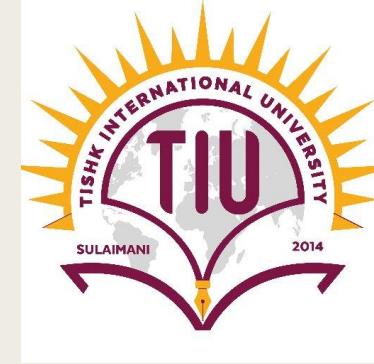


Tishk International university  
Interior design department  
Spring semester 2018-2019

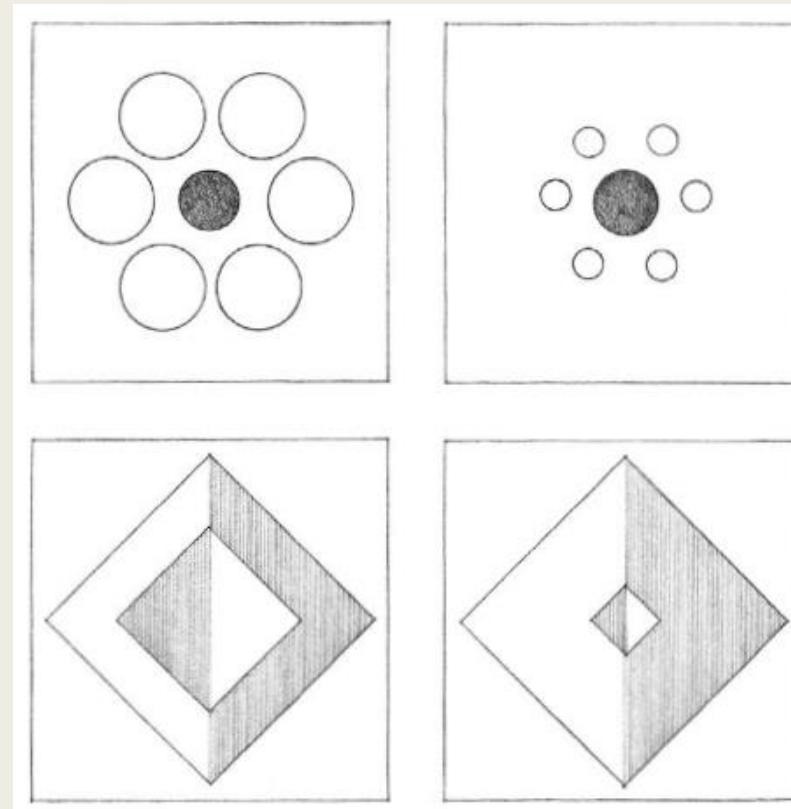


FORM, SPACE & ORDER

# Proportion & Scale Principles

By; Shino Abdullah Mamand  
[Shino.abdullah@ishik.edu.iq](mailto:Shino.abdullah@ishik.edu.iq)

- Scale refers to the size of something compared to a reference standard or to the size of something else,
- proportion refers to the proper or harmonious relation of one part to another or to the whole

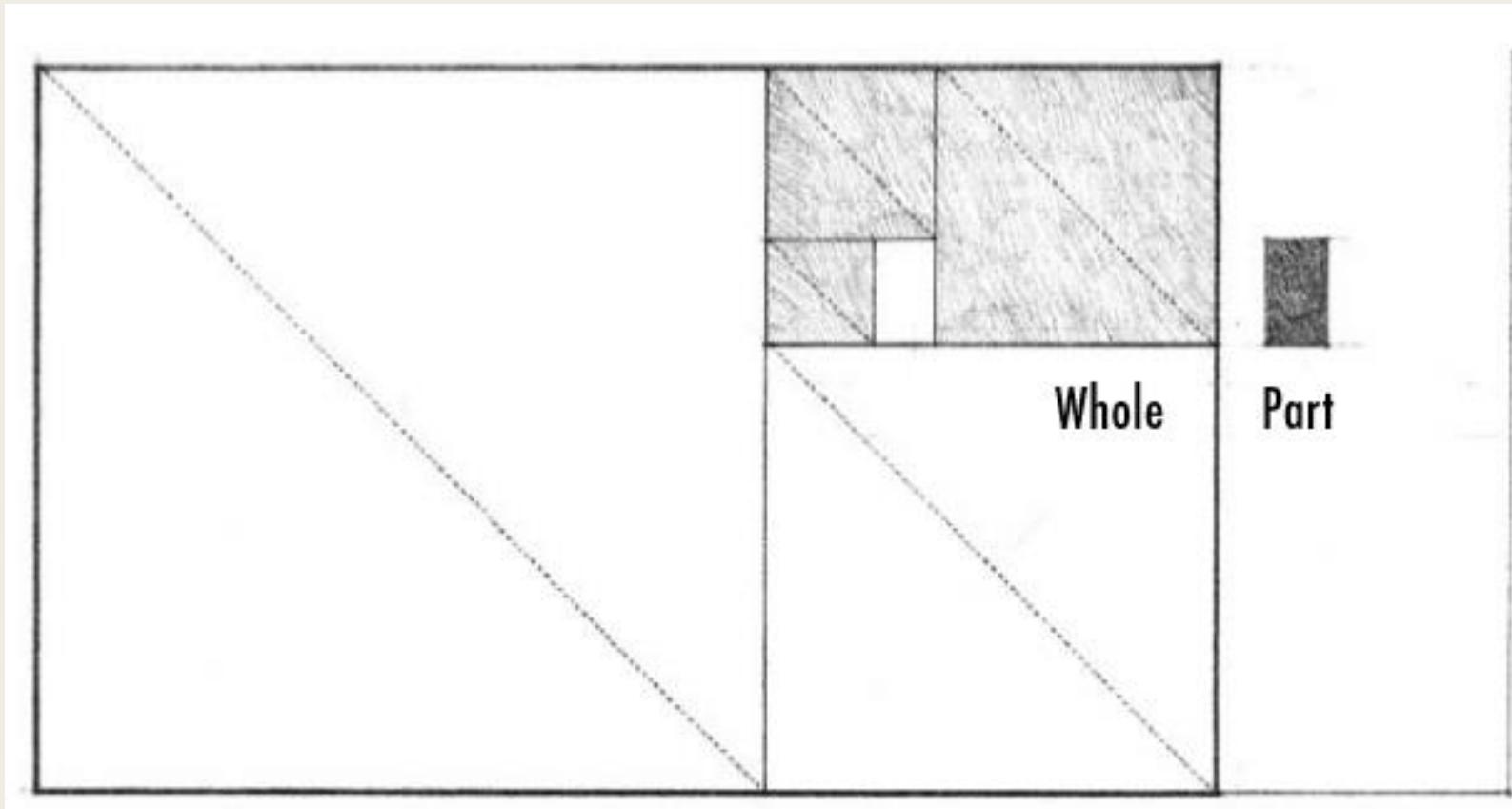


# Proportion

Proportion is the equality between two ratios in which the first of the four terms divided by the second equals the third divided by the fourth

$$\text{Ratio: } \frac{a}{b}$$

$$\text{Proportion: } \frac{a}{b} = \frac{c}{d} \quad \text{or} \quad \frac{a}{b} = \frac{b}{c} = \frac{c}{d} = \frac{d}{e}$$



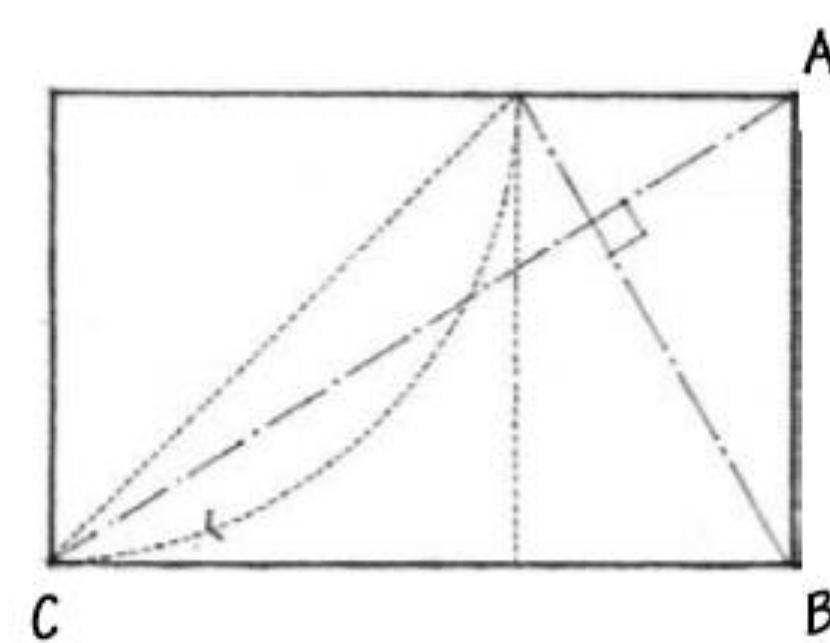
# PROPORTIONING SYSTEMS

Theories of Proportion:

- **Golden Section**
- Classical Orders
- Renaissance Theories
- **Modular**
- **Ken**
- Anthropometry
- **Scale**

A fixed proportion used in determining measurements and dimensions

# 1. Golden Section

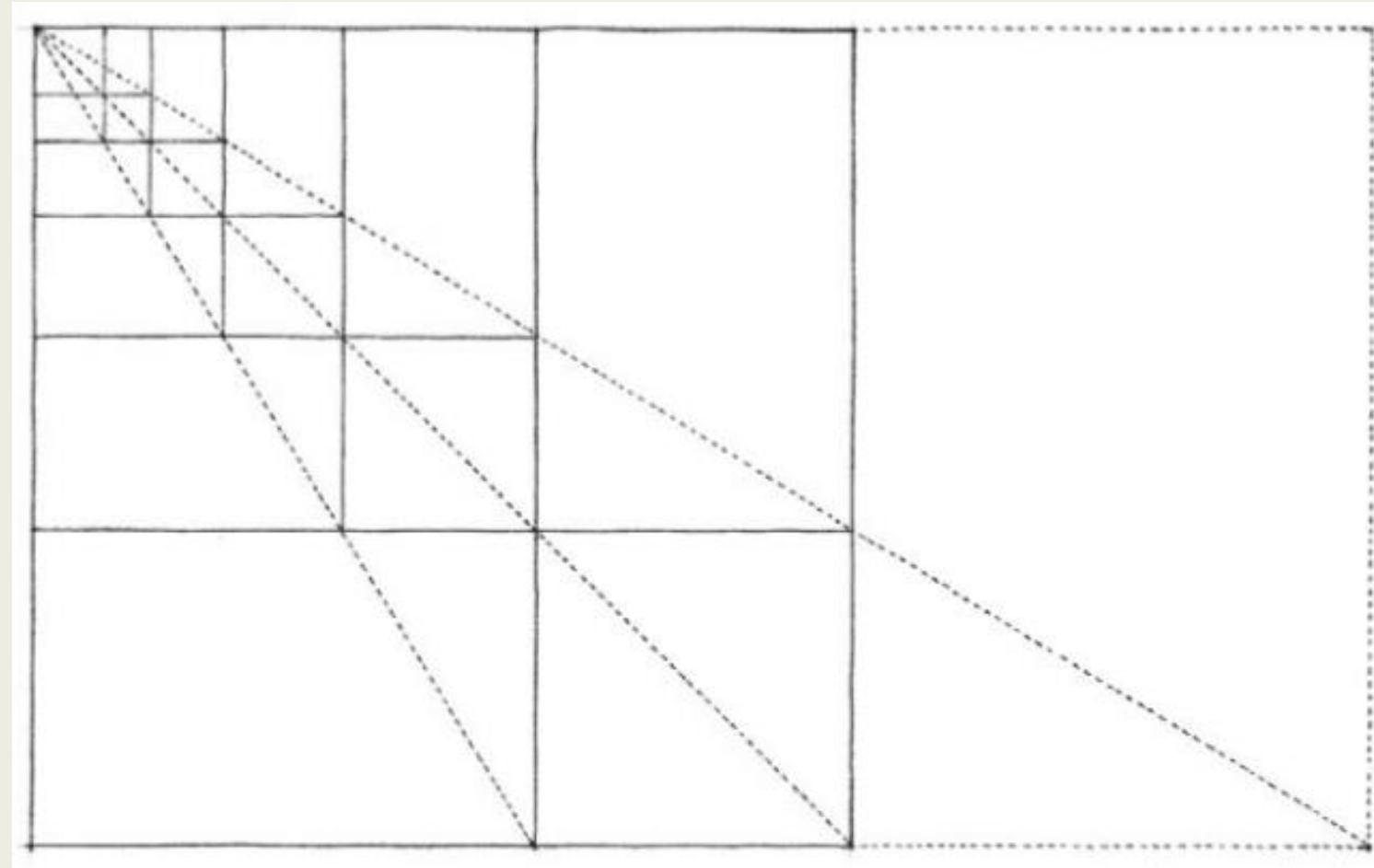


$$AB = a$$

$$BC = b$$

$\theta$  = Golden Section

$$\theta = \frac{a}{b} = \frac{b}{a+b} = 0.618$$



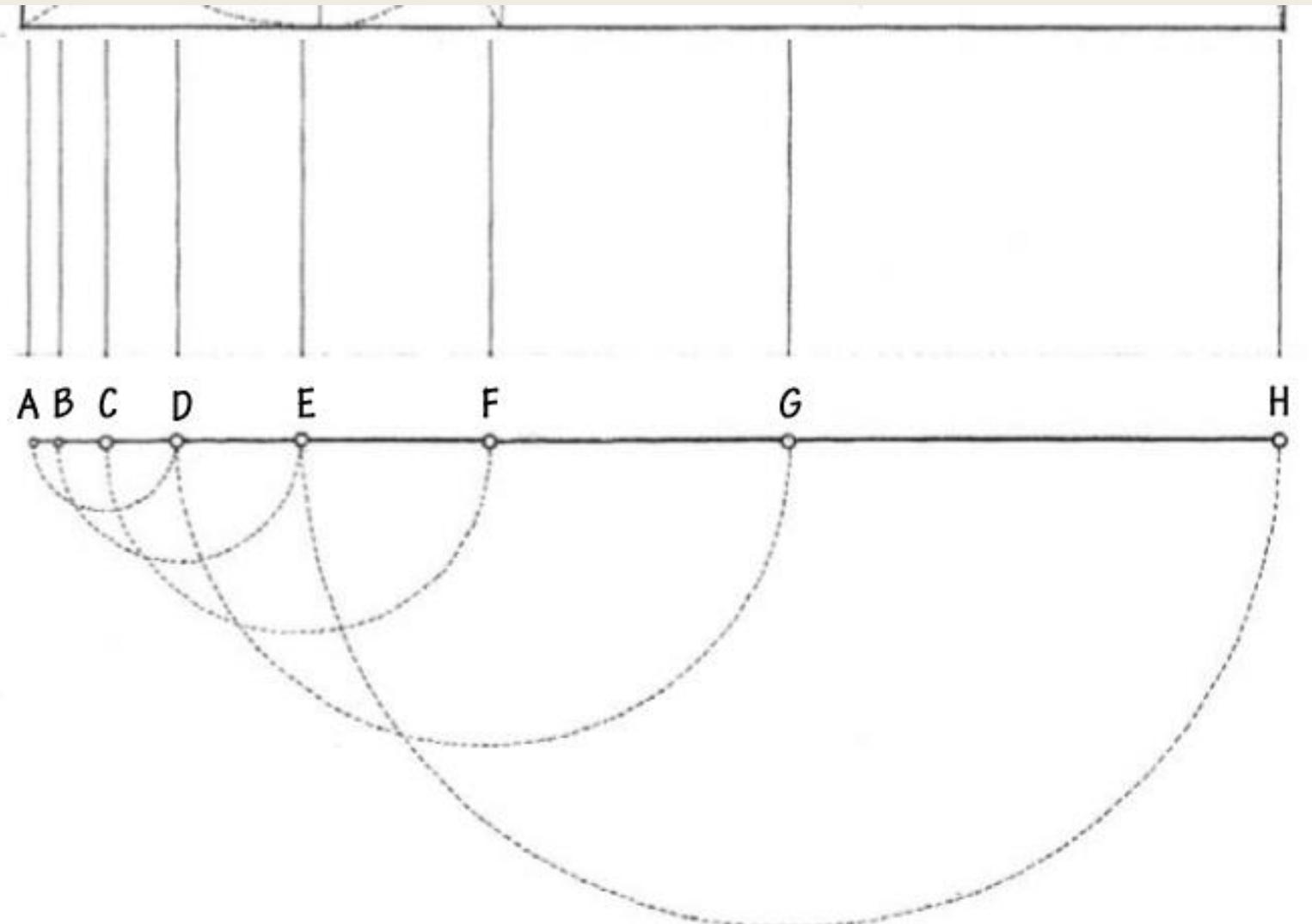
$$\frac{AB}{BC} = \frac{BC}{CD} = \frac{CD}{DE} \dots = 0$$

$$AB + BC = CD$$

$$BC + CD = DE$$

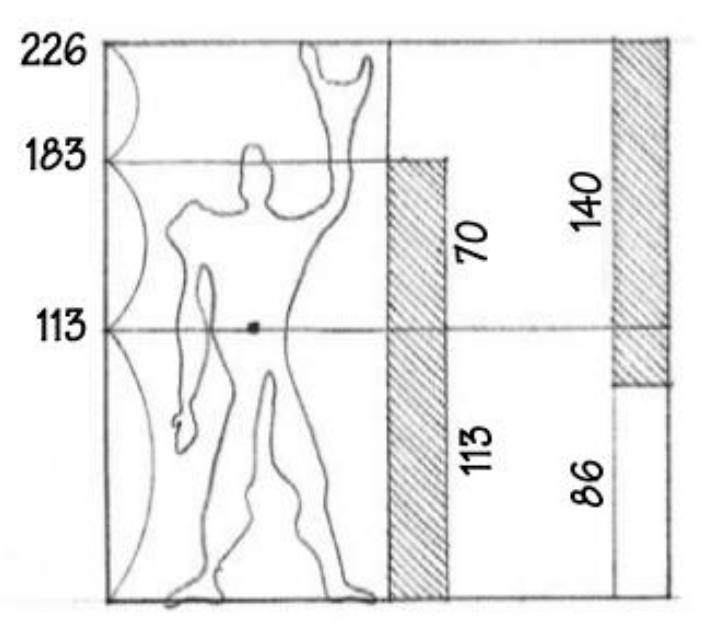
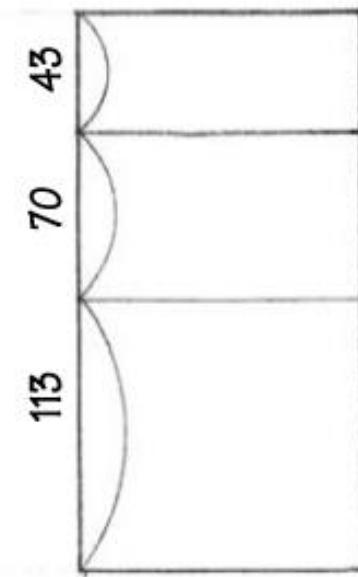
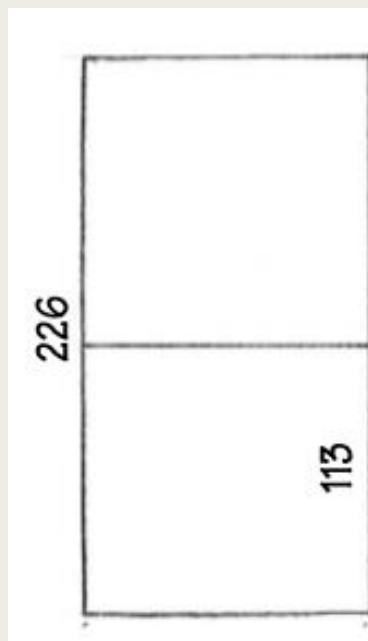
•

etc.



# MODULOR

Le Corbusier developed his proportioning system, the Modulor, to order “the dimensions of that which contains and that which is contained.



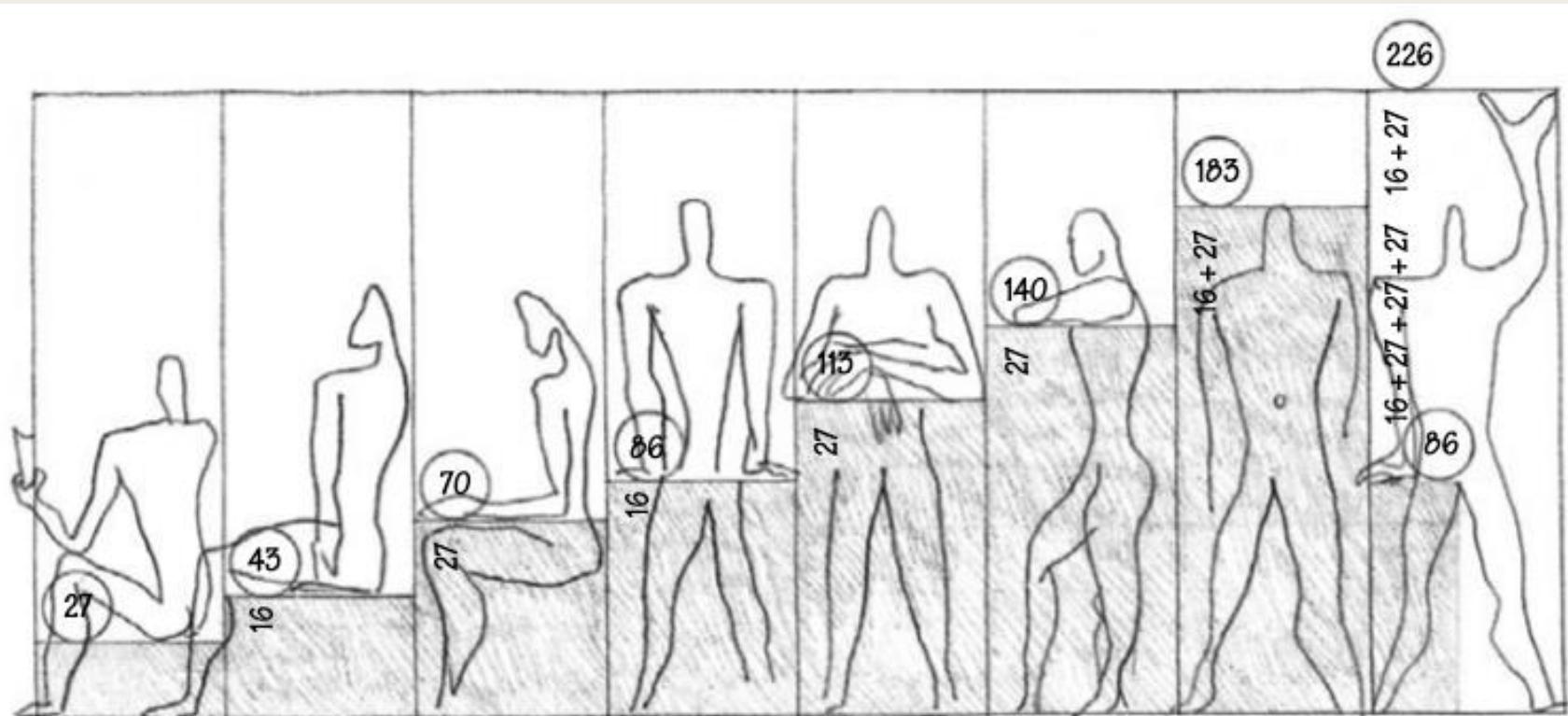
The basic grid consist of three measures, 113, 70, and 43 centimeters, proportioned according to the Golden Section.

$$43 + 70 = 113$$

$$113 + 70 = 183$$

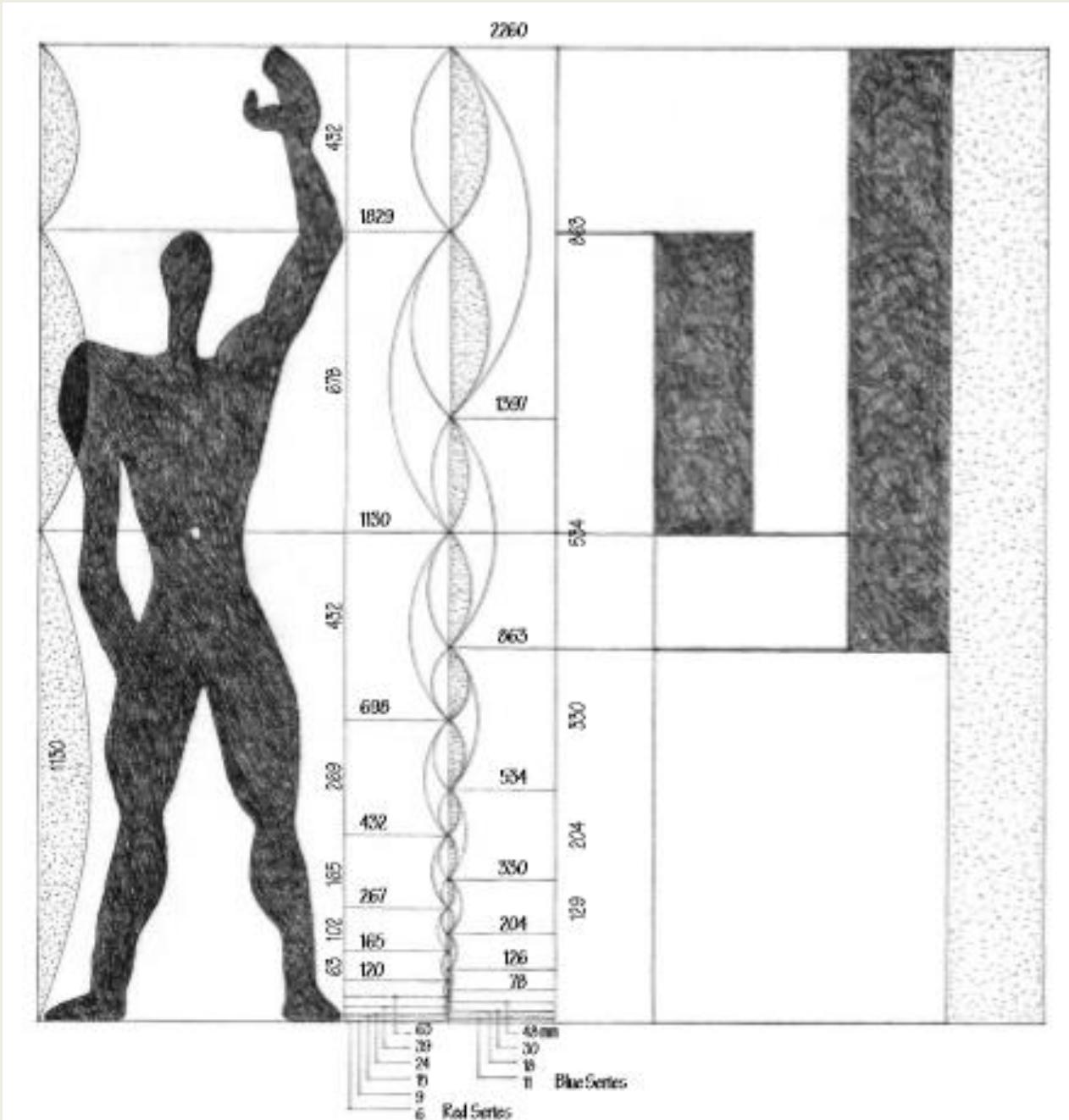
$$113 + 70 + 43 = 226 (2 \times 113)$$

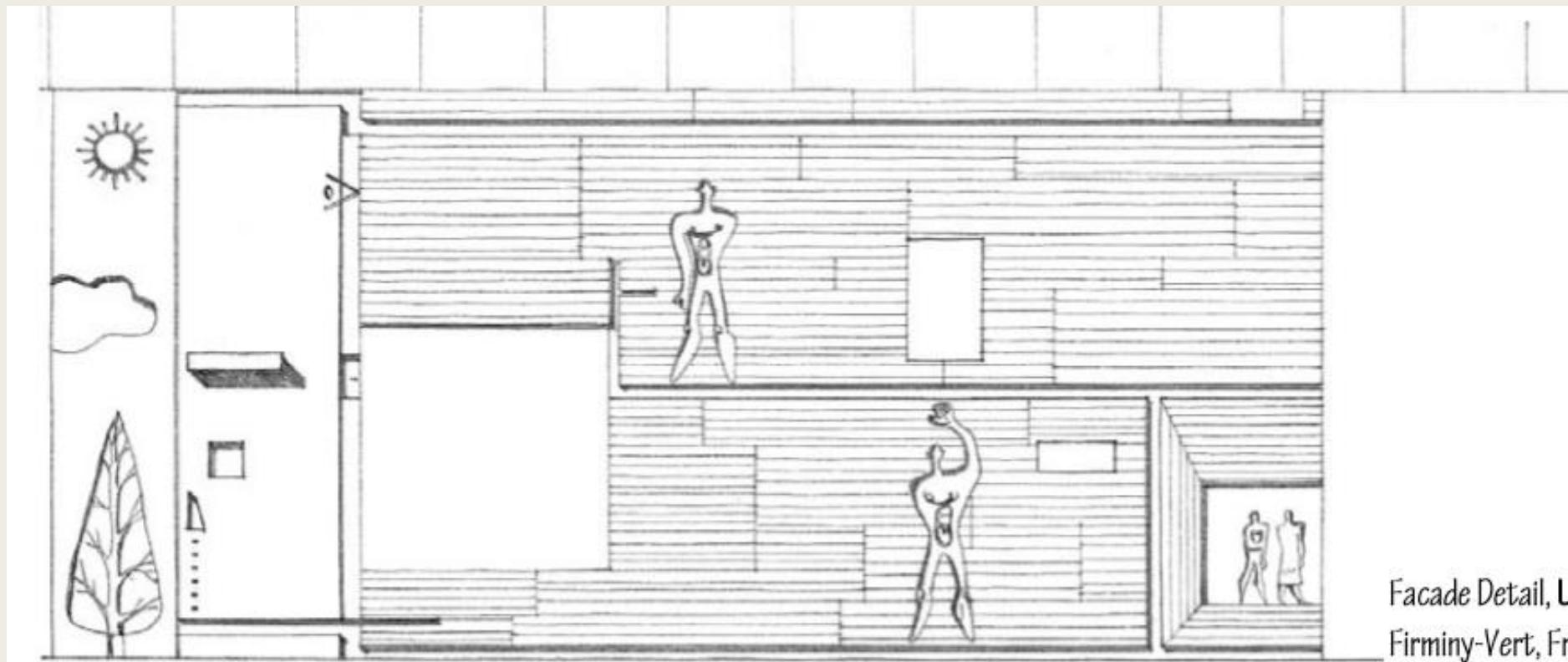
113, 183, and 226 define the space occupied by the human figure. From 113 and 226, Le Corbusier developed the Red and Blue series, diminishing scales of dimensions that were related to the stature of the human figure.



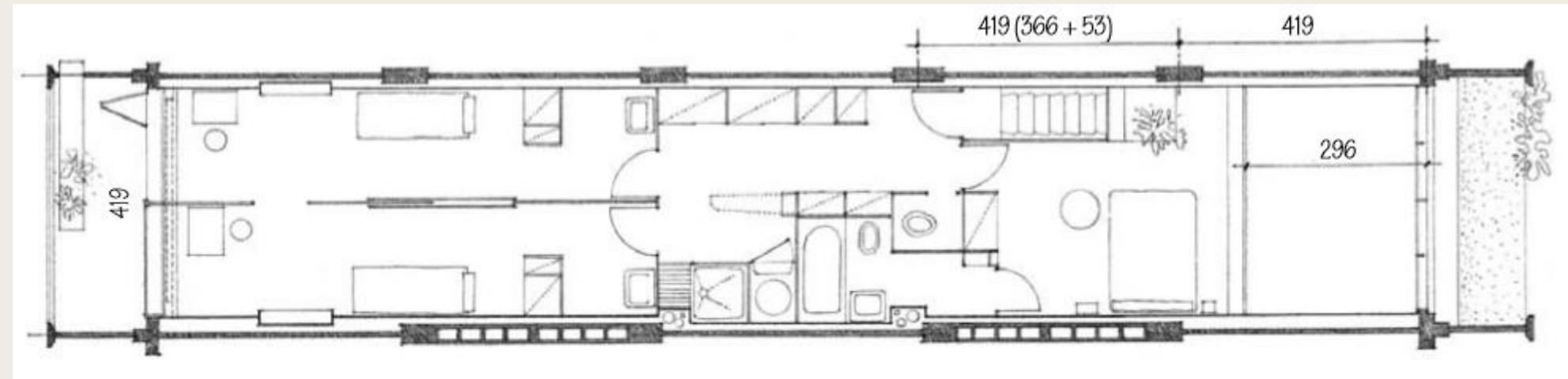
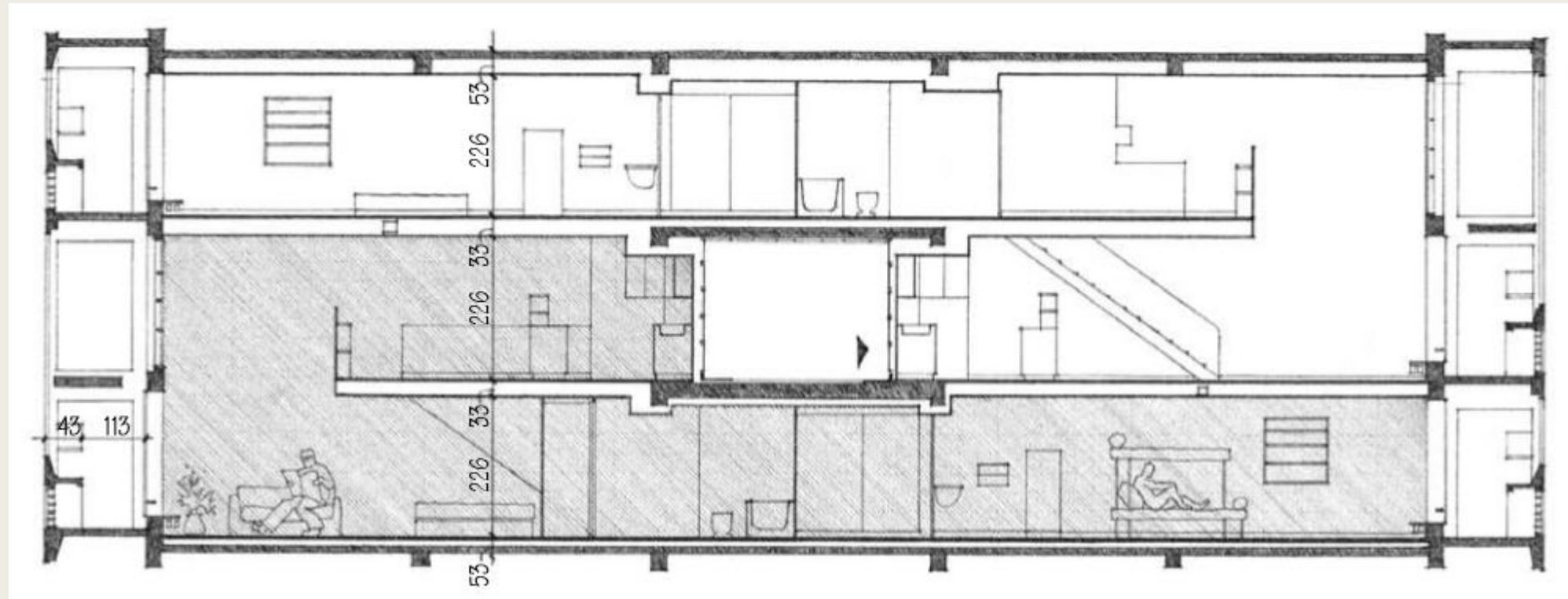
Le Corbusier saw the Modulor not merely as a series of numbers with an inherent harmony, but as a system of measurements that could govern lengths, surfaces, and volumes, and “maintain the human scale everywhere.”

It could “lend itself to an infinity of combinations; it ensures unity with diversity . . . the miracle of numbers.”



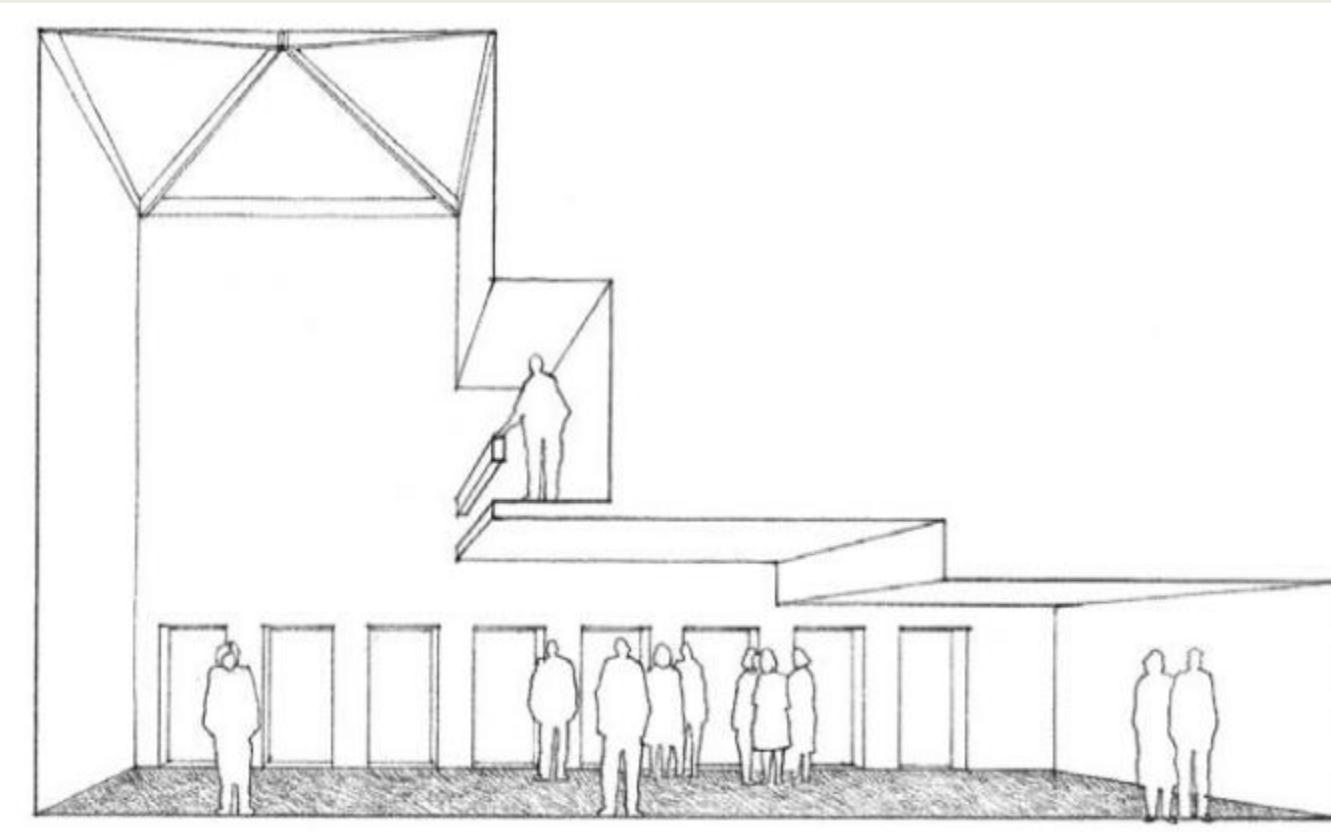


Facade Detail, *Unité d'Habitation*,  
Firminy-Vert, France, 1965–68, Le Corbusier



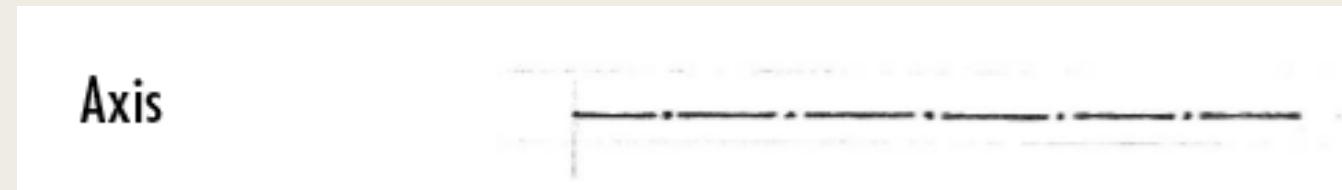
# Human scale

- Human scale in architecture is based on the dimensions and proportions of the human body.

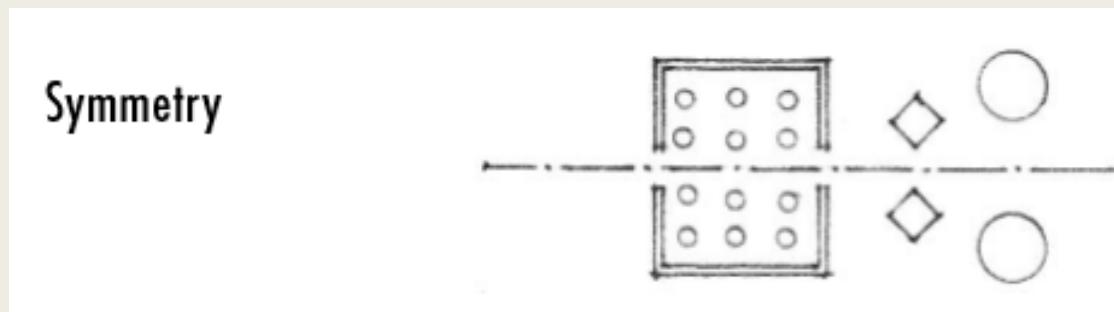


# ORDERING PRINCIPLES

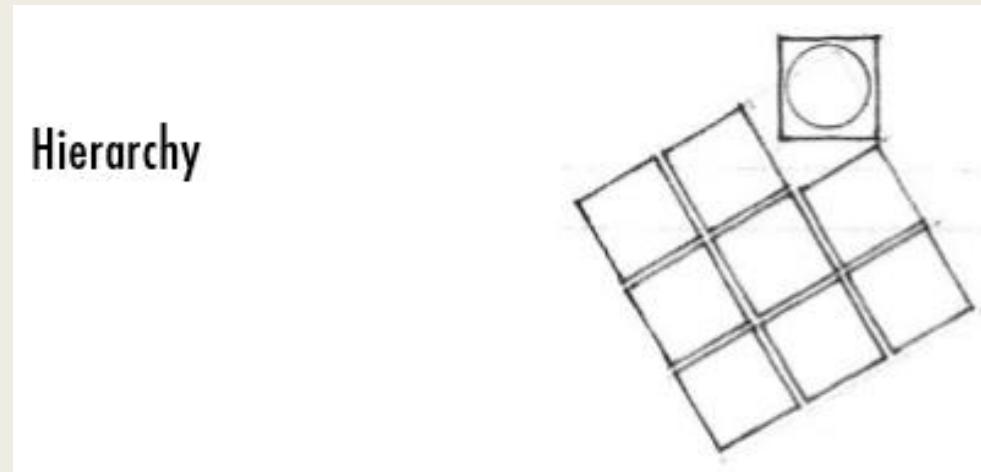
- A line established by two points in space, about which forms and spaces can be arranged in a symmetrical or balanced manner



- The balanced distribution and arrangement of equivalent forms and spaces on opposite sides of a dividing line or plane, or about a center or axis.



- The articulation of the importance or significance of a form or space by its size, shape, or placement relative to the other forms and spaces of the organization.



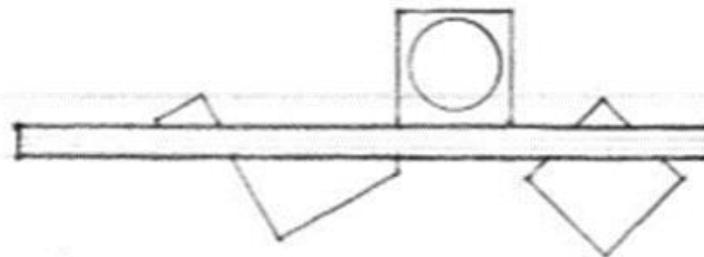
- A unifying movement characterized by a patterned repetition or alternation of formal elements or motifs in the same or a modified form.

**Rhythm**



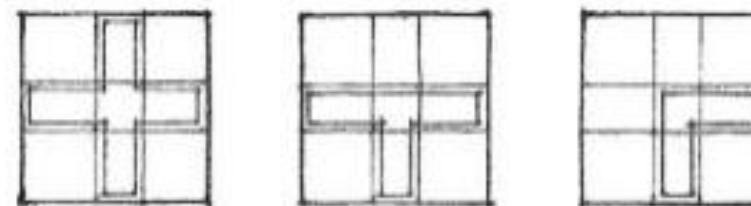
- A line, plane, or volume that, by its continuity and regularity, serves to gather, measure, and organize a pattern of forms and spaces.

**Datum**

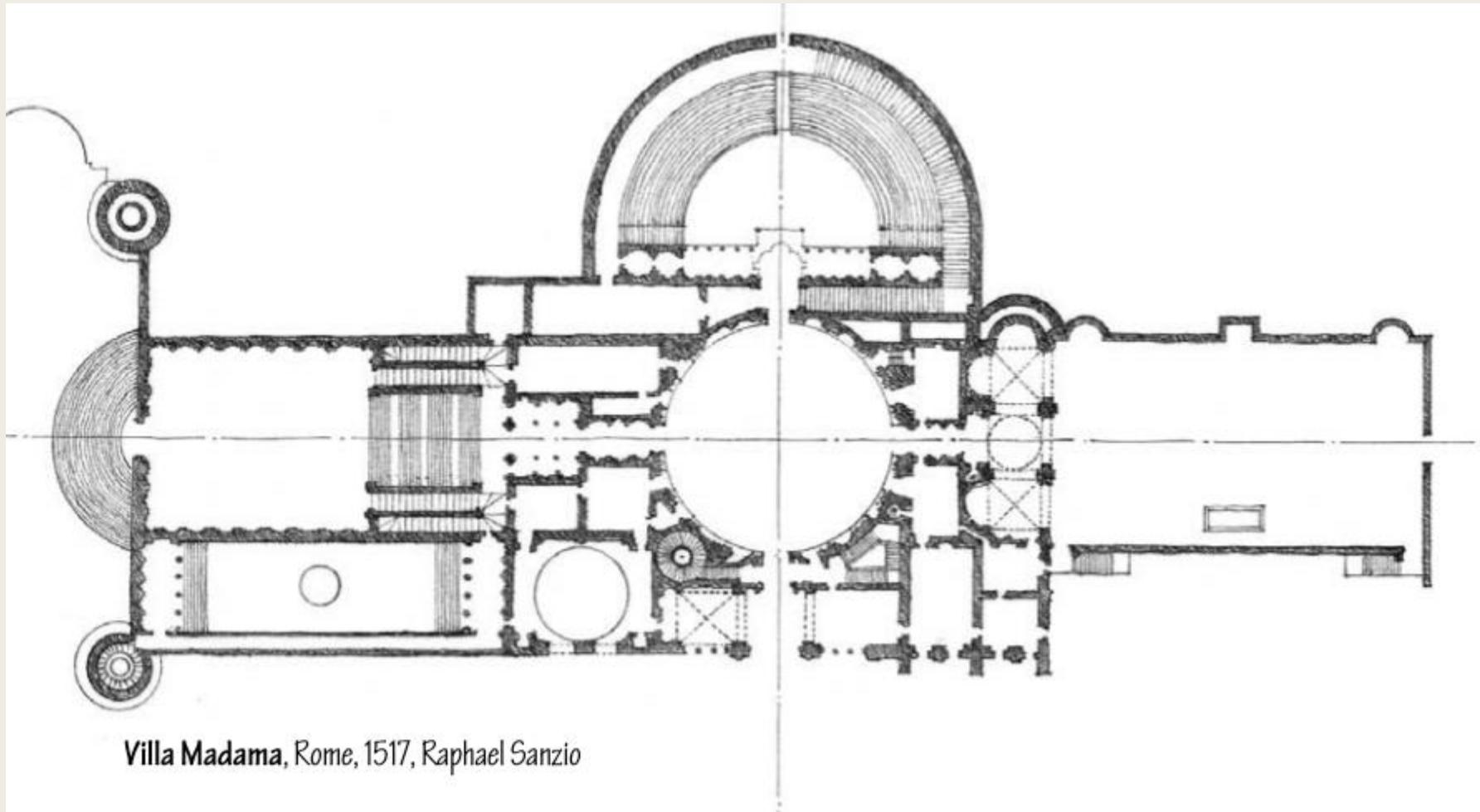


- The principle that an architectural concept, structure, or organization can be altered through a series of discrete manipulations and permutations in response to a specific context or set of conditions without a loss of identity or concept.

**Transformation**



# Axis

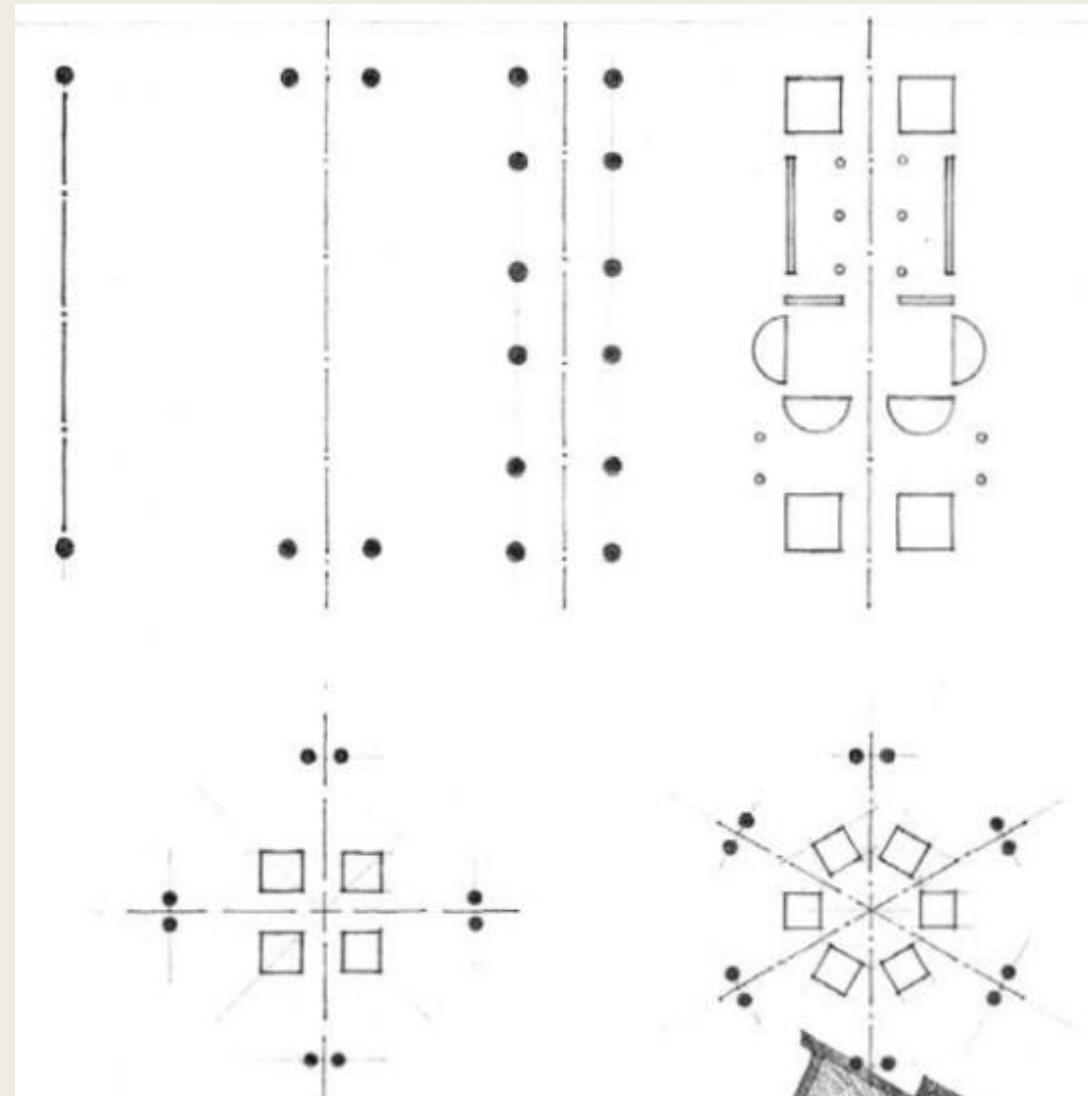


# Symmetry

There are two fundamental types of symmetry:

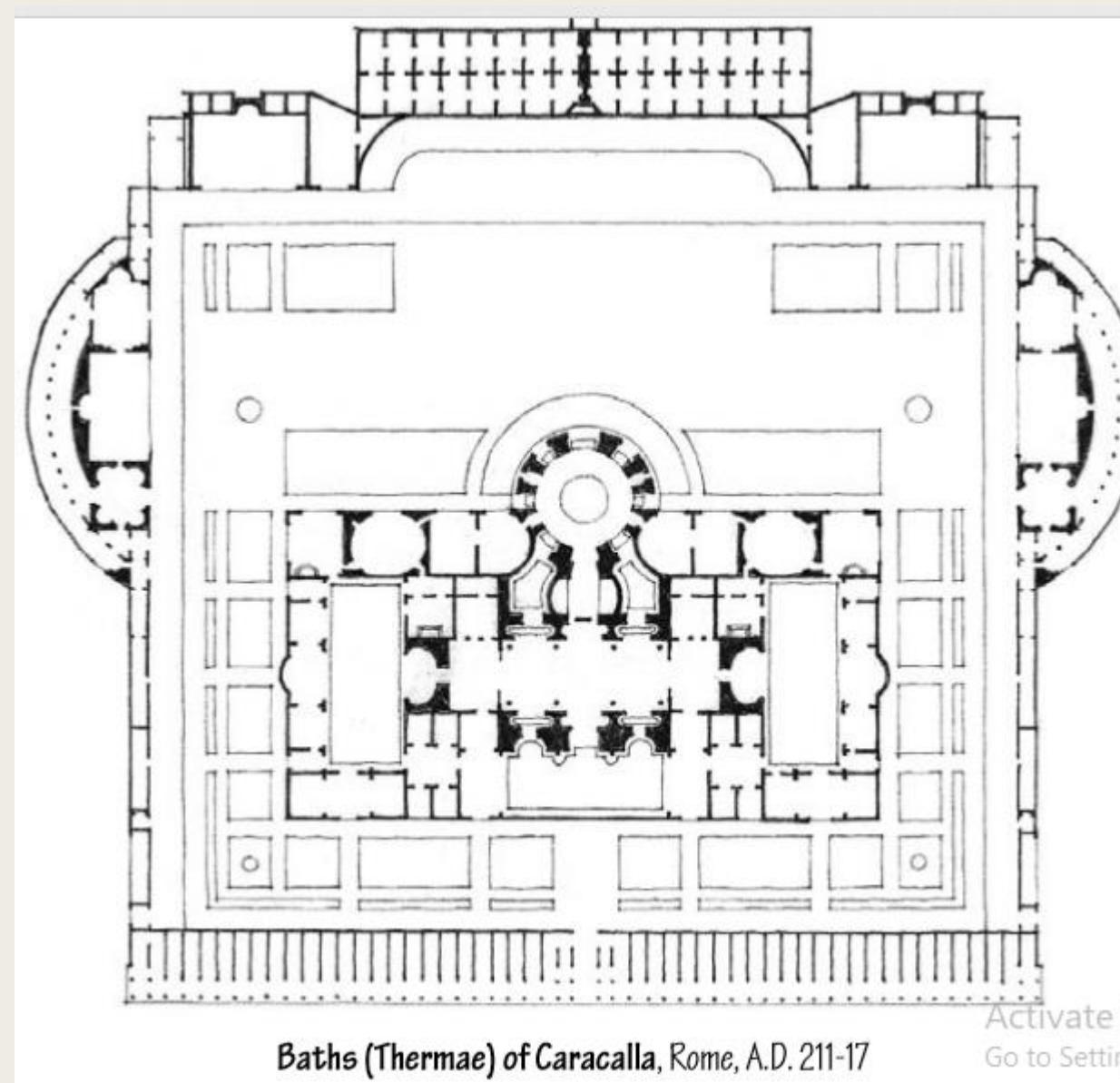
1. Bilateral symmetry refers to the balanced arrangement of similar or equivalent elements on opposite sides of a median axis so that only one plane can divide the whole into essentially identical halves.
2. Radial symmetry refers to the balanced arrangement of similar, radiating elements such that the composition can be divided into similar halves by passing a plane at any angle around a center point or along a central axis.

Bilateral symmetry



Radial symmetry

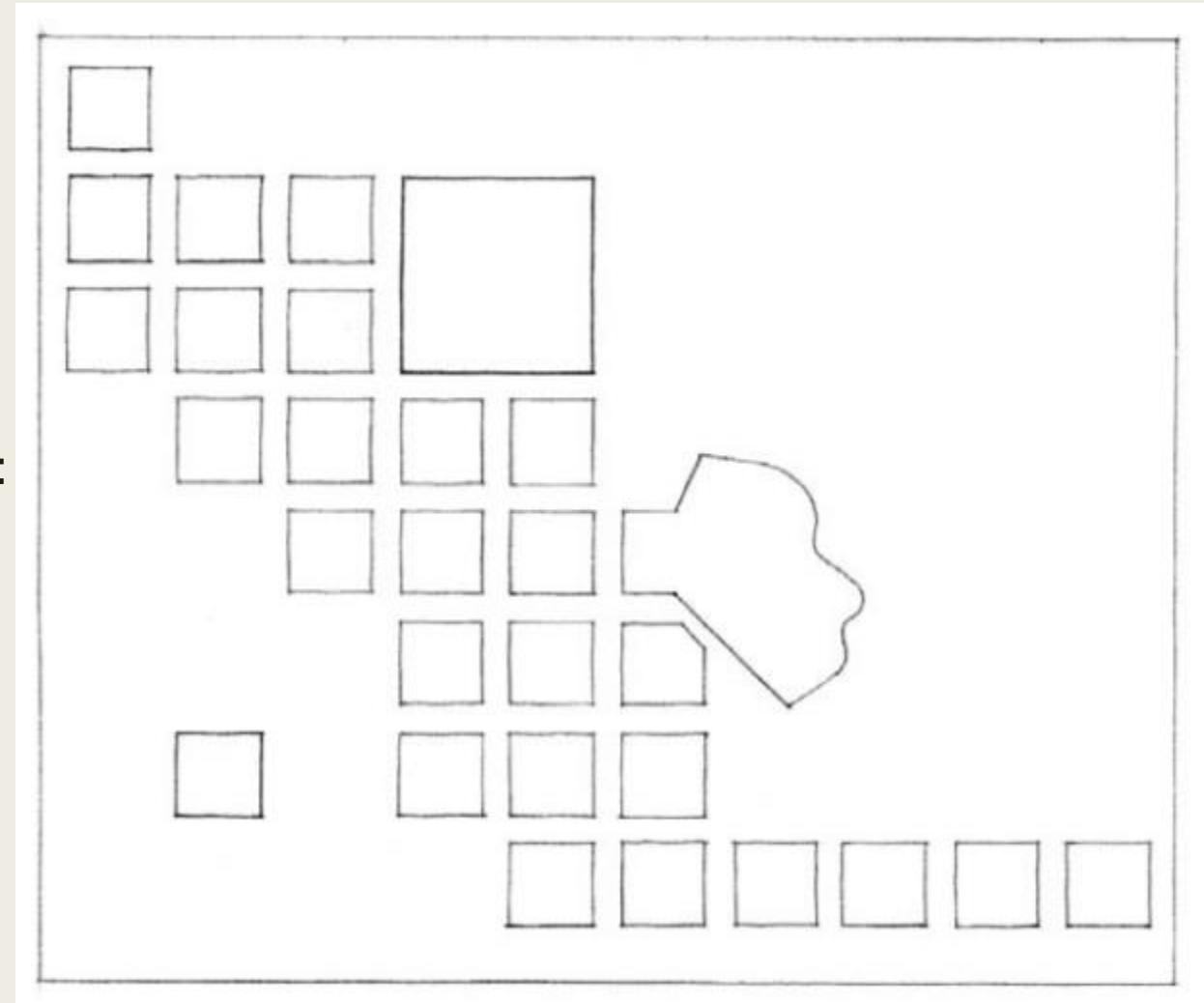
# Symmetry

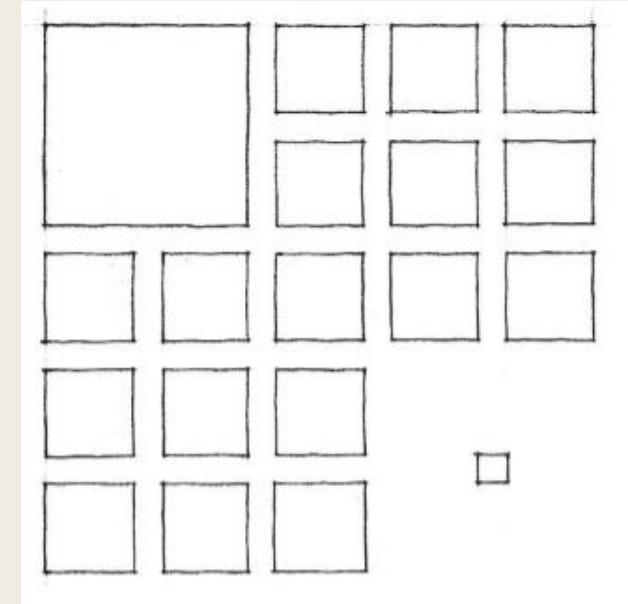


# HIERARCHY

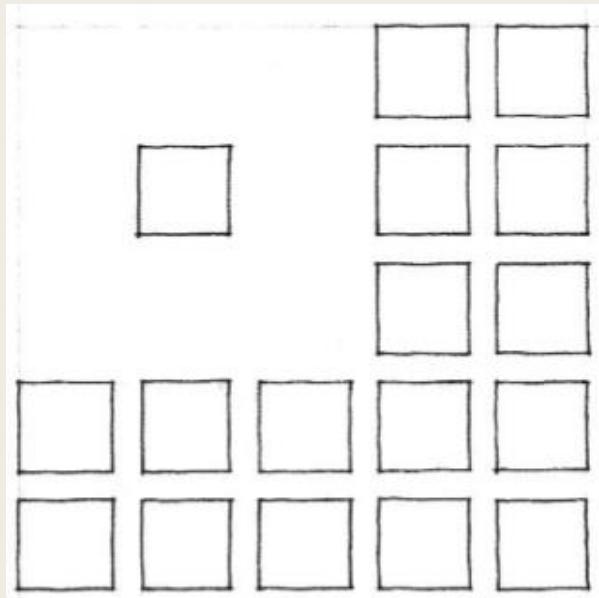
For a form or space to be articulated as being important or significant to an organization, it must be made uniquely visible. This visual emphasis can be achieved by endowing a form or shape with:

- exceptional size
- a unique shape
- a strategic location

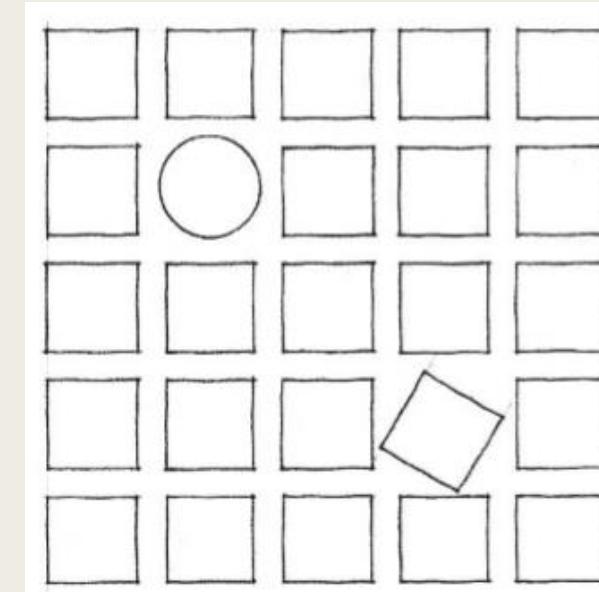




Hierarchy by Placement



Hierarchy by Size



Hierarchy by Shape

# HIERARCHY

*View of Florence illustrating the dominance of the cathedral over the urban landscape*



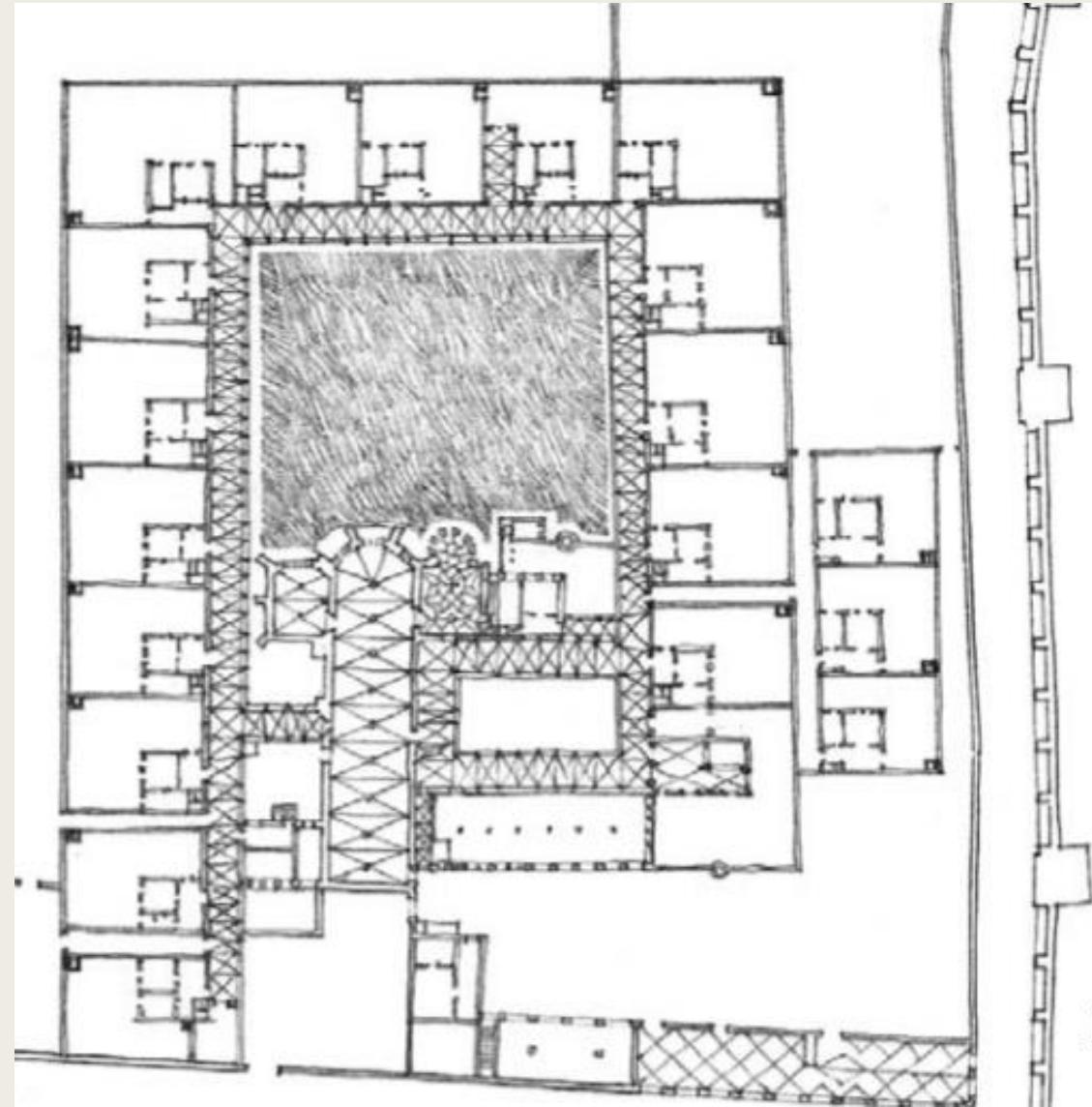
Ad  
Go

# Datum

A datum refers to a line, plane, or volume of reference to which other elements in a composition can relate. It organizes a random pattern of elements through its regularity, continuity, and constant presence. For example, the lines of a musical staff serve as a datum in providing the visual basis for reading notes and the relative pitches of their tones.



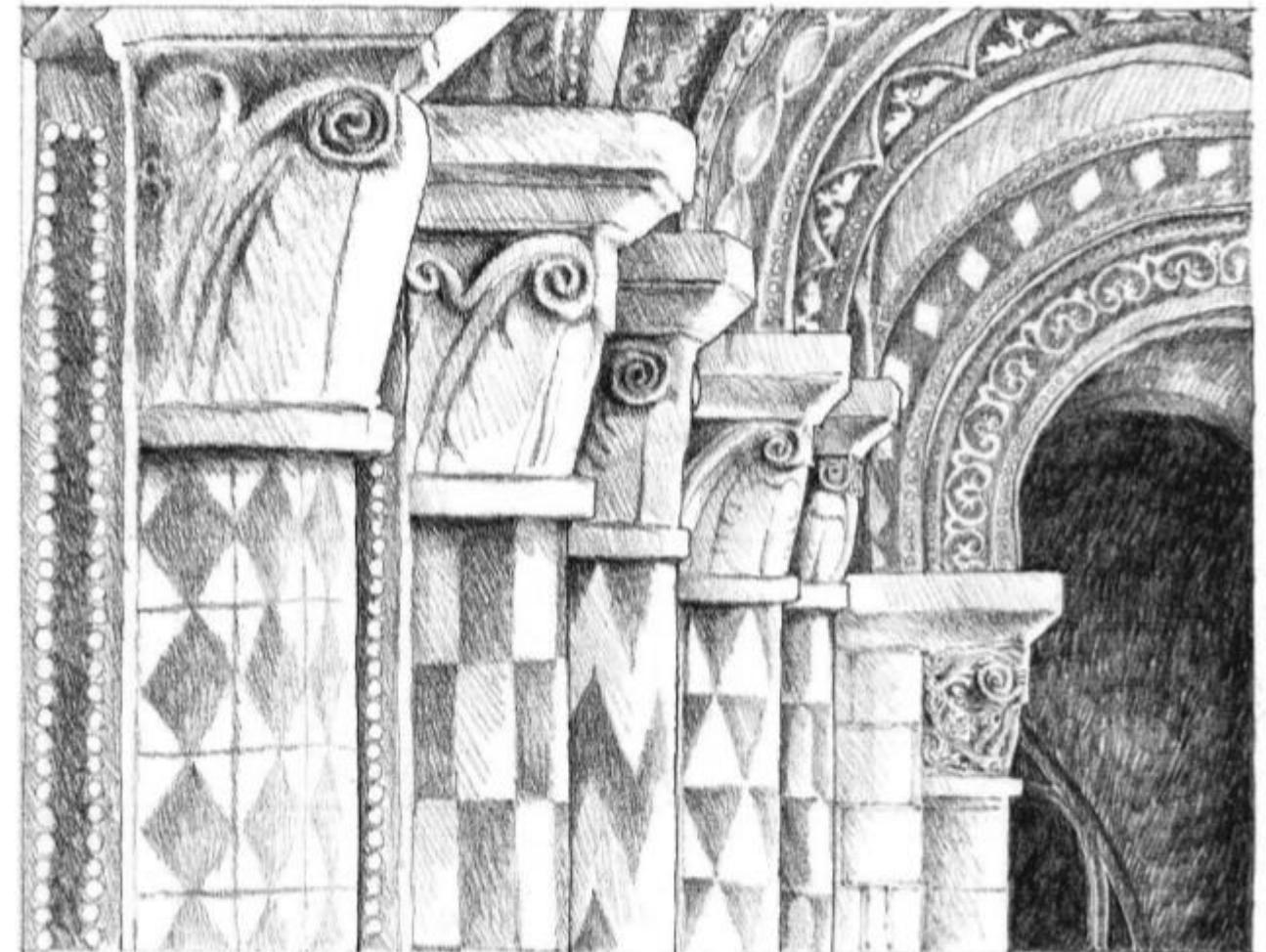
# Datum



# RHYTHM

Rhythm refers to any movement characterized by a patterned reappearance of elements or motifs at regular or irregular intervals.

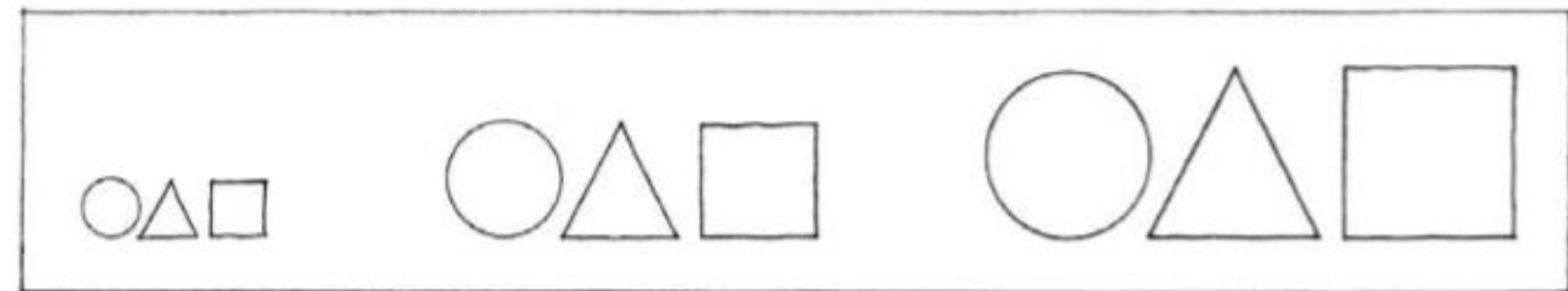
The movement may be of our eyes as we follow recurring elements in a composition, or of our bodies as we advance through a sequence of spaces



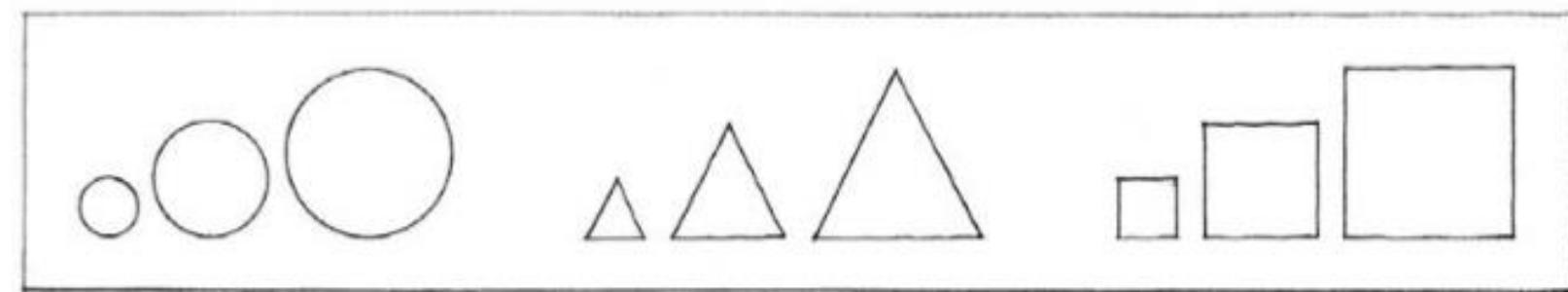
Column Details, *Notre Dame la Grande*, Poitiers, France, 1130–45

# REPETITION

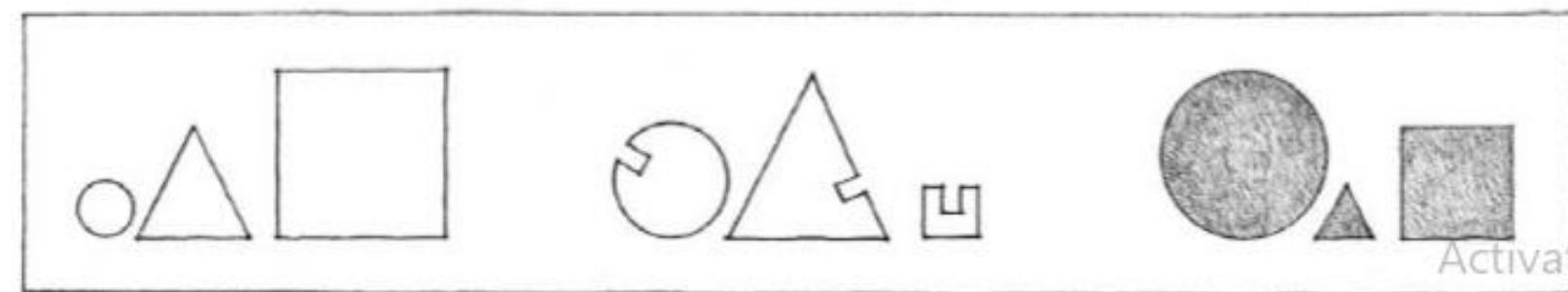
- Size



- Shape

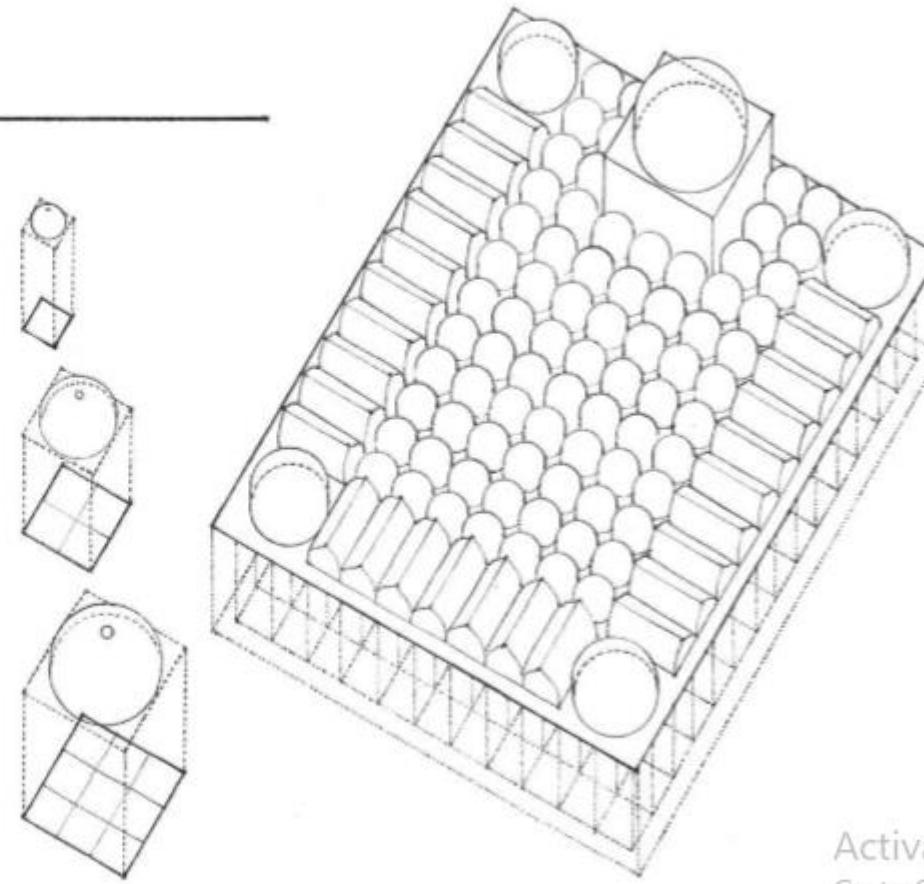
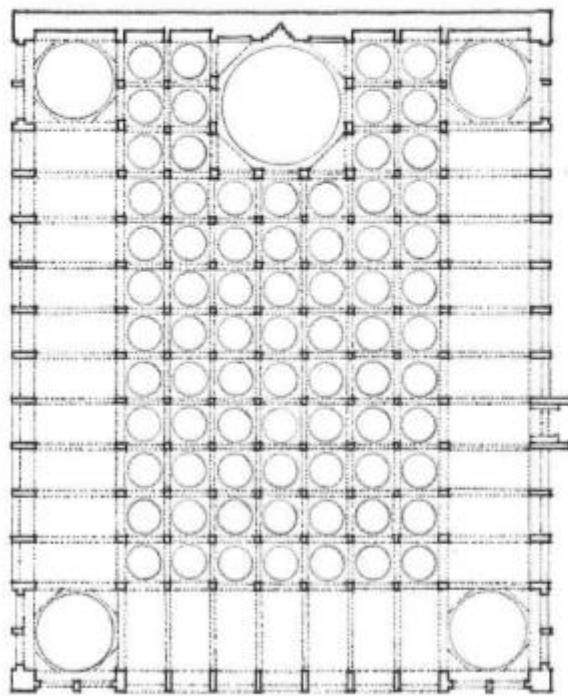
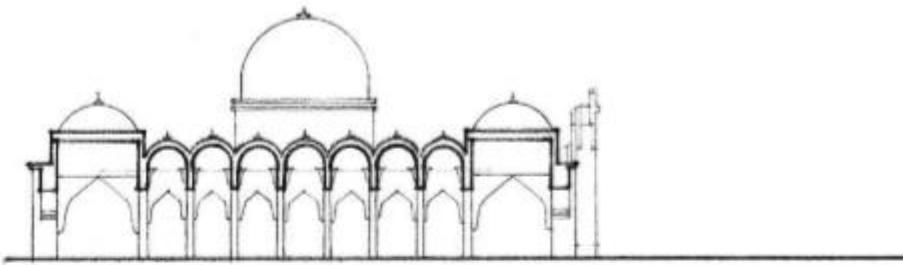


- Detail Characteristics



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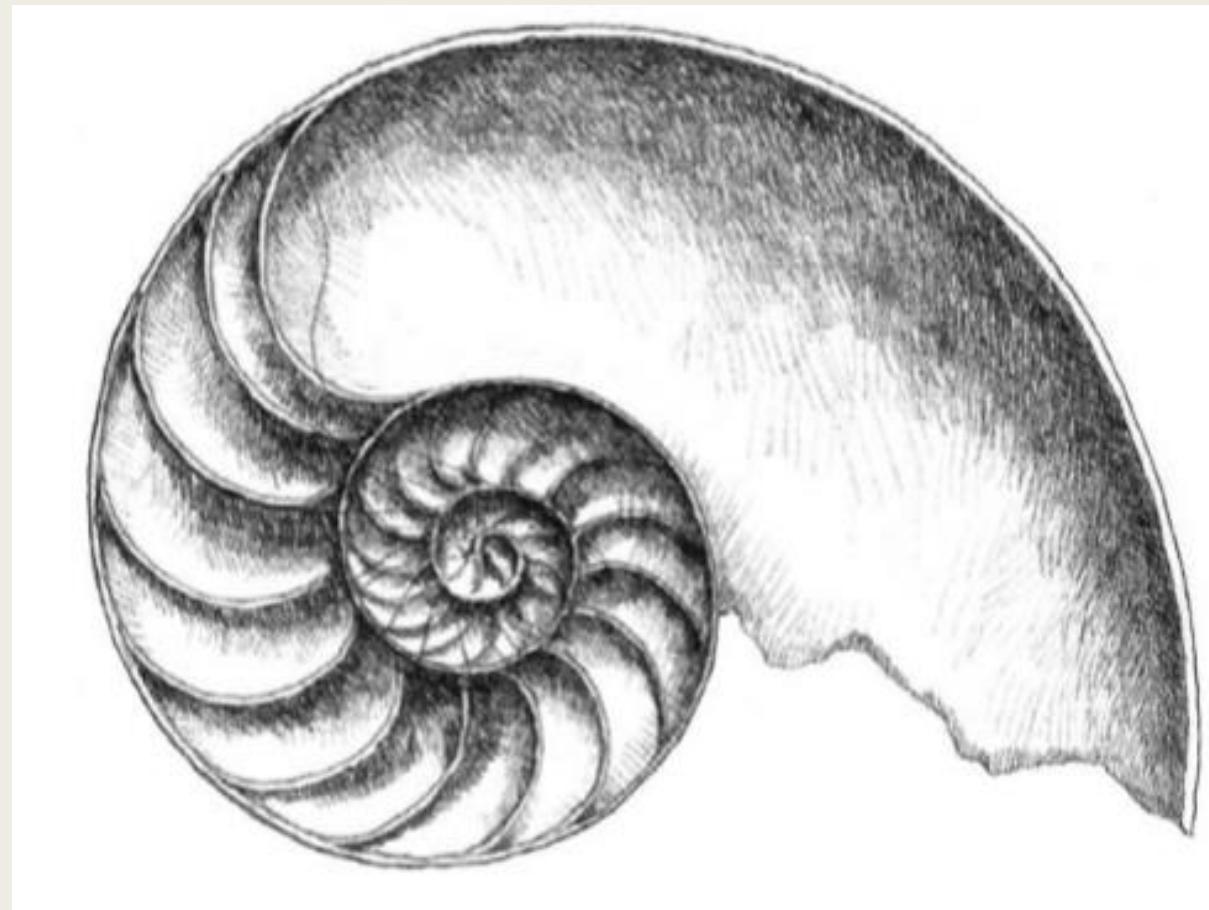
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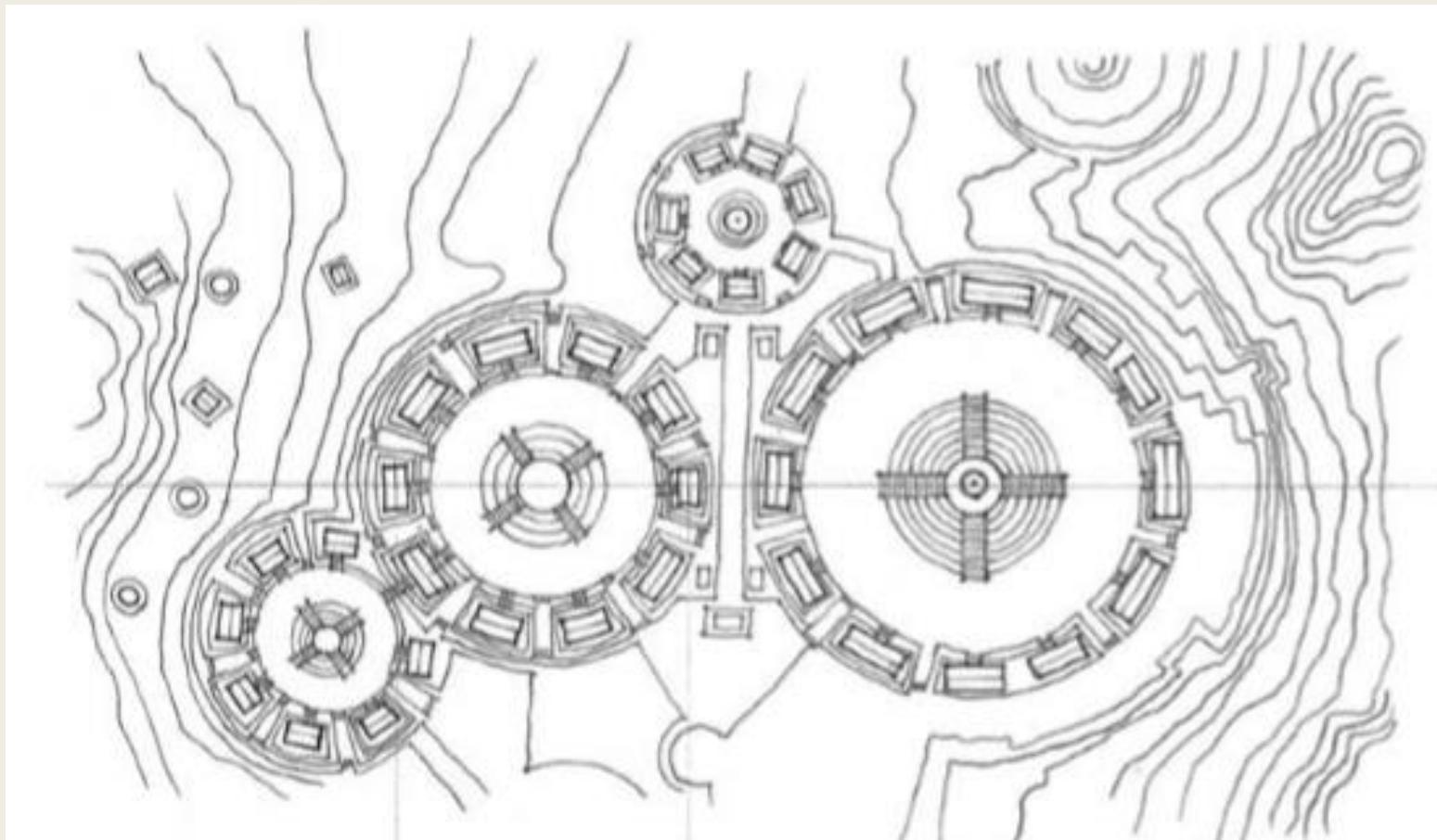
Jami Masjid, Gulbarga, India, 1367

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# REPETITION

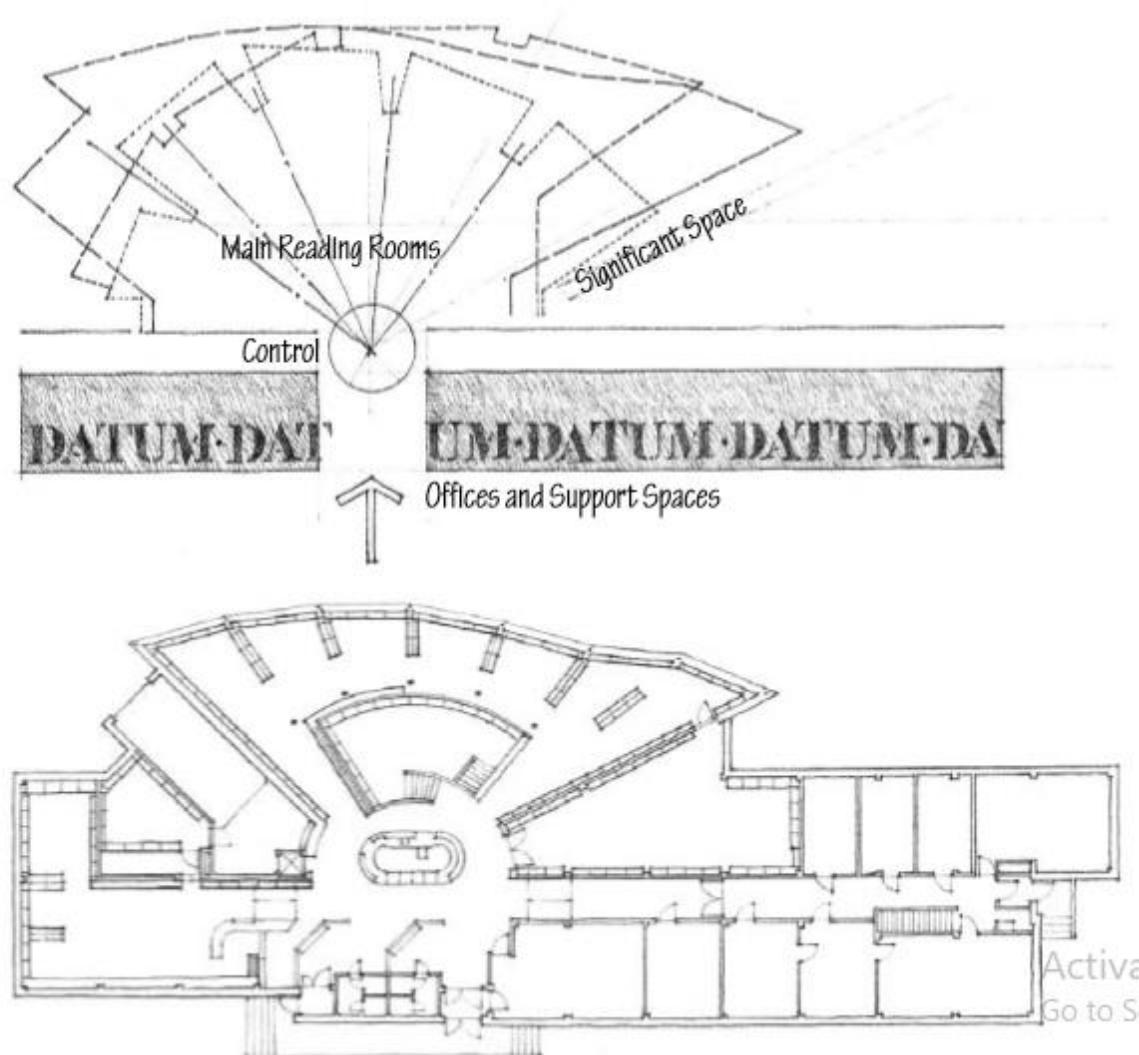


# REPETITION



# TRANSFORMATION

### Scheme for 3 libraries by Alvar Aalto



# Reference

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