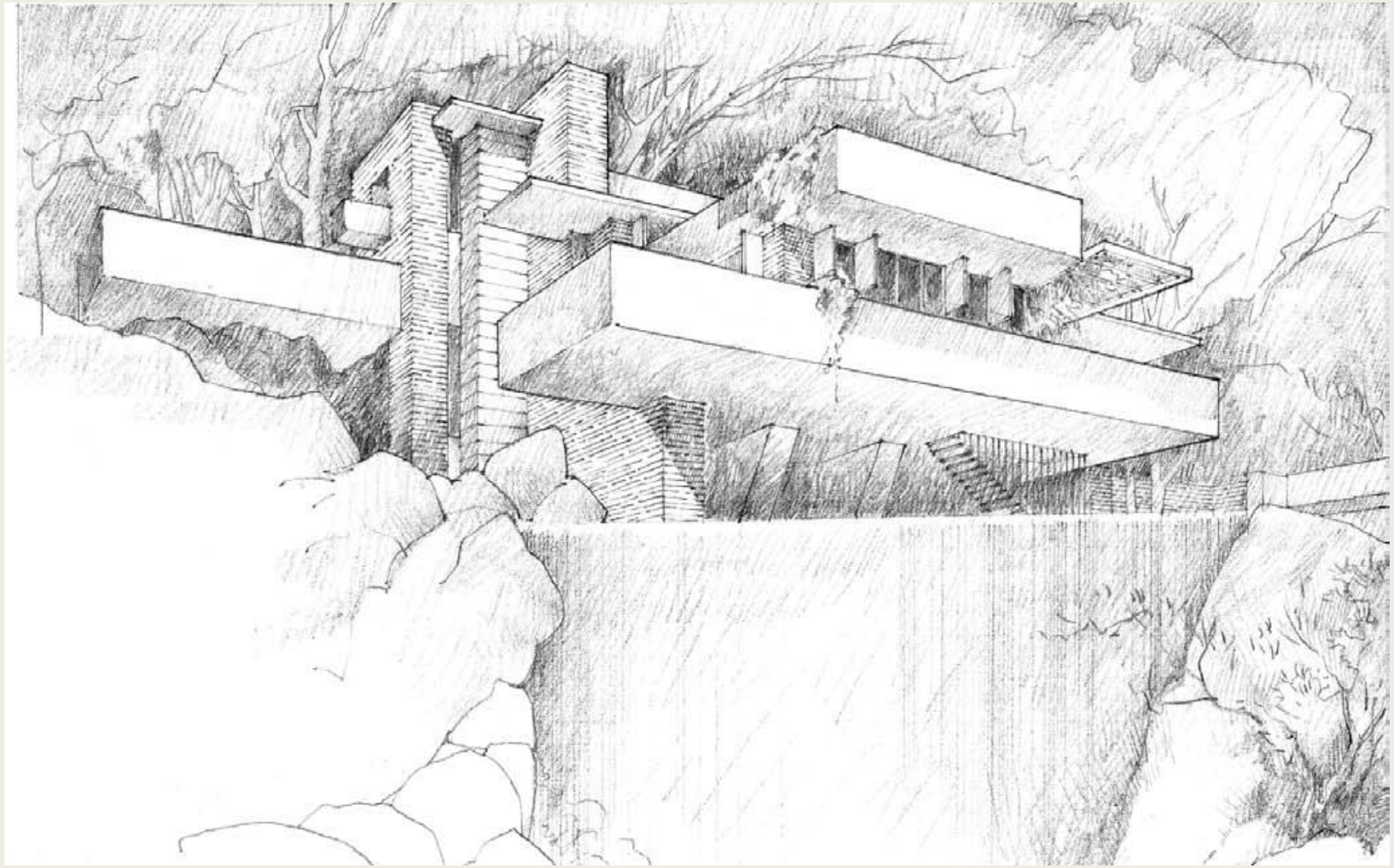
The wall plane, because of its vertical orientation, is vital to the shaping and enclosure of architectural space.

- **Base Plane**

The base plane can be either

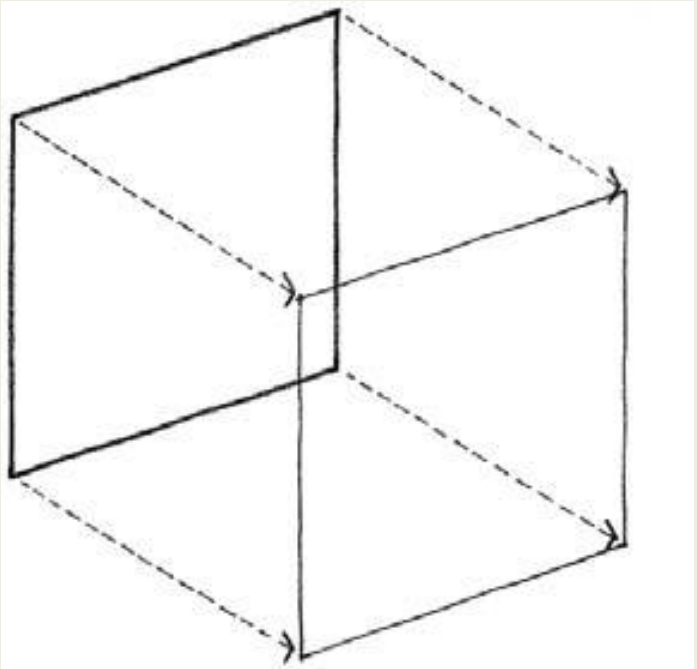
1. the ground plane that serves as the physical foundation
2. visual base for building forms,
3. the floor plane that forms the lower enclosing surface of a room upon which we walk.

- **Fallingwater (Kaufmann House)**, near Ohiopyle, Pennsylvania ,1936–37, Frank Lloyd Wright.
- Reinforced concrete slabs express the horizontality of the floor and roof planes as they cantilever outward from a central vertical core.

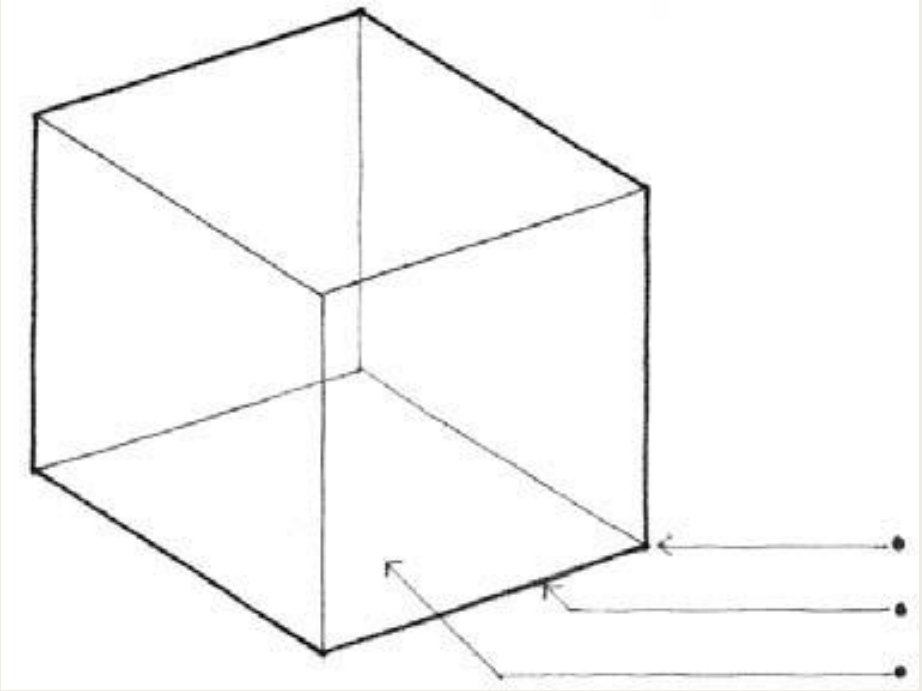


- The overall form of a building can be endowed with a distinctly planar quality by carefully introducing openings that expose the edges of vertical and horizontal planes.
- These planes can be further differentiated and accentuated by changes in color, texture, or material.

VOLUME



- Plane extended in a direction becomes a volume.
- A volume has three dimensions: length, width, and depth.

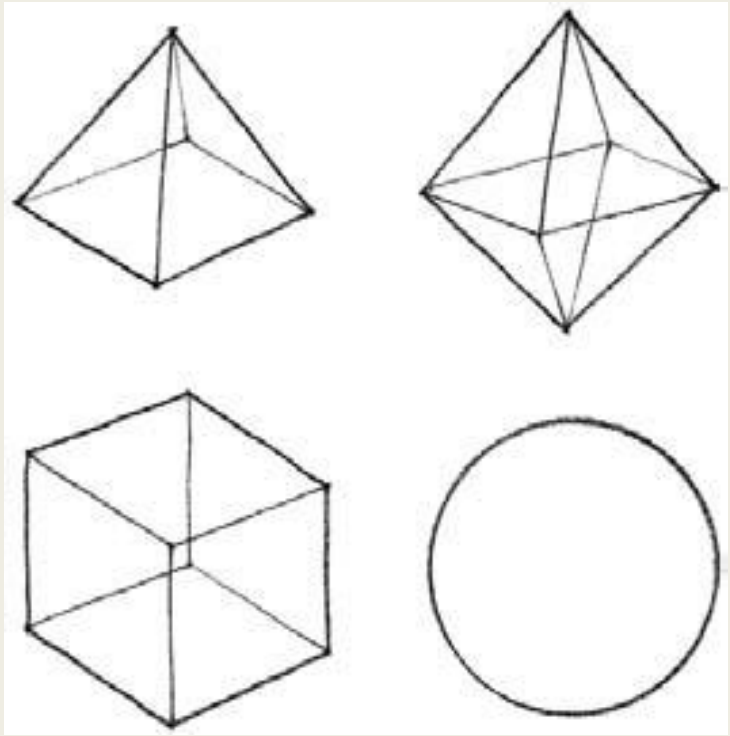


All volumes can be analyzed and understood to consist of:

points where several planes come together
lines or edges where two planes meet
planes or surfaces that define the boundaries of a volume

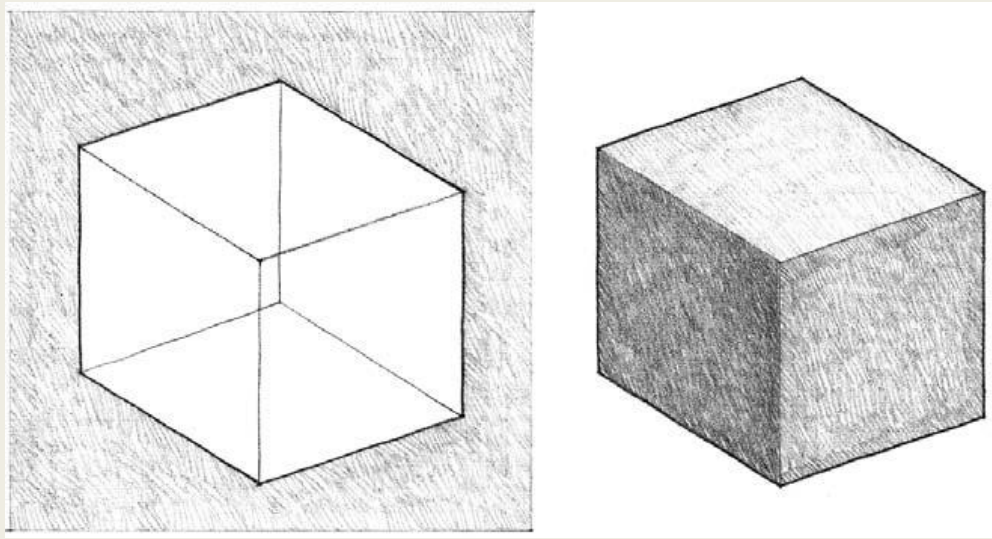
VOLUME

- Form is the primary identifying characteristic of a volume.
- It is established by the shapes and interrelationships of the planes that describe the boundaries of the volume.



A VOLUME CAN BE EITHER

a solid—space displaced by mass—
or a void—space contained or enclosed by planes.



VOLUME IN ARCHITECTURE

- In architecture,

  a **volume** can be seen to be either a portion of space contained and defined by wall, floor, and ceiling or roof planes,

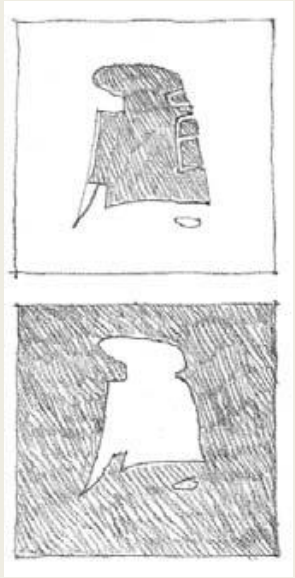
  or

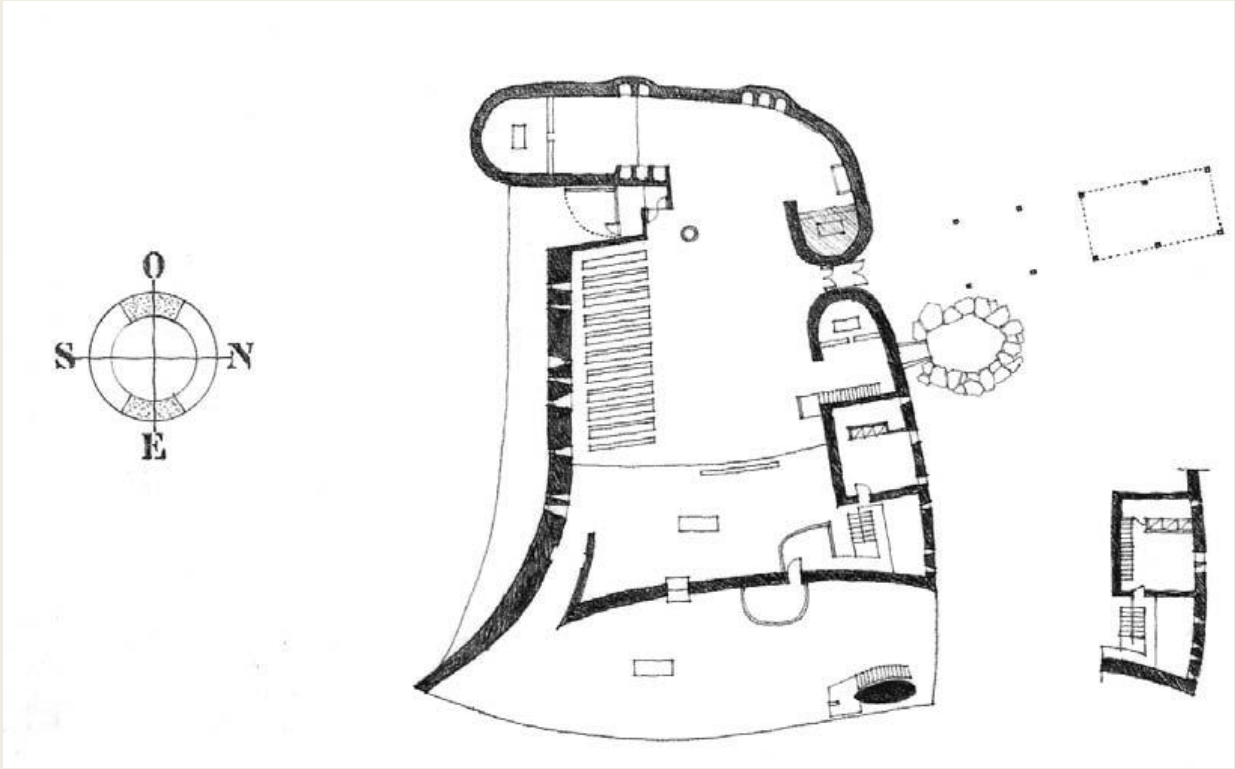
  a quantity of space displaced by the mass of a building.

- It is important to perceive this duality, especially when reading orthographic plans, elevations, and sections.

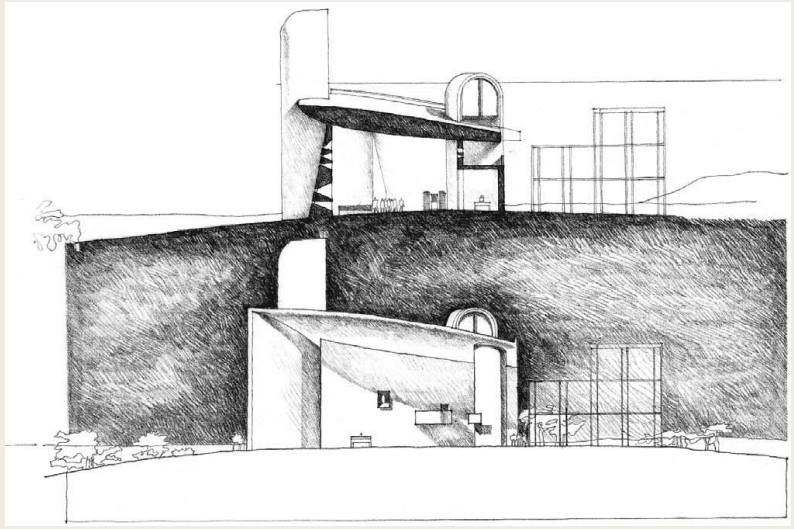
- **Plan and Section**

Space defined by wall, floor, and ceiling or roof planes





Elevation
Space displaced by the mass of a building

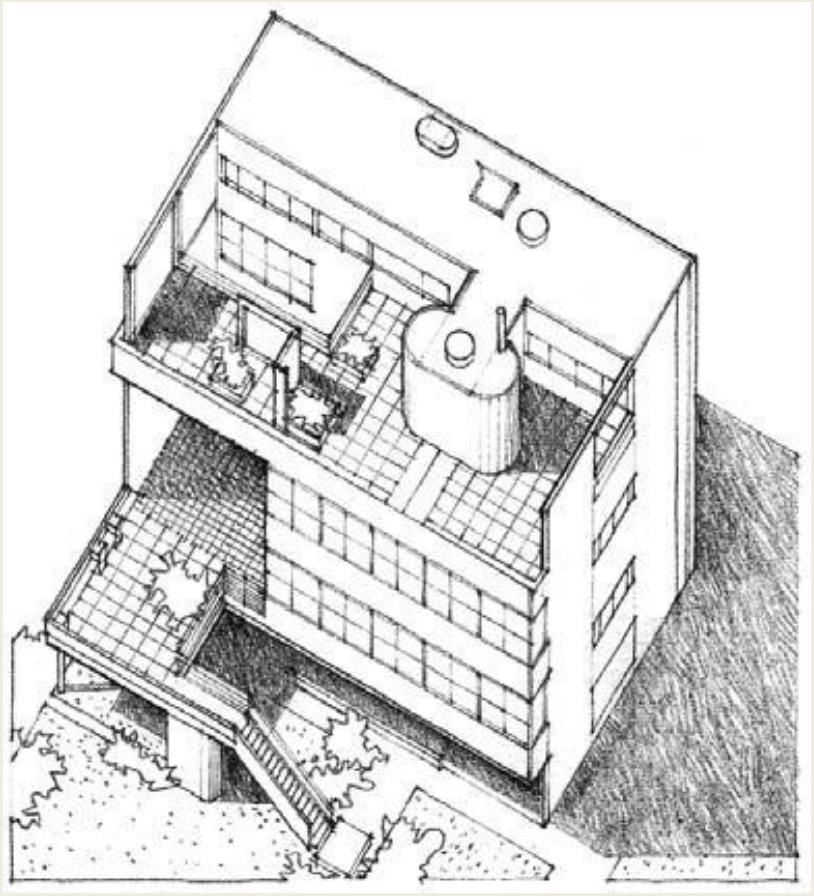


Notre Dame Du Haut, Ronchamp, France, 1950–55, Le Corbusier

VOLUMETRIC ELEMENTS

- Building forms that stand as objects in the landscape can be read as occupying volumes in space.

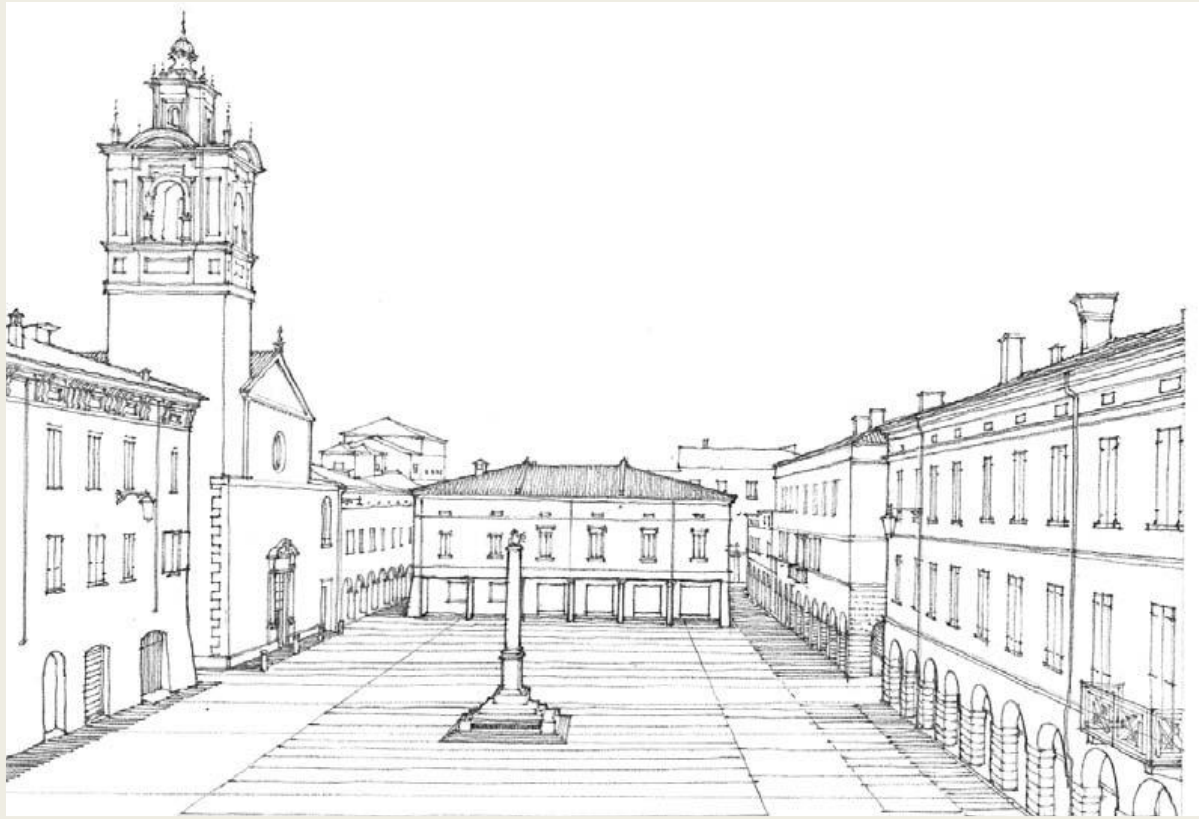
Doric Temple at Segesta, Sicily, c. 424–416 B.C.



Villa Garches,
Vaucresson, France,
1926–27, Le Corbusier

VOLUMETRIC ELEMENTS

- Building forms that serve as containers can be read as masses that define volumes of space



Piazza Maggiore, Sabbioneta, Italy.
A series of buildings enclose an urban square.

Reference

- Ching, Frank, (1943). Architecture form, space and order.