

Using typology as a tool in the design process

Studying one type to innovate another

Bonnie Schaafsma | 4303083

Tutors: Marieke Berkers & Robert Alexander Gorny

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1 | INTRODUCTION

The word 'architecture' can refer to, most commonly, a design discipline. However, it also refers to a body of knowledge, more specifically, regarding the built environment.¹ It is important to point out that both interpretations relate to research differently. There is research *about* architecture that aims to add to the knowledge tradition, research *into* architecture as a design discipline and research *for* architectural design. In the latter, architectural *design* research, the result of the research or the answer to the research question is not always the end goal. It can act as a step in the design process. The newly gained insight serves not as the solution to the design problem itself but as a means to come closer to finding a good solution or as a means to design.²

As it provides an answer to a specific piece of the design puzzle, research also asks to be carried out in a specific way. Not every piece of information that the design requires is best found with the same method. Designers use various methods throughout their process, without genuinely realising it. Becoming aware of the applied methods and of when to use which one influences the research process.³ It is therefore important to consciously consider the options and choose one or perhaps multiple appropriate methods.⁴ Additionally, this choice influences the design approach. For example, the use of praxeology – summarised as the study of human action⁵ – could lead to a design that focuses on functioning well for the intended users, because it has researched their habits and needs.

In contrast, the use of a narrative could lead to an experience-based design. Thus, it is paramount to be aware that the applied research method is a choice, not a given.

This course, Lecture Series Research Methods, gave name to the research methods used throughout the architecture studies at the TU Delft. Furthermore, it led to the realisation that aspects of the design process were actually part of the research process too. For instance, finding references. There could be a certain method of collecting and analysing them. Thus, I attempted to add more structure to the reference collection for the thesis, by setting requirements to the selected projects and introduce factors by which to compare them.

The topic of the thesis research considers how public spaces with water become successful social meeting points and have a pleasant effect on the (climatic) experience of the user. Within the studio of Architectural Engineering, the aim is for the design not to be merely a building, but a solution to a societal problem too. The design project of three sports buildings and a sports route will feature water as a means to cool by evaporative cooling. This solves the increasing cooling demand sustainably but also in an innovative way that can add value to the use and experience of the site. The question researched in this paper, regarding the research method used for the thesis, is:

“How can the use of typological research serve as a tool in the design process?”

2 | RESEARCH-METHODOLOGICAL DISCUSSION

The method used in the thesis research adheres closest to the method of typology, the study of the type. It comprises a literature review of at least two urban elements or buildings that include water, the fountain and the bathhouse, and an examination of three to four reference projects. It is likely that it will also study technical solutions that man came up with in response to water related problems and that have had an impact on the built environment. Such examples are dams or the Dutch delta works. The investigation into the references focuses on specific qualities that are or could be relevant for the final design. These qualities will mainly relate to creating a comfortable experience for the user and the contribution to making a social space. The study of these buildings can be called a study of types. The word ‘type’ does not have one singular meaning in the field of architecture, as much research and writings have been devoted to defining it without having reached a consensus. However, the word ‘type’ originates from the Latin word ‘typus’ or Greek ‘tupos’, meaning ‘impression, figure, type’. When the art of printing emerged, it acquired its meaning as ‘typeface’. Only during the 19th century, the current dictionary definition of ‘a category with common characteristics’ came around.⁶ Quatremère de Quincy first introduced the type to architecture in 1825. He defined it as “embodying an irreducible and generic idea through which a principled reasoning was bestowed on the rules of the typological model for design.”⁷ De Quincy’s meaning of an idea or principle embodied in an object is mostly abstract. Rafael Moneo brings forward another definition that considers actual form. He regards type as “a concept which describes a group of objects characterized by the same formal structure.” This formal structure can be an abstract geometry. Yet, Moneo also emphasises the importance of taking into account factors such as social activity and the historical position of buildings.⁸ Others, such as Durand and Rossi, relate type more to the composition or morphology of a structure.⁹ However, during the thesis research the abstract interpretation prevailed.

The bathhouse and fountain do not seem to have much in common with a sports facility, neither in function nor in form. Therefore, their less visible, less obvious qualities are of interest: how do they create spaces of social interaction or increase the user comfort? These are qualities inherent to the building type but not the ones generally considered to categorise them or compare them with. Using these properties could lead to innovating the type, as according to De Quincy, combining pre-existing elements is the basis of invention.¹⁰

3 | RESEARCH-METHODOLOGICAL REFLECTION

‘Type’ first appeared in architecture in 1825.¹¹ In the 1960s and 1970s its discussion was at its height.¹² However, the use of the type has a much longer history, as, according to Moneo, architecture is produced through types. Therefore, they have always been inherent to architecture. The characteristics of a type form the starting point of a design. Subsequently, the designer can adhere to

them, adapt them, or specify them to the distinct circumstances until he has reached a unique and fitting design.¹³ Critics have accused the type of causing repetition and preventing change. Moneo's type implies similarities of certain aspects that categorise a building as a specific type. Secondary aspects can differ and have the ability to change: the function or scale can alter, the context can vary, or two types can form a new one. As such, the type functions as "a frame within which change operates".¹⁴

In a way, this makes the type a tool to design with, or "to direct, to connect or to be instrumental in other ways." UNStudio thusly applies it, to help solve both formal and organisational issues. They use the type to address an underlying design philosophy or abstract idea, just as De Quincy. They oppose the types used for their design of Arnhem Central Station – having no clear function or dimensions – to "uncomplicated" ones, such as museums, churches or tall buildings.¹⁵ Thereby, UNStudio touches upon another interpretation of the type. Namely, that of the type as a collection of buildings with the same function, about which Bruno Zevi wrote. Werner Oechslin argues that this view, together with that of the type classified merely by form, is a far too simple apprehension of the notion type. Its proper understanding demands an insight into the balance between the singularity of a design, and established practices and common circumstances. Thus, he acknowledges repeating patterns or principles in architecture without denying the uniqueness of a design.¹⁶

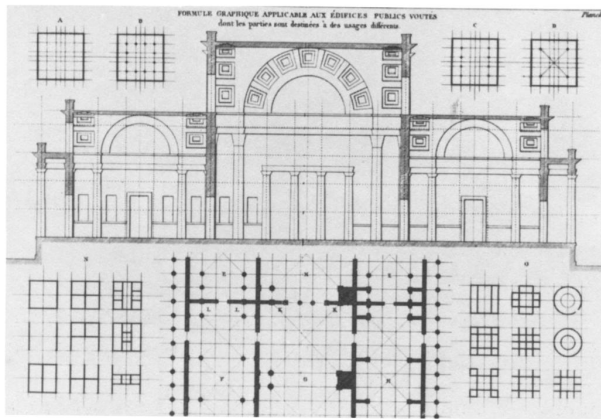


Figure 2: J.N.L. Durand, geometric schemes and their application in architecture (Werner Oechslin, "Premises for the Resumption of the Discussion of Typology," *Assemblage*, no. 1 (1986): 48.)

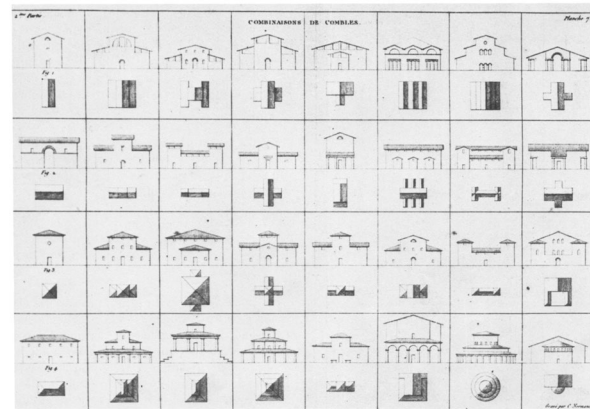


Figure 1: J.N.L. Durand, reductive geometric figures and their architectural equivalents (Werner Oechslin, "Premises for the Resumption of the Discussion of Typology," *Assemblage*, no. 1 (1986): 47.)

J.N.L. Durand's definition of type relates to composition and formal aspects. His tables show what he considered a type: simplified geometric figures and their possible architectural application (Figure 1 & 2). Ornelas notes that this was a way of systematising architectonic relations. Recombining such schemes would create original and more intricate relationships, eventually leading to a new type. Aldo Rossi considers type even more dependent on form, as he "defines type as the morphology of a structure." Thus, he regards only form and ignores memory, or history.¹⁷

The thesis research relies foremost on the architectural type as an embodied idea or principle and on how this translates into a design. Form is of secondary interest, as well as the organisation of spaces. Regarding function it is not the primary function of the references that can provide input, but other intrinsic functions can. What the study of a bathhouse aims to provide is not how to design a bathhouse, but which qualities contribute to them being well functioning social meeting spaces. Consequently, these qualities can be transferred to and improve the embodied principles of sports facilities. The findings so far result in means of encouraging social activity or increasing the comfort of the user experience. Designs regularly express these in material and formal aspects: height differences, sounds, or water flows of varying dimension having different effects. Thus, one could say that by studying several types that are categorised differently because of certain characteristics, a new type emerges from their other inherent qualities that do correspond.

4 | POSITIONING

The thesis research positions itself within the confines of typology. The literature review focuses on typological aspects of the bathhouse, fountain and perhaps the technological water landscape. However, the case studies could be said to diverge from the study of types. While they too look for typological aspects, they also examine how visitors make use of and experience these specific instances. Thus, the case studies extend into the realm of praxeology. Praxeology studies human action. It assumes that actions have a purpose. They are a chosen means to achieve a goal. As the person wants to attain this goal, it must be of value. Accordingly, praxeology indirectly examines what these values are.¹⁸ Studying how people use a building or place therefore intends to uncover what they want from it and what they appreciate about it. That could consequently be useful design input. By combining typology and praxeology with the purpose of finding design guidelines, the way that the research paper applies research, is as a (design) tool. This opposes other views of the usefulness of research in architecture. For instance, research as providing a scientific aspect to otherwise intuitive designs, as described by Stephen Kieran.¹⁹

The adoption of research as a tool concurs more with the sentiments of Wang and Groat, who argue that research and design are complementary. Yet, they do not specifically refer to research *for* design.²⁰ Christian Gänshirt discusses design tools and mentions there are “on the one hand, sketch, schematic outline, design drawing, perspective view and model as visual tools, and on the other description, criticism, theory as well as calculations and computer program as verbal tools.”²¹ This paper proposes that research should be part of this list. Gänshirt notes that each tool has their own potential and restrictions, which should be kept in mind, and they can direct a design project in a certain way, just as research methods do.²² Taking the type as an example, Carl remarks that “they embody considerable experience or knowledge regarding sizes, construction, use-patterns, and so on.”²³ Thus, their studying could provide information for the design project or possible answers to questions it poses. In that way, it functions as a tool, similar to making a sketch or a model, which provide or visualise possible solutions to the given design problem that can then be reflected on.²⁴ This idea fits within the studio of Architectural Engineering. The studio encourages students to research a technical or societal challenge “in order to make an innovative and relevant architectural design.”²⁵ As such, the research serves the design. The research of the selected challenge focuses on a single aspect of the design, providing a possible and preferably optimal solution for a part of the design problem, thus useful as a design tool. The method of the research influences the outcome of the research. Accordingly, it can affect the design indirectly. However, as the research concerns only part of the design problem this effect will be minor compared to the effect the method has on the research itself.

In conclusion, the knowledge inherent to a type, albeit a design principle, a geometric figure or dimensions, can provide a solution to one of the many design problems a designer faces during his process. He can apply, transform and combine the knowledge that the type brings forth. As such, he uses the research into the type, possibly in combination with other research (methods), as a tool to further his design.

- ¹ Ray Lucas, *Research Methods for Architecture* (London: Laurence King Publishing, 2016), 7, 16.
- ² T.M. de Jong and D.J.M. van der Voordt, *Ways to Study and Research: Urban, Architectural, and Technical Design* (DUP Science, 2002), 90.
- ³ David Wang and Linda N. Groat, *Architectural Research Methods*, Second edition ed. (Hoboken: Wiley, 2013), 10.
- ⁴ Carole Gray and Julian Malins, *Visualizing Research: A Guide to the Research Process in Art and Design* (Routledge, 2016), 15, 17.
- ⁵ Murray N Rothbard, "Praxeology: The Methodology of Austrian Economics," *The Logic of Action One: Method, Money, and the Austrian School* (1997): 59.
- ⁶ Oxford Dictionaries, "Type," <https://en.oxforddictionaries.com/definition/type>.
- ⁷ Sam Jacoby, "Type Versus Typology Introduction," *The Journal of Architecture* 20, no. 6 (2015): 931.
- ⁸ Rafael Moneo, "On Typology," *Oppositions*, no. 13 (1978): 23-24.
- ⁹ Wendy Ornelas, "Type, Memory, and Meaningful Form," *Oz* 12 (1990): 18.
- ¹⁰ Yasemin Güney, "Type and Typology in Architectural Discourse," *Balıkesir Üniversitesi Fen Bilimleri Enstitüsü Dergisi* 9, no. 1 (2016): 7.
- ¹¹ Jacoby, "Type Versus Typology Introduction," 931.
- ¹² Werner Oechslin, "Premises for the Resumption of the Discussion of Typology," *Assemblage*, no. 1 (1986): 37.
- ¹³ Moneo, "On Typology," 23.
- ¹⁴ *Ibid.*, 27.
- ¹⁵ Caroline Bos and Ben van Berkel, "Typological Instruments: Connecting Architecture and Urbanism," *Architectural Design* 81, no. 1 (2011): 68, 73.
- ¹⁶ Oechslin, "Premises for the Resumption of the Discussion of Typology," 37.
- ¹⁷ *Ibid.*, 46; Ornelas, "Type, Memory, and Meaningful Form," 18.
- ¹⁸ Rothbard, "Praxeology: The Methodology of Austrian Economics," 59.
- ¹⁹ Wang and Groat, *Architectural Research Methods*, 21.
- ²⁰ *Ibid.*
- ²¹ C. Gänshirt, *Tools for Ideas: Introduction to Architectural Design* (Birkhäuser, 2012), 81.
- ²² *Ibid.*
- ²³ Peter Carl, "Type, Field, Culture, Praxis," *Architectural Design* 81, no. 1 (2011): 39.
- ²⁴ Gänshirt, *Tools for Ideas: Introduction to Architectural Design*, 60.
- ²⁵ Architectural Engineering, "Course Description," <https://brightspace.tudelft.nl/d2l/le/content/124966/viewContent/1106835/View.s>

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