

THREE COURTYARDS

by

Carol Rose Schwartz
B.S.A.D. Massachusetts Institute of Technology
1979

Submitted in Partial Fulfillment
of the requirements for the
Degree of
Master of Architecture
at the
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ABSTRACT

The qualities of architecture which can raise aspirations, evoke emotions or provide for contemplative thought may be found in a study of examples which have historically exhibited these qualities and which continue to inspire its users.

Examples of such evocative spaces include Japanese tea gardens, Islamic mosques and palaces and medieval cloisters. The design principles upon which these spaces were based contained certain underlying architectural patterns which elicit responses which transcend time and cultural boundaries. An understanding of these patterns may guide the creation of spaces which can evoke similar responses or connect to people's collective cultural memories.

For this thesis, the design of a museum organized around a series of courtyards is used to illustrate this hypothesis. An analysis of the traditional Islamic and Japanese architecture of courtyards and gardens yielded a number of identifiable patterns. After an initial schematic plan of the museum was developed, the design focuses on the interpretation and use of these patterns in the court spaces within the museum. The design of three specific courtyards is undertaken in an effort to demonstrate these physical and spatial principles. The project represents the synthesis of my analysis of precedents and their utilization within my process for the design of a museum.

Thesis Supervisor: Shun Kanda
Title: Associate Professor of Architecture

I would like to thank the faculty and staff of the M.I.T. Department of Architecture who have given me support in my endeavors and afforded me a wide range of opportunities and experiences. I am grateful to Leon and Imre for their time and influence. I would especially like to thank Shun Kanda, my thesis advisor, for his insight and understanding while aiding in this endeavor.

I would like to acknowledge and thank the Aga Khan Program for the resources they have provided, and especially Michael Borgoyne for the interest he has shown and the time he has spent with me.

Most importantly, however, I would like to thank my family and friends for their time and love and support throughout this endeavor. I thank my parents for their understanding, encouragement and help to enter the profession I have chosen. And I thank Steve for his help and love and patience in living with me through this ordeal.

I would like to dedicate this work, though, to my grandmother, who has always shown me what perseverance and love can accomplish and most importantly that there is nothing that cannot be done when one has those things.

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INTRODUCTION

There has always been architecture which evokes great emotion, inspires high aspirations, or provides for contemplative thought. It is an architecture most closely associated with power, religion or nature, but in all cases characterized by an atmosphere created both to emphasize those powers over those of the individual and to encourage a relationship with the spiritual and emotional, elements that connect man with worlds larger than himself. These environments which may enhance the spiritual mind of man are often found as islands, isolated from the surrounding cacaphony of life--the Japanese tea garden, Islamic mosque or palace retreat, or medieval cloister. These contemplative spaces, from different eras and various cultures, still evoke the same emotional response from contemporary visitors as was originally conceived because of the architectural qualities which transcend time and cultural boundaries. These spaces make an emotional connection with our cultural memory that is present by design, Architecture in the late modern era seems to have lost the ability to make this connection. Recent public architecture has rarely been inspiring; most recently it either strives to rid itself of any connection to man and the past or so strenuously and literally makes this historical reference evident that the spirit is sacrificed to outright mimicry.

The desire for an architecture which inspires is still present. This need is not limited to buildings for religious use or for the private use of those with power. Places for contemplation, spaces which inspire us should be found within our public network, in our

museums, libraries, educational, governmental and legal institutions. In order to create an architecture which is rich and evocative, it is necessary to understand the associations made with form in those places which we still find to contain these qualities. This knowledge of architectural qualities can then be reinterpreted in a mode consistent with contemporary life, values and associations.

As a museum is a place where one seeks inspiration or simply a place conducive to contemplation and introspection, the design of a museum organized around a series of court spaces was undertaken to test the previously stated hypothesis. First, an analysis of the traditional Islamic and Japanese architecture of courtyards and gardens--their elements and relationships--showed that a variety of the principles governing the design of these places share a common root which is independent of time and culture. This root I call a pattern for it can still be used as the basis of a design. After these patterns were discovered, schematic design of the museum began. At this stage, various organizational possibilities were generated, all of which focused on the inclusion of courtyards. One of these schematic designs was then chosen and developed to accommodate the program. As the design progressed, attention was focused primarily on the court spaces, circulation and those spaces directly related to them. The specific design of the courtyards and their component elements was then based upon the patterns discovered earlier. Though this process provided excellent opportunities at the level of small scale design, the patterns used had little influence on the large scale decisions.

This problem arose from two shortcomings. The first shortcoming was the extremely wide range of examples from which the patterns were drawn; the second resulted from the inability to actually visit these places. A complete interpretation of photographs, sketches and architectural drawings is difficult and thus cannot replace the need to experience a space in order to know it.

What follows, however, is a synthesis of the analysis with the design. It is organized so as to explain the overall design--the program, site and resultant building design. Then the three courtyards are individually illustrated and explained. In order to communicate the sense of the various spaces, the patterns which are relevant to each court are cited at that point in the text. The illustration and definition of a pattern is made of the following components. First is the image, one or two examples to illustrate the pattern as it is actually found. Then the pattern, the rule transcending the specific instance, is stated and finally, design possibilities are included. These are suggestions and have not necessarily been used in that manner in the museum design.

Following the patterns is the design of the specific courtyard or element with an explanation stating exactly how the patterns have been implemented in the design. From this example of patterns and design, perhaps it will be made clear how that which has inspired others has inspired me.

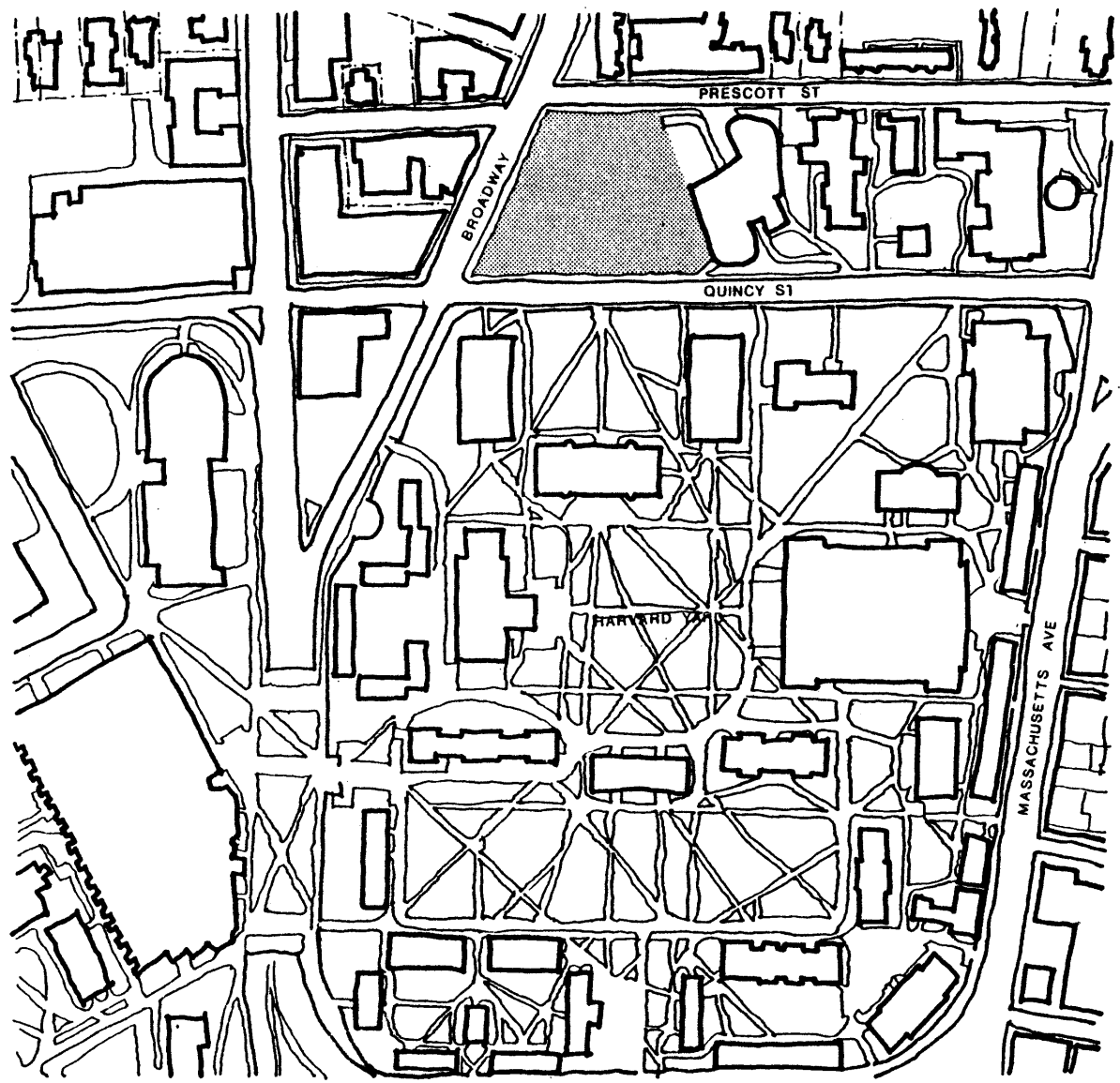
MUSEUM PROGRAM AND SITE

A museum affiliated with a university was chosen as the design problem. Programatically, this requires a mixture of educational and museum facilities. The spaces of the museum must be designed to accommodate a wide range of visitors, as it is both a place for the visitors to admire art, to meditate, and a place for groups to gather, learn and discuss. The museum should be designed with both the individual and the group in mind.

The activities that the building will hold are:

- Galleries	15,500 sq. ft.
Ancient, Islamic and Oriental Art	
- Research Labs	10,400 sq. ft.
- Classrooms, Lecture Halls	5,500 sq. ft.
- Library	30,000 sq. ft.
- Offices	3,300 sq. ft.
- Service	12,000 sq. ft.
Total:	76,700 sq. ft.

The site was chosen so as to be flexible enough for many possible solutions and yet provide a context which would need to have certain problems addressed. The William Hayes Fogg Art Museum of Harvard University in Cambridge, Massachusetts, is located on such a site. Bounded on the east by Quincy Street and Harvard Yard, on the north by Broadway, on the west by Prescott Street and the south by the Carpenter Center for the Visual Arts, the lot would allow for many alternatives without being too constricting.



MUSEUM SITE

Cambridge, Massachusetts

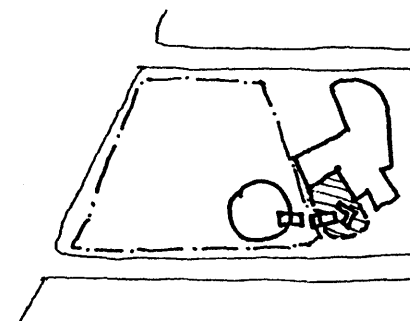
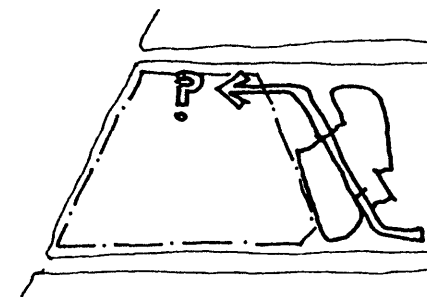
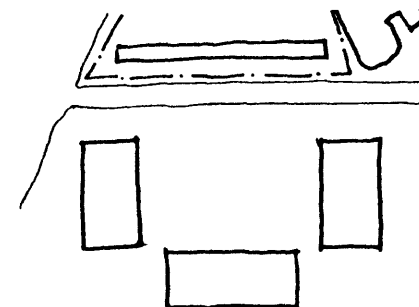
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The two issues that had to be confronted were the relations of the new building to Harvard Yard and to the Carpenter Center. Even though Quincy Street separates this site from Harvard Yard, the consistency of the spatial quality found there because of its network of quadrangles, makes it an imperative to continue this. Therefore, the facade of the museum should complete the quadrangle formed by the three buildings (Emerson, Sever, and Robinson Halls) opposite the site in the Yard.

The Carpenter Center for the Visual Arts designed by le Corbusier raised two issues when considering the siting of the museum. One of the questionable aspects of the Carpenter Center is its elevated path through the building. Since the proposed student housing was never built, the need for that link never materialized and the path does not lead anywhere. There is a need for something at the end of the ramp which would create a symbiotic relationship between the path and that space. The path would become more used if there was a goal, a place to which it lead, and that place would benefit from the special quality of the path leading to it.

The other detraction from the Carpenter Center is the dark, rarely used space under its Quincy Street overhang. If there were another outdoor space with a connection to it, one which was sunny and much used, the life of one might give life to the other. With this program and agenda, the schematic design was begun.



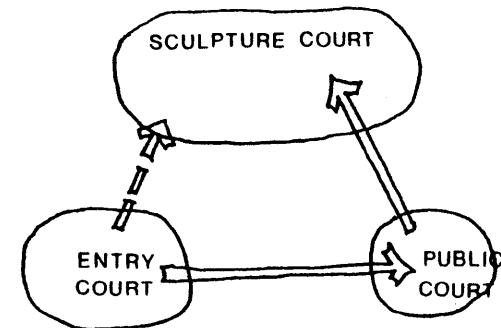
After establishing a number of alternatives, I selected to develop a schematic design in which the museum is organized around three court spaces. Each of the spaces has a different quality, spatially, functionally, and perceptually. The nature of the physical and visual connections also differs.

The Entry Court is an indoor court which is immediately entered from the lobby. The elevator and an open staircase rise along one side so that the main vertical circulation of the museum is obvious and accessible to all who enter. The circulation node also adds life to the space. The entry court is a place for people to gather and see other people. It is the space for afternoon recitals and for cocktail party gallery openings.

The Public Court is a small outdoor space, an outdoor room if you will, located off of Quincy Street near the Carpenter Center. It is a sunny space, an ideal place to sit outside and have lunch. The kitchen which serves the museum, faces into the space and provides some food service during lunch hours. As the courtyard is near to and in view of the space under the Carpenter Center, it is quite possible that when crowded, people will move over and use this other space. The Public Court is directly accessible from the large auditorium and in nice weather can be secured and used for outdoor receptions for events occurring there. The court is also in proximity of the smaller classrooms and could accommodate informal classes or discussions.

The largest of the courts is the Sculpture Court which is also an exterior space. Its ground level is one story (15') below

MUSEUM ORGANIZATION

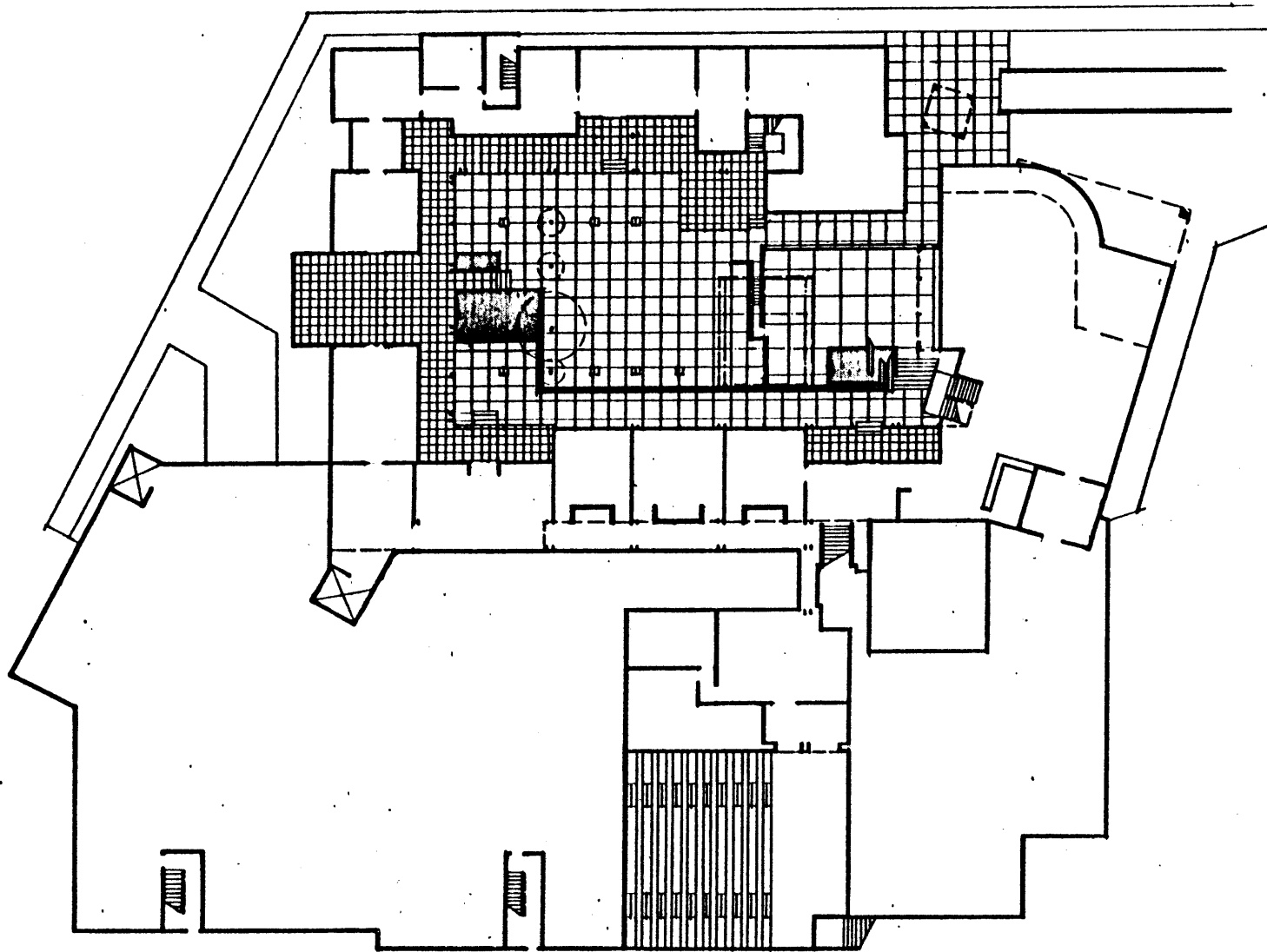


that of the other courts as there is a change of grade on the site. The courtyard is not totally enclosed and can be entered from the bottom of the ramp to the Carpenter Center; it is the goal at the end of the path. Though this courtyard is the largest of the three, it is comprised of several smaller areas. A raised library reading balcony is visually connected though not directly accessible to the courtyard level. A lower level bounded on one side by a pavillion can be used for recitals or performances without intruding upon the entire space. The main level has more subtly defined areas (which will be discussed later in the thesis) which can be used for outdoor exhibitions. In general, though, this courtyard, separated from the commotion of the museum operations and galleries, is a place to be alone, a place where one can go to meditate or just to daydream.

The connections among the courtyards can best be illustrated by a hypothetical walk through the museum. As I enter the lobby, I see a large volume filled with light in front of me. I walk towards it and see a stair and elevator shaft reaching up to the skylights. It smells like Christmas in here. It is a busy place; many people walking around in the galleries and the gift shop too. There is even a balcony on which some people are standing and chatting, watching others go about their business. Through the dark space under the balcony, a brightly lit space can be seen. This is the Sculpture Court. There is even a place, as I approach the fountain here, where I can see another fountain in the distance--in the space of the other courtyard.

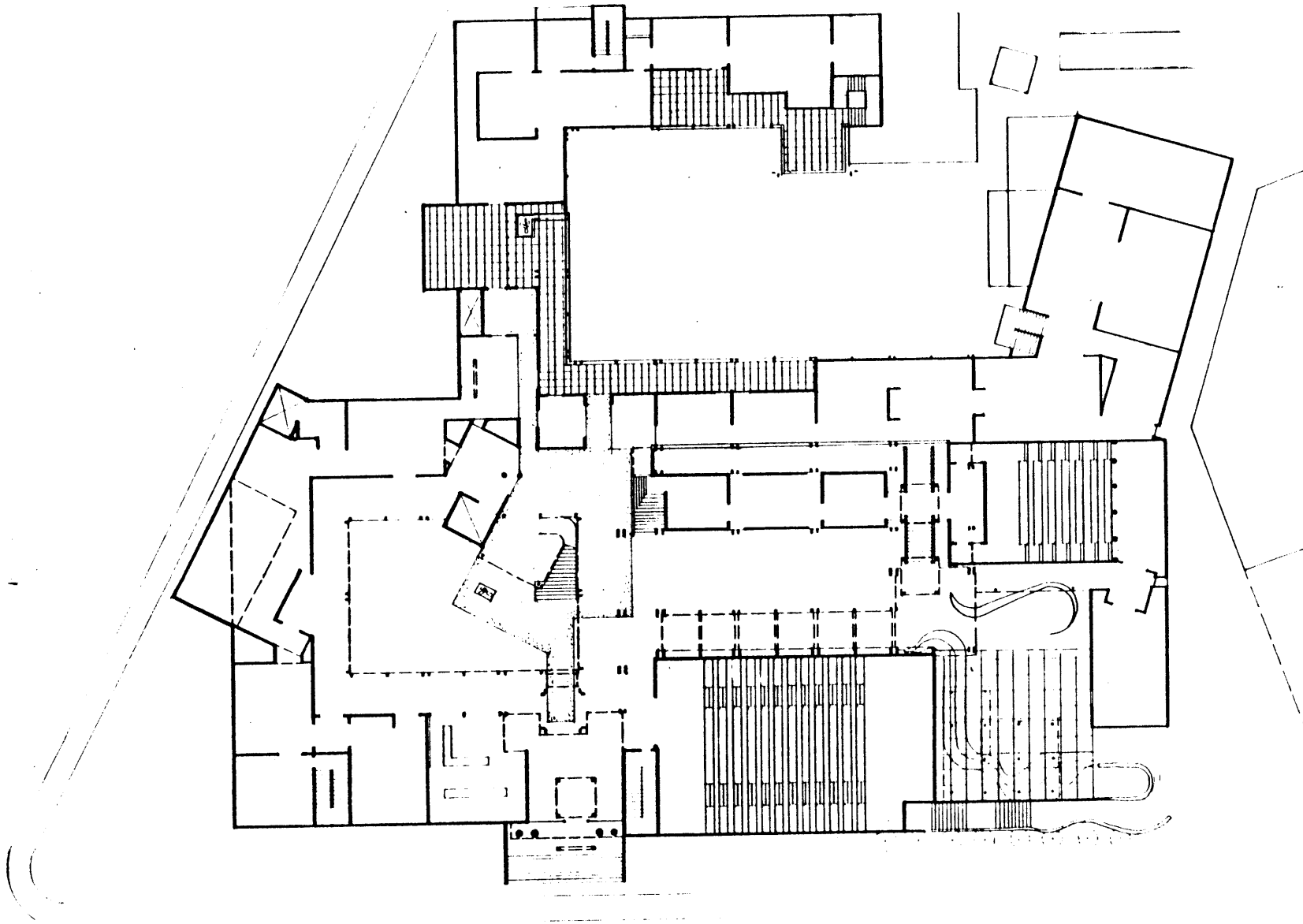
The galleries are a bit protected from the goings on in the Entry Court but for one which is quite open. This space leads in another direction, though, from the lower courtyard and I follow it. There is a narrow skylit passage against the mass of the auditorium and the many beams which pass overhead reflect the light in much the same way as the spaces covered by the flying buttresses of medieval cathedrals. At several points along this passage, I can view into some galleries at a lower level and even into the Sculpture Court itself. The passage ends at a large hall and glassed-in area which opens onto the Public Court in better weather. The space itself seems to be a pleasant, sunny one. Also in the hall is a grand stair leading down to a lobby for the Sculpture Court. Having reached the bottom of the stairs, I catch a glimpse, through a narrow opening in the enclosure of the courtyard, of the street behind the museum and I enter into the Sculpture Court.

The experiences which this "walk" has tried to create will be clarified and explained in the following chapters. These chapters are in depth explanations of the courtyards and the patterns which shaped them.



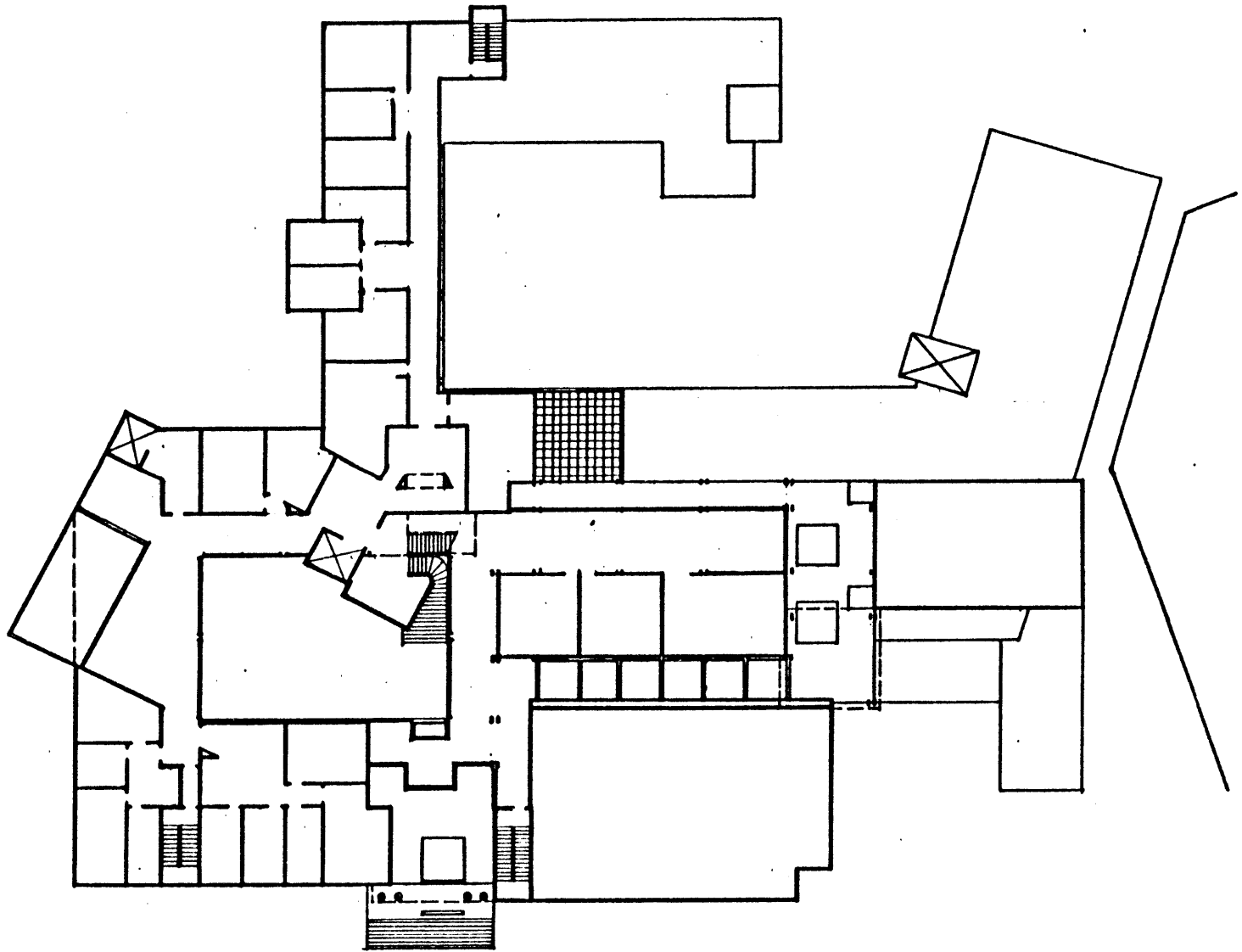
BASEMENT / SCULPTURE COURT





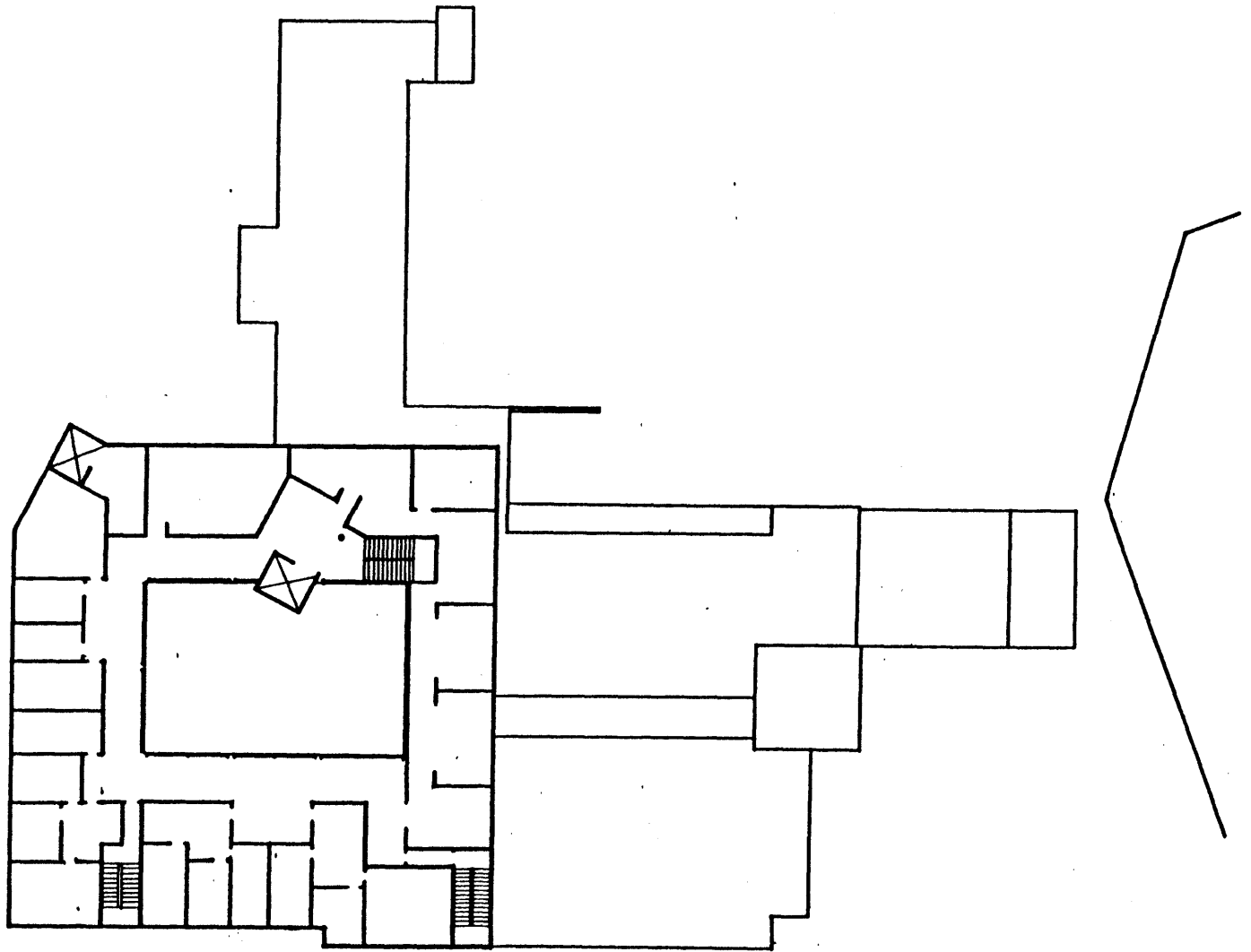
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FIRST FLOOR / ENTRY & PUBLIC COURTS

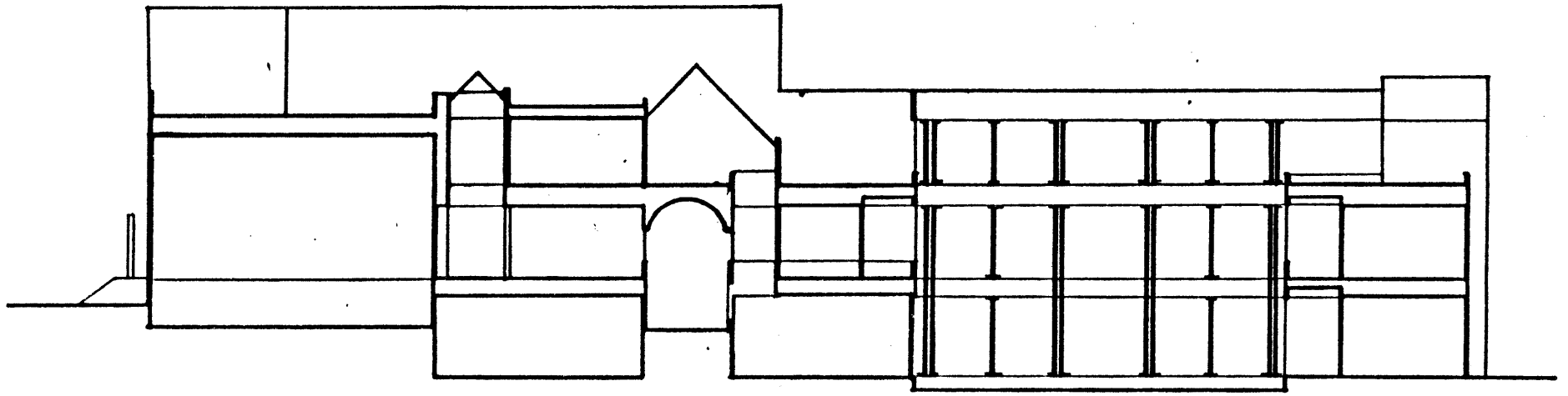


SECOND FLOOR



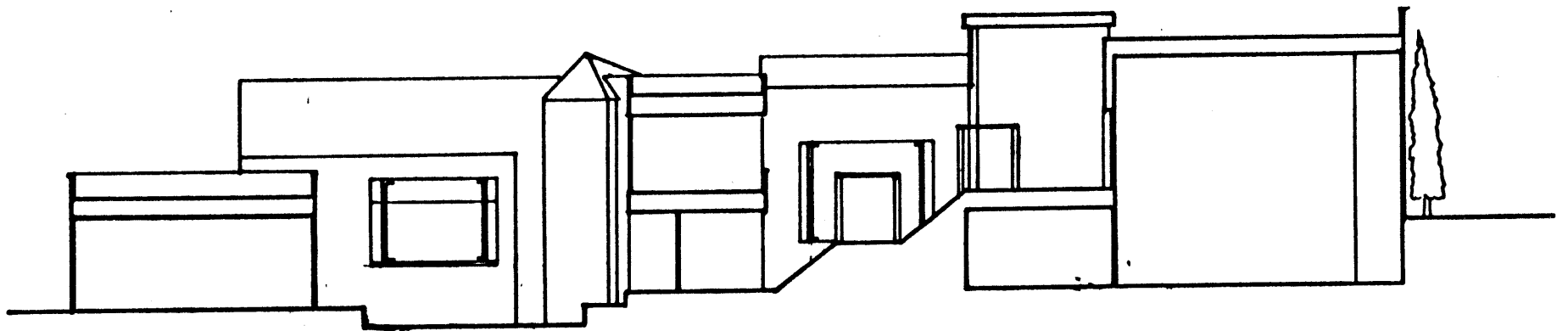


THIRD AND FOURTH FLOORS

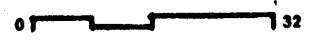


SECTION A





SECTION B



Patterns

Arcade

Balcony

Built Extension

Fragrance

Framed View

Proximity through Repetition
of Elements

Receptacle

Surface Texture

ENTRY COURT

The Entry Court, a large skylit space, is the life center of the museum. Surrounded by the auditorium, galleries, gift shop, classrooms and offices, it is a space for people to gather in. The openness of the vertical circulation and the balconies increase the opportunities for interaction, both visually and physically. It can accommodate social gatherings (cocktail parties, openings), recitals or simply the movement of people to and from the various facilities.

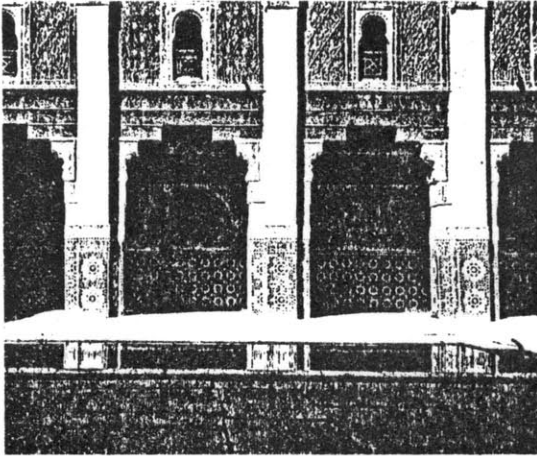
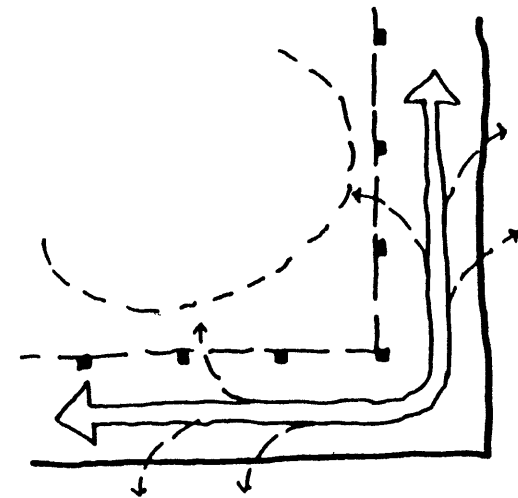
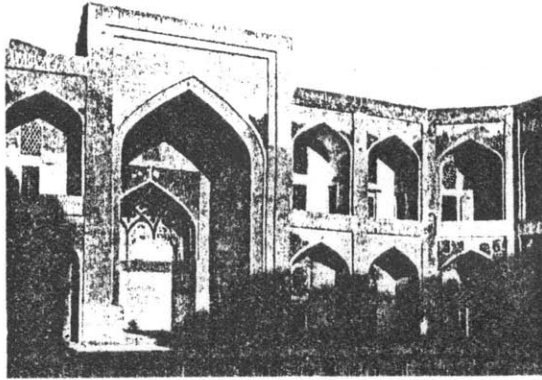


Image: The Medersa exhibits an arcade around three sides of a court where there are rooms for students, but none in front of the entrance to the mosque which is on the fourth side. This arrangement provides a hierarchy of path. First, if the students are going into the mosque, they must leave the protection of the arcade, enter into the open courtyard to perform ablutions whereupon they can enter the mosque. While these students are meditating in the open court, there are other students going to and from their rooms; they remain under the arcade, neither fully inside the courtyard nor disturbing the meditating students.

Pattern: The well defined peripheral circulation of an arcade around a space provides several ways in which to experience it. The arcade separates the necessary bustling to and fro from the quiet inner heart. It allows those that must to attend to their business and yet to participate in and enjoy the space without disturbing others in the space. They are protected from the bustle of circulation by the arcade.

Design Possibilities: In places where much circulation is expected, which might impinge on the quiet nature of a space, an arcade could separate one from the other while still allowing for some desirable contact.





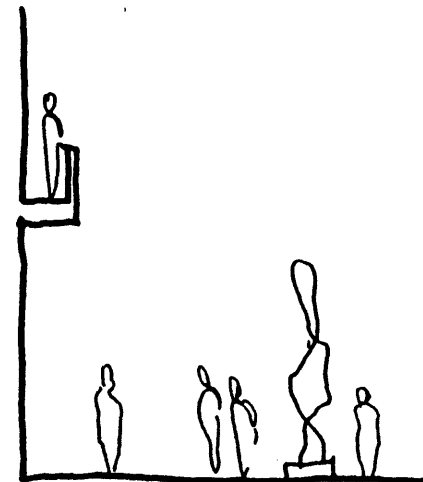
Mir-i-Arab Medersa, Buchara 16c

Image: Overlooking the courtyards of the mosque, very often at the second level, the arcade was no longer a continuous path, but divided into discrete balconies. From these, one could view into the space without having to be directly involved.

Balcony

Pattern: A space for one or two people separate and above the main center of activity is an ideal place to sit and observe the goings-on, simply to stop and reflect. It is a place where one is both part of what is going on yet simultaneously apart from it.

Design Possibilities: Balconies from offices and exhibition spaces allow people the opportunity to escape from the busy world they are in. They can look down over the court space, perhaps seeing only a statue, yet they remain separated from it. Level changes may provide for such balconies but they should not be open to main circulation.





Byodo-in Temple, Kyoto 11c

Image: The extended porches of the early Japanese gardens formed wings which began to define the enclosed space. Although open on its sides, the roof of the pavilion was so massive, so clearly a part of the structure behind, that these wings always appear securely anchored to the building. This porch/pavilion serves to increase the interface between built and open edge and create space on its own.

Court of the Lions, Alhambra, Granada 14c



Image: The extension of the pavilion into the court is a deepening of the built/open edge. The overhead connections of the pavilion to the building are strong so the space under it begins to be drawn inside.

Built Extension

Pattern: Covered, yet unenclosed space is too often simply associated with a built edge. Like the prow of a ship, there should be places where covered space, though closely related to the solid edge penetrates the open space. A space for those of fainter heart than those in the pavilion yet bolder than those who slip along the edge. It is the introduction to the space. It is putting one's toe in the water before diving in. It is the experience of being outside and inside.

Design Possibilities: The extension of a wing or a pavilion into a space can both divide the space and create an intermediary zone between the building and open space.

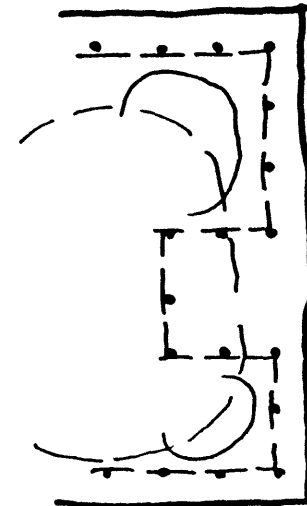
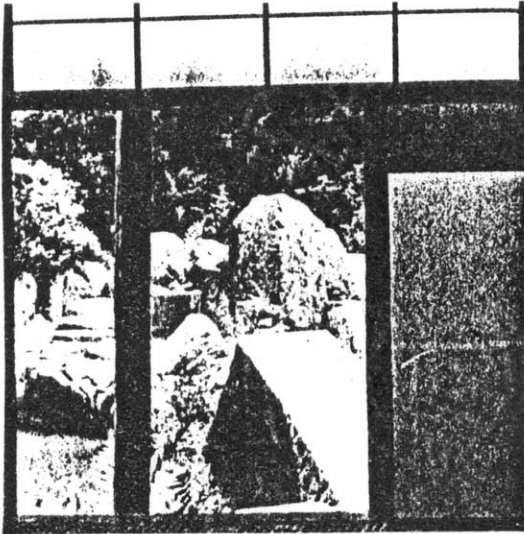


Image: Orange trees were found in the earliest southern Spanish patios because their sweet fragrance would fill the space. In these gardens today, there is still a predominance of fragrant trees--citrus, cypress, magnolia. Also, flowers of sweet perfume are found--myrtle, jasmine, narcissus, violets, rose, lily, marjoram, carnation and poppy. This orchestration of scents forms the culmination of the sensory experiences in the courtyard garden.

Image: In the evening, at a Japanese boating party, balls of pine needles are lit to provide light and fill the air with sweet fragrance. One need not follow the light, merely the scent, to find one's way.

Pattern: The orchestration of scent, of fragrance, is important to the experiencing and the memory of a space. Fragrance is not only enjoyable, it is something special to remember. Some scents are so special they might only be associated with certain festivals. Others, perhaps more subtle, are peculiar to a place. Sensitivity to this adds another dimension to the experiencing of a place.

Design Possibilities: Special plants (with distinct aromas) would create different atmospheres in the different courtyards. Scent could lead a person towards a space, even though it cannot be seen. Special candles or incense might be burnt, or specific plants brought into the museum or court during the holiday season.



Katsura Imperial Villa, Kyoto 17c

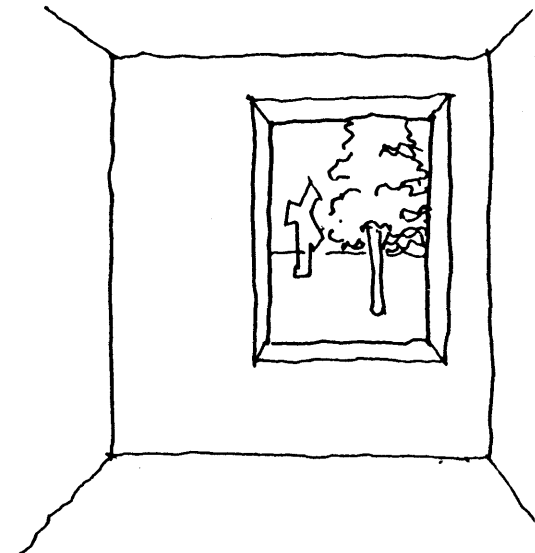
Image: The zen view is essential to the organization of the Japanese garden. To capture a scene, whether in the far distance or the foreground, is to bring that scene into the space. Therefore, the planning of what is to be framed is very important. It should not be revealed totally (a method lacking in mystery and subtlety), but slowly and carefully.

Image: The walls that separate one part of the Moorish garden from the next often contained arched windows with grills from which the views were particularly attractive. The sills were tiled seats and there were niches on either side for vases. The composition of these elements framed the view and drew it into the space.

Framed View

Pattern: A framed view can bring a distant image into a space. This captured scene can extend the boundary of the courtyard or room and can become a counterpoint to the elements and experiences within the room.

Design Possibilities: The framed view is an important consideration in both the sequence of paths and the relationship between interior and exterior. Windows, doors, columns, trees all can capture views. Circulation can be enhanced when attractive views are framed, and later, when these spaces are entered. The juxtaposition of scenic views near and framed, can be poignant.



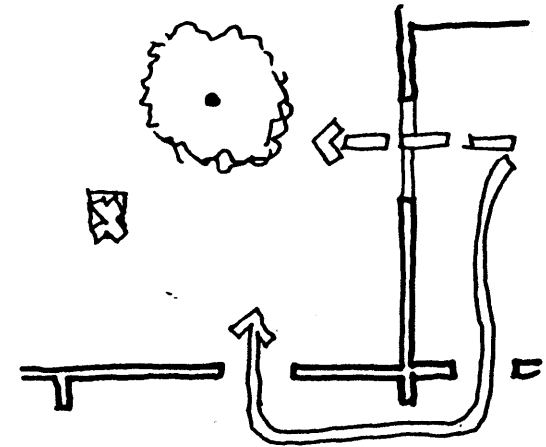


Joju-in Garden, Kyomizu-dera, Kyoto 14-16c

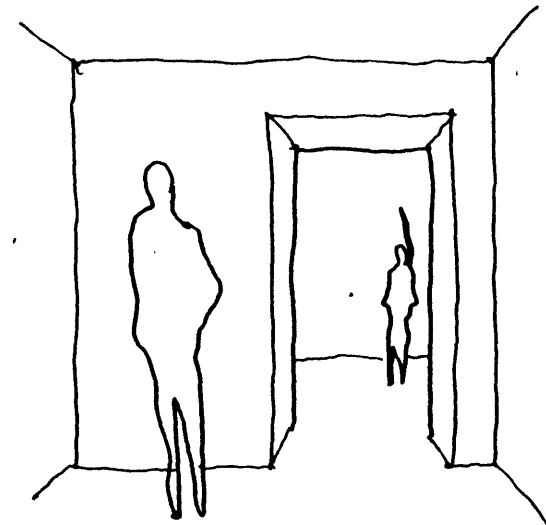
Image: In the Joju-In garden, the repetition of the stone lanterns captures the distant hill and lets it participate in the garden landscape. The two lanterns, one on the hillside and one in the garden, are viewed simultaneously and their similar image is associated with actual proximity and connection.

Proximity Through Repetition of Elements

Pattern: To capture a far space and make it a part of a nearer space, the juxtaposition of two similar elements, one in each space will create a unity and bring the spaces together.



Design Possibilities: Two statues, lights and fountains juxtaposed in perspective to suggest the continuity of path.





Ninra-ji Temple, Kyoto 13c

Image: Stepping stones, a stone lantern and a stone water basin are the three requisite elements in a Japanese tea garden. The water basin not only provides for the ritual cleansing of body and spirit, but serves as an element, to complete the unity of the other garden components.

Attarin Medersa, Fez 14c

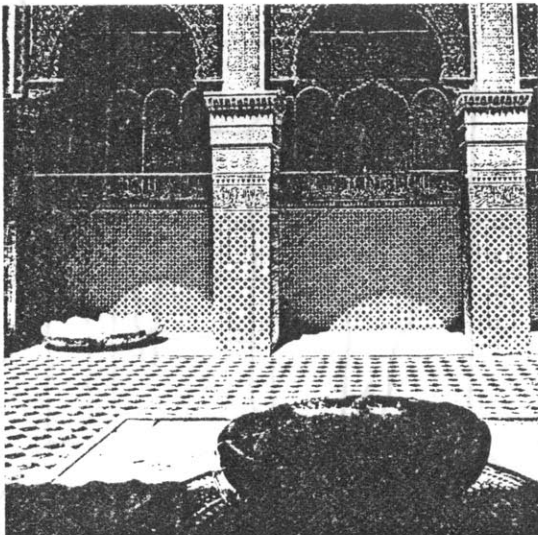
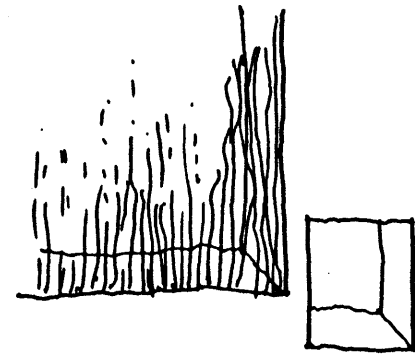


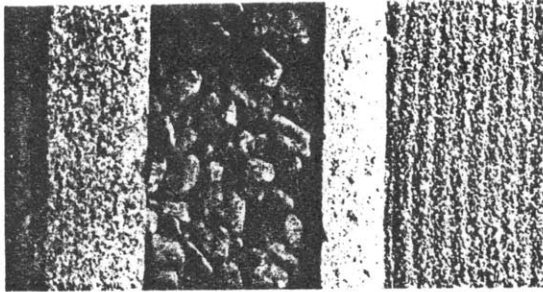
Image: In the Attarin medersa, the still water provides a counterpart to the fountain. In the shade of the arcade, in a white, roughcut stone basin resembling a lily pad, it is the opposite of the fountain, in the center of the courtyard, the place of light. The dark marble container appears to have been smoothed by the action of the water as it flows out over it.

Receptacle

Pattern: When the amount of water held is relatively small, that which holds it becomes almost more important than the water itself. Yet the presence of the water is what justifies the existence of the container. The water is necessary to complete the space either by virtue of its place in a ritual or due to its physical properties. Thus the physical aspects of the basin can reinforce--either by contrast or by similarity--the unity of the space.

Design Possibilities: A receptacle for rain water is an element which is justified by the water it contains. Perhaps the paving on the ground has eroded in some way to contain the water or that the base of a column down which the water runs is somehow used for this. These would tend to unify. Or perhaps the receptacle is a worked bronze basin. If water is elsewhere channeled by the paving, this would contrast and balance.





Ryoanji, Kyoto 15c

Image: The juxtaposition of different textures is used to define path and edge in Japanese tea gardens. Contrast is provided between large stones and pebbles, stone and that which grows (moss or other ground cover), or wet surface and dry. There is a richness of surface texture composition unique to each path and garden, which never overwhelms the space, though it fills it. The overriding texture is only slightly rough. The roughest compositions, the miniature landscapes, stand out, appearing larger than they are.

Bu-Inaniya Medersa, Fez 14c

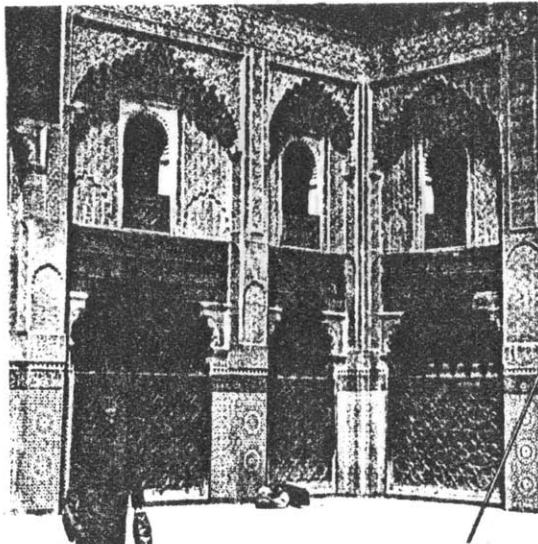
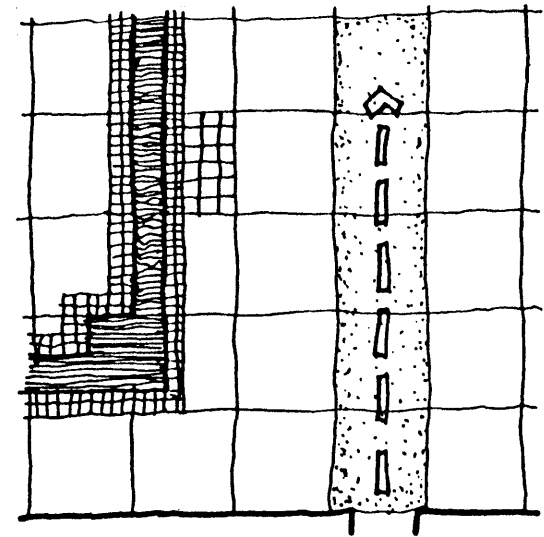


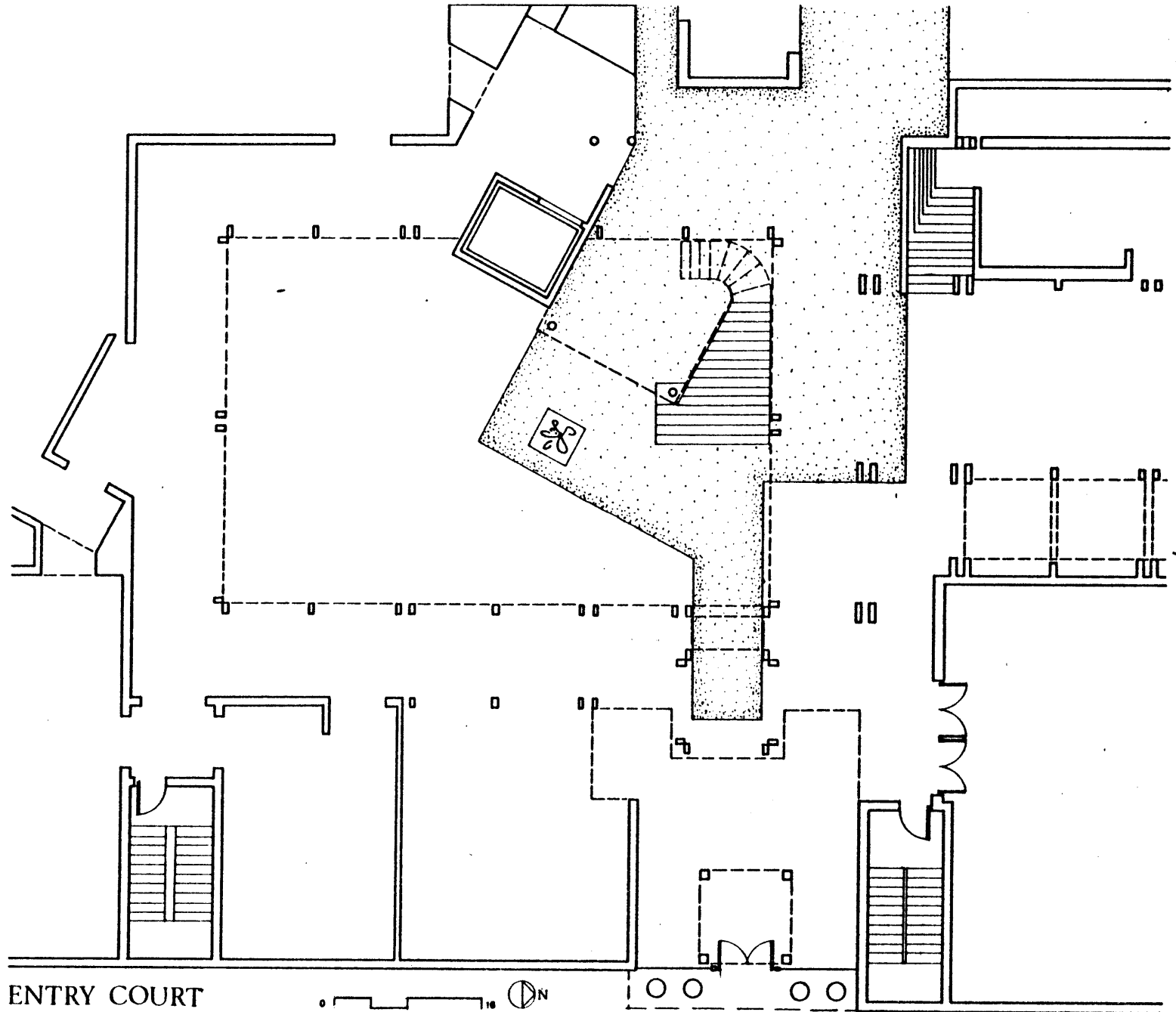
Image: Every material has its innate texture. In Islamic architecture, surfaces tend to be made from small pieces of material or delicate definitions in a material. This produces another texture over that of the material itself. The texture helps the material to appear to lose its weight and attain a desirable spiritual quality. In tile, the ceramic is smooth, but the pattern of color and joints forms a rougher texture. In a courtyard, the overall texture of individual textures can be exceedingly rich and can provide added depth to the materials. There is a consistency in its size or its apparent roughness, so that it is comfortable within the space--neither too slippery nor too aggressive.

Surface Texture

Pattern: Light reveals texture. The courtyard should thus be a place rich in vibrant surfaces. These textures remain within a certain range of sensation--neither too fine and slippery nor too rough and aggressive. Water glistens on small stones. Plaster is carved. Stones are partially covered by moss. The range of textures enhances the space without overpowering it.

Design Possibilities: Paths or edges can be defined by a juxtaposition of different textures. Large expanses of surface should have other textures overlaid upon it, or inlaid within it, so as to breakdown the expanse and enrich the surface. All materials have texture and care should be taken in their use.

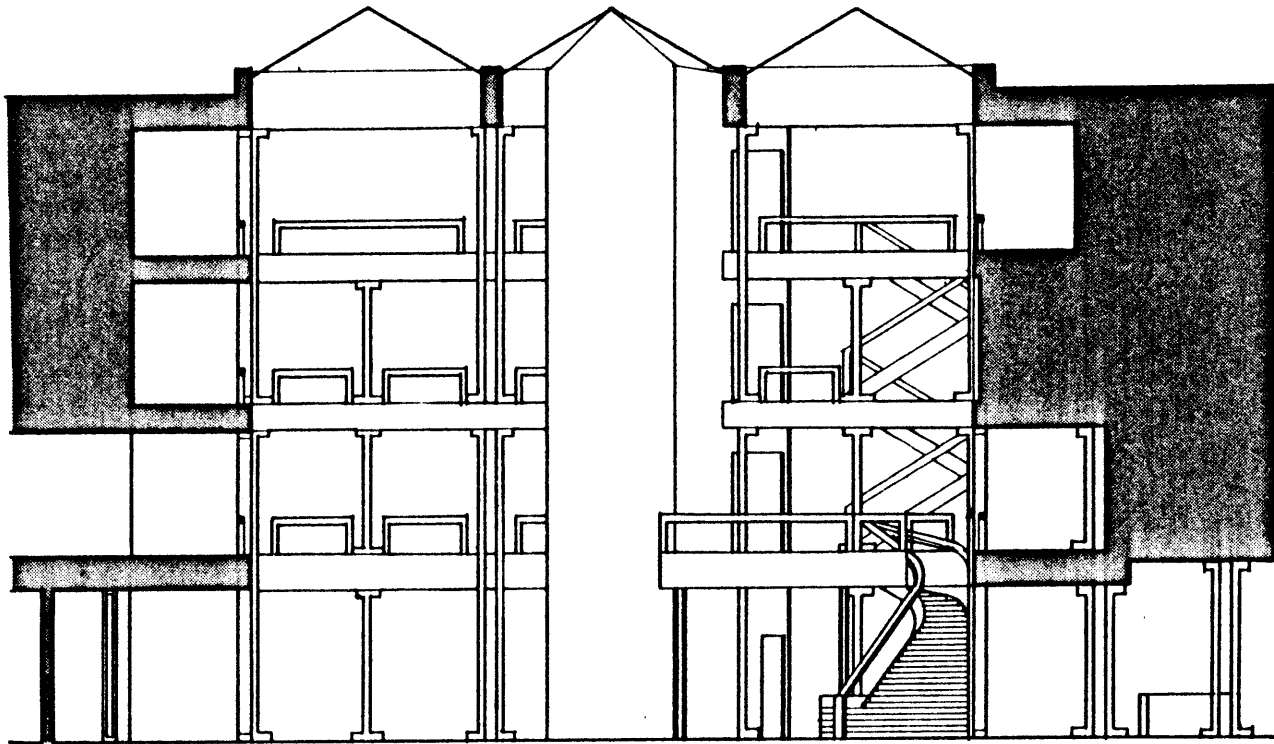




THE ENTRY COURT

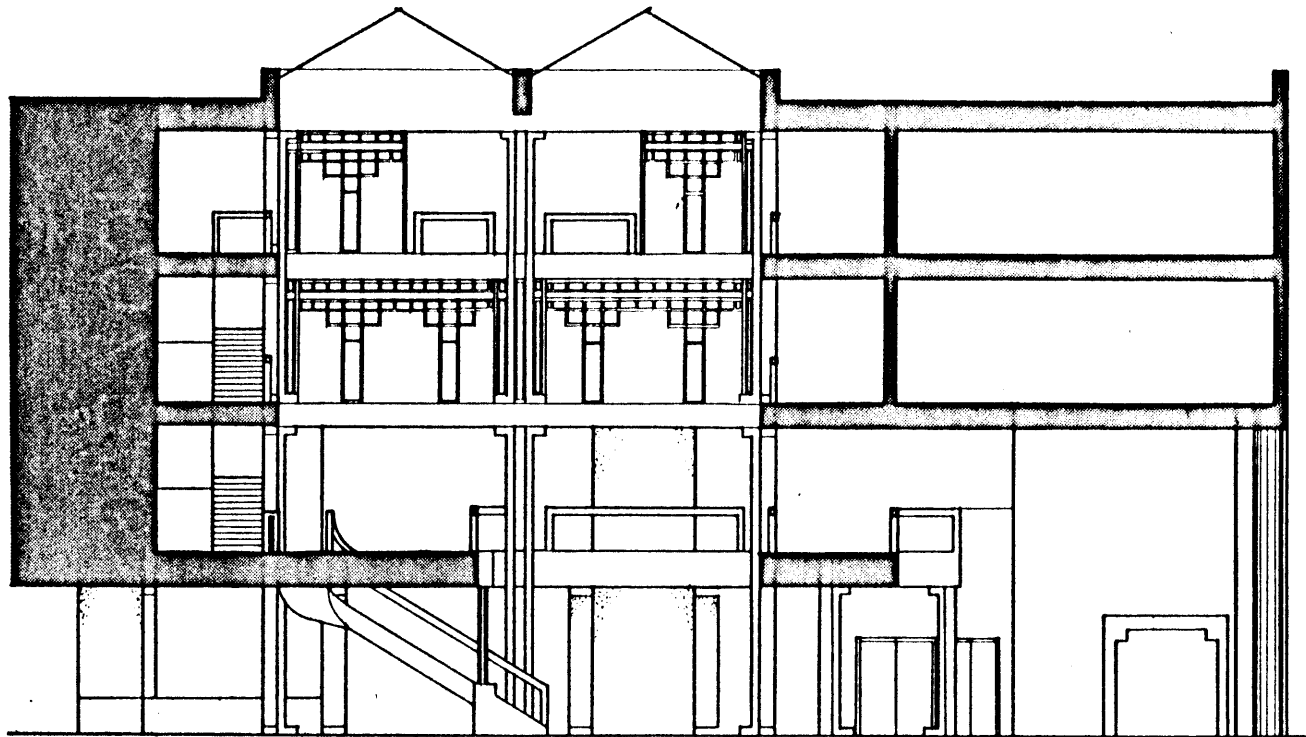
The Entry Court is the circulation center of the museum. It is a place for people to gather. There are also places, under the ARCADE, on one of the BALCONIES, or under the main balcony (BUILT EXTENSION), where one can still participate in the space without being in the middle of it. Its decoration, especially with plants, is coordinated with the season, thus the FRAGRANCE is special all year round.

The Entry Court is also visually connected to the Sculpture Court by a FRAMED VIEW. Two fountains, one in the Entry Court and one in the Sculpture Court, can be simultaneously viewed creating PROXIMITY THROUGH REPETITION OF ELEMENTS. This also accentuates the fountains themselves as RECEPTACLES. The connection of the two spaces is further made by a difference of SURFACE TEXTURE in the paving which literally defines the path between them.

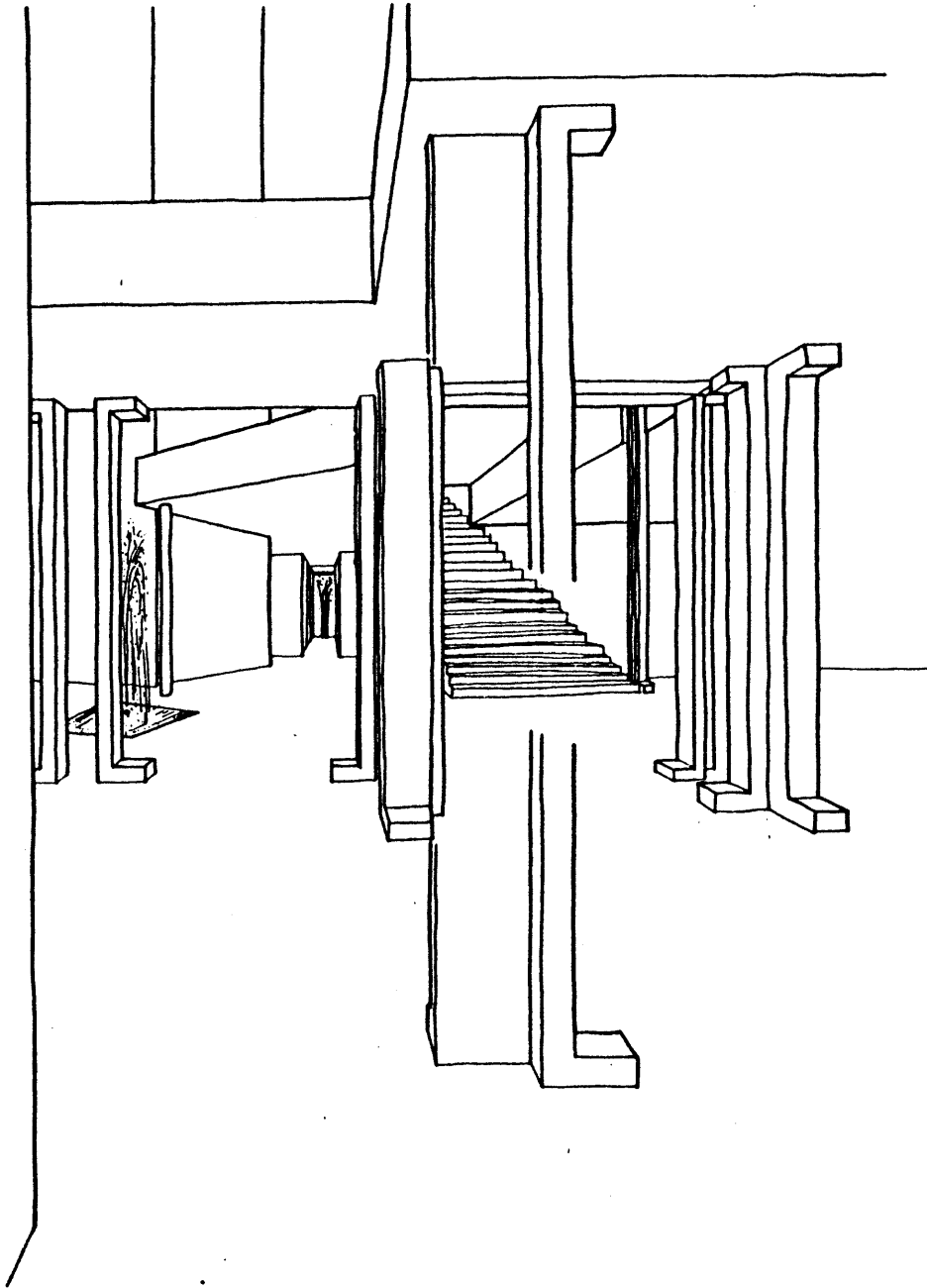


SECTION A

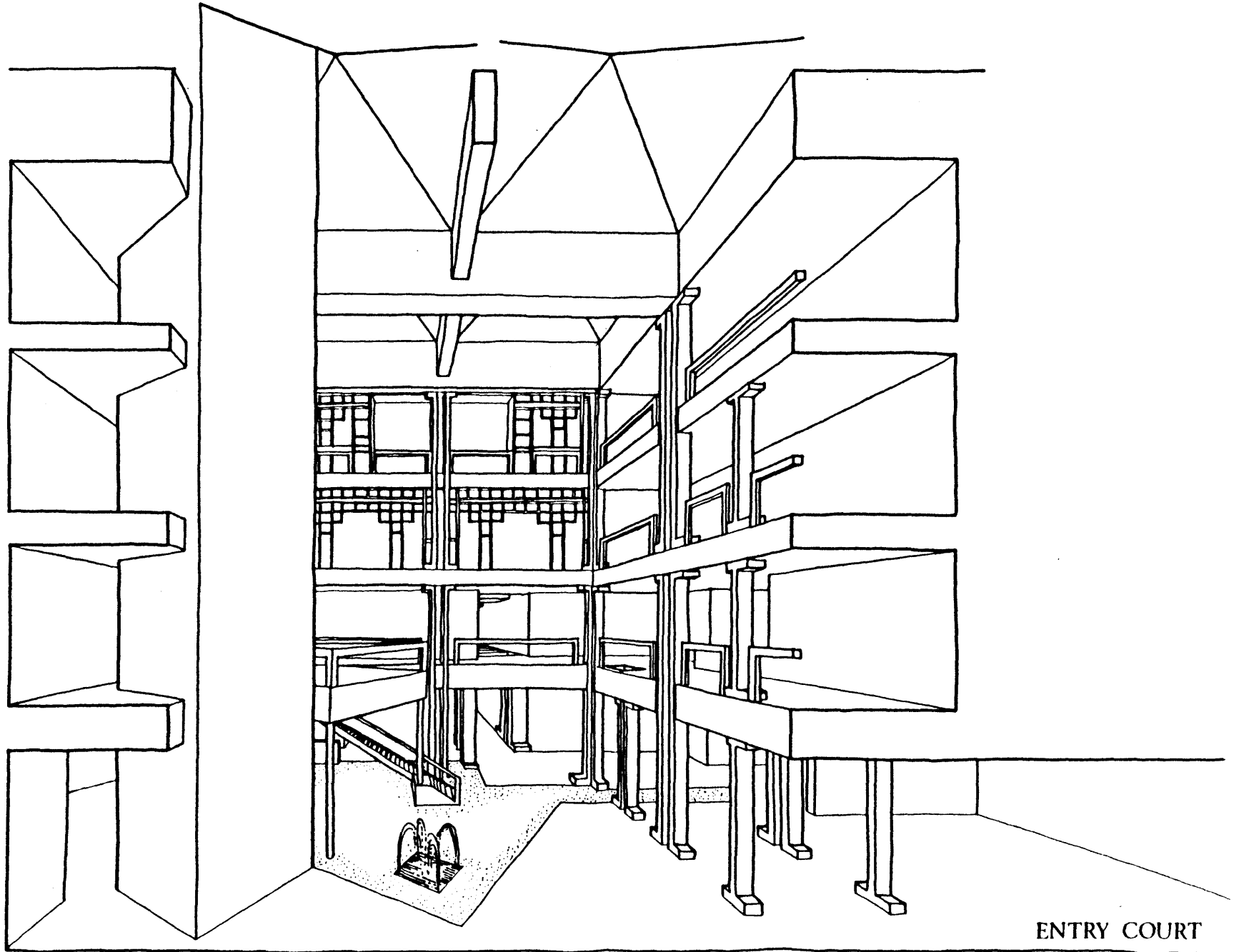




SECTION B



Entry Court



ENTRY COURT

Patterns

Touch

Color

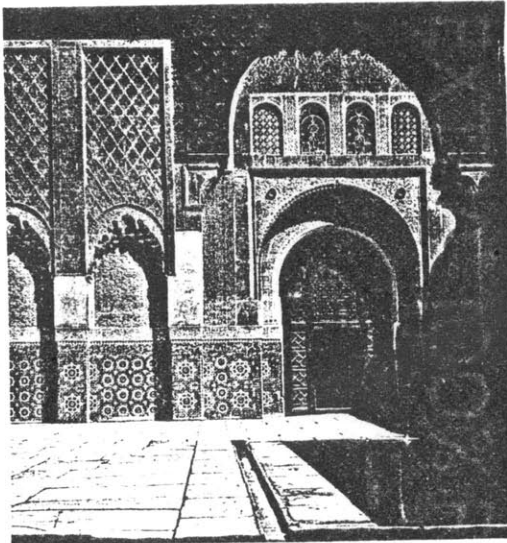
Built Extension

Tree as Column

PUBLIC COURT

The Public Court is a small open space across from Harvard Yard where students can come to eat their lunch. The sunny space has a lot of seating and is protected from extremes of weather by a trellis and enclosing walls. It also is visually connected to the open space under the Carpenter Center, thus possibly giving some life to it by its proximity.

The Public Court is also accessible from the lecture rooms and can be used for informal discussions. In the fair weather, as the auditorium can exit into the space, functions associated with large lectures can be held outside in the court.



Bahai Palace, Marrakesh 19c

Image: Tile in Islamic architecture is not only beautiful to look at, but in the hot climate it is a comfortable material to walk on, sit on, lean on, touch, as it remains very cool. Therefore, it is not surprising to note the frequency of tiled floors and walls. The walls are often tiled only on the lower portion as that is the zone of human contact.

Pattern: In hot climates, the sensation of touching a tiled surface is refreshing. By contrast, the warmth of a sun-drenched brick surface even in an extremely cold climate is appealing. Surfaces to sit on or lean against should be made of the materials appropriate to the local climate.

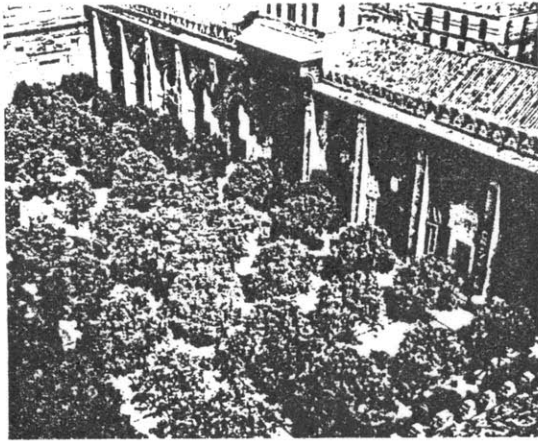
Design Possibilities: In hot weather, tiled seats and walls in a courtyard are nice to be against. In colder weather, brick, stone or concrete walls absorb the warmth of the sun and are warm to lean on or sit on. But in the heat they remain cool. The material of any surface that can be gotten next to should be chosen with special attention to its feel.

Image: The predominant color in an Andalusian courtyard is green--the green of leaves and everchanging foliage. The green stands out from the white washed walls, as does the blue-purple of the iris. The color of the iris is the same as that of the roof tiles. Even though the iris is not a permanent element (as it lives and dies), the coordination of its colors through similarity and contrast are important in the bringing together of the space.

Image: In the bright African light, the intensity of colors is often washed out. To compensate, the colors used by the artisans are vibrant. The turquoise blue roof tiles meet the sky; multi-colored tiles cover the ground and lower walls. Each is set off by the white plaster between the tiled surfaces. The artisans work with the properties inherent to color--the vibration of analogous colors and the strong definition by complementary colors, the recession of cool colors and the tendency of warm colors to advance. The composition of color is important at all levels.

Pattern: The designer has at his disposal two types of color. There is a permanent color of material, be it natural or applied, and the changing, moving color of plants, trees and flowers. The first type allows for very precise, deliberate schemes. The latter defies such strict control. Its general appearance can, of course, be supposed, but each flower is different and the color of leaves change and deepen throughout the season.

Design Possibilities: Similarity of color in the permanent and more transient courtyard elements give a sense of unity to a space, and almost a sense of immortality to the blossom. Contrasting colors create boundaries; a red maple against green leaved trees will indicate a special place beneath the leaves. Mosaics of marble and tile could extend or define small areas.



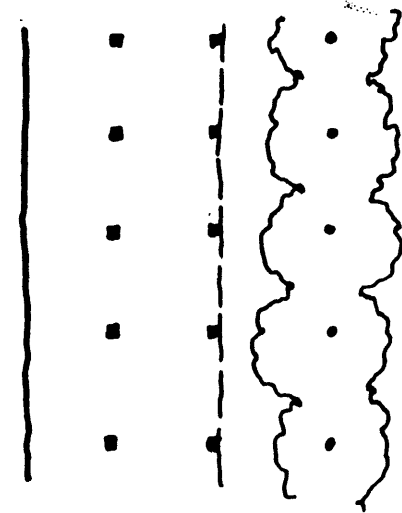
Patio de los Naranjos, Seville 10c

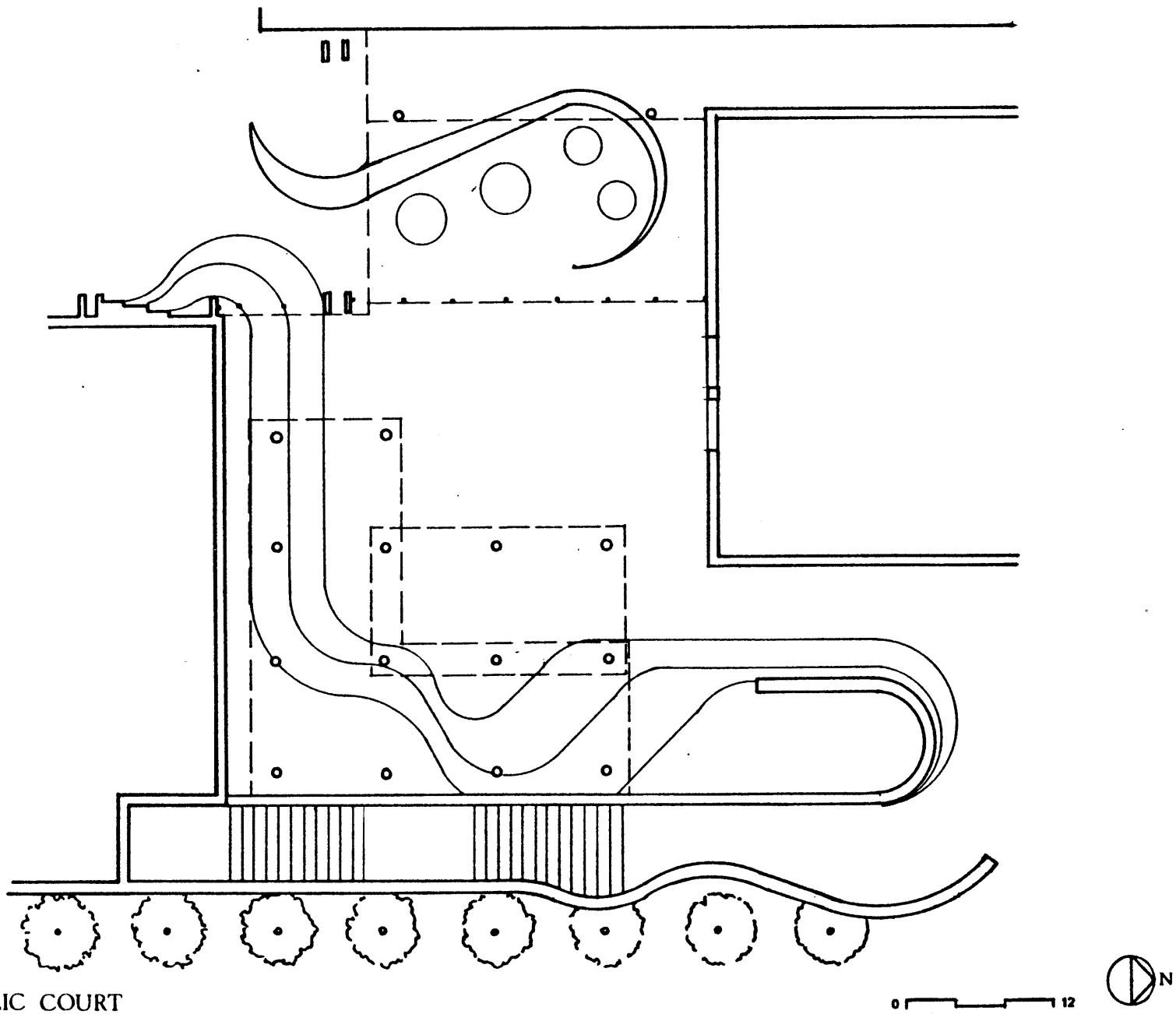
Image: The interior of La Mezquita was originally an almost unending field of columns. This sensation was heightened as the field extended into the courtyard as a grid of orange trees. Here nature is used to mirror architecture--the columns become tree trunks and the vaulted ceiling becomes the leaved branches, a natural umbrella.

Tree as Column

Pattern: The forms of a tree trunk and a column are almost identical. It is easy therefore to understand the use of trees in space out of doors in a similar fashion to that of columns in a building. They both define areas and can create a rhythm. Yet they are actually opposites--one inanimate and static, the other alive, growing and changing. The juxtaposition of the two can therefore be seen as continuity and a differentiation as well. It can be a very compelling juxtaposition.

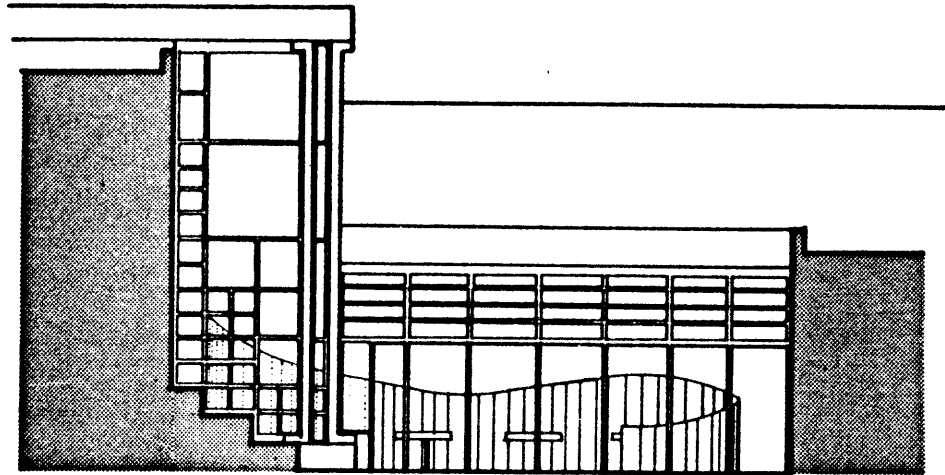
Design Possibilities: An arcade (of columns) inside might be continued by an arcade of trees outside where there is the desire for the definition to be retained yet the shadow of a built arcade is unwanted.



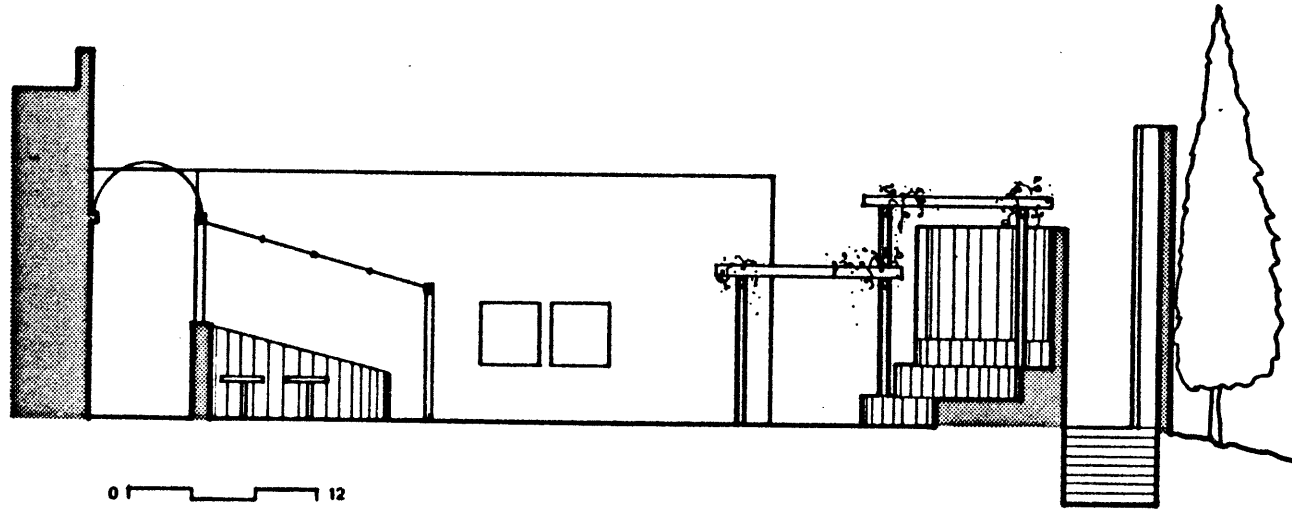


THE PUBLIC COURT

The sunny quality and the protected seating of the Public Court make it a special place. The sense of TOUCH is rewarded by the bright COLORS of the tile seats which are kept cool in the summer and allowed to warm up in the winter by the trellis overhead which also acts as a BUILT EXTENSION. The tree-like quality of the trellis, TREE AS COLUMN, is accentuated by the Italian cypress whose tops are visible above the Court walls.

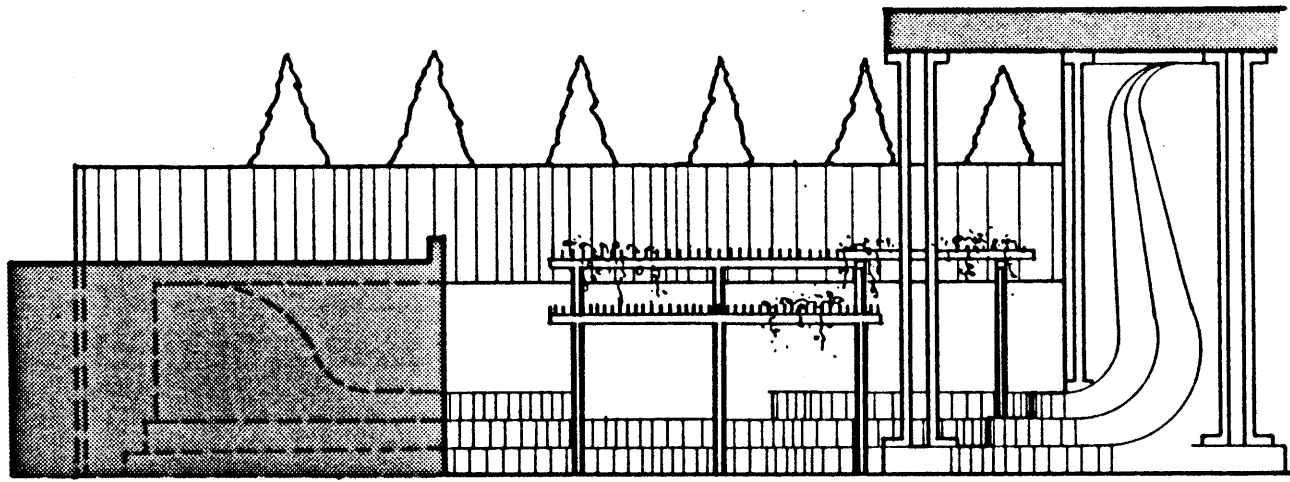


WEST

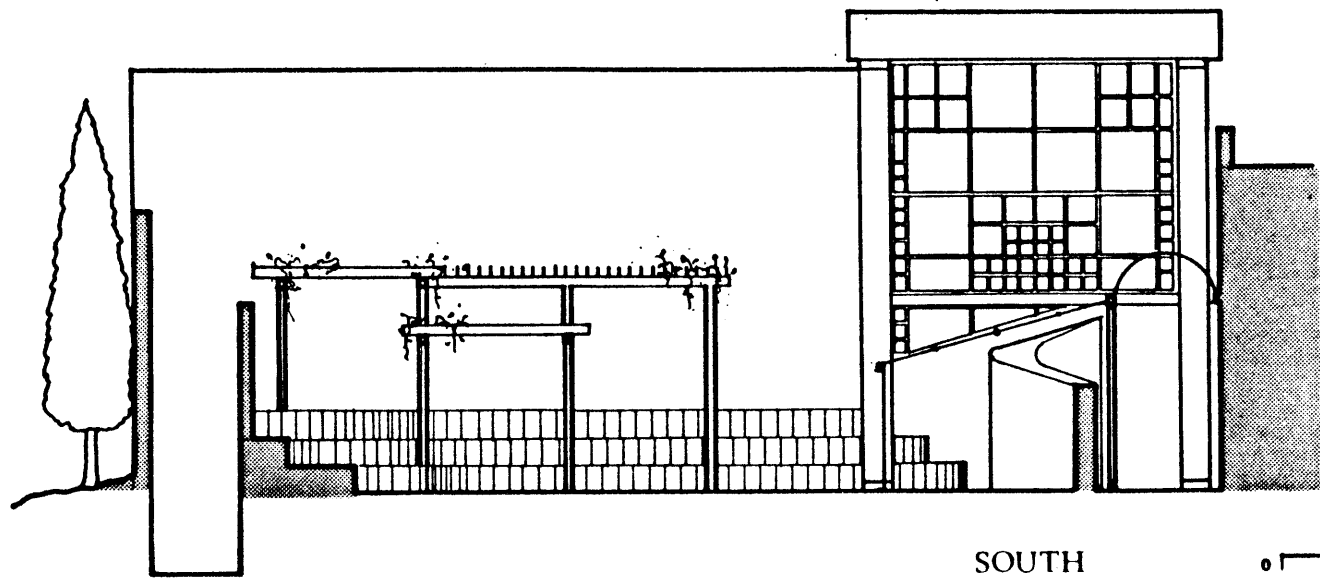


NORTH

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EAST



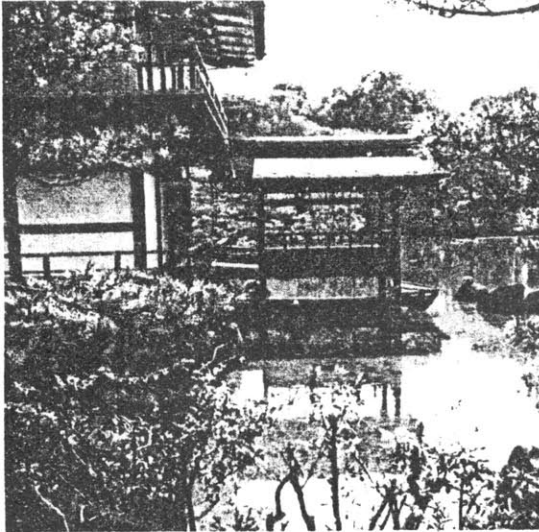
SOUTH



SCULPTURE COURT

Patterns
Pavillion
Balcony
Built Extension
Continuity of Water
(Horizontal)
Coolness of Water
Water's Path
Abundance
Surface Texture
Cycles of Nature
Arcade
Perimeter Zones
Grotto
Columnar Rhythm
Screens

The Sculpture Court is the largest courtyard in the museum, yet it is a space in which one can be alone to sit and to think, or contemplate. Its three levels, the raised library balcony, the lower performance level, and the main exhibit level, divide the courtyard into distinct zones, though the space is basically perceived as one.



Gold Pavillion, Kyoto 14c

Diwan-i-Am, Shalamar Bagh, Kashmir 17c

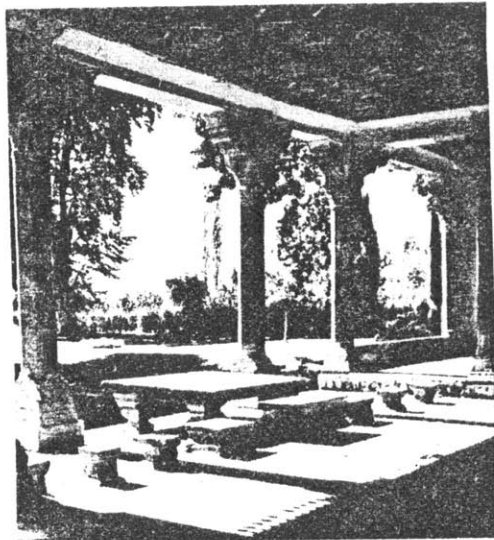


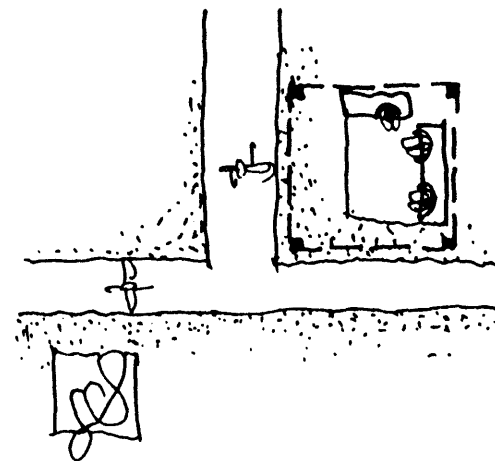
Image: The unique feature of the Shinden mansions of the Heien period was a pavilion by the water which was connected to the main house by a covered bridge.

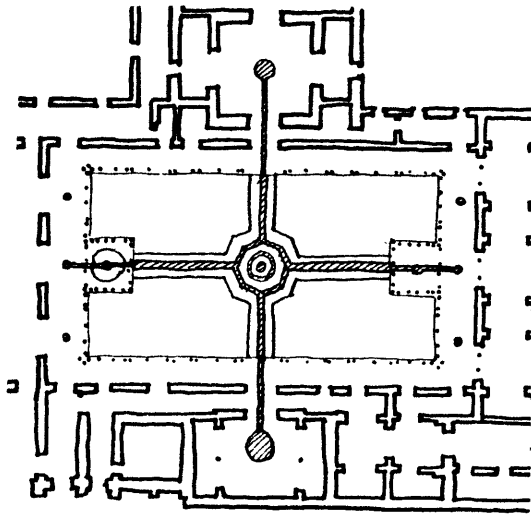
Image: In Persian gardens, platforms were placed in the most beautiful part of the garden or court as befitting a resting or viewing stand for a ruler. Always located so as to benefit from the cooling effects of water, they also afforded the best views. Located at the crossing of paths and/or waterways they are either in the water or on the ground. They are covered as protection from the sun--sometimes permanently and sometimes temporarily.

Pavillion

Pattern: Places from which to enjoy the exceptional experiences afforded in a space are necessary. These places should be designed for lingering, protected from the elements as necessary. Open and yet closed. A part of a larger space and a space in itself. A room within a room.

Design Possibilities: A covered pavilion might be placed near (or even over) a special element in the court. There could be seats from which to enjoy this element. There might be a pavilion just off major paths--a place to relax and watch people.





Alhambra, Granada

Image: The arrangement of rooms and pavilions in and around the Court of Lions forms a series of spaces within spaces which is extremely rich. These rooms are at once separate and identifiable, yet they are also part of a complex of spaces which together form the court. The fountain is a very strong central focus and the water, as it flows into the different pools, has a strong continuous presence and is a link between the spaces.

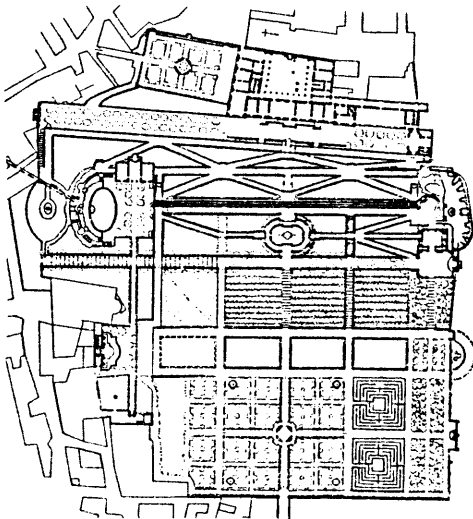
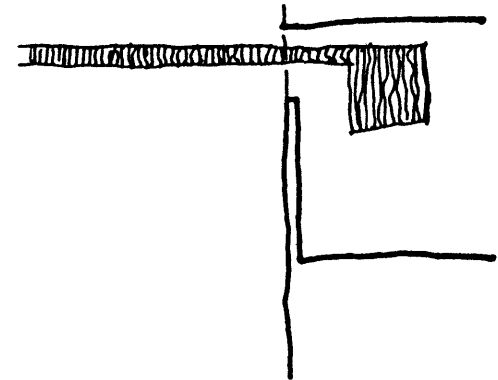


Image: The Tivoli Gardens are an elaborate continuity of water from top to bottom. Though the water falls through an amazing panoply of sprays, chutes and fountains, its presence is everywhere evident.

Continuity of Water (Horizontal)

Pattern: The presence of flowing water implies a source and an end. In nature there is the inevitable cycle of water from spring to river to ocean. These two places are anticipated as soon as the water is visible. Thus, the water flow is followed to its beginning and end bringing them closer. And--as the water itself is a physical continuity between source and end--the spaces are physically linked.

Design Possibility: Water can be used as a link between spaces. The point from which it is first visible is related, by the flow of water, to the spaces of its source and end. This flow might end at an entrance to another space or continue through so that one is lead further on.





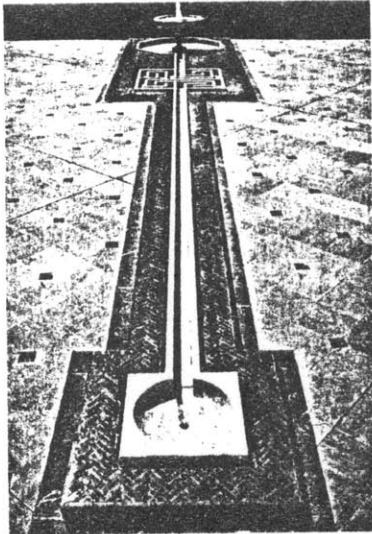
Court of Daraxa, Alhambra, Granada 14c

Image: The fountain in the Islamic courtyard is the focal point of the space. Not simply for the beauty of the basin or the choreography of the sprays, but for the cooling effect that the water brings.;

The Coolness of Water

Pattern: The coolness of the courtyard is derived from the building materials, plants and the presence of water. Physically, as the water evaporates, it cools the space. More than that, one immediately associates the presence of water with increased coolness. In the desert the presence, the sight, of water means life.

Design Possibilities: In hot climates, the presence of water is very important for the associated meaning and physical comfort it lends. It thus has a dual presence in such a space, as it is both aesthetically pleasing and physically cooling.

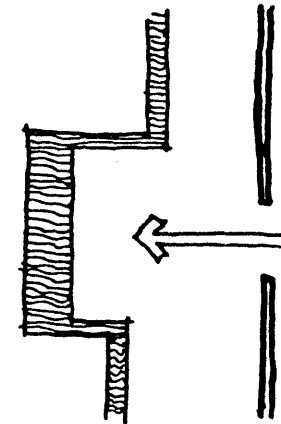


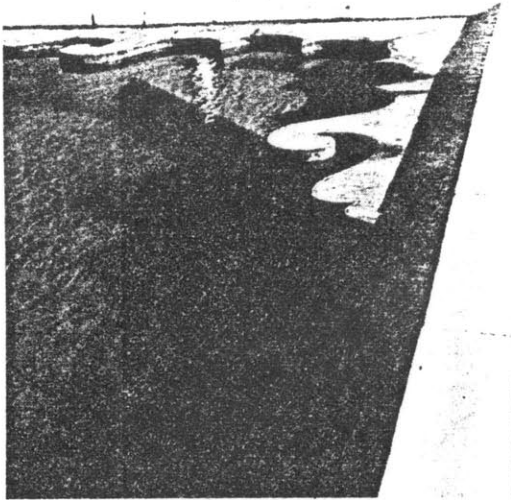
Royal Palace, Meknes 19c

Image: Originally, in Moroccan palaces, labyrinths of water were used as places for games--the racing of water along its course. Though they are no longer used for such, the labyrinths act as a point of intensification of the water flows and challenge the observer to follow the maze out, to slow down and study, and then move on.

Pattern: The flow of water in a stream is modulated by interferences in its path. Just as there is the punctuation or intensification in the flow of water, acting in sympathy with its containment, there can be the same punctuation in response to architectural rhythms or experiences.

Design Possibilities: The path of water should deform in response to pressures outside it. (An entrance would cause the path of the water to change in order to create a "place" for the entry.) Water might swirl or slow down, under a canopy at a place where people could just sit and gaze into the water and its complexities.





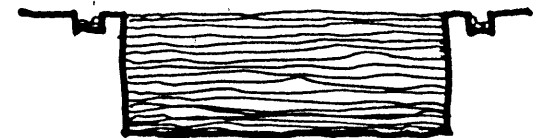
Taj Mahal, Agra 17c

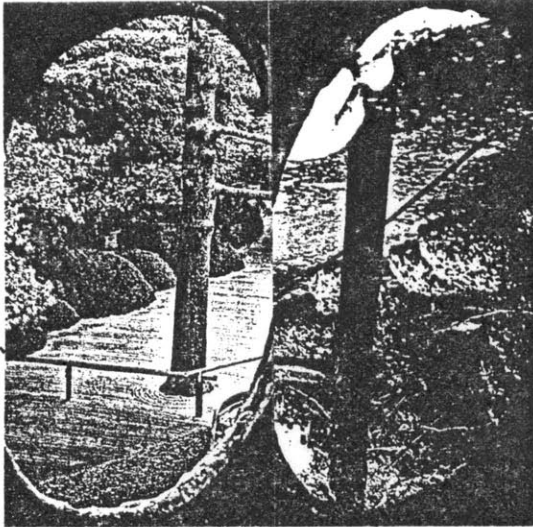
Image: A most vivid image in the Koran is the overflowing plentiful image of abundance that is paradise. As this image of paradise was the basis for the construction of gardens in the Islamic world, the concept of abundance was thought to be of great importance. Often, despite a scarce water supply, pools of water were filled to the brim. Many pools sit in slightly sunken forms designed to collect the water as it flows over the edges. This is an immediate symbol of plenty.

Abundance

Pattern: Water should always be filled to the brim to be indicative of plenty, of abundance. Whenever there is a drop from the edge of the basin to the water level, this deficiency is multiplied as the basin's edge is reflected in the water; the water appears to be drying up; oozing away. This notion is disturbing, particularly in arid climates, where water is scarce and, therefore, highly valued. The appearance of abundance is reassuring.

Design Possibilities;





Shisen-do, Kyoto 17c

Taj Mahal, Agra 17c

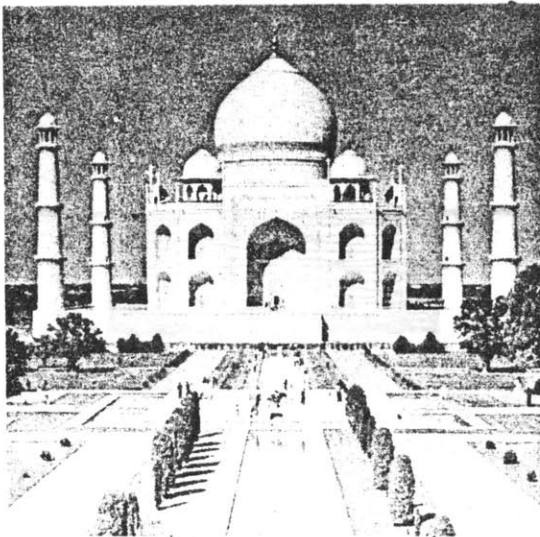


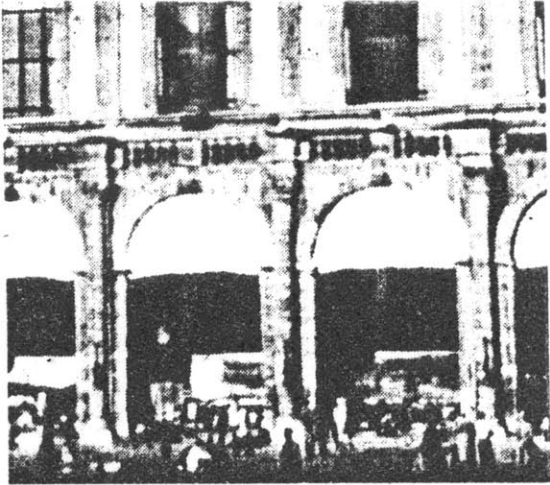
Image: The seasons in Japan are extremely distinct in climate, light and plant growth. The garden designers understanding of this enabled them to design gardens specially for the various seasons. In "The Tale of Genji" are described different gardens for the four seasons. For example, the garden designed to be most agreeable in summer.

"In the northeastern garden there was a cool spring, the neighborhood of which seemed likely to yield an agreeable refuge from the summer heat. In the borders near the house up on this side, he planted Chinese bamboos, and a little further off, tall stemmed forest trees whose thick leaves roofed airy tunnels of shade, pleasant as those of the most lovely upland wood. This garden was fenced with hedges of the white deutzia flower, the orange tree, whose scent reawakens forgotten love, the briar rose and the giant peony, with many other sorts of bush and tall flowers so skillfully spread about among them that neither spring nor autumn would ever lack in bravery."

Image: As day turns to night one's perception of a space changes dramatically. At dusk there is flatness to all buildings; relief disappears. The colors in the meantime are deepening and fading into the night. The yellows disappears first; slowly the reds and blues fade. The profile of minarets and domes strengthen as the blue of the tiles finally disappears. The last impression of the building before darkness is its silhouette.

Pattern: There are three concurrent cycles forever changing one's perception of a space. These are the cycles of day and night, of the seasons, of birth and death (aging). The quality of a space depends very much on where it is in relation to these cycles. Morning light is very different from that at noon or dusk. The colors and life associated with summer are absent in winter. Time fades and wears all things. Trees grow and die. Time passes.

Design Possibilities: Attention should be paid to all the cycles. Day-night: interesting silhouette at dusk. Season: seasonal arrangements of plants and trees. Aging: the wearing down of a sharp corner is a sign of aging. Rubbing the foot of a certain statue in St. Peter's is considered to bring one good luck. Hence, the foot has been worn shiny, its sculptured details long since worn down by people seeking good fortune. Age is registered by the great number of people required to wear it down in such a manner.



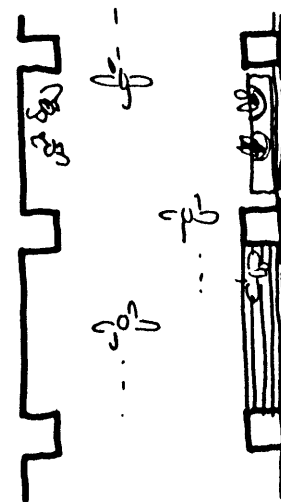
Bologna Arcades

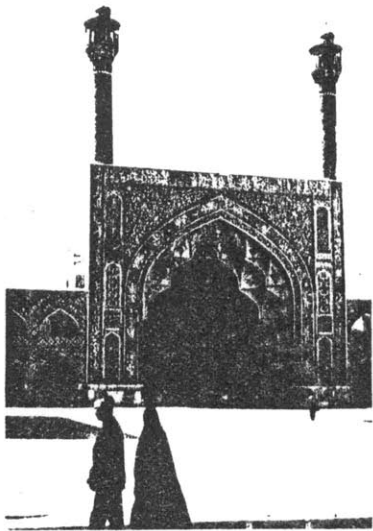
Image: The arcades of Bologna contain the street life--the walking and the lingering. Around the major piazzas are the grander arcades, those with the largest dimensions. The piers of these arcades are quite deep and themselves create another intermediary zone--in between the piazza, and the movement inside the arcade. It is here that people stop to chat or to sit and watch and wait. As it is outside of the main traffic flow it is a safe place to be.

Perimeter Zones

Pattern: Just as the covered arcade is a transition zone between open and enclosed, there are zones of enclosure within the arcade. When the arcade has columns and walls with pilasters, there are three special zones. The zone of the columns and piers is the most open. The zone against the wall the most enclosed.

Design Possibilities: Deep pilasters on a wall can be placed to stop against the building to talk to someone for instance. There might even be a bench against the wall. The depth of the column or pier is the dimension in which one enters the space. There should be places to stand against the column before deciding to enter the court or move on. Stairs and benches can be placed so as to connect or separate the spaces.



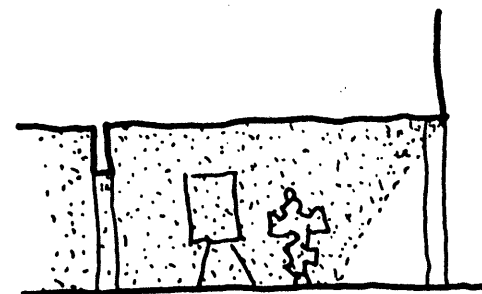


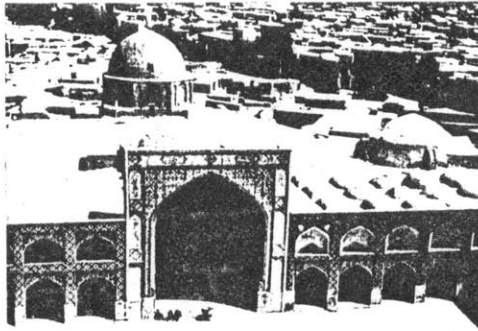
Sultan Hassan Mosque, Cairo 14c

Image: The dark coolness of the mosque contrasts with the intense light and heat outside. The two spaces interpenetrate, the edge between them is not solid. Within, the coolness is heightened by contrast with the glare outside. From the courtyard the mosque appears as a dark cool refuge.

Pattern: A deep arcaded space is very alluring in its darkness. It is a protection from the sun within the heart of the building. Yet it is open, like a cave, or a deep porch. It is mostly inside, but it is outside. From the courtyard what lies behind is hidden the dark.

Design Possibilities: A deep arcade would be useful on the southern side of the courtyard to give shade from the sun. A deep arcade adjacent to a temporary exhibition might allow for expansion of the gallery space, add a different dimension and still remain protected from the weather.





Friday Mosque, Isfahan 15c

Image: At entrances to rooms and iwans, the large halls closed on three sides, which line the mosque courtyard, the rhythm of the colonnade is interrupted. These entries are often two stories in height with their supporting piers that much more massive than those of single floor height along the arcade. The portal of the iwan is also larger. Thus, the arcade is punctuated in both plan and elevation.

Omayyan Mosque, Damascus 8c

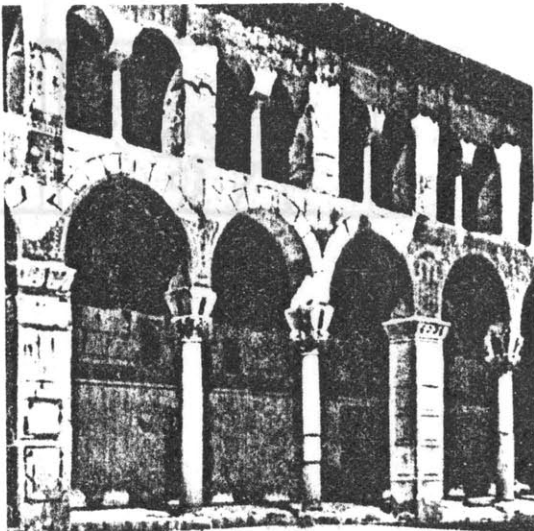
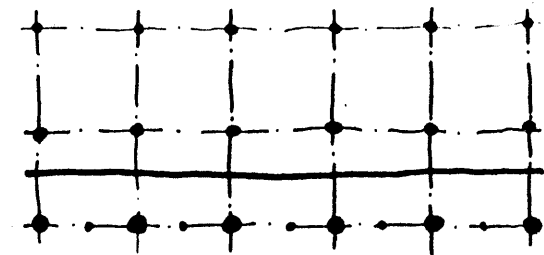
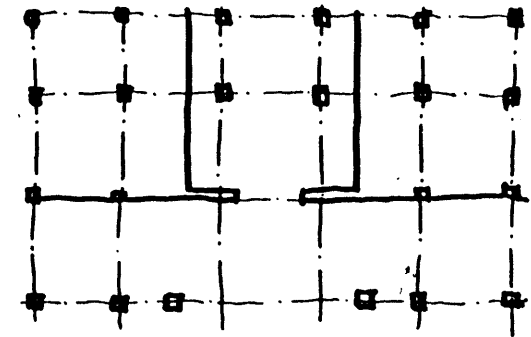


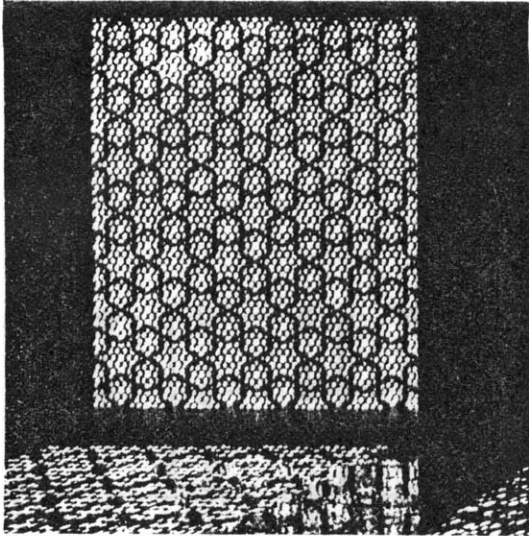
Image: The arcade around the courtyard of the Great Mosque at Damascus is one of columns and piers. The piers define a larger rhythm, the columns another rhythm, like a sub-rhythm of the first: it is like a syncopated beat. Every third column is a pier. Thus, the two arches against the piers are smaller than the arch between two columns because of the extra width of the pier.

Columnar Rhythm

Pattern: The placement of piers and columns along an arcade is important. Evenly spaced, they suggest "even" motion. Changes in the spacing accentuate spaces behind both in elevation and in the rhythm experienced as one walks by. Rhythmic arrangement of piers and columns defines larger dimensions.

Design Possibilities: Accentuation of rhythm--combinations of columns at an entry to a space or to define a corner. The rhythm of piers and columns might reflect a structural bay or a gallery bay.





Shrine of Salim Chishti, Fatehpur Sikri 17c

Image: The intense light of North Africa is broken down into patterns as it filters through the intricately carved screens of wood or marble that line the arcades. The screens allow for a visual connection between the spaces and provide for some shade, and so cool the interior.

Santa Maria del Pino, Barcelona 14c

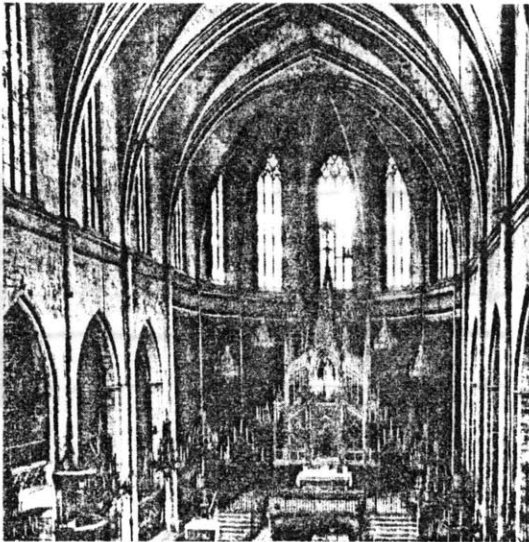
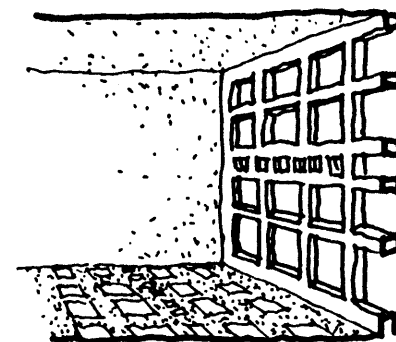


Image: During the medieval period, the presence of light was equated with the presence of the Divine. Thus it was highly desirable to allow light into the building. Uninterrupted light is not only glaring but has a much different presence as it spreads over large areas. Tracery with small-paned glass served to break up the light patterns as it streamed in and filled the interior with divine light.

Pattern: The patterning of light adds another dimension to a surface. It is a pattern that changes with the sun. Screens, of any material, separate inside from out and frame views. They also filter the light that falls onto another surface; they have dual presence.

Design Possibilities: Small-paned windows can behave like screens as they filter the light (carved stone or marble screens just aren't made anymore--metal, concrete or simple wood screens would be used to the same end). The patterns of light from a screen falling onto a wall or floor would give a clue to the presence of the outdoors.





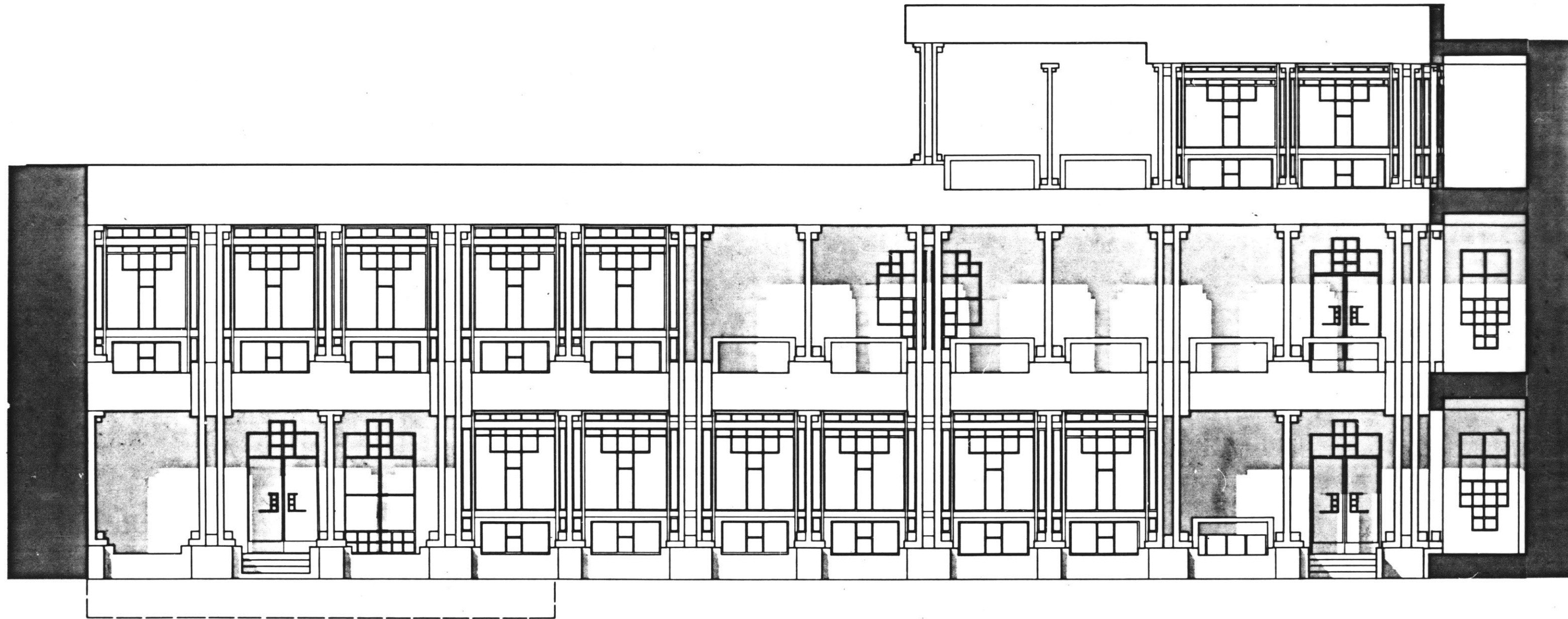
SCULPTURE COURT

0 16

In the Sculpture Court, the PAVILLION and the BALCONY as a BUILT EXTENSION serve to divide the space into separate zones. The CONTINUITY OF WATER (HORIZONTAL) ties these spaces together, thus there is the impression of a unified space.

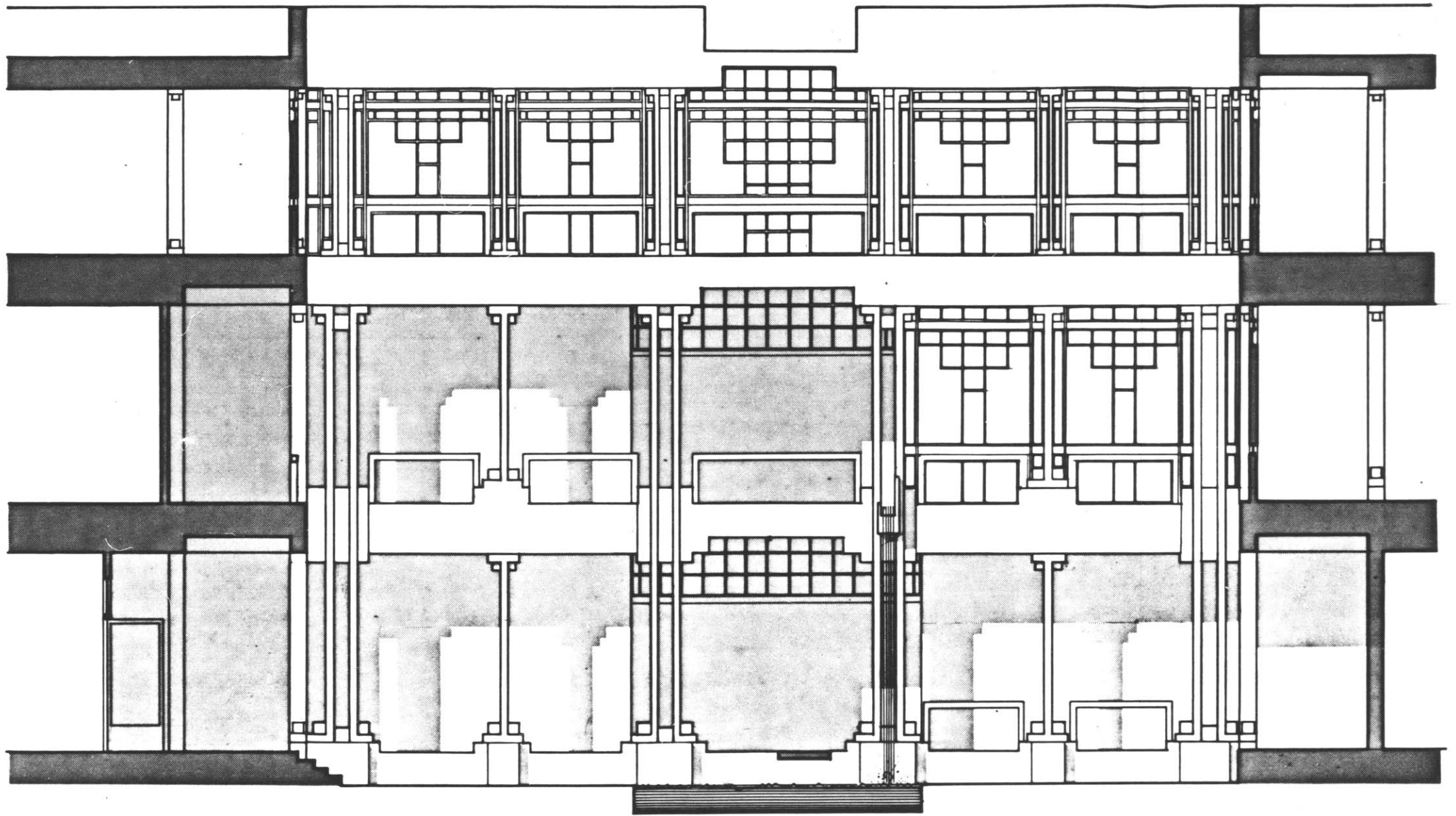
In the hot part of the year, THE COOLNESS OF WATER provides comfort. The WATER'S PATH is changed to create a space a "lobby" at the entry from the elevator. As it flows in its channel, filled to the brim, the water represents ABUNDANCE. The SURFACE TEXTURE of the paving at the water's edge is small compared to that overall. It is an indication of the water's presence as well as a reaction to it. The action of the moving water over a surface erodes and breaks large stones into smaller pieces. SURFACE TEXTURE is also modified in places of heavy traffic. A rougher finished stone is used at those places, while a shinier surface is used elsewhere. As the traffic wears smooth the rough stones, the presence of those who have come before is registered. It is a CYCLE OF NATURE.

An ARCADE rings most of the courtyard, separating the circulation from the space itself. Along the arcade are recessed niches in which to linger and places at which to enter the space creating PERIMETER ZONES around the space. On the south facing court wall is a GROTTO which can be used for exhibitions. The COLUMNAR RHYTHM of the arcade, usually a reflection of the structural grid, is changed at this point to emphasize the special nature of the space beyond. The walls of the galleries which border on the courtyard are made of SCREENS to take advantage of the sunlight.



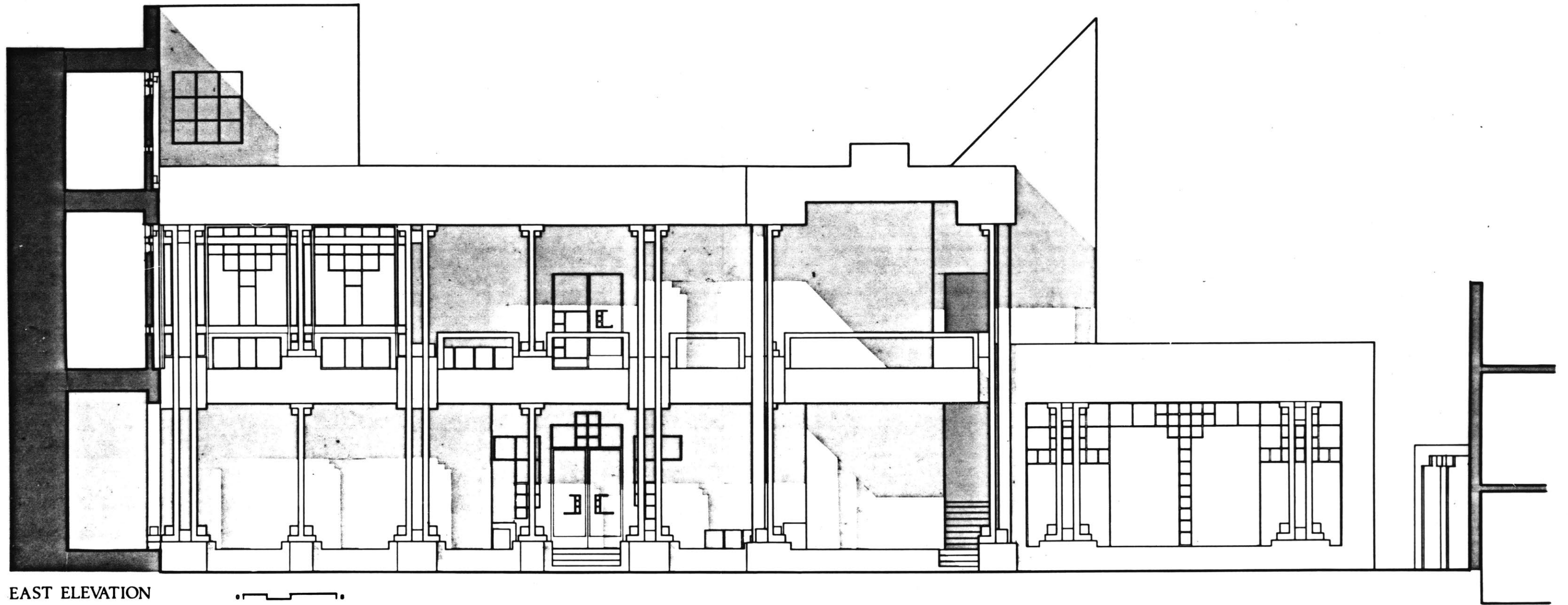
WEST ELEVATION



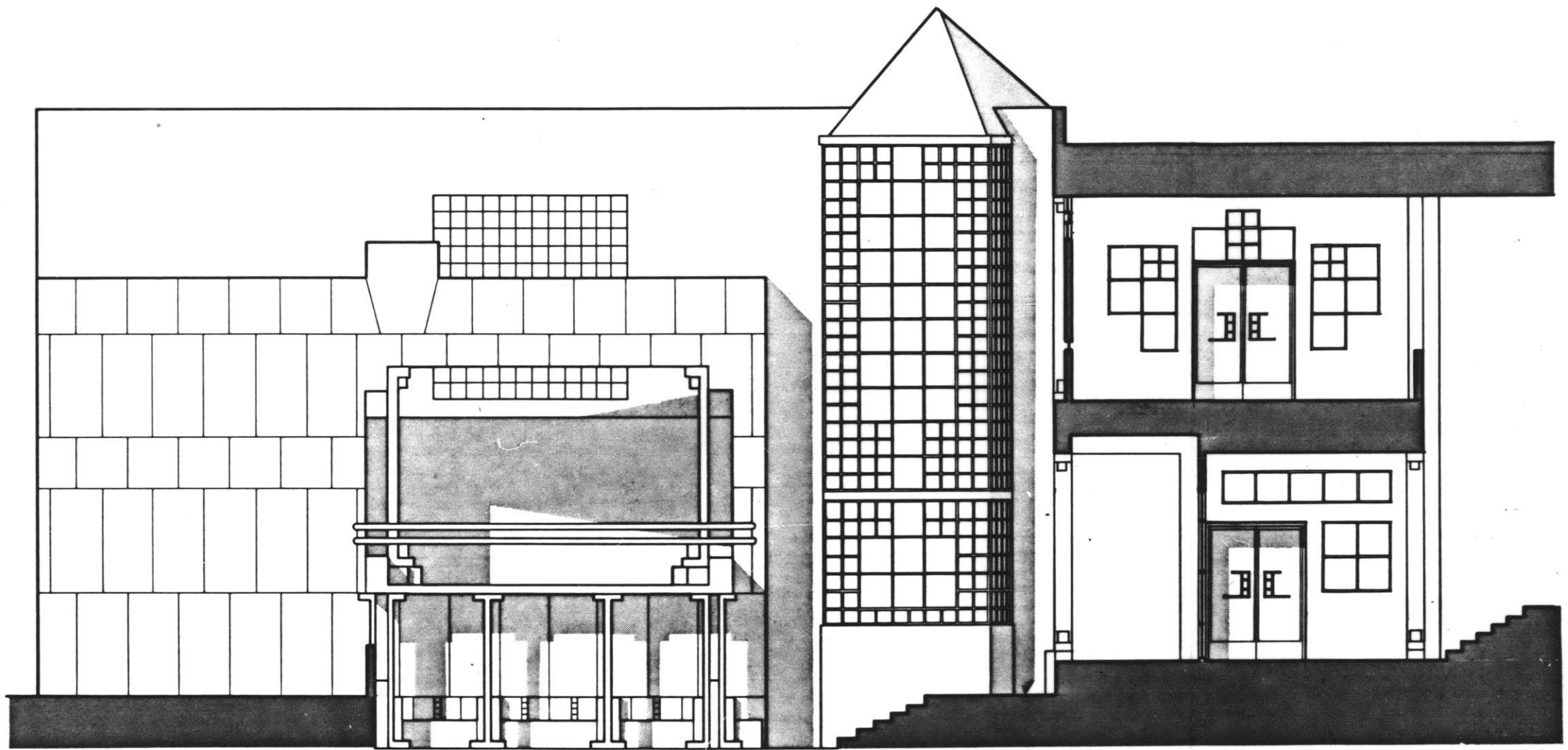


SOUTH ELEVATION





EAST ELEVATION



NORTH ELEVATION



Patterns

Framed View

Proximity Through Repetition
of Elements

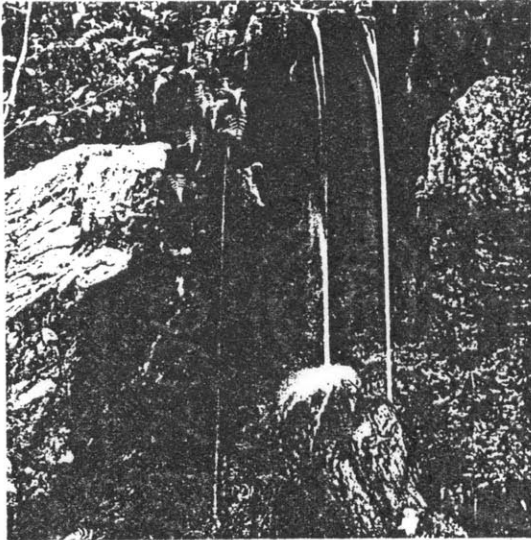
The Sound of Water

Continuity of Water (Vertical)

Fire and Water

SCULPTURE COURT Fountain

The fountain--the source of the water--can be seen from the entry court. The waterfall is the continuity between the entry level and that of the courtyard itself. In addition, the roar of the water can be heard even before the cascade can be seen.



Gold Pavillion, Kyoto 13c

Image: The Sakuteiki (Japanese treatise on garden making) summarizes the possible types of waterfalls. They include those in which the water drops off one side; in which it is divided in two parts at the top; in which the face of the fall is seen at an angle; in which it is divided into many hanging threads by numerous irregularities at the lip; and in which it is compounded into several falls or steps. The cascade is the most natural way to enjoy the beauty of water.

Trevi Fountain, Rome 18c

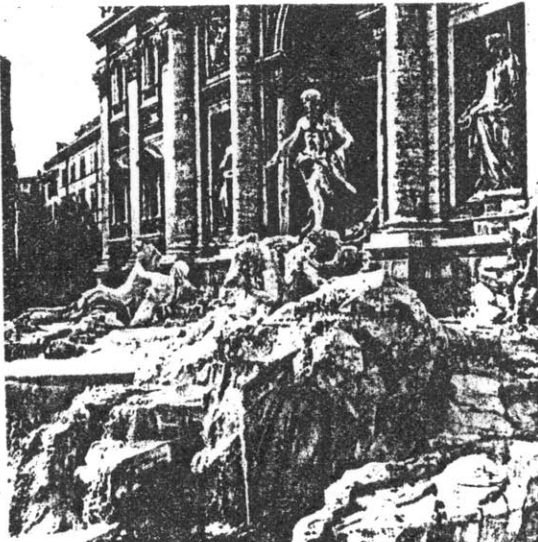
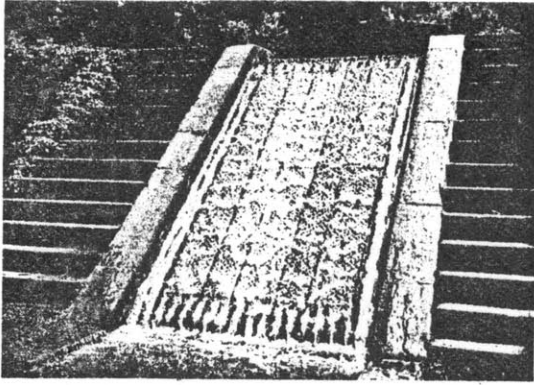


Image: It is said that the splashing of the Trevi fountain was designed to be musical. Whether there is any truth to that statement is unimportant, as the sound of Trevi is truly distinctive. Long before one actually sees the small piazza of the fountain, one can hear the roar which leads one to it. The sound, so different from Roman street noise, leads people to it.

The Sound of Water

Pattern: A most natural way to enjoy the beauty of water is by its sound. The roar of a cascade, the splashing of fountains, the gurgle of a stream. All of these calming sounds fill a space, masking unwanted noise from the outside. The sound of water can indicate a special place, leading one to it before the water is actually seen.

Design Possibilities: The sound of cascading water could be used to signal a special place before it comes into view. The sound of water could also be used to orient someone through memory: on the ground floor you see the cascade, but on the second floor gallery which is on the courtyard behind the wall, you can hear it and thus recall where you are in relation to the floor below. The splash of small fountains and the gurgle of streams masks the noises from the outside space.



Nishat Bagh, Kashmir 17c

Image: There are levels of privacy in Persian gardens. The lowers is most public. The next level is for the family and the uppermost level, the zenana, is for the women in the harem. Between each level is a cascade. All the spaces are linked and yet separated. The cascade is of a specific type--the chute is carved so that the water foams as it falls and makes intricate, lacelike patterns. Thus, the water itself has a tremendous presence.

Image: The gardens of medieval Japan were often large enough to contain distinct parts, usually of different levels. These levels were indicative of the duality of the garden as an image of paradise or zen retreat. The waterfall was both the symbolic link and the separation between them. A dry waterfall could be used interchangeably, in this instance, as it still performed the necessary link/break.

Gold Pavillion, Kyoto 14c



UPPER GARDEN

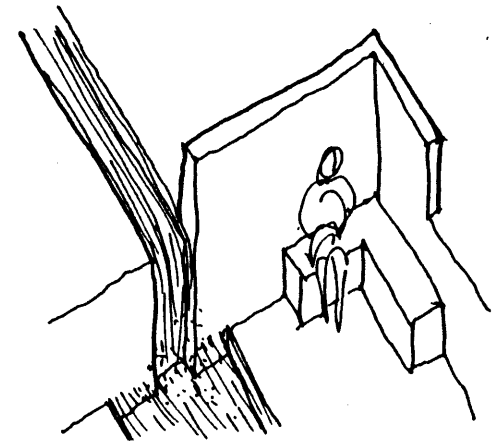
WATERFALL

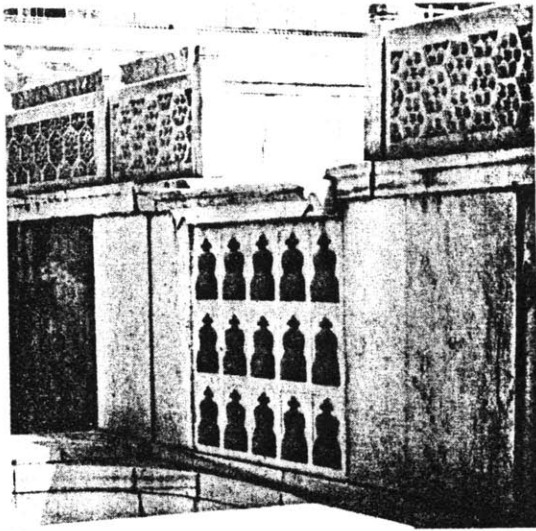
LOWER GARDEN

Continuity of Water (Vertical)

Pattern: The cascading of water is at once an edge between two spaces and a continuity between them. The level change is the definition of separation, yet the flow, the presence of water, is continuous and unifies the spaces.

Design Possibilities: In a courtyard or room that might require a part of it separated slightly, or more closely related to a side of it, there could be a level change or cascade. Classrooms could spill out to the lower court, or night time concerts.





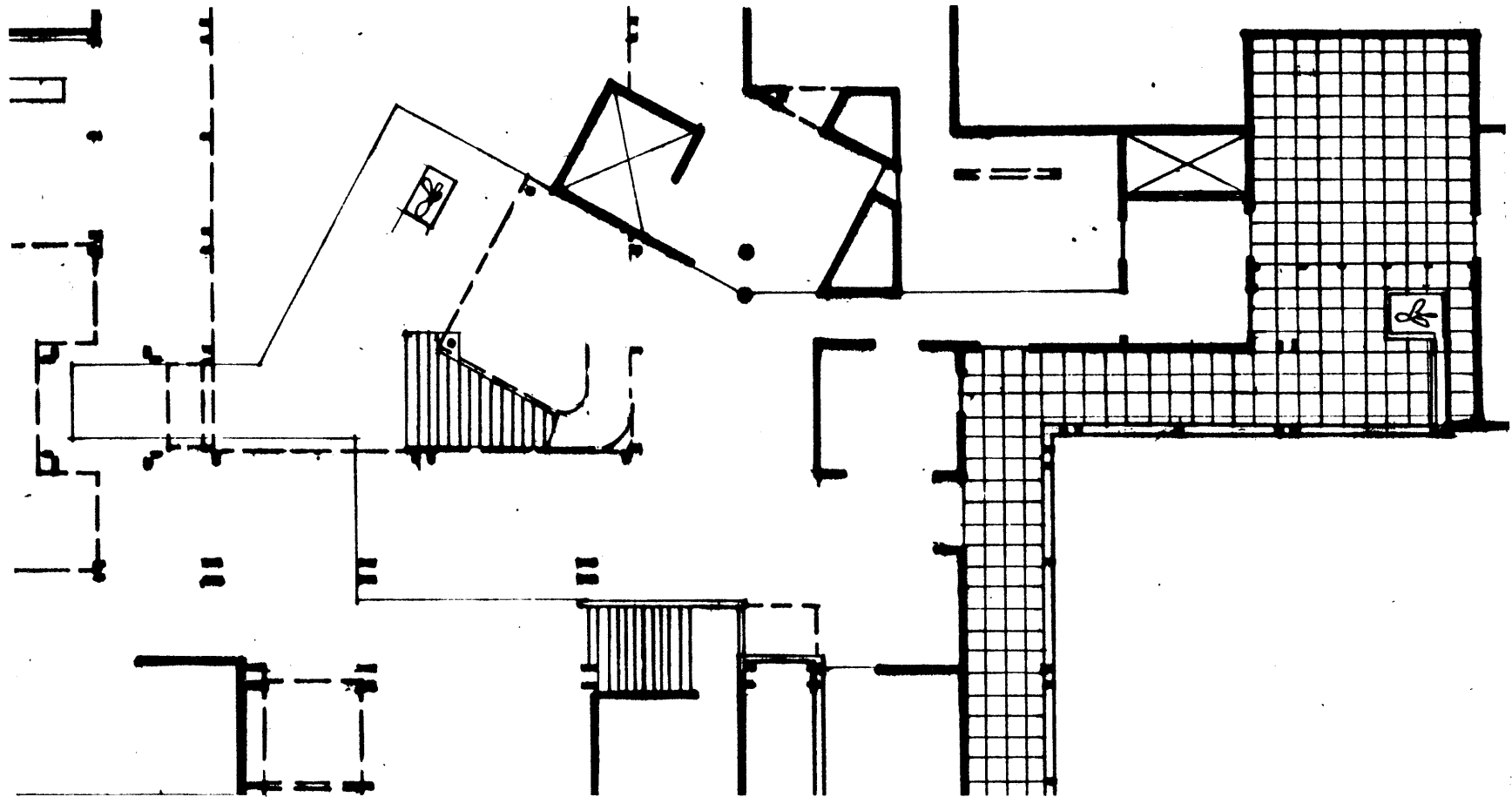
Anguri Bagh, Khas Majal 17c

Image: In Indian pools, carved niches, called "chini-kana" are built to hold flowers or candles behind a sheet of falling water. Visible through the water, both the flickering and the light of the flame are magnified. The coexistence of fire and water, independent and somehow interdependent, provides a sense of serenity.

Image: Fire cannot exist in water, though when looking at a pool with candles floating on it, this appears to happen. The reflection of the flame on the water is as near as the flame itself. This incredible paradox is quite beautiful and serene-- flames are above the water and flames are below it.

Pattern: The contrast of fire and water has fascinated many cultures. There is an inherent tension and contradiction in the juxtaposition of these two elements, yet there is also a sense of serenity in their coexistence. Each of different nature--fire illuminates, water reflects, fire warms, water cools--they can coexist, and thus, each intensify the importance of the other. As there is coexistence, and no competition for dominance, there is serenity.

Design Possibilities: On special occasions, candles might be floated on a pool. At a fountain or where there is water coming down, lights might be placed behind the sheet. Small lights would give more of a sparkling quality to the water, while larger lights would make the water glow.



FOUNTAIN

Sculpture Court

0 16

The fountain in the Sculpture Court first appears as a
FRAMED VIEW. Its presence is enhanced when that distant view is
juxtaposed with the fountain in the Entry Court creating a
PROXIMITY THROUGH THE REPETITION OF ELEMENTS. As one draws near,
the SOUND OF WATER indicates the presence of the cascade which
utilizes the CONTINUITY OF WATER (VERTICAL). From the ground
level in the courtyard are lights twinkling behind the waterfall,
FIRE AND WATER.

Patterns

Light and Sparkle

Tree as Column

Cycle of Nature

Color

A Place Under a Tree

Stepping Stones

Bridge

SCULPTURE COURT
Lobby

The water from the upper level falls into a large pool. This pool forms one edge of "lobby" to the court. Stepping stones and a bridge connect this space physically. The row of trees also act to separate this area from the rest.



Court of the Myrtles, Alhambra, Granada 13c

M.I.T. Chapel, Cambridge 20c

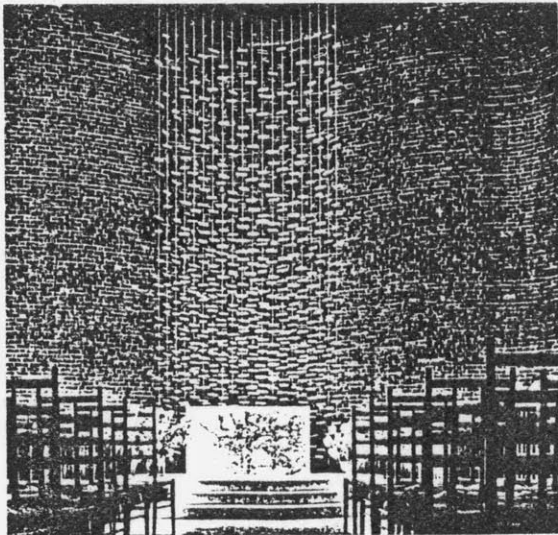


Image: When the sunlight hits the water it is reflected into the arcade at the end of the pool in the Court of the Oranges in the Alhambra. Because of the slight rippling of the water, the light is scattered. The faceted surface of the walls and ceiling accept this reflection in an extremely rich and vibrant way.

Image: The brass sculpture inside the MIT Chapel was designed to catch and sparkle in the light reflected off of the water at its edge. The sculpture is faceted and shimmers and vibrates in the light.

Light and Sparkle

Pattern: As water reflects the light, it will cast on nearby surfaces. In nature, this is often seen as the dappled sparkle of the water under a tree and the highlighting of the underside of the leaves. Even if the source of light is obscured, its presence is strongly felt. One need only see the play of light on the leaves to understand where there is water, light and color--a truly special place. The special quality of the light on the leaves is the only clue.

Design Possibilities: There are two ways to break up the reflections of light to achieve this intense sparkle. First, the light may be broken up before it is reflected in the water, so that it becomes many tiny lights. A leafy tree, a trellis, a small paned window or screen filter light in such a way. Alternatively, the light could be reflected onto a faceted, highly textured surface.

The surface which catches the reflection might be visible at the end of a path or through a window. As the surface sparkles, it draws people to it to see what is special about that place.

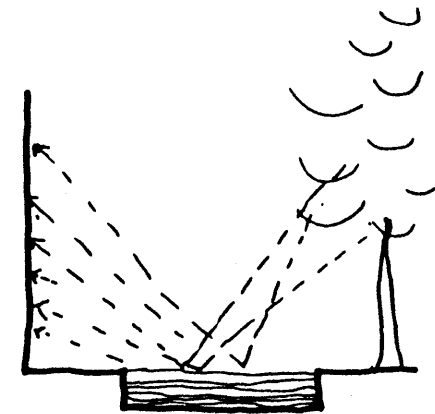
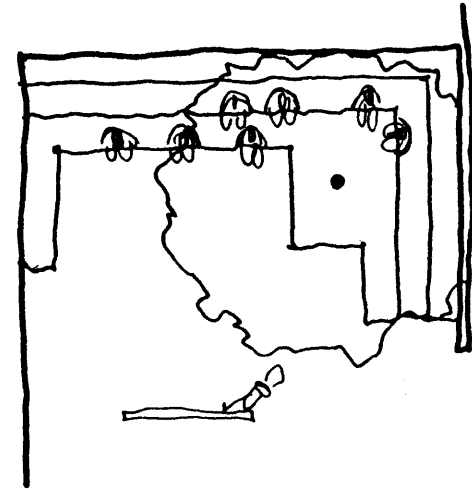


Image: The shelter of a tree has great importance in the Buddhist philosophy. As the tale goes: There once was a prince who was sheltered from all evil and suffering in the world. He accidentally found about all of life's ugliness and he became distraught. He left his palace to seek ways of preventing these evils. For a long time he sat in thought, sheltered by a giant fig tree. Suddenly, great intuitive understanding came to him and he became a teacher--a Buddha. The fig tree has come to be known as the tree of enlightenment.

A Place Under a Tree

Pattern: The most basic form of shelter is the protection provided by the umbrella of a tree. The branches above are the roof and define a space below, a place to escape from the sun or the rain or to listen to leaves flutter in the wind. It is alive, growing, and as such has a quality distinct from shelters made by man--it has a past, a history, which gives it a sense of permanence; yet it is very ephemeral as it contains life.

Design Possibilities: A large tree near a classroom--in nice weather the class can meet outside under the tree. A tree near a path as a place to sit and relax.





Katsura Imperial Villa, Kyoto 17c

Image: The stepping stones in Japanese tea gardens create a path through a bed of moss or through water. They create a continuity where none is possible without them. Both the aesthetic and the functional placement of the stones are important.

Shalamar Bagh, Kashmir 17c

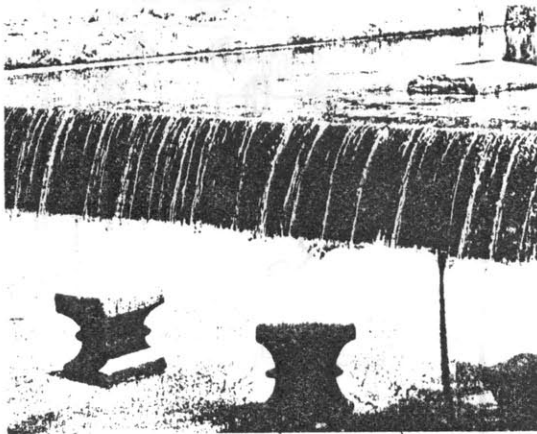
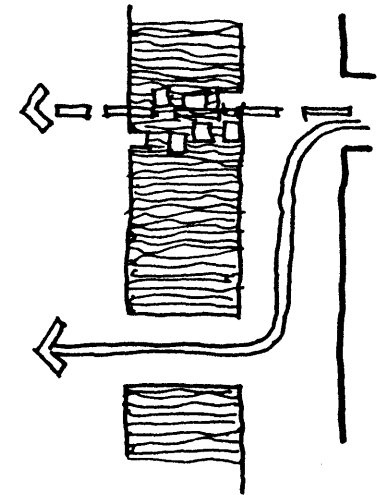


Image: In India, viewing platforms are placed in order to take advantage of the most heightened experiences the garden or courtyard can offer, sometimes placed at an edge of a terrace in the water before a waterfall. In this seemingly precarious position there is an extended view, the splash and roar of the water and the sensation of being upon an edge. This sense of danger is heightened by the path of stepping stones. Though ample in size, the interaction with the flowing water is very intense, and hence, precarious.

Stepping Stones

Pattern: It is possible to cross water along stepping stones. They are extensions of the elements of earth and stone into the water. They may be difficult to traverse, they dare you to try. They suggest connection rather than directly provide such a link.

Design Possibilities: Stepping stones are an extension of elements of the shore. Stepping stones to imply a connection at a point where such a connection would be wanted (at a place where you could see another space) though the actual connection would be at another place.





Katsura Imperial Villa, Kyoto 17c

Image: A traditional Japanese garden bridge is an extension of path over water. A bridge at the end of a stone path is made of large smooth stones laid end to end and supported by stones in the water. By treating the bridge in this way, it becomes a continuation of the path. This continuity of the material of the path or shore onto the bridge indicates man's intervention in the natural landscape as one working with nature. From here a distant site or waterfall may be afforded its best view.

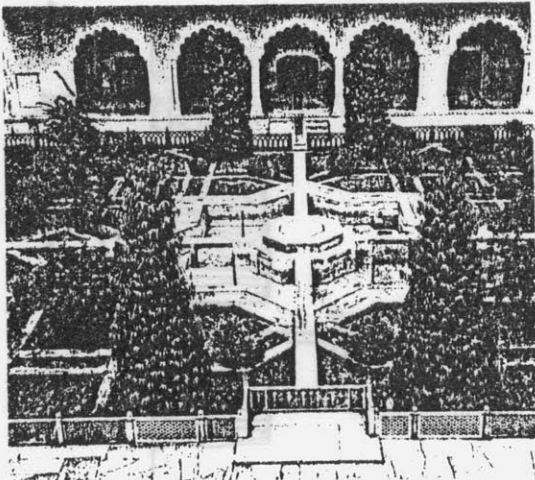
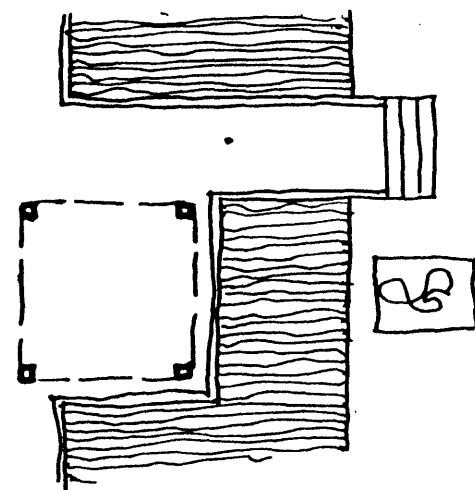


Image: Viewing platforms are found in most Indian courtyards and gardens. They are usually in close proximity to water, the better to benefit from its cooling effects. Sometimes they appear to float on the water, reachable only by small bridges-- both a symbolic and physical isolation. These bridges are extensions of the ground plane over the water to the platform.

Pattern: The ability to walk along the water's edge provides a strong link between places. However, the need to cross places a greater barrier between them. The bridge, the object which breaks this barrier, should be treated as a piece of the whole. In treating it as such, the bridge becomes an intervention in sympathy with the environment, rather than as an intrusion upon it.

Design Possibilities: The bridge as a link; a dimension for walking; maybe an extension of paving. The bridge can be widened to allow for lingering. There could be a pavilion or a place from which there is a special view. For example, a fountain or statue.

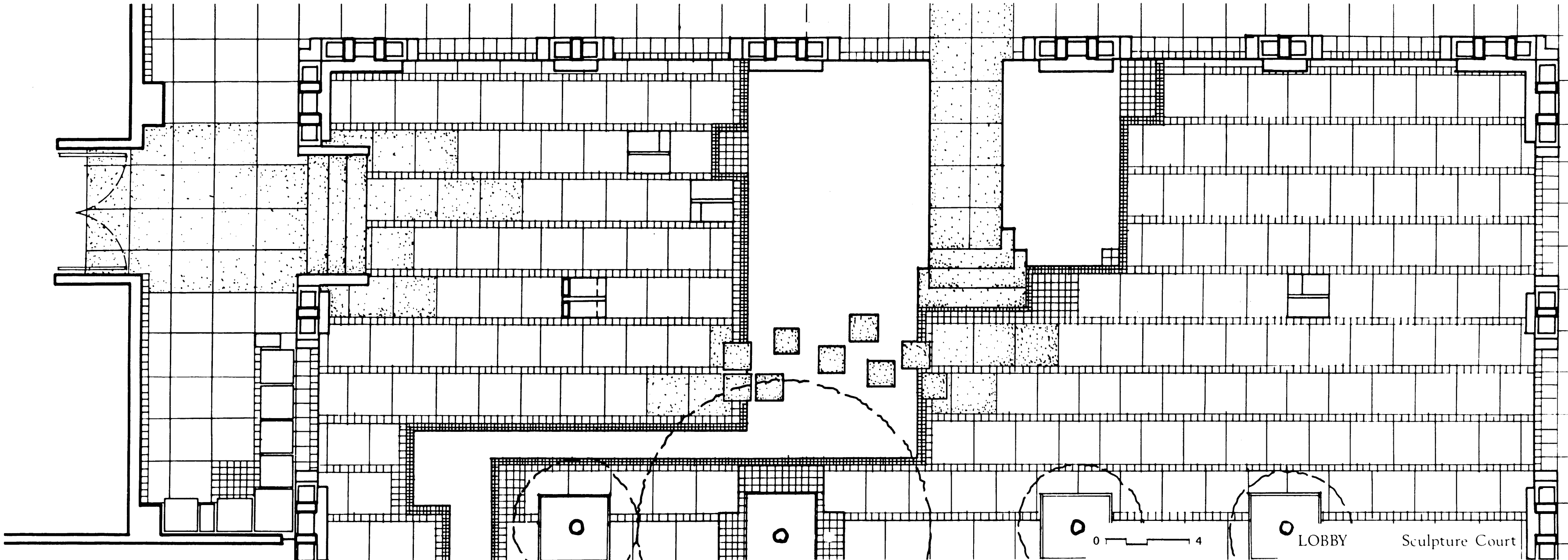




LOBBY Sculpture Court

As the light is filtered through the leaves of the red maple, the water of the pool becomes dappled and the light is reflected back up to the underside of the leaves. The LIGHT AND SPARKLE can be seen from the upper floor, indicating the presence of the pool below. The row of trees, TREES AS COLUMNS, echo the arcade and define a space on the side of the large, exhibit space. There are three Italian cypresses--tall, thin, coniferous--and a red maple--low, broad, deciduous. As the trees are of different species, emphasis is placed on the juxtaposition of tree and column. The CYCLE OF NATURE is apparent as the maple changes color, loses its leaves, and finally buds again, while the cypress continue simply to grow. Because of its COLOR, there is a special PLACE UNDER A TREE of the red maple.

The pool forms one edge to the "lobby" space of the Sculpture Court. From this lobby are STEPPING STONES making the connection to the larger space. From the arcade, near the side of the grotto, is a BRIDGE which also connects the arcaded circulation and that special space to the exhibit space.



LOBBY

Sculpture Court

Patterns

Reflecting Pool

Final Pool

Light and Sparkle

Water's Edge

Receptacle

Juxtaposition of Elements

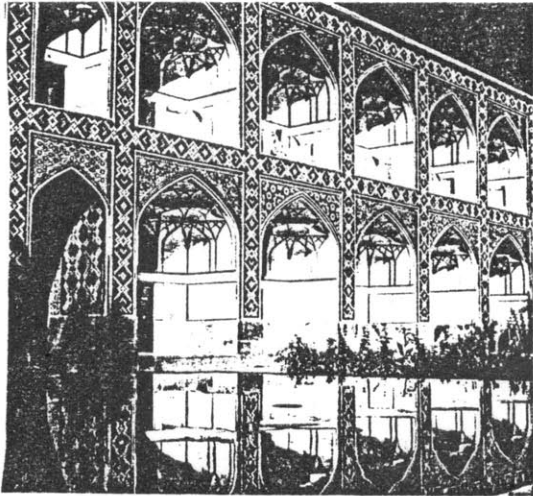
Continuity of Water
(Horizontal)

The Sound of Water

Cycle of Nature

SCULPTURE COURT
Final Pool

In the lower level of the Sculpture Court, the water terminates in a final pool.



Friday Mosque, Isfahan 15c

Hadrian's Villa, Tivoli 2c

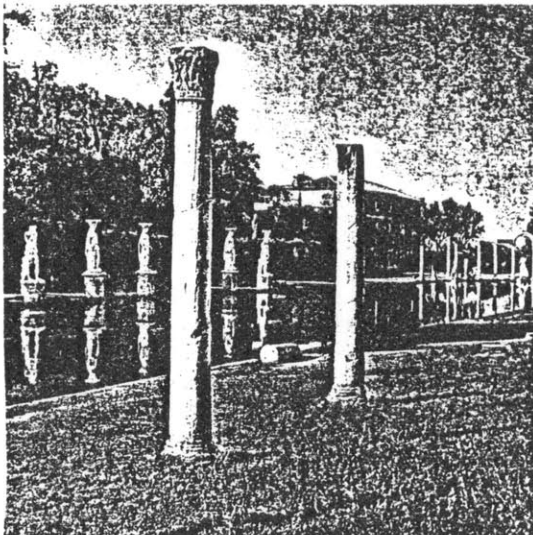


Image: The medersa, Islamic theological seminary, is usually built around a courtyard. Three of its sides contain the student's rooms and the fourth is the entrance to the mosque. In the courtyard is a pool of water for performing ablutions before prayer. This pool is finished in either dark marble or blue (and sometimes green) tile. The dark finish causes the surface of the pool to reflect the surrounding walls of the courtyard and the sky above.

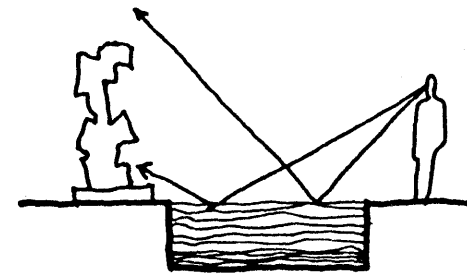
The courtyard is the preparatory space before entering the mosque; the place in which to change one's frame of mind to that necessary for prayer. It is a contemplative space. The pool of water does more than provide for the ritual physical cleaning, it provides also for the cleansing of the soul.

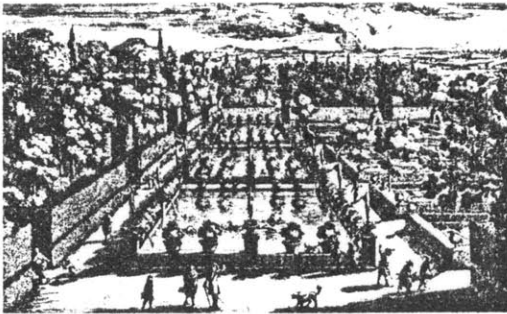
Image: The Canopus is the most picturesque spot in Hadrian's Villa. The large pool holds an unending series of images as one strolls along its edge, from the statues and columns so carefully placed, to the swans in the water and the everchanging sky and trees above.

Reflecting Pool

Pattern: Still water is reflective. It is at once a mirror, something whose life is dependent on all that is around it, and an environment with a life of its own. It is a quality which has always fascinated man. It is as deep as the wall it reflects and as shallow as the coins at its bottom reveal. It is as limitless as the sky it contains at one's feet. It is a place to lose oneself in thought.

Design Possibilities: The simple laws of reflection make it possible to plan the reflections on water from different places. In this respect, it is important to remember that water behaves like glass--only the images that have more light than the space behind the surface will actually be reflected. Therefore, it is necessary to design the pools with dark finishes in order to assure reflection. At certain places, the reflection of elements can be framed in the water.





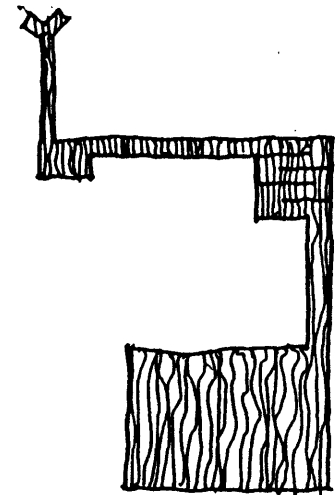
Villa d'Este, Tivoli 16c

Image: At the end of the incredible play of fountains, chutes and sprays that occur in the Tivoli Gardens are the fish pools. In contrast to the magnificent display of the water as it traverses the garden, the water there is still. It is the final collecting of the water.

Final Pool

Pattern: The end of a sequence of water should be a pool, not a well or drain. The channeling of water is likened to the natural cycle of water from stream to river to ocean and back again. The destination, the final goal is a positive place. There is sense to the sequence. Aside from the pessimistic image that water swirling down a drain leaves, it also is not an end to the cycle. It is merely another place of change, no different from other changes of level or form except in its negative connotation.

Design Possibilities: Pool at end of water run.





Hyo-tei Restaurant, Kyoto n.d.

Image: Often in Japanese gardens, stones are placed in the water of a pond lying only inches below the surface, or carp are let swim in a pool. The reason for this is that the appearance of something just below the water's surface will appear clearer to an onlooker, making the water, by comparison, seem quite deep. This intensifies visually the water/land edge--the solid land and the bottomless water.

Shalamar Bagh, Lahore 17c

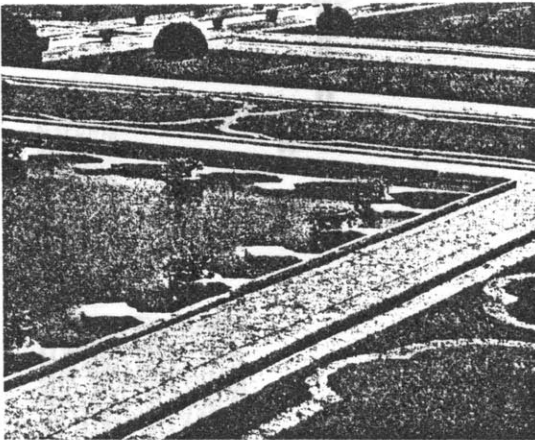
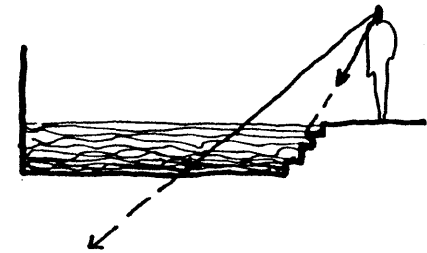


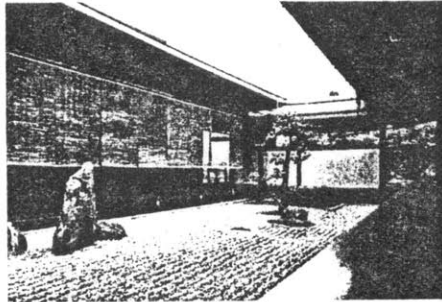
Image: The encroachment of the ground upon the water contrasts the nature of both elements. Peninsulas at the edge of pools in India are of extremely complex form and either support a basket of flowers or of candles. The water doubles both. Still water has no shape except that of its container. No matter how intricate the form, the water fills it to the edges. Moreover, by its very nature, water is not associated with the ability to support, as is ground. Yet the reflection of the candles or of the flowers is a real presence. Thus, the water has taken a shape and an image which contrast with those of the ground.

Water's Edge

Pattern: The place where water reaches the ground edge is a point of tension. There can be no greater contrast. Much attention will be focused on this point. Advantage should be taken of this juxtaposition of opposites, thereby exploiting the qualities of water and ground.

Design Possibilities: Positive interlocking of the water's edge and ground. A peninsula jutting into water--a place for statue, tree or person.





Daisen-in, Kyoto 16c

Image: The composition of stones in a Japanese garden is guided by the stones themselves and by how their shapes can add to a larger concept. The symbolism is the arrangement. There are five types of symbolism:

- Natural - elements which form waterfalls, islands, open fields, rocky beaches, forests
- Wood - the abstraction of ideals--severity and fortitude, peace and stability
- Idea - religious or world symbols
- Spiritual - the spirit of calm, of vigilance--acknowledgement (positive and negative) of form
- Melodic - high and low, strong and weak, gradually reaching a climax*

Attarin Medersa, Fez 14c

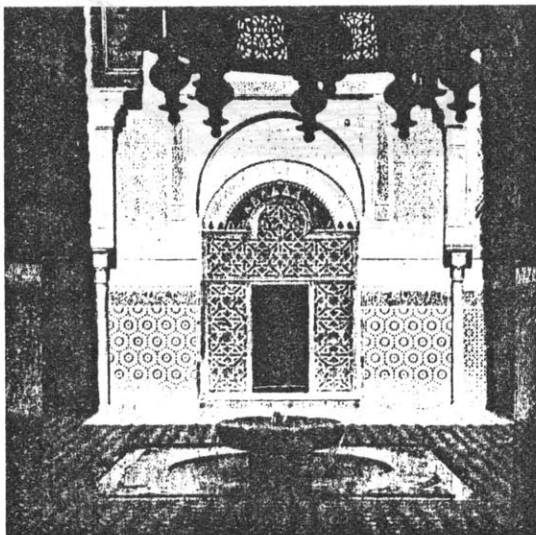


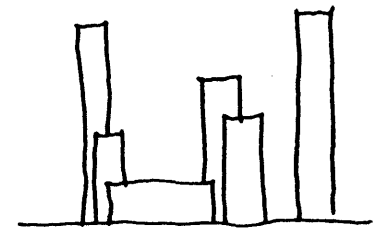
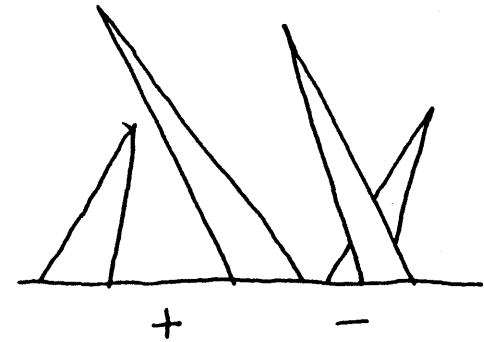
Image: In the Attarin Medersa, the placement of the water basins, and the two basins themselves, are an exercise in composition. Both are shaped like lilies--the one in the center of smooth black marble, the one under the arcade of rough white stone. The center basin contains running water, which appears to have smoothed the stone. The constant flow equals the drying effect of the sun on something so unprotected. As the other basin in the shade is protected from the sun, the still water--filled to the brim--is appropriate.

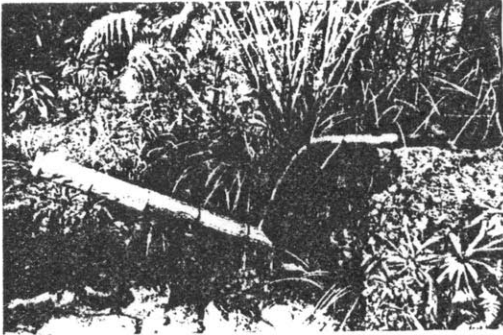
* Siato, Katsuo and Wada, Sadaji Magic of Trees and Stones: Secrets of Japanese Gardening.

Juxtaposition of Elements

Pattern: The placement of elements in a space should always be guided by a harmony. Every element commands a territory, a field. The placement of even two in proximity means an interaction of the fields. Each field should positively reinforce the other. There should be a guiding principle in their juxtaposition--a relationship between them. Without this there is no reason for the placement and no possibility for understanding.

Design Possibilities:





Shisen-do, Kyoto 17c

Image: In Japanese gardens, water is used to measure time. As the water drops into the bamboo, it fills and tips. Then the water pours out, the bamboo falls back into place with a clang. The ringing becomes a measurement of time, like the flow of water. Its cycle is consistent. It makes one aware of its presence and its continuance beyond time, when one leaves and before one came. It provides a continuity with time.

Narenjestan-i Qavam, Shiraz 19c

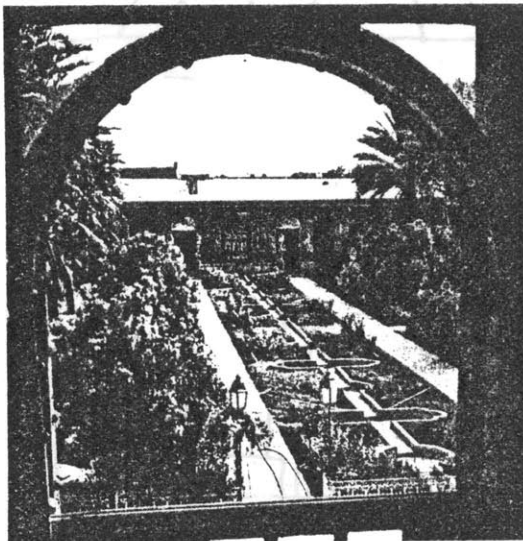


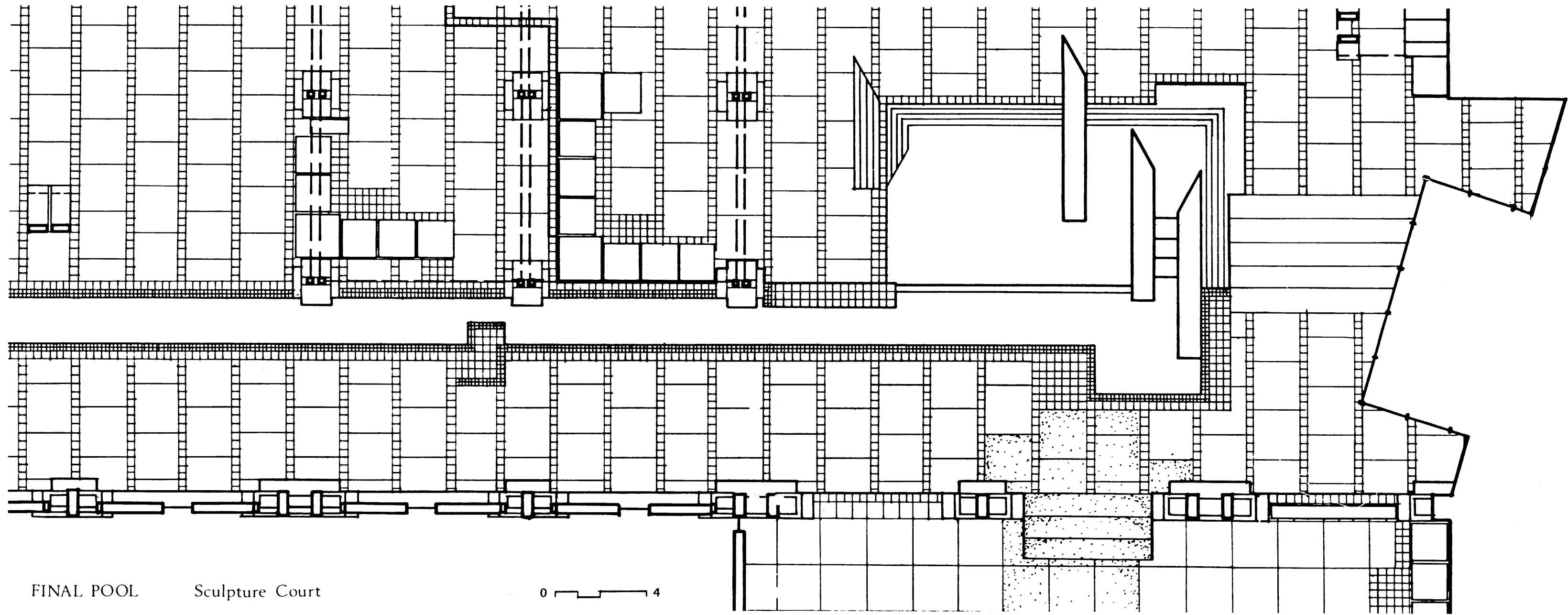
Image: The cycle of water from stream to river to ocean is directly expressed in the layout of waterways in the Islamic garden. This mirroring of the natural cycle is used as a connection to the infinite. It sets up a system recalling a much larger order.

Pattern: Time is measured in cycles. When the presence of these cycles is made explicit there is an accompanying awareness of the passage of time. This awareness extends beyond the present as do the cycles themselves, into the past and future.

Design Possibilities:

Water clock.

Sundial



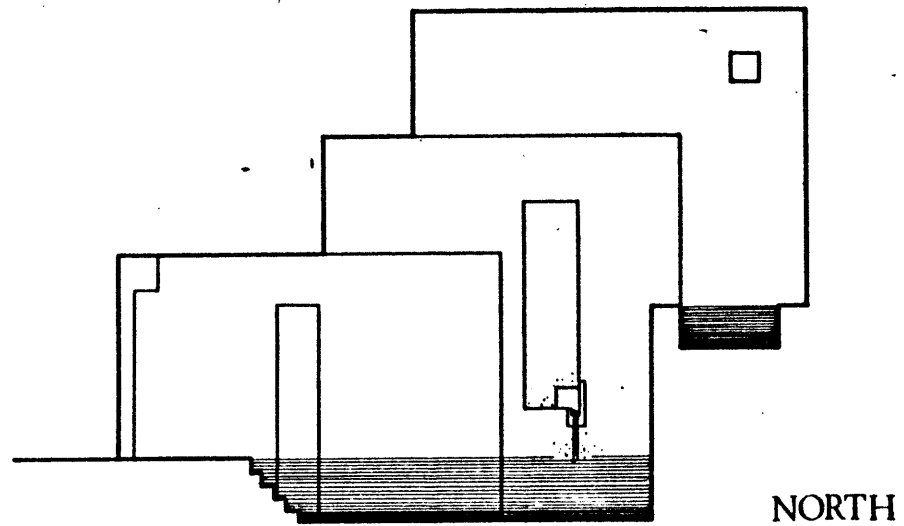
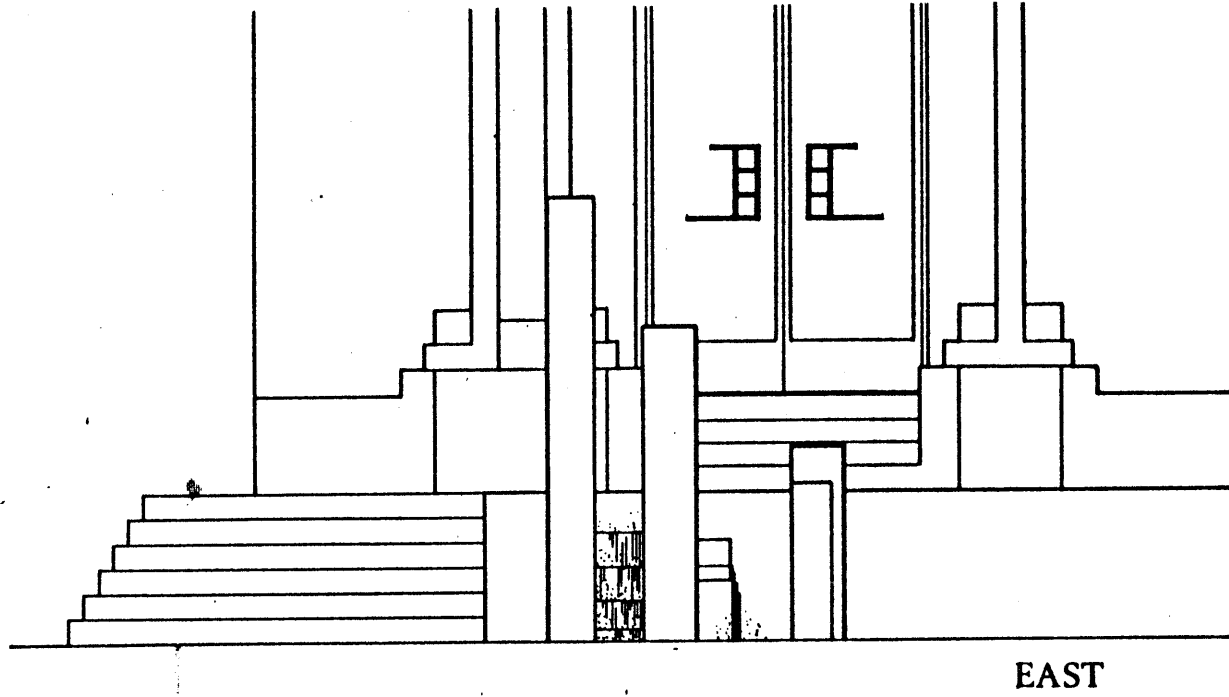
FINAL POOL

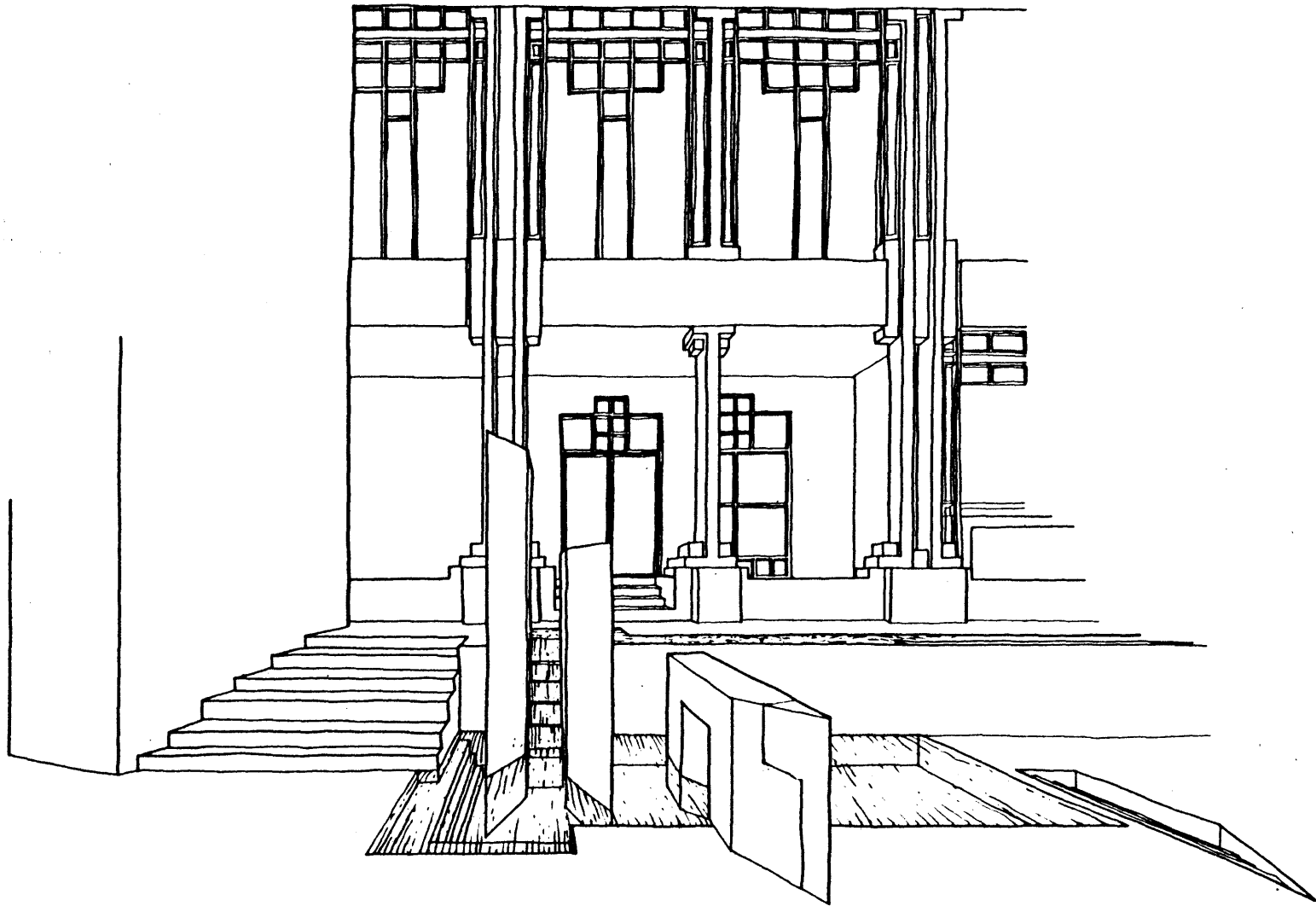
Sculpture Court

0 4

The REFLECTING POOL on the lower level of the Sculpture Court is the culmination of the water's flow, the FINAL POOL. The water reflects the light onto a roughly textured wall behind it creating LIGHT AND SPARKLE. The three "walls" are also reflected in the water, thus doubling their height. Since, at the WATER'S EDGE, the small steps accentuate the shallowness of the edge, the pool appears quite deep inside. On one side, an empty stepped form--the negative of a "wall"--contrasts with and heightens the fullness of the pool--RECEPTACLE.

The JUXTAPOSITION OF ELEMENTS in the positioning of the three "walls" is one of tension and surprise. The walls have direction and seem to be pulling in different ways. The tallest wall hides one from the cascading water, CONTINUITY OF WATER (VERTICAL), though one can still hear the SOUND OF WATER. The lowest wall actually bridges onto the land. The inlaid bronze at its point is seductive--it is only natural to want to touch it. And as more people do this, the bronze will slowly round, registering all who have come in a CYCLE OF NATURE.





FINAL POOL Sculpture Court

APPENDIX

For the purposes of this thesis, the program used for the museum was derived from the existing program of the William Hayes Fogg Art Museum and the program for its proposed addition.

Galleries:

Ancient Art	2,500
Islamic Art	800
Oriental Art	5,750
Sculpture (19 c.-present)	2,650
Prints, Drawings, Photographs	1,160
Temporary	<u>2,600</u>
Total Gallery Space	15,460 square feet

Curatorial:

Ancient Art	1,330
Islamic Art	600
Oriental Art	1,986
Prints	2,060
Drawing	2,060
Photograph	1,110
Prints, Drawings, Photographs (Shared)	950
Reception	<u>300</u>
Total Curatorial Space	10,396 square feet

Service:

Administration	923
Sales	320
Friends of the Fogg	220
Archives	481
Superintendent	4,807
Photography	1,206
Public Relations	120
Conservation	3,030
Building Service	319
Storage	<u>574</u>
Total Service Space	12,000 square feet

Teaching:

Large Lecture Hall	3,000
Small Lecture Hall	1,000
Classrooms	<u>1,500</u>
Total Teaching Space	5,500 square feet

Offices:

20 Offices	3,300 square feet
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Library:

Visual Collection 5,300

Photographs & Slides 2,200

Circulating Books 4,000

Stacks/Storage 18,500

Total Library 30,000 square feet

Total Museum: 76,700 square feet

Abundance	74
Arcade	30
Balcony	32
Bridge	114
Built Extension	34
Color	56
Columnar Rhythm	82
Continuity of Water (Horizontal)	68
Continuity of Water (Vertical)	100
The Coolness of Water	70
Cycles of Nature	76
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