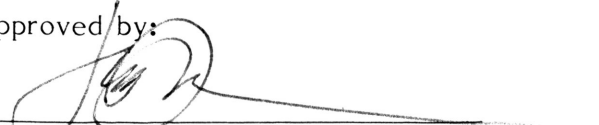Function in Four Architects: The Changing Attitudes

by

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Abstract

Function in Four Architects: The Changing Attitudes

Stuart E. Campbell, Senior at Texas A&M University, Texas A&M University
Undergraduate Fellows Program. This thesis describes several of the aspects
of the relationships of Function in Architecture. It includes the inference
of four individual architects and the use of function in their respective works.
The report summarizes many of the aspects and patterns which develop in
the relationship of function to architectural expression. It concludes with
a basis for the general understanding of the current movements in contemporary
architecture.

Acknowledgement

The author greatly acknowledges the direction and guidance in the research and development of this paper provided by Joseph Mashburn, assistant professor in the College of Environmental Design at Texas A&M University.

List of Illustrations

Function in Four Architects: The Changing Attitudes

In the world today, it is almost impossible to escape the effects of the built environment. We are constantly exposed to the historic architecture of the past, and the new or revised elements of contemporary architecture. Due to this exposure, we are subject to architectures' influence, and eventually the judgement and criticism of the whole. This judgement and criticism have been around since the very origins of architecture and its ideas. One can imagine the very gradual influence and development from the first sheltered dwellings up to the monumental gothic catherdrals. It is clear that the latter relies upon the developments and revisions of the first, both in thought and building technique. We can also notice that the developments were culminated over centuries of use, experimentation, and spreading of knowledge.

Today, however, an object or shift in architectural expression can happen very rapidly. Through the use of the modern media, an object can be written about, judged, published, and distributed throughout the world before the final object is complete. The constantly changing shifts become hard to follow and understand if we simply observe the latest article on 'new trends in architecture'; therefore, to understand current architectural directions more completely, we must search beyond the impetuous media results. We must look back and under- stand the developments and goals of contemporary architecture, and the work in which it is attributed.

Contemporary architecture has been subject to many influences in the recent past. It has been exposed to new ideas and developments, as in the machine age and the advancement of the computer. It has also been subject to the changing effects of man, such as the two World Wars, and the demand for instantaneous knowledgable information. The architectural emphasis has responded to all of these stimuli through rapid development and quick overturn of ideas. We could study each of these changes. However, this would become so expansive that many directions would become repetitious, while many other pertinent aspects of development would be missed. To understand the changes in recent architecture, four of its most dominant and influential moments have been investigated for both contrast and comparison.

These four periods in contemporary architecture, for clarity and precision, have been researched through the inference of a main or predominant architect as its philisophical representative. Each architect either had or has presently, a

a major influence in one of these four phases. They are used not to represent the entire period, but offer insight into some of the concepts of that time. The periods range in era from post World War I to the present.

The periods which were selected have been used to express the changing attitudes of the use of function in architecture. They encompass a full spectrum of ideas that emphasize many of the different attitudes on its use and application. To further this understanding, only the purest expressions of each architectural representatives have been stressed. Each of the expressions which has been used professes a clear position of the architects role of function in architecture. These representatives are Walter Gropius, Louis Kahn, Robert Venturi and Peter Eisenman.

The earliest period represented is the Bauhaus era, which became a driving force in the modernist movement. To understand the thoughts and developments of this time, which began to surface around 1914, the writings and teachings of Walter Gropius have been analyzed. Gropius (Fig. 1), who was born in Berlin, Germany on May 18, 1883, is given credit for the founding and direction of the Bauhaus. He made full use of the new materials and construction methods made available to him through the developments of the machine age. Gropius stressed the use of new technology, his belief in colabrative design, and the development of standardized forms through the Bauhaus until his resignation in 1928. Afterward, he continued to be a major force for this aesthetic until his death in 1969.

The next major period to be studied developed in the late 1950's with the influence of Louis I. Kahn (Fig. 2). He was born on the island of Saarana, Estonia, but emigrated to Philadelphia in 1905, at the age of four. Kahn's success came late in his career which spanned barely fifteen years. However, as Mitchell B. Rouda states in Contemporary Architects "The architecture he (Louis Kahn) produced and the philosophy he professed, have had a monumental impact on the development and redirectioning of progressive design."[1] Kahn's humanist approach did not rebel against the new technology, materials, and aesthetics that had been created, but allowed greater artistic advancement and the belief in redefining the essence of the institutions of man. This belief was carried through architectural thought even after his death in 1974.

Closely following and coinciding with the Kahnian era, the third period arises. It emphasizes the pop art and pluralism that developed in the 1960's and 1970's. This period has been expressed by Robert Venturi (Fig. 3), one of

Figure 1 - Walter Gropius

Figure 2 - Louis I. Kahn

its most prominant architects, Born in 1925 in Philadelphia. Venturi established himself as a leading force in the architectural direction of the 1960's. He helped to "redefine the territory of architecture by emphasizing issues such as history, language, form, symbolism, and the dialects of high and pop art."[2] Today he still relies on the complexities and contradictions in architecture, and emphasizes the use of ordinary things in artistic composition.

The final period to be looked at will be labeled under the heading of post modernism. It is a new theoretical base, being developed at the present time, which changes the humanist relationship of form/function to a relationship of the evolution of form itself. This period has been researched through the insights of Peter Eisenman, born in 1932 (Fig. 4). He is active as an educator, author, critic, and builder of architecture. In Eisenman's approach to architecture, syntactics is stressed, which is the study of the relations of signs to one another, in abstraction from the relations of signs to one another or to interpretors. He has developed an architecture that tries to conceive space in new ways, reduce the concern for function, and attempt to unload the existing semantic.

Each architect has been researched through the aspects of how they deal with the problem of function, because function is a fundamental element in virtually every aspect of architecture. It becomes the basis for critiquing and understanding architectural elements and their invisionaries. It, however, is an aspect that few architects handle in the same manner. In once circumstance, function can be dealt with solely as a programmatic concept. This is to say, "Function implies what's going to happen in their building. It concerns activities, relationship of spaces, and people -- their number and characteristics."[3] These abstract ideas are developed into a matrix of information, which composes a document that will direct the relationships of the physical solution. In contrast to this, function can be seen as the purifying element in an architectural expression. This can be explained by letting the various design media's be incorporated to form the function. Thus, the cliche' "art for art's sake", can be the very function which the work embodies. Since one word can carry such a vast assortment of ideas in architecture, and each architect clearly expresses its use through a full spectrum of application, it becomes the reference point to contrast and compare the various architects and their works.

Figure 3 - Robert Venturi

Figure 4 - Peter Eisenman, Self Portrait

Concentrating on the functional aspects of each architect, both their design process and their priorities of design have been followed. This includes not only the theory behind the design and the initial concepts of the building, but also art, the symbolic or expressive meaning, the role of technology and culture, the materials, the effect of the era, and the user requirements have been inquired about. Each of these elements was then logically examined to find a common developmental path which links them together.

Acknowledgement of References

The information collected for development was obtained from a wide
assortment of diverse sources. Full use was made of the resources housed
in, or made available through Texas A&M and various other universities in
the Houston area. The data has been found in numerous published articles
and speeches, in books, and in current periodicals and journals. It also consists
of material gained from personal contact with knowledgable professors, and
lectures given by them or visiting critics discussing related subjects. The
final area of information consists of slides, graphs, technical drawings, photo-
graphs, and renderings meeting the criteria.

Each of the sources found was developed through the use of several
different interpretations of the data. The purpose was to develop a full
assortment of knowledgable information to complete a full understanding
of each architect's theories and applications. The first interpretation follows
the views of the architect. It includes what the architect said about his design
theory, what he said he would accomplish in the final product, and what he
said he eventually developed in the final product. The second interpretation
was derived from the views of respected architectural critics. This encompassed
the views which the critics expressed in reference to what the architect
said he would accomplish, and their views on the architect's final design and
design theories. All of the data was then collected into a logical diagnosis
and applied to the functional relationships responding to this paper.

Discussion of Function

Before the major emphasis of the paper is generated, a common overview of function is needed. Function, as mentioned earlier, includes more than one simple application. When following the functional aspects, relationships, and applications of architecture and its philosophy, Webster's definition is incomplete. Function goes beyond "the natural or proper action for which a person, office, mechanism, or organ is fitted or employed."[4] Function also deals with more than the humanistic approach which has developed over the recent past: it surpasses the user needs or man's relationship with the system. Function develops into a vast array of expression, for which new aspects must be considered.

The new aspects of understanding function are very broad. They include such subjects as the contextural aspects or regional expressions in architecture. This is where function is developed through the relationship of a building to the street, or an architectural object to nature or to the area. The various design disciplines can also become a functional aspect, whereby, if art or sculpture is expressed, the balance and composition can become the function that it embodies. Another aspect can be expressed in the business considerations. This incorporates using new business applications (technology, mass production, or new materials) to meet a budget, which in turn, can be viewed as a function. Finally, function can be expressed through a religious base. This is when a metaphysical expression or an unknown inherent nature is trying to be realized. These facets of function become essential in the understanding of the ideas expressed in the following text.

The first aspect which was considered dealt with the functional relation-
ship to the era. This, in fact, is one of the links each of the architects has
in common. All of the architects (Gropius, Kahn, Venturi and Eisenman) were,
or are, a type of expressional mode reflecting the period in which they practiced.
This was not to list them as a reaction to an event, but to reference them
into a progression of architectural development. The development branches
from discoveries, inventions, questions and the realization of certain answers
to the problems arising, during the corresponding times and preceeding eras.
The applications of these developments began to function as one of the means
of expression of an era. Each architect, hence, became a necessary link to
the functional development of the architectural expression of the time.

The first era which had been looked at was post World War I. Following
the war, an economic strain developed with the influx of workers and the
shift away from military productions in various countries. This, however,
was also the age of the industrial revolution and the development of new tech-
nology and ideas. Of these ideas, one of the most prominant was that of
a sense of unity. It developed because the effects of the war were not wished
to be repeated. The 'sense of unity' was to be expressed throughout the world,
using the new technical advancements as a tool. Architecture was to be used
to advance these ideas into a physical reality. In response to the newly created
goals, architecture began to demonstrate radical changes in expression.

Walter Gropius became, through the architectural expression that devel-
oped in the period, a major influence in the communication of this idea. He
tried to serve this new type of society with a profession that incorporated
its developing ideas. Gropius stated that, "the old dualistic concepts of ego
in opposition to the universe is rapidly losing ground. In its place is rising
the idea of a universal in which all opposing forces exist in a state of absolute
balance."[5] The architecture which he developed tried to reflect this. (Fig. 5)

The application of the concept of unity in architecture was to be
expressed through the developments of the industrial revolution. As later
stated by one of his students, "He constantly investigated the great potentialities
of industrial society and showed us how to assimilate them into our everchanging
needs."[6] Gropius took these advancements (standardization, structural grid,

and new materials) and let them express something that broke from the classical orders. As Gropius said, it is "simply the inevitable logical product of the intellectual, social, and technical conditions of our age."[7]

Gropius hoped that these conditions would create a healthy, organic unity throughout all aspects of design. From design, typical cast-type forms would develop. The creation of these standard forms, Gropius believed, "is not a hinderance to cultural development, but on the contrary is one of its prerequisites. A 'type' represents the pick of the best; it eliminates the incidental and emphasizes instead, the essential and impersonal."[8]

The standardized forms that were developed however, did not express his aspirations. They fell short of exemplifying the spirit of unit in a utopian idea. The forms and buildings began, instead, to become the decoration of a clearly non-utopian present. Questions arose to the validity of the buildings that were developed, since the aesthetic became the reflection of the forces that made it, and not of the architecture or ideas that it was derived from.

When the mode of architecture began to be questioned, a reactionary period of architecture surfaced. This was a period of unrest and commentary in the profession of architecture. It was classified by "Camp" style, or reactionary, architecture. After this period, a new expression arose that offered insight to explain the direction and aspirations of the epoch. The development was created through the insights of Louis I. Kahn.

Louis Kahn created a fresh alternative to the uniformity in design that had been created through contemporary architecture. Kahn did not give up social and economic conditions, new construction techniques, or new material technology in his architecture, although, he did emphasize other aspects. These aspects were derived from the questions of his epoch.

During this time of corporate anonymity and bureaucratic banality, questions arose about the very nature of the institutions that surrounded the people. The institutions of man, as defined by Kahn, "stem from the inspiration to live... The three great inspirations are the inspiration to learn, the inspiration to meet, and the inspiration for well being."[9] The institutions of this time, however, had lost these inspirations and become solely a collection of rooms.

Kahn sought to eliminate the type of a building that had no inspiration. He wanted to re-examine the program in order to develop institutions that went beyond the external needs of man. Kahn believed that "One of the great

lacks of architecture today is that these institutions are not being defined, that they are being taken as a given by the programmer, and made into buildings."[10] He therefore sought to express the aspirations and beliefs of the epoch that went beyond the stated program. Mitchell B. Rouda expressed that, "Kahn's efforts seem so terribly significant, not because of the successes or failures of this particular project, nor the validity or invalidity of his architectural proposals, but becasue of his sincere effort to reassign the role of architecture as supplying spiritual values and inspiration to those that use it."[11] (Fig. 6)

Another period that developed during the latter portion of the Kahnian period was expressed in the architecture of Robert Venturi. It was based much upon the same ideas of Kahn, but developed to respond to the different attitudes and perceptions brought about during the 1960's. Venturi relates many ideas to Kahn, but is quick to express the variations. He explains that "Louis Kahn has referred to 'what the thing wants to be', but explicit in this statement is the opposite: what the architect wants the thing to be."[12] The double meaning began to respond to the complexities and contradictions represented during this time of re-evaluation.

The architecture that Venturi professed, was classified as 'Non Camp' or 'Shingle Style'. This can best be defined as the imaginative expression of architecture, towards the use of more common elements into a developed composition, and away from the glorification of architecture. This paralleled the development of 'Pop Art' and 'Pluralism' of the time. It was the expression of common elements as art, and the combination of these elements as art, and the combination of these elements into a single, yet not completely unified whole. Through the use of these ideas, Venturi hoped to "project a sense of relationships, in which nothing is ever quite what it seems a first glance."[13] (Fig. 7)

After Venturi became a prominant voice in this mode of architectural expression, there was another shift that developed. It was expressed when questions that went deeper than the mere complexities and contradictions that arose in everyday life. This epoch began to question the validity of progress with the advancements that stemmed from it. This criteria developed into the uncertain cosmology of today.

Peter Eisenman attempts to answer to this cosmology through his work

and writings. He states that "man lost faith in the notion of progress, in the notion that the past will lead to a better present, to a more hopeful future."[14] During this time when theologans question their discipline and wonder where it is going, anthropologists and socialogists question the role of man in the cosmologic structure, and biologists and geneticists question the role of nature in the cosmology. Eisenman questioned the value of architecture and people in the cosmology. He professed that "its been 40 years since the atom bomb and we've had no one to suggest the architecture that responds to this mediation."[15]

 Eisenman, therefore, developed a style of architecture that attempted to express underlying cultural messages in both an additive and subtractive way, to create an interrelated system of architectural language and dialogue among the individual elements. This language attempted to raise questions about the epoch, instead of hiding in the elements of the past. He believed that by using the stagnation that the past represents, we create an illusion of stopping the progression of time. The aims of Eisenman are to create something that must be responded to, or commented on. He "aims to make us see architecture through creating a climate that accepts architecture as necessary."[16] This type of reasoning began to comment on the questions that are being considered, and the uncertainty of the epoch today. (Fig. 8)

 The development that the architectural representatives created was one which followed the progression of the epochs. The functional expression which was created were an additive process that not only develops from the previous periods, but also incorporates the new questions that are being generated. Through following this process a better understanding of the functional relationships of the epoch to architectural expression can be correlated.
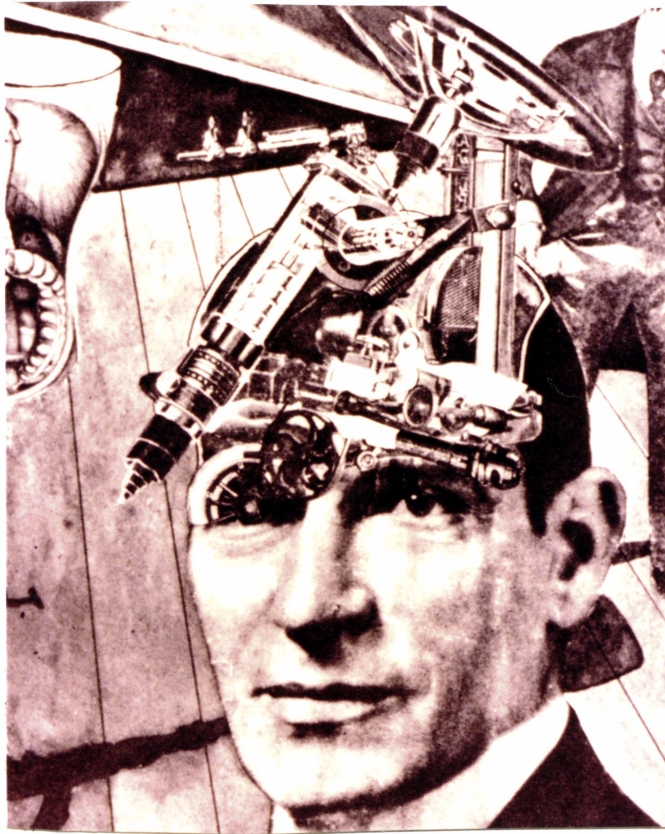
Figure 5 - Man and Technology

Figure 6 - Reflection of the Richards Medical Building

Figure 7 - Tail Pup, Nevada

Figure 8 - Our Uncertain Cosmology

Context and Regionalism

An aspect that correlates with the expression of the epoch is the architect's concern for context. This refers to how an object responds to its surrounding environment. In architecture, this can be expressed in the composition of how a house functionally relates to the street, the street to the community, and so forth. Incorporated with, and similar to, context are the attitudes toward regionalism. While regionalism differs in some aspects, many of the underlying concepts are the same. Regionalism is the expression of an object to the surrounding area, its culture, its ideas, and its climate. The functional relationships of these aspects, have been studied through the architect's concern or disregard of them.

One might expect the architectural representatives to express the context or regionalism of an area, since they did express the epoch that they were in. This, however is not the case. The pattern that develops is one which forms a circular movement. It begins with a lack of attention to the context, develops into a concern for it, and then disregards it again.

The cycle begins with Walter Gropius, who claimed to examine the aspects of context and regionalism. Gropius felt that the various technical conditions, social and economic factors, and building constraints were incorporated into his buildings in order to coordinate their unity. He stated that these factors led him on a "step-by-step study of the function of the house to that of the street; from the street to the town, and finally to the still vaster implications of regional and national planner."[17] His final products, howeve fell short of his goals and aspirations.

The buidlings which Gropius developed were rarely harmonious to their environment. The first realization comes through the afirmation, that these new buildings were a product of modern technology. They were conceived through a conjunction of the spirit of the machine. The Bauhaus manifesto goes as far as to state "all design must recognize this fact of life and distill a new set of aesthetic criteria from it."[18] It thus becomes implicit that what was created was a new and completely different object than had existed previously.

The aspects of context do not stop at simply relating with, or not relating with, existing buildings. What was created used new practices of construction that did not always parallel the local or regional methods of building. The

objects also became a foreign expression of harsh materials that conflicted with the surrounding environment. (Fig. 9) The only rational evaluation of context would be in the completion of the ideas expressed by Gropius. This would arise when an entire area would incorporate the type of building he professed. From this, a context would be created through the use of common materials and building methods, and the relationship of the various buildings to one another.

The type of context that Gropius wanted to express was realized and further developed by Louis Kahn. While Kahn dealt with the social reform and urban renewal of an area, whether it was low income housing or techno-logically advanced structures. This can be seen in the local building techno-logies and use of brick in the capitally poor, but labor-rich buidlings of India (Fig. 10), or the sophisticated post-tensioned concrete used in the United States. These aspects, however, are overshadowed by Kahn's desire to express the nature of the object.

The expression of the nature of an object was not only an aspect that the building expressed, but was also carried into the surrounding context. Kahn believed that as the building has a spirit, so does the site. Following this train of thought, Kahn said that it is important to decide where the building must be placed. He emphasized "You don't just plunk a building somewhere without the influence of what is around it. There is always a relationship."[19] In the end, the result of this, the spirit of their existence takes over. (Fig. 11)

The ideas of Kahn were, however, not inclusive enough for Robert Venturi. He, as Kahn, emphasizes the practical applications of common mater-ials, the common methods of constuction, and the relationships of the surround-ings, but Venturi also includes the pluralism of the sub-cultures. Through the recognition of all of these factors, he created a written comprehensible polemic. In this manifesto, Venturi said that architecture "has a special obliga-tion to the whole; its truth must be in its totality or implication of totality. It must embody the difficult unity of inclusion ... More is not less."[20] The application of this manifesto sets out to expand the possible repertoire of references.

The references of the surrounding context began to form a different function than that of the other architects. The exterior of the building was developed for expressing a reflection of the surrounding context. Robert A. M. Stern expalined this relationship in a discussion on the North Canton Y.M.C.A.

project proposed by Venturi. (Fig. 12)

> "Its complicated plan reflects the intricate program
> as it is accommodated to a sloping site with a ceremonial
> front along a square and a working front along a parking
> lot on the other side. A screen wall is employed along the
> plaza front to simplify the openings and make them bigger;
> this is intended to help to relate the "Y" to the much big-
> ger factory building across the square; along the back
> facade reflects the complexities within. The space between
> the screen wall and the building itself is a buffer which,
> because of the contours of the site, acts as a great ramp
> focusing on an existing church on Main Street."[21]

The above expresses the desired results of Venturi's aspirations. Venturi
emphasizes that he tends to design from both the inside out as well as the
outside in. The meeting of this point, he believes is the creation of architecture.

The inclusive relationships of Robert Venturi, and Kahn's spiritual evolu-
tion of context, are completely disregarded by Peter Eisenman. He feels that
the basis for which they were founded have been assumed to carry value.
Their link with the past and expression thereof, he expressed, cannot hold
value since there is no value in origins. Eisenman therefore tried to create
a more anti-contextural expression which cannot be linked to the disillusionary
fiction of history. (Fig. 13)

To eilimiante the value in the origins, Eisneman set out to invent a con-
text. He felt that it is "possible to suggest that the architecture (the building)
can invent a context to reverse the traditional, now value-laden, cause and
effect relationship, between the context as the cause and the building as the
effect."[22] Eisenman, thus, became the final rotational phase of the aspects
of context. He disregarded the aspects, at the same time he advanced them
beyond the formulation of the existing parameters of an area, and deducts
a meaningful criteria for design.

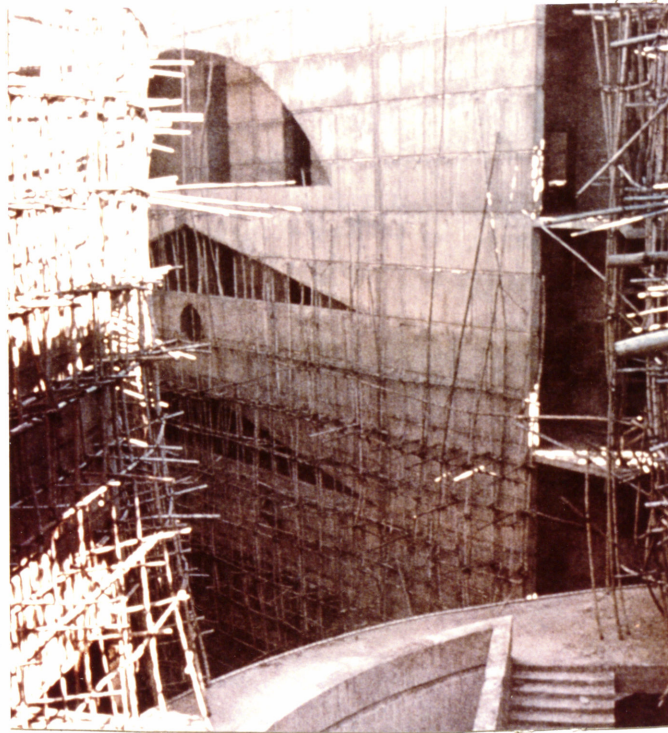Figure 9 - Apartment Block by Walter Gropius

Figure 10 - Constuction Detail, Dacca by Louis Kahn

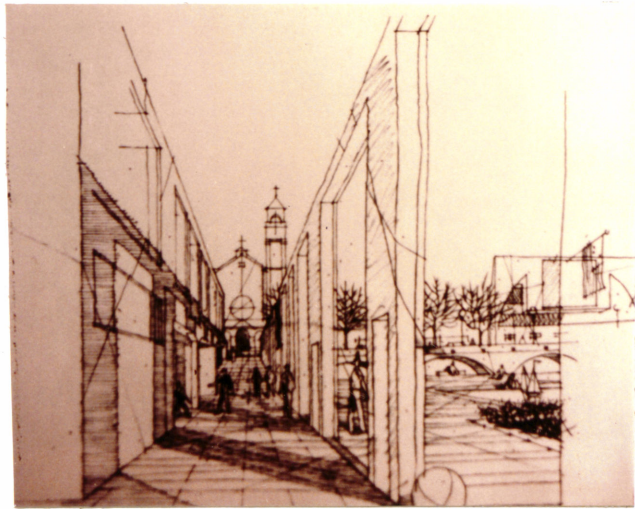Figure 11 - Salk Medical Laboratory by Louis Kahn

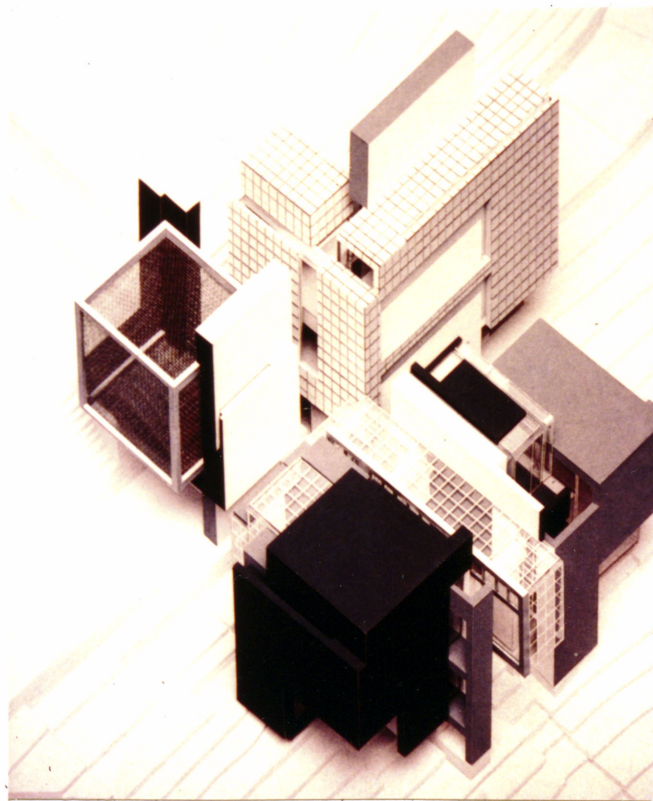Figure 12 - Perspective Drawing of Y.M.C.A. Project by Robert Venturi

Figure 13 - House X by Peter Eisenman

Materials

Context and regionalism begin to expound upon the use of materials and how each of the four representatives handles their use. They, in reality, should be incorporated in regionalism. However, their importance gives rise to an individual category derived from the various types of their application. Materials can be studied from two basic modes of expression. The first, is through the use of materials that are common to the area, as encompassed in the aspects of regionalism. This aspect corelates so closely to regionalism that it has already been expressed in the circular pattern mentioned in context. The architects that related to the context, generally, incorporated the use of regional materials in their expression.

The second aspect is derived from the integrity or honesty in expression of the materials used. The progression of their use which developed shows the change in the functional thought. It ranged from the attitude of complete honesty with materials, to one of complete disregard for them, in order to develop an architectural expression.

Walter Gropius begins the process with complete honesty of material use. He emphasized the structural grid, the glass curtain wall, and use of steel to profess the machine. He wanted the materials to "lead to clear organic form whose inner logic will be radiant and naked, unencumbered by lying facades or trickeries."[23] From this emphasis on the integrity of the materials and their lack of ornamentation, the emphasis on the structural functions and the concentration on the economical solution were to be expressed as its value.

The Fagus Shoe Factory (Fig. 14) exemplifies many of these aspects. James Fitch best described the effect in his explanation.

"By reducing his wall to a transparent screen of glass and metal and then by hanging it outside the columns, he made its nonstructural function brilliantly explicit. Then by moving the corner column back from its historical location, cantelever-ing out the unsupported floor slab and enclosing the open corner with glass screen, he was able to dramatize the skeletal light-ness and grace of the whole system."[24]

Louis Kahn carried on the idea of honesty in materials, but dilutes the attitude with a slight adjustment. he used the materials in their honest form, but he allowed the implication of man's desire to express himself. (Fig 15)

The materials and expressions, for Kahn, reach for order. As Kahn states "Man makes rules which are of the laws of nature and of the spirit. Physical nature is of law. The laws of nature work in harmony with each other. Order is this harmony."[25] From this attitude, the natural properties of the materials were shown, creating a harmoneous composition of how it was made.

One of the better expressions of the nature of materials and man's desire, is from a story Kahn frequently referred to. One day Kahn asked:

"What do you want, brick?" Brick says to you, "I like an arch." If you say to the brick, "Arches are expensive, and I can use concrete lintel over an opening. What do you think of that, brick?" Brick says, "I like an arch."

He then goes on to say:

It is important you honor the material you use. You don't bandy it about as to say, "well, we have a lot of material, we can do it one way or we can do it another way." It's not true. You must honor and glorify the brick instead of short-changing it and giving it an inferior job to do in which it loses its caracter.[26]

This not only brought about a complete honesty in the expression of the materials, but it also shows the insight into the choice professed by the architect.

Robert Venturi picked up this progression and advanced it one step beyond Kahn. He took the natural materials, and through his selection, applied them in his own unconventional ways. This brought about questions and dilutions in the honesty of materials. Venturi felt that these elements, then, "act as symbols as well as expressive architectural abstractions."[27]

To further illustrate this progression, an examination of the Guild House is all one needs to clarify Venturi's use of materials (Fig. 16). The explanation that best describes the corelations of his process was written by Robert A. M. Stern.

"....A row of white subway tile which makes a gesture toward the grandest kind of historic composition -- making, dividing the whole big lump of a building into a base (of white tiles), shaft (of brick), and capital (of brick, as well, but divided from the shaft by the coarse of white tile) without

ever departing from homey matter-of-factness, so that the
gold anodized television antenna on the pediment above the
entrance provides a sculptural flurish at once fiercely ingen-
ious and pathetic (we know how cheap they are). Directly
below this flourish, the conflicting requirements of entrance
and central support fight it out. Behind it, on the back, the
unadorned bricks and apparently regular holes state confidently
that this is an ordinary housing project."[28]

The final digression of the honesty of materials was produced through the
applications of Peter Eisenman. He attempts to disassociate all of the honest
or natural meanings of a material. He does this through the use of what
he terms 'Cardboard Architecture' (Fig. 17). Eisenman states:

"First, it is an attempt to unload the existing semantic.
While in itself it might be semantically charged, it might be
considered syntactically neutral, and thus lead to new semantic.
Second, 'Cardboard' is connotative of less mass, less texture,
less color, and ultimately less concern for these. It is closest
to the abstract idea of plane."[29]

Through these parameters, what is created is an object that does not relate
to any particular material or combination thereof.

Figure 14 - Fagus Shoe Factory by Walter Gropius

Figure 15 - Louis Kahn's Library Court of the
Yale Center for British Art
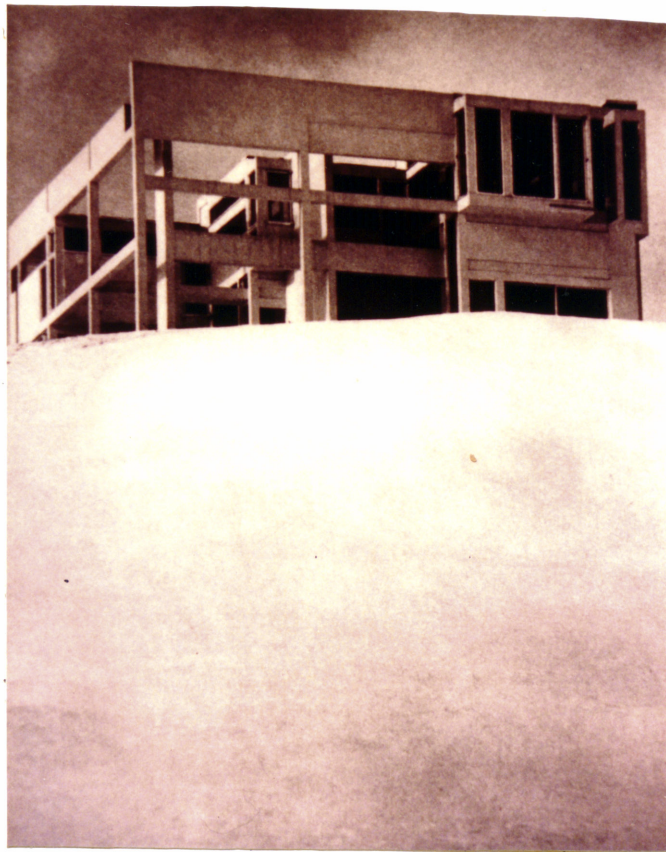
Figure 16 - Guild House by Robert Venturi

Figure 17 - House II by Peter Eisenman

Artistic Expression

The use of materials is often developed into an artistic expression of architectural ideas. This use of art can be linked with painting, scultpture, and artistic language. This does not classify each building as a work of art, but expresses the aspects which art and architecture share, in the relation to their physical and mental ideas.

Gropius referred to art, through the artist, because he believed that every artist was first a craftsman. He held that the artist was the only person who worked toward the integration of the whole, and not towards speciali- zaiton. Gropius, however, to express his belief in the complications of techno- logy, felt that no one person could create a work of art. He stated that an artist "only in rare blessed moments of inspiration, moments beyond the control of will, his work may blossom into art."[30]

Responding to these beliefs, Gropius derived the validity of his expression through the aspects of the craftsman, and not upon an attempt to create art. The emphasis of the artist as a craftsman developed into an interesting culmination of building intention and artistic expression. His building becomes "a method by means of which not from one but several sides at once, the machine idea could be illuminated by a variety of intelligences and feelings; and from being a simple idea becomes multi-form, germinating, and expanding."[31] It becomes a cubistic expression of the new technology. (Fig. 18)

Eisenman also uses a cubistic approach, but twists and further abstracts the process which Gropius followed. He stresses the process by which the object was concieved. In this process, the correlation of a cubist approach can be seen, in that an object can be seen from many different angles or aspects at one time. Eisenman relates architecture with "the notion of trans- formation, whether it is the transformation of something pure or abstract to something less pure or more real."[32] Through this aesthetic beleif, along with an ethical basis, he begins to define "the inherent nature of an object and its capacity to be represented."[33] (Fig. 19)

The inference to the inherent nature of an object was also used in the architecture of Louis Kahn, but in a much different analogue. The inherent nature was arrived in one of Kahn's comments on the Kimble Museum. He said, "This building feels -- and it's a good feeling -- that I had nothing to to do with it, that some other hand did it."[34]

(Fig. 20) The making of the unknown, or that which is not there, is the artists direction. It was Kahn's belief that "the presence of the unmeasurable, which is the realm of the artist",[35] directs the poetic and inherent nature of an object, because everything that man does, he does in art. The aesthetic, he believed, came after something was made.

Robert Venturi uses a combination of the topics mentioned above, and expresses them through his own unique process. The architecture he develops is one which reaches for accommodation through the intellectual and artistic pursuits. The emphasis of pop art, or common elements used in expressive ways, is combined with emotional association, through the perception and creation of past experiences, which develops into a contradictory form. (Fig 21) From this, Venturi "proposes a rhetoric of the ordinary to extract a rhetoric of the extraordinary."[36]

Figure 18 - View From Main Staircase of the Bauhaus, Dessau,
By Walter Gropius

Figure 19 - Detail House III By Peter Eisenman

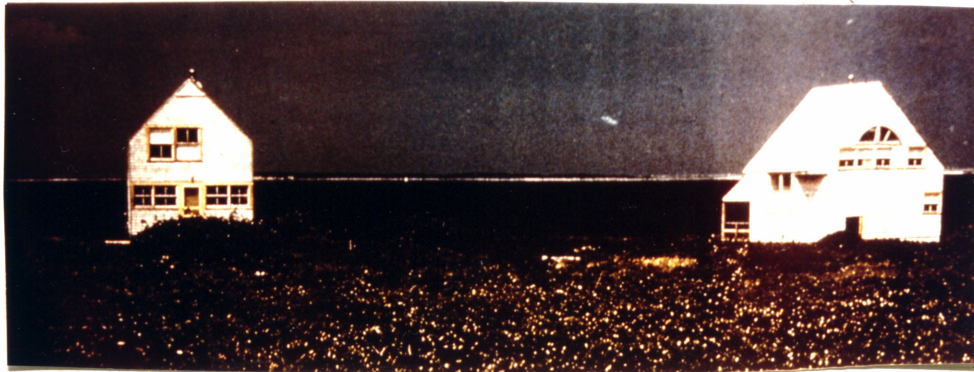Figure 20 – Kimball Art Museum By Louis Kahn

Figure 21 – Two Houses on Nantucket Island By Robert Venturi

Philosophy

Philosophy is used to express and explain the intention of the architects, and becomes the basis for the formation of a design process. This process varies in each architect, but to appreciate the attempted creative expression it must be understood. When a philosophy can be comprehended, whether it is realized in architectural form or not, a better understanding of the invisionaries and their applications of the different criteria into a design process, can be better understood. Once this is accomplished a broader understanding of movements in contemporary architecture can be rationalized.

The philosophical expression which was expressed by Walter Gropius, was aimed to direct the creation of a new generation. This generation was based upon Reproducing models and prototypes conceived by the spirit of the machine. These analogies were provided to express new frontiers in architecture in which the worlds of science and technology were superior to any one individual. It was expressed that "science and technology appeared to that generation much safer paragons than human passion."[37] Gropius sets the knowledge of methodology in science and technology above the knowledge of detailed facts. He does this through the introduction of a very logical and systematical coordination in the handling of architectural problems. The result became a shift away from the ends to express the means.

The means of Gropius' architecture are expressed through the provisions developed in the Bauhaus Manifesto. His design process followed the parameters establishedby this set of criteria. It incorporated the machine as the modern mdeia of design and from this a new aesthetic criteria was to be distilled. The forms that the modern technology produced were to express their logical interdependence upon one another. This expression necessitated the use of a collaborative design, a thorough, practical manual training, and a sound theoretical direction as the basis of design.

The technology and production which had dominated Gropius' philosophy became less important for Louis Kahn. Kahn's philosophy was based more upon art or poetry. It greatly paralleled Schopenhover, who said, "All living things have an existence of will which dominates their behavior and actions."[38] This existence of will became the most important desire for Kahn to express.

Kahn attempted to express this will through a developed design process. He believed that architecture must "begin with the immeasurable and go through

the measurable in the process of design, but must again in the end be immeasurable."[39]   This was expressed through the development of a form that would express the inherent nature of an object. Kahn said that this inherent nature was expressed in terms of silence and light. The silence was the immeasurable and the light was the measurable. He explained this as a treasury of shadow. He felt "Light the giver of prescence, cast its shadow, which belongs to light. What is made belongs to light and to desire."[40]

Kahn's desire and the existence of will develops through order. He felt that if the understanding of the beginnings or origins could be comprehended, then the truth could be found. The truth could then become a creation or work, but as Kahn was quick to emphasize, it is not as great as the person who understood the essence of its will to be.

The existence of will is not the main emphasis of Robert Venturi. He proposes a philosophical approach based upon accommodation. Through the principles of compromise, complexity, and multiplicity expressed in accommodation, Venturi has attempted to offer a sense of irony through an expanding series of relationships. He professed this to bring about an awareness that nothing is final or perfect, and that humans must constantly give and take.

Venturi has expressed his philosophy through an artistic base with the use of pluralism. He relies on the commerical strip for a great deal of his inspiration. Ventrui therefore, began to emphasize an automobile aesthetic and the inference of a billboard expression to create an object that could immediately be read by a passing observer. At the same time he emphasized this, he tried to create a decently approachable but not completely unremarkable object.

Symbolic elements from the past were incorporated into the artistic expression. They were randomly drawn from analogies of the past for their use as sybmols to suggest the problems of architectural language. Venturi has tried to produce a commentary on architecture through a pluralistic composition incorporating history and the commercial strip. He thus began to express the image over the process, and over the form. The symbolic and representational images expressed his philosophy by becoming contradictory to form and complex in meaning.

A complete spectrum of philosophical ideas are represented with the inclusion of Peter Eisenman. He professes a completely rational approach which is linked to Chomsky's Cartesian Linguistics. This allows Eisenman

to go beyond any previously established linguistic analogy. This philosophical base first proposes that the architect has a competence or knowledge in architecture. It then distinguishes between the deep (conceptual) and surface (perceptual) structure for architectural language.

Eisenman's linguistic approach makes architecture stand as a language and not as a notion of meaning, which he criticizes. This draws him to the epxression of the material object, or form, provided by architecture. Mario Gandelsonas stated that "Considering form in its syntactic capacity, Eisenman sees it to be ordered according to the specific laws internal to architecture and not derived from notions outside itself."[41]

The syntectics which Eisenman professes, creates objects that are supposed to only be implicit. The relationaship of the forms is represented in the mind. He therefore, must attempt to show a process in which the final form is derived. The result should be new forms which are discovered by the eye, while the notativity of its transformation is broken. The final object becomes one of no discernable past and no logically extrapolated future. The relationship becomes one of deep structure left to the mind.

These philosophies become manifested into three basic links to his work. The first is the notion of use of an object. His buildings are professed to be houses only because of the name given them. He sees little meaning in the arrangements of its functions. The second link is the use of the structural grid. This was derived from his belief that "Modern technology provided us with a new means for conceiving space .... in a sense, space was no longer necessarily limited or defined by structure."[41] Eisenman could then use the wall or the column as something other than a solution to a pragmatic problem. The final link is his use of a vocabulary based on modern architecture. Through this Eisenman tries to unload the existing semantic and reach the idea of an abstract plane.

All of these philosophies are used as a basis in the understanding of the types of architectural expression which each representative professes. This fundamental expression incorporates many of the design criterias in order to generate a process that will bring about an invisioned design. Of these criteria, function is one of the most predominant issues which greatly influences most of the decisions of design.

Philosophy plays an important role in the position of when an architect incorporates a person into the decision process. This aspect of decision begins to express how much or how little control a person has in a building. It includes if the person is free to express his activities in a building, or if the building limits and directs what the person can do. Each architect holds a clear stance on how much emphasis is placed on the humanistic side of user needs.

A pattern, again, begins to develop in a rotational direction that pertains to how each architect dealt with user needs. The first phase was Walter Gropius who was not very concerned with the humanistic side of user needs. Gropius turned more toward an aesthetic approach to the problem which drew its vitality from the machine. The forms which were created looked like machines, and machines carrying the connotations of being functional, were applied to the building. The end result was a building that looked functional, but in reality, may not have been. (Fig. 22)

Gropius has been labeled as a functionalist when the subject of user needs arose for discussion. Many of these analogies, however, are a result of the applied aestehetic which Gropius stressed. Gropius himself did not emphasize the functionalist ideas pertaining to a building. This idea can be verified in his exhibition in Cologne in 1914. Gropius was left to his discretion as to the interior arrangement of a building. The final structure while being aesthetically functional, did not function according to its user needs. A part of the plan listed as Werkstatte could only be used as a display for machine tools in the three dimensionalized object. As Reyner Banham stated, "indeed, the Bauhaus had no functionalist phase until Hans Meyer took over on Gropius' retirement."[43]

Louis Kahn again exemplifies the progression of ideas pertaining to user needs in a building. He felt that while the machine must never be divorced from architecture since it is the greatest power man has, thought must exist that is true to the nature of the institutions created. Kahn therefore expressed the user needs of a building as the desires of man.

Kahn believed that "you begin to think, not what are the requirements, but rather what are the elements of architecture that you can employ to make an environment in which it is good to learn, good to live, or good

to work."[44]   He further expressed these ideas in the Dacca Project. (Fig. 23)
It was inspired by the Baths of Caracella. This inspiration was expressed
through the use of high ceilings and interior amphitheaters, which Kahn said
are "places of well being, and places for rest, and places where no one gets
advice about how to live forever."[45]   This was supposed to create inspired
places that went beyond the program to become true architecture.

The development of architecture has a different meaning toward user
needs when it is expressed by Robert Venturi. He tries to meet a given program,
but instead of redefine it as Kahn would, Venturi tries to express its irony.
He begins to comment upon the middle class morality which accepts programmed
rooms of rectangles. He begins to let the interior circumstances control and
direct the interior.

Venturi follows this idea in the Vanna Venturi House. (Fig. 24) He
does this by letting each room "speak its social function by starting a dialogue
with each adjoinging function, e.g., the living room acknowledges the kitchen,
the kitchen the flow of the entrance and so on."[46]   Through this Venturi creates
a comment on not the social meaning of each room, but the appropriateness
of their form to their meaning.

Commenting on the social meaning of a form is picked-up by Peter
Eisenman. He comes out and forthrightly says that function or user needs
are secondary. He believes the role of architecture is to "alienate, and dislocate
man form his environment so that he is jolted into seeing them again."[47]
Eisenman's projects therefore become a method to shake people out of their
needs so they can reevaluate them. This is to question the routine way of
life brought about by standardization, mechanization and prefabrication.

House VI clearly states these points expressed by Eisenman. He incor-
porates such tricks as stairways in which a person must duck to descend them
with others that lead to no where. At one point he uses a column as a door,
so that it is open even when it is closed, to question the need for them.
He also situates the bathroom in such a way that it is only accessable through
a closet in the master bedroom. All of these deny the user his expected needs
so that they can reorder their lives to fit the changing cosmology of today.

User needs are therefore incorporated through a full spectrum of ideas.
They are applied through the derived philosophy which each architect professes.
While user needs is only a small aspect of a philosophy, it becomes very sub-
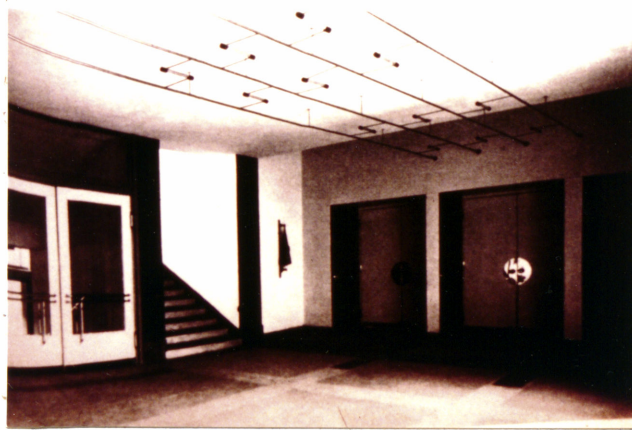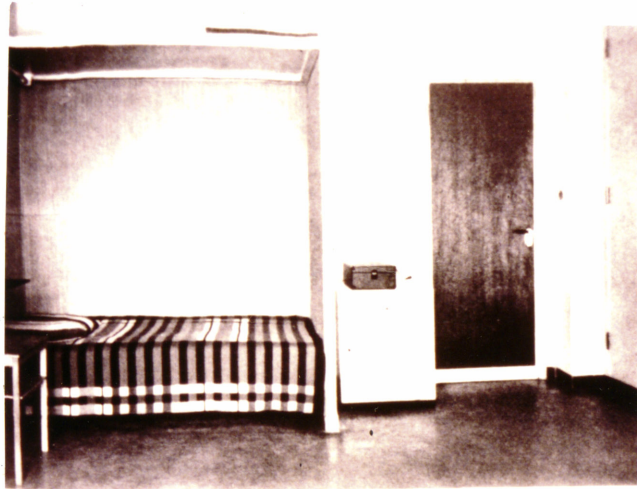stantial in the final expression.

Figure 22 - Bauhaus Interior of Students Bedrooms (top)
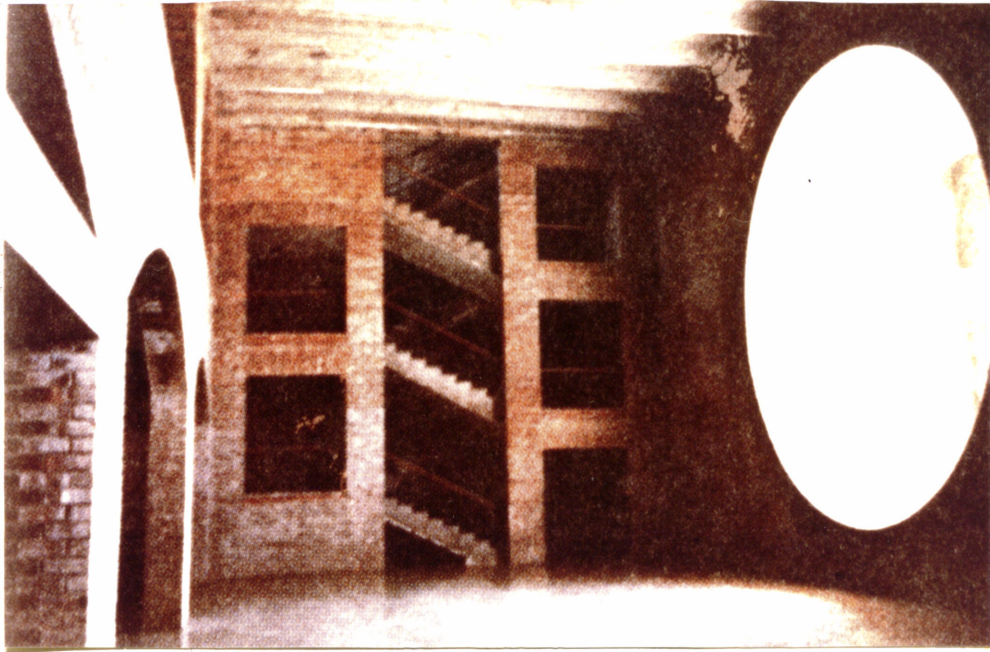and Entrance Foyer (bottom) by Walter Gropius

Figure 23 - Dacca Project by Louis Kahn

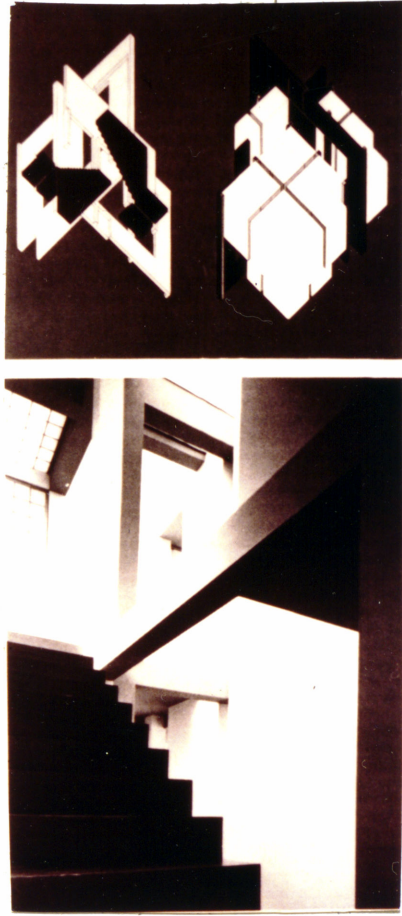Figure 24 - Vanna Venturi House Stair Detail by Robert Venturi

Figure 25 - House VI by Peter Eisenman

Conclusion

All of the topics and subtopics of this paper have been developed as insight into some of the various aspects of function and their uses, through the developments of four architectural representatives. The topics do not offer a suitable or direct application of the uses of function in the formation of design. They also try to avoid placing a value judgement in each aspect presented in the topics. All of these various aspects, while forming patterns of development or redevelopment, must be placed within the proper perspecttive.

Each of the patterns which were developed cover the progression of the advancement of an idea, as expressed in epoch, or a circular movement that finishes with approximately the same connotation as it began, as shown in user needs. These patterns, while showing progression, are often offset by another architect of the same period who expresses an opposing approach. The patterns, then, can be duplicated within the same time frame through subjects not included in this paper.

The aspects which have been expressed, while being only a limited sample, are to provide general guidelines in understanding the recent developments in architecture. The methodical dissection of each of the developments expressed through complicated philosophical lectures, or a detailed discussion of each work produced by the architect, are secondary to the initial comprehension of the listed topics. Once these aspects are understood, they hopefully will lead to further investigation of contemporary architectural expression.

The topics expressed in this paper, along with more philosophical and technical concepts which carry a much deeper meaning and understanding, should be followed to completely understand recent architectural developments. The culmination of all of these should not be misdirected to predict the future phases of architectural expression, but should be used to understand the desires of architectural creators and critics. The desires expressed should, in turn, be directed through a better comprehension of the implication and connotations that function carries in architecture. Using this criteria, positive advancements can willfully be developed, because in each creator lies the power to develop and the power to destroy.

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