

Chapter 3: Form & Space

I. Form & Space

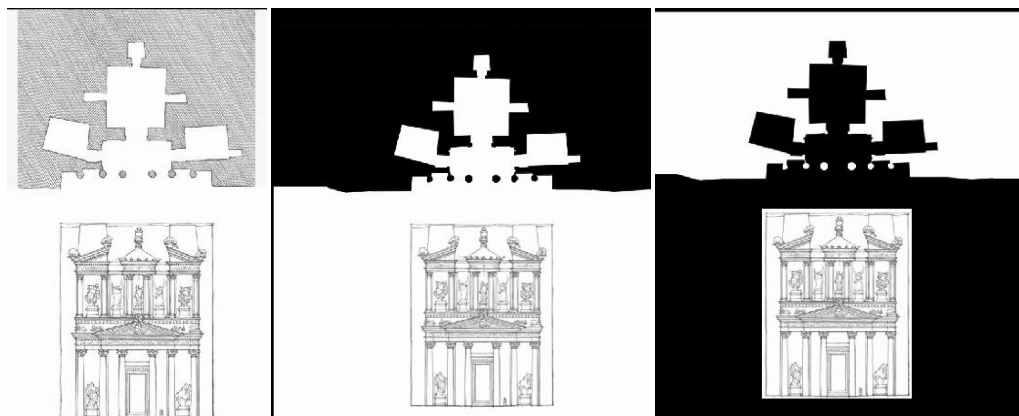
- To comprehend the structure of a visual field, we organize its elements into positive shapes perceived as figures and negative shapes perceived as figures and negative portion serving as a background for the figure.
- For example, we recognize 'f' and 'g' as letters, but also see them as figures having distinct profiles, placed against a contrasting background.
- As they grow in size relative to their field, however, other elements within and around them begin to compete for our attention as figures.



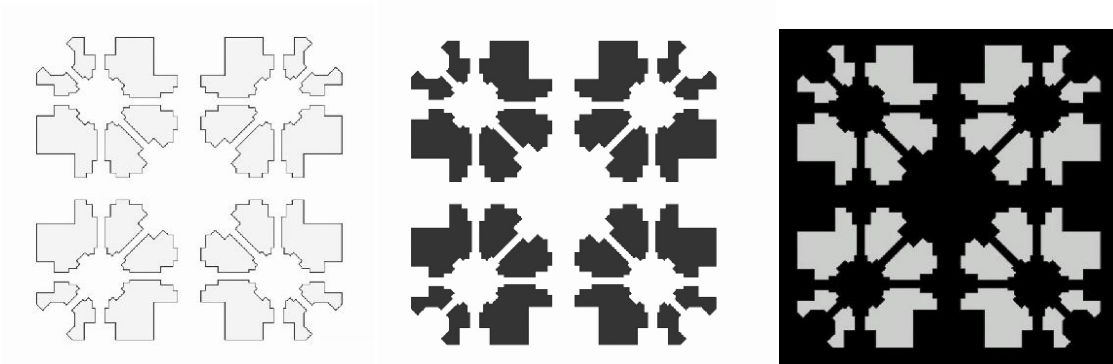
- We should therefore understand that figures and their background together form an inseparable reality – a unity of opposites- just as the elements of form and space together form the reality architecture.



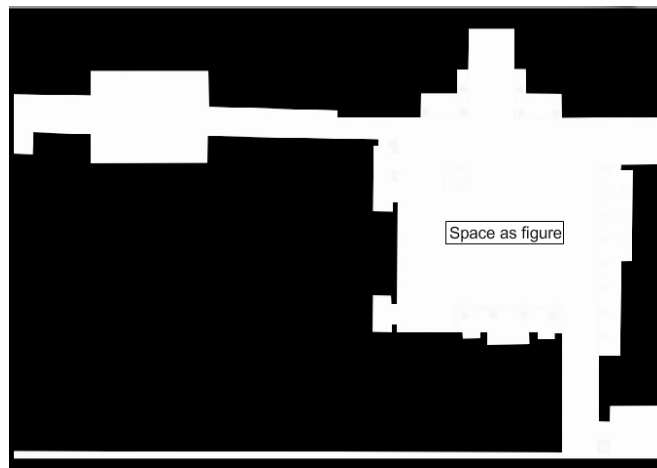
- As space begins to be captured, enclosed, molded, and organized by solid elements of mass, architecture come into being.



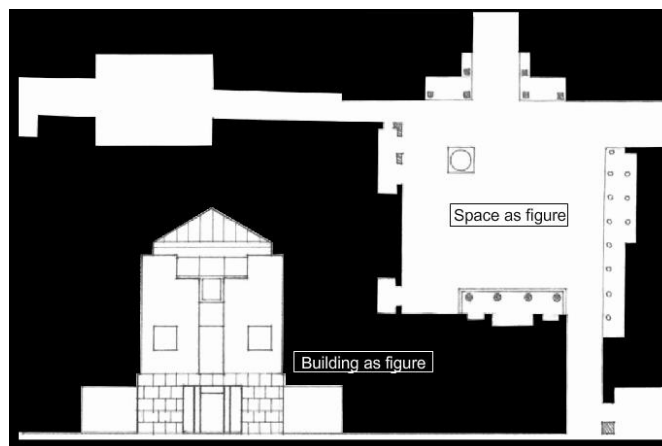
- Architectural form occurs at the juncture between mass and space. In executing and reading design drawings, we should be concerned with both the form of the mass containing a volume of space as well as the form of the spatial volume itself.



- The symbiotic relationship of the forms of mass and space in architecture can be examined and found to exist at several scales. At each level, we should be concerned not only with the form of a building but also its impact on the space around it.

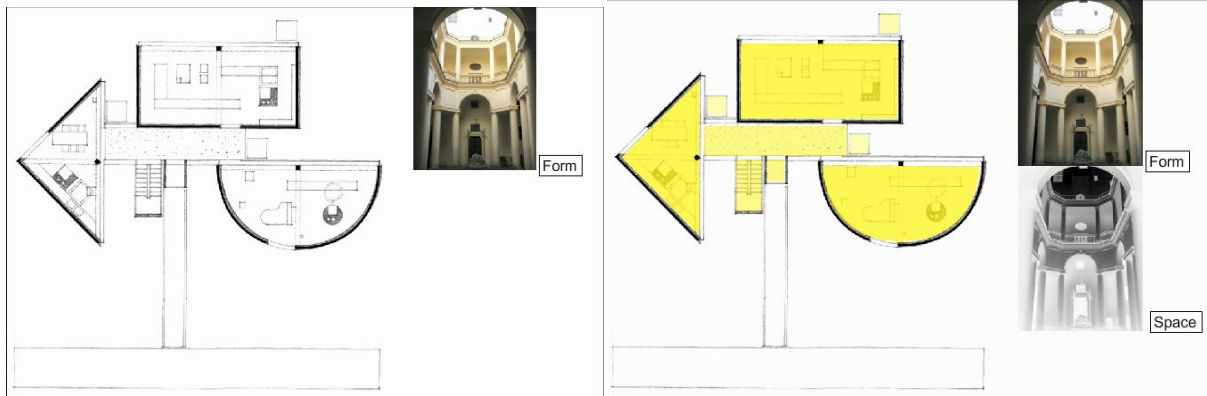


- At urban scale, a building can be part of the fabric and aid in defining streets and squares...



Or stand alone as an object in space.

- At the scale of a building, we tend to read the configurations of walls as the positive elements of a plan. The white space in between, however, should not be seen simply as background of the wall, but also as figures in the drawing that have shape and form.

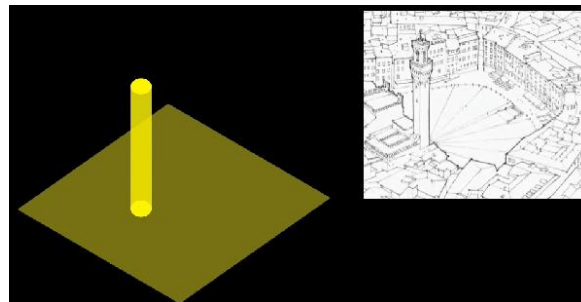


- Even at the scale of a room, articles of furnishing can either stand as form within a field of space or serve to define the form of a spatial field.

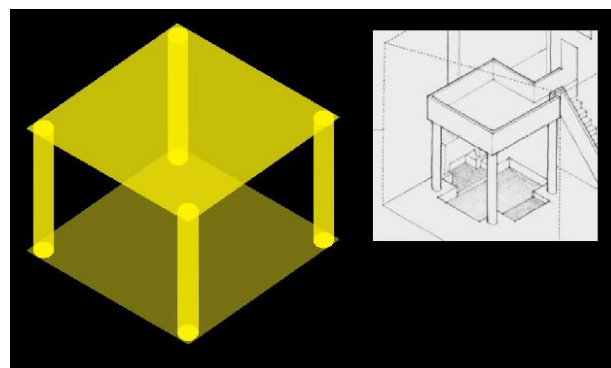


2. Defining Space

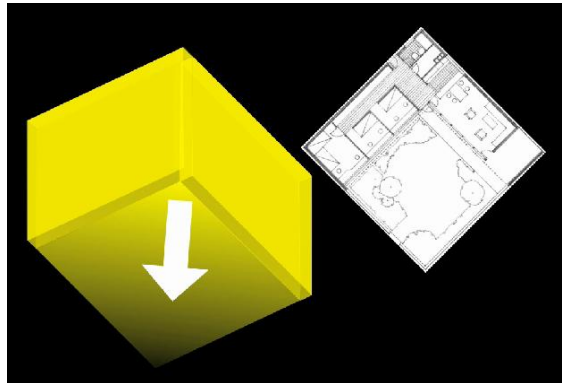
- A column, obelisk, or tower establishes a point on the ground plane and makes it visible in space. Located within a space, a column generates a field about itself and interacts with the spatial enclosure.



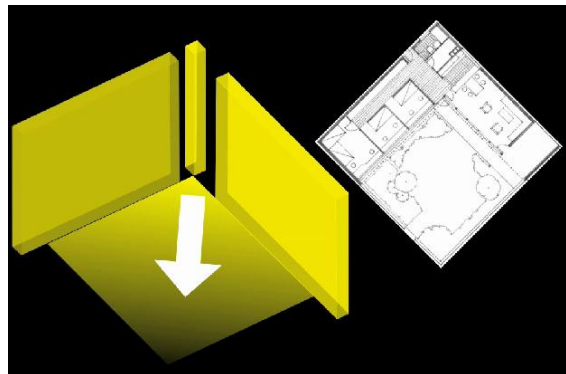
- Three or more columns can be arranged to define a volume of space. Supporting a canopy, four columns form aedicule, a diminutive pavilion that serves as a shrine or the symbolic center of a space.



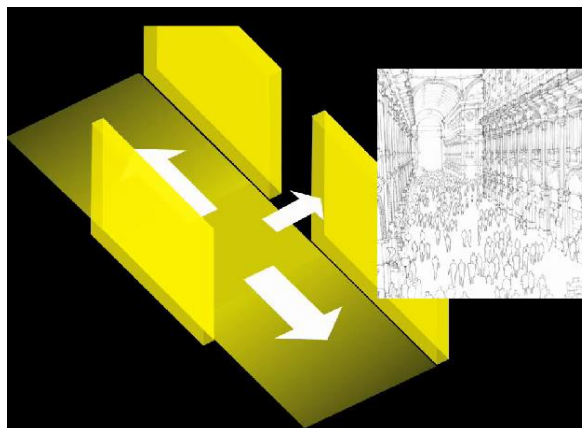
- **An L-shaped configuration** of vertical planes generates a field of space from its corner outward along a diagonal axis. The enclosed introverted field at the interior corner becomes extroverted along its outer edges.



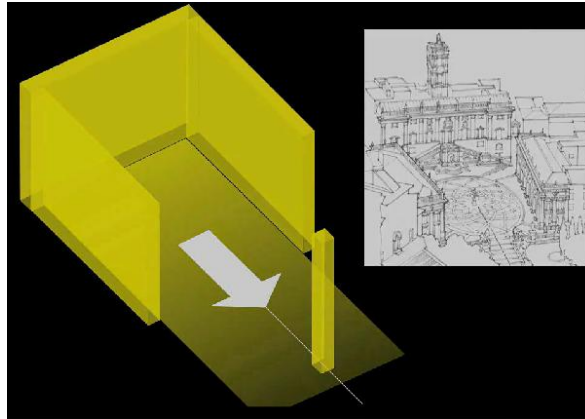
- The corner can be articulated as an independent element that joins two planar forms together.



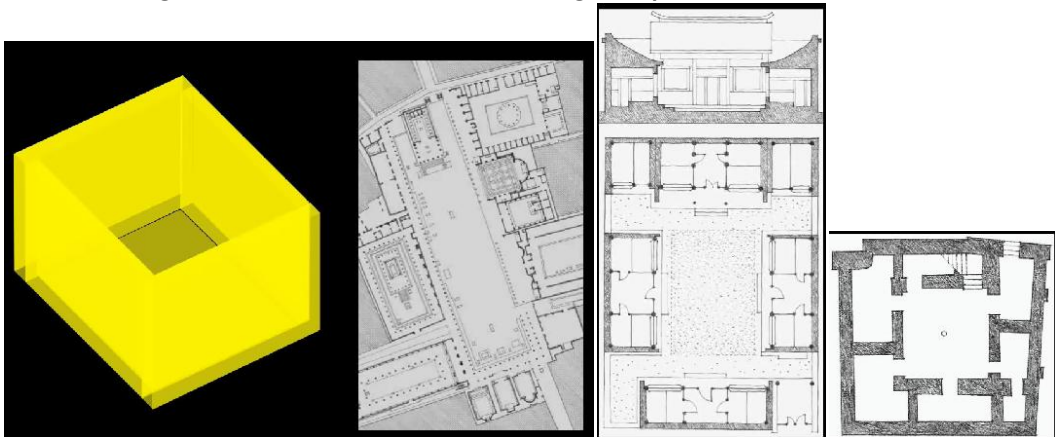
- Two parallel vertical planes define a volume of space between them that is oriented axially toward both open ends of the configuration.
- The directional quality and flow of the space defined by parallel planes are naturally manifested in spaces used for circulation and movement, as the streets and boulevards of towns and the halls and galleries of buildings.
- Opening in one or both of the planes can introduce secondary axes to the field and modulate the directional quality of the space.



- **A U-shaped configuration** of vertical planes defines a volume of space that has an inward focus as well as an outward orientation. The open end is the primary face of the spatial field and affords visual and spatial continuity with the adjoining space.
- U-shaped configuration of building forms and organizations have the inherent ability to capture and define outdoor space.
- When an element is placed along the open end of its field, it gives the field a point of focus as well as a greater sense of closure.



- 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.
- Well-defined, enclosed fields of space can be found in architecture at various scales:
 1. From a large urban square
 2. To a courtyard or atrium space
 3. To a single hall or room within a building complex

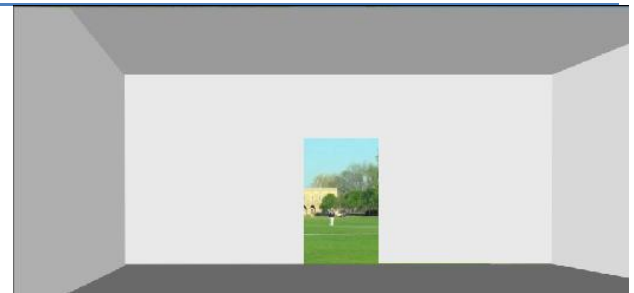


3. Opening

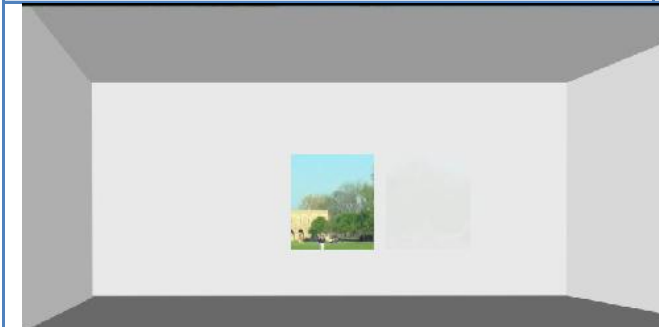
- From within a space, we can see only the surface of a wall. It is this thin layer of material that forms the vertical boundary of the space. No spatial or visual continuity is possible within adjacent spaces without openings in the enclosing planes of a spatial field.



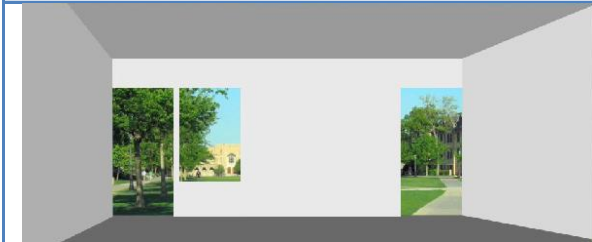
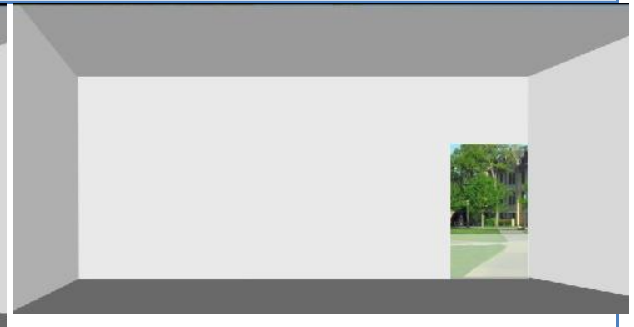
Window allow daylight to penetrate the space and illuminate the surfaces of a room, offer views to the exterior, establish relationship with adjacent spaces, and provide for natural ventilation.



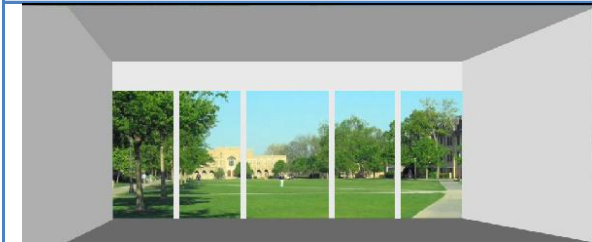
Doorway offer entry into a room and influence the pattern of movement and use within it.



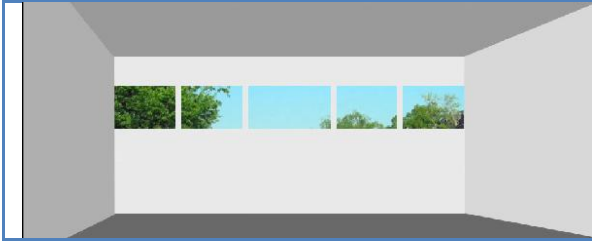
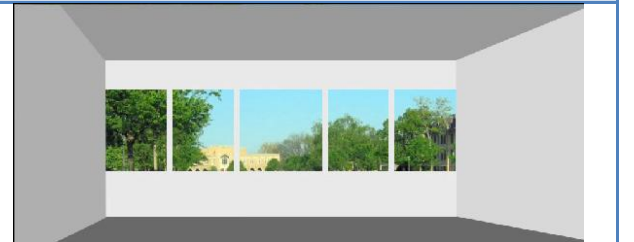
Opening lying wholly within the enclosing planes of a space do not weaken the edge definition not the sense of closure of the space



Multiple openings may be clustered to form a unified composition with a plane, or be staggered or dispersed to create visual movement along the surface of the plane.



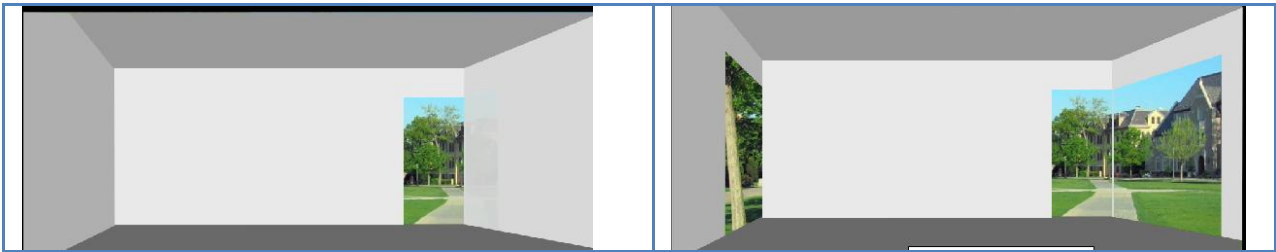
As an opening whting a plane increases in size, it will at some point cease to be a gifure within an enclosing field and become instead positive element in itself.



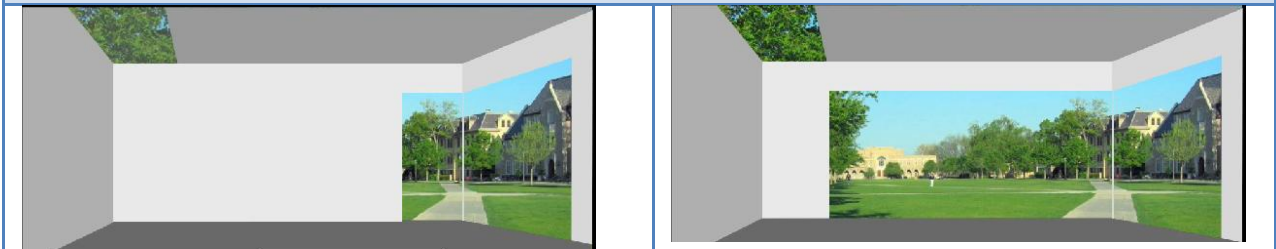
A horizontal openig that extends across a wall plane begins to visually lift the ceiling plane from the wall planes and give a feeling of lightness



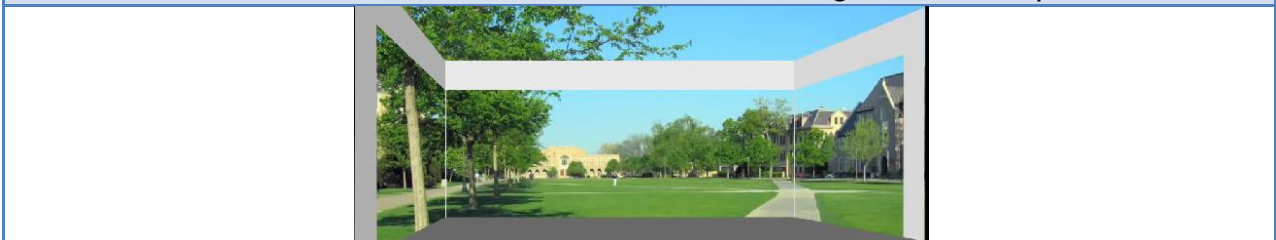
A window-wall admits more daylight, offer more expansive views, and visually expands the space beyond its phsical boundaries



Openings located along the edges of a space visually weaken the corners of the volume. As these openings increase in number and size, the space loses its sense of enclosure and begins to merge with adjacent spaces.



Locating a linear skylight along the edge where a wall and ceiling plane meet allows daylight to wash the surface of the wall, illuminate it, and enhance the brightness of the space.



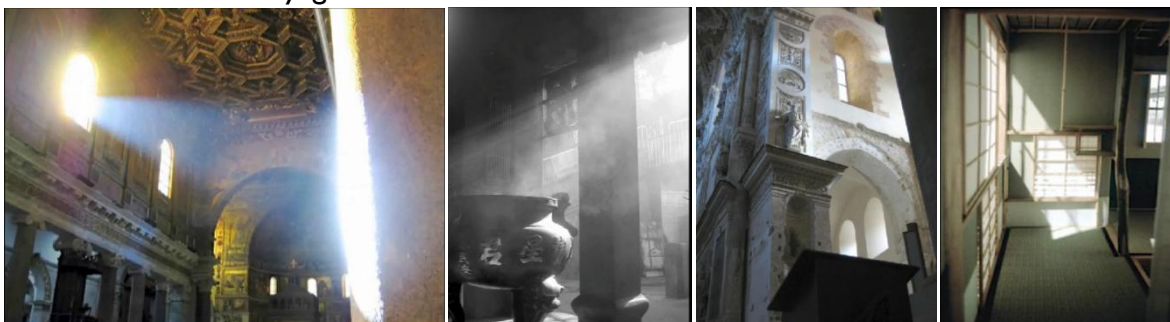
Combining a window-wall with a large skylight overhead obscures the boundaries between inside and outside.

4. Light

- The radiant energy of light reveals the shape, colors and texture of forms in space.



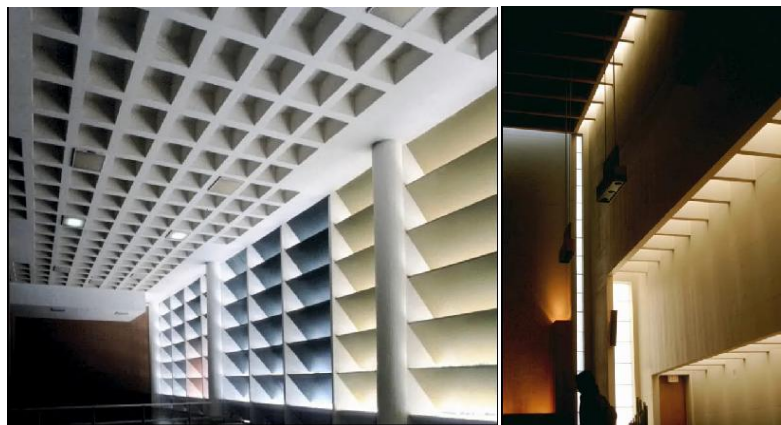
- The color and brilliance of sunlight can create a festive atmosphere within the room or a more diffuse daylight can instill within it a somber mood.



- Direct sunlight creates sharp pattern of light and dark on the surface of a room and crispy articulate the form within the space.
- The shape of an opening is reflected in the shadow pattern cast by sunlight on the forms and surface of the room. The color and texture of these forms and surface, in turn, affect their reflectivity and the ambient light level within the space.



- Possible detrimental effect of direct sunlight, such as glare and excessive heat gain, can be controlled by shading devices built into the form of the opening.

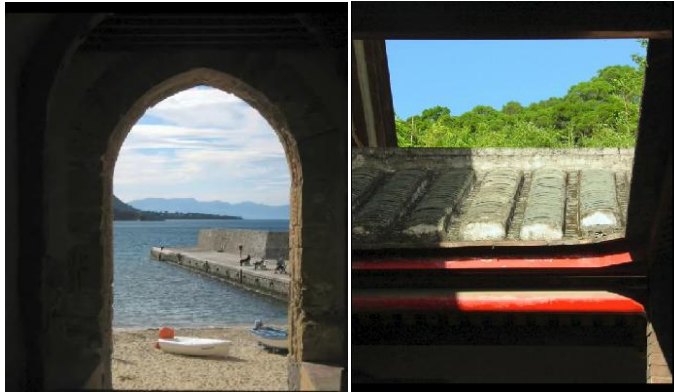


- Even though forms maybe hidden form or out of view, their shadows can reveal their shape.

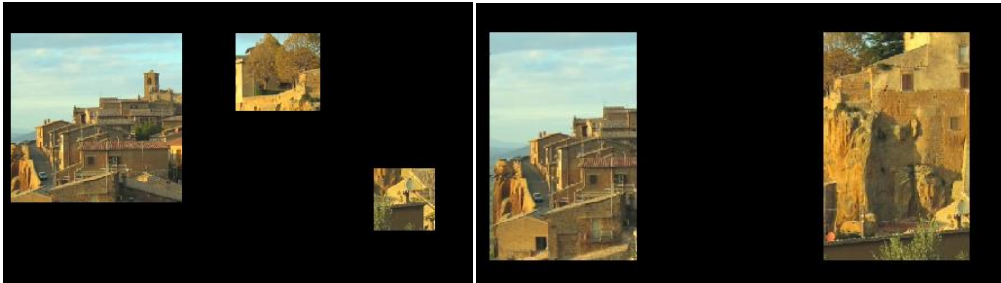


5. View

- Window and skylight openings provide views and establish a visual relationship between a room and its surroundings.



- A group of windows can be sequenced to fragment a scene and encourage movement within a space.



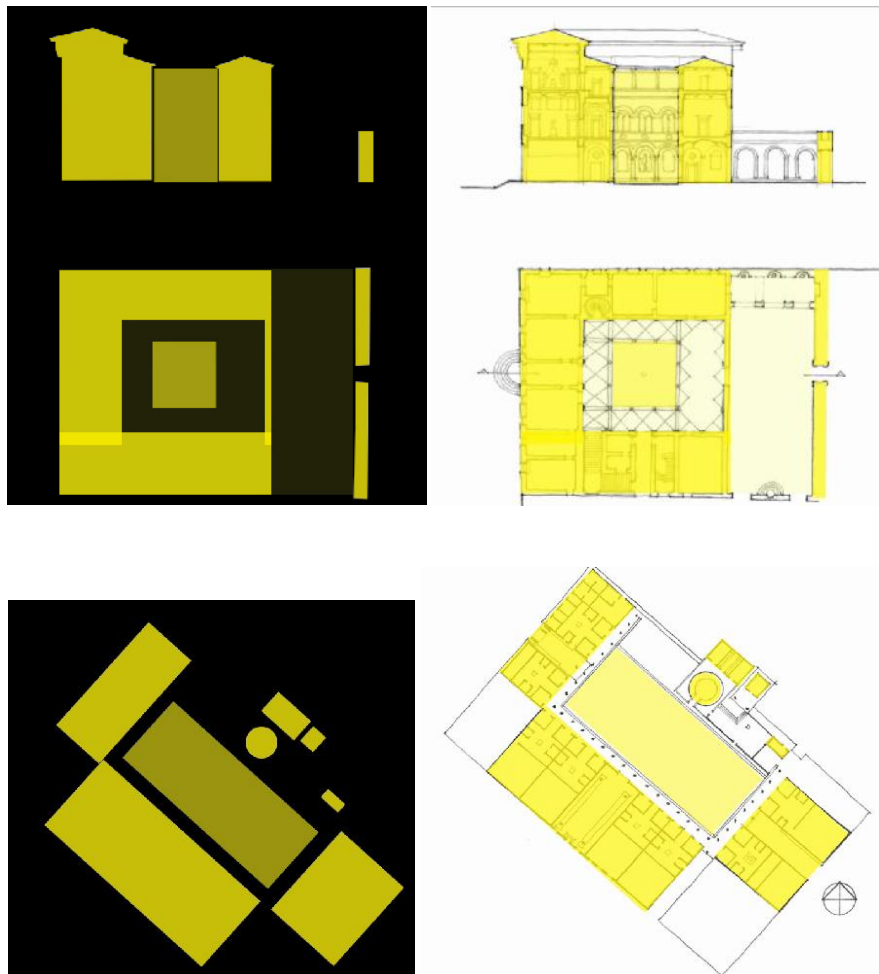
Chapter 4: Spatial Organization

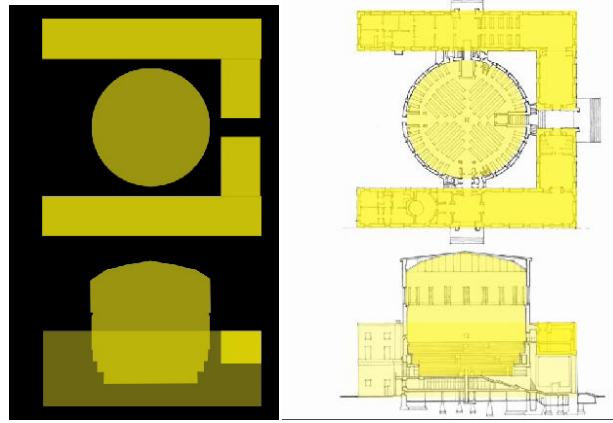
4.1 Centralized Organization

- A centralized organization consists of a number of secondary spaces grouped around a dominant, central space that is generally regular in form and large enough to gather a number of secondary spaces about its perimeter. The central organizing space may be either an interior or exterior space.

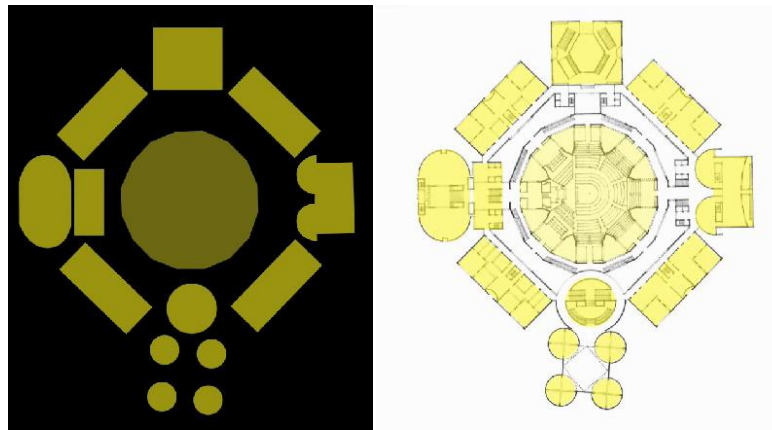


- The secondary spaces may be equivalent to one another in function, form and size, and create a geometrically regular or symmetrical composition.





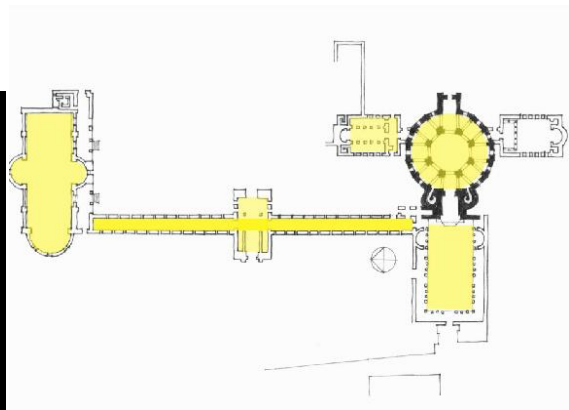
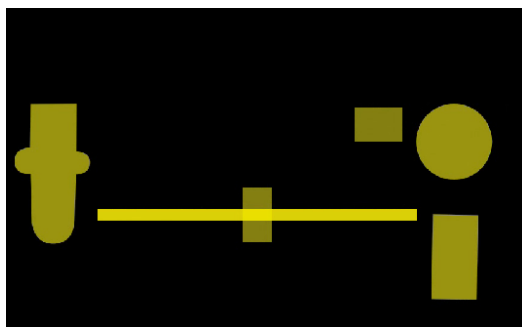
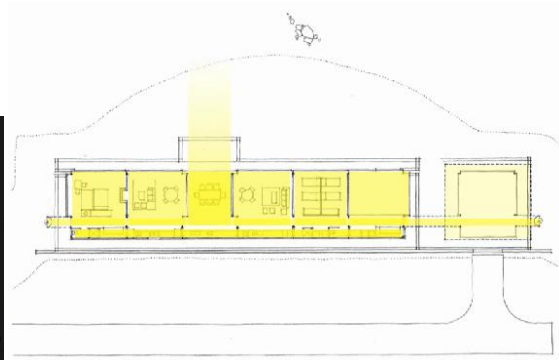
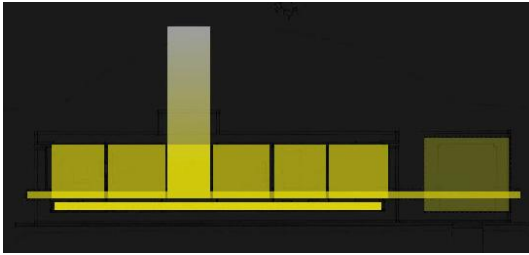
- The secondary spaces may differ from one another in form or size in order to respond to individual requirements of function, express their relative important, or acknowledge their surroundings.



4.2 Linear Organization

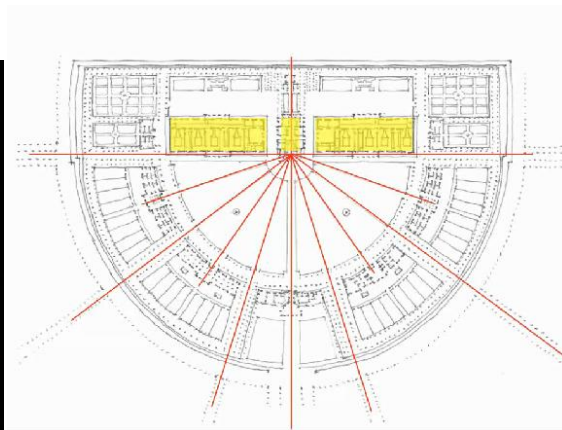
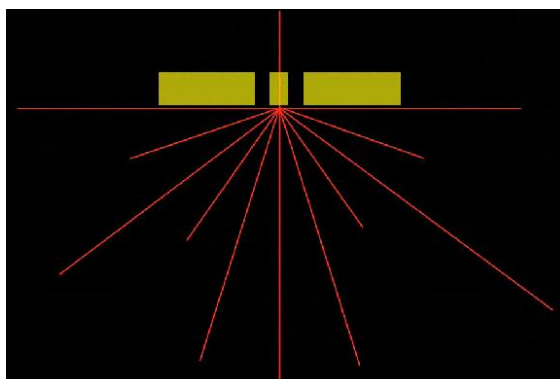
- A linear organization consists essentially of a series of spaces. These spaces can either be directly related to one another or be linked through a separate and distinct linear space.
- A linear organization usually consists of repetitive spaces which are alike in size, form, and function.
- It may also consist of a single linear space that organizes along its length a series of space that differ in size, form, or function. In both cases, each space along the sequence has an exterior exposure.

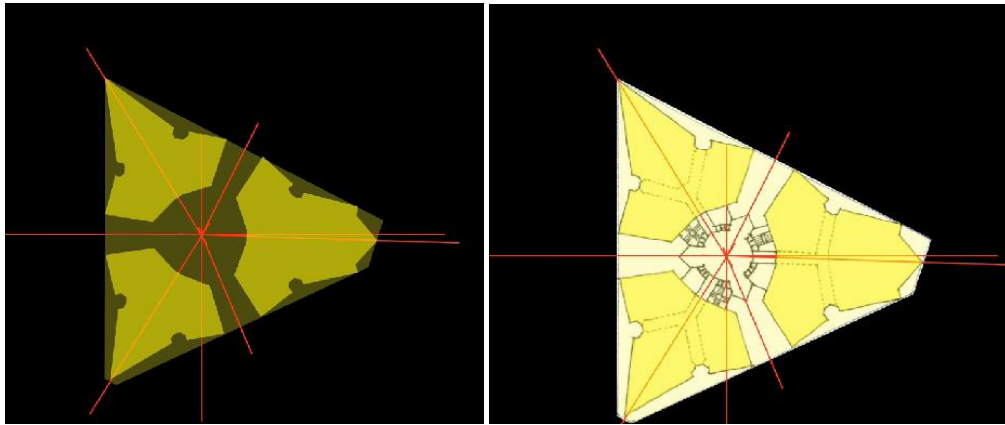




4.3 Radial Organization

- A radial organization consists of a central space from which a number of linear organizations extend in a radial manner.
- Whereas a centralized organization is an introverted scheme that focuses inward on its central space, a radial organization is an extroverted plan that reaches out to its context.
- The central space of a radial organization is generally regular in form. The linear arms, for which the central space is the hub, may differ from one another in order to respond to individual requirements of function and context.



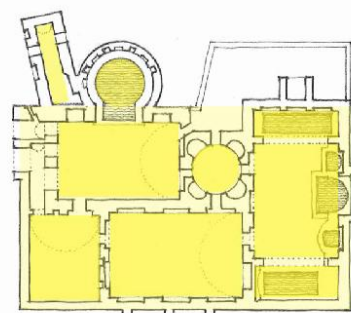
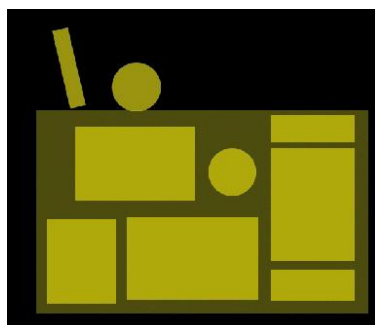
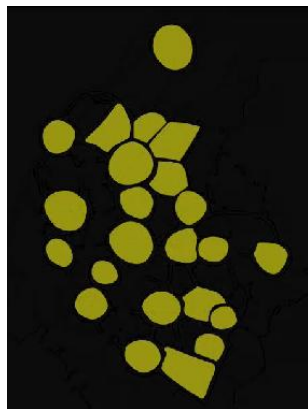


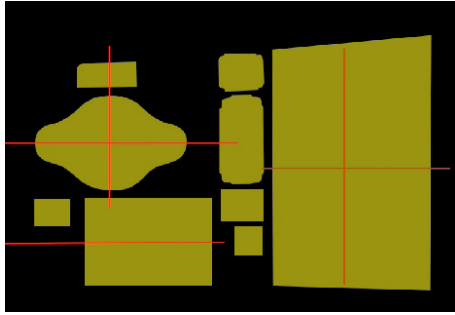
4.4 Clustered Organization

- A clustered organization relies on physical proximity to relate its spaces one another. It often consists of repetition, cellular spaces that have similar functions and share a common visual trait such as shape or orientation.



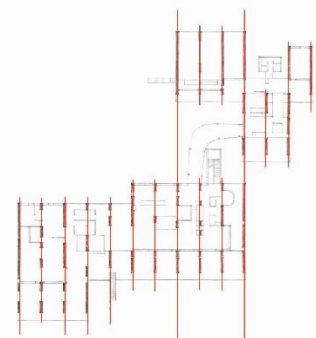
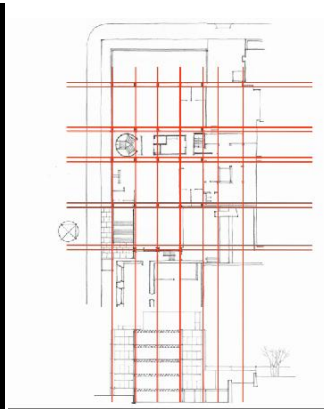
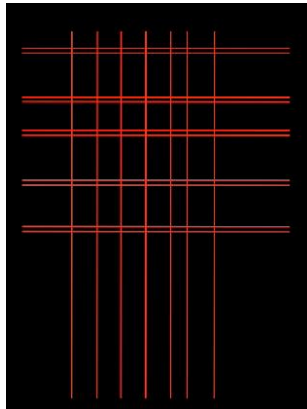
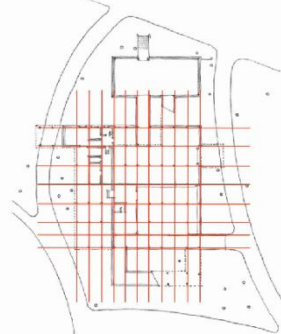
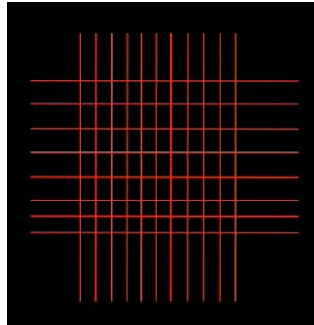
A clustered organization can also accept within its composition spaces that are dissimilar in size, form and function, but related to one another by proximity or an ordering device such as symmetry or axis.



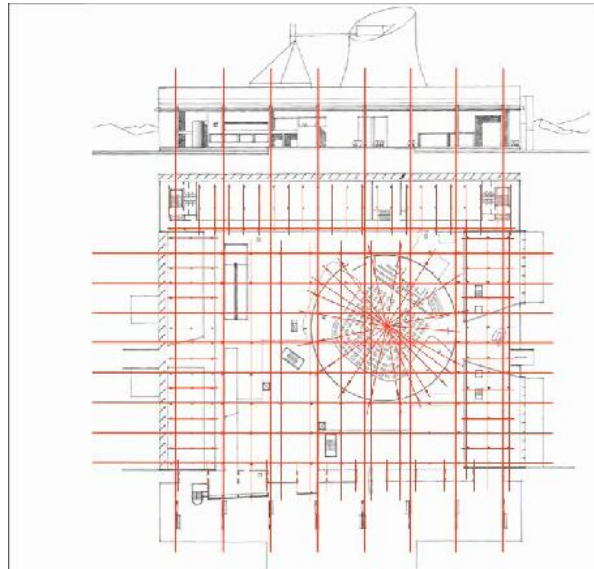


4.5 Grid Organization

- A grid organization consists of forms and spaces whose positions in space and relationship with one another are regulated by a three-dimensional grid pattern or field.
- The grid, create by two, usually perpendicular sets of parallel lines, establish a regular pattern of points at their intersections. Projected into the third dimension, the grid pattern is transformed into a set of repetitive, modular unit of space, within which spaces can occur as isolated events or as repetitions of the grid module.



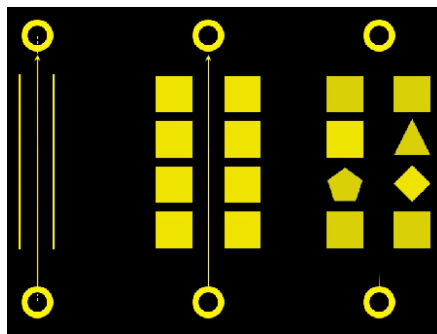
- To accommodate the specific dimensional requirements of its spaces, a grid can be made irregular in one or two directions, be interrupted to define a major space or accommodate a natural feature of its site, or be dislocated and rotated about a point in the basic pattern.



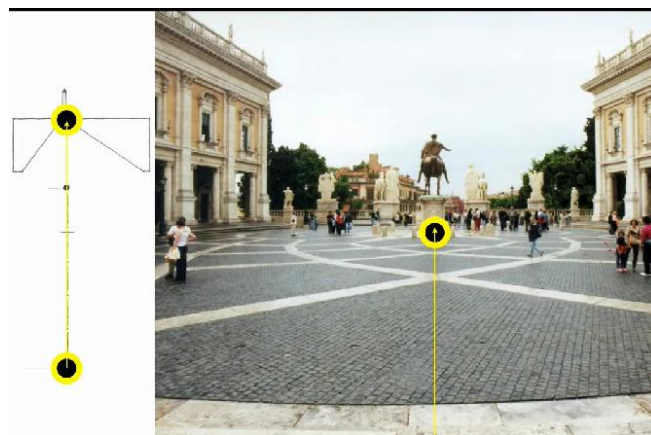
Chapter 7: Principles

7.1 Axis

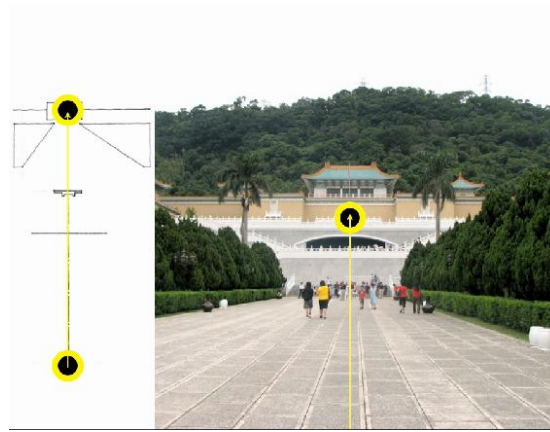
- The axis is a line established by two points in space, about which forms and spaces can be arranged in a regular or irregular manner.
- Because an axis is essentially a linear condition, it has qualities of length and direction, and induces movement and promotes views along its path.
- The notion of an axis can be reinforced by defining edges along its length. These edges can be simply lines on the ground plane, or vertical planes that define a linear space coincident with the axis.



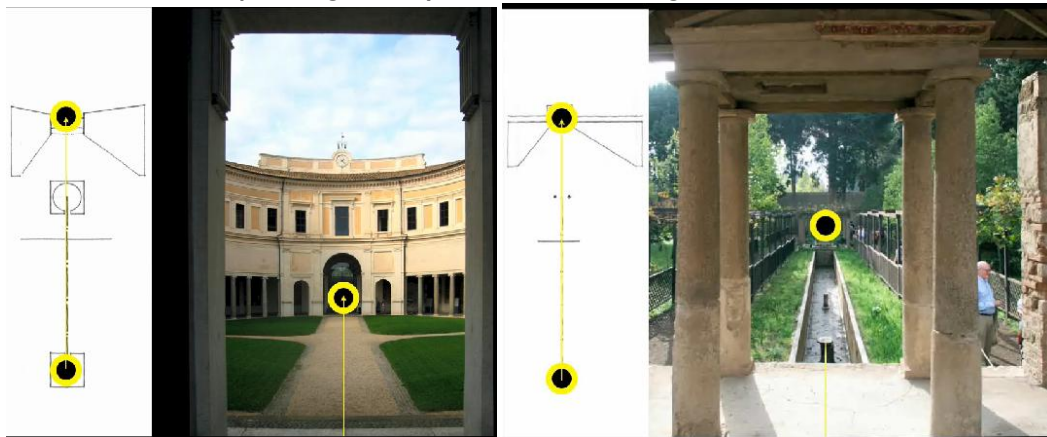
- For its definition, an axis must be terminated at both of its ends by a significant form or space. The terminating elements of an axis serve to both send and receive visual thrust.
- Three culminating elements can be:
 1. Point in space established by vertical, linear elements or centralized building forms.



2. Vertical planes, such as a symmetrical building façade or front, preceded by a fore count or similar open space.



3. Well-defined spaces, generally centralized or regular in form



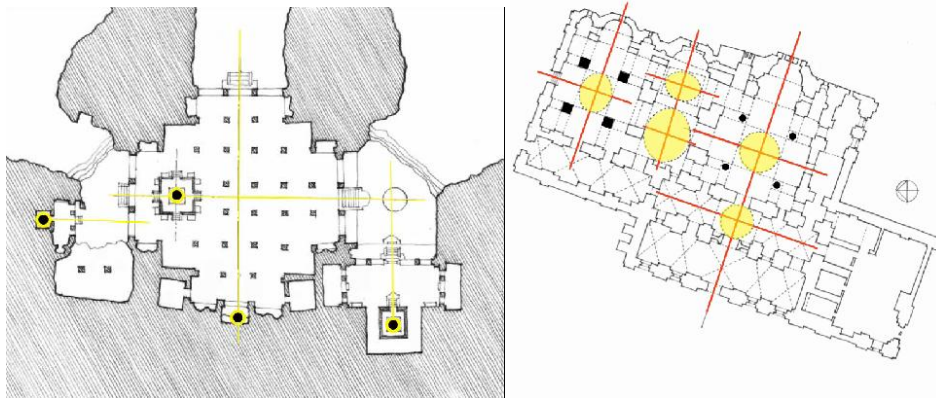
- An axis can also be implied simply by a symmetrical arrangement of forms and spaces



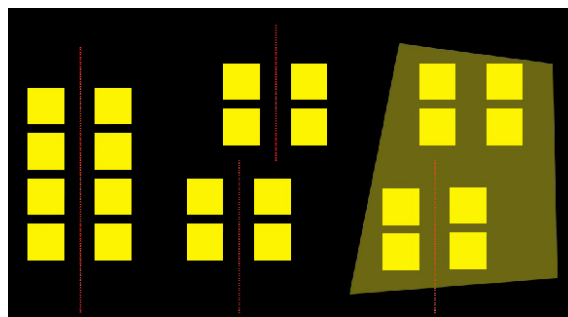
- Axes can service changes in topography and asymmetries in building composition



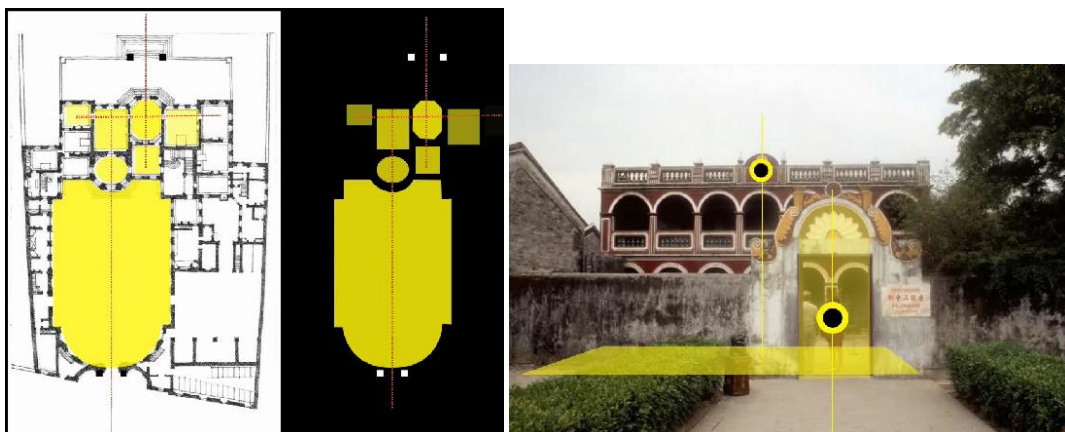
- Multiple axes can establish a network of relationship in an asymmetrical organization of forms and spaces.

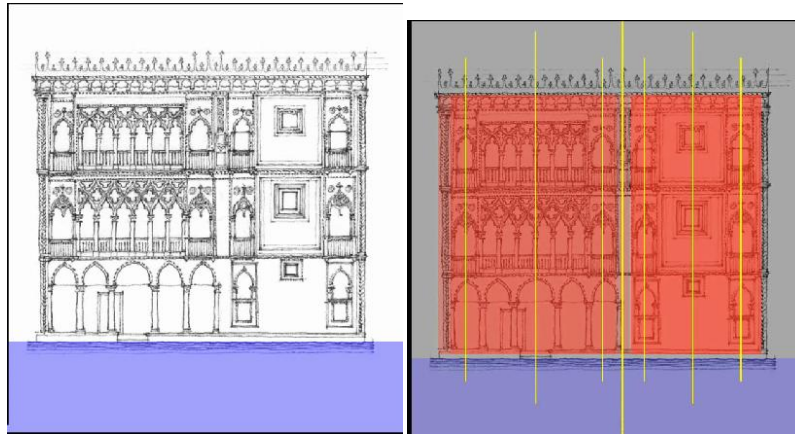


- While an axial condition can exist without a symmetrical condition being simultaneously present a symmetrical condition cannot exist without implying the existence of an axis or center about which it is structured.
- While an entire building organization can be made symmetrical, at some point, any symmetrical arrangement must confront and resolve the asymmetry of its program, site or context.



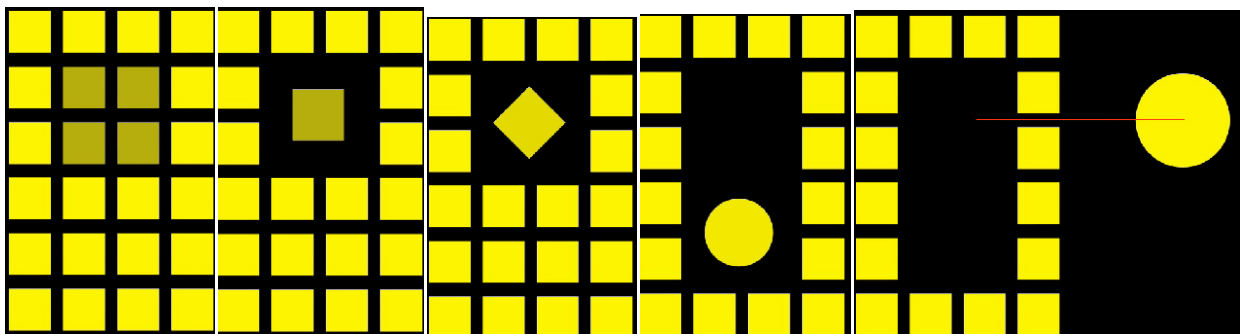
- A symmetrical condition can occur in only a portion the building and organize an irregular pattern of forms and spaces about itself. The latter case of local symmetry allows a building to respond to exceptional condition of its site or program. The symmetrical condition itself can be reserved for significant or important space within the organization.
- An intervening space can aid in accommodating a lateral shift in axes and symmetrical condition.

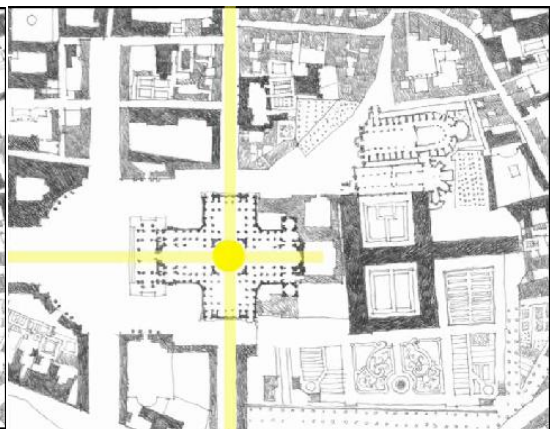
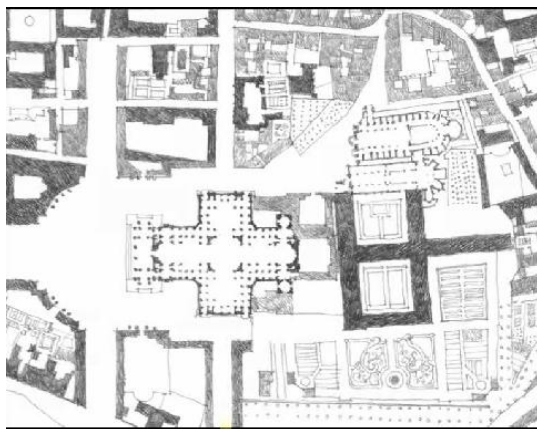
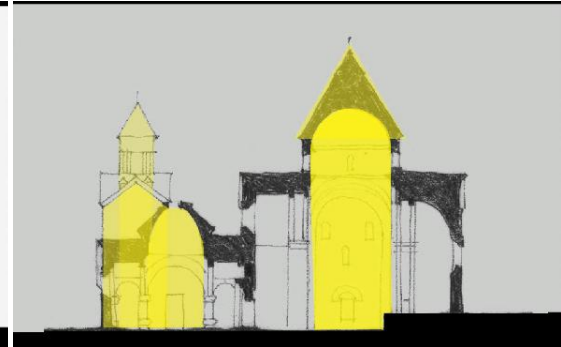
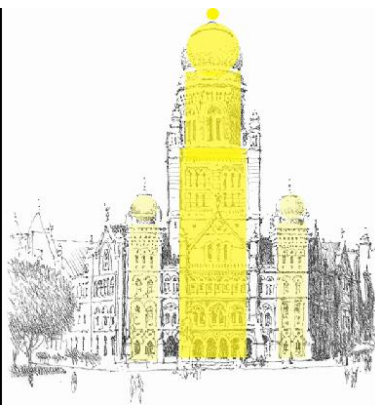


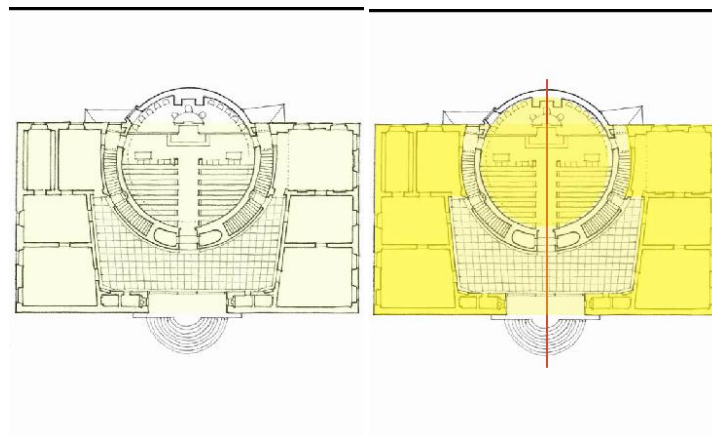
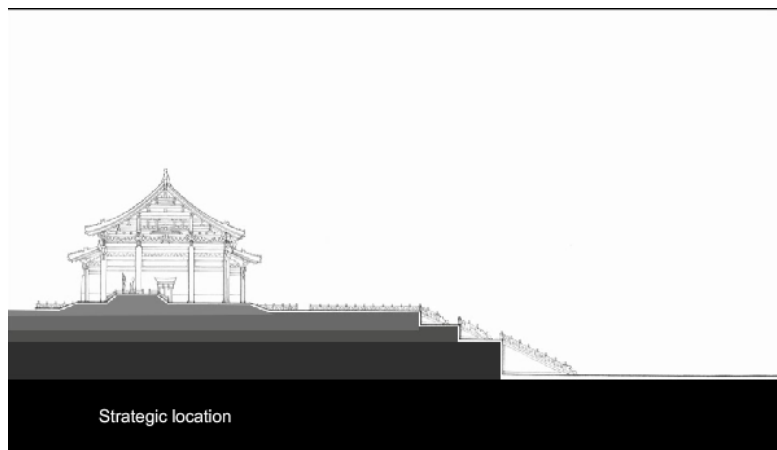
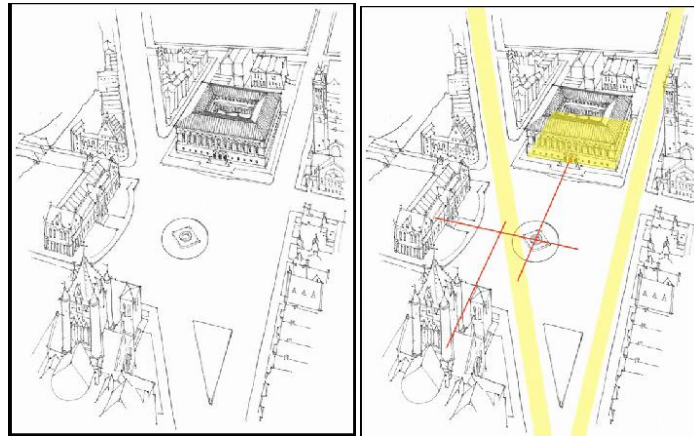


7.2 Hierarchy

- The principle of hierarchy implies that in the most if not all architectural composition, real difference exist among their form and space, reflecting the degree of importance of these form and space, as well as the functional, formal, and symbolic role they plan in the organization.
- For a form or space to be articulate as being important or significant to an organization, it must be made uniquely visible. The visual emphasis can be achieved endowing a form or shape with:
 1. Exceptional size
 2. A unique shape,
 3. A strategic location

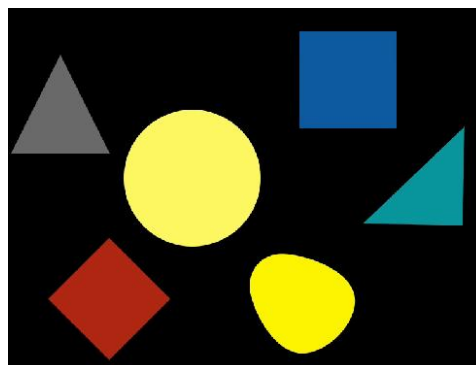




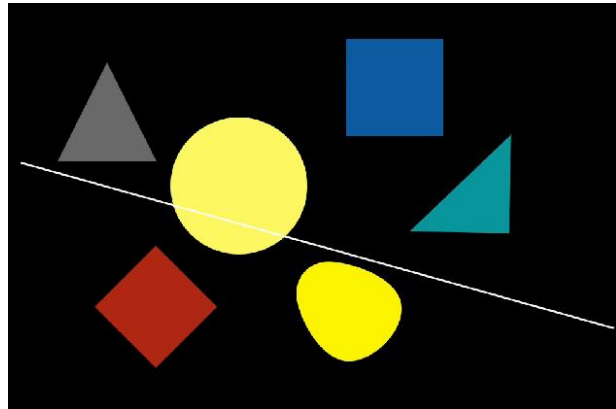


7.3 Datum

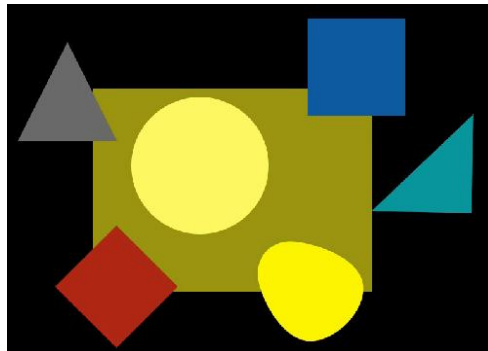
- A datum refers to a line, plane, or volume to which other elements in a composition relate.



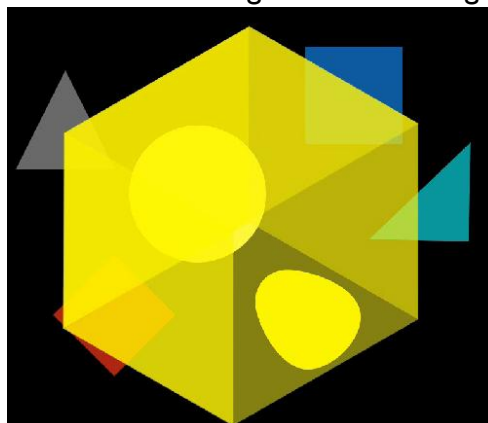
1. A linear datum must have sufficient visual continuity to cut through or bypass all the elements being organized



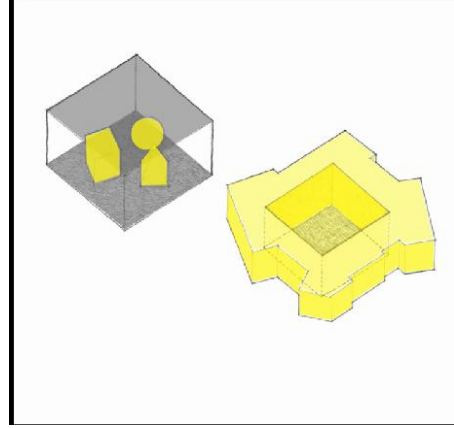
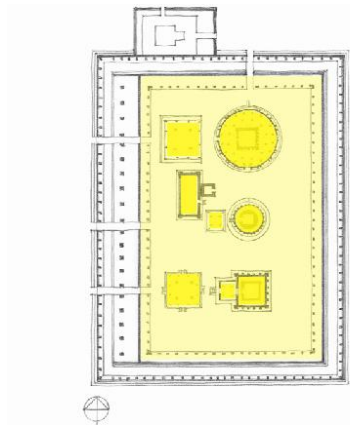
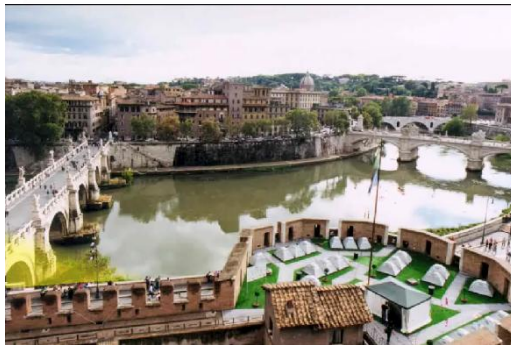
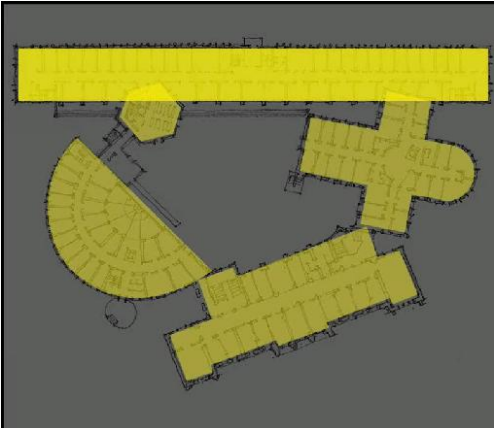
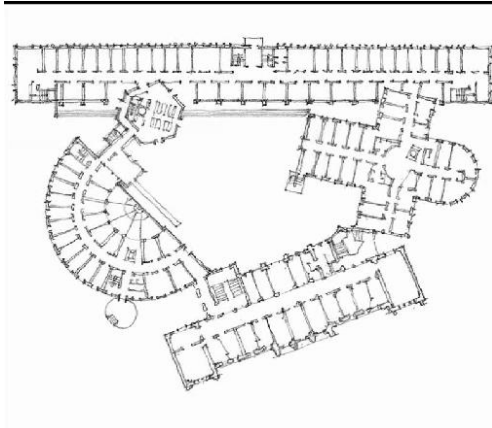
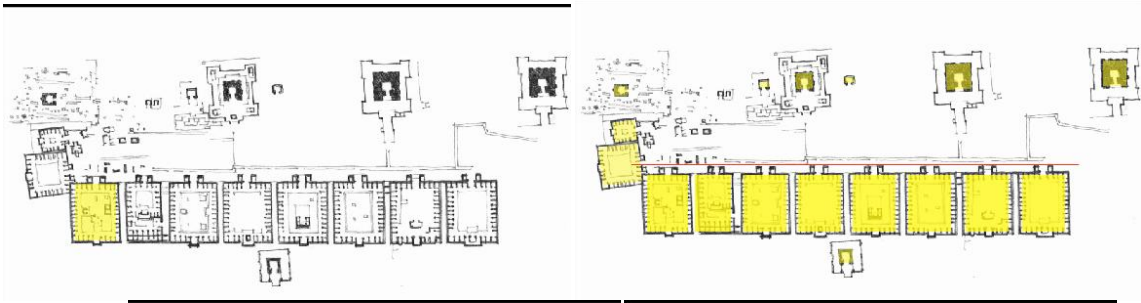
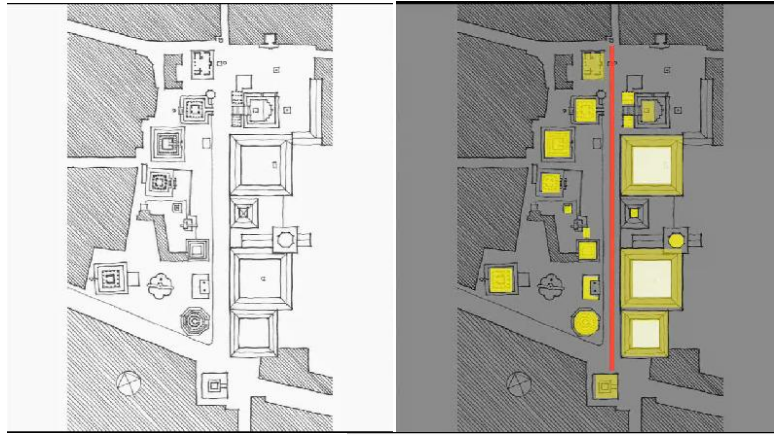
2. A plane, having sufficient size, closure, and regularity to be seen as figure, can gather the pattern of element beneath it or serve as an encompassing background for the elements and frame them in its field.



3. A volume of sufficient size, closure, and regularity can collect the pattern of elements within its boundaries or organize them along its perimeter.

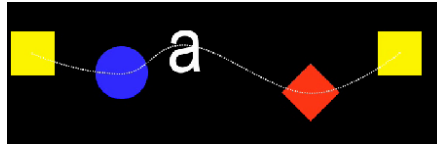


Example: a line can cut through or form a common edge for the pattern, while a grid of lines can form a neutral, unifying field for the pattern. A linear datum must have sufficient visual continuity to cut through or bypass all of the elements being organized.



7.4 Rhythm

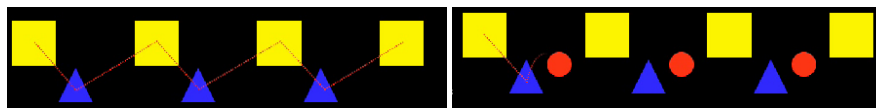
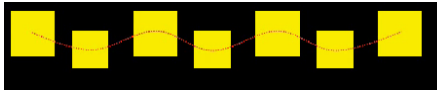
- Rhythm refers to any movement characterized by a patterned recurrent of elements or motifs at regular or irregular intervals.



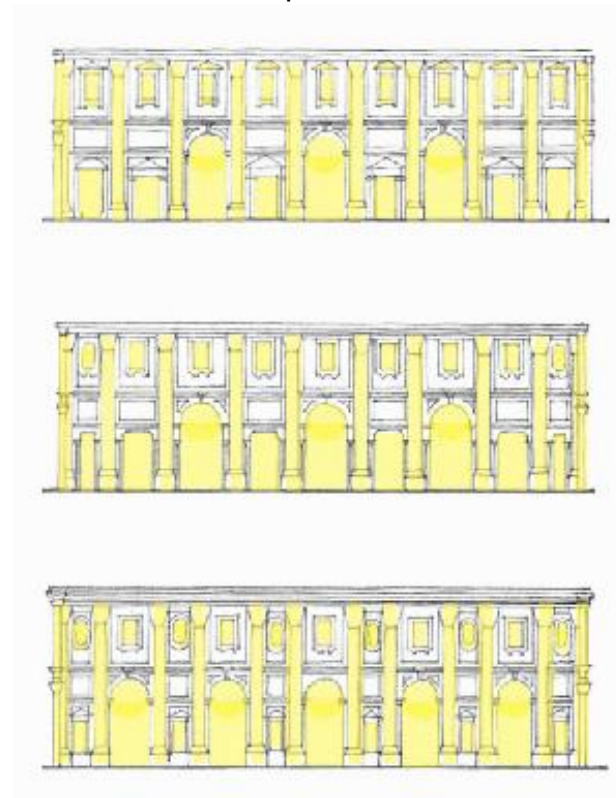
- The movement may be of our eyes as we follow recurring elements in composition or of our bodies as we advance through a sequence of spaces. In either case, rhythm incorporates repetition to organize forms and spaces in architecture.



- As in music, a rhythmic pattern may be legato, continue, and flowing, or staccato, and abrupt in its pace or cadence. Rhythmic patterns provide continuity and lead us to anticipate what comes next.



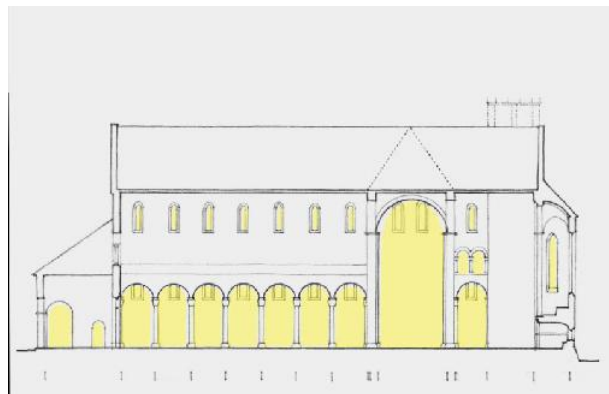
- More complex rhythmic patterns can be created by introducing points of emphasis or exceptional intervals into a sequence. These accents or beats help differentiate between the major and minor themes in a composition.



- Almost all building incorporates elements that are by their nature repetitive.
- Windows and door repeatedly puncture the surfaces of a building to allow light, air, views, and people to enter the interior.

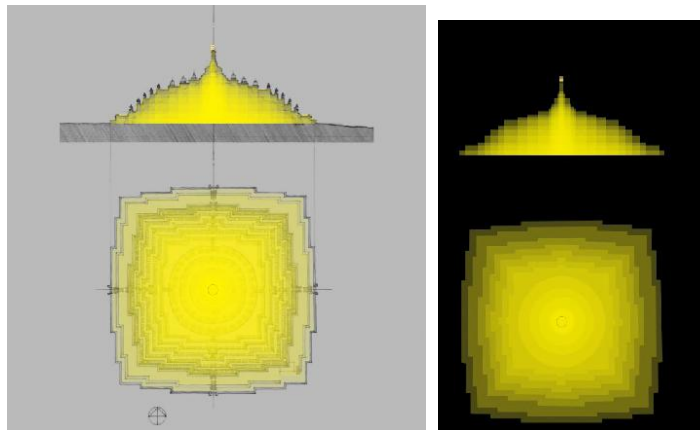
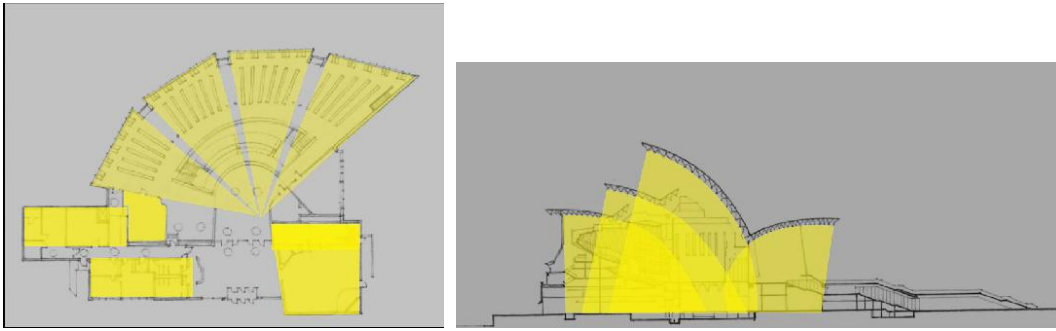


- Space often recurs to accommodate similar or repetitive functional requirements in the building program.

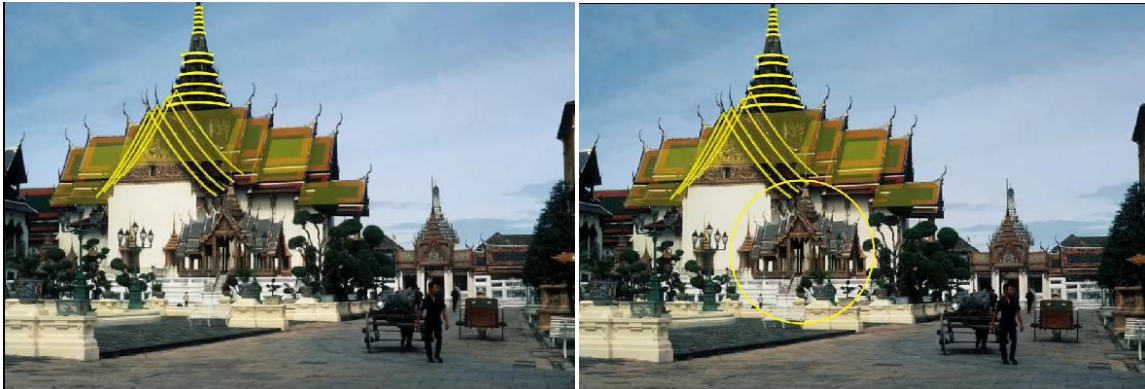


- The principle of reverberation creates a sense order among a group of elements which are similar in shape but hierarchically graded in size.
- Progressive, reverberating patterns of forms and spaces can be organized in the following ways:

I. In a radial or concentric manner about a point



2. Sequentially according to size in a linear fashion



- Randomly but relative by proximity as well as similarity of form

