

Gallery Design
Focused on
Contrast & Dynamism

by

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A Gallery Design focused on Contrast and Dynamism

Purpose

The purpose of this study is, first of all, to establish contrast and dynamism as a method to figure out the static and uniform experience through space. Second, through a study of books and an analysis of previous works of other architect's, it will give a direction on how the actual design would be used in reality by finding the effects of contrast and dynamism, and finally, based on the analysis above, it will show a gallery design with contrast and dynamism, which will ultimately provide a guide to a better or more vivid spatial composition.

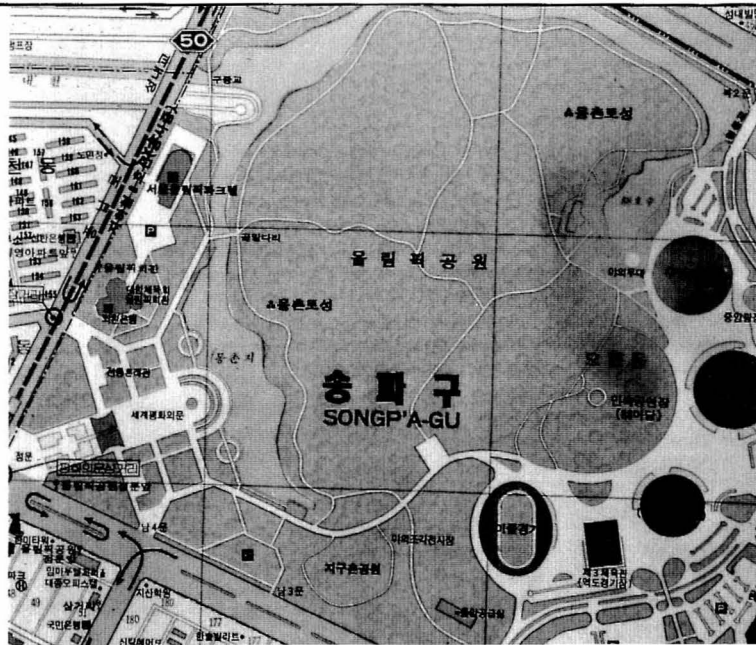
Method of This Study

This study provides an understanding of how the perceptual contrast and dynamism not only appear on interior, but also on exterior space composition. Works of great contemporary architects, focusing on exhibition buildings were chosen for the analysis. A classification of the effects that generate contrast and dynamism can be different by various standards. Since there have not been any previous studies of a gallery design, this analysis is classified subjectively based on documents.

Site

The site is in the Olympic Park, Seoul, South Korea. The park has a total of 291 hectares, which takes a good three hours to walk all around the Olympic Park on foot. There are six stadiums, such as cycling, fencing, weight-lifting, gymnastics, tennis and swimming.

The park has also an open-air Sculpture Park with its over 200 modern sculptures in stone, metal, timber and glass, donated in celebration of the Olympics by the artists from the 66 participating countries in the World International Open Air Sculpture Exhibition. Near the sports venues is a lake with water foundation and some lawn areas.

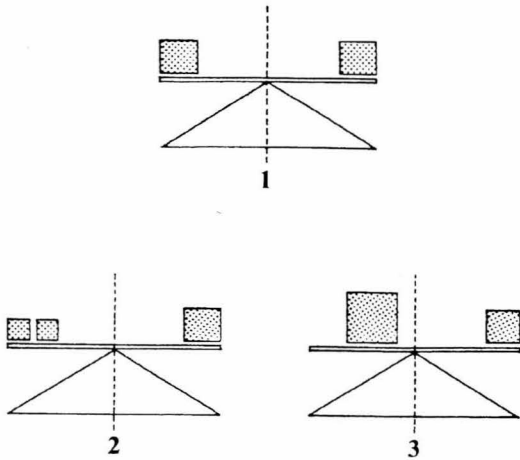


Balance and Movement

The most important psychological as well as physical influence on human perception is man's need for balance, to have his two feet planted firmly on the ground and to know if he is to remain upright in any circumstances, in any attitude, with some reasonable certainty.*

Variation of the visual means involve factors of compositional weight, size and position. Diagram 1 and 2 demonstrate the axial distribution of weight based on size. It is also quite possible to balance dissimilar weights by shifting their position as shown in diagram 3.

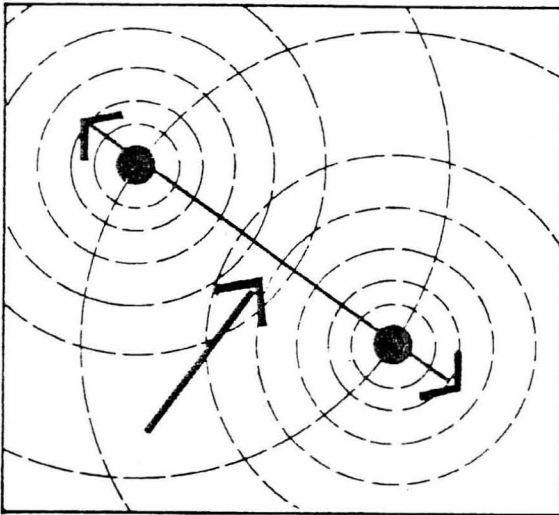
*Donis A. Dondis, *A Primer of Visual Literacy*,
The MIT Press, 1973, p.22



The Perception of Spatial Force and Dynamism

The simplest unit, a spot, not only indicates location, but is felt to have within itself potential energies of expansion and contraction which activate the surrounding area. When an object is being described, it is usually related with other objects in the same circumstances, and the meaning of observing the object is to place it in a larger context as a whole. The various qualities of the images produced by the sense of sight are not static. In the diagram, the spot is not simply displaced with regard to the center of square.* The spot is unable to perform actual movement, but it has some kind of internal stress against the surrounding square. Therefore, this stress can be defined as "psychological force".

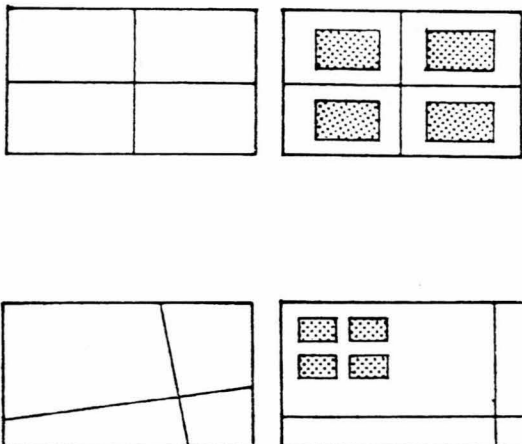
*Rudolf Arnheim, *Art and Visual Perception*,
Univ. of California Press, 1977, p. 11

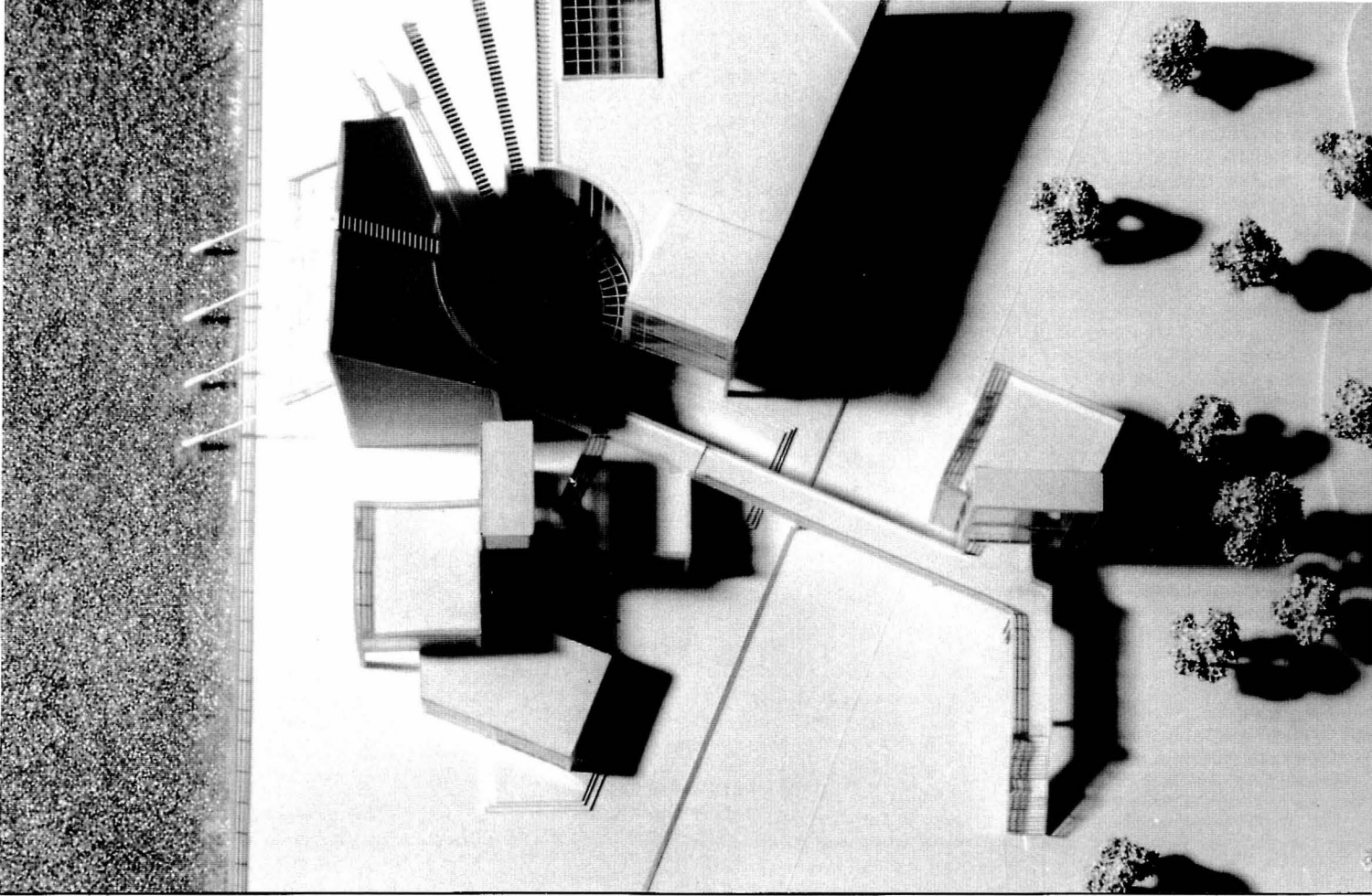


Tension by Visual Contrast

The most effective utilization of the mechanisms of visual perception is to position or identify visual clues as one thing or the other, in balance or off, strong or threateningly weak. Leveling is harmonious and simple, but sharpening has much more vital intentions in its visual character. And yet it would be unfair to say that one was easier to perceive than the other. They are merely different. The examples demonstrate complete and indisputable balance. The definition of the structure is not as unequivocal except in a negative sense; the visual elements are not symmetrical. But balance does not have to take the form of symmetry. The weight of the design elements can be adjusted asymmetrically. The additional forces move the design away from simplicity, but the final effect is one of balance structured by weight and counter weight, action and counteraction.*

*Donis A. Dondis, *A Primer of Visual Literacy*,
The MIT Press, 1973, p.91 - 92



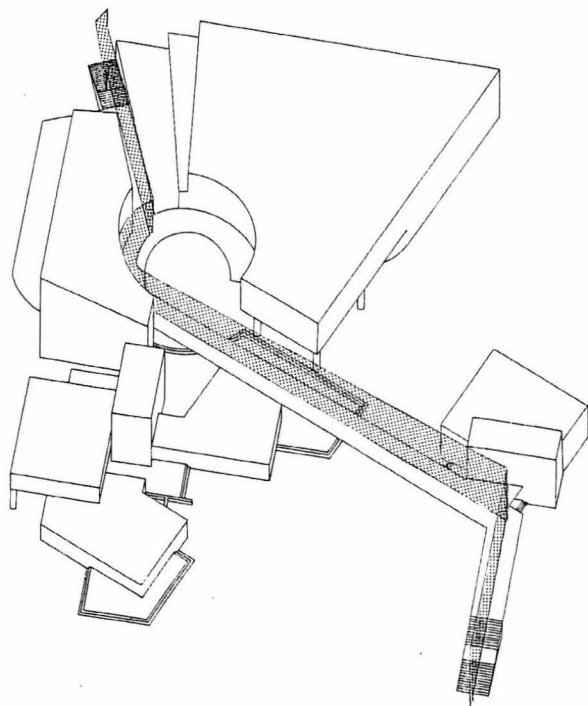


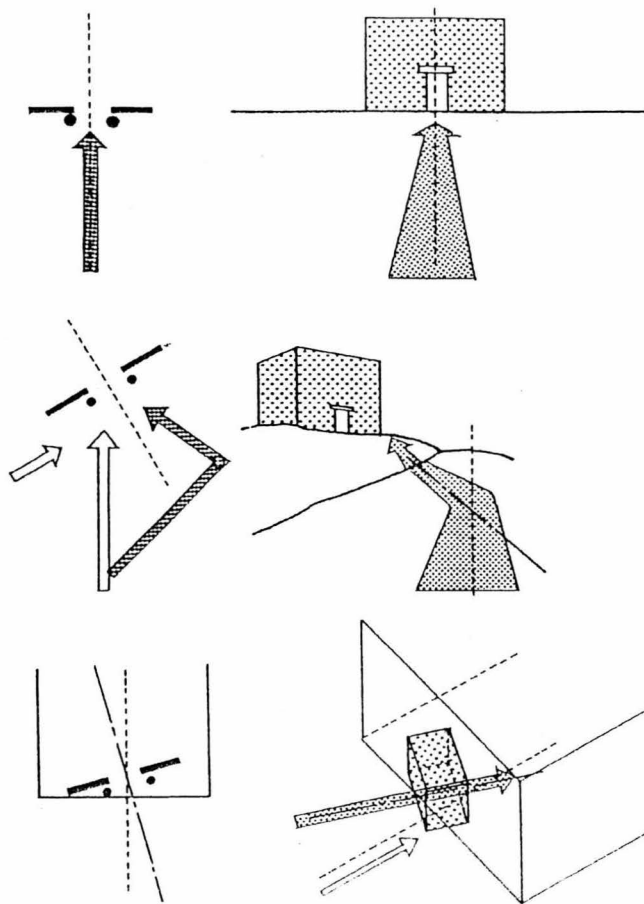
Path in Space

One may be attracted by any of many visual objects, but he will naturally be invited to look through or toward an empty and vanishing field.* The same effect happens, when a path is experienced through a event taking a place or when path is simply perceived as a mediator to get to another place. The path, itself, implies a direction and a tension. Therefore, the path is able to be perceived as a tool for us to experience more dynamic space. Le Corbusier recognized the value of circulation elements because their role was unambiguous, and they afforded such an excellent contrast to the other elements in a composition. Stairs, ramps, bridges and routes of various kinds were used by Le Corbusier to infuse his buildings with dramatic and varied experiences, the precise nature and clear definition of these components conformed to Le Corbusier articulation requirements because they fitted so easily into his geometric framework. Another reason why he valued these elements was their capacity to add a powerful dynamic content into a design.**

* Amos Ih Tiao Chang, *Intangible Content in Architectonic Form*, Princeton, 1975, p. 21

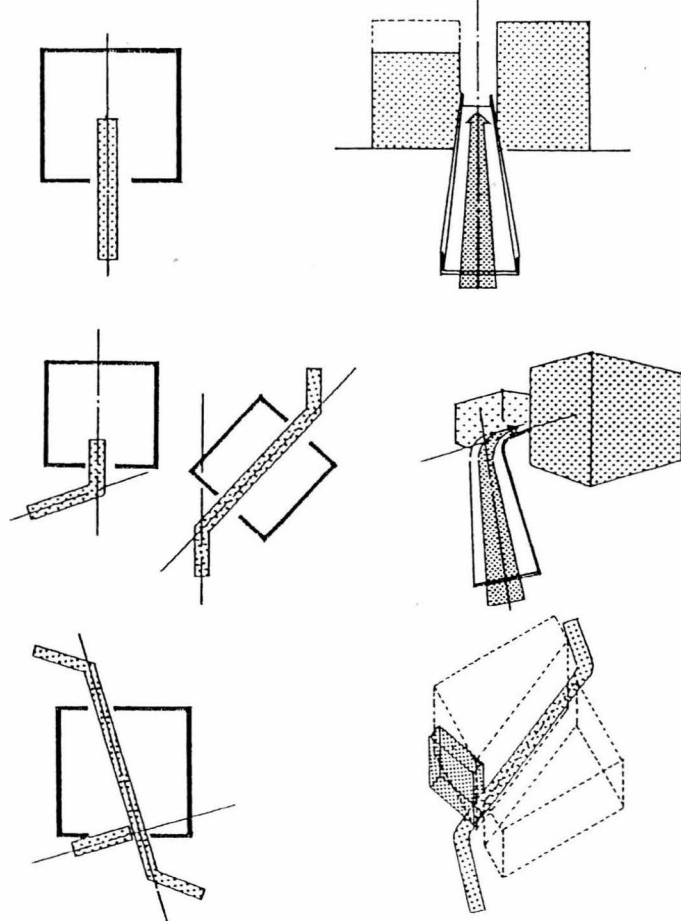
**Geoffrey H. Baker, *Le Corbusier - An Analysis of Form*, VNR, 1977, p. 260



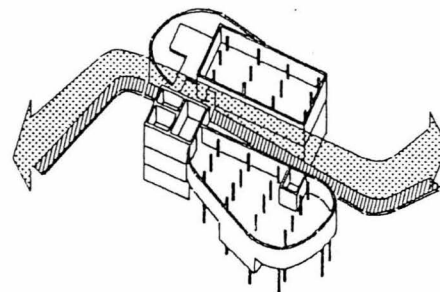


The diagram shows that a frontal approach leads directly to a building's entrance along a straight axial path and the visual goal that terminates the approach is clear; it can be the entire front facade of a building or an elaborated entrance within it. An oblique approach enhances the effect of perspective on a building's front facade and form. The path can be re-directed one or more times to delay and prolong the sequence of the approach and if a building is approached at an extreme angle, its entrance can project beyond its facade to be more clearly visible.*

Francis D.K. Ching, *Architecture : Form, Space & Order*, VNR, 1979, p. 25



In this diagram, approaching through a ramp can enhance a sense of tension and variation. The first diagram shows the ramp gives a strong tension with its straight axis. In contrast to this, the oblique ramp presents more perspective scene and tension. If the ramp penetrates a building it enhances stronger sense of variation and tension. As we have seen through this analysis, various views caused from a change in the direction for approaching and entering a building can become a member of perceptual effect from contrast and dynamism.



Carpenter Center of Visual Art. -Le Corbusier-

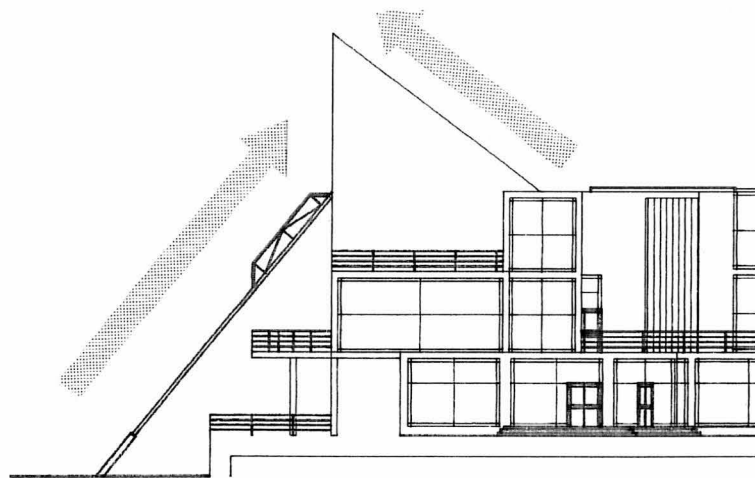
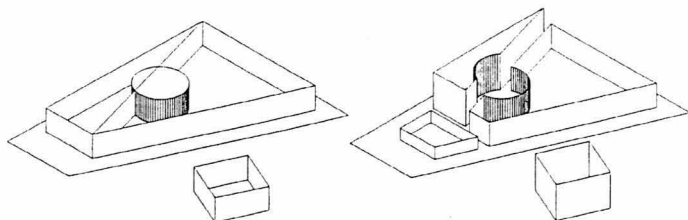
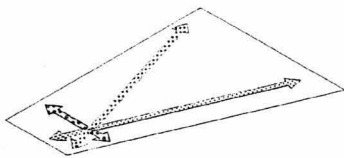
The main part of this building that generates a strong movement is the penetrating curved ramp. It is compressed at the middle and as the circulation goes up along the ramp it dilates again at the end. The ramp in this building is a tool for combining different spaces of the building and it plays an important role in giving various visual experiences.



Diagonals

Maurice de Sausmarez says in his book that diagonals introduce powerful directional impulses, a dynamism which is the outcome of unresolved tendencies towards vertical and horizontal which are held in balanced suspension.*

* Geoffrey H. Baker, *Le Corbusier - An Analysis of Form*, VNR, 1977, p. 56

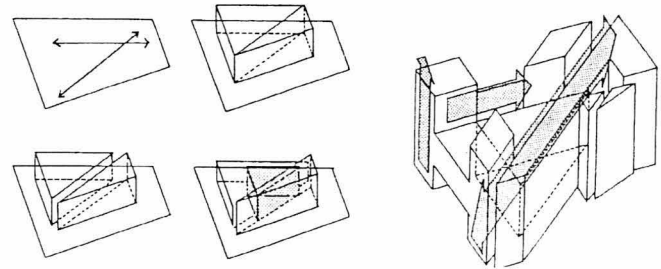
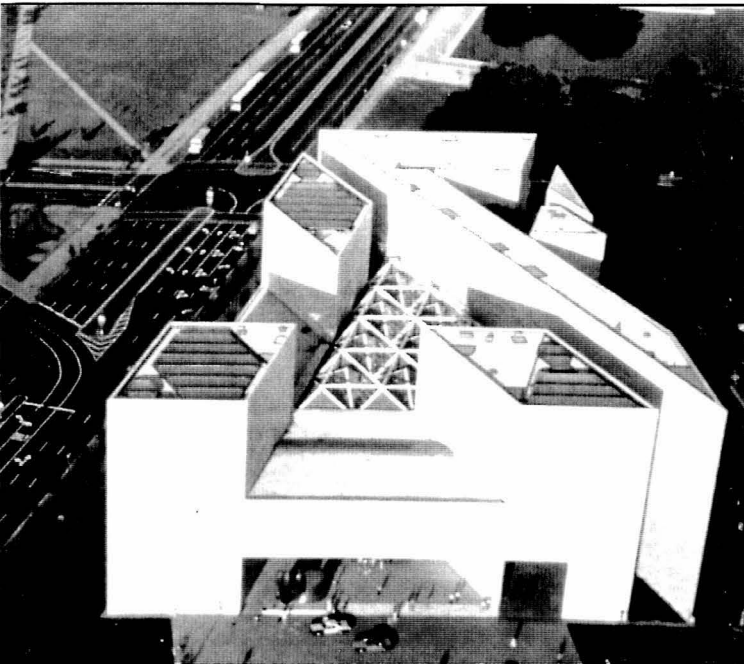
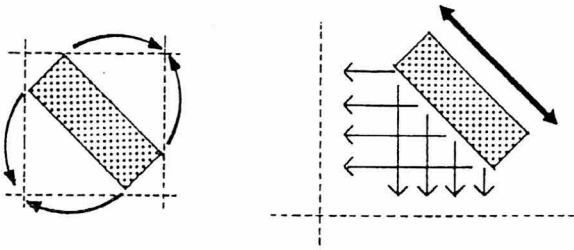


Diagonal orientation is probably the most elementary and effective means of obtaining directed tension. Diagonals are perceived spontaneously as dynamic straining toward or away from basic spatial frame work of the vertical and horizontal.*

A diagonal line is a deviation from the perpendicular or horizontal. It can be seen as 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 point in the sky, it is dynamic and visually active in its unbalanced state.**

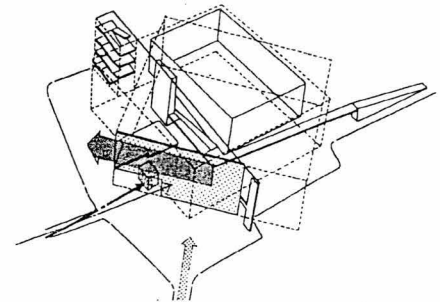
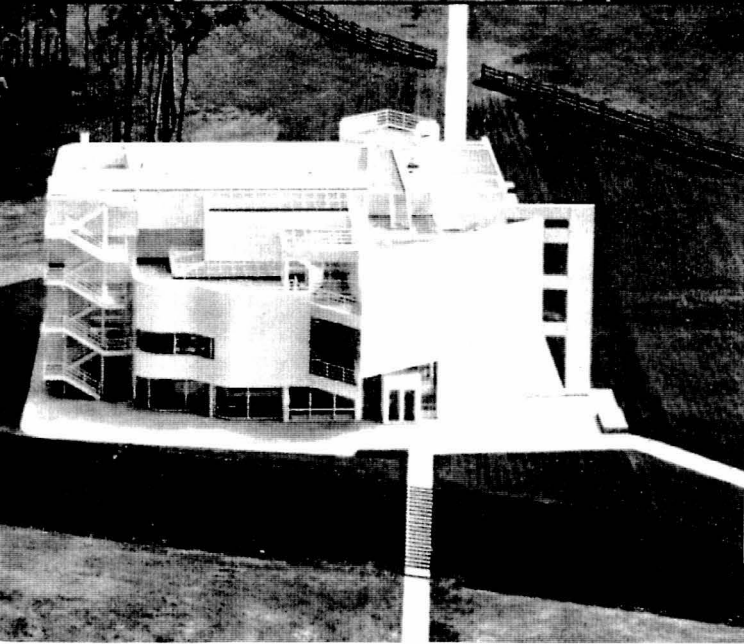
* Rudolf Arnheim, *The Dynamics of Architectural Forms*, Univ. of California Press, 1977, p. 425

**Francis D.K. Ching, *ArchitectureFrancis : Form, Space & Oder*, VNR, 1979, p. 25



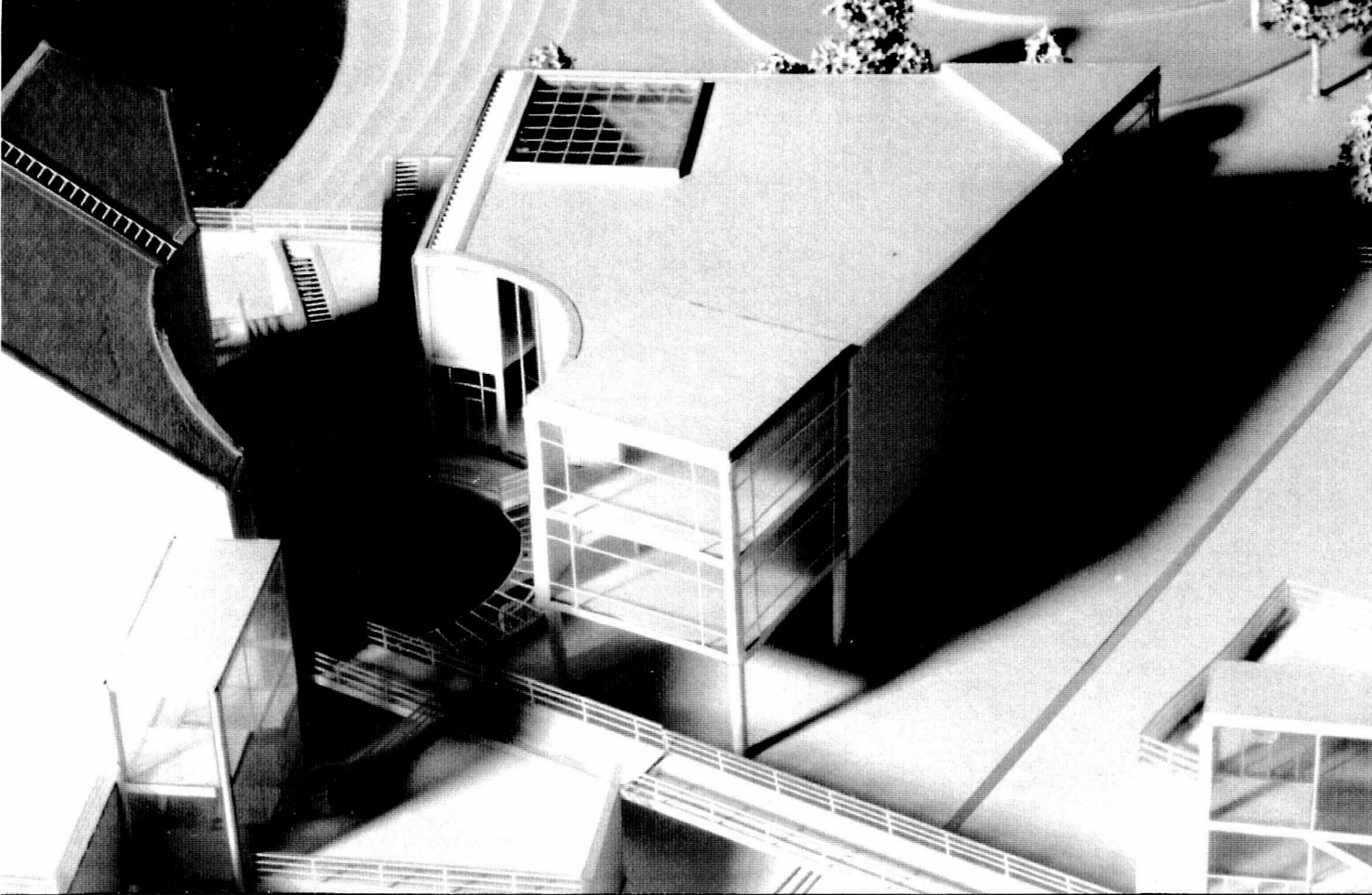
National Gallery of Art -I.M. Pei-

In the design of National Gallery, two axis from the surrounding context became a guide to design strategy. Moreover, the triangle formed by these two axis played a main role in entire composition of form. In other words, in the basic mass, one diagonal makes two triangles. One isosceles and one right triangle. These two triangles are connected by a third triangle. Furthermore, diagonals formed by various triangles generates strong dynamism.



The Athenaeum New Harmony -Richard Meier -

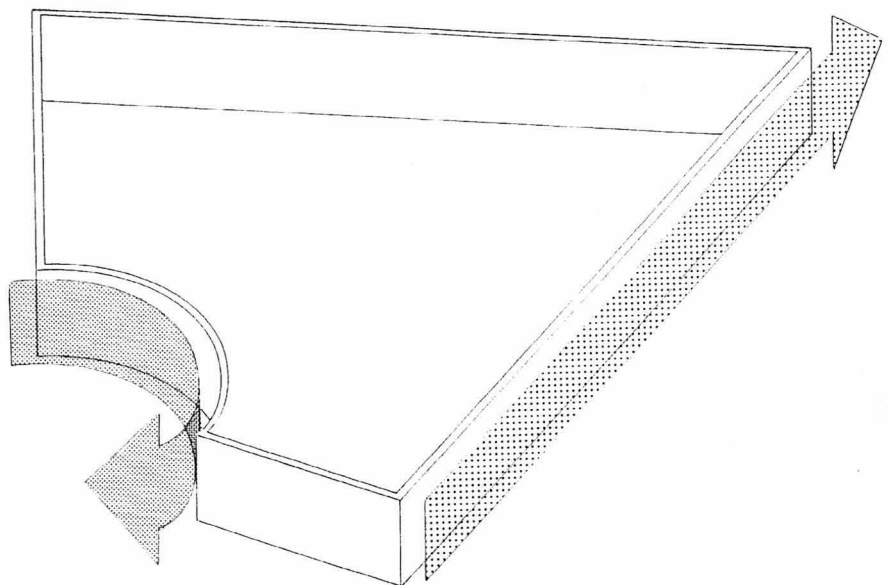
Visitors approach to this building while they are looking at the screen wall because the path to the entrance and the gate is perpendicular to each other. People use the direction as a guide to reach the entrance. Because the entrance is out of the approaching axis by about 5° , visitors are forced to make a small turn to approach to the entrance. This variation of axis can be considered as a very important factor to allow the visitors to perceive the building as a dynamic composition.

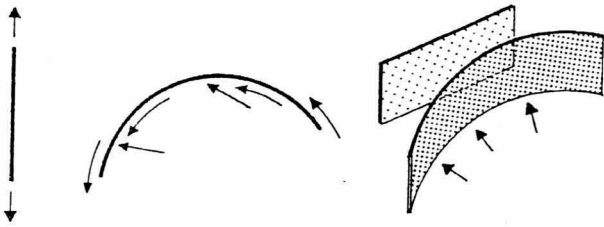


Rectilinearity and Curvilinearity

A curved shape acquires its meaning through its contrast with straightness. With this conviction, a general survey will reveal the existence of at least three conceivable polarities of shape, namely: horizontality and verticality; perpendicularity and obliquity; and rectilinearity and curvilinearity. Simple or compound, minute or colossal, architectonic forms are experienced as varied combinations of these elements, the hues of form.*

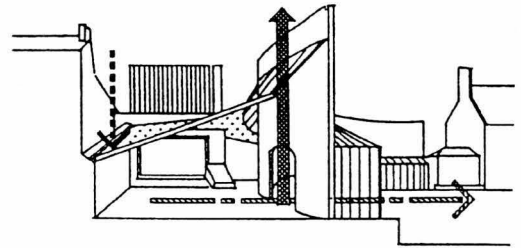
*Amos Ih Tiao Chang,
Intangible Content in Architectonic Form,
Princeton, 1975, p. 32





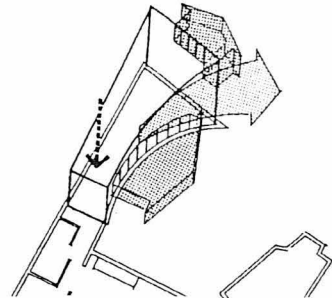
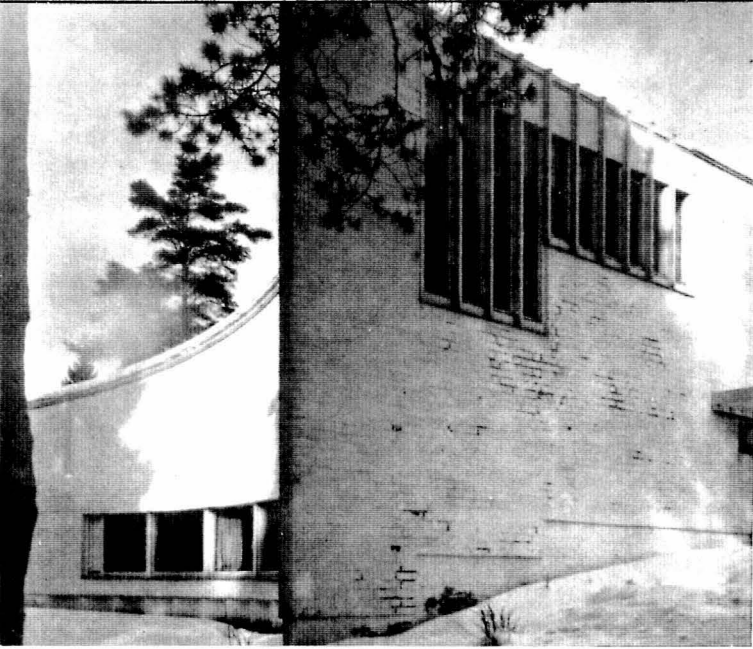
In the diagram, the space between rectilinearity and curvilinearity shows contrasting form.

Furthermore, dilation and compression of the space becomes a guide to perceptual dynamism.



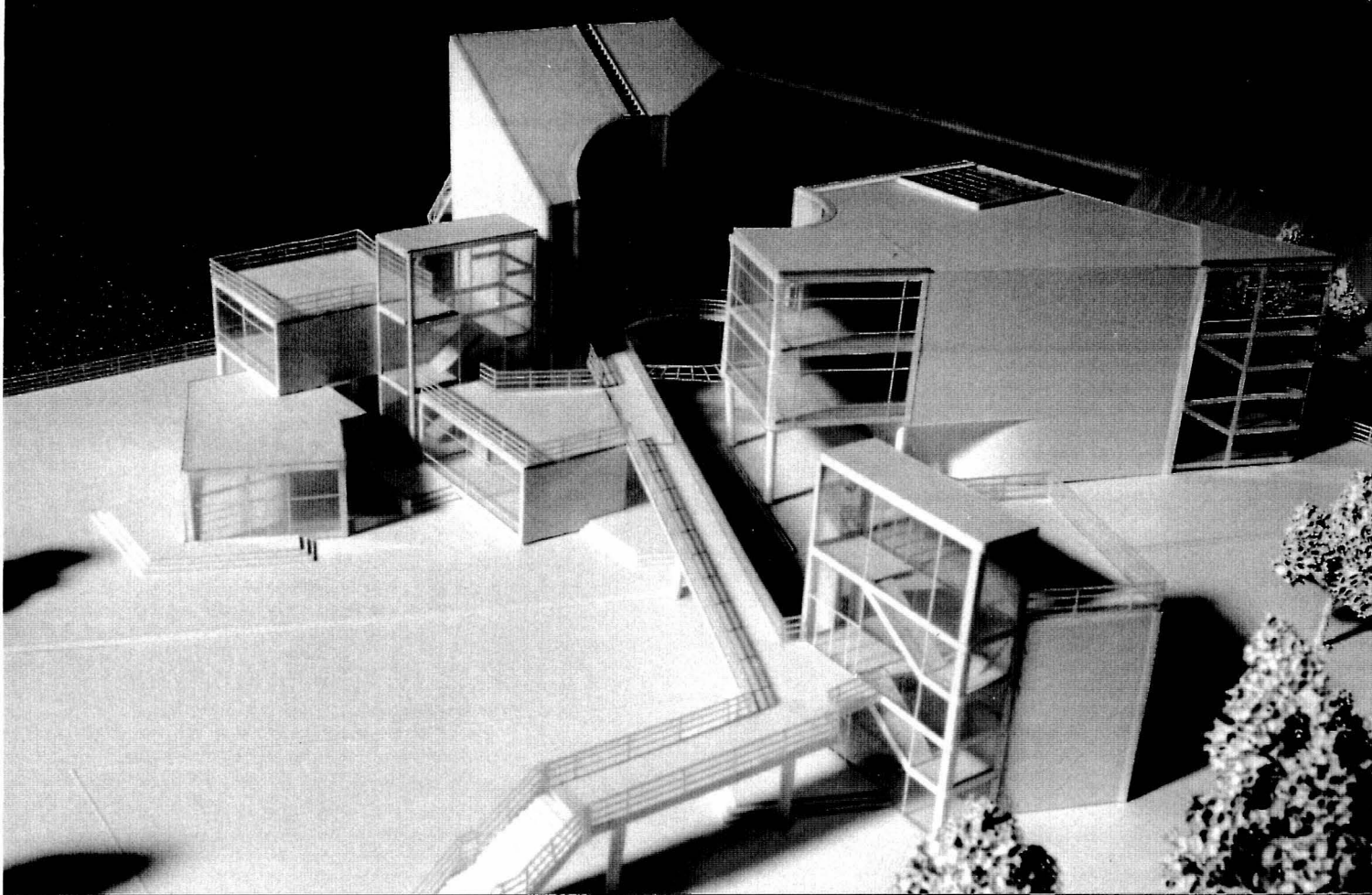
Art Center, St. Andrews University -James Stirling-

The space formed by a straight wall, a curved wall and a diagonal roof generates compression and dilation of space. In other words, the space has horizontal expansion and simultaneously, it has a vertical expansion which stress the direction to the open space.



Alvar Aalto's Atria - Alvar Aalto

When the interior space is seen from the entrance, its slightly compressed along the curved wall. At this time, force of dilating direction is diffused to the outside of the building through the window openings. On contrast, where the dilation of space occurs, the force continuously moves outward through a window opening that is highly elevated on the wall while raising spatial volume at the same time.

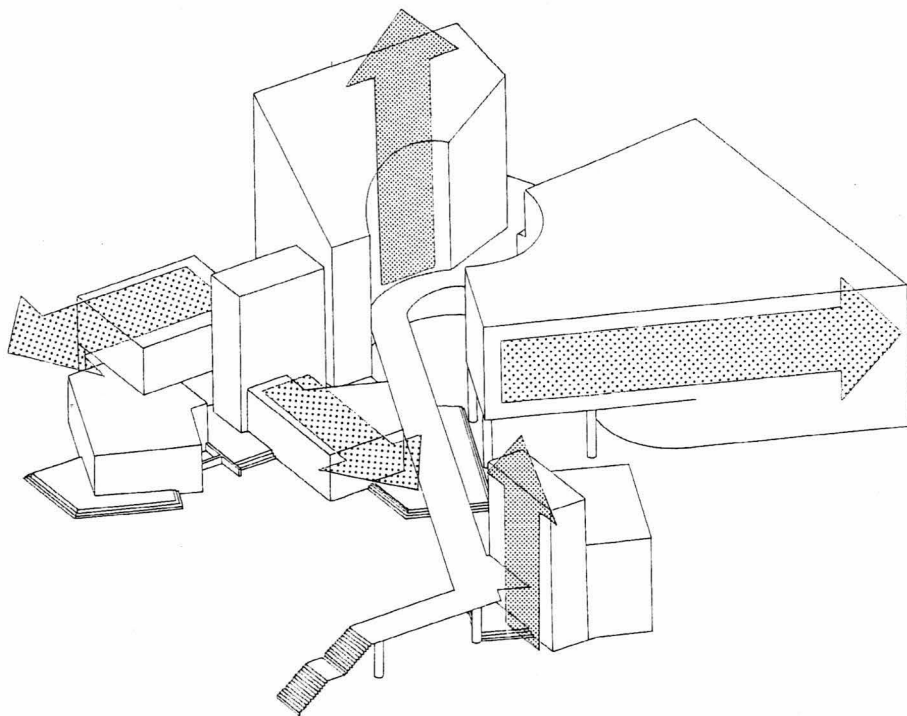


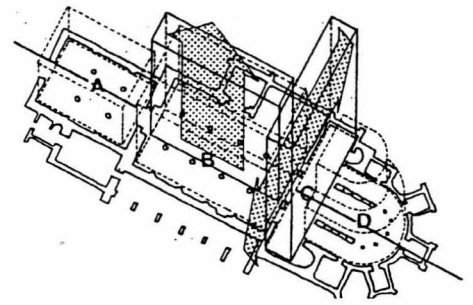
Verticality and Horizontality.

More obvious than the two polarities mentioned in the diagram is the complement between horizontality and verticality. When a vertical form is of light construction and when a number of its cantilevers are repeatedly superimposing one another, our sight is strongly induced to travel vertically rather than horizontally. Conversely, repetition of obvious vertically will lead to an inducement of horizontality.*

In other words, in a building with the same ceiling height it is hard to give the sense of comfort to human beings. Therefore, dynamic feelings that come from ceiling height play an important role in architectural psychology.

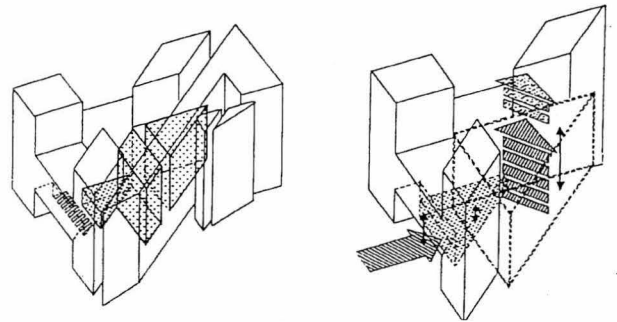
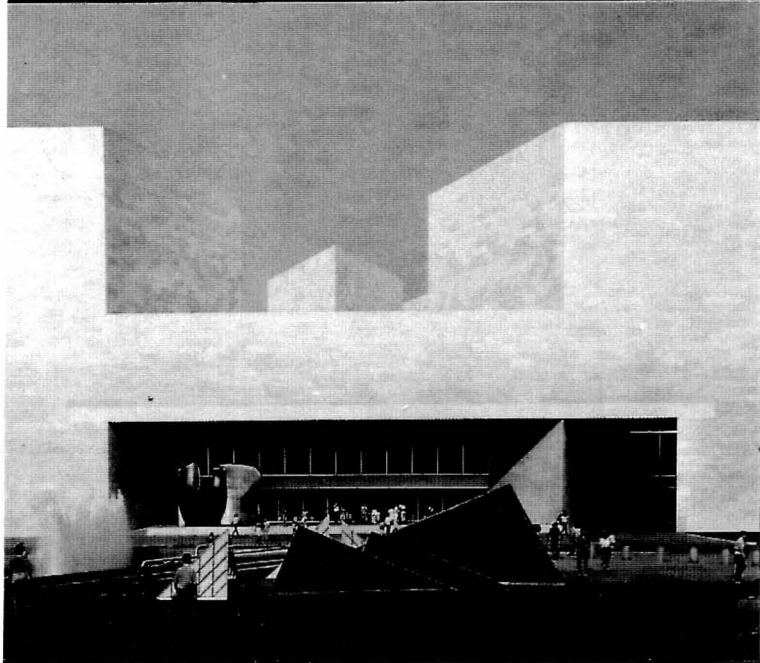
*Amos Ih Tiao Chang,
Intangible Content in Architectonic Form,
Princeton, 1975, p. 35





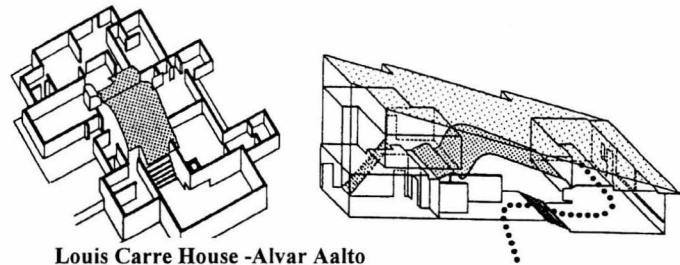
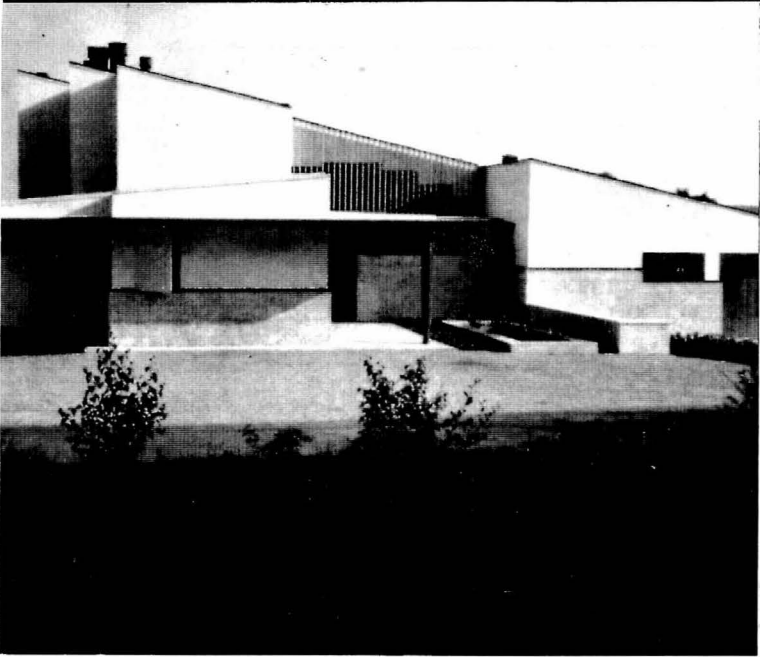
In Romanesque and Gothic Cathedrals, an observer goes through narthex (A) with low-ceiling to the nave (B) which has a strong sense of direction and contrasting high-ceilings. After the observer experiences transept (C) with an axis perpendicular to the main axis then he reaches the choir (D) which is emphasized by direction in depth.

Likewise these cathedrals have dynamic space by contrasting spatial arrangement. To design a space with contrast and dynamism, an architect can also use circulation of a building which has a strong variation.



National Gallery of Art -I.M. Pei-

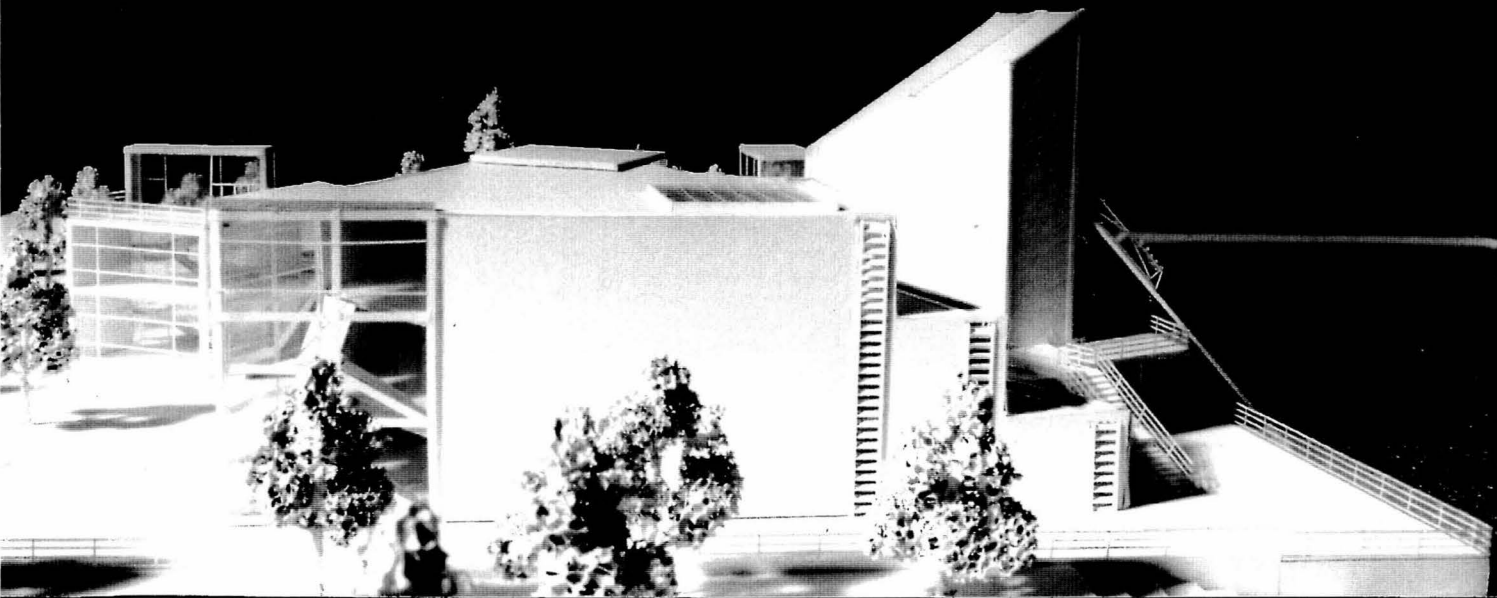
Visitors go into the entrance which is intentionally designed with low-ceiling height and recessed entry to a dark space. But the space next to the entrance is a large void space with a high ceiling-height which is designed to get the maximum amount of natural light during the day time. Because of these contrasting spaces next to each other, visitors can sense a more dynamic flow of space.



Louis Carré House -Alvar Aalto

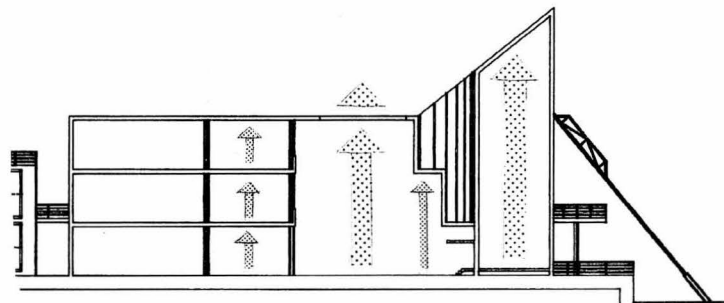
The main point of this building could be the waved ceiling contrasted with the straight but sloped roof and because the waved roof is placed right on the top of the staircase, it gives a strong sense of dynamism. According to Venturi, designing from the outside in, as well as the inside out, creates necessary tensions, which help make architecture. Since the inside is different from the outside, the wall -the point of change- becomes an architectural event.*

* Rudolf Arnheim, *The Dynamics of Architectural Forms*, Univ. of California Press, 1977, p. 108

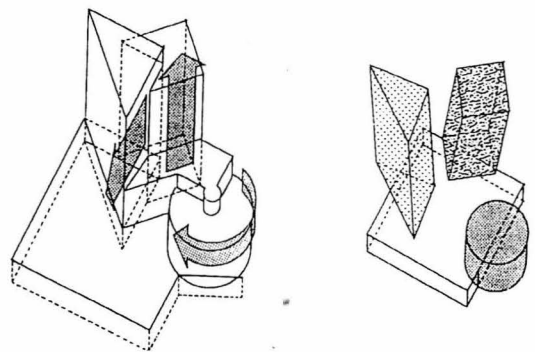
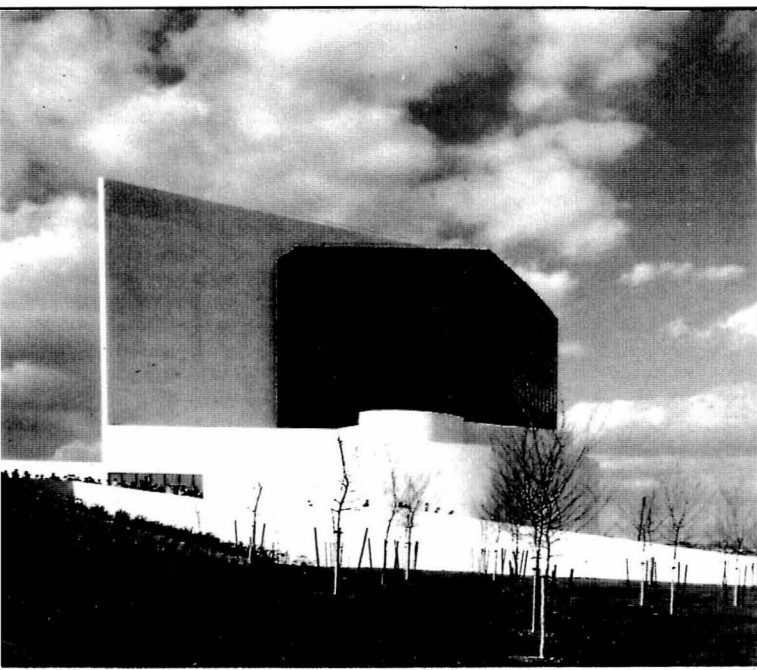


Space Compression while Entering and Application of a Void Space

The person who designs an object can explain his design in words or supply "program notes" to accompany the thing itself. Critics are in the habit of supplying this kind of verbal program even when the designer has chosen to remain silent.* But when a building comes into a visitor's sight, from that moment, various kinds of nonverbal communication starts between the visitor and the building. For this reason, architects should be able to design intentionally using elements which gives the sense of contrast and dynamism. In other words, architects can design an unexpected space for visitors who approach with preconception. One of many strategies is to design a void space next to compressed space and it can be emphasized by controlling the amount of light.



*John P. Pile, *Design*, University of Massachusetts Press, 1979, p. 106

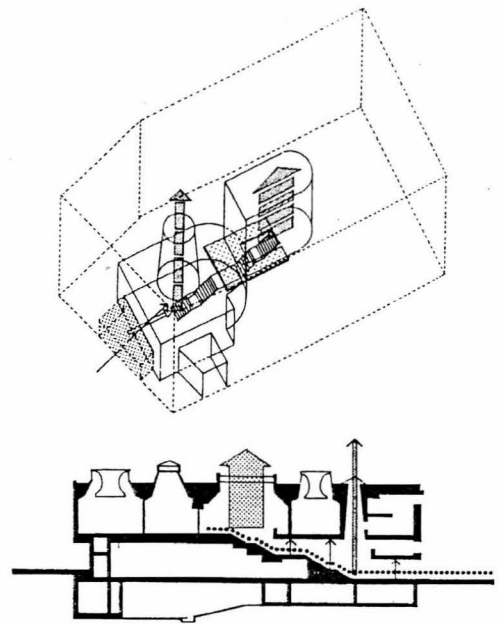


J.F.K. Library - I.M. Pei -

From the exterior of this library, people are able to sense the contrast by geometrical shapes such as cylinder, cube, etc. And also tension by vertical direction of pavilion which generates strong dynamism.

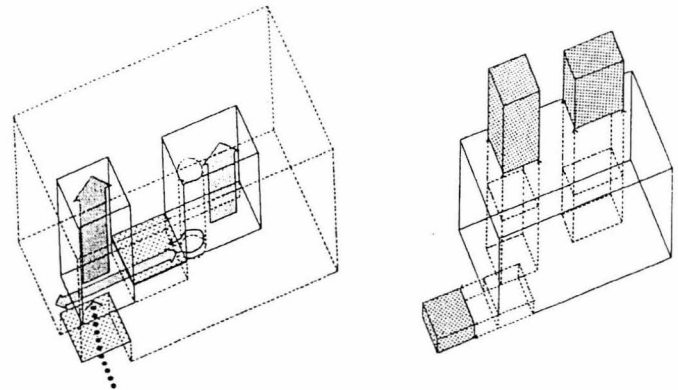
Gallery Designed by Cologuhum and Miller

Since the entrance is placed obliquely, it gives the first change of direction and the ceiling height of the entrance is lower than the height of the space right next to the entrance. So it is intended to give more sense of contrast. To emphasize this effect, the top of the cylindrical hall is designed to catch a maximum amount of daylight. As visitors go up the stairs, the space is again compressed, but at the exhibition hall, it dilates again. These spatial and light variations from entrance to the exhibition hall can be considered to have a dynamic composition. These dynamical phenomena, of course, cannot be created just by compression and dilation of spaces. It can be shown only when there is some continuity between spaces and it can be emphasized more strongly based on harmonical arrangement of spaces.



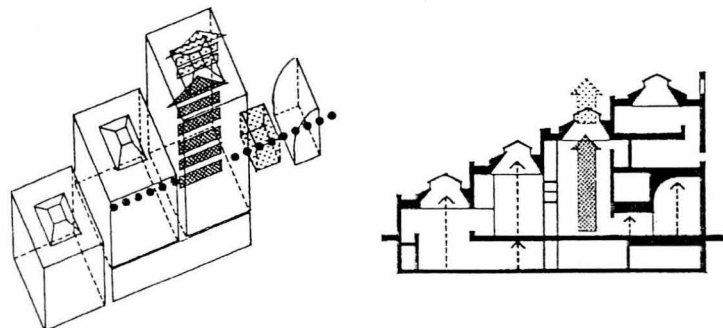
England Art Research Center ,Yale University - Louis I. Kahn-

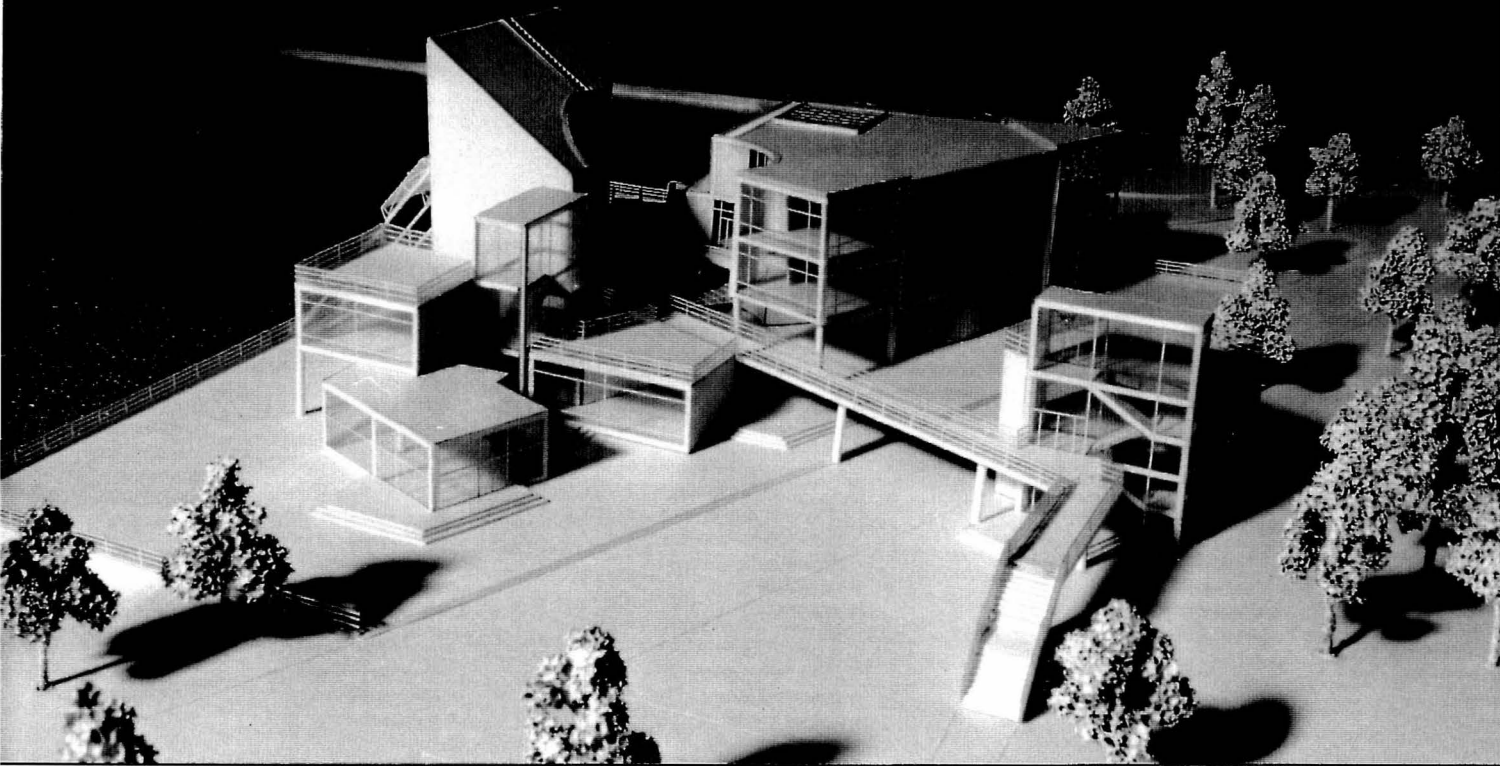
This design eliminates certain parts of limited volume of the building and it expresses a void space with strong vertical direction that can be sensed during the process of movement and also by eliminating a part of a corner of the building the entrance is planned and it is depressed by the volume of the building. This entrance finally has a strong contrast with a void space height next to it.



Portland Gallery -I.M. Pei-

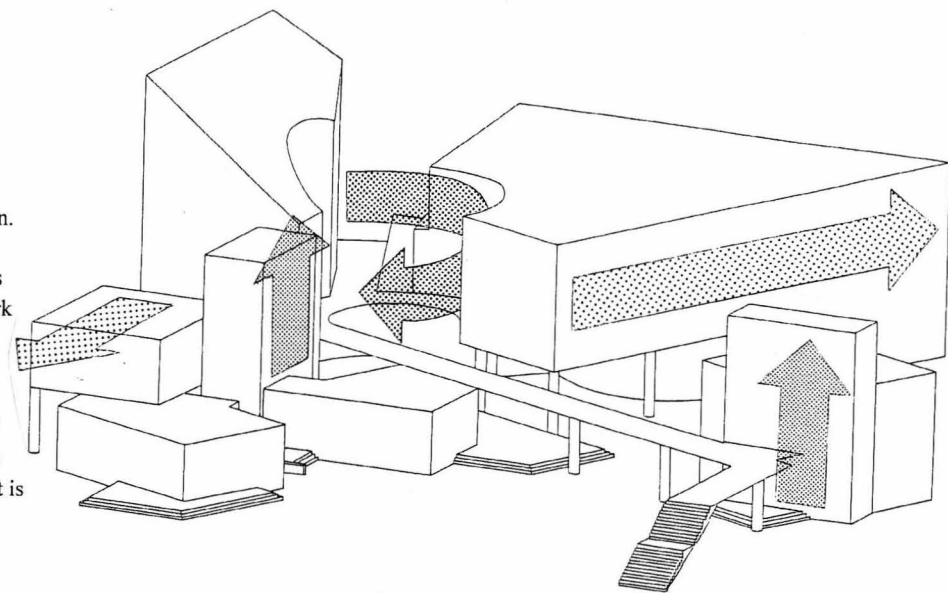
This building generates a strong contrast by placing a compressed space between the entrance and the exhibition hall which has high and pointed ceiling with absorption. Furthermore, this gallery uses various heights of space from a familiar level of height to an enormous level of height and by this it creates a strong spatial movement.



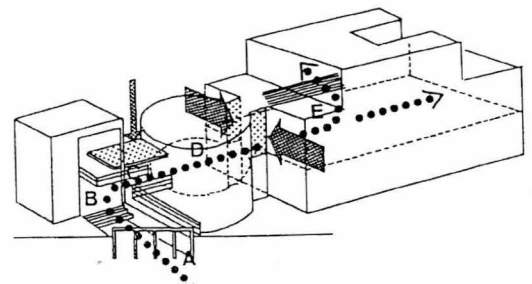
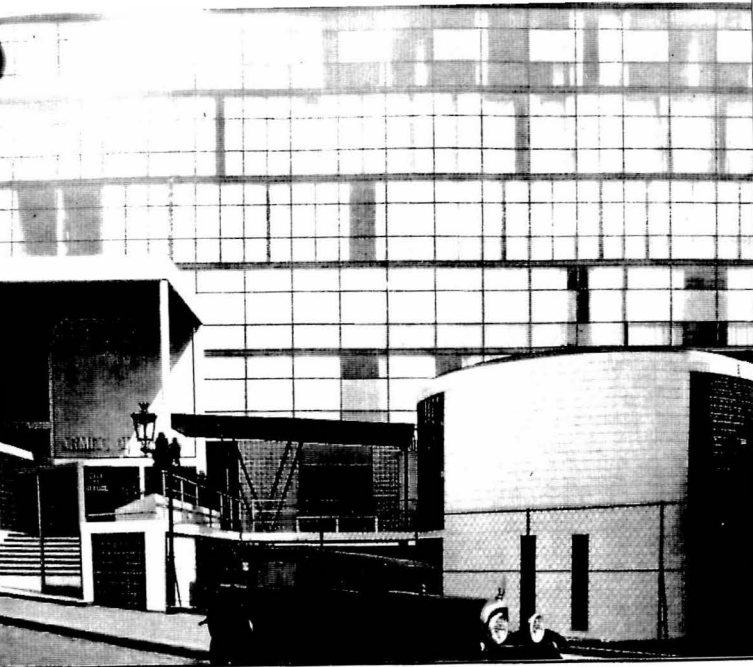


Contrast and Dynamism based on Spatial Context and Composition

Clearly, there are no fixed bounds in either space or time for any object. But relativity should not deter us from attempting to describe architectural objects with some precision. On the contrary, given a defined framework, the interaction between the object and its context has objectively establishable effects. This frame work must include not only the conditions outwardly presented to the perceiving mind but also those prevailing in the viewer himself: his mental preparation, his intentions and goals, his ways of looking at things, and so on. For a valid analysis one has to make explicit both the frame work that is being considered and those potential influences which are being bracketed out.*

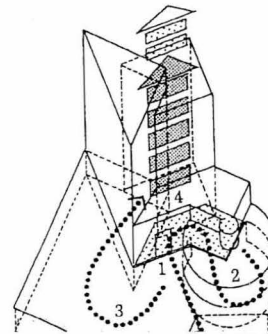
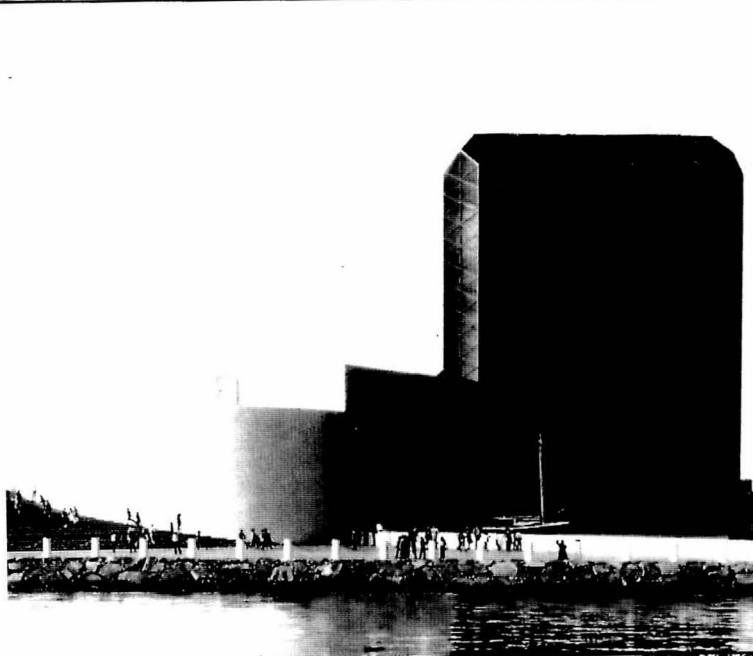


* Rudolf Arnheim,
The Dynamics of Architectural Forms,
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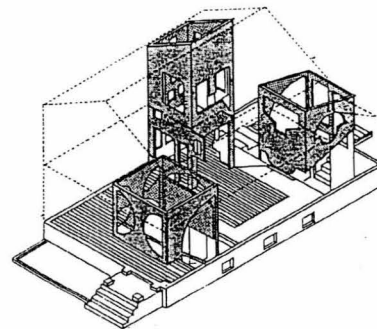
Cite de Refuge - Le Corbusier -

In this building, an elaborate progression starts with a turn at right angles to the main block. As the observer approaches (B), he experiences contrast by different heights of (A) and (B). And after that space is compressed by the bridge (C), which is open but with a low canopy, and then is followed by the dilated space of the cylindrical vestibule (D) across the bridge (C). When he approaches (E), the space is compressed again, and after that he experiences the maximum dilation (F).



J.F.K. Library - I.M. Pei -

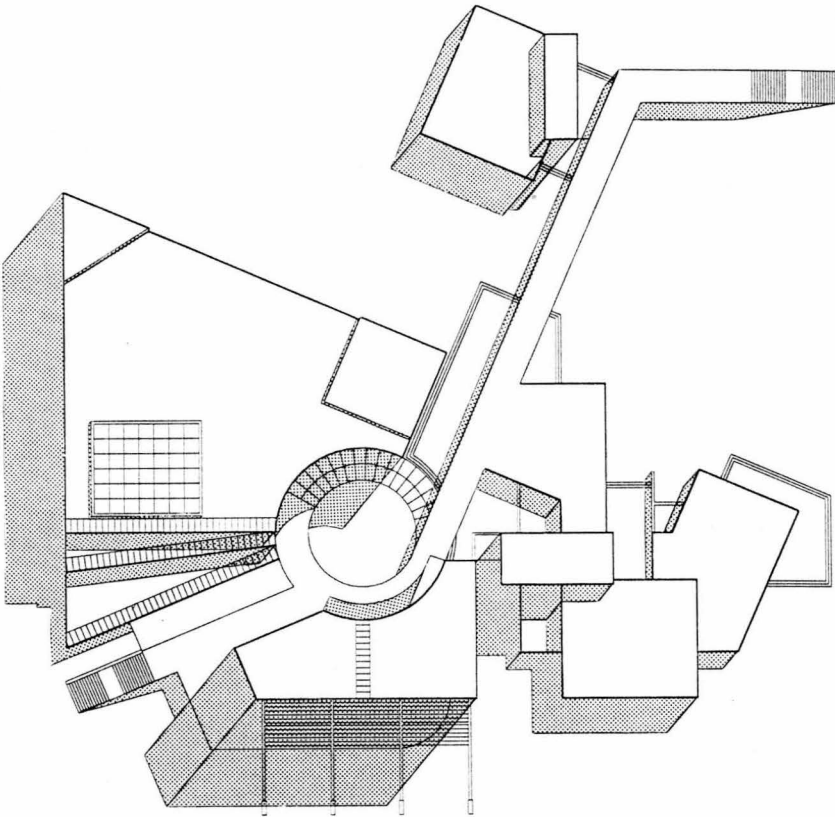
When a person approaches a building, we perceive it as a sculptural form and only when it gets closer, we are then able to see its elaborated parts of the building because of the narrow view. Therefore, rather than just using the detailed elevation, it could be understood more clearly by using a total composition of exterior form. This diagram shows an approach from exterior space to interior space and the composition of interior space for contrast and dynamism.



Moore House - Charles Moore -

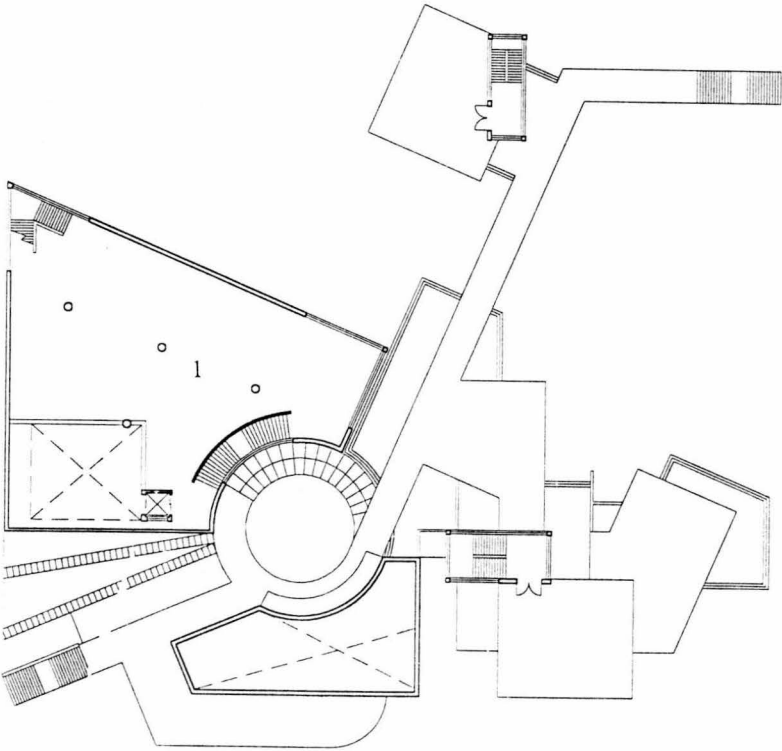
The design of front elevation and windows at each end followed the typical American shingle style. But after entering through the main entrance, a garden can be seen through a huge window in the living room. This unexpected use of space gives sense of variation and furthermore, three different spaces with various dimension inside of the building give vitality with spatial compression and dilation.

Roof Plan



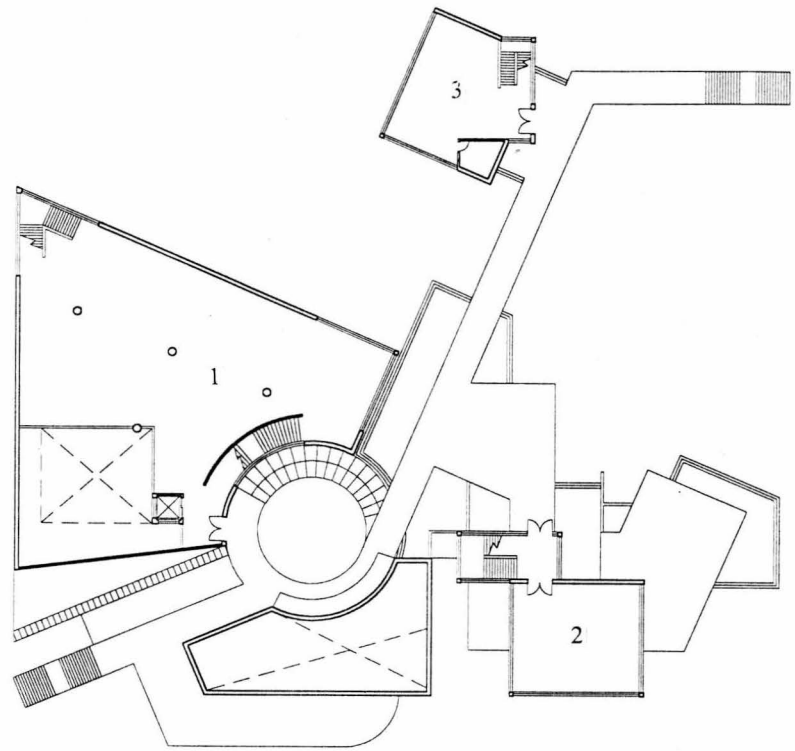
3rd Floor Plan

1. Exhibition Room



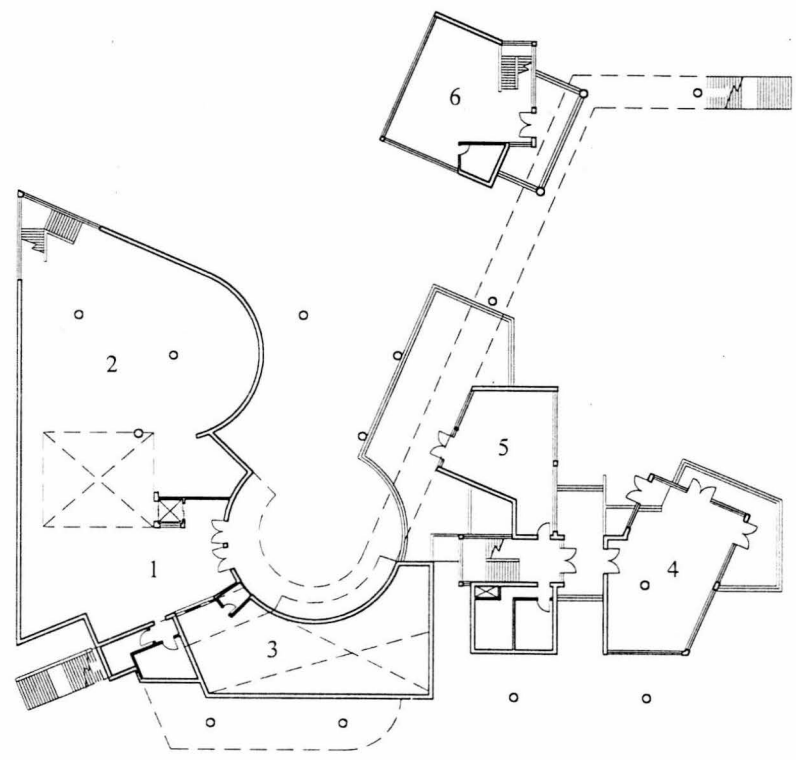
2nd Floor Plan

1. Exhibition Room
2. Office
3. Studio

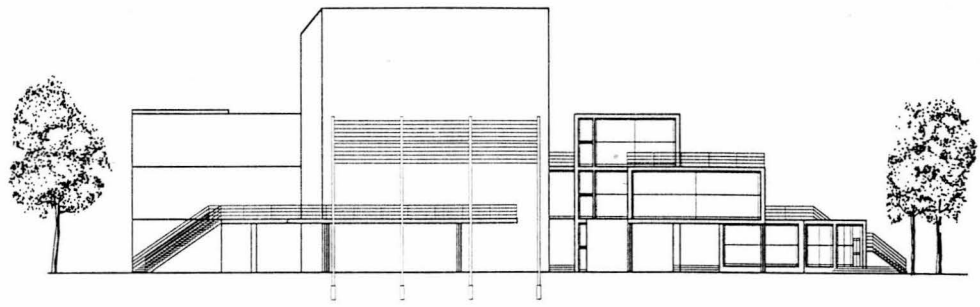


1st Floor Plan

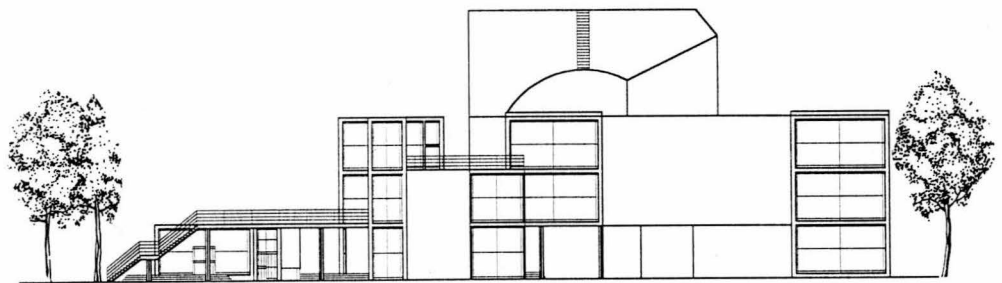
1. Hall
2. Exhibition Room
3. Exhibition Room
4. Cafe
5. Office
6. Studio



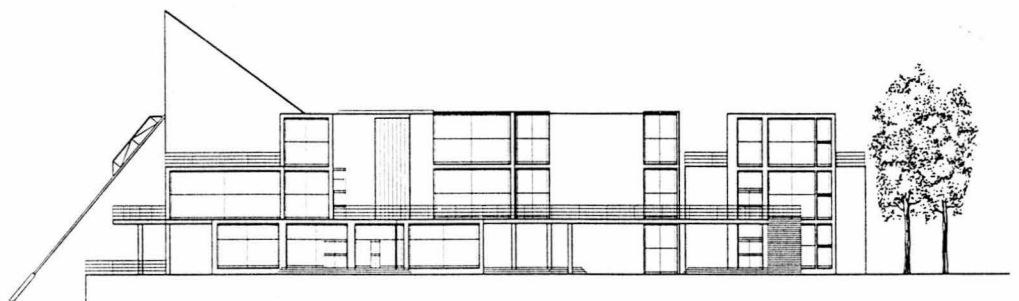
North Elevation



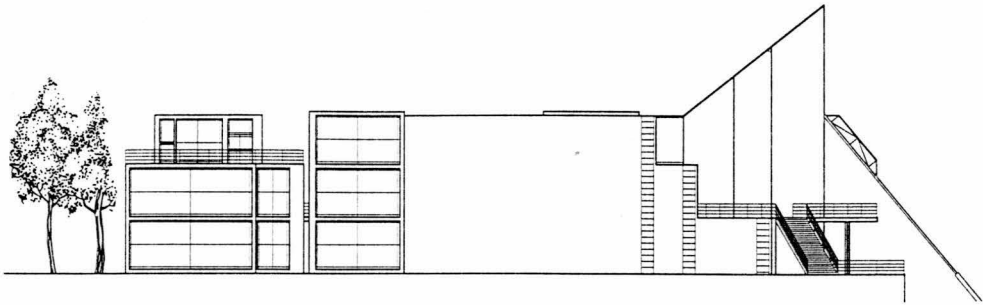
South Elevation



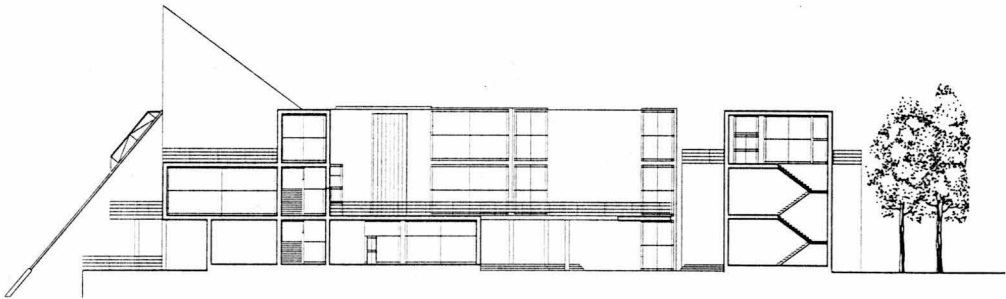
East Elevation



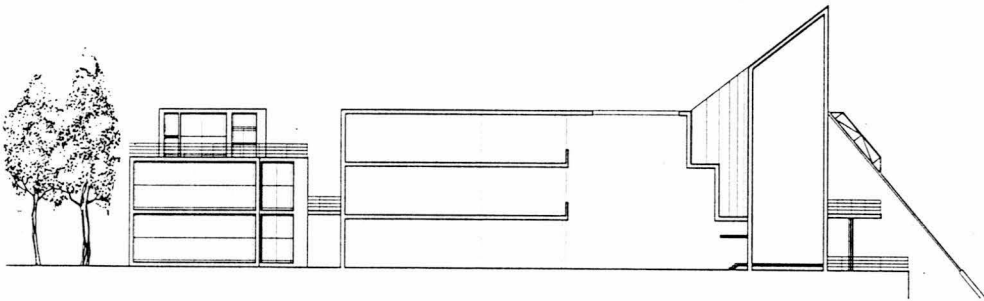
West Elevation

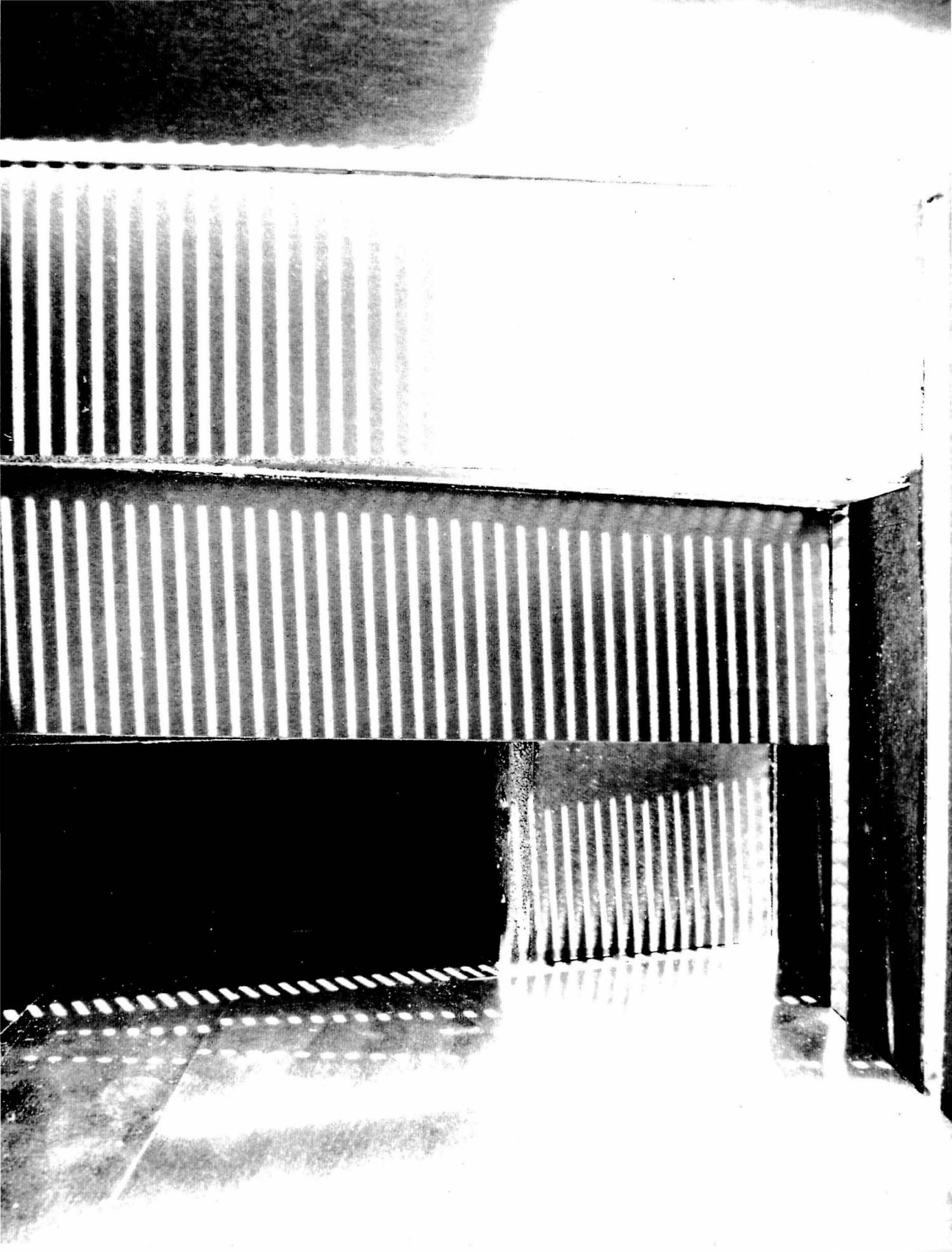


A-A' Section



B-B' Section





Conclusion 1

It is the “space” that architecture finally creates, and interior spaces of architecture should be recognized as units bearing a character of a “force” composed of dynamic field.

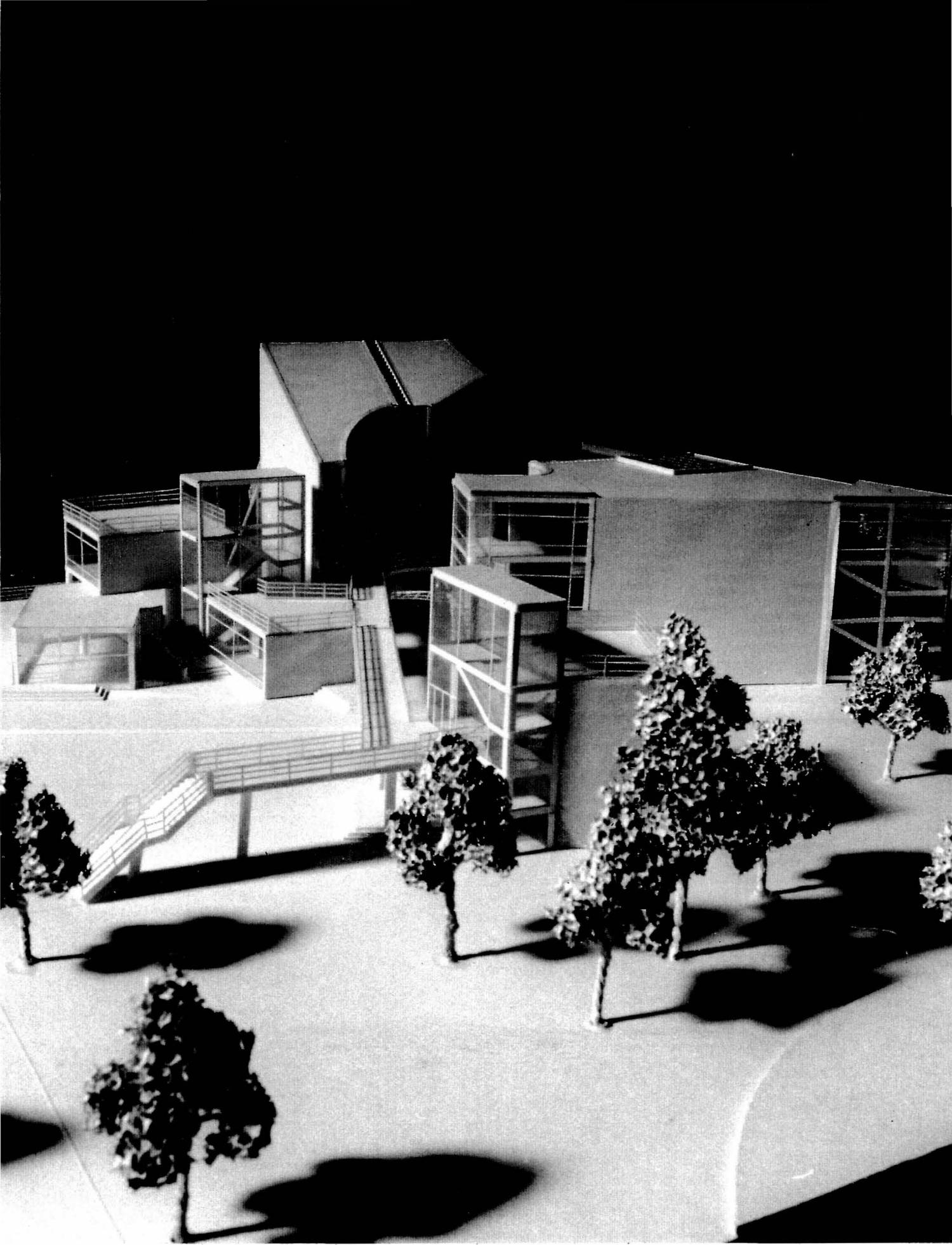
Generation of dynamism, a stream of force perceived by lack of balance or tension in the visual field, can be induced by contrast effect produced by contrary elements.



Conclusion 2

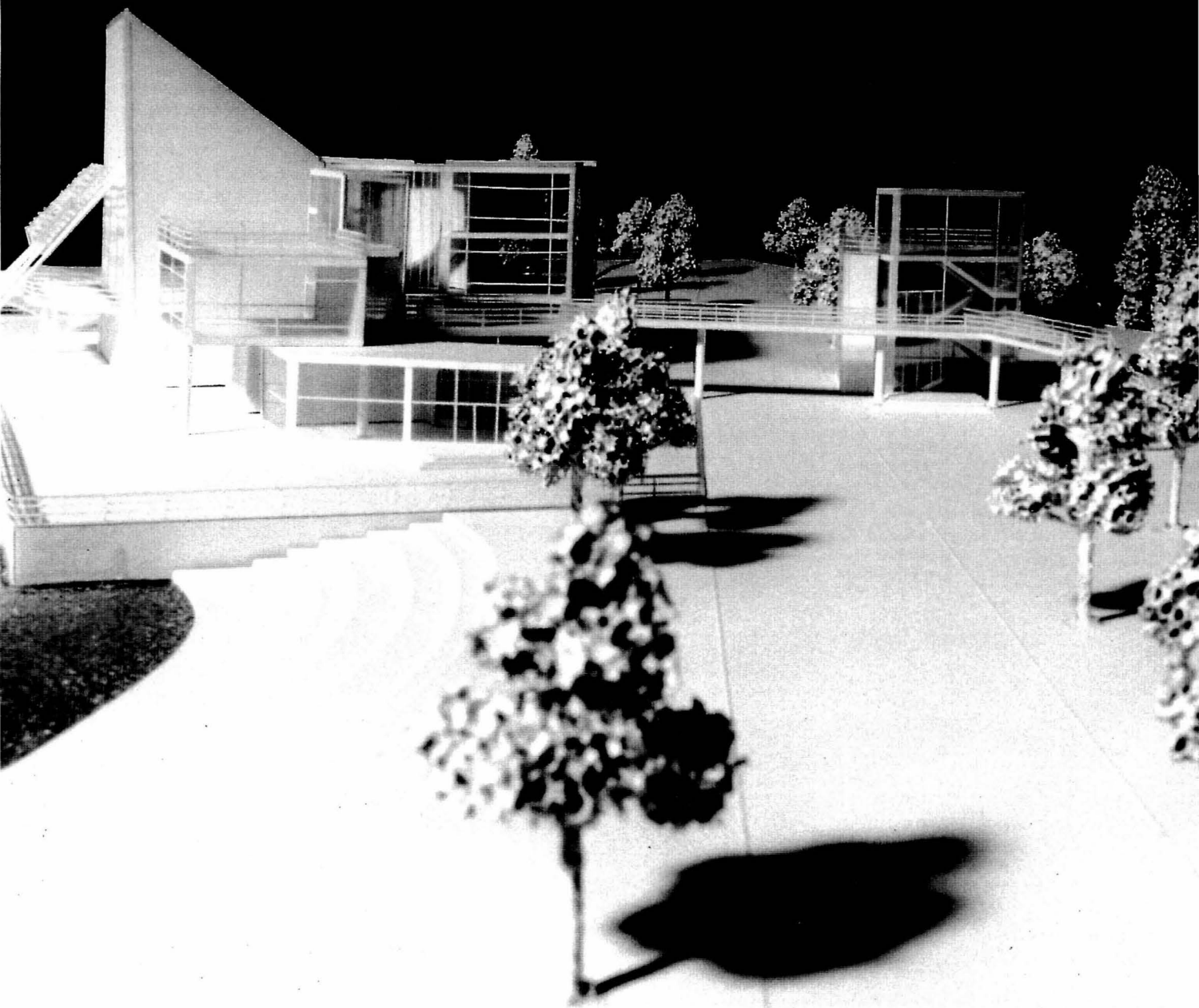
Since experiencing space and form begins from the time when man catches a building in sight, architects should positively adopt elements which generate various senses and visual tension.

A sequential stream of spatial perception, two techniques - directional contrast by geometrical form organization and access toward the direction deviating from the building axis,- were used as efficient techniques of creating directional tension by oblique line and diagonality in many works.



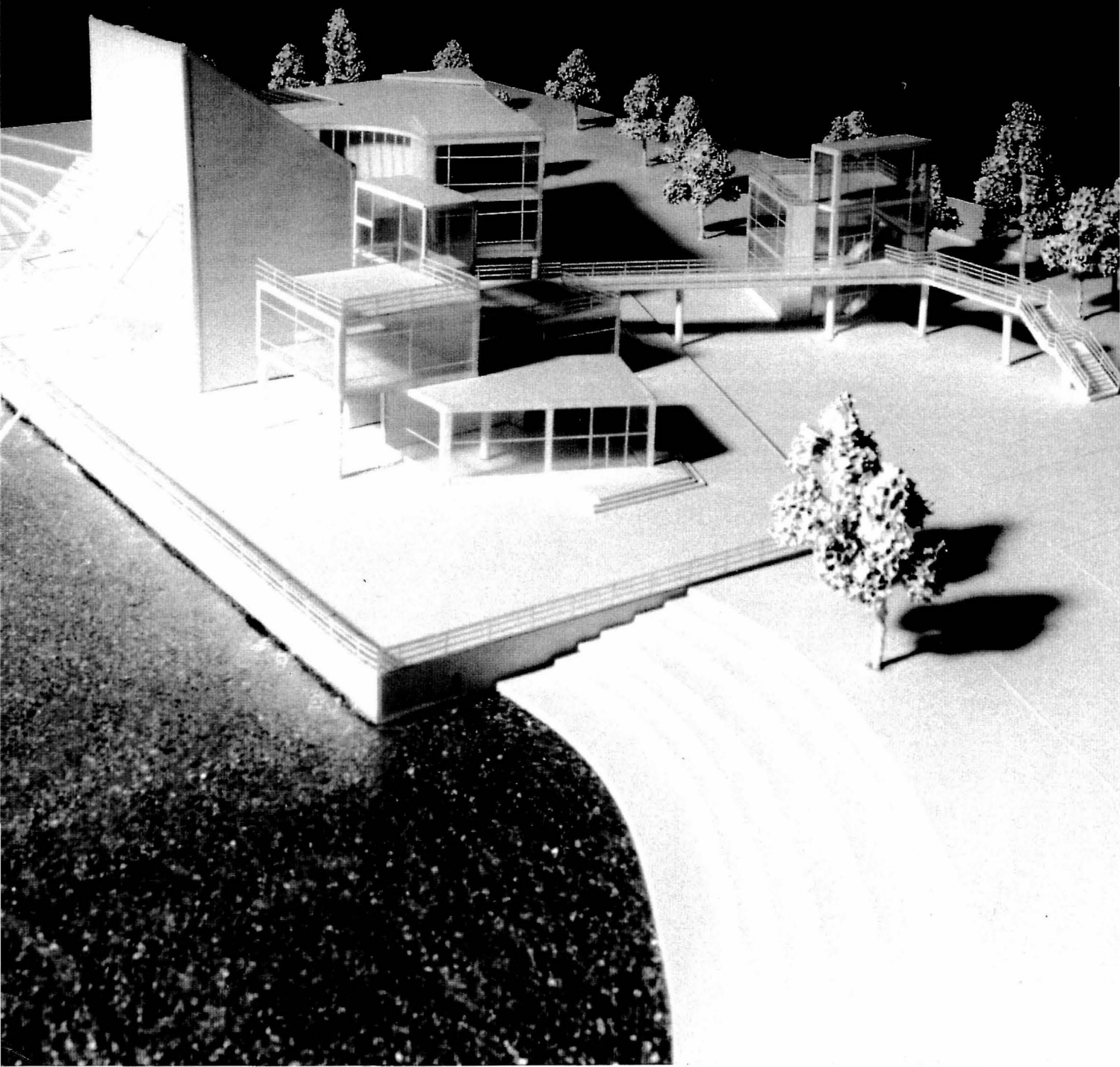
Conclusion 3

Because a man perceives space by moving; contrast effect and dynamism caused by “after image”, which results from the observer’s sequential movement in a space, can be applied by the architectural design to influence perception.



Conclusion 4

In the designing stage of a gallery design project as an actual example, this study interpreted the adoption of axis as a major elements which generates contrast and dynamism. Directionality created by the diagonal entrance, composition of various geometrical form and directional conversion of diagonal lines were all tried in connection with the axis of the building.



Conclusion 5

Though in some sense, the design works seems, with sense of contrast effect and dynamism, as a result of the architect's own inclination. Designing buildings with a pre-conception of contrast effect and dynamism offers a very positive meaning in the sense that it can make observers feel not a monotonous and tedious space, but a vital and varying space, providing abundant visual experience. Thus, utilization of contrast effect and dynamism should be actively introduced in architectural design in that it can influence a designer's struggle to provide a sense of variety and visual tension.