Abstract

The purpose of this study is to explore the possibilities of architectural typology as a design methodology in contemporary architecture. Thus far, type and typology has been considered purely theoretical or conventional methodology in practice. The use of ‘type’ as a tool in the design process has led to ‘typification’ of design that discourages the emergence of new formal structures. Despite the criticism of traditional typology, the works of FOA provide a clue to redefining and reinterpreting the subject of typology, which enables us to operate appropriately in constantly shifting environments. The transformations inherent in FOA's works include the following features. Firstly, the concept of type as an imitable precedent was replaced by an abstract and topological structure of form. Secondly, repetition and reproduction of types were complemented by the protocol of evolution and proliferation. Lastly, the traditional classification system based on the relationships between specific form and function turned into a hierarchical classification system of spatial structure by which formal diversity can be acquired.

Keywords: FOA; typology; types; contemporary architecture; prototype; classification

1. Introduction

1.1 Background and Purpose of the Research

Aldo Rossi argued that types have evolved continuously throughout history. Their aspects vary depending on society, culture, period, and location. Rossi further noted that the questions of monocentric buildings are all typological and in that sense, all architectural theories are theories of typology. Moreover, Antony Vidler described the typology of the 1960s and 1970s as the Third Typology, studying its theories comparatively with the First and Second Typologies. According to Vidler, typologies have shown fundamental differences over the course of their development, mostly with the following characteristics: the First Typology supports the order of abstract nature and classical architecture, the second reveals a desire for technological utopia and a mechanism similar to the production of industrial machines, and the third builds a strong attachment to and relationship with traditional cities. As argued by Rossi and Vidler, typology—which originated with the theories of Quatremiére de Quincy in the late eighteenth century—existed continuously, though with changes in content, up through the modernist period and into the 1960s.

In the discourse of contemporary architecture, however, the value of typology is underappreciated. Classical typology did not draw the attention of architects in the midst of generational paradigm shifts. Rather, typology has often been criticized for its deterministic attribute.

Nonetheless, attempts to reframe typology have emerged in the face of criticism of classical typology. Throughout their projects, exhibitions and publications, Foreign Office Architects (FOA)—was an internationally acclaimed architectural design studio headed by Fashid Moussavi and Alejandro Zaera-Polo. The cessation of the studio’s activities was announced in 2011, the establishment of two new practices FMA and AZPA Limited followed—argued that typology should be reframed and reinterpreted in contemporary architecture. According to FOA, traditional typology has been understood as a kind of parti related to a specific program and composition. Now, however, it is no longer a parti. Rather, it consists of numbers or measurements. Therefore, FOA has considered types by extracting special kinds of information—thereby making the types abstract —and restructuring it within a project.

Against this background, this study considers how the typology of FOA has evolved from the typology of the past and how the concept of typology has expanded. Furthermore, by raising an objection to limiting typology to "classical heritage," this paper presents further applications of typology for the future.
1.2 Structure of Research

As a preliminary consideration of how the typology of FOA changed from traditional typology, the second section reviews the historical background of typology. Moreover, this section considers why typology is still valid within the sphere of contemporary architecture and reviews debates on how typology will evolve in the future.

By examining works, interviews, and exhibitions related to FOA, the third section considers the group's typological strategy and why its work belongs within the sphere of typology.

The fourth section analyzes how the typology of FOA differs from typologies of the past and how the concept of typology has expanded. The concept of "type" proposed by FOA, as well as the process, classification, and systematization of FOA, will be analyzed.

Lastly, the conclusion discusses the meanings and future applications of FOA's typology.

2. Historical Background of Typology and the Position of Typology in Contemporary Architecture

2.1 Historical Development of Typology

Typology theory in architecture has been discussed since Quatreｍere de Quincy in the late eighteenth century, though with some variations in meaning. Table 1. summarizes the different historical transformations of type and typology concepts since the Enlightenment, which has been examined in three developing stages based on methodological interpretation.

Typology has continuously maintained its significance in the realm of architecture since the late eighteenth century. Historically, typology has been discussed in terms of three major concepts: (i) a fundamental principle of architecture and an exploration of origin, (ii) a manual or a guideline for making architecture based on composition, and (iii) a production tool for a new norm applying the concept of prototype.

2.2 Discourses on Typology in Contemporary Architecture

Current discourse on typology in contemporary architecture points to a need for some modifications of typology along with criticism of classical typology. Referring to the fact that traditional typology has an element of structuralism or determinism with obsessive legitimizations from history, Rem Koolhaas criticized typology as a preemptive tactic that aborts history before it can happen. He further noted that typology is only valid when it is interpreted in its most primitive terms not in a specific form.

Meanwhile, FOA believes that traditional reductive typology cannot comprehend the complexities of contemporary trends or control new concepts and flows of information within the changing paradigms of contemporary architecture.

Table 1. Historical Transformation of Type and Typology Concepts

<table>
<thead>
<tr>
<th>Typology as a fundamental principle of architecture</th>
<th>Typology as a manual for making architecture</th>
<th>Typology as a production tool for a new norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quatreｍere de Quincy</td>
<td>J. N. L. Durand</td>
<td>Walter Gropius</td>
</tr>
<tr>
<td>Typology as a principle of creation and rule for &quot;model&quot;</td>
<td>Typology as a manual for creation based on a classification system</td>
<td>Typology as an obstacle to creating new architecture</td>
</tr>
<tr>
<td>Type as fundamental principle inherent to forms</td>
<td>Type as architectural elements</td>
<td>Type as a standard can be mass-produced</td>
</tr>
<tr>
<td>- Three essential types: hut, tent and cave</td>
<td>- Represented a series of types for composition</td>
<td>- Argued the importance of prototype</td>
</tr>
<tr>
<td>- Model as a complete icon, Type as model's metaphorical imitation</td>
<td>- Systematic combination of elements</td>
<td>- Absence of the traditional and historical aspect</td>
</tr>
<tr>
<td>Aldo Rossi</td>
<td>Leon and Rob Krier</td>
<td>Le Corbusier</td>
</tr>
<tr>
<td>Typology as a logical principle prior to form</td>
<td>Typology as a tool for reproducing the traditional composition of a city</td>
<td>Typology should evolve towards the establishment of a new standard type</td>
</tr>
<tr>
<td>Type as &quot;the very idea of architecture&quot;</td>
<td>Type as geometrical pattern group</td>
<td>Type as an object can be acquired in the production itself</td>
</tr>
<tr>
<td>- Types are elements that cannot be reduced</td>
<td>- Emphasized history and tradition</td>
<td>- Functionally appropriate form</td>
</tr>
<tr>
<td>- Asserted the importance of dialectical application</td>
<td>- Repetition and adaptation of types to different local conditions</td>
<td>- Type (model) can be applied to multiple conditions</td>
</tr>
</tbody>
</table>

Despite these criticisms of the type and typology concept, some architects find positive aspects in typology insofar as it explores the principles of architecture and is a tool for creating forms. Such architects support reframing typology as long as its concepts are modified and expanded.

In contemporary architecture, typology is not confined to a fixed type or a specific structure associated with a program. Rather, the value of typology exists in a process that begins with a type in a flexible context that can be proliferated in multiple locations regardless of its typical relationship with forms.

2.3 Background of the Reframing of Typology by FOA

Alejandro Zaera-Polo of FOA argued that in the complex urban context, traditional typology is no longer
valid. As an alternative to this traditional typology, he suggested that the design methodology can be adapted on a macro scale in a complex context allowing proliferation in multiple locations. He also maintains that in architectural practice, the value of individuality, specificity, language, and idiosyncrasy need to be reviewed. He proposes modifications to typology as a means to secure internal consistency in FOA's projects, to correct the direction of future projects, and accumulate knowledge of the practice. Zaera-Polo also developed methods for classifying a series of different spatial compositions; these methods, he argues, can function as a core principle. This means that unlike traditional typology—which relied on the superficial repetition, reproduction, and modification of precedents—core principles can be established through transformation into abstract forms and structures and through evolution and proliferation as architectural applications.

3. FOA's Typological Strategy

3.1 Typology as a Tool for Consistency

Typology has been defined variously as the imitation and reproduction of exemplary precedents (Quatreḿere, Rossi), the formation of types through a composition of elements according to manuals (Durand, Krier), and as the repeated application of design norms under universal conditions (Gropius, Le Corbusier). While classical typology fundamentally involves the concept of "repetition and reproduction," FOA emphasizes the logic of "identity or sameness" in contemporary architecture.

Table 2. Internal Consistency in FOA's Works

<table>
<thead>
<tr>
<th>Project</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-speed Railway Complex, Pusan</td>
<td>2002</td>
</tr>
<tr>
<td>Downsview Park, Toronto</td>
<td>2000</td>
</tr>
<tr>
<td>SE Coastal Park, Barcelona</td>
<td>2004</td>
</tr>
<tr>
<td>BBC Music Center, London</td>
<td>2003</td>
</tr>
<tr>
<td>Azadi Cineplex, Tehran</td>
<td>1996</td>
</tr>
<tr>
<td>Virtual House, Anywhere</td>
<td>1997</td>
</tr>
</tbody>
</table>

FOA views typology as a tool for maintaining consistency in their projects, and their architectural works reflect this idea. FOA criticizes the problem of "idiosyncrasy" that is solved on a case-by-case basis in contemporary architecture. The group explores the possibility that a logic derived from a specific condition or situation can be applied to multiple locations through the process of evolution and proliferation.

Table 2 shows the consistency in their projects where a similar principle (an abstract formal structure) was applied.

3.2 Prototype Design Methodology

In "Remix 2000," FOA proposed a "prototype design methodology" as a tool to explore the complex material structure of contemporary architecture. They defined a prototype as an intermediate phase between information and form, arguing that the prototype could be applied to numerous conditions, thus enabling projects to be interconnected. A prototype is a rule or function that integrates myriad information and concepts into one type in contemporary society. While the traditional "type" is a fixed constant, a "prototype" is a principle for controlling various conditions or multiple variables. The figures below illustrate three different projects that applied "vectorial grid" as a ruling design methodology. While all projects differ from one another in size, location, and program, the same prototype design methodology connects them. Without doubt, this allows internal consistency and at the same time formal diversity despite the same prototype being applied to projects.

Vectorial grids of the Yokohama Port Terminal (left), SE Coastal Park in Barcelona (above right), and Virtual House (below right), as shown in Fig.1., destroy the frames of the formerly used orthogonal grids, and are thereby used as a means to overcome the typicality of geometric forms. Vectorial grids in the Yokohama Port Terminal are used as a frame of reference to determine the form of the girder, as well as that of the dock and lamps on the roof; in Virtual House, they are used to determine the gradient of the roof and slab, as well as the curvature of the folded sides. In fact, the methodology for using such a prototype in the Yokohama project employed a process of constant feedback; this process created a unique and complex space with consistent design logic by incorporating minimized basic components of the framework and a series of specialized techniques that were newly developed.
3.3 Phylogenesis Based on the Concept of Species

FOA's book *Phylogenesis* published in 2003 examines the internal consistency of FOA's architectural works and presents a phylogenetic tree that could substantially facilitate their future projects. Phylogenesis is useful for analyzing and reviewing their past works and as a tool to be applied in the future.

FOA proposed a phylogenetic tree based on the concept of species as an effective alternative to traditional typology. They define "species" as the physical composition of different materials according to a specific formula for a specific purpose in a certain project. In such a classification, species implies an abstract structure for a single project organized by the composition of "phyla."

FOA identifies the problem in classical typology of connecting a specific program with a specific type. To overcome this problem, they propose establishing "phyla" as a spatial hierarchical structure that supports the formation of "species" by combining "phyla."

As discussed above, FOA developed a typological strategy without abandoning the core idea of classical typology. First, repetition and reproduction are used as tools for consistency. Secondly, the concept of "type" is replaced by "prototype" and "species." Lastly, as typology inevitably has the characteristic of "division and classification by types," FOA's phylogenetic tree reflects its typological thought.

4. Difference and Expansion: Classical Typology and FOA's Typology

4.1 Modification of the Concept of Typology

Following Quatreームre de Quincy, the neorationalist architects and theorists of the 1960s and 1970s did not depart from the concept of typology as an exemplary precedent. Quatreームre believed in three fundamental types, and Durand suggested the composition of types through a combination of elements selected among classical factors. For neorationalists, the traditional elements of urban structures formed the basis for the concept of types. In other words, their architectural works built upon the slight modification and literal combination of types—the physical, geometrical structural elements found in exemplary precedents.

Meanwhile, the types suggested by FOA are abstract and have a topological structure. Types as a means to control the complexity of contemporary architecture are transformed into an abstract prototype to shape various kinds of information into a form. Existing geometric forms are replaced by a topological phylum based on a formal principle. This helps overcome the rigidity of a structure derived from the repetition, reproduction, modification, and combination of a fixed form.

In summary, the concept of types suggested by FOA is an alternative to the static concept of types. It represents a flexible organization of the multiple variables that exist in complex contemporary societies.

Moreover, in terms of the physics and geometry that created rigid forms and typicality, types are
transformed into abstract and topological structures. Through efficient combinations, types are applied under various conditions as a consistent tool, adding diversity. Fig.4. shows FOA's projects that acquired both internal consistency and formal diversity.

4.2 Expanded Process: Evolution and Proliferation

In traditional typology, types were represented in architecture through repetition and reproduction via a reduction process. This process inevitably resulted in rigid types and forms. In FOA's architectural works, the concept of the "repetition and reproduction" of types is complemented by the protocol of "evolution and proliferation."

Fig.5. shows the evolution of FOA's architectural concept. For instance, the Yokohama Port Terminal shows a continuous evolution from the beginning of the project to completion. On the other hand, the WTC (Bundle Tower) forecast the current picture based on the evolution of types of high-rise buildings in the past. The concept of evolution advocated by FOA includes both the evolution of the "types" comprising projects and the evolution of the projects themselves.

Fig.6. shows the process of the proliferation of a type (prototype: a type as the principle of control and creation) spreading into a whole in the Barcelona parks and performance hall project.

4.3 Modification of the Classification System

As shown in the figure below, Durand presented
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5. Conclusion

Architecture is a receptacle of the contemporary world. In other words, architecture reflects the society, culture, and technology of the times while being closely associated with the dominant paradigms. The development of rationalist philosophy and taxonomy—which prevailed during the Enlightenment in the late eighteenth century—led to the emergence of architectural typology. Furthermore, the development of technology and materials fulfilled the need for mass production to rebuild cities destroyed during the two World Wars in the first half of the twentieth century. This established the foundation for a new form of typology, different from that of previous times that could be used as a tool to build society. The neorationalist architects of the 1960s and 1970s, who saw modernist urban planning as an act of destroying historical cities, used typology as a means to recover the historical continuity of cities. As such, different social and technological motives act as driving forces that develop the typologies of each era and determine the fundamental differences between them.

Moreover, the architects or theorists of each era developed typologies through various methods. Many architects and historians do not hesitate to define the works of Quincy and J.N.L. Durand in the eighteenth and nineteenth centuries as typology. As theorists and architects, and even educators, they paved the way for the design methods they thought were right, which attained value as a field of study according to the appraisals of future generations.

In the modernist era, Corbusier used typology as an inferential tool by interpreting classical works. With this approach, typology moved away from being a static field of study and opened the possibility of being used as a tool that can be modified and reinterpreted. Moreover, modern architects, including Corbusier, pursued prototypes for mass production while denying typology; this led Vidler to characterize it as the Second Typology.

For the neorationalist architects of the 1960s and 1970s, typology had secured its place as a useful means to rebuild cities along with urban morphology. They wanted to establish typology as an unchangeable theory of architecture.

Now, the twentieth century has ended, and we live in a new era called the "information society." Computers and the Internet are undeniably the products of this era. Enormous amounts of information fill the Internet, and architecture is no exception. It has reached such a point that all data that must be reviewed for a single project cannot be managed by manual labor. At the same time, the development of computer technology has also enabled the effective control of such endless data, recalling the way technology and materials met the social needs of the modernist era in the twentieth century. Based on changes in society and technology, FOA has moved the concept of typology away from the fixed and static precedents of the past and proposed modifying it into an abstract structure of form, or a diagram that emphasizes the aspect of typology as a principle. FOA has also attempted to transform the architectural process from simple quantitative expansion to qualitative growth by complementing...
the simple process of "repetition and reproduction" in classical typology with the protocol of "evolution and proliferation." Moreover, they have expanded a simple classification system that generated rigid and typical forms into a hierarchical classification system of spatial structure. These changes promoted by FOA show that it is possible to overcome the morphological rigidity and typicality of classical typology. Moreover, this methodology shows that it is possible to improve the inefficient structure of architecture in practice, which merely demands special solutions for specific conditions without maintaining consistency.

The typological design strategies in the work of FOA are closer to Corbusier's concept of a tool than a field of study. FOA has attempted to redefine and reinterpret typology by breaking away from the regulated frame while maintaining a critical attitude toward the fixed concept of typology. With this attempt, typology becomes a strategy to create "atypical forms" or generate shapes, which are produced in various ways in contemporary architecture.

Architectural paradigms have changed continually throughout history. It is interesting to observe that some methodologies have remained constant throughout the whirlwind of changes as opposed to disappearing as temporary attempts. The development of typology since the eighteenth century shows that the typological design strategies of FOA have value as a new methodology that must be attempted in the current era. As noted by FOA, their mechanism is not yet complete. It remains an ongoing process with room for improvement. However, their experiment has significance as an evolving methodology that adjusts to changing values by reinterpreting and complementing typology, which has occupied one part of architectural theory and history, through the new frame of modernity.

References
3) FOA (2004), Phylogenesis FOA's Ark, Barcelona: Actar publication.

Figure Credits
Fig.1.-6.: FOA
Fig.7.: (Left) J.N.L. Durand, (Right) Krier. R
Table 2.: FOA
Table 3.: (Left) J.N.L. Durand (Middle) Rossi. A (Right) FOA

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