

PAPER • OPEN ACCESS

Study on the Theory of Rafael Moneo Architectural Typology

To cite this article: Ming He and Jingyi Qi 2019 *IOP Conf. Ser.: Mater. Sci. Eng.* **592** 012105

View the [article online](#) for updates and enhancements.



IOP | ebooks™

Bringing you innovative digital publishing with leading voices
to create your essential collection of books in STEM research.

Start exploring the **collection** - download the first chapter of
every title for free.

Study on the Theory of Rafael Moneo Architectural Typology

Ming He, Jingyi Qi

School of Architecture and Design, Southwest Jiaotong University, ChengDu, SiHuan Province, China.

1657723862@qq.com

Abstract. With the rapid development of construction industry, large-scale construction ignored the historical tradition, destroyed the urban texture, and gradually disconnected the architectural theory and practice. Rafael Moneo believes that architects should be rooted in their own country cultural background to analyze the rationality of the site and create modern local architecture belonging to their country. Moneo attaches great importance to the historical tradition and social culture and takes an active part in the architectural practice. The study of his works which combine modern rationality and traditional humanism can provide a reference for solving the problems faced by architectural circles. We briefly introduce Moneo type theory with the comparison and analysis. On the basis of typology, this paper analyzes and interprets the forming process of some of his representative works, and it expresses abstract spirit in modern form to create a unique spiritual place.

1. Introduction

The architectural typological design method began in the period of Enlightenment in Europe. It was re-valued by the architectural circles after World War II for its close connection with culture, history and place. Architects and theorists in each era have made unremitting exploration to the thought of typologies. Rafael Moneo who won Pritzker Architecture Prize in 1996 is a famous architect and architect educator in modern Spain. On the basis of predecessors' theory and practice, he gradually formed his own typological thought in the design and research in a way of critical cognition. His typology inherits Aldo Rossi's thought that architectural typology can establish the connection between man and history and make architecture more humanist. Based on the study of Moneo's architectural theory and practical works, this paper discusses the design methods of the two stages of typology design process: type abstraction, type transformation and location. It can realize the continuity of the architectural design to the historical memory, the overall coordination to the place environment and the humanistic concern to the social masses.

2. The concept of the type

Many architects and theorists have defined the type. "Type does not mean plagiarism and perfect imitation of the image of things, but represents the thought of an essential element, which in itself is the rule of the formation of the model," says Q. D. Quincy [1]. Aldo Rossi [2] believes that the development of type is according to the desire of beauty and a particular type is a combination of a lifestyle and a form. His architectural type is similar to Jung's archetypes which is an internal law that forms the most typical architecture. He tried to trace the problem to the root of the architectural phenomenon and resonate with the psychological experience of human beings.



Moneo formed a new type definition by the previous definition of types and their own research. He believes that type is a concept used to describe a group of things with the same formal structure, and it maintains a close relationship with reality and social behaviour as a formal structure [3]. It can be understood that the process of modern architectural design is necessary to find out the type characteristics of historical collective memory corresponding to people's psychological cognitive experience. And then it realizes the continuation of historical form through special formal structure. It can look for a generation of memories of history, culture, and traditional ideas.

3. Overview of the typological practice of Moneo

There are two separate stages in the design process, a typology stage and a formal generation phase, so that architects are free to deal with types. [3]. It is said that Moneo explains two processes in the process of architectural practice: type abstraction and restoration, type conversion and localization.

Type abstraction and restoration represent the relationship between design and the past, while the conversion and localisation of the types show the interaction between design and present and future.

In the stage of type abstraction and restoration, it is necessary to analyze the site conditions and actual needs of the project. It is find out the type of fits with the people's psychology from the personal experience, the historical environment and the real environment to abstract the prototype applying to the new design.

In the phase of type transformation and localization, the extracted prototype should be transformed into a real-world form and a series of designs. The designer selects the type according to the specific requirements of the design, including the deformation and transformation of the type according to the actual situation, as well as the process of localizing the surface structure to the environment.

4. The process of type abstraction and restoration

"In the process of design, architects need to work hard to coordinate various opposing forces and express various intentions carefully, in order to respond to many intentions and requests from inside or outside [4]". From Moneo's architectural works, we can find that Moneo's architectural is not just a kind of variant. It is often the product of multiple types of interaction which is the embodiment of multiple extraction and transformation of types. Therefore, the design process needs to be established on the basis of research on the phenomena of buildings, including the interpretation of the architectural phenomena in history and reality, the research on the architectural theory, the summary of past design experience, the excavation of the site project data, all which are the basis of the design process of Moneo's typological design.

4.1 Finding and extracting archetype from historical memory

"Moneo believes that if we want to build a social environment that ensures the sustainable development of urban culture and architecture needs to be rooted in history and tradition [5]". Abstract archetype from historical memory is a process of thinking about design from the perspective of culture. Guilin Xu of Dalian University of Technology believes that Moneo extracted archetypes from three aspects of historical memory: functional improvement of historical architecture, historical scene and architectural structure in the process of architectural typology practice [6]. In this paper, we also explain how Moneo extracted archetypes from historical memory in order to realize the diachronic continuation of urban architectural types in the time dimension from these three aspects.

4.1.1 The way to restore the improvement of historical architecture function

As a Moneo's Masterpiece, the National Rome Art Museum interprets Roman art and culture in a way that shook the mind of the viewer. Moneo presents the architectural history and sacred space experience by extracting the Brazil Licka type from Roman classical architecture [7]. There are three main reasons for Moneo's choice of Brazil Licka: first, the Brazil Licka is the representative of Roman culture which can reflect the Roman memory history abstractly in people's minds. Second, The Brazil Licka can express the sacredness of history. Third, the open interior space features of the Brazil Licka

conform to the space requirements of the museum itself, as shown in figure 1. The cathedral of Notre Dame in Los Angeles is designed as a Latin Cross Church. The front hall, the middle hall, the side corridor, the transverse hall, the altar and so on all continue the traditional plane mechanism of the church form, and the trapezoidal plane forms a similar cross structure. On the basis of changes in the form of religious activities, the Cathedral of Notre Dame uses a similar altar to replace the outer convex altar of the traditional church to bring the distance between man and God closer. The "ten" formed by the solid wall of the altar is opposite to the Roman direction. Due to the limitation of site conditions, it uses geometric method to rotate the main axis and the axis of the altar slightly to adapt to the actual site [8]. The Cathedral of Notre Dame is used the plane mechanism of historical building type, and combined the realistic activity mode and the site environment to carry on the rational adjustment and reduction, as shown in Figure2.

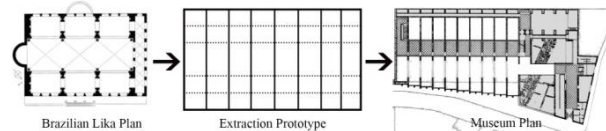


Figure1. A prototype of the National Rome Art Museum extracts architectural functions.

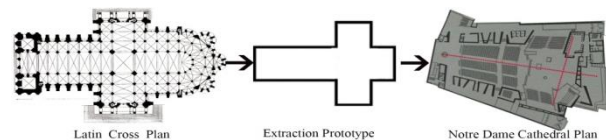


Figure2. Prototype of architectural function extracted from the cathedral of Notre Dame in Los Angeles

4.1.2 Abstract geometric reduction of historical scenes

In designing the Murcia City Hall, Moneo recreated the Roman theatre in the facade design and deliberately demonstrated the history and culture in the city's important square. The elevation colour of the architectural, the clear horizontal separation, the active vertical elements, the semi-transparent and semi-empty shadow relations all come from the Roman theatre stage. The design combines simple massing to increase the strength of the body to make the scene more contagious. The sinking square is the place where the citizens gather, which embodies the strong social public nature. At the same time, the city hall uses theatrical archetypes to form a venue for citizens' activities, revealing liberal and democratic policies, as shown in Figure 3. The Rogronio City Hall extracts the promenade of the Alhambra Palace Spain and uses to reproduce the essence of the heritage of the dental architecture with a modern minimalist approach. The boundary of the corridor can be close to and into, more life-friendly than the closed interface [6]. See Figure 4.

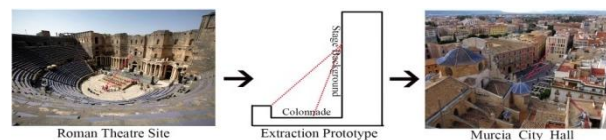


Figure3. An archetype of historical scenes from the Murcia City Hall.

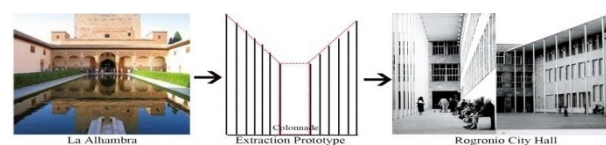


Figure4. Rogronio City Hall historical scene prototype schema extraction.

4.1.3 The transformation and application of construction

The National Rome Art Museum is constructed with a brick cavity and concrete, which comes from the Pantheon. It detaches the supporting wall from the main wall to increase the side porch space of the building and to meet the lighting requirements of the main space. At the same time it emphasizes vertical lines on the elevation to soften the boundaries of the building [7], Figure 5. The structural style of Roman arch and the use of concrete are the representative achievements of Roman architecture culture. In most of Moneo's works, the Roman arch is also used to show a strong sense of order and a sense of thick. These are the modern transfer of the historical architectural structure, giving new use value to the traditional architectural structure to increase the humanistic nature of the architecture, figure 6.

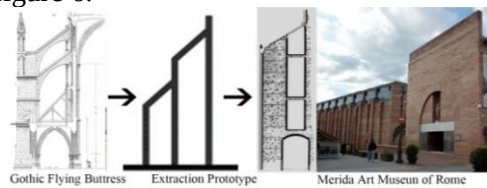


Figure5. Archetypes of the flying buttress.

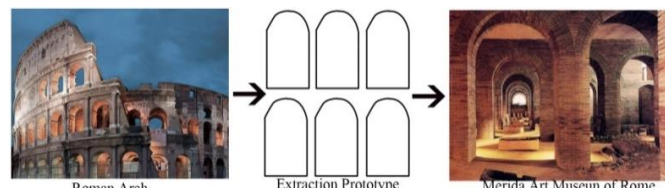


Figure6. Archetype of arch.

4.2 Find and extract the prototype from the regional realistic environment

The growth in the specific cultural environment of the people for the cognitive psychological experience is different from other places, and this psychological experience has a certain geographical attributes. Therefore, it is necessary to find and extract the prototype of regional characteristics from the regional environment to respond to the psychological experience of the public. In the design of Moneo, regional culture and realistic environment are often reflected from the characteristics of regional reality. In the design of Sao Paulo Airport in Seville, Moneo combines a closed garden space with a parking lot to demonstrate his reaction to urban culture. In addition, because of Seville's Islamic culture in these countries of Western Europe in the city is very unique, and the check-in counter hall extracted dome and colonnade continuous Cordoba mosque hall, as shown in figure 7. "In this design, if we do not acknowledge that the design needs to refer to the local architecture surrounding the atmosphere characteristics, and it's hard to understand why the dome appears at Sao Paulo airport [9]."

5.Type conversion and localizing process

Based on Rossi's theory of types, Moneo's concept of architectural typology embodies more flexible ideas of change and transformation. The field-driven process transforms the types, takes the abstract prototype into a real place, and responds appropriately to the site.

5.1 Location of site environment

In the view of Moneo, the architect's ability to judge the properties of the site is very important, and the grasp of the site conditions is the key to the integration of the building into the city, and it is very important for the architecture to display and support the characteristics of the site. In the process of his practical creation, he mainly designs the site from three aspects: coordination with urban spatial structure, integration with the whole environment of the site, and integration with the natural environment.

In the design of Rogronio City Hall, the prototype of the extraction square is based on the site design. The building interface is rotated by 45 degrees in the orthogonal grid structure of the city to face the square in an open interface and to meet the city in an open manner. Moneo merges the whole environment of the building and the site through the application of the facade material of the building. Moneo's use of red brick material at the Davis Museum has enabled the building to establish a common dialogue with the historical environment, not only on the outside, but also at a deeper level.

In the design of the Kursaal Auditorium, instead of fully integrating architecture into the city behind him, Moneo chose to "embrace" nature. He made the design part of the coastal landscape and highlighted the value of the coastal landscape. Moneo faces the two cubes to two mountains, forming

two showrooms with different performance halls. The boundary of the road determines the boundary of the platform layer and the column net, and finally forms the architectural image layout of the Kursaal Auditorium similar to the two rocks [10] (Figure 8).

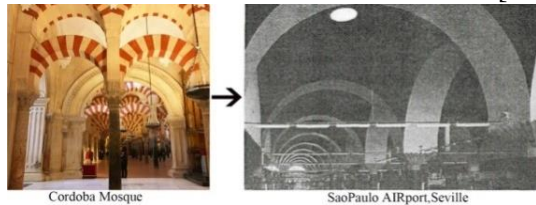


Figure 7. Prototype of environmental extraction from Sao Paulo airport

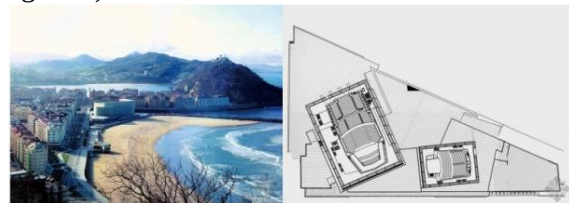


Figure 8. Kursaal Auditorium

5.2 Functional requirements influence prototype localization

Moneo believes that in the design of type localization, we need to pay attention to the living environment and the problem of solving the reality. He refines and adapts to the new application requirements by adjusting the form of the prototype. We select the top lighting prototype which has been used by Moneo many times, and discuss the location design of the prototype facing different functional problems.

Top lighting creates a sense of sanctity. The top lighting of the Pantheon and the side windows of the Gothic church create a divine space and psychological experience to the sky. In the Notre Dame Cathedral in Los Angeles, Moneo transforms and personalizes the archetypes of the top lighting. He uses the soft light of the snowflake plasterboard itself to create the shock image of the cross (Figure 9).

Top lighting caters to exhibition space. The design of the National Roman Art Museum extracts the top lighting types from the Pantheon and restores it abstractly to create a sense of scale and sanctity in space. In the Design of the Navarra University Museum, the art gallery uses snowflake plaster to weaken the intense direct light (figure 10). Natural light becomes soft and dim after being filtered by the translucent snowflake plaster embedded in the wall. The pattern of stone is looming and fickle.

5.3 The art and form design of prototype localization

Moneo's artistic expression and enhancement of archetypal features in architectural practice makes the formalization of archetypes have architectural beauty. For example, in the design of the National Roman Art Museum, the archetypal arches of Rome were reorganized and reinforced in geometric form. The arch coupons arranged in depth along the architectural exhibition hall enhance the artistic expression of the space form and give the viewer a great psychological shock (Figure 11). The inner and outer designs of Notre Dame Cathedral in Los Angeles are "broken", archetypes extracted from numerous church buildings and distorted in form (Figure 12). The church space is similar to the historical tradition but not the same. It is related to the tradition in the psychological experience, and the distortion and asymmetry of the real space make people feel the contemporary reality.



Figure 9. The cross frame of Notre Dame Cathedral in Los Angeles.



Figure 10. Light at the top of the National Roman Art Museum.



Figure 11. The Rhythm of the Roman Arch.

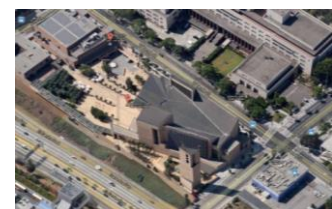


Figure 12. Bird's-eye view of Notre Dame Cathedral in Los Angeles

6. Conclusion

Moneo has always looked critically at architecture to explore and reshape existing experiences creating unique architecture. In the process of type abstraction and type conversion and reduction and place, he establishes connection with history and reality and made the city and architecture maintain a kind of historical continuity. Through the design of the prototype, he responds to the human content, the place environment and the historical memory in the architecture. From his own functional needs, site conditions, social, historical and cultural environment and other issues, he creates a form rooted in reality, grown from the place. While protecting the history objectively, he also combines with the culture of the times to create the urban space as a complex carrier rich in historical information and spatial function. This paper interprets Moneo's theory and architectural practice from the point of view of typology. His inspiration to architects includes not only design techniques, but also solid architectural attitudes. Architects need to participate in more practice in addition to professional knowledge, think about the essence of architecture from the nature of local culture, take realistic issues as the starting point of architectural design and keep in touch with local traditions.

Picture Source

Figure1-8: Come from the Internet and redraw.

Figure9-13: Come from the Internet.

References

- [1] From the *Dictionary of Encyclopedia of Architecture*.
- [2] Rossi A. 1982 *The Architecture of the City*, The MIT Press.
- [3] Moneo R. 1978 On Typology,Oppositions, *MLT Press*, 13:22-45.
- [4] William J. R. Curtis. 2000 A conversation with Rafael Moneo, *EL Croquis*, 98: 6.
- [5] Wu F. 2004 Analysis of Rafael Moneo's Typology Thought [J]. *Architect*, 107:55.
- [6] Xu G.L. 2015 The Research about the Rationality and Humanism of Rafael Moneo's "Reflective Design" [D]. *Dalian University of Technology*.
- [7] Lu K. 2013 Research of Reflective Design Applied in Rafael Moneo's Architecture Works [D]. *Huazhong University of Science and Technology*.
- [8] Xu B.B. 2010 Rafael Moneo's Design Ideas of Typology [J].*A+C*, 03:074-5.
- [9] Moneo R. 2011 Moneo on building-the 21 works are reviewed [M]. *Translated by Lin F.H. Taipei*.
- [10] Wu F. 2004 Exploration of "Reflective Design" Study on Jose Rafael Moneo's architectural design thoughts and works [D]. *Zhejiang University*.