Transformations in Architectural Design

AN EXPLORATION OF HISTORY IN THE DESIGN OF A MUSEUM FOR ART

COLLEGE OF ARCHITECTURE AND PLANNING
BALL STATE UNIVERSITY

UNDERGRADUATE THESIS
MAY 1986

JOHN D. WALLIS
For my wife whose love and support made all this possible.
THANK YOU Sonny and Andy for all your guidance

Tanner, Dino, Lee, Carol, and Rick thanks for all your help and support.
"What will be has always been." L. Kahn.

"Architecture can not exist without history." J.D.W.
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Architecture is once again beginning to realize the importance of the past. Post Modernism has taken architecture out of the austere expression of the International style. The International style abandoned history in their theory, stating that it was not a necessary part of the design of architecture. They felt that they needed to create a totally new expression, void of any references to history. The neglect of history on their part was a major weakness in their expression. History is too important to be ignored, it is an integral part of our lives. Once again it is acceptable to use historically inspired elements and imagery. This reawakening of architecture into a visually and spatially dynamic entity has brought new questions to bear. The major question raised is the validity of the use of history in the architecture of today. In all the Isms of the Post Modern movement there has been a tendency to depend too much on the past. It seems too often the architect is willing to only replicate or exploit an existing image or form. To me, the dependency on the past by Post Modernism is resulting in a replication of many historical references. Is it appropriate to merely
pick references from history and transplant them in the present? The work of Robert Stern would fit into this type of exploitation of the past. Stern's use of historically derived elements is not an appropriate use of history. For example, making a column a decorative element he has destroyed the integrity of the original. As a result of this change, the original idea has been lost and the column is no longer what it was intended to be. A more specific example of the replication of history would be Johnson and Burgee's Architecture Building for the University of Houston. The designers literally reproduced Ledoux's scheme for a Hall of Education. The use of these historic ideas does not create a valid piece of architecture in my opinion. I believe the use of history must go beyond its replication and use transformation to create designs. History can become the source of inspiration for a design. With the use of transformation of history, architecture can create dynamic expressions generated from historical precedents. Architectural design must use the philosophy of transformation and create culturally acceptable expressions of values. It is this trend of replication and exploitation of historic
ideas that has generated my thesis. I feel to use the past, we as a profession must explore it first and then upon understanding it, transform it into an expression of contemporary values. "Why always retain when, by transformation we can often make such things more understandable by their very accentuation." (Reid p.202)

The thesis was an attempt to understand the issue of transformation. The study went through a number of steps to approach the issue of transformation. The first step was choosing a precedent in history for the study. For the purpose of the study any precedent in history would have been appropriate. This was because the goal was to understand transformation and any historic period would allow me to achieve this. The Renaissance was chosen for the study due to its popularity among contemporary designers. This along with the desire to see if the Renaissance could be used in a manner different from the present interpretations were the reasons for the choice. Research into the Renaissance and the issue of transformation was the
next step. After the research was completed and some assumptions were made, a museum for art was designed to test the thesis. In the design the conclusions of the research would be approached. The goal of the thesis was to achieve a workable definition of transformation that could be incorporated into my design process.
Background

Transformation has to do with the use of history in architectural design. The transformation of history allows for an innovative expression of existing ideas into something that is valid by contemporary standards. There are two ways in which history can be used in architectural design. The first is the way of Stern and Johnson/Burgee where history becomes a sourcebook from which ideas, elements, and designs can be picked. These elements are then transplanted into the present without any attempt to relate them to contemporary standards. The second use of history deals with the issue of transformation. This use takes history as a source of ideas that can be manipulated and extrapolated into something that will use contemporary values and ideas to create a valid piece of architecture. The use of history in this manner steps beyond the replication of the past to create an innovative and culturally acceptable expression.

There is a trend in architecture to allow the first use of history described to dominate. "Reconstruction of the past inevitably postpones the more necessary enrichment of the present. And, it can be argued the appropriate architectural form for present needs can well enhance
the built forms of the historically evolved." (Reid p.202). Transformation is essential to this enhancement of the historically evolved. It involves the manipulation and extrapolation of historical ideas into an expression of present values. Transformation of history can serve as simply the inspiration for a design, or it can be involved in the entire design process. Transformation cannot let the precedent totally dominate the design. If this happens, the result is only the replication of the precedent being used. Through the study of transformation I have realized three types or modes of transformation that can occur. They are contextual shift, technological translation and geometric translation.

Contextual shift is essentially taking an existing structure from its context and transplanting it into a foreign context. The major question with this type is the appropriateness of such a shift. It would hardly be acceptable to transplant the Villa Rotonda into the middle of Muncie, Indiana. It is essential to the success of this transformation process that present values be used to change and manipulate the existing structure. If these changes do not occur the
transformation is invalid, and the results will only be the rebuilding of an existing structure in a different context.

The second idea is the transformation of technology and its related systems. This idea involves the transformation of historical structures into modern expressions of technology. The replacement of a classical trabeated system with a steel structural system would however destroy the character of the space. There must be along with this technological transformation, a manipulation of the spaces created by this translation.

The final type of transformation, geometric translation, evolved out of the previous two and involves both at some level. This type deals with the abstraction and manipulation of an existing structure and its spaces into something that can be used in the design of a contemporary structure. The precedent can become a generator of ideas for the design of a contemporary structure.

In all these kinds of transformation it is essential to have an understanding of the precedent or precedents to be used in the process. It is unthinkable to the philosophy of
transformation that a designer would use a historic element without the knowledge of where it came from and how it was used. This is why appropriate or comprehensive transformation is essential to the use of history. The transformation should combine the ideas of the precedent with the values of contemporary culture and the intuition of the designer to create a valid piece of architecture.
Problem Statement

The thesis is about the transformation of renaissance philosophy, concepts, and ideas into a meaningful contemporary design. To test the definition of transformation achieved in the thesis I used the design of a museum for art. With this exploration I wanted to achieve answers to questions that I have formed over time. The main goal of the thesis was to gain an understanding of how history and its transformation can be incorporated in my design process. The design of the museum would become secondary to this study of transformation.
The study began with traditional research and graphic analysis of Renaissance philosophy and issues of design. This research was done to gain the background that I felt was essential to the success of the thesis. Along with this research was a study into the idea of transformation, the main topic of the thesis. To test the results of these studies a museum for art was designed. The design of this building would be an adaptive one. By adaptive I mean the process would change or shift whenever the results of the study warranted. I choose to attempt the design without the use of a traditional program. This was because of an attitude that a traditional program interferes with the design of purely spatial concerns. To replace the traditional program a set of issues I felt important to the design of a museum would be substituted for these requirements. These issues were ceremony, circulation, light, and display area. These issue would become combined with the issue of transformation to make the programmatic requirements.
The first study to gain an insight to the issue of transformation was the use of graphic analysis of six existing structures. Four of the buildings are from the Renaissance and two from the 20th century. These structures are Villa Rotonda and Villa Foscari by Palladio, Il Gesu by Vignola, Saint Peter’s by Michelangelo, Unity Temple by Wright and The Trenton Bath House by Kahn. The two later examples were chosen for their similarity to Renaissance ideas of form and space. The main purpose of this study was to see if an existing precedent could be used in the present. This study dealt with the three types of transformation discussed earlier. This study was done in tandem with research into the Renaissance and its ideas of form and space. In the section that follows there are examples of the analysis. The goal of this investigation was to realize issues that could be incorporated in the design of the museum.
Villa Rotonda

This structure is an excellent example of Palladian ideas of form and space. In the analysis I attempted to manipulate and extrapolate the existing building into a different expression of these ideas. In this investigation I wanted to see how far the ideas of Villa Rotonda could be pushed and still retain their integrity. To achieve this goal the analysis went through a series of abstractions and manipulations of the ideas and forms of the original. Through the analysis I realized that the issues of hierarchy, symmetry, proportion, and a centralized plan can be expressed in a manner that creates a different entity while still retaining an association with the original.
In the Villa Foscari, the analysis dealt with the issues of Palladio's design in elevation. This was done to see if the issues stated earlier were used in the facades of his designs. Through the analysis I realized that Palladio used an arrangement of temple forms to give the elevation a hierarchy. These temples become smaller as they are placed on the facade. The second idea realized was the use of a hierarchy in the fenestration patterns. The combination of these two ideas give the elevation a human scale.
Il Gesu was used to study how the religious structures of the Renaissance used the ideas that were incorporated in other designs. In this analysis I attempted to take the existing structure and use different vocabulary to express the same ideas of space. This study was an attempt at the idea of technological transformation. In the analysis I realized that an existing building can be expressed with modern ideas of structure, while still retaining the integrity of the original character.
In this analysis I was attempting to study how the forms of the space could be abstracted into something different. At the start of this study I was trying to transform the existing structure into a complex of buildings or spaces that could be used in the design of the museum. Through the analysis I realized that the transformation of an existing structure needed to have more to it than just the abstraction of the original. This study also reinforced the issues of hierarchy, symmetry, proportion and a centralized plan as essential to Renaissance design.
The Unity Temple was used in this analysis because of its strong relationship to the Renaissance. In the analysis I wanted to see how Wright used the same issues that the Renaissance designers had. It became obvious that the ideas of hierarchy, proportion, and centralized plan were clearly dominate in the design. The volumetric composition of the spaces reinforced these ideas. Although Wright did not use a similar system of proportioning as the Renaissance did, there is no doubt that there is a system evident. This analysis showed me that the ideas of the Renaissance could be transformed and expressed in modern design.
This structure was used for the same reasons as Unity Temple. In this study I attempted to abstract the existing building into a close expression of the Villa Rotonda. I attempted this to see how strong the influence of the Renaissance was on this structure. As a result of this analysis I came to the conclusions that it was possible to use ideas that had been used in the past in a contemporary expression.
As a result of this analysis and research into transformation and the Renaissance, the set of issues I hoped to gain were realized. The research into the Renaissance revealed six issues that I felt were essential to its design. The issues are centralized space, hierarchy, symmetry, order, wall and entry. This list is by no means the entire set of issues used by Renaissance designers, it is just the issues I felt could be used in the thesis. As a result of the graphic analysis it became clear that the idea of geometric translation was the dominate type of transformation. I realized that this type of study was an excellent way to understand transformation. It became clear that any precedent could be transformed into something that is contemporary, if history is used in this manner. The findings of these studies and research were combined with the issues of ceremony, light, circulation and display area to become the base for the design of the museum.
The building type used to test the thesis is a museum for art in Indianapolis, Indiana. I felt that the use of this building type would allow me to more freely explore the issue of transformation. The site for the project is at the intersection of Michigan and 38th Streets. For the purpose of this investigation I am considering the site free of all built context. The site provides a rural character in close proximity to the urban fabric. The site was chosen because of this character. I wanted the design to be free of all built context for a pure transformation to take place. The site is heavily wooded and bounded by the White River to the west and north. There is also a small canal that crosses the site from north to south. There is a plateau that runs from Michigan and 38th streets to a steep hill of 50-70 feet that falls to the canal. The site then again levels out and runs to the river. I felt the strong character of the setting demanded a solution that incorporated as many site features as possible.

In the design of the building I wanted to try and combine two images of what a museum should be to me. The first is the grand neo-classical structure and the second a plain volume
of space that merely protects the art from the elements. I wanted the design to be a manipulation of simple cubic volumes that would also have a strong outward character. The design would incorporate the issue of transformation along with the programmatic issues stated early to create a valid piece of architecture.

The issues of ceremony, circulation, light, and display area were approached in the design. The issue of ceremony was dealt with at two levels. First the siting of the building and the use of the site would reinforce this idea. The second would be the transformation of the typical Renaissance church into the museum. The building was sited to create a sequence of ceremony that would begin upon entering the site. Long wooded drives travel across the site to the museum and give the allusion of leaving the urban fabric for the countryside. Approaching the museum there is a pavilion and bridge that span over the canal to the entry level. The ceremony then takes a vertical direction with a series of ramps, with small exhibit areas occurring off them, that finish at the main central space. The building form then becomes horizontal to respond to the level plain.
To answer the problems of lighting in the museum I decided to provide differing qualities of light. In the gallery areas there are clerestory at the balcony level. In the roof there are skylights to illuminate the central space. On the north facade there are small punched openings that penetrate the wall. These openings are then covered with panels on the interior to control the problems of glare. On the south facade there are no openings, save the clerestory, due to the intensity of the south light. I felt that this variety of lighting would give the artists greater freedom in the display of their work.

The circulation system in the museum relates to the ceremony of the building. In the main gallery space there is a defined path of circulation around the central space. Within the smaller galleries the path is wandering one through the partitioned spaces. The central space has a free circulation idea letting people wander as they may.

The issue of display area is answered by the creation of a variety of spaces. The entry space will house a large mobile and small exhibits in the areas off the ramps. In the gallery wings paintings and small sculpture are
displayed. Ceiling heights of fifteen feet allow most sized works to be displayed in these spaces. The central space will house large sculptures and other works that will not fit in the smaller galleries. The gallery areas use a system of partitions to allow flexibility in changing displays. There is also a detail that aids the changing of exhibits. The detail is a recessed area around the wall to allow quick repainting of the surfaces. All these issues are combined with the issue of transformation to create the design of the museum.

The Renaissance church served as the precedent to be transformed into the design of the museum. The church has a strong sense of ceremony in its design. The narthex, nave, side aisles, and aspe become transformed into parts of the museum. The narthex becomes the entry level and ramps that has a large mobile hanging down through the space. The nave becomes the large central space which is filled with large sculpture. The side aisles become the small gallery wing that are filled with paintings of diverse sizes and character. The aspe becomes the amphitheatre and outdoor sculpture plaza, were recitals, plays and lectures take place.
The building also tested the transformation of renaissance issues described earlier. The idea of symmetry was decided to be invalid by the designer. Symmetry was decided to be inappropriate because of the diverse forces in our culture. I felt the building's organization must address this diversity. A shift occurred at a point in the design process that broke the plan out of the symmetry that was plaguing it. This shift also allowed for more dynamic spaces to be created. The idea of hierarchy was addressed in the facades by the break down of the masonry and fenestration units as they rise up the wall. To answer the idea of wall and order the building has a character a walled volumes that are ordered with ideas of hierarchy and scale. The walls use an order of reducing the masonry unit sizes to break down the scale of the forms. This scale breakdown is balanced against the creation of a monumental character for the building. I feel the transformation achieved in the design have given me an excellent base for a continued exploration of this subject.
View from North
Central Space from North
Central Space from East
Conclusion

Architecture is becoming too dependent on tradition in design. Too often an element is taken from its context and transplanted into the present without any consideration to the original use. The use of the past in this manner is not justifiable to my way of thinking. When something in the past is used the knowledge of its original use and context is essential to the proper transformation of it into the present. Without this understanding of history, its proper use can never be achieved. Transformation can be used as an integral part of the design process when this knowledge of history is gained.

Upon completion of this nine month study I feel that what I have achieved is a success. The project is far from being finished, but that was not the intention of the thesis. The thesis was to give the background needed to take this idea of transformation to the limit. Now that I have this understanding of transformation and its relation to history I hope to continue the study in the future. This investigation has confirmed my belief that history is an essential part of the design process. If architecture is to regain it's ability to express societies
values then this is the only way that it can be achieved. I want to go beyond the traditionalizing of elements and create something that is valid while still being unique.

When the process of transformation is used in the design process it is important that the precedent used does not over power the design. The precedent can act as nothing more than an inspiration to the designer. The ideas of the precedent must be reevaluated with contemporary standards if a true transformation is to take place. This reevaluation will reveal what can still be used in the present. For a successful transformation to take place, two things must happen. The first is that the precedent must somehow have some impact on the final product. The second is that there must be innovation on the part of the designer. This innovation does not have to entirely change the precedent into something that it never could have been. It can become a new idea for an element's use, while still respecting the original character. If these things take place and the designer is truly dedicated to the idea of transformation any outcome is possible.
In the design of the museum to test the thesis I felt that the project needed to have a very serious tone. This attitude was caused by a desire to learn as much as possible about transformation. I was convinced that this was the only way that I could achieve my goals. Upon the comments of the jury and my own reevaluation of the project, there could have been a little more playfulness if you will in the project. I feel that this introduction of a less serious expression is the next step for the investigation.

As an overall success or failure I would have to say the thesis was a success. I achieved the goals I wanted in the study and with continued exploration I feel that this thesis can become an excellent tool for my design ability.
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