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CONTINUOUS SPACE PHENOMENA

**A dissertation thesis submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy**

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L.S.

Summary in English

This doctoral research follows the phenomena of continuous space and its evolution during the twentieth century, phenomena representing notions dominant in the architectural discipline during this period, and advocated for by the Prague born art historian Sigfried Giedion in his 1941 publication 'Space, Time and Architecture: The Growth of a New Tradition.' Thus, this analysis presented in the form of a dissertation thesis, traces tendencies of such notions through a close examination of its manifestations in the practice of architecture, and in the literary works in reference to such approaches to architectural creation and critique. The spatial conception is a well-established as an emblematic and crucial component of architectural thinking during the unfolding of the twentieth century, as well as being well embedded in the spirit of that era. Therefore, this doctoral research explores the aspects and the circumstances influencing the evolution of notions of continuous space in the discipline while adopting the Grounded Theory methods of qualitative investigation. Accordingly, a collection of key projects and case studies, as well as literary accounts on the subject matter are analyzed and categorized, thereafter, the assemblage of classified knowledge on such notions are organized around concepts, guided by the evolution of the phenomena itself. This process is put forward in order to elaborate patterns and linkages between categories, ultimately to arrive at a precise reading and interpretation of 'Continuous Space Phenomena.' On the grounds that this doctoral investigation is positioned at the juncture of the theory and practice of spatial architecture, it further offers an exploration of the tools through which to work with in attempting to understand or conceive continuous space by means of deducing such notions to its basic components and concepts on the one hand, and on the other, illustrating employable methods and techniques of making such architecture.

Summary in Czech

Tento výzkum sleduje vývoj koncepce prostoru tak, jak ji uvádí ve své práci historik Sigried Gideon ve své knize z roku 1941 'Space, Time and Architecture'. Výzkumná práce sleduje architektonické tendence, které se v průběhu 20. století zabývaly pojmem prostoru; a to jak v praxi, tak i v literárních pracích ve vztahu ke konceptu v architektonickém oboru. Prostor jako koncept je pevně zakotven jako symbolický a zásadní komponent v architektonické tvorbě, stejně jako je zakotven v duchu doby. Z tohoto důvodu se tato práce zabývá aspekty a okolnostmi fenoménu kontinuálního prostoru, přitom používá kvalitativní výzkumnou metodu „grounded theory". V souladu s tím je analyzován a kodifikován soubor vybraných příkladů a literárních záznamů, týkajících se daného tématu. Poté je uspořádán soubor klasifikovaných znalostí souvisejících s koncepty ovlivněnými vývojem tohoto fenoménu. Účelem je hledat vzory (patterns) a vzájemné vztahy mezi kategoriemi a konečně dospět k přesnější interpretaci a pochopení fenoménu kontinuálního prostoru. Tím se tento průzkum dostává do průsečíku teorie a praxe architektonického prostoru; dále nabízí použití nástrojů, které umožňují pracovat s konceptem kontinuálního prostoru. Tím umožňuje na jedné straně porozumět danému fenoménu a na druhé straně jej požít v praxi.

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Introduction

There are numerous reasons to pursuing a Ph.D. in any given field, and notwithstanding the fact that during my early formative years I did not earnestly aim at seeking such a significant and demanding academic path. However, here in your hands is the resulting outcome of years of a very rigorous and determent journey. My curiosity on the contemporary creative processes of architectural design, as well as the theoretical and critical underpinning that parallels it, were some of my personal inquiries that fuel my interest into this subject, and thus undertaking the task to fulfill a doctoral investigation into 'Continuous Space Phenomena' in September 2013.

Against this background, in the following paragraphs you will find four key components as part of the introductory chapter. Starting with [1] the research object and objective, which leads to [2] Framing 'Continuous Space Phenomena' in its context, then [3] research method and methodology, and finally [4] research results and their scientific contribution.

1.   Research object and objective

This doctoral research project, as the title suggests, addresses a certain phenomenon in the architectural discipline that is recognized as the continuity of space. Therefore, from the very first encounter with this three words composition of a subject title, my intuition was to deconstruct its constituent parts in order to attempt at an initial interpretation, thus i began with the three basic questions: [1] what is an architectural phenomenon, [2] what is space within the architectural discipline, and finally [3] what constitutes spatial continuity. Each component encompasses a broad scope of inquiry that accordingly requires careful examination before commencing a proper investigation track towards establishing what 'Continuous Space Phenomena' means.

In that regard, and beginning with the word phenomena - the plural of a phenomenon, the term comes from the Greek verb *'Phainein'* which means to show, to shine, to appear, to be manifest or to manifest itself[1]. Stepping away for a moment from the term's architectural connotations, in the scientific sense of the word a phenomenon is any event that is observable, however common it might be, and even if it requires the use of instruments to examine, record, or compile data on it. For instance, in physics, a phenomenon may as well be described by a system of information related to matter, energy, or space-time, such as the observations of Isaac Newton on the moon's orbit and gravity, or in another example, Galileo Galilei's observations of the motion of a pendulum[2]. Therefore, with respect to this dissertation thesis, the phenomena concerned with here is represented in the manifestation of spatial qualities in the architectural object and evidence of such emphasis. Expressions of aspects of continuous space in the built environment were vastly influenced by a developing modern society

1   PHENOMENON/PHENOMENA | Dictionary of Visual Discourse: A Dialectical Lexicon of Terms - Credo Reference. (2019). Retrieved from https://search.credoreference.com/content/entry/ashgtvd/phenomenon_phenomena

2   Bernstein, J. (1996). *A theory for everything*. New York: Copernicus.

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out of the industrial era, which in turn brought changes to the look and feel of everyday life. In that respect, the dialogue at that time began to slowly change accordingly, especially among architects, artists and historians as will be illustrated in the following chapters. It is not unusual to think that amid groups of intellectuals to be talking about their contemporary advances made by their scholars in the numerously progressing fields around this particular age - the turn of the twentieth century. For instance, one of the most prominent and thought provoking advances at the time was happening in the field of physics on the space-time continuum and the four-dimensionality of reality. Western society was beginning to see the world in an entirely different way, and so did the architect and the artist of the time. Therefore, one of the fundamental issues to be closely examined in this doctoral inquiry is the architectural discipline as it was evolving to embrace such new ideas and concepts born during the twentieth century, and thus, an examination of such spatio-temporal thinking to emerge as phenomena in the discipline. In going back to the basic meaning of the term phenomena, in the ordinary sense of the word, it refers to any occurrence worthy of note and investigation, typically an untoward or unusual event, person or fact that is of special significance[3]. From this point of view, this dissertation aims to arrive at a definition of such phenomena of continuous space, and accordingly to reveal its significance within the architectural discourse as a whole.

Space on the other hand, as the subject matter of this examination of architectural phenomena, is broadly defined as the boundless, three-dimensional extent in which objects and events occur and have relative position and direction. The concept of space is considered to be of essential and crucial importance to understating the physical world. However, there is evidence to a continued disagreement between philosophers over whether it is itself, 'space,' an entity, a relationship between entities, or part of a conceptual framework[4]. The term space is one of those constitutional aspects of the universe, and is one of the fundamental quantities in physics as well as one of the most debated topics across various fields of knowledge, thus it can only be assumed that the understanding of space as an abstract concept exists independently from architectural discipline. In that sense, space exists inside and outside the physical structure and it is observed by the physical elements that forms it. When speaking of space in architecture, one is immediately swayed to think of an entity that is bound from the sides that defines its limits, where the most common and banal reading of it is as a room defined by the four walls, the floor and the ceiling. *'The general lay conception of architectural space indicates that one has to distinguish conceptually between two elements, if one wishes to comprehend the phenomenon of space. These elements are space itself and spatial demarcation[5]'*. Demarcation in which space tends to be defined, or even identified through, in this context refers to elements that rise or are raised, space is thus determined as

the thing existing between these elements. Evidently, the concept of space is not of an ordinary research task, which makes it only the more intriguing to investigate considering its essential nature as an autonomous notion, notwithstanding its fundamental relevance to the architectural discourse of the twentieth century.

| SPACE |

Spatial demarcations

Last but not least, the term continuity seems to be defined in a somewhat consistent manner. For instance, according to a Cambridge dictionary, continuity means the state of continuing over time, especially without change or interruption[6]. An Oxford dictionary adds that continuity is the unbroken and consistent existence or operation of something over time[7]. In that respect, what is it exactly that gives space the quality of being uninterrupted, unbroken and continuous in the architectural sense? How is space in a state of continuity? From this perspective, one of the key targets of this doctoral investigation is to arrive at a definition of spatial continuity by identifying its factors, elements and the concepts that enables and distinguish such qualities in architecture.

By deconstructing the title of the subject matter at hand, we are able to pinpoint three major angles of commencing this doctoral study. Therefore, in carefully framing these points of departure, it is possible to lay the foundation of the object and objective of this research, it is thus to reach a conceptual framework of what precisely constitutes and defines 'Continuous Space Phenomena' in the architectural discipline is ultimately the target. Accordingly, it is only appropriate to clarify what is a 'Conceptual Framework'? As the term is defined by its use, it seems to cross the large and the small scale of theories and contexts, therefore, its explicit definition and application can vary[8]. Conceptual frameworks are particularly useful as organizing devices in experimental research, where some scholars have applied this notion to deductive, empirical research at the micro – or individual study level[9]. Furthermore, conceptual frameworks are described as networks or a plane of linked concepts that offer a procedure of theorization for constructing a definition that can be based on the grounded theory method[10].

3   PHENOMENON/PHENOMENA | Dictionary of Visual Discourse: A Dialectical Lexicon of Terms - Credo Reference. (2019). Retrieved from https://search.credoreference.com/content/entry/ashgtvd/phenomenon_phenomena

4   SPACE | physics and metaphysics. (2019). Retrieved from https://www.britannica.com/science/space-physics-and-metaphysics

5   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

6   CONTINUITY | meaning in the Cambridge English Dictionary. (2019). Retrieved from https://dictionary.cambridge.org/dictionary/english/continuity

7   CONTINUITY | Definition of continuity in English by Oxford Dictionaries. (2019). Retrieved from https://en.oxforddictionaries.com/definition/continuity

8   Ravitch, S., & Riggan, M. (2012). Reason & Rigor: *How Conceptual Frameworks Guide Research.* Thousand Oaks, Calif: Sage Publications.

9   Shields, P., & Rangarajan, N. (2013). A *Playbook for Research Methods: Integrating Conceptual Frameworks and Project Management.* Stillwater: New Forums Press.

10   Jabareen, Y. (2009). *Building a Conceptual Framework: Philosophy, Definitions, and Procedure.* International Journal of Qualitative Methods, 8(4), 49-62.

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In that respect, developing a conceptual framework to define 'Continuous Space Phenomena' in architecture is intended to elucidate the basic concepts of spatial continuity in the field, and to develop a common language with which to provide uniformity leading to a better understanding of the subject matter. Such conceptual frameworks are not merely collections of concepts and ideas, rather a construct in which each concept plays an integral role to the overall phenomena and its evolution over the years. According to Miles and Huberman, a conceptual framework *'lays out the key factors, constructs, or variables, and presumes relationships among them[11].'* Thus, one of the essential tasks of this doctoral inquiry is to determine these core concepts of the phenomena exemplified in what is manifested in their built form as case studies, and subsequently as theoretical and literary works in reference to such notions in the built environment. It is then important to extract a conceptual reading of these example, contextualize them ahead of developing broader lines and categories of the phenomena at hand. According to Ulrich, the ability to reason about any artifact rests on the ability to abstractly categorize that artifact and provide a minimal description of its structural or salient aspects[12].

2.   Positioning and framing the research's point of departure

Positioning this doctoral inquiry into the phenomena of continuous space is for the purpose of placing the research in its proper context of space and in time, for such notions in the architectural discipline arose within an influential atmosphere of strong exchange of ideas, concepts and visions of the world that only continued to evolved exponentially over time when looking at the subject matter retrospectively.

With regards to the temporality of such phenomena, at least its foundational period, the triggering moment of spatio-temporal notions in architecture are closely linked to the numerous changes that followed the industrial revolution, to what is described as modernity, modernism and the Modern Movement around the turn of the twentieth century. Hilde Heynen in her article 'Positioning Architecture' offers a way to differentiate the three terms through the writing of Marshal Berman of 1982, titled 'All that is Solid Melts into Air: The Experience of Modernity[13].' According to Berman, modernity stands for the attitude to life that is associated with a continuous process of evolution and transformation, with an orientation towards a future that will be different from the past and from the present. The experience of modernity thus provokes responses in the form of cultural manifestos and artistic movements, some of which are given the name modernism. On the other hand, modernism, in its broadest sense, Berman claims that it can be understood as the generic term for those theoretical and artistic ideas about modernity that aim to enable men and women to assume control over the changes that are taking place in a world by which they too are changed. In short it represents the common position taken by all those

who say wholeheartedly 'yes' to modernity. Finally, the Modern Movement is the self-consciously described movement by historians like Sigfried Giedion and Nicolaus Pevsner, who embodied the modernist position par excellence within architectural and urbanism[14].

For another angle of looking at the subject matter of this research, Harry Francis Mallgrave in his two volumes of 'Architectural Theory' begins by stating that the association of theory with practice in architecture is at least as old as the first book of Vitruvius. However, the two notions do not run in parallel. Where in fact since the 1920s, historians chiefly such as Sigfried Giedion, began tending somewhat promptly to see first the experiments in modern architectural forms during that era of rapid change, in the discipline as well[15]. It is argued that there are two principal manners through which architectural theory has been conceived, on the one hand as historiographic critique, and on the other hand as interdisciplinary historiography. In the historiographic critique which is the result of a Post-Renaissance theory making, is centered on the humanist imperative to link historical knowledge, social criticism and architectural practice. In that respect, during the nineteenth century, historiographic critique seems to be viewed as increasingly incapable of creating viable conceptions of the past and thus was replaced by interdisciplinary historiography. Why is this important in this context? At least because of one advantage which interdisciplinary historiography gave, explained to be seen in the work of Mies van der Rohe where the architect in question abolished narrow historicism in favor of consciously creating dependencies between philosophy, history and architectural theory, drawn out over various times, cultures, languages and academic disciplines[16].

In any historical reading of a phenomenon in the field of architecture, Louis Martin explains that understanding the complexity between theoretical texts and architectural ideas demands a type of analysis that is capable of distinguishing and identifying the intersection between the inner developments within the architectural discipline and those of parallel fields. It is therefore necessary that such theoretical interpretations of history takes into account the semi-autonomous nature of architecture which is described as being occasionally disturbed, but never governed, by external influences[17]. For instance, taking into consideration his highly influential publication, Sigfried Giedion in 'Space, Time and Architecture' intends to integrate, with a historical and theoretical reading of the architectural discipline, yet remote abstractions of Albert Einstein's relativity. Giedion discusses extensively Einstein's hypothesis on time and space which according to the physicist are no longer the absolute dimensions of Newtonian physics, but relative measurements functionally dependent on one another. As technically difficult as these concepts were, Giedion maintained his reading that modern artists

11   Miles, M., & Huberman, A. (1994). *Qualitative data analysis.* Thousand Oaks: Sage.

12   Ulrich, K. (1988). C*omputation and pre-parametric design.* MIT Artificial Intelligence Laboratory.

13   Berman, M. (2010). *All That Is Solid Melts into Air: The Experience of Modernity.* London: Verso Books.

14   Heynen, H. (2008). *Positioning Architecture. Positions*, (0), 42-47.

15   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

16   Jarzombek, M. (1991). The Crisis of Interdisciplinary Historiography. *Journal of Architectural Education*, 44(3), 150-155.

17   Martin, L. (2009). *Against Architecture.* Log, 16, 153-167.

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and architects grasped them intuitively and incorporated them into their own work[18].

In the first pages of his book 'Space, Time and Architecture,' Sigfried Giedion begins by speaking of the importance of being in close contact with contemporary issues and concepts in order for the historian in his interpretation of the history of architecture. Giedion continues to explain how in his contemporary times, history is dynamic rather static, and he does that by pointing out the changing attitudes and interpretations in the early decades of the twentieth century. Thus, for Giedion, history is not simply a repository of unchanging facts, but rather processes and patterns of living and evolving readings[19]. For this dissertation thesis at hand, Giedion's master work 'Space, Time and Architecture' is one of the principal guiding tools in understating firsthand the time and place of the birth of architectural concepts of space within a growing and evolving architectural discipline, consequently opening the first and most important gates to defining the 'Phenomena of Continuous Space,' thus answering this research's primary questions. In that respect, it is important then to present Giedion as he is a prominent personality and influencer of the Modern Movement in architecture. Sigfried Giedion is a 1988 Prague born, Swiss historian and critic of architecture, moreover, he received his Ph.D. in art history under Heinrich Wölfflin in Munich. Giedion was later appointed professor at the University of Zürich, then shortly before World War II left to the United Stated to be the Charles Eliot Norton professor of poetry in 1938 at Harvard University. His lectures there became as a result his 'Space, Time and Architecture: the Growth of a New Tradition[20].'

Sigfried Giedion is thought to be the last representative of the Swiss historical school, which is profoundly influenced by the Hegelian teachings. Burckhardt, the founder of the school, frequently made his statements in Hegelian terms. As an example, Burckhardt's revaluation of the notion of 'Style'. According to Burckhardt, 'Style' had been treated in a simple manner in terms of its external characteristics, however he believed that a period designated as a 'Style' assumed an internal coherence – not only in the plastic arts and philosophical developments, but also in manners, political activities, and military tactics. Wölfflin, who succeeded to Burckhardt's chair, enlarged the teachings he had received. Thus this approach, which Burckhardt had initiated, required a more precise definition of the succession of styles; and Wölfflin continued to work on this issue through the teachings of Hegel. The essence of Wölfflin's method lay in the close examination of works produced in adjoining historical periods, and, in contrasting them, arriving at a more subtle description of the styles under discussion. In that respect, Wölfflin's findings which are termed as laws of an autonomous

18   Molella, A. (2002). Science Moderne: Sigfried Giedion's "Space, Time and Architecture and Mechanization Takes Command". *Technology and Culture*, 43(2), 374–389.

19   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

20   Sorensen, L. (2019). Giedion, Sigfried. Retrieved   from http://arthistorians.info/giedions

development, in that the work of art carried the material of its study within itself, and what is external is regarded as its documentation, in addition to be considered secondary[21].

the Swiss school
of historians

Jakob Burckhardt

Heinrich Wölfflin

Sigfried Giedion

the Modern Movement in Architecture
(Le Corbusier
Ludwig Mies van der Rohe
Walter Gropius
etc.)

< Figure 02

Tracing the influences of the Swiss school of historians on the phenomena of continuous space

Against this backdrop, Hilde Heynen argues that Giedion's book is not a pioneering text in its own right, she continues by explaining that the book does not break new grounds or announce a completely new paradigm. Heynen's statement demonstrates that a number of the elements of this paradigm shift that were discussed in the book have been around for some time already. For instance, the moral appeal (i.e. Morris, Loos); the concept of space-time and its application in architecture (i.e. van Doesburg, Lissitzky); the relating of new materials and construction technologies on the one hand with architectural design on the other (i.e. Le Corbusier); the fact that architecture and city planning influence each other and are mutually dependent (i.e. CIAM texts); the concern with the organic and the functional (i.e. Moholy-Nagy, the Bauhaus). Nonetheless, it was Sigfried Giedion who was able to forge these various notions of the Modern Movement into a closely-knit whole and gave it a historical legitimization[22].

3.   Research method and methodology

In the broadest sense of the word, space can be traced back to history of antiquity. Space as an abstract concept can also be read in a wide range of disciplines, from philosophy, cosmology to physics and various other various areas of knowledge. Turning to the architectural discipline, 'space' is a subject of significance that began to evolve in an exponential manner during the later decades of the nineteenth century and was recognized as an established term within architectural circles after the turn of the twentieth century. Therefore, and according to Adrian Forty, much of the ambiguity surrounding the spatial notion in the architectural field comes from a disposition to confuse it with a more general philosophical category of space. Forty argues

21   Rykwert, J. (1954). *Siegfried Giedion and the Notion of Style.* The Burlington Magazine, 96(613), 123-124.

22   Heynen, H. (2000). *Architecture and modernity.* Cambridge, Mass.: The MIT Press; Revised edition.

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that properties of space, for the architectural scholar, is not exclusively limited to being a physical property of dimensions or extent, but moreover as a property that exists in the mind, part of the apparatus through which one perceives the world[23].

From this perspective, in considering methods, and thus methodologies of research, to which to adhere to with respect to this doctoral inquiry at hand, two issues emerge as crucial matters to be taken into consideration in the process. On the one hand, this research project on the 'Continuous Space Phenomena' begins with no preconceived ideas nor with any precise grasp to the intricate origin of the architectural notion of 'Space' in the discipline, which in turn offers an advantage of being objective towards the topic. On the other hand, a permissible ambiguity surrounding issues of spatiality in the architectural discipline, for the practitioner and equally the theoretician, art historian and critic. Accordingly, during the initial period of this investigation and for a considerable duration of time, the majority of the work done was aimed at establishing a strong groundwork and a robust basis on the subject matter prior to advancing with the proper research methodology. The results of this rigorous foundational process is presented in Annex [1] , and [2] of this dissertation thesis. The annexes are not part of the main body of the doctoral dissertation chapters, however their purpose is to function as guiding tools to navigate the topic.

Annex [1] illustrates a list of some of the most important terms and concepts surrounding the topic, which are essential notions through which to assist in paving the way to a clearer reading of the content of this document.

Annex [2] is a time-line of the evolution phenomena of continuous space over a period of an approximate one hundred years, divided into three principal segments: [1] important world events which accompanied the emergence of the phenomena, [2] structures and buildings representing key manifestations of the phenomena in practice, and finally [3] Publications, concepts and ideas representing key appearances of the subject matter in literary work.

The significance of notions of continuous space within the architectural discipline on the one hand, and on the other the intricacy of the topic demands an arduous examination process of research. Throughout the evolution of the phenomena there are a definitively large number of case studies, as well as numerous literary works in reference to such notions, thus together compounding a territory of investigation not simple to navigate through. Therefore, an approach that is able to reduce the vastness of data and information on a topic to their fundamental essences are objectively the adequate grounds for choosing a method of research, thus the Grounded Theory approach was employed here in this reading of the phenomena of continuous space. The Grounded Theory as a research method emerged in the 1960s, as a result of the work of Barney G. Glaser and

Anselm L. Strauss. Qualitative research - in the field of sociology in the United States - was losing ground in favor of quantitative methodologies which dominated journals, research departments and funding[24]. Therefore, through their cooperation and the results of their joint work, Glaser and Strauss crafted a method that enabled researchers to systematically generate a substantive theory grounded in empirical data. Their goal was to discover a theory that had grab, would fit the data, and would work in the real world[25]. Grounded Theory, although clearly a qualitative method, aimed to integrate the strengths inherent in quantitative methods with qualitative approaches. In formulating procedures of the Grounded Theory, Glaser and Strauss performed an invaluable task in bringing to general notice the important argument of the Chicago School: of the validity of ethnographic, phenomenological, interpretative, hermeneutic - and in other words, qualitative-inquiry. Moreover, to those who called 'Where is your epistemic collateral? Where is your theory?' they provided difficult-to-refute answers. Eventually, making a major contribution to making qualitative inquiry legitimate[26].

In this respect, the Grounded Theory approach to research is in principle of the qualitative type. And while a quantitative type of research is a 'top-down' approach, from theory, to hypothesis, to data, qualitative research is a 'bottom-up' approach from a selection of references, to general themes, to theory. Grounded Theory has the ability to enhance architectural research outcomes by lending rigor and validity to subjective qualitative data often dismissed as 'anecdotal evidence.' Design researchers familiar with complex and iterative design development processes are described as likely to find that Grounded Theory procedures encourage and facilitate the same kinds of thinking while working in a qualitative research context[27].

Applying the Grounded Theory approach on this research meant utilizing a systematic methodology to reveal patterns in qualitative data (cases and literary references). In the Grounded Theory, data analysis has a well-defined process that begins with basic descriptions and moves to conceptual ordering and then on to theorizing[28]. Therefore, the objective here is, rather than hypothesizing on a theory on the phenomena of continuous space and then systematically seek out evidence to verify it, to the contrary, my responsibility is to gather these data, extract its essential qualities and concepts, identify patterns and thus begin to systematically

23   Forty, A. (2000). *Words and buildings*. London: Thames & Hudson.

24   Charmaz, K. (2006). *Constructing grounded theory.* Los Angeles: Sage Publications.

25   Walker, D., & Myrick, F. (2006). Grounded Theory: An Exploration of Process and Procedure. *Qualitative Health Research,* 16(4), 547-559.

26   Thomas, G., & James, D. (2006). Reinventing grounded theory: some questions about theory, ground and discovery. B*ritish Educational Research Journal,* 32(6), 767-795.

27   Bollo, C., & Collins, T. (2017). The Power of Words: Grounded Theory Research Methods in Architecture & Design. In *ARCC 2017 Conference – Architecture of Complexity*. Salt Lake City: Architectural Research Centers Consortium (ARCC) University of Utah.

28   Patton, M. (2002). Two Decades of Developments in Qualitative Inquiry. *Qualitative Social Work: Research and Practice, 1* (3), 261-283.

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develop a theory derived directly and based on the research process[29]. Eventually the objective is to develop a theoretical position or a framework from these patterns and arrive at a precise interpretation to what constitutes continuous space as a phenomena in the architectural discipline.

At the core of the Grounded Theory, and arguably at the crux of the Glaser-Strauss's debate, is the data analysis process. It is a simple yet complex, methodical and creative, rigorous and laissez-faire process in which the researcher engages certain measures to generate theory from the data. More specifically, Glaser and Strauss developed the Grounded Theory as a method that combined two data analysis processes. In the first process, the analyst codes all data and then systematically analyzes these codes to verify or prove a given proposition. In the second process, the analyst does not engage in coding data per se but merely inspects the data for properties of categories, uses memos to track the analysis, and develops theoretical ideas[30]. The latter process in thus applied in this research project at hand.
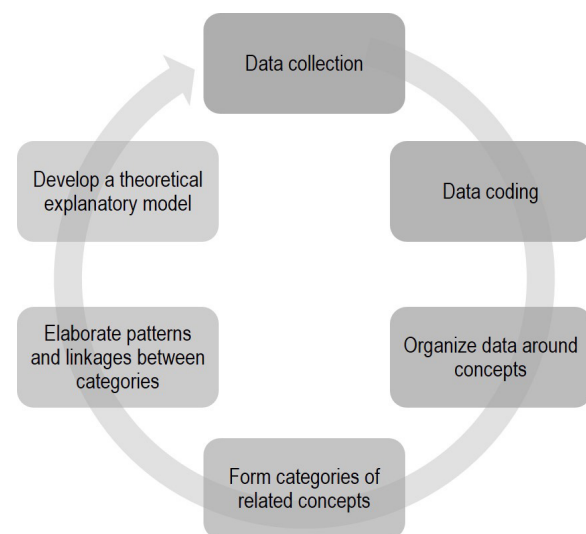
Figure 03 ⟩

The Grounded Theory research process applied on this research

Here in this analysis on the phenomena of continuous space, the methodological framework is simplified and outlined in figure [03], whereby the research began by working with raw data - literary references on the subject matter and the selection of case studies, subsequently moving to an abstract and conceptual generalization and categorization embedded in the data. This process is sometimes described as a series of steps towards higher levels of abstraction, where it is in essence an iterative process that forces the researcher to go back to previous steps and reexamine issues and concepts, and perhaps collect more information of the subject, etc.

As Glaser and Strauss describe their Grounded Theory, and with respect to this doctoral research at hand, their process thus involves the following steps; [1] identifying a phenomenon, object, event or setting of interest (phenomena of continuous space), [2] classifying a few local concepts, principles, structures or process features of the experience or phenomenon of interest (generations, concepts, notions and ideologies), [3] making decisions regarding initial collection of data based one's initial understanding of the phenomenon, thus further data collection cannot be planned in advance of analysis and the emergence of theory, [4] engaging in theoretical sampling - key question is what group or subgroups does the researcher turn to next to collect data? Therefore subsequent sampling decisions should be purposeful and relevant. And finally [5] the rationale for selecting comparison groups in their theoretical relevance for fostering the development of emergent categories[31].

4.   Research results and scientific contribution

Needless to say, notions of space- time are undoubtedly of the most fundamental conceptions and paradigm shifting aspects of the turn of the twentieth century. And in the same way, seeing and understanding the world in such a manner represented a major turning point in the direction the architectural discipline took as a result. In that respect, and by adopting the Grounded Theory method of qualitative investigation, this doctoral research arrives at a comprehensive definition of what constitutes the phenomena of continuous space in the realm of the built environment. Yet from another standpoint, and as explained earlier in this introductory chapter, stepping away from notions of the 'Style' represented a crucial moment, not just in the field of art history and aesthetics, but equally in the work of architecture and the practice of the discipline as evident in the architectural production of the twentieth century. Together, these two core features of that time shifted the center of the architectural object from the periphery and into the center - towards the spatial aspects, thus abstracting, as well as internalizing architectural thought in the process. Such readings of the evolution of the architectural discipline at that point in time are the basis on which an interpretation of the phenomena of continuous space is built on, as will be thoroughly illustrated in the following chapters.

It should be pointed out that this doctoral examination of the phenomena is chiefly focused on the creative mind behind the making of the built environment, as an active act of imagining and changing the physical world. The architect and the architectural thinker are the main protagonists of this study whereby they represent the generators of notions continuous space, thus influencing the evolution of the discipline in a certain direction. In that regard, in 'Architecture and Authorship', Tim Anstey remarks that the architect operates within the context of the status quo, but simultaneously engages in exploring ways of critically changing the status quo in order to

29   Dey, I. (2008). *Grounding grounded theory.* Bingley: Emerald.

30   Walker, D., & Myrick, F. (2006). Grounded Theory: An Exploration of Process and Procedure. *Qualitative Health Research, 16* (4), 547-559.

31   Glaser, B., & Strauss, A. (2017). *The discovery of grounded theory.* Oxon, London: Routledge.

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make a critique[32]. This in turn is in reference to the architect who is operating within an interdisciplinary setting by exploring architectural design through critical practices, or in fact architectural criticism[33]. And in exploring the relationship between theory and practice we can reference the architect of the twentieth century, who was highly engaged in critically changing the look of the built environment through the agency of space. Peter Eisenman in a conversation with Rem Koolhaas refers to the architect as a public intellectual, operating strictly within the field of architecture, but definitely contributing in domains beyond architecture[34]. Thus one of the contributions of this analysis of the phenomena aims to pay tribute to the creative process of making the built environment with respect to a continuously progressing discipline.

The ontology of choice and decision-making is apparent in this line of thinking, and it is in fact a defining aspect of the profession, in terms of the intellectual property of the architectural object as a result to the thought and creative process that precedes it. This examination then becomes important not just as a historical interpretation of a particular notion of architectural practices during a certain period of time, but also significant to contemporary practices, as it is the direct inheritor of the practices of recent and contemporary history of an architecture of space. Therefore, untangling this association between an examined continuous space and the maker of such notions offers further readings of the complex spirit of the twentieth century, where we see the evolution of this relationship is explained by influences of events and exchange of ideas that happened during this set time-frame of the phenomena of continuous space. Thus the resulting outcome of this dissertation continues to demonstrate the importance of understanding the historical events during one hundred years of significant occurrences with respect to the evolution of the architectural discipline.

As will be explored in Part 1 (Evolution of the phenomena of continuous space) of this dissertation, the advent of the spatial turn in architecture did not just mark a paradigm shift in the way of looking at and into the architectural project, but slowly became the way in which the architectural object was conceived, thus changing the look of the world. This dissertation realizes that this paradigm shift in the discipline attempted to rationalize the architectural object by internalizing its creative impulse, an approach different from an earlier tradition that emphasized architectural style. Along these line, this doctoral research project steps away completely from the notion of the 'Style,' recognized as an earlier version of history and theory in architecture towards the critical conception of temporal space in the built environment. Ultimately, this research will certainly attempt to raise more questions as it begins to answer the main question that of what is the phenomena of continuous space.

Accordingly, as a contribution of the scientific and artistic quality of this research project, my aims is to deliver first and foremost a precise definition of the phenomena, presumed here as a particular notion of thinking of and producing the built environment in its theoretical, as well as physical form. In that regard, and as a result of a lengthy research process, the definition of 'Continuous Space Phenomena' put forwards in this document is a composite of three main thematic points, the temporal (historical), the conceptual and finally, the practical, as will be illustrated in Part 2 (evaluation of the phenomena of continuous space). Thus, providing a panoramic view on the subject matter from three distinct perspectives. Under no circumstances does this dissertation thesis attempt to argue the pros and cons of such notions in the architectural discipline. To the contrary, my objective is to present the phenomena as a distinguishable and discernible approach to architectural creation of the twentieth century.

a single definition of continuous space in the history books of architecture, this doctoral research, while recognizing that the phenomena is a dynamic and evolving concept in the discipline, it presents these four chapters as a composite reading of such notions that were updated and modified over time, and instinctively continue and will continue to evolve.

32   Anstey, T., Grillner, K., & Gullstrom-Hughes, R. (2007). *Architecture and authorship.* London: Black Dog.

33   Rendell, J. (2005). Critical architecture: Introduction. *The Journal of Architecture, 10* (3), 227-228.

34   Koolhaas, R., Steele, B., Eisenman, P., Kuma, K., Turnovský, J., & Scott Brown, D. (2010). *Architecture words 1-4.* London: AA Publications.

Part 1

Evolution of the phenomena of continuous space

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1.1.   Chapter 1: I Generation

'A demand for new architecture[1].'

In such a manner Sigfried Giedion announces the emergence of a paradigm shift in the field of construction around the turn of the twentieth century. Such statement is made as a response to the quickening advances in industry and science during that very self-motivated period. In his very influential publication 'Space, Time and Architecture: The growth of a new tradition' of 1941, Giedion looks retrospectively at the unfolding events of that age, which led him to recognize the wake of an architecture of space and time that eventually was assumed the label Modern Architecture. In that regard, in the first few pages of his book, Giedion offers a handful of insights as well as interesting quotes into such phenomena, originated a century prior to his publication, and which accordingly describe those moments of awareness that the architectural discipline is in a process of fundamental change and evolution. The sentiments of that time strongly expressed the emergence of novel ideas in the field: *"A new architecture which will take us out of the sterility of the past and the servility of copying is what everybody demands, and what the public waits for", "The new architecture is architecture in iron. Architectural revolutions always follow social revolutions[2]."*

The rise of new forms of thinking about the world, and thus the built environment, is the historical narrative through which this doctoral research project is ultimately framed. Therefore, the foundation of the phenomena in question is primarily the emergence of an architecture that embodied the conception of space, at a time when the discipline was advancing substantially, more precisely with the development of a type of space-time architecture, that is in that respect the cornerstone of an architecture of continuous space. Along these lines, this first chapter aims to deliver a reading of the first generation of the phenomena, a generation that started a discussion on the course of events that unfolded within an increasingly industrialized, modern and rational society, thus an equally industrialized, modern and rational architect. This in turn is precisely the reason why one of the chief issues in focus in the following paragraphs is the link between such critical events in the history of the late nineteenth and early twentieth century. With regards to the architectural production and thinking of that age and by looking at how architects and builders actively engaged in the rapidly changing landscape at the time.

1   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

2   Daly, C. (1849). *Revue Générale De L'architecture Et Des Travaux Publics, 8.*

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The circumstances of that time of history represented a swift development in almost every aspect of life as a direct result to industrialization. It is described that such changes notably appeared in the symbols of that age – in the form of novel structures and the changing look of cities. This was as a consequence to advances in construction materials and building technologies that gave birth to massive construction projects, such as iron bridges, vast exhibition halls, impressive railways and railway stations, and of course the factory building. Thus, new architectural expressions began to surface as the world embraced for a new and changing world.

1.1.1.   Architecture and society of the industrial age

The manner through which to examine the history and the evolution of the phenomena of continuous space within the architectural discipline is determined by the method of looking at history itself. In that respect, Georg Wilhelm Friedrich Hegel, the nineteenth century German philosopher offers a useful way of regarding history in an effort to make sense of it. Hegel's philosophy of history is described as likely the most fully developed philosophical theory of history that attempts to discover meaning or direction in history[3]. Hegel likewise offers a progressive reading of architectural history where he notes that, over time there has been an increasing freedom in the architectural object from the notion of symbolism, and a greater expression of the absolute spirit. Such Hegelian views of architectural history and his grasp on the collective historical forces, gives an insight into an evolving discipline. Therefore, it is evident that certain events in history has a strong influence on this particular line of architectural theory, wherein design reflects the spirit of the time. It is furthermore argued that such readings of history are widespread in twentieth century advocacy and historiography[4].

Hegel's treatment of history, and his understanding and interpretation of it is thus the method employed in this dissertation thesis. This scheme is therefore utilized in order to construct the history and the evolution of the phenomena of continuous space over the scope of the twentieth century. Such approaches to history are derived from Hegel's account on the different historical developments in art, which happened in parallel across different nations and locations. Hegel in that respect recognizes that the realization and growth of art appears within the evolution of the discipline itself and in each stage of its history. Hegel also notes that such evolutionary sequences do not always appear in an orderly manner in time, neither do they follow the same logical transitions. Accordingly, when evaluating architectural history, Hegel explicitly denies that the conceptual order of his distinctions and developments coincide with the exact historical order in which various building forms emerged. Nevertheless, Hegel does see an over-arching historical progression from abstract beginnings in symbolic art, which parallels the logical development of the concept of art[5]. In that regard, when

speaking of a society's engagement with the spirit of the time through an individual's work of art, it is noteworthy to explain that in a Kantian way where Hegel embraces architecture as a category of the arts because of its expressive nature. Therefore, architecture for Hegel is primarily among the arts because it is able to express cognitive content - referring to absolute spirit – through organizing and reorganizing the built environment[6]. In that respect, after establishing the method through which to arrive at a historical reading of the phenomena, thus the question now is on the point of departure of this historical investigation - meaning events and ideas that triggered notions of continuous space in architecture in the first place.

In his writings and lecture, Hegel illustrates his ideas on the notion of the spirit of the time. And according to his lectures on aesthetics, a beginning must always be preceded by something that led to such a start, and so an absolute beginning cannot be fixed. Therefore, while a historical narrative must begin somewhere, all such beginnings serve only a heuristic or didactic purpose relative to a particular reading or interpretation[7]. Hegel argues: *"Where to make the beginning is indeterminate; a beginning is to be made, but it is only a relative one. We go beyond it, but not to infinity, only to another beginning which is, inevitably, also only a conditioned one; in short, it is only the nature of the relative which is expressed, since we are in the realm of the finite[8]."* The point of departure is therefore determined by the theoretical category of the phenomena being examined, which in turn draws broad lines into what is being precisely looking at. Accordingly, making the association of a spatio-temporal conception of architecture and the emergence of the Modern Movement in the discipline. In attempting to differentiate a genre or a category in reading history of art - and that of architecture, Hegel points out that any concept would have to correspond to a historical form of expression and, presumably distinguish an expression against whatever fell outside the conceptual boundaries of the genre or category from its historical emergence and through its entire history[9].

In returning to Hegel's over-arching reading of the history of art, it is important to note that such regard to an evolution of a phenomena, while does not appear in a chronological form per se, it nonetheless offers a very significant perspective on the subject matter. According to Hegel, a chronological reading – in the strict meaning of the word – holds no interest at all for thought, rather in regarding events in history, one must take into account the narration of what happened. Any historical narrative must excludes certain instances from the record, especially what was never part of it. Thus, narrative history must confirm to the general line of development, even if other parallel events are discordant with history in its entirety[10]. The concept of

3   Hegel, G., Miller, A., & Findlay, J. (1979). *Phenomenology of spirit.* Oxford: Oxford University Press.

4   Watkin, D. (2001). *Morality and architecture revisited.* Chicago, Ill.: University of Chicago Press

5   Kolb, D. (2007). Hegel's architecture. *Stephen Houlgate (Ed.), Hegel and the Arts.* Northwestern University Press.

6   Watkin, D. (2001). *Morality and architecture revisited.* Chicago, Ill.: University of Chicago Press.

7   Ladha, H. (2012). Hegel's Werkmeister: Architecture, Architectonics, and the Theory of History. *October, 139,* 15-38.

8   Hegel's Lectures on the Aesthetics. (2019). Retrieved from https://www.marxists.org/reference/archive/hegel/works/ae/index.ht

9   Ladha, H. (2012). Hegel's Werkmeister: Architecture, Architectonics, and the Theory of History. *October, 139,* 15-38.

10   Hegel's Lectures on the Aesthetics. (2019). Retrieved from https://www.marxists.org/reference/archive/hegel/works/ae/index. htm

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history, Hegel argues can only survive this entanglement with narrative through a tautological insistence on the agreement of relevant occurrences with the narrative of their relevance, therefore insisting on this conformity of the category of history[11].

This dissertation thesis therefore will, in the following paragraphs and chapters, proceed into an examination of manifestations of the phenomena of continuous space within recent history of the architectural discipline, set forwards as self-conscious awareness and careful observation of the age of the turn of the twentieth century. Equally for Sigfried Giedion, architecture is inherently bound up with the period as a whole, and according to him, architectural production can give an insight into such processes. Giedion explains that in architecture, through its fondness for certain shapes and building challenges, reflects the conditions of the age from which it springs. Architecture is therefore the product of all sorts of factors, the social, the economic, the scientific, the technical, the ethnological, etc. From a similar perspective that of Hegel, Giedion argues that, as much a period may try to disguise itself, its real nature will still show through in its architecture, whether by the use of original forms of expression or attempts to copy bygone epochs. Architectural expression is according to Giedion, an unmistakable index to what was really going on in a particular moment in time, and thus indispensable when we are seeking to evaluate that period. *"The industrial revolution, the abrupt increase in production brought about during the eighteenth century by the introduction of the factory system and the machine, changed the whole appearance of the world, far more so than the social revolution in France. Its effects upon thought and feeling was so profound that even today we cannot estimate how deeply it has penetrated into man's very nature, what great changes it had made there. Certainly there is no one who has escaped these effects, for the industrial revolution was not a political upheaval, necessarily limited in its consequences[12]."*

To distinguish the significance of the industrial revolution with respect to the emergence of phenomena of continuous space in the discipline, it is important to talk about the type of changes that occurred to society in general, and to the architect and the engineer of that time in particular as a result to a rapidly advancing mechanical and scientific age. As stated in the earlier quote, the industrial revolution maintained a strong effect on every part of daily life, which in fact is still experienced and debated in our own times today.

Along these lines, The Hegelian philosophy of the spirit or geist is concerned with how society learns about itself through what it produces as works of art, and thus, in architecture. Therefore, in accordance with the Hegelian tradition of the spirit of the time, changes occurred in the nineteenth century that produced the industrialized society can give a clue in explaining the phenomena's relation to that age of industry and mass production. Because a spirit of a certain time represents the manifestation of dominant ideals that motivates a society through the active participation of the individual in the processes of making, building, producing[13]. In that respect, this examination of the phenomena of continues space investigates society's interests in the spirit of its time by looking at the work of architecture in constructing and making the physical reality in response to the needs and demands of such society. This study explores the evolution of the phenomena by analyzing the production of a spatio-temporal architecture with respect to the technological and ideological advances happening at that age, a society which began experiencing its existence in the world, its space and time differently.

One of the key impacts of the industrial revolution on the architectural discipline in the nineteenth century was in the availability of new construction resources – iron and glass - easily and in large quantities that became economically more plausible building materials[14]. In that regard, the first generation of the phenomena experimented with the use of such materials, employing state-of-the-art construction techniques, greatly expanding the structural possibilities of that age. Thus, achieving new architectural capabilities as well as expressions. For instance, steel as a construction material has tremendous strength to weight which allowed engineers to design increasingly larger, lighter and more spacious structures. It is interesting to note that there is a curious dialogue that can be observed between the architectural taste during the nineteenth century and the structural potentials made possible by the use of iron, steel and glass.

Sigfried Giedion in his 'Space, Time and Architecture,' was largely intrigued by the emergence of new technologies, which he describes it as being in tune with its time, and in his opinion modern. Giedion's argument is in effect justified as a reading the Zeitgeist, as demonstrated earlier in the Hegelian tradition of the spirit of the time[15]. For Giedion, Modern Britain began with the construction of the Crystal Palace, a building of equal ambition to its time. And even though the Palace's form is not considered to represent a major architectural breakthrough, its techniques of execution and materials were very much innovative and in accordance with that time. The Crystal Palace was a cast-iron and plate-glass structure, originally built in Hyde Park in London. It was built to house the Great exhibition of 1851. The exhibition took place from 1st of May until 15th of October of that year, and more than 14,000 exhibitors from around the world gathered in its 92,000 m² exhibition space to display examples of technologies developed in the different corners of the world. The Crystal Palace was envisioned by Joseph Paxton, who designed it as a 564m long structure, with an interior height of 39m, and

11   Ladha, H. (2012). Hegel's Werkmeister: Architecture, Architectonics, and the Theory of History. *October, 139,* 15-38.

12   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

13   Hegel, G., Miller, A., & Findlay, J. (1979). *Phenomenology of spirit.* Oxford: Oxford University Press.

14   Drexler, A. (1979). *Transformations in modern architecture.* New York: The Museum of Modern Art: Distributed by New York Graphic Society.

15   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

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it was three times the size of St. Paul's Cathedral[16]. Paxton's design created unprecedented spaces, and because the structure acted as a self-supporting shell, Paxton was able to magnify and expand the interior spaces of the building. Additionally, the use of standardized plates of glass which covered the whole structure enabled daylight to penetrate uninterruptedly. The construction method was described as a true breakthrough in technology and building design, which only paved the way for more sophisticated and complex examples of such innovative architecture[17].

In that respect, Giedion goes into examining the construction of the Crystal Palace as one of the major examples of advanced methods of construction that adapted and employed new materials, such as iron-cast and glass, showcasing the changes in the appearance of the built environment. An advent of unfamiliar works of architecture, which eventually illustrated the beginning of a new physical reality of the man of the age of industry[18]. The Crystal Palace represented what would ultimately become a classical example a common notion at the time - following the manufacturer's limitations: the shape and size of the entire building was directly based on the size of the glass-sheets made by the supplier, Chance Brothers of Smethwick. These sheets of glass were the largest available at the time, measuring 25cm in width and 120 in length. Thus, as the facade of the Palace was adjusted to those specific dimensions, which in turn meant that the whole outer

skin could be glazed with millions of identical pieces of glass, consequently reducing both the time of their production and the cost of their construction time significantly[19]. From this point of view, the Crystal Palace is a genuine example of the spirit of mass production and efficiency, beliefs strongly advocated by an increasingly modernizing society. It is one of the best-known architectural icons of the nineteenth century, and often hailed as the building that initiated the move away from traditional construction methods and materials. Its vast and expansive spaces flooded with natural light, using techniques only appropriate to that time, leading the way in Europe towards the emergence of the Modern Movement, and in the same way, the growth of high-rise buildings in the United States[20].
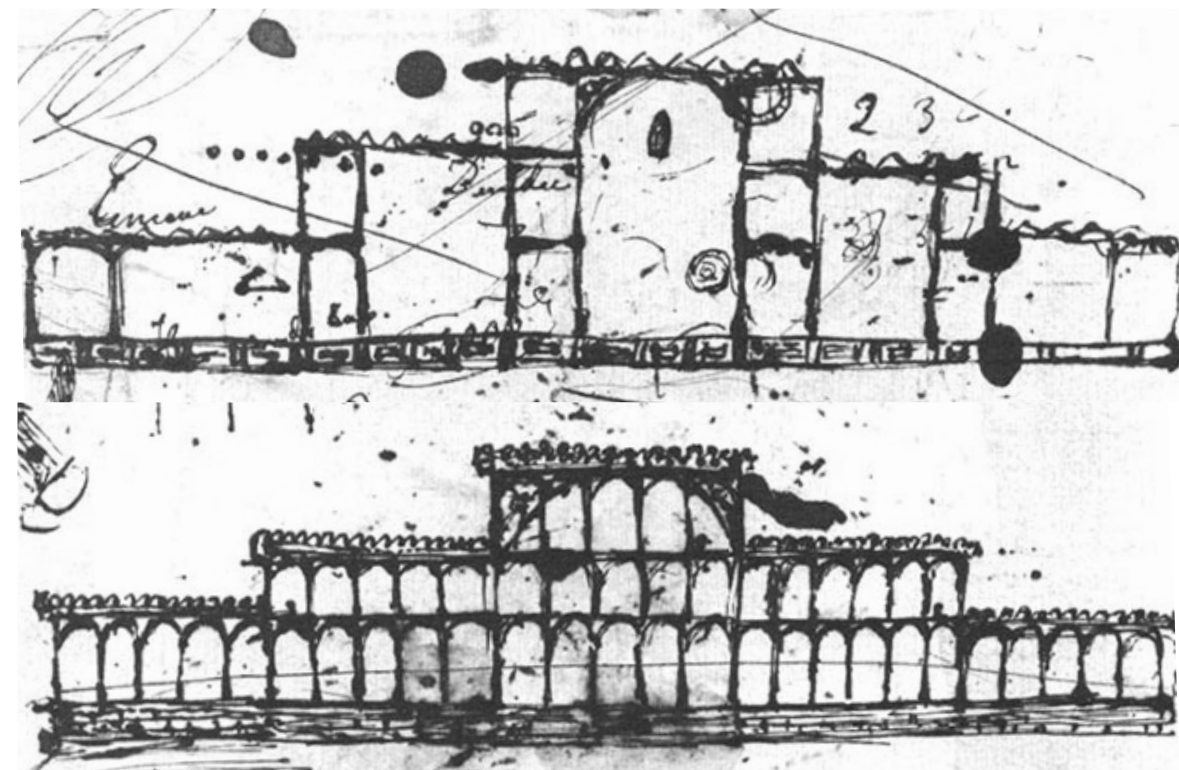
A few decades later in 1884, France announces its plans to host the international exposition in honor of the hundredth anniversary of the French revolution of 1789. It was at the time the fourteenths such fair to be held in France since the close of the eighteenth century. The French civil engineer Gustave Eiffel, shortly after the announcement, proposed the construction of an iron tower of 300m as a ceremonial gateway for the exposition. Despite its unprecedented height, the Eiffel Tower took a relatively small force of 300 workers and only a span of two years to build. 18,000 pieces of ironwork were fabricated in Eiffel's foundry in the suburb of Levallois-Perret, at which point they were transported to the Champ de Mars and lifted into place by steam cranes. Many

16   The Crystal Palace Foundation // Preserving the history of the Crystal Palace. (2019). Retrieved from http://www.crystalpalacefoundation.org.uk/

17   Addis, B. (2006). The Crystal Palace and its Place in Structural History. *International Journal of Space Structures, 21*(1), 3-19.

18   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

19   The Crystal Palace Foundation // Preserving the history of the Crystal Palace. (2019). Retrieved from http://www.crystalpalacefoundation.org.uk/

20   Addis, B. (2006). The Crystal Palace and its Place in Structural History. I*nternational Journal of Space Structures, 21*(1), 3-19.

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of Sauvestre's decorative flourishes were abandoned as the work proceeded, reducing both the construction cost and the weight of the tower[21]. Similarly to the earlier case, we see how technological advances in building materials and construction methods in the nineteenth century had a great influence on simplifying the process of building a structure of such magnitude. In the same way the Crystal Palace in 1851, the Eiffel Tower at the time of its construction presented a structure the world had never seen anything like it before. It is a monument of the possibilities of iron, and equally to man's capabilities; for a long time, the Eiffel Tower stayed the tallest man-made structure on Earth, it stands as a true manifestation to the potentials of the time of industrialization and the man of the enlightenment and rationality. The Eiffel Tower represents an unprecedented creation of man of that age, outlasting its intended lifespan and to this day stands as one of the world's most known landmarks and most recognizable structures in human history.
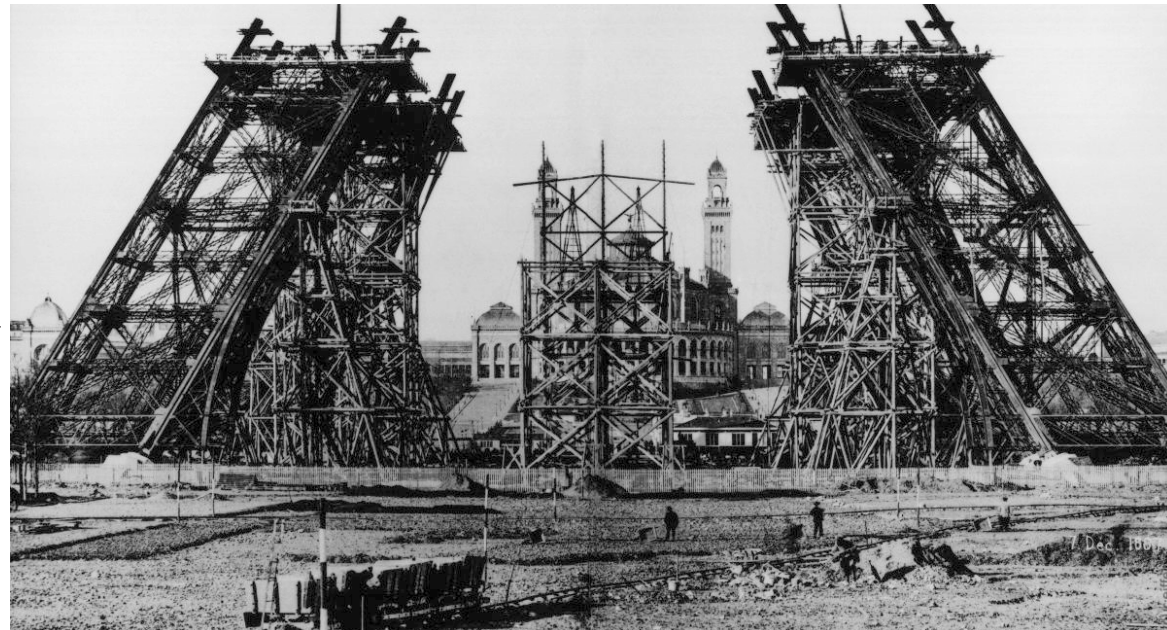
Figure 06

Construction process of the Eiffel Tower. Retrieved from https:// www.toureiffel.paris

Even though the Eiffel Tower is not precisely an inhabited building, it cannot be considered outside the realm of architecture. The construction of this monumental object mirrors the structural and engineering capabilities of that time. For instance, looking at the stairways in the upper levels of the Tower, we see one of the earliest architectural expressions of flow and fluidity of space between the inside and the outside[22]. Reyner Banham, in his 'Age of the Masters,' names the two buildings, the Crystal Palace in London and the Eiffel Tower in Paris, as the two 'great masterpiece(s) of modern space.' And interestingly, Banham names the vastness of space as his criteria, most of all, a feeling of infinity[23].

The industrial revolution, which initially began in science and technology, in view of that, Sigfried Giedion suggests that there was no reason it should not have acted upon the arts as well. Here Giedion notices the schism that seemed to appear between the sciences and the arts, between the realm of thinking and the realm of feeling. Inspiration from technological advancements is a phenomena particular to the nineteenth century, as we can see in the emergence of the engineer as a pioneer in architecture alongside the architect. Inspired by science and technology, the man of the age was fascinated and confident with his ability to think and to reason. In that respect, this atmosphere changed the course of history within an increasingly industrialized and advancing world[24]. In similar ways, we can have a parallel reading of the atmosphere surrounding the architectural discipline. The architect gradually responded to these changes in the way he thought about and reasoned the built environment, and by employing innovative technologies, promoting new aesthetics and experiences and disrupting age-old traditions. These events in history mark a turning point in architecture, a slow turn from tradition and style, and towards enlightened and reasoned architecture.

1.1.2 An emerging new sense of space in the architecture of the twentieth century

Examining how man's sense of reality changed as a result to industrialization and the enlightenment is described as mainly being his new awareness of space and the spatio-temporal quality of the built environment. However, such notions and in particular the concept of space took some time before they entered regular debates among the architects and the art historians. It is again intriguing to see that it took until 1941 when Sigfried Giedion published what is described as the first initiative towards developing a history of 'Space' in the architectural discipline. Giedion's retrospective interpretation of the spatial conception in architecture follows the discipline and its evolution from its ancient history to the moment of his contemporary days. Giedion thus presents in a periodized manner a reading of the history of space. Three successive stages of architecture with respect to a sense of spatiality. There's a significantly interesting feature of Giedion's method of examining architectural history, he approaches the topic with an all-encompassing view, and applies a rigorous investigation of architectural practices.

Giedion's method, as he describes it, relies on a careful cross-section inquiry of decisive stages of history of architecture, justifying this notion as a preference to deal with fewer events more penetratingly, and in close-up view, which ultimately enables for a clearer knowledge of something more important than the isolated facts themselves. Giedion thus attempts to discover the inner structure and motivations of an architecture in a growth and development process . Along these lines, Sigfried Giedion illustrates that it is in fact easier to understand a new evolving tradition in architecture when it is put in its context in history and when that link is clear. Therefore,

21   Ayers, A. (2004). *The architecture of Paris.* Stuttgart: A. Menges.

22   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

23   Banham, R. (1975). *Age of the masters: A Personal View of Modern Architecture* (1st ed.). London: Harper & Row Icon Editions.

24   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

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with regards to this doctoral research into notions of continuous space, as an emerging tradition in architecture, assumes the significance of pinpointing the course of events that preceded and influenced the emergence of the phenomena under study. Consistent with his historical periodization, Giedion gives an encompassing reading of each of the three stages of the evolution of architectural heritage. In view of that, Giedion begins describing the first stage as an assemblage of architectural forms and volumes in space. This type of structures is an architecture of symbols according to him, and so were the monuments of ancient Egypt, Sumer and Greece. What is to be noted there is a disregard to the interior, however, Giedion in his reading recognizes that space existed outside, as part of universal space. Following that, the second stage of architectural heritage marks the vaulting problem, Giedion demonstrates that in this age interior space becomes paramount as an architectural expression, and the formation of interior space becomes synonymous with hollowed-out spaces. Such approaches appeared in the midst of the Roman period, where this problematic lasted two millennia accordingly. Thus finally the third stage, as defined by Giedion, the notion to surmount the interior-exterior dichotomy, by grasping the unity of the two as a continuous spatial aspect. In that respect, the new spatial conceptions, already containing many elements of interpretations, encompassed many modern ideas. For instance, Giedion's concept of space abolished the single viewpoint of perspective, which came about and was perceived as a result of movement in space, and through the architectural object. On the other hand, Giedion points out that the architecture of his time is approaching sculpture in the same way sculpture was approaching architecture. What he meant refers to the notion that space was sculpted out, from within the architectural object. Adding to that, this reading represents the significance of a perceived relationship between inner and outer space. The latter is thus the result of a reading of the hierarchy of space within architecture, breaking such hierarchy led to a not very known transparency in the discipline and thus to what Giedion identifies as a fundamental aspect of modern architecture - simultaneity[25].

In Giedion's reading of the history of architectural heritage and the evolution of the discipline, we see a strong connection between art and architecture. For instance, looking at paintings from the Renaissance period, a major step forward was taken at the time in the form of realizing the third dimension by using techniques of perspective drawing. The fourth dimension thus was only explored with the arrival of the Cubists into the artistic scene, where time, the fourth dimension of reality was investigated and incorporated. Reaching thus a new method of interpreting the world. Thereafter, the perspective of the Renaissance was abandoned and replaced by simultaneity of viewpoints. Simultaneity for Sigfried Giedion means to see various aspects or viewpoints - different points of reference in space - of an object at the same time[26]. Further explorations of the notion of

simultaneity will presented in later paragraphs in chapter 2 of this part of the dissertation. Accordingly, notions of simultaneity evolved with great evidence during the 20s of the century. This being said, for the remainder of this chapter, the focus will be put on the readings and the theoretical implications of this emerging sense of spatiality in the built environment, strongly entering literary dialogue with greater curiosity and precision, establishing the earliest manifestations of the significance and the power of space and the spatio-temporal conception within an evolving architectural discipline.

On another note, Iron, an artificial building material, made an appearance more predominantly than ever before in the history of the discipline during the nineteenth century. This novel material went through development that was just as accelerated as the century itself. Remarkably so, iron was the primary material for buildings that served for transportation purposes. The impulse to use this material was most decisive in its use in the locomotive industry, it was only after several experiments on improving this substance that it was utilized as iron rails. Thus, the rail was the first unit of construction, a forerunner of the girder. Therefore iron at the time was avoided for a while for dwelling projects, however it was made use of greatly for arcades, exhibition halls, and railway stations. Similarly to the emergence of iron, there was a remarkable architectonic use of glass, as for this industry expanded greatly as well around the turn of the century[27].

Along these lines, it is remarkable to see how the century was reshaping the every day life of the modern man of the age of industry and enlightenment. For instance, advances in transportation technologies, even the perception of space and time began to change for that man. The availability of new modes of transportation altered how society perceived temporality, such as speed, as in the distance that could have traditionally be covered in a fixed amount of travel time, could suddenly be dealt with in a fraction of that time; with the same amount of time, a person could travel a greater distances many times over. In other terms, this meant a shrinking of space. In such a way the railway industry has as well reshaped the individual's sense of space. Accordingly, in a comparatively and commonly static aspect of architecture, such shifts in perspective occurred with the introduction of these new building materials. When the automotive industry multiplied speed and the temporal properties of traveling and moving in the world, so did these new materials in the construction of railway stations, which in turn multiplied the productivity and the expansion of spatial properties of such buildings[28].

One of the architects who were at the forefront of such debates - spatio-temporal notions in the discipline, was Richard Lucae. Lucae was one of the pioneers of talking about technological advances in construction

25   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

26   Giedion, S. (2008). Space, time and architecture: the growth of a new tradition (5th ed.). Cambridge, Massachusetts: Harvard University press.

27   Benjamin, W. (1969). Paris: Capital of the Nineteenth Century. *Perspecta, 12,* 163.

28   Pickering, A., & Schivelbusch, W. (1996). The Railway Journey: The Industrialization of Time and Space in the 19th Century. *Contemporary Sociology, 25*(4), 456.

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materials and methods in Berlins, and in 1869, impressed with the novel spatial experiences of the railway station, Lucae wrote his book 'On the Meaning and Power of Space in Architecture[29].' Richard Lucae was equally fascinated with the new use of iron and glass at the time, exemplified in the Crystal Palace of London. In contrast to what can be described as a popularity of conservative architecture of the day, Lucae was one of many who embraced new technologies in construction that defined new spatial experiences in architecture. In his Writings, Richard Lucae offers a unique view on the emergence of the concept of space in that epoch, which dominated German theory in the last quarter of the nineteenth century and well into the twentieth century. In a lecture delivered to the Berlin Association of Architects in 1870, Lucae framed his view around the importance of iron in constructing massive spaces. In his talk, he journeyed back in time to compare the significance of such vast spaces of railway stations to the pantheon and Saint Peter's in Rome. According to his own personal take on such architectural expressions in railway stations, Lucae explains feeling lost in the scale of such structures, where he can no longer tell where interior space ends and the exterior begins. It seems to him as if this interior space is part of the outside landscape. He then continues to describe looking at iron bars crisscrossing in every direction, allowing a flood of light to enter. Lucae compared such spaces in railway stations to streets, the kind of spaces that he cannot but feel the disappearance of the boundaries that separated between the inside from the outside[30].

What Richard Lucae presented in his lectures and writing provided a significant contribution to the spatial debate in the architectural discipline, primarily because of his focus on the question of addressing the notion of space, rather than style. Lucae gave suggestions on how to work with materials such as steel, iron and glass. However, most important to his argument, and what is relevant here is that Lucae did not think of such spaces of glass and iron as presenting dilemmas in the discipline, to the contrary, they offered a field of research in design that he felt needed to be further explore. In this regard, Lucae ridiculed the prejudice held against iron in architecture as unhealthy. Lucae has long trained his eye for the 'Power of Space' in a way that was just becoming known for the architect of his time. Nonetheless, he was not the only one to experience the new emerging sense of space. In fact, one of Lucae's friend, Theodor Fontane had also visited the Crystal Palace in its original incarnation in Hyde Park shortly before it was disassembled in 1852. Fontanne was equally impressed by the tremendous dimension of space, saying *"There is something peculiar about the sheer power of space"*, and as perceived, perhaps it was Fontane's remark that caused Lucae to change the title of his lecture, when he meant to talk about the 'Poetry' of space but rather, he spoke about its 'Power[31].'

29   Lucae, R. (1869). On the Power of Space in Architecture 'Über die Macht des Raumes in der Baukunst'. *Journal of Construction 'Zeitschrift Für Bauwesen'.*

30   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

31   Dobraszczyk, P., & Sealy, P. (2016). F*unction and Fantasy: Iron Architecture in the Long Nineteenth Century* (1st ed.). New York: Routledge.

What is interesting to note is that the architect, the architectural critic and the historian of the time, they did not just focus on the significance of space as a concept, but also started a dialogue on how to work with such a concept. It was therefore recognized as both an abstract concept that can be worked with theoretically, and as an applicable concept to be employed in conceiving the architectural object. For instance, Gottfried Semper in 1869 spoke as well of the significance of the emerging new sense of space, and he continued with the assertion that the true pioneers of the Modern Movement were the engineers of the Crystal Palace and railways stations. Semper, who was a German architect, art critic and professor of architecture, identified the mighty art of space creation with the future of architecture in general. Gottfried Semper is described as being one of the first responsible for introducing 'Space' as a principal theme of Modern Architecture, additionally, he has done so by proposing the idea that there existed an architectural impulse of spatial enclosure. Material components of space are therefore referenced as secondary impulses after the natural impulse to enclose space[32]. In his text published in 1851, titled 'The Four Elements of Architecture: A Contribution to a Comparative Study of Architecture,' Semper sets in motion the role of the wall throughout his subsequent writings. Semper used the so-called element (the hearth, the roof, the enclosure and the mound) to account for the origin of architecture. What is significant to take note of here is the move Semper makes in tracing the emergence of the wall from the enclosure of space. As a consequence, it is essential to remark that in Semper's account, what is of interest to him is an interpretation of the wall as an important aspect of spatial creation, and his introduction of it as an architectural technique. The wall, for Semper, emerges as more than just a physical element. In his deliberation, Semper's wall is engaging with the presence of an element as a surface, and thus as a method in conceiving a spatial architecture[33].

In another example, we see Hans Auer comparing the act of creating space in architecture to the act of ordering the human mind under the force of practical necessity. For Auer, the architect orders the columns, the pillars in rhythmic regularity, and by doing so he articulates space. Thus, the architect is working with the architectural impulse from within, creating space as the soul of the building that fills the body and characterizes it from without. And just like a soul is bound to the body, so is space to the building for Auer, because interior space does not just affect the exterior, but it conditions it through the interior's constructive organism. Auer continues to describe this condition of architecture in that epoch as a condition that particularly characterizes that time, and he resumes to describe it as a transitional period in the discipline. According to Auer, traditional ways of building have lost their rational; through such approaches to architecture, spatial art has nowhere to go. Auer explains that he is living in a period of time where a new style is forming under the unstoppable influence of a material that shakes its fist at all past traditions, namely the use of iron. Hans Auer, in a pivotal essay in 1883

32   Semper, G., Mallgrave, H., & Hermann, W. (1989). *The four elements of architecture and others writings.* Cambridge: Cambridge University Press.

33   Benjamin, A. (2006). Surface effects: Borromini, Semper, Loos. *The Journal of Architecture,* 11(1), 1-36.

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also describes the notion of space not just as the soul of architectural creation, but also the generative force in the development of a new architecture[34]. Auer's unique contribution as an architectural theorist was to expand the notion of architectural space as a significant aspect of style in evolution. For him, space is the component in architecture that animates and characterizes the building from within, and his reading can be described as a poetic account of the new emerging functionality through the agency of space, as an approach to architecture of that time[35].

At that point in history, the intellectual scene was reverberating with thoughts on space and its significance in the architectural discipline as an essential element of conceiving the built environment. In addition to earlier mentioned examples of architectural and art critics, there were members of the discipline who were also influencing the domain by means of building such architecture. Such architects also did their share of writing and publishing on the topic of this new emerging sense of space around the turn of the century. The written references by Adolf Loos, Hendrik Petrus Berlage and Peter Behrens were among the outstanding evidences of an intense dialogue on issues of space and spatiality in architecture. Through their publications we see the concept of space presented as the ultimate essence and purpose of architectural creation. Likewise, we can mention the emergence of an aesthetic quality of space emerging. For instance, Alois Riegl has managed to couple the aesthetic approach to understanding the spatial quality of a building with the geometric and volumetric approach. Another example of such interpretations can be read in the work of Paul Frankl who was able to bridge the gap between the German theoretical and aesthetic reading of space with the practice of European modern architects. Contrasting Frankl's position who defined space through form, we see August Schmarsow's assertion on the issue, which for him is more related to the mind. Schmarsow later on would define space as the essence of architectural creation as well. His historical examination of spatial creation in architecture revealed aspects of human activity sometimes obscured by a preoccupation with studies of form. Schmarsow recuperated spatial thinking for an inquiry into man's kinetic relation to the built environment[36]. In talking about Schmarsow's theory of space as a component of the mind, we should also mention Adolf von Hildebrand who, influenced by Semper, arrives at an analysis of the relationship of the all-encompassing notion of space with the body at use of space, he continues emphasizing two types of movement in space; movement of the body, and movement of the eyes. The writings of von Hildebrand are greatly significant because he leaves Semper's concept of 'Spatial enclosure' and asserts a different readings of space, chiefly

three; space itself as the subject matter of art; space as a continuum; and space as animated from within[37]. Already we see an important distinction in approaching the conception of space in the field, as the container and as the contained. Another significant takeaway from this historical summary, we can as well recognize a distinction between static space, in reference to Semper's enclosure of space, and dynamic space epitomized by associating space and time with the body's use of and movement in space. Thus, we begin to trace the origins of a conceptualization of spatial continuity a special condition within an emerging Modern Architecture.

In returning to the writings of August Schmarsow, whose work is fundamental for this reading of the evolution of the phenomena, he writes on architecture as the creatress of space, or what he terms as the art of making architecture, Raumgestaltung. Schmarsow's idea stems from a growing awareness of space, which translated from the German origin Raumgefühl (sense of space), resulted in the architect's spatial imagination or Raumphantasie (spatial imagination). This meant at least one imperative understanding in the architectural discipline, at least for Schmarsow, and that architecture is in plain words the art of creating space and that it is the maker of space or Raumgestalterin (space designer). August Schmarsow is therefore a key figure in this historical narrative of the phenomena. His notion of architecture as forming space, Raumgestaltung, is essential for two essential reasons; [1] it reflects a human tendency to organize his environment, which is a natural impulse as a form of man's engagement in shaping the world around him, and [2] the employment or application of time or temporal notions by means of movement in space, meaning that architectural space is able to carry a temporal tone, different from its earlier version of stationary perception of space. In both cases, Schmarsow builds on the important role that the body plays in the conception of space in architecture, particularly movement in space. Thus, stepping away from the architectural object as a form and into an understanding of the physical world as a dynamic structure of space.

1.1.3 The beginning of a spatial discourse in the practice of architecture

Up until the early years of the twentieth century, architects who were in a sense involved in the field construction tried in many ways to arrive at a new understanding of space. Therefore, stronger impulses to exercising spatiality in architecture took some time to break through. It is noted that only through the narrow gates of fitness for purpose and the rejection of historical or traditional styles were open to such endeavors[38]. The development of the concept of space as an architectural category took place primarily with German speaking writers on the subject matter. According to Adrian Forty, one must return to such German authors when referring to the origins

34   Mallgrave, H. (2009). *Modern architectural theory* (1st ed.). Cambridge: Cambridge University Press.

35   Auer, H. (1883). The development of space in architecture 'Die Entwicklung des Raumes in der Baukunst'. *General Construction Newspaper 'Allgemeine Bauzeitung'.*

36   Schwarzer, M., & Schmarsow, A. (1991). The Emergence of Architectural Space: August Schmarsow's Theory of "Raumgestaltung". *Assemblage,* (15), 48.

37   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

38   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

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and purposes of architectural categories of such kind[39]. In that regard, Lukasz Stanek points out that the notion of space did not have to be rediscovered within German circles, as this new architectural category already occupied a privileged place among German architects, aestheticians and art historians around the turn of the century[40]. For the word space, or Raum in German required no great power of the imagination of the German speaker to think of a room simply as a small portion of limitless space. As Peter Collin explains, it was virtually impossible otherwise. And indeed, in the first decades of the twentieth century, Gottfried Semper remained the principal source of influence for the German speaking proto modern architects, the early architects who tried to articulate space as the subject matter of architectural creation. For instance, Adolf Loos in 1898, Hendrik Petrus Berlage in 1905, Peter Behrens in 1910 had stated and published on the subject of 'Enclosed space' as the ultimate essence and purpose of architecture[41].

It is argued that the ability to shape void, and thus spaces of the built environment, is what uniquely characterizes architectural creation, and whatever delight may be derived from that is the gift of architecture alone. However 'proto' or early modern architects, such as the mentioned earlier, did not have the conceptual tools necessary to capture the essence of this void in architecture. They could have appropriated theories of aesthetics and space which emerged in the late nineteenth century, such as of Adolf Hildebrand, August Schmarsow, or Theodor Lipps, but they actually have not. It is remarkable and worth mentioning that Sigfried Giedion the most prominent advocate of modernist architectural theory, did not mention those theoreticians in his 1941 classic 'Space, time and architecture[42].' Along these lines, before the First World War architects began attempting to advance this sort of spatial arguments through architectural objects of their creation, by appropriating space, in their attempt to secure their 'Peculiar Province[43].' Accordingly we begin to see this paradigm shift in the debate of spatial properties in the work of such proto modern architects. Such notions are presented as a critical reflection on a theoretical take on the spatiality in architecture, carrying on the legacy motivated earlier by the literary reporting of aestheticians and historians. Thus a wave can be sensed, advocating the significance of spatiality in the work of architecture. In 1908 Hendrik Petrus Berlage proclaimed that *"the aim of architecture is the creation of space[44],"* Rudolf Schindler declares in his Manifesto of 1912 that the architect had *"finally*

discovered the medium of his art: space[45],"* and in 1916, Theo van Doesburg discloses that space *"determines the aesthetic value of the building[46]."*

In his own version of the Hegelian tradition of the spirit of the time, Peter Behrens states that a work of architecture appears in history as a representation of an architectural philosophy. And in looking at his own time, Behrens' theory is manifested in his design for the AEG factory where he manages to play an active role in the process of an evolving history of architecture, chiefly in the spatial experiences his building produces. Peter Behrens was a pioneer German architect and was a key figure in the emerging architecture of his time. His work for the AEG turbine factory exemplified such emerging new ways of doing architecture. Furthermore, particular aspects appearing in the design are some of the first signs of an architecture inspired by the age of the machine[47]. In 1908, at the same time as construction was under way for the AEG turbine factory, Peter Behrens published his essays titled 'Was ist monumentale kunst?' (What is monumental art?) Behrens in his writing defines such art as an expression of the dominant power group in any given epoch. In that respect, Behrens seems to accept industrialization as the manifest destiny of the German nation; or as he conceived of it, as the composite issue of Zeitgeist or Volksgeist, to which it was his duty as an artist to give form[48].

Peter Behrens's AEG turbine factory is a remarkable transcription of Gottfried Semper's theory of the primitive hut, turned into a monumental contemporary building. Like Semper, Behrens starts with what is really a type of social, however also technological device that is at the heart of the architectural program. Where Semper started with fire, Behrens starts with the turbine engine itself, this giant steam turbine, which would become the primary source of power, was conceived as the central object of the design. Therefore, the structure was to house the production of steam turbines, a rapidly growing industry in early twentieth century Germany. The essential cross-section outline of the factory is a steel-frame rectangular structure, approximately 122m long, 40m wide and 26m tall which were specified by AEG's turbine fabrication director Oscar Lasche. The main assembly hall had to accommodate two large cranes, capable of lifting 100 tons, fixed at specified height that the largest turbine parts could be lifted over the machines on the assembly floor. As a self-taught architect and untrained in engineering, Behrens was willingly reliant on the expertise of Lasche and other professional engineers when it came to the building's materials and structural dimensions. Thus as an artist, Behrens was able to give form and meaning to this factory building. Behrens saw the turbine factory as a symbol of modernism, and its attributes of speed, noise and power. The building is said to be described by some critics

39   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

40   Stanek, Ł. (2012). Architecture as Space, Again? Notes on the 'Spatial Turn'. *Speciale'z*, (4), 48-53. Retrieved from http://www. henrilefebvre.org

41   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

42   Mattens, F. (2011). The Aesthetics of Space: Modern Architecture and Photography. *The Journal of Aesthetics and Art Criticism, 69*(1), 105-114.

43   Scott, G. (1999). *The architecture of humanism.* New York: Norton.

44   Berlage, H., & Whyte, I. (1996). *Hendrik Petrus Berlage: Thoughts on Style 1886-1909.* Santa Monica, CA: Getty Center for the History of Art and the Humanities.

45   Gebhard, D. (1972). *Schindler.* New York: Viking Press.

46   Doesburg, T. (1919). *Drie voordrachten over de nieuwe beeldende kunst.* Amsterdam: Maatschappij voor Goede en Goedkoope Lectuur.

47   Anderson, S. (2000). *Peter Behrens and a new architecture for the twentieth century.* London: MIT Press.

48   Frampton, K. (2016). *Modern architecture* (4th ed.). London: Thames & Hudson.

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as representing bygone traditions. Moreover, it has been additionally characterized as a new classicism that expresses the industrial advances that were reshaping contemporary lives at the time. However, it is said that Peter Behrens intended to make the interior and exterior as simple as possible, and in collaborating with the engineers, chose to use fewer, but more massive girder frames than was commonly employed in such factory structures. In such a way, the AEG turbine factory was made to be a temple dedicated to a new age of production, evident in its reinforced concrete and pediment façade[49].

Walter Gropius, who worked under Peter Behrens, was commissioned to design and build another important factory, the Fagus Factory. While Behrens introduced a certain sense of nobility to industrial architecture with the AEG building, Gropius was critical of the project and felt that it lacked authenticity with regards to the building's exterior, in his opinion, masking its construction elements. Instead, Gropius felt that exterior design should reveal the construction logic of the design. The design that was introduced by Gropius for the Fagus factory thus emphasized an architectural expression that mirrors the reasoning he followed in developing the project. In the Fa gus factory building, we can find three floors with a flat roof which together with the replacement of the walls with large windows, which in turn also made up the corners of the factory, became one of the building systems characteristic of the Modern Movement. This building is considered as one of the seminal and most influential industrial buildings in the era before the First World War, in Europe in general and in Germany in particular. Along these lines, the Fagus factory has been interpreted as an 'architectural revision'

49   Windsor, A., & Behrens, P. (1981). *Peter Behrens.* New York: Watson-Guptill Publ.

of the earlier AEG turbine factory by Peter Behrens. Walter Gropius collaborated with Adolf Meyer in conceiving the design of the factory, where it is argued that it was a corrected account of the AEG factory by inversion: where Behrens had created solid and accentuated corner sections, his students (Gropius and Meyer) designed fully glazed corners without visible supports - which were however no more structurally true than Behrens's solution; and Behrens was seen by critics as putting too much emphasis on weight, mass and monumentality, the principal aspect of the Fagus building was thus characterized by a striking visual lightness that avoided overtly symbolic gestures[50].

In describing Gropius' design, Nikolaus Pevsner says: *"For the first time a complete facade is conceived in glass. The supporting piers are reduced to narrow mullions of brick. The corners are left without any support, yielding an unprecedented sense of openness and continuity between inside and out. The expression of the flat roof has also changed. Only in the building [the Steiner House, Vienna] by Adolf Loos which was done one year before the Fagus Factory, have we seen the same feeling for the pure cube. Another exceedingly important quality of Gropius's building is that, thanks to the large expanses of clear glass, the usual hard separation of exterior and interior is annihilated[51]."* The facade of the Fagus factory is articulated with narrow brick pillars, slightly recessed, which were placed between the iron frames sticking out of the building and housed large windows, creating a light curtain wall, thus arriving at an inner space flooded with natural light that attempts to

50   Jaeggi, A. (2000). *Fagus: Industrial Culture from Werkbund to Bauhaus* (1st ed.). New York: Princeton Ar-chitectural Press.

51   Pevsner, N. (2011). *Pioneers of modern design.* Bath: Palazzo Editions

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weakening indoor-outdoor boundaries. It is a particularly striking resolution of the corners of the block as they converge on two windows perpendicular to the unique presence in them of the light metal support bar.

With the construction of the Fagus factory in 1911, in this sense, Walter Gropius laid the foundations of Modern Architecture, amongst the chief elements can be found in the curtain wall, combining vast glass panels with steel frames, supported by an accentuated load-bearing structure. This is a clear break with the earlier tradition view of the styles, asserting new values with regard to the use of space. The Fagus factory is a particularly homogeneous and complete architectural ensemble. It bears testimony to the birth of modern functionalist architecture, which is closely tied with the industrial world, embodying its notions of rationality in reasoning and novelty in its work of architecture.

Prior to the First World War, critical discussions in Germany were already turning towards the integration of modern technologies and artistic activities. Such debates were centered on the problematic of how to arrive at a new style that was expressive of its time whilst satisfying the demands of both the artist and the industrialist, with regard to their respective clients. On that account, Paul Frankl wrote in 1932 that *"the union of the artist with the machine-process may become the most significant event of the century."* This ambition led to the establishment of the German Werkbund or The Deutscher Werkbund the in 1907, which is essentially the German Association of Craftsmen, intended for artists, architects, designers, and industrialists. It is clearly evident that the Werkbund became an important element in the development of Modern Architecture and industrial design, particularly in the later inception of the Bauhaus school of design. In the words of its famous slogan, their aim was to redesign everything 'from the sofa-cushion to city planning[52].'

Going back to the earlier example of the AEG factory, Peter Behrens can hardly be counted as an exponent of the Sachlichkeit or 'objectivity' of Modern Architecture. Reasons behind asserting such a statement is the fact that even though Behrens was a pioneer in working for modern industry, he had sometimes sacrificed pragmatism and functionality in pursuit of an expression of a higher historical significance. The work of Peter Behrens in this case resembles a melancholic recognition of the chasm between his ideal of culture and the social and intellectual climate within which he was operating. Stanford Anderson concludes that *"with Behrens, architecture answered to 'The Time', not the people, and it is the legacy of such a historically determinist attitude - the belief in a Zeitgeist to be expressed in architecture - that was to continue to haunt the manifestos of the modern movement[53]."* As a consequence, industrial forms, materials and thereafter, aesthetics had a

great influence on architects and the direction of early modern architecture. Industry and its processes inspired and continued to engage the imagination of the artist and architects of that time, articulated in the simplicity that was expressed on the exterior of buildings by means of undecorated flat surfaces, and on the interior through the creation of uninterrupted vast spaces flooded with natural light. And thus, during the first few decades of the twentieth century, the architectural discipline saw the emergence of such spatial expressions in buildings with wide open spaces as a clear manifestation of the age which in turn ignited the imagination of a generation of architects[54]. Ultimately, the emphasis that should be placed here is on the one hand, how new architectural forms of industrial aesthetic achieved spatial qualities, and on the other hand, functionality and objectivity that had come to define the basis of the Modern Movement in the architectural discipline, first in Europe, and eventually in the rest of the western world. Arriving at architectural creations of space, activating the architectural object from within, designed for its precise performance and finally resulting in the birth of the most basic unit of continuous space, an expanded space of flow.

Concluding remarks

One of the key issues this chapter aims to illustrate is the method that was used in reading the history of an architectural phenomena, thus the discussion was opened by visiting the Hegelian tradition of the Zeitgeist. From that perspective, a presentation of Sigfried Giedion's insights and writings are introduced as they demonstrate the essential aspects of an evolving architectural discipline. Together, Hegel and Giedion provide important keys to approaching this research at hand.

This first generation of the phenomena represents the early signs of capturing a sense of spatiality in the built environment. Rapid advanced in building technologies and in science inspired society and, with respect the physical world, it began changing completely. Therefore, stimulating the imagination of the architect and the art critique in rediscovering new architectural expressions. A paradigm shift in the discipline began to manifest, one that turned away from architectural 'Style,' and regarded architecture through its rationality and a representation spatio-temporal notions, efficiency, and innovation.

In that regard, the notion of spatiality begins to take center stage in numerous publications, advocating for the power and significance of this new conception in architecture. The dialogue is thus activated among architects, and soon enough, the concept strongly entered wide spread practice, representing the beginning of conceiving a spatio-temporal architecture.

52   Bryant, G. (2000). Reviewed Works: Peter Behrens and a New Architecture for the Twentieth century by Stanford Anderson; Fagus: Industrial Culture from Werkbund to Bauhaus by Annemarie Jaeggi; The Victory of the New Buildings Style by Walter Curt Behrendt, Detlef Mertins. *AA Files,* 42, 79-83.

53   Anderson, S. (2000). London: MIT Press.

54   Munce, J. (1960). *Industrial architecture: an analysis of international building practice* (1st ed.). Michigan: F.W. Dodge Corp.

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1.2.   Chapter 2: II Generation

Modern architecture as an identifiable development in the discipline, according to Mallgrave, took shape as two very important events took place in the German-speaking world of the last half of the nineteenth century. The two events stand out among the many accelerated development iof the century n general and in the field of building in that epoch in particular. Thus the first event in that regard was the appointment of Otto Wagner as a professor of architecture at the Academy of Fine Arts in Vienna in 1894. The second happed in 1907 as the founding of the German Werkbund[1].

On the one hand, Wagner's appointment instigated a pivotal change within the architectural curriculum, as a self-proclaimed practitioner of a 'certain free renaissance'. In his inaugural address, Otto Wagner announced his break from the past and his commitment to teaching 'modern' design. His comments exhilarated an already impatient crowd of students, and more importantly, his words reverberated through other academic circles as well. Hence the reaction when one the most respected architectural schools in Europe should commit itself to modernism, as the newly formed 'Wagner School' stood at the forefront in embracing modernity. In that regard, Otto Wagner states that: *"All modern creations must correspond to new materials and demands of the present if they are to suit modern man; they must illustrate out better, democratic, self-confident, ideal nature and take into account man's colossal technical and scientific achievements [...] today the cleft between the Modern Movement and the Renaissance is already larger than that between the Renaissance and Antiquity[2]."* In his statement, Wagner thus affirms the split with earlier traditions in the architectural discipline and announces the emergence of Modern Architecture from that corner of Europe, Vienna.

The German Werkbund on the other hand is an idea that had been floating around since the 1890s in terms of an establishment of such organization. The Werkbund has been mentioned earlier on precisely architects and engineers of the first generation of this study worked closely together and in advancing industrial building technologies and materials. The Werkbund was established with the commitment and determination of Adam Gottlieb Hermann Muthesius, and it was meant as a clear mission articulated in alignment with a new sense of historical determinism that presaged the ideological spirit of the 1920s. Along these lines, if Otto Wagner's Modern Architecture can be deemed the first polemic of the Modern Movement, Muthesius's Style-Architecture

1   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

2   Frampton, K., & Simone, A. (2016). *A genealogy of modern architecture.* Zürich: Lars Müller Publishers.

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and Building-Art are seen as its first theoretical tract[3].

1.2.1   The birth of a new architecture

Modern architecture, as a term is described time and time again by its ambiguity and complexity. It has been commonly defined as referring to the modern period, disregarding any ideological connotations, nonetheless, it can also be understood as an architecture that is conscious of its own modernity and striving for change[4]. In the narrowest understanding, Modern Architecture has been located somewhere between 1910 and 1960. In its most inclusive definition, a 'modern' architecture originates in the Renaissance and is still being defined today[5]. An essential aspect nonetheless of understanding modernity is its position in history, as modernity fundamentally seeks to articulate and manifest the preset. Untangling the spirit of modernity is thus ambiguous, and perhaps problematic because of its relationship with history. It is argued that there are two perspectives to see modernity in relation to history. On the one hand there is contingent modernity which seeks meaning through a critical reconciliation with history by achieving a continuum with history. On the other hand there is absolute modernity that insists on finding a new meaning by transcending the past[6].

Looking briefly at the subject from the aesthetic modernity's point of view, we find its outlines in the works of Baudelaire. Modernity began in various avant-garde movements and reached its climax in the Café-Voltaire of the Dadaists and in Surrealism. Aesthetic modernity is characterized by attitudes which find a common focus in a changed consciousness of time. This consciousness is expressed through the metaphors of van-guard and avant-garde. The new time consciousness in the writings of Bergson, expresses the experience of mobility in society, acceleration in history and of discontinuity in everyday life. The idea of modernity is intimately tied to the development of European art. But, Habermas realizes his 'project of modernity' coming into focus only when we dispense with the focus on the arts alone[7]. Echoing Nikolaus Pevsner's argument that modern architecture is a synthesis of a number of stimuli, various aesthetic movements and the development of steel construction on the consensus that industrial Modernism was influenced by several modernizing factors, including advances in building construction technology and industrial production methods, evolving economic conditions and the social context of modern thought, and the dominance of a functional architectural aesthetic[8].

3   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

4   Colquhoun, A. (2002). *Modern Architecture (Oxford History of Art).* New York: Oxford University Press.

5   *Habermas, J., & Ben-Habib, S. (1981). Modernity versus Postmodernity.* New German Critique, (22), 3.

6   Makela, T. (1991). Modernity and the Historical Perspectivism of Nietzsche and Loos. *Journal Of Architectural Education (1984-), 44*(3), 138.

7   Habermas, J., & Ben-Habib, S. (1981). Modernity versus Postmodernity. *New German Critique,* (22), 3.

8   Bradley, B. (1995). Industrial Modernism: Architecture and Ideology. *Journal of the Society of Architectural Historians, 54*(4), 508-510.

Hilde Heynen, in her book 'Architecture and Modernity' distinguishes different concepts of modernity. A first distinction is made between programmatic and transitory concepts of modernity. The advocates of the programmatic understanding of modernity interpreted it as primarily a project, a project of progress and emancipation. They emphasize according to Heynen the liberating potential that is inherent in modernity. A programmatic concept views modernity primarily from the perspective of the new, of that which distinguishes the present age from the one that preceded it. A typical advocate of such thinking is Jürgen Habermas, and in his 'Modernity versus Postmodernity' he mentioned *"The project of modernity formulated in the eighteenth century by the philosophers of the Enlightenment consisted in their efforts to develop objective science, universal morality and law, and autonomous art, with accordance to their inner logic. At the same time, this project intended to release the objective potentials of each of these domains from their esoteric forms. The Enlightenment philosophers wanted to utilize this accumulation of specialized culture for the enrichment of everyday life - that is to say, for the rational organization of everyday social life[9]."* In his programmatic approach two elements can be distinguished. On the one hand, according to Habermas, modernity is characterized by an irreversible emergence of autonomy in the fields of science, art and morality, which must then be developed 'according to their inner logic.' However, on the other hand modernity is seen as a project as well where the final goal of the development of these various autonomous domains lies in their relevance for practice, their potential use 'for rational organization of everyday life.' Habermas's view on modernity emphasizes thus the idea that architecture in the present is giving form to the future because of its operational undertone.

In contrast, Hilde Heynen distinguishes another aspect in modernity, a transitory view of modernity where a third level of meaning is implied in the modern: the transient or momentary. An early formulation of such understanding can he found in the definition given by Charles Baudelaire as the following: *"Modernity is the transitory, the fugitive, the contingent, the half of art of which the other half is the eternal and the immutable."* In that regard Heynen explains that throughout the development of modern art, this moment of transitoriness has been emphasized. From the field of art it has been transferred toward a more global conception of modernity, as is made clear by Jean Baudrillard. In an article for the Encyclopedia Universalis he defines 'la modernité' as a characteristic mode of civilization that is in opposition to tradition. The desire for innovation and the rebellion against the pressure of tradition are part of the generally accepted ingredients of the modern. Heynen illustrates that Baudrillard however radicalizes these elements. In his view, the desire for innovation and the revolt against tradition are not, as with Habermas, subsumed in a general drive toward progress, but gradually become autonomous mechanisms. In Baudrillard's account, the transitory aspect therefore has primacy. He sees the cycle of modernity, in which crisis succeeds crisis, as running away with itself: Modernity provokes on all levels an aesthetics of rupture, of individual creativity and of innovation that is everywhere marked by the

9   Habermas, J., & Ben-Habib, S. (1981). Modernity versus Postmodernity. *New German Critique,* (22), 3.

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sociological phenomenon of the avant-garde, and by the increasingly more outspoken destruction of traditional forms, Modernity is radicalized into momentaneous change, into a continuous traveling, and thus its meaning changes. It gradually loses each substantial value, each ethical and philosophical ideology of progress that sustained it at the outset, and it becomes an aesthetics of change for the sake of change. In the end, modernity purely and simply coincides with fashion, which at the same time means the end of modernity[10].

Modern Architecture as an objective in an out of itself versus Modern Architecture as a process gives us two very distinct approaches to reading the evolution of the phenomena of continuous space. The previous paragraphs can give a hint into the level of complexity and ambiguity in dealing with the aspect of modernity and Modern Architecture, not just as an aesthetic phenomena in the twentieth century, but as a whole ideological ecosystem. The point being made here is that if we consider modernity's project in architecture as an objective, then a reading of the phenomena of continuous space ends with the realization and thus, the end of modern art and architecture and naturally, with a disregard to what comes after. This is not the case here, because of the simple reason that this dissertation thesis considers the existence of a continuum of an architectural phenomena of spatial continuity beyond the architectural reading of the modern project. This reading presented here finds place somewhere across the two understanding of Heynen's modern project. While it is essential to look at the concept of spatial continuity as an objective in and out of itself to understand its link to its place and time of history - as an architectural vision for the built environment. It is also important - relating to Baudelaire's transient understanding or modernity - to read the phenomena as a process in which it should be analyzed in order to see its evolutionary progression when time presents differing context of interaction with society and history. Along these lines, to reiterate, my aim is to frame an approach to reading the phenomena of continuous space as part of the natural evolution of the architectural discipline.

Sigfried Giedion was very much involved with Modern Architecture; not only by supporting it and its pioneers in his writings, but also by being an active participant in the evolution of modern thinking and architecture. Initially, He received his Ph.D. in art history in Munich under Heinrich Wölfflin, who was himself one of the greatest art historians of his generation, and much contemporary criticism stemming from his views, particularly in reducing individual concepts to a general understanding of things, to the law, and from reading the work of art to formulating broad concepts and observing the transformation of style[11]. Thus, we see again his influence and the influence of the Swiss school of art historians in informing Giedion's outlooks on the issue of modernity and Modern Architecture.

Giedion in 1923 visited the Bauhaus Week as a spectator, and there he laid the foundations of a life-long

relationship with Walter Gropius as well as with the Modern Movement and the praxis of Modern Architecture. Examining the relationship between Giedion and the pioneers of Modern Architecture would facilitate an understanding of how and to which degree Giedion was involved in the developing this architecture, even though he was not a professional architect himself but he is described as an operative art historian[12]. The pioneering architects of modernity materialized the image of Modern Architecture not only with the buildings they erected but also with the ideologies they produced[13]. Modern Architecture itself owes a lot to Giedion, as a student of Wolfflin and then in his followers, from Gropius, Le Corbusier and Mies, among others, perceived the dawn of a new era of history calling forth a new type of architecture, they were extrapolating from the theory of Period Styles. In this way the pioneers of Modern Architecture seem to have been preceded by the pioneers of modern architectural history[14].

Giedion's version of modernity, which he elaborates on in his 'Space, Time and Architecture' has little to do with the liberated or enslaved self that we find sociologically analyzed in Weber or philosophically in Heidegger. Giedion is more concerned with new technology, which is described as being in tune with its time - hence modern in that respect, which he justifies through the tradition of the Zeitgeist[15]. In this regard, Giedion illustrates that he has *"attempted to establish, both by argument and by objective evidence that in spite of the seeming confusion there is nevertheless a true, if hidden, unity, a secret synthesis, in our present civilization[16]."* In such arguments, we see the use of the term modernism rather than Modern Movement because, as Royston Landau explains, a movement suggests something that is organized and, although throughout the history of Modern Architecture there have been many organized expressions of modernism which may correctly be called movements, the most well-known organizations CIAM, the Congres Internationaux d'Architecture Moderne, nevertheless both the problems and the crises in modernism, Landau suggests, had less to do directly with organizations than with the wider modernist culture, which contained problems that were inherent in modernism itself[17].

In all circumstances, a universal culture was in the making and it is by no means developing at the same pace in the different corners of the western world. Sigfried Giedion, the art historian who took it upon himself to endorse the new and rising Modern Architecture, in his book 'Space, Time and Architecture' talks of the kind of universal architecture emerging during his contemporary times, in what was in fact and by all means

10   Heynen, H. (2000). *Architecture and modernity.* Cambridge, Mass.: The MIT Press; Revised edition.

11   Wölfflin, H. (1950). *Principles of Art History.* Dover Publications.

12   Crinson, M., & Williams, R. (2018). *The architecture of art history: A Historiography (History of Art and Architecture).* London: Bloomsbury Visual Arts.

13   Georgiadis, S. (1993). *Sigfried Giedion: An Intellectual Biography. Edinburgh:* Edinburgh University Press.

14   Betts, R. (1980). Historical Determinism, or Historical Precedent Be Damned. *JAE, 34*(1), 3.

15   Landau, R. (1991). The history of modern architecture that still needs to be written. *AA Files,* (21), 49-54.

16   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

17   Landau, R. (1991). The history of modern architecture that still needs to be written. *AA Files,* (21), 49-54.

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an architecture of space. In describing this new emerging architecture Giedion says: *"It has in common a space conception, which is as much a part of its emotional as of its spiritual attitude. It is not the independent unrelated form that is the goal of architecture today, but the organization of forms in space: space conception. This has been true for all creative periods, including the present. The present space-time conception - the way volumes are placed in space and relate to one another, the way interior space is separated from exterior space or is perforated by it to bring about an interpenetration - is a universal attribute which is at the basis of all contemporary architecture[18]."* As for Modern Architecture, it advocated pure spatial expressions in the built environment, and therefore adopted space as part of its common language. Embracing the spatial conception and notions of space-time in the discipline then had allowed it to gain power and authority according to Adrian Forty, which consequently fulfilled its inherent tradition in representing what could only exist as ideology[19].

Therefore, and in such a way, Modern Architecture emerged in the western world as a notion highly influenced by these two fundamental principles which started to take hold of the profession at that epoch. As mentioned earlier, on the one hand as a strong stance in insisting on rationality in the process of designing and conceiving architecture. Such rationality was achieved conveniently through the agency of space and its use by way of pursuing an economic efficiency. On the other hand, a complete rejection of ornamentation and the stylizing of the architectural object, instead the architect pursued a purification of the architectural form which at the time held moral connotations. Correspondingly, such principles aligned the modern architect with the ideology of modernism[20].

With a rejection to ornamentation and any historical connotations, coupled with an embrace of minimalist expressions of the architectural object, Modern Architecture took dominance in the world of construction as the twentieth century unfolded. In addition to that, the architectural scene reverberated with the significance of a sense of rationality and the analytical approach to the functions of space in buildings, as well as a strict use of materials and an openness to innovation. Along these lines, manifestations of this new rational architecture began to emerge before the war, with numerous examples can be seen in Holland, Germany, Italy, France, England and Austria In Europe, as well as in the United States. Innovation in the field of building was not the only expression of modernism, alongside architectural designs, frequent drawings and manifestos emerged at the time which further examined and explored the modernist agenda.

In that respect, Manifestos in architecture are highly interesting as looking windows into the convictions

of architects and thinkers, and in this case, of architectural concepts in a state of evolution. In principle, a manifesto is a type of public declaration of intent presented plainly so that it can be easily understood. Similarly in importance is the author's projects as declarations to the world as a strategy for practice, such projects can serve as a road-map, publicly announced. In their advanced forms, manifestos become calls to change, often rallying against common conventions, criticizing earlier movements and, if possible, proposing an alternative trajectory[21]. In this way we will examine also the role of modern manifestos in influencing the trajectory of the architectural discipline at such a crucial time in the history of architecture and most importantly, modern society.

Among the many examples of architectural manifestos that emerged in the early twentieth century, one manifesto stands out, written by the group De Stijl and presented in 1918. In this case in particular, the group insisted on the distinction between the old and the new consciousness of the time, with an emphasis on the war that was beginning to rage across the continent. De Stijl group is openly, but not surprisingly, opposed to traditions and dogmas of the past dominating the individual of that epoch, expressing that: *"The new consciousness is prepared to realize the internal life as well as the external life[22]."* In parallel, other highly significant manifestos appeared with the rise of Modern Architecture. Frank Lloyd wright wrote in 1901 the article 'The Art and Craft of the Machine[23],' and in 1910 wrote the manifesto 'Organic Architecture[24].' Earlier in 1908, Adolf Loos wrote 'Ornament is and Crime' where he brought radical aesthetic thinking and purism. He asserts there that *"The German Werkbund has set out to discover the style of our age. This is unnecessary labor. We already have the style of our age[25]."* Le Corbusier published in 1923 a collection of essays translated to English as 'Towards an Architecture[26].' Such declarations and realizations of the wave of modernity that swept through the western world, established many of the characteristics and qualities of Modern Architecture that we still read about and analyze today. Moreover, the concept of space as an architectural notion took a privileged presence in such publications. For instance, in the manifesto 'Basic Principles of Constructivism' written in 1920, Naum Gabo had a preoccupation with the concept of space, and he was particularly interested in the representation of negative space. Together with Antoine Pevsner, they declared that *"We deny volume as an expression of space. Space can be as little measured by a volume as a liquid by a linear measure. What can space be if not impenetrable depth? Depth is the unique form by which space can be expressed[27]."*

At this stage of the evolution of the architectural discipline, and at this level of theoretical elaborateness,

18   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

19   Forty, A. (2013). *Words and buildings*. Thames & Hudson.

20   Bradley, B. (1995). Industrial Modernism: Architecture and Ideology. *Journal of the Society of Architectural Historians, 54*(4), 508-510.

21   Robertson, D. (2003). *The Routledge dictionary of politics* (1st ed.). Routledge.

22   The Museum of Modern Art Bulletin. (1952). *De Stijl, 1917-1928* (20th ed.). New York.

23   Wright, F. (1901). The Art and Craft of the Machine. *Brush and Pencil, 8*(2), 77.

24   Conrads, U., & Bullock, M. (1975). *Programs and manifestoes on 20th-century architecture*. Cambridge: the MIT Press.

25   Conrads, U., & Bullock, M. (1975). *Programs and manifestoes on 20th-century architecture*. Cambridge: the MIT Press.

26   Le Corbusier. (2008). *Vers une architecture*. Paris: Editions Flammarion.

27   Conrads, U., & Bullock, M. (1975). *Programs and manifestoes on 20th-century architecture*. Cambridge: the MIT Press.

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fundamental in this reading of the phenomena. In accordance with the spirit of the epoch of modernity, and through the agency of space, the discipline advocated a total liberation from the past and a disregard to any notion of dressing up the built environment. Thus, the phenomena of continuous space begins to take shape within the evolutionary process of the discipline and the emergence of a sophisticated new architecture. The architect of this generation, before all else, had to achieve one of the most important aspects of the evolution of the phenomena, and it is the plasticity of space - an ability to space as a plastic element to be worked with creatively, as well as the ability to practice this concept as part of the creative process of designing the architectural object. If we look at the sort of architecture emerging by that time, we see particular characteristics that can be summed up in the follow: [1] asymmetrical compositions, [2] flat roofs and minimal shapes, [3] key materials used were concrete, metal and glass, and [4] plain finishes and colors with no ornamentation. Most importantly, that this type of new architecture exhibited particular spatial qualities and inclinations towards a continuity of space as will be further explored. We notably see the interior and the exterior extensively relating to one another, we might also not be able to make clear distinctions between where one ends and another begins, and ultimately, questioning the limits of space. As stated many times and in numerous ways already, this new kind of spatial experience is fundamental in the 'New Building[28]' which is the 'New Architecture' of space and time of the epoch.

1.2.2.   Tendencies of continuous space within the 'New Architecture'

The thing of the 1920s was to be modern, and among the means available then to realize such aim in the architectural discipline was, particularly to Mies, in following Nietzsche's teachings, to live in the present, free from the constraints of history, of culture; translated into building, this meant affirming the free movement of the subject (man) in the architectural object (the building), thus allowing for the opportunity of the unfolding of life, as to the contrary in traditional notions where that building was a solid physical mass that contained and constrained the life of the subject. Correspondingly, by 1920, space was well established as a category within the architectural vocabulary, but in terms of built work there was little to be seen that could be said to justify the claim that architecture was an art not of materials, but of space[29]. Some architects at this point in time were looking for the truth of building in an age of stylishness but pure logic. In describing contemporary architecture (his contemporary), Giedion asserts that we should refrain from using the word style, because the Modern Movement in architecture is not a style[30]. An architectural position of 'Style' has a formal connotation, and the

architecture of the age is clearly taking a spatial turn[31].

The spatial turn within an extensive evolutionary process in architectural theory and production, though happened simultaneously within a few decades around the turn of the twentieth century, it did not happen identically across the wider spectrum of architectural activities. Point in case is that, manifestations of spatial architecture, and indeed, tendencies of continuous space appeared through different approaches and methods of engaging the spatial concept in architecture. As demonstrated earlier, the time produced numerous publications, including manifestos on the architecture of that epoch, and thus, it is anticipated to witness different readings on space in general and on continuous space in particular. Predominantly, we can begin to examine two broad lines of thought; [1] as an exploration of the Semperian tradition of the enclosure of space, intentionally or not, this line of thought works with idea of relational space. Continuity of space is manifested through the continuous movement of the body through the spaces of the architectural object. Thus, space is compartmentalized, liberated as a unit, but still confined within the architectural volume; and [2] while the first approach is by means of compartmentalized space, this second line of thought follows the notion of decomposing the spatial container, the box room.

< Figure 09

A diagrams of the two key approaches to continuous space

Within the first strategy, we find the concept of Raumplan, which is a spatial strategy of a volumetric notion. Originally developed and put forwards by Adolf Loos. This spatial strategy is strongly linked to the Semperian understanding of space as a tendency to 'enclose space', which was eventually developed further by Berlage and Behrens. Furthermore, Adolf Hildebrand, August Schmarsow and others around the turn of the century spoke of the possibilities of kintetic space. In Hildebrand's book, 'Das Problem der Form in der Bildenden Kunst[32]' (The problem of form in the fine arts) of 1893, he proposed the notion of kinetic perception of space through motion which was essential to him for grasping the object's plasticity, and thus, its three-dimensional reality. Schmarsow accordingly, extended this idea of the notion of movement in space, insisting on the importance of experiencing architecture residing in the bodily movement through space rather than a stationary observation[33].

For most architects in the early 20s, these kind of architectural strategies were most commonly understood as the new sense of space, which Adolf Loos develops, as mentioned, as his conception of Raumplan to describe

28   Heynen, H. (2000). *Architecture and modernity.* Cambridge, Mass.: The MIT Press; Revised edition.

29   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

30   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

31   Conrads, U., & Bullock, M. (1975). *Programs and manifestoes on 20th-century architecture.* Cambridge: the MIT Press.

32   Hildebrand, A., & Meyer, M. (1932). *The problem of form in painting and sculpture.* New York, Leipzig: Stechert.

33   Schwarzer, M., & Schmarsow, A. (1991). The Emergence of Architectural Space: August Schmarsow's Theory of "Raumgestaltung". *Assemblage, (15),* 48.

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his volumetric house interiors. The part of the building that is empty, or negative inhibits volumetric properties, because the building is now conceived as an organization of space or Raum. Therefore, Raum becomes the positive component of the building, thus the understanding of space as a box appears as the primitive conception of space[34].

Interestingly, Adolf Loos is described to having, in that respect, an exceptional place in the history of architecture. His articles that he wrote for the Viennese press around the turn of the century won him fame as a critic of culture and as an essayist. In a ferocious language, Loos mocked everything he regarded as outdated and artificial[35]. In describing his conception of Raumplan, Adrian Forty illustrates that: *"Whenever I am faced with a building by Loos [...] I see [...] a concept that is immediately three-dimensional, something that maybe only someone else who had the same qualities could grasp. Everything here is worked out, imagined, ordered and designed in space [...] as though all the shapes were transparent; or as though one's mental eye were confronted both with the space in all its details and as a whole at the same time[36]."* And thus, through this sense of space, Loos incorporates the term Raumplan in his architecture, a word that he first asserted to use in the 1920s to describe his volumetric house interiors. On the other hand, Raumplan was not a precisely defined notion, as other aspects of his work were described, the concept of Raumplan grew and evolved in time as a container concept. Since the concept Raumplan is only used in relation to Loos' work, therefore, it can be said that the concept as an architectural theory can be of a polemical function[37]. Nonetheless, the concept Raumplan can help us comprehend the theatricality of the notion of space, as Beatriz Colomina argues in describing Loos's designs for dwellings; *"The house is the stage for the theater of the family, a place where people are born and live and die[38]."* This theatricality can be seen in the way Loos creates a choreography of arrivals and departures: through the frequent shifts in direction that oblige one to pause for a moment, and through the transition between the dark entrance and the light living area, one gets a sense of deliberately entering a stage set - the stage of everyday life[39].

In 1931, two years before his death, the first monograph of Loos's work was published by one of his protégés, Heinrich Kulka. The book included a section on Raumplan that announced the new theory by stating, *"Adolf Loos introduced to the world a new and essentially higher conception of space: free-thinking in space."* This assertion was followed by a definition of Raumplan, whose authorship was later claimed by another of Loos's followers, Ludwig Munz. Since the word raum means room or space in German, Munz's characterization of

34   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

35   Heynen, H. (2000). *Architecture and modernity.* Cambridge, Mass.: The MIT Press; Revised edition.

36   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

37   Risselada, M., Beek, J., Loos, A., & Le Corbusier. (2012). *Raumplan versus Plan Libre.* Zlín: Archa.

38   Colomina, B., & Bloomer, J. (2007). *Sexuality & [and] space.* New York: Princeton Architectural Press.

39   Heynen, H. (2000). *Architecture and modernity.* Cambridge, Mass.: The MIT Press; Revised edition.

Raumplan as a design technique guided by principles of spatial manipulation was a logical extrapolation, consistent with the claim that Loos himself had made in the Veillich essay. Loos' tacit approval at the time of publication gave further credence to the explanation of Raumplan proposed in the monograph[40].
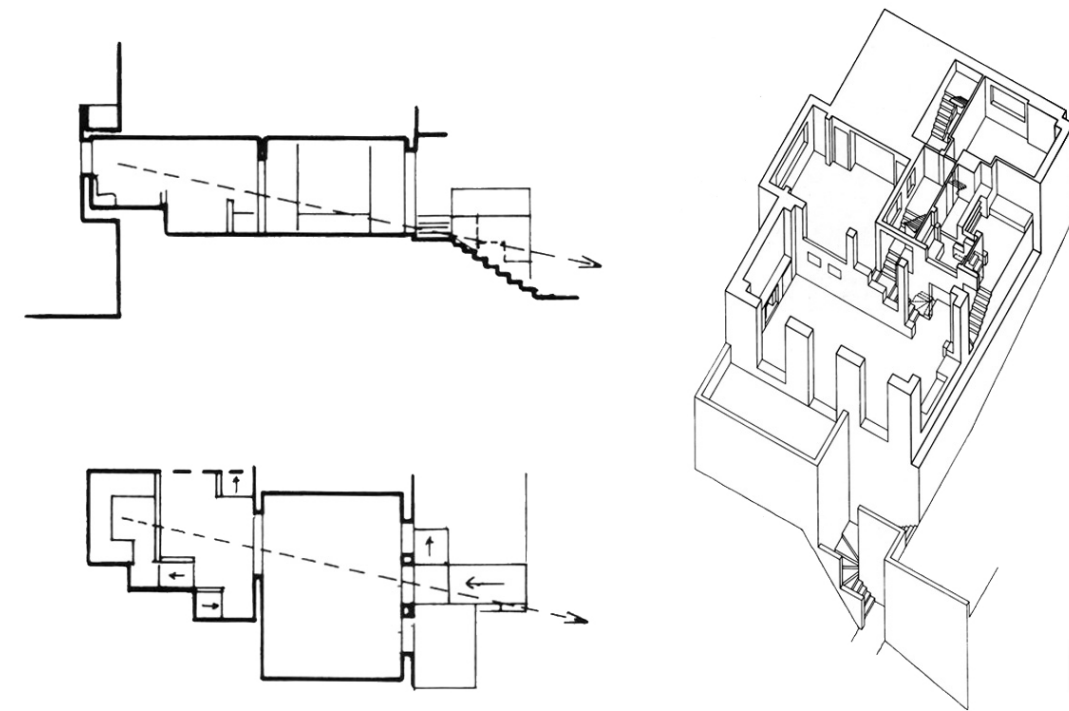
⟨ Figure 10

Raumplan in the architecture of Adolf Loos. © Alan Colquhoun

What is interesting to notice is that Adolf Loos was not the only Viennese architect during the early decades of the twentieth century who was experimenting with the notion Raumplan, Certainly there were other contemporary architects exploring this spatial concept. We see Otto Wagner investigating Raumplan by employing differentiated volumes to accentuate spatial expressions. Several other architects as well, including Oskar Strunad and his partner Oskar Wlach and Josef Frank examined such possibilities of a notion of volumetric space. Josef Frank on the other hand, in his design for the Scholl house, had an organizing principle that stems from his attempt to foster a sense of spatial diversity and flow. Frank accomplishes his strategy by arranging the rooms along a carefully thought-out route of penetration extending from the entry to the upstairs rooms and out into the garden. Along this route, the individual rooms flowed into each other, creating an intricate movement sequence in the architectural object through space. Frank derived this idea of arranging the house along a path of ever changing spatial effects from the idea and works of his former partner Oskar Strnad. Strnad had begun to experiment with the notion of a perceptual architectural promenade in his design for the Villa Hock on the Cobenslagasse in Vienna, produced in collaboration around 1912/13 with Oskar Wlach[41].

40   Jara, C. (1995). Adolf Loos's "Raumplan" Theory. *Journal of Architectural Education (1984-),* 48(3), 185.

41   Long, C. (2000). The House as Path and Place: Spatial Planning in Josef Frank's Villa Beer, 1928-1930. *Journal of the Society of Architectural Historians, 59*(4), 478-501.

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At the time, the conception that Adolf Loos realized as a spatial strategy will be refined as typological programming of pure elements. And in his 1923 project for villa on the Lido in Venice will become the type-form for Le Corbusier's canonical Purist villa Garches of 1927. In villa Garches air flows through the house, and there is only one indivisible space where the skin separates the interior and exterior[42].
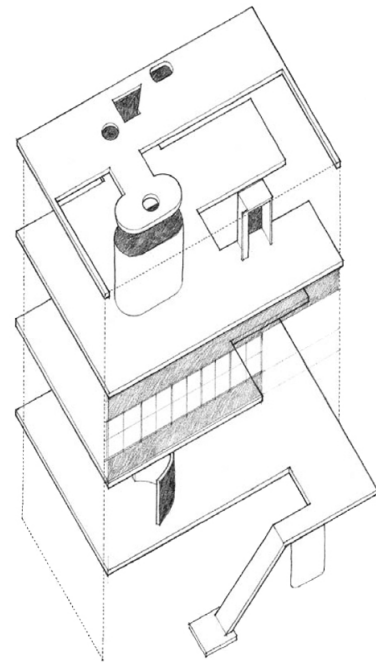
Figure 11 ›

Villa Garches of Le Corbusier. © Francis D.K. Ching

Architectural Promenade is a term that is said to have become part of the language of Modern Architecture at that time, and as a concept related to the notion of movement is space, it has been found to be somewhat insufficient[43]. It is nonetheless, an important take on spatial continuity to be analyzed in the context of the evolving thought on space. The term stems from ideas of the unfolding of space through taking a route. Looking at Le Corbusier's villa Savoye, there was an explicit theoretical move, as he discarded the term circulation in favor of promenade in his architecture. Le Corbusier had described already his Maison La Roche as 'A little like an architectural promenade', tentative as the restricted site prevented its full development, the term was used mostly to describe Le Corbusier's villa Savoye: *"In this house occurs a veritable promenade architecturale offering aspects constantly varied, unexpected and sometimes astonishing[44]."* On the one hand, for Le Corbusier the concept of the architectural promenade offers a picturesque attributes, but it also has links to film theories of Sergei Eisenstein, games of perspective and theories of space and time[45].

42   Frampton, K. (2016). *Modern architecture* (4th ed.). London: Thames & Hudson.

43   Samuel, F., & Jones, P. (2012). The making of architectural promenade: Villa Savoye and Schminke House. *Architectural Research Quarterly, 16*(02), 108-124.

44   Le Corbusier, Jeanneret-Gris, A., & Boesinger, W. (1964). *Le Corbusier et Pierre Jeanneret: Oeuvre complète.* Zürich: Artemis.

45   Samuel, F., & Jones, P. (2012). The making of architectural promenade: Villa Savoye and Schminke House. *Architectural Research Quarterly, 16*(02), 108-124.

One can almost say that the choreographed movement through space in villa La Roche is punctuated by moments of pause. The architectural promenade there is symbolized by the ramp that links the art gallery and the library. For Le Corbusier, the ramp was the instrument of choice to connect two given floors. It manifests the fluidity of the space in a solid, visual form. Additionally, this architectural element directs the visitor and orchestrates a sequence of various points of view. Le Corbusier wrote: *"We climb a ramp little by little, a sensation entirely different from that given by climbing a staircase. Stairs separate one floor from another; a ramp ties them together[46]."*

‹ Figure 12

The curved ramp of villa La Roche. © Mike Wells

In the case of villa Savoye, the building was intended as a weekend house with links to central Paris via motorway. At the time, it was considered a piece of technological marvel, as it stands at the top of a hill. Arrival to the villa by car takes along a low rubble wall, past a white entrance lodge and to the left along a line of trees through which the single concrete step as threshold. Upon entering the threshold of this architectural object one enters a choreographed movement through space punctuated by movement of pause, an itinerary of rotation and frontality, similar to such notions in villa La Roche. The layout of the rooms in villa Savoye in the interior stands in contrast to the geometric regularity of the external form of the villa. According to Jürgen Joedicke, the exterior form of the house and the interior do not correspond to each other. Nonetheless, the architecture of the villa offers a certain spatial plasticity to the interior arrangements of spaces and provided by the position of the ramp, the orientation of the rooms and the openness between spaces within the building[47].

46   Le Corbusier, Jeanneret-Gris, A., & Boesinger, W. (1964). *Le Corbusier et Pierre Jeanneret: Oeuvre complète.* Zürich: Artemis.

47   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

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The ramp as an architectural element takes an important part in the making of the architectural promenade. In Le Corbusier's villas, the ramps in the first place is a functional element; but it represent much more, as it is a route, a circulation space in and out of itself. On ascending, the ramp divulges the structure of the house, affording constantly changing and unexpected perspectives. The notion of movement through space gave Le Corbusier a model for his architecture. It was not just a concept of movement within and through space, but an alternation of movement and repose. The ramp does not just lead from one place to another, it links discrete points of still or stationary spaces. Accordingly, the ramp does not merely provide a route through the spaces of the architectural objects; it has a beginning and an end, and after each end it begins anew, leading one to other places[48]. To frame the notion of the architectural promenade, we can say that it refers to an architecture that is experienced by means of roaming about in space, by walking through it, vertically or horizontally. It is the sequencing and unfolding of space in time by moving. In describing the architectural promenade, Flora Samuel suggests that it is the creation of a hierarchy among the architectural events, a set of instructions for reading the work (The internal circulatory system) of architecture. Therefore, the notion of the architectural promenade creates virtuosic imbrications of indoor and outdoor space, fluid spaces that reveal themselves. Thus architecture in that case constitutes the space and processes of movement[49].

Figure 13

Different corners from villa Savoye. Retrieved from https://www.archdaily.com

The fluidity of moving in space in the architectural promenade leads to notions of organic design. And in such organic architecture we see a continuation of the theme of movement in space through the architectural object. The concept belongs to readings of the architecture of for example, Frank Lloyd Wright. Bruno Zevi talks on the topic in his 'Towards an Organic Architecture', and in such a manner that in parallel to advocating for such notions, whilst rejecting Le Corbusier's machine analogy - a house is a machine for living[50]. Born in 1869, well

before the European generation of the European of 1880s, Frank Lloyd Wright was experimenting actively with the concept of space in architecture. His numerous works shows an aspiration for spatial continuity with expansive intensity, because Wright was able to open up the spaces of the traditional house, flooding spaces with air and light. In his houses, Wright was able to free the walls from their corners, turning them into planes that he moved around at will. Thus, at that moment the room as a box was destroyed[51]. Hence in the case of this American architect, aspirations towards spatial continuity has a far more expansive vitality; his architecture is centered on the reality of interior space and is therefore in opposition to elementary volumetric forms such as in the architecture of Le Corbusier[52].

If we look at the example of Fallingwater, we see different dialectics from the architectural volume, and instead, an architectural strategy expressed in spatial terms, starting from a central nucleus and projecting voids in all directions. The often mentioned functionalist formula of the 'Machine for living' echoes a notion that architectural solutions can be fixed scientifically, logically demonstrable, mathematically indisputable and invariable truth. Thus, we are faced here with an approach that is more relative, elastic and spatially articulated. Therefore, while the functionalist were concentrated on the resolution of quantitative problems, in the organic approach to architecture, there was a recognition of man's more complex reality, thus a qualitative notion of spatial architecture rather quantitative began to emerge[53]. Along these lines, Frank Lloyd Wright writes on the realization of an organic architecture as life itself, because for him life itself is organic architecture: *"The reality of a building is not in the four walls, the rood, but inhered in the space within[54]."*

Figure 14

Spatial flow in Fallingwater. © Christopher Little, Courtesy of Western Pennsylvania Conservancy

Bruno Zevi seems to prefer to talk about Organic Space, describing the notion as rich in movement, directional

48   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

49   Samuel, F. (2010). *Le Corbusier and the architectural promenade.* Basel: Birkhäuser.

50   Zevi, B. (1982). *Towards an organic architecture.* London: Faber [and] Faber.

51   Brooks, H. (1991). *Writings on Wright.* Cambridge, Mass.: MIT Press.

52   Zevi, B. (1982). *Towards an organic architecture.* London: Faber [and] Faber.

53   Zevi, B., & Barry, J. (1993). *Architecture as space.* New York: Da Capo Press.

54   Wright, F. (2017). *An organic architecture.* London: Lund Humphries.

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in invitations and illustrations of perspective. Movement through organic space for Zevi is reminiscent of Schmarsow's notion of Raumgestaltung, but is original in terms of not aiming at dazzling visual effects, but at expressing man's life within it[55]. In this context, it is important to stress the significance of the body's relationship to space in discussing organic space and the notion of movement in space in general. Siegfried Ebling, a Bauhaus teacher, wrote in his book Der Raum als Membran (Space as a membrane) that space in this sense is a continuous force field, activated by man's movement[56].

The development of Wright's ideas grew out of a desire to fit and arrange spaces around set activities; a place to sit, a place to eat, a place to have a fire, places to store things. Wright's strategy was to dispense with the room as rigid container and organizer of space, instead, Wright was able to fragment rooms and slide them into each other. Therefore, the sense of interconnectivity made the house more of an integrated whole, which was what Wright sought above all else under the name Organic[57]. In that respect, Wright defined his designs as having the characteristics of continuity, plasticity and integrity. And according to him, such characteristics have become so solidly basic to his sense and practice of architecture. Therefore for him, space enables moving inside and outside, and thus, continuity in architecture means the freedom of space[58].

During the first two decades of the twentieth century, the world was beginning to understand the world better as a four dimensional reality, with time as an agent in the Space-Time continuum. There was an occupation by both artists and architects at the time to celebrate this union of the two concepts and we can see numerous examples of such notions, especially in Italy and France with Futuristic and Cubist painters developing an artistic equivalence to expressing time in space. Thus, for the architect, this occupation with time was translated into a preoccupation with movement, constituting it as a fundamental approach to spatial continuity in Modern Architecture[59].

Regarding the three so far mentioned strategies of working with architectural space, one thing is obvious which is that the three attempts operated within the Semperian notion that emphasized the enclosure of space. In contrary to that, Bruno Zevi in his 'The Modern Language of Architecture' draws attention to the rigorous procedures by the group De Stijl in generating another form architectural space. Zevi explains that De Stijl attempted to get rid of the perspective block by means of eliminating the third dimension, thus the result was decomposing the box and breaking it up into panels. This operation was simple as a method, yet no one

thought of it before. In that sense it was a decisive step for an architectural emancipation. As a consequence, space is no longer limited by its volumetric attributes, it is no longer a cubic void. The elements that makes up the original box; the four walls, the ceiling and the ground are now new elements of composing space in the form of abstract planes[60].

Such notion of space unites the inside and the outside spaces as one continuous and infinite realm, which was important for the group De Stijl, as well as for the Bauhaus group with El Lissitsky and Moholy-Nagy. This type of understanding space as a continuum was one of the most original aspects of the evolution of spatial thinking in the 1920s, and one of the most interesting manifestations of this idea was through the installation Cité dans l'Espace (City in Space) in 1925, designed by the Vienesse architect Fredrick Kiesler. He describes the installation as a system of tension in free space, a change of space into urbanism, no foundation, no walls, detachment from the earth, suppression of the static axis, creating new possibilities for living, creates a new society[61].
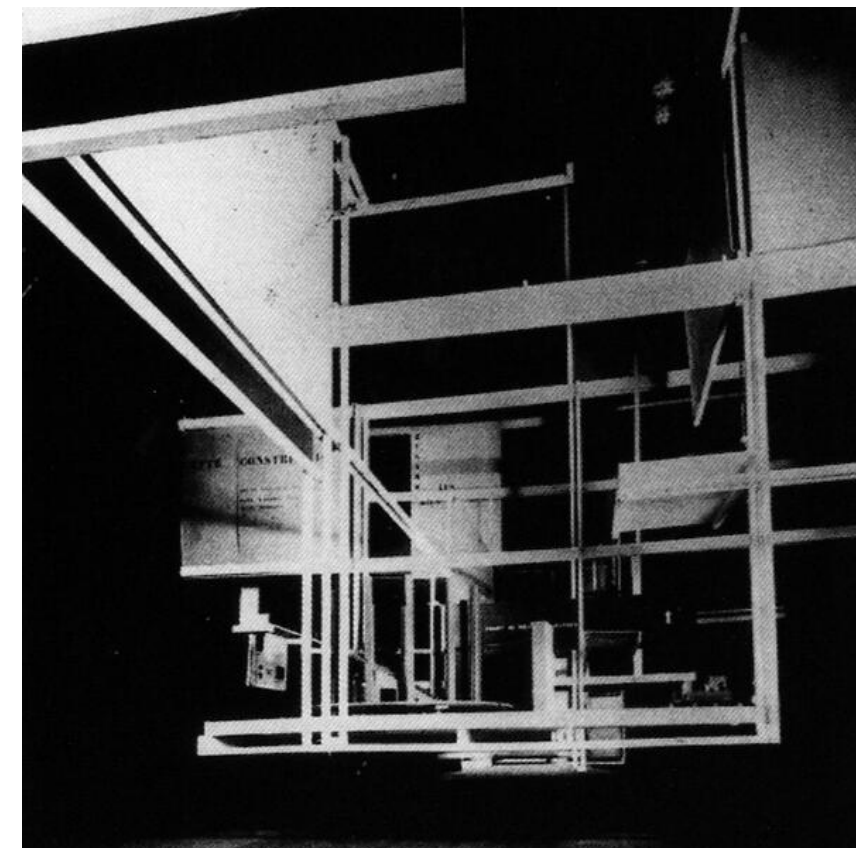
‹ Figure 15

Kiesler's Cite dans l'espace. Retrieved from https:// thecharnelhouse.org

55   Zevi, B. (1982). *Towards an organic architecture.* London: Faber [and] Faber.

56   Ebeling, S., & Papapetros, S. (2010). *Space as membrane.* London: Architectural Association.

57   Blundell-Jones, P. (2002). *Modern architecture through case studies.* Boston, MA: Architectural Press.

58   Kaufmann, E., Raeburn, B., & Wright, F. (1974). *Frank Lloyd Wright: writings and buildings.* New York, New York: NAL Penguin.

59   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

60   Zevi, B. (1978). *The modern language of architecture.* Canberra: Australian National University Press.

61   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

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Correspondingly, in an earlier drawing in 1922 by the Dutch painter, poet, and architect, Theo van Doesburg, founder of De Stijl group, shows a conscious recognition of this conception. It depicts the interacting relations of hovering and transparent vertical and horizontal plane surfaces of a house. The relation between horizontal and vertical surfaces as a basis for aesthetic responses of a spatial sort. That was one of the constituent facts in Modern Architecture and one of the tendencies determining its character.[62] In 1924, Gerrit Rietveld one of the principal members of the De Stijl group, designed and built the Schroder House, arguably the only true De Stijl building. In this house there is little distinction between interior and exterior space. The rectilinear lines and planes flow from outside to inside, and with this radical approach to design and the use of space, this house occupies a seminal position in the development of spatial architecture in the Modern age, and imperatively, the evolution of spatial continuity.

Ludwig Mies van der Rohe, at one point the director of the Bauhaus school, strove toward an architecture with a minimal framework of structural order balanced against the implied freedom of unobstructed free-flowing open space. He called his buildings skin and bones architecture. Mies sought an objective that would guide the creative process of his architectural design, but was always concerned with expressing the spirit of the modern era. For the German Pavilion in Barcelona in 1929, Mies treated the Pavilion as a continuous space, blurring inside and outside. The continuous space is cut by vertical planes which never form closed, geometrically static area, but create an uninterrupted flow in the succession of visual angels. *"The design was predicated on an absolute distinction between structure and enclosure, a regular grid of cruciform steel columns interspersed by freely spaced planes[63]."*

László Moholy-Nagy, as mentioned earlier, was one of those who also rejected the Semperian tradition of the notion of enclosing space, equally of Adolf Loos's Raumplan compositions. Moholy-Nagy mentions that it will not be long before architecture will be understood, not as a complex of inner space, not merely as a shelter from cold and from danger, nor as a fixed enclosure, not as an unalterable arrangement of rooms, but as an organic component in living, as a creation in the mastery of space experience. He was also explicit in rejecting the equation of 'space' with 'volume'. Moholy-Nagy continues explaining: *"if the side walls of a volume (i.e., a clearly circumscribed body) are scattered in different directions, spatial patterns or spatial relations originate[64]."* Along these lines, Rudolf Schindler declares *"We no longer have plastically shaped material-mass. The modern architect conceives the room and forms it with wall - and ceiling – slabs[65]."* Accordingly, what is important to emphasize here is a developing new meaning of the architectural wall, which at this point was redefined as the surface plane. According to Sigfried Giedion, the wall went through two phases of evolution; [1] the wall had to be cleansed of all decorative elements through the rediscovery of the aesthetic value of the pure surface plane whose expressive power had been lost since Egyptian times, and [2] the second phase embodied the plane as an inherent elements, as opposed to its traditional use as a backdrop for the attachment of reliefs[66]. The result was not just bringing to the foreground, invisible space, but to emphasize as well the role of the employment of the architectural element in making architectural space in contrast to the creation of architectural volume.

Figure 16 >

From inside the German pavilion in Barcelona. Retrieved from https://www.archdaily.com
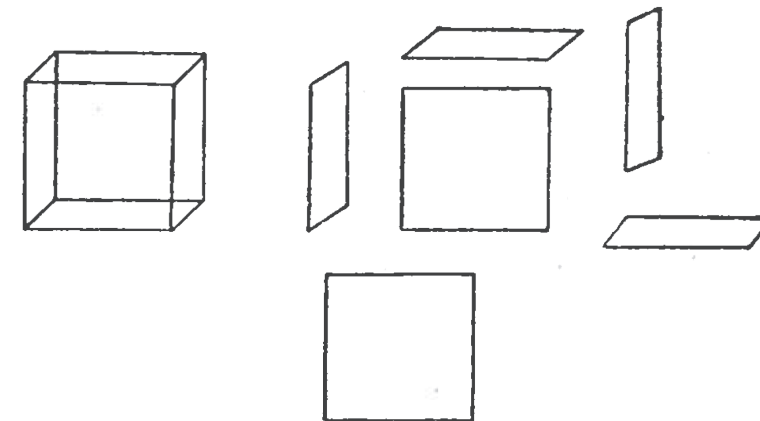
< Figure 17

Moholy-Nagy's decomposition of the box room. Retrieved from Adrian Forty's 'Words and Buildings'

62   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

63   Weston, R. (2010). *Key buildings of the 20th century* (2nd ed.). New York: W. W. Norton & Company.

64   Moholy-Nagy, L. (2005). *The New Vision: Fundamentals of Bauhaus Design, Painting, Sculpture, and Architecture.* Mineola, NY: Dover Publications.

65   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

66   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

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1.2.3.   Theoretical underpinnings of the evolving concept of continuous space

Going back to the first generation of the evolution of this phenomena under study, the most significant notion that was established in that respect was the recognition of space as an essential architectural component. And through an advancing architectural discipline in terms of technical knowledge and critical thinking, this newly recognized architectural entity of space took prominence. The second generation of the evolution of spatial thought thus, expanded on the possibilities of the spatial conception in regard to an emerging Modern Architecture. Accordingly, Moholy-Nagy asserts tat: *"Boundaries become fluid, space is conceived as flowing [...] Openings and boundaries, perforated and moving surfaces, carry he periphery to the center, and push the center outward, radiating, all-sided, announces that man has taken possession [...] of [...] omnipresent space[67]."* In that respect, Vincent Scully offers an interesting label to such architecture evolving around the year 1910, as a notion of fragmentation and continuity, his reading can be understood in the sense that architecture of that epoch managed to fragment objects into their components and the thus there was a redirection of these elements into a continuous movement in space[68].

Giving Modern Architecture precise labels can be a tedious task. For the simple reason that Modern Architecture itself is ambiguous. Another approach would be to see the effect that this architecture had on the discipline in general. As a result to the revolution of modernism, the course of the architectural discipline was irrevocably changed[69]. Therefore, what is relevant for this reading of the evolution of an architecture of spatial continuity is to trace the subtle changes that are happening to architecture, which as Sigfried Giedion would names as an architecture in the age of growth. In that respect, it is of utmost importance to witness the different directions Modern Architecture was evolving to, as well as its inherent characters in terms of spatiality and continuity that are meant to be detected, identified and thus analyzed.

In Modern Architecture, as identified by Sigfried Giedion, there exists the particular obsession from the side of the architect of the epoch with simultaneity. Giedion asserts that there was an occupation with surmounting the inside-outside dichotomy by emphasizing both. To a certain extent, Giedion does acknowledge processes of fragmentation in the architectural object, and it was in order to allow for new spatial relations to be establishes between the inside and the outside[70]. The resulting outcome of fragmenting the architectural object can be observed on its components or individual elements. For instance, the achievement of the plane wall as a

transformation of the original classical wall. Giedion explains that the wall had to be cleansed of all decorative eruptions of the nineteenth century, which led to the rediscovery of the aesthetic value of the pure surface plane. Thus, this marks the inauguration of notions of abstracting the architectural element, which in turn had lasting effect on the architecture of the twentieth century[71]. In another example, if we look at the window example, a window in classical terms meant an opening in the wall, now the architect can free up complete walls as windows.

Another aspect of an architecture of the modern times can be described by the manipulation of the architectural element, such as by moving the plane walls in different direction, adding to that the thinness of the walls and the ability to have entire glass window walls has achieved an increasing blurriness of the boundaries between the inside and the outside of the building. This phenomena will be recognized as 'Transparency' in architecture[72]. The essays 'Transparency' by Colin Rowe and Robert Slutzky are also key notions in examining the architectural project of early Modern Architecture such as projects by Gropius, Le Corbusier and Mies van der Rohe solely by their visual aspects, disregarding the functionality of these particular architectural examples[73].

Concluding remarks

What is labeled here as the second generation of this historical reading of the phenomena aims to show a generation of thinkers and architects who heavily engaged in the evolution of architectural thinking at the time. The debate on the relationship between the rise of an architecture of space and Modern Architecture is still a wide open topic. However, to conclude such an open-ended debate, it is at least important to note the strong relevance of the spatial concept and the evolution of the architectural discipline in the twentieth century. As already mentioned in this chapter, Adrian Forty does assert the importance of the rise of the concept of space as it allowed the discipline to fulfill its inherent tradition that is part of the modern ideology[74].

The second generation also represents the convergence of, on the one hand, the work of the artist and architect who at some point were concerned with aesthetics, and on the other hand the engineer. The spirit of this 'New Architecture' of the early years of the twentieth century liberated architecture from the welter of ornamentation, and emphasized a structural and aesthetically orientation of simplicity and rationality. As there was a serious attention from the architectural discipline to arrive at concise and economic solutions to the built environment, representing the purely material side in formalizing the architectural object. This process had its practical value as well as an aesthetic satisfaction and moral connotations linked to it. Just as the rationality of

67   Moholy-Nagy, L. (2005). *The New Vision: Fundamentals of Bauhaus Design, Painting, Sculpture, and Architecture.* Mineola, NY: Dover Publications.

68   Scully, V. (1957). Modern Architecture: Toward a Redefinition of Style. *Perspecta, 4*, 4.

69   Colquhoun, A. (2002). *Modern Architecture* (Oxford History of Art). New York: Oxford University Press.

70   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

71   Amaldi, P. (2007). *Espaces.* Paris: Editions de La Villette; Passage edition.

72   Rowe, C., & Slutzky, R. (1997). *Transparency* (1st ed.). Basel: Birkhäuser Architecture.

73   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

74   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

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such architectural objects brought a sense of contentment to the modern architect, so did the aesthetic side of such creations. Sigfried Giedion refers to this notion during that epoch as the fulfilled endeavor of Modern Architecture, not just as the unconscious outgrowth of advances in engineering, but as well as the conscious realization of an artist's intent[75].

1.3. Chapter 3: III Generation

In the wake of World War I and shortly after, World War II, western society was still adjusting to yet a new era in history. At the time, the world witnessed European colonial empires fall, Europe's economy collapse and most of its industrial infrastructure being destroyed. Furthermore, the Soviet Union was also heavily affected, entering a cold was with its rival, the USA, as the two nations continued their geopolitical tension and influence on the rest of the world. Under such conditions, the architectural discipline is observed to have gone through a process of change as well, and accordingly has evolved within two chief lines of reasoning; on the one hand, political faith in the vision of Modern Architecture in terms of its ability to ameliorate the world by ameliorating the built environment in the form of imposing a universal order to repair the world's physical and moral devastation; and on the other hand, a trust in technology and its capacity as the most efficient way to achieve this amelioration. In that respect, Henry Mallgrave argues that this shows signs of an impending separation of thought during that epoch within the realm of architecture. Along these lines, in this chapter I present the third generation of the phenomena where the situation grew in divergent directions in Europe and in the United States. As channels of intellectual trade expanded as a result of world events and migration, a schism in architectural through began to manifest between the two sides of the Atlantic. Consequently, the differing circumstances on the two sides of the Atlantic gave contrasting responses and sentiments which resulted in an interesting and thought-provoking exchange in the architectural discipline in different corners of the world. For instance, in the United States an increased dominance of the 'International Style' in the in-between years, which had its effect on both the architectural discipline and the field of city planning as well. However, a strong critique of Modern Architecture would soon after emerge in Europe, as the devastated continent in the wake of a new reality, a physical, social and psychological destruction, thus demanding a serious revaluation in regarding the built environment. In that respect, new centers of thought in Europe appeared with differing views. Therefore, the concept of space, the proud product of Modern Architecture would experience changes, represented in the form of new and evolving notions of spatial continuity from their predecessors[1].

Advances in materials and building technologies would continue to evolve, however the modern project is seen as no longer a valid argument in the discipline. Hence, the rigidity of the vastly functionalist and objective Modern Architecture would give way to a more fluid expression of space. The right angle, the horizontality and verticality of the modern language of architecture, would all adhere to a more lenient and flexible configuration

75   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

1   Mallgrave, H., & Goodman, D. (2011). *Introduction to Architectural Theory; 1968 to the present.* Malden, MA: Wiley-Blackwell.

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of movement in and through spaces, and thus a more complex spatial configuration in architecture resulting in an increasingly individualistic and site specific solution in the built as well as in the urban environment.

Emerging concern with the built environment, as will be illustrated further, would later on have a stronger emphasis on the development of the city. New centers architectural critique across Europe began reassessing the architectural discipline and the direction the field was taking in later years of the Modern Movement. The CIAM organization would eventually collapse when a large number of the movement's members rebel against its founders and their earlier doctrines, thus triggering a wave of change in different architectural circles.

1.3.1.   Setting the scene, politically and architecturally

During the 30s of the twentieth century, Europe witnessed the beginning of the collapse of Modern Architecture in Germany. The unstable government then drifted from the Great Depression and into a World War. A complex and bitter political division permeated the atmosphere at large. With a push from both extremes on the right and the left, compounded with the fact that most architectural jobs at the time were state appointed, politics had much influence on the architectural discipline. One of best examples in the field of such associations between politics and architecture, in Germany in particular, would be the case of the Bauhaus school. For when Walter Gropius was appointed as the director of the school in 1919, he was at the height of his political radicalism, and the school in its early years was open in celebrating its political views as a 'Cathedral of Socialism.' Gropius during that time was met with resistance in Weimer, where the school was originally founded. And even though he tried to downplay the politics of the Bauhaus school, Gropius's diplomatic tactics came in too late when the elections of 1924 ushered in an era of a rightest coalition. In which case, the school was eventually shutdown. As a result Gropius moved the school to Dessau at the invitation of the socialist mayor there at that time, and in Weimar, the school would thrive for an additional four years. In 1928, when Walter Gropius left his post, he was replaced by Hannes Meyer who sought to impost his Soviet-inspired politics on the Bauhaus school. The growing power of the rightest politics in Germany thereafter forced the eventual resignation of Meyer, as a result, in 1930 Mies van der Rohe was brought in to rid the school of its politics, Which he promptly did. The city of Dessau, like that of Weimar, however closed the school in 1932. Mies at that point moved the school to Berlin, but there he fought a losing battle against the National Socialists to keep the school alive. And as Adolf Hitler emerged at that point in history, nearly every German architect left the country for political exile: some went to the Soviet Union, many more to Britain and the United States[2].

The situation in other parts of Europe was dire during the 30s as well, both in the political sphere and as a result within the architectural discipline. For instance, as Joseph Stalin took control of communist Russia in the

20s, himself ending the constructivist movement and imposing an anachronistic neoclassicism in its place. At the same time, even though architecturally speaking the situation was more open in Italy, modern architects there competed for state commissions, but the situation there changed shortly after as a result to Mussolini's military pact with Germany in 1936. If there was one bright spot in the field of architecture in Europe during the 30s, it was Great Britain which embraced modernism belatedly but quiet enthusiastically. The new movement there was aided by a flood of German refugees, as well as the acceptance of such ideas by British architects. This positive reaction thus would lead to the assumption of the leadership of modernism in Europe during the immediate postwar years[3].

When World War II ended in 1945, Europe was left fractured trying to rebuild itself physically and psychologically. As a consequence, most of the social visions which had been at the core of Modern Art and Architecture in the 20s had by then evaporated. In their place new ideals of a peaceful and just community began to evolve. To the contrary, the scene was very different in the United States than its equivalent Europe. Where in the United States, albeit the cold war, the situation was generally optimistic, especially with a surging economy. Architects of modernity coming out of World War II had certainly one thing in common, and it was their shared experience of the war. And surely the post-war feeling was different for the victors and the vanquished as much as for architects located in different regions and dealing with different circumstances, like in countries that were battlefields and those that were not. The situation during that period turned into an urgency to reject the bourgeois past and led the intellectuals of the era towards revolutionary movements of the post-war years. For example, in the years leading up to World War II, following the Great Depression of 1929, the United States experienced a series of major reforms, politically, socially and architecturally as well. Architectural education in the United States largely predicated on an antiquated Beaux Arts system grounded in palatial design. In that respect, the flood of European architects and intellectuals entering the country during the 30s had an enormous effect on shifting the center of theoretical activity to North America and thus encouraged a dialogue and exchange of ideas between the competing visions of modernism nurtured simultaneously in Europe and the United States[4].

In 1932, an exhibition at MoMA in New York was given the name 'International Style' which showcased projects and architects coming from Europe, especially of the Bauhaus school. This exhibition was organized at the time by Philip Johnson and Henry Russel Hitchcock, who had strong ties and close cooperation with those European Modern architects[5]. The flood of engineers and architects arriving from Europe brought with it their knowledge in technological advancement in construction methods. Arriving to the United States, these

2   Lane, B. (1985). *Architecture and politics in Germany, 1918-1945.* Cambridge, Mass.: Harvard University Press.

3   Lane, B. (1985). *Architecture and politics in Germany, 1918-1945.* Cambridge, Mass.: Harvard University Press.

4   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

5   Modern Architecture: International Exhibition. (2019). Retrieved from https://www.moma.org/calendar/exhibitions/2044

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talented individuals practiced their ideas as well as taught it in renowned architectural schools across the country. What is significant to read in such circumstances is the type of architecture these architects and engineers were promoting, especially possibilities of an architecture of space and spatial continuity in that regard. For instance, they were able to build structures while eliminating load bearing walls, allowing not only the possibility to think of space, they demonstrated how to build space - employing space as an architectural agent, and rather than hollowed out sequences of rooms. There is thus an evidence to a flourishing sense of space in America. One of the examples of an American architect inspired by the teachings of the German was James Ingo Freed. Freed recalls how he learned this new conception of space from Mies van der Rohe at the Illinois Institute of Technology during the 50s where Mies was teaching. Freed describes his experience as follows: *"At the time, we were made to feel the tangibility of space; we could swim in it like a fish swims in water. Space was a metaphysical solid. You didn't have to confine yourself to the surface of a wall to imbue a building with symbolism; space itself had iconic and symbolic value[6]."*

However, in Europe the debate was quite different within architectural circles during the postwar years. The absolute geometry and purified elements of architectural strictness of Modern Architecture were to some extent perfectly compatible with the need for a standardized and easy to construct components, which in turn was fitting to build much needed housing units after the destruction that devastated Europe during the war years. At a time of rebuilding the continent, reproducible minimalistic architectural components were necessary and played a very important role in the social and physical reconstruction of many cities across Europe. This notion brought decades of technological and scientific development in construction under control and into practical use. Simultaneously, as architects were enthusiastic about the international style that was thriving in the United States, in the years following the end of World War II, Modern Architecture was at a crucial point as a whole in both sides of the equation; on the one hand, many architects were skeptical of the dominance of the International Style; and on the other hand, a sentiment of the importance of responding to social, humanistic demands magnified by the loss of life during the wars, leaving architects to search for a new direction. For many architects, the self-justified rational architecture did not seem to engage the richness of human experience. Thus, there were at the time multiple calls for 'expression' and 'monumentality' in architecture which revealed a need for more human engagement than the international style was providing[7].

Some critics at the time blamed the superficiality in Modern Architecture to the teachings of Gropius and Breuer at Harvard, which led to a lack of passion, consequently, superficiality in some of the architectural production in

America[8]. Remarking the fact that Modern Architecture had indeed turned into what is known as the 'International Style', Mathew Nowicki - himself an immigrant from Poland to the United States - has criticized the movement's hard-line functionalist attitude. Nowicki goes along the lines of saying that architects at the time are no longer preoccupied with proximities of related functions, he emphasizes instead the nature of space that leads from one function to another. Nowicki in that sense indicates that it is no longer 'how quickly to get there' but 'how to get there' what matters most to the plan design. Thus, Nowicki moves the architectural object from a notion of quantitative aspect of space, to a qualitative one[9]. In Matthew Nowicki's theoretical writings there is evidence that some of his ideas proceeded postmodern thought by 20 years, such as that of Robert Venturi's. Nowicki placed a special attention to the humanist aspect of architecture and despised codified modernism as a ruthless style[10]. Similarly, in his 1954 'the State of Contemporary Architecture', Sigfried Giedion changed his tone of speech in talking about Modern Architecture. For instance, in his concluding remarks, Giedion - at which point also in exile in the United States - pays homage to the architecture of Frank Lloyd Wright. It is argued that this particular mentioning in his book was not just to mediate an American audience, but it is a noticeable reaction to the utopian and somehow totalitarian connotations of Modern Architecture at the time[11].

Objectivity, or Sachlichkeit were the first claims of Modern Architecture to be critiqued by a generation of historians that came during the years after World War II. They looked back at the architecture of the 20s as the symbolic essence of an architecture described as mundane. In his book 'Theory and Design in the First Machine Age', Reyner Banham contended that the architecture of the modernists was at best the image or symbol of engineering, without its substance[12]. In similar disgruntlement, Colin Rowe argues that modern buildings of the same decade owed their significance to a transparency derived not from glass but from the metal construction of implied planes. In such a way, Colin argues that the painted villas of Le Corbusier ranked higher than the glazed curtain walls of the Bauhaus admired by the functionalist. The 20s has understandably been described as the heroic age of Modern Architecture because it had survived its advocacy of its claim to objectivity. There is then no surprise when, understandably, the historians of the postwar years spend their efforts determining the works and traits that best exemplified the truth of the age, whether the Cubist planes of the Villa Stein at Garches, or the 'super-real intensity' of the Villa Savoye[13].

One of America's best known intellectuals at the time was Lewis Mumford, as he appeared regularly in 'The

6   Diamonstein, B., & Goldberger, P. (1985). *American architecture now.* New York: Rizzoli.

7   Sprague, T. (2010). Eero Saarinen, Eduardo Catalano and the Influence of Matthew Nowicki: A Challenge to Form and Function. *Nexus Network Journal, 12*(2), 249-258.

8   Rodríguez, F. (2015). *Chronologies of an architectural pedagogy.* San Juan, Puerto Rico: UPR School of Architecture.

9   Sprague, T. (2010). Eero Saarinen, Eduardo Catalano and the Influence of Matthew Nowicki: A Challenge to Form and Function. *Nexus Network Journal, 12*(2), 249-258.

10   Urbanska, M. (2019). Maciej Nowicki: A Tribute to a Neglected Genius.

11   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

12   Banham, R. (1999). *Theory and design in the first machine age.* Cambridge, Mass: MIT Press.

13   Pommer, R. (1983). Revising Modernist History: The Architecture of the 1920s and 1930s. *Art Journal, 43*(2), 107-107.

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New Yorker' magazine under the banner 'The Sky Line.' There Mumford wrote during the postwar years on a wide range of subjects, where he presented a strong critic to some of the period's pioneer architects. In his 'Status Quo' article published in 1947, Mumford recognized the emergence of serious reformation attempts towards Modern Architecture. In that article, Mumford for instance illustrates how Henry Russel Hitchcock, who himself identified Modern Architecture through Cubism in painting and a general glorification of the machine, the impersonal and the aesthetically puritanical direction the movement has taken. Hitchcock has become, according to Lewis Mumford, an advocate of the personalism of Frank Lloyd Wright. He also adds in another personality of this architecture, mentioning Le Corbusier's dictum of the 20s of the modern house as a machine for living has become an old hat. In that sense the modern target is apparently turning towards the living, and not just towards the machine as before. Mumford continues explains: *"the change that is now going on in both Europe and America means only that modern architecture is past its adolescent period, with its quixotic purities, its awkward self- consciousness, its assertive dogmatism[14]."*

In this regard, on February 11, 1948, a symposium at New York's MoMA was held to raise the question: 'What is happening to Modern Architecture?' The session was prompted by the article written by Mumford, and the event itself was a response to the sharp criticism in the article towards hard-line modernists who *"placed the mechanical functions of a building above its human functions"*, neglecting *"the feelings, the sentiments, and the interests of the person who was to occupy it[15]."*

In the immediate years following World War II, the situation in Europe can be described as being a mosaic of conflicting reactions and circumstances. Looking at Germany, a nation that had paid the severest price for the war, not only with the physical destruction of the country's infrastructure, but also on the social level. This country once had an unparalleled university system, however after the war had come to an abrupt conclusion. Along with that, the nation's importance in the field of architectural theory was diminished for several decades to follow. France was also facing massive physical destruction, especially in the north. Thus in the French context, Le Corbusier regained his earlier stature during the postwar years. In Switzerland Sigfried Giedion returned to Zurich after spending most of the war years in America, and in his return Giedion reclaimed his role as a distinguished historian of modernism as well as claiming the secretary position of CIAM. At the time, much of central and eastern Europe was enveloped by the Iron Curtain, which severed it culturally from the west. It is evident when looking at the disruption that engulfed Europe at the time, new centers of architectural thought were in that respect emerging. The flow of immigration of many European architects and intellectuals to Britain, combined with a need to repair London's wartime damage, the country would thus play a prominent role in the evolution and development of architectural theory. In that respect Great Britain became in that sense

an important crossing point between European and American influences, as well as articulating a voice of its own. Other new centers in Europe can be seen emerging to the east and northeast of Britain, such as in the Netherlands and in Scandinavia, both of which emerged from the war as important centers of architectural thought. Another important European center of architectural theory to rise from the ashes of wartime was Italy, with its rich artistic tradition rapidly reasserted the country's place in architectural dialogue, as well as in challenging many of the tenants of modernism[16].

In coping with the aftermath of dealing with World War II, the architectural discipline had also come to the point of realizing that it was time to revisit some of its ideas and reform itself. What is interesting to note in this context is that during particular point in time, the concept of space has become a normal category in the discipline. The influence of the active historian Sigfried Giedion had tremendous results in asserting the spatial conception in the field. However, because of the mechanical connotations of the notion of space as an architectural formula, such thinking began to be regarded as a naïve interpretation of architectural possibilities[17]. Accordingly, Sigfried Giedion who was considered Europe's leading theorist and supporter of international modernism, and after witnessing firsthand the controversy in the United States over regional interpretations of modernism, he too shifted his architectural thinking. In his essay 'The State of Contemporary Architecture' written in 1954, Giedion insists that the term 'International Style' be dropped from general usage. On the other hands, and after citing several architectural examples, in his concluding passages, his tone of voice turns from the functionalist spaces of the machine, towards the organic traits of the human user of space. Giedion continues by asserting that: *"At the very beginning of architecture the paramount type was not the square house, but the curvilinear house – sometimes round, sometimes oval, sometimes freely curving. Now it tries to make a re-appearance. Sometimes this is directed by mechanistic reasons: such as the mast house of Buckminster Fuller, or the use of a central mechanical core. But Wright follows exclusively the line of his artistic vision, maybe adapted to the site, maybe adapter to the man who is to inhabit the house, maybe under the compulsion of expressing that which slumbers in himself. It is not my intention to discuss the pros and cons of this kind of contemporary architecture, but it seems a duty not to ignore it[18]."* It is argued that modernist architectural trends in the postwar years no longer had much in common with the Avant-gardists of earlier decades. Even though functionalism was smoothly incorporated into the logic of postwar reconstruction efforts that offered speedy and efficient production of much needed large numbers of dwellings. However the socially critical position that Modern Architecture had stood for in the years between the wars was thus replaced by an institutionalized and officially recognized approach to construction[19].

14   Mumford, L. (1947). The Sky Line: Status Quo. *The New Yorker*, (23), 110.

15   Costa, X., & Thorne, M. (2012). *Changes, Architecture, Education, Practices.* Washington: ACSA Press.

16   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

17   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

18   Giedion, S. (1954). The State of Contemporary Architecture. *Architectural Record,* (115:1), 135 - 137.

19   Heynen, H. (2000). *Architecture and modernity.* Cambridge, Mass.: The MIT Press; Revised edition.

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Along these line we see that the rigid facets of modernity seemed to begin to be viewed in an unfavorable way, and often associated with the new raid of way of life and the increased bombardment of experiences which led to a break away from the individual person. This era of elevated tension would therefore bring broad demands for change in the field. Alan Colquhoun in that respect explains that, in retrospect, the notion of space as a positive entity in which architecture occurs had transformed architectural thought at the turn of the century, therefore, architects would come to think of space as a preexistent aspect and an unlimited one, giving a new value to ideas of continuity, transparency and indeterminacy[20]. Accordingly, in the following years, the architectural concept of space goes through a major turning point, notably, this space that was presumed to be difficult to qualify in its early days will be presupposed to have a stable geometrical figure[21]. For a number of architects, breaking with the straitjacket of the rationalist tradition did not entail any stylistic negotiations with history. Like Bruno Zevi, some architects accepted the abstract language of modernism but sought to extend it to freer realms of metaphor and expression[22]. Such efforts can be seen in an attempt to harmonize the architectural object with its urban context, like in the works of Hans Scharoun and later works of Le Corbusier's and many others that will be discussed in the following paragraphs.

1.3.2.   Spatial continuity through flow and circulation

The development of more fluid notions of movement in space, as well as a more organic approach to organizing spaces in a building were some of the responses at that time - a common dialect of functionality vs. objectivity that played a strong role in the architectural discipline[23]. For instance, such flow of movement in a building can be exemplified in the earlier case of Villa Savoye by Le Corbusier, Villa Schminke by Hans Scharoun also shows such characteristics in a different manner, both of which are described for presenting notions of the architectural promenade. However, the two examples are two different interpretations of the relationship between the inside and the outside, along with a different way of interacting with the location[24].

Hans Scharoun's work in Villa Schminke represents an interpretation of life as an important approach to architectural creations. It refers to Scharoun's search for the essential shape in architectural form, because his objective was to present a solution that is geared towards expressing an essence and not just providing an efficient functional answer[25]. Balconies in this villa rotate in a relative manner to the main body of the building, responding to the view across the garden. Several other rooms in the Villa follow an organic principle as well

20   Colquhoun, A. (2002). *Modern Architecture (Oxford History of Art)*. New York: Oxford University Press.

21   Amaldi, P. (2007). *Espaces*. Paris: Éditions de la Villette.

22   Colquhoun, A. (2002). *Modern Architecture (Oxford History of Art)*. New York: Oxford University Press.

23   Frampton, K. (2016). *Modern architecture* (4th ed.). London: Thames & Hudson.

24   Joedicke, J. (1985). Raum und Form in der Architektur. Stuttgart: Karl Krämer.

25   Morgenthaler, H. (2016). *Meaning of Modern Architecture* (1st ed.). Routledge.

by means of functional organization within the building[26]. Looking at the 26° angle shift that prompted some of the building's main design inventions at the time, it is again very specific to the site because it cannot be simply reapplied at another site. When analyzing villa Schminke, a lot of attention in literary references emphasize the similarities apparent with Le Corbusier's villa Savoye. Contrarily, villa Savoye is triumphantly object-like, reducing its site to a panorama and manifesting its inside-outside relationships at the first floor level, while villa Schminke embeds itself in the land, engaging with the garden and outdoor spaces, changing in scale and even invading the villa with plant beds. Although Le Corbusier had challenged traditional conventions of symmetry and frontality, he respected the modernist traditions with the universal cube and cylinder, and pursued consistency of space and proportion supported by the theory of regulating lines[27]. If we look closely at villa Schminke, the flow of spatial arrangement follows the manner in which people lived there. Thus going against an earlier machine-like regularity in Modern Architecture and achieving a more fluid and integral kind of continuity in space.

< Figure 18

Rotating balconies of villa Schminke. Retrieved from https://www.simply-saxony.com

From this perspective, Bruno Zevi recognizes that through an organic approach to space, architecture becomes rich in movement, it becomes directional and lively, expressing the actions man's life in it. Accordingly, Zevi makes the assertion on movement in organic space by saying: *"original in that it does not aim at dazzling*

26   The Architecture. (2019). Retrieved from The House Schminke Foundation https://www.stiftung-hausschminke.eu/en/The-Architecture/47/#q47

27   Samuel, F., & Jones, P. (2012). The making of architectural promenade: Villa Savoye and Schminke House. *Architectural Research Quarterly, 16*(02), 108-124.

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visual effects, but at expressing the action […] It is not merely a current in taste or an anti-stereometric and anti-prismatic vision of space, but is aimed at creating spaces which are not only beautiful in themselves, but represent the organic life of the people who live in them[28]."

Across the Atlantic, and as World War II was ending in Europe, Frank Lloyd Wright kept busy even as he was turning 80s by that time. Wright's Solomon Guggenheim Museum in New York occupied him for 16 years and was finally finished in 1959. Through this project, Wright wanted to break away from the traditional spatial layout which normally forced visitors to progress from space to space and then back through to exit. Wright designed the galleries of the museum as a continuous floor ramp, a three dimensional helix ramp expanding vertically for several floors, allowing for a continuous movement. In that sense, the spatial design of this building represents the visitor's experience in the museum. Visual continuity also plays a strong role in this design, as the ramp allows for the interaction between people across the central atrium on different levels[29].

Figure 19 ❯

Solomon Guggenheim Museum in NYC. Retrieved from https://www.archdaily.com

Wright in his design for the Solomon Guggenheim Museum is described to have been able to connect the spiraling ramp into the flowing stream of the urban grid, thus de-stratifying the space of the city. It is also claimed that the spatial configuration of Wright's Guggenheim has implications that go beyond the purely formal aspect of the building. For instance, one of Wight's greatest accomplishments in this building is the creation of a complex topological object, in turn implies a rethinking of the spaces of such institutions[30]. Curiously enough, when Wright submitted his design to the New York City Department of Buildings, it was surely the question of the helix ramp, or its continuity, in connection with the surface of the city that provoked confusion. In order to get the building permit for the museum, it was necessary for authorities to determine how many stories the building contained. Whether counting the stops on the elevator of the building or the turns of the ramp, the officials of the Department of buildings of New York City suggested it was the equivalent of six to eight stories. Wright logically, and as described, 'mischievously', suggested that it was in fact a one-story building[31]. In his very own words, Frank Lloyd Wright emphasizes the notion of continuity and flow, saying: *"Here for the first time architecture appears plastic, one floor flowing into another […] instead of the usual superimposition of stratified layers cutting and butting into each other by way of post and beam construction[32]."*

There was during that time numerous examples of disregarding Modernity's rigidity which showed in architecture in the form of alternative, more fluid expressions of space. In 1959, in his design and conception of the Endless House, Friedrick Kiesler elaborated an expression of flow of space. Kiesler's Endless House delivered what is termed in labels such as connectivity, correality and bio-technik. In this regard, Kisler was a strong believer in creating a type of elastic spatial formation in architecture, one that is capable of providing an optimum response to the occupants of space. In his proposal as the Endless House, Kiesler incorporated a curvilinear structure that is made of one material, concrete, with no structural seams in the overall configuration. Because Kiseler thought of the room of his Endless house as an extension of the bodies of its inhabitants, he achieves a continual contact between man, his flow in space and thus, his environment[33]. The Endless House might be classified as a manifesto for freedom, a liberation from both the geometry and the making of ideal geometry, freedom from the orthogonal, the right angle and from the axis, freedom from the ground surface, freedom from the constraints of inhibiting the box room. It is also suggested that the design of the Endless House is an aspiration for a freedom from gravity, perhaps a freedom to embrace time as cyclical concept rather than a linear one[34].

28   Zevi, B., & Barry, J. (1993). *Architecture as space.* New York: Da Capo Press.

29   Kostof, S. (2010). *A history of architecture.* New York: Oxford University Press.

30   Allen, S. (2009). *Practice: architecture, technique and representation.* Abingdon: Routledge.

31   Jordy, W. (1986). *American buildings and their architects.* Oxford University Press.

32   Allen, S. (2009). *Practice: architecture, technique and representation.* Abingdon: Routledge.

33   Phillips, S. (2017). *Elastic Architecture: Frederick Kiesler and Design Research in the First Age of Robotic Culture.* Cambridge, Mass.: MIT Press Ltd.

34   Unwin, S. (2015). *Twenty-Five Buildings Every Architect Should Understand* (2nd ed.). Routledge.

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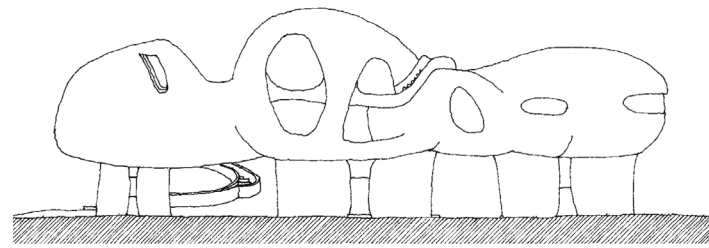
Figure 20 >

Kiesler's Endless House. © Simon Unwin
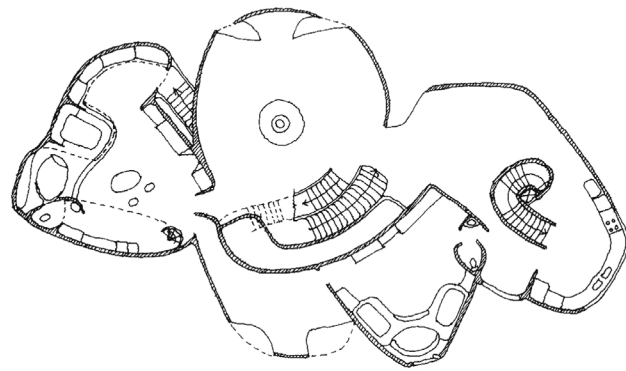
Even though often times, Friedrich Kiesler was paired with other modern architects of that epoch, he was nonetheless an outspoken critic of modernism, as well as the international style. Kiesler was especially critical of the modernists' call for functionality, instead he considered his biomorphic design to be not only more natural, but also more practical and original. Accordingly, Kiesler's Endless House was always presented as an implicit critique of Modern Architecture. The life work of Friedrich Kiesler is described to be defined by his search for a definition of the boundary set between the body as the user of space and the environment through his spatial creations. Ultimately, it seems that Kiesler found them to be the same[35].

As mentioned before, there were numerous and differing attempts to break away from the modernist straight jacket doctrine. Another example of such efforts can be found in the worlds and writings of Paul Virilio and Claude Parent. Together they announced the end of the vertical as an axis of elevation, as well as the end of the horizontal as a permanent plane, thus introducing the function of the inclined plane in architecture in what they termed as the 'Oblique Function' . Virilio and Parent published their ideas in the form of a manifesto describing their concept of the oblique plane as a form of an architectural spatial configuration. Their theory is based on the notion of a spatial partitioning and movement through space, which in reality works by tilting the ground in order to revolutionize the old paradigm of the vertical wall. Consequently, by tilting the walls, the built environment becomes experienced[36]. In their conception, Virilio and Parent can be seen as extremely interested in the body's movement thought space.

One of the key issues to take note of in the theory proposed by Virilio and Parent is that when operating on space as an abstract concept, they do not stop at the peripheral elements of space but they go further in manipulating the ground surface as well. Similarly to the way Friedrich Kiesler succeeded to bend the container of space and molded it into his conception of the Endless House. In the case of the Oblique Function, Virilio and Parent instead of bending the surface, they fold the container of space in order to arrive at their spatial configuration of architecture. Ultimately, achieving a flow of movement in space on the urban scale of the built environment. Virilio and Parent in that context illustrate their conception of space by saying: *"I am convinced that the 'ground', the floor, is taking on this initial value. There are several reasons: the level is the means proper to architecture of spatializing its content. It is on the other hand the most material of elements[37]."* Such concerns with breaking away from the static vertical and horizontal Euclidean space on the one hand, and on the other, an interest in freedom of mobility, flexibility and of movement resonate with other contemporary ideas emerging at the time, such as with the works of Team X, Archigram and the Metabolists at the time[38]. *"The realization of the appurtenance of the continuous architectural world, without a solution of continuity, without partitioning, in permanent unfolding[39]."*
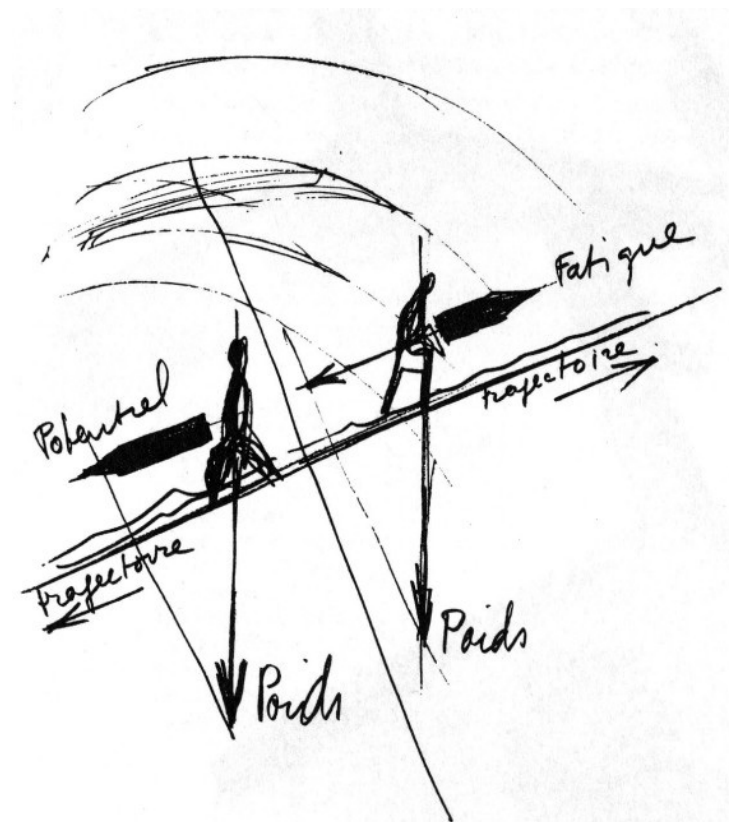
< Figure 21

The Oblique Function by Virilio and Parent. Retrieved from their book under the same title

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35   Borden, I., & Rendell, J. (2000). *Intersections: Architectural Histories and Critical Theories*. London: Taylor & Francis Ltd.

36   Virilio, P., & Parent, C. (1996). *The Function of the Oblique: The Architecture of Claude Parent and Paul Virilio 1963-1969*. London: Architectural Association Publications.

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37   Virilio, P., & Parent, C. (1999). *Architecture principe 1966 and 1996*. Paris: Les Editions de l'Imprimeur.

38   Otero-Pailos, J. (2000). Living or Leaving the Techno-Apocalypse: Paul Virilio's Critique of Technology and its Contribution to Architecture. *Journal of Architectural Education, 54*(2), 104-110.

39   Virilio, P., & Parent, C. (1999). *Architecture principe 1966 and 1996*. Paris: Les Editions de l'Imprimeur.

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Paul Virilio argues further that the tilting of the surface ground is an intentional play of disequilibrium. In this concept of man and space, the model does not follow the Vitruvian man - not the man of Le Corbusier. According to Virilio, in this model man is a dancer. Paul Virilio offers the example of Palladio's stairway, which according to him is a marvelous example of the flow of movement. Virilio claims that the reason why architecture at the time was in decline was because architects have given up of the staircase for the escalator and the elevator, and what they were left with is floors. Therefore, the 'Oblique Function' concept works as a generator of movement and flow in space. Virilio continues explaining: *"Everybody loves the Guggenheim. It's obvious. Everybody loves the ramp like construction of Frederick Kiesler's 'Endless House.' Why? Precisely because it's the dancer. That's the logic we adhere to. We're not Corbusian[40]."*

The notion of flow and circulation was, during that period, an issue of interest to numerous architects and thinkers. And while for some it stayed as theoretical concepts and proposals, there can be found other examples of built projects that reflect the thinking of the time. For instance, another late example of Hans Scharoun, and perhaps one of his most influential works, is his design for the Berlin Philharmonic concert hall. It is worth noting that while many German architects and engineers migrated away during the war, Hans Scharoun, stayed in Germany during the Third Reich. And because Scharoun belonged to the Avant-garde of the Modern Movement during the 20s of the century, he was nonetheless a victim of the political climate in Germany. It took Scharoun until 1963 to build something on such a large scale as this concert hall in Berlin - when Scharoun was already in his 70s at the time[41]. Hans Scharoun can be described as a contemporary to Mies van der Rohe, they were even close friends during the 20s, in the early days of the Neue Sachlichkeit (New Objectivity). However, their career paths diverged considerably. While Mies pursued an increasingly rigorous development of a universal architecture, exemplified in his modern language of space. Scharoun's architecture on the other hand, is of the expressionist, or even organic type. It is most importantly of the anti-rectangular type and firmly site-specific[42]. Peter Blundell Jones argues that the architecture of Hans Scharoun represents an aspect of the Modern Movement which has been undervalued, if not suppressed. Jones equate the architecture of the pioneers of Modern Architecture and arrives at the conclusion that in comparison to the work of Mies and Gropius, Scharoun's architecture is in-opposition - more humane and anti-mechanistic[43].

Beginning with the interior of the building, the entry level of the Berlin Philharmonic concert hall is by itself a complex expression of an architectural spatial configuration. The foyers and circulation areas are angled

and shaped in a manner that follows the natural flow of people. In a way, Scharoun's overall design for this concert complex is arguably simple, which mainly aims to place music at the center, both conceptually and literally. From the center of the concert hall, music would be amplified and filtered through the auditorium. 'Music at the center' was the slogan with which Scharoun developed his project. The interior of this music concert complex is characterized by a contrast between the two principal parts of the building. The foyers with the circulation areas, and the auditorium. The situation of the hall in relation to the surrounding areas and the circulation concept enabled Scharoun to achieve a differentiated sequence of space - a creation of a chain of spaces some of which are lower, some higher, some constricted, other expansive. There can be found spaces that interpenetrate and others that are linked through a bridge-like connecting structures. In other words a sequence of articulated spaces affording an ever unfolding space through movement and vision[44]. Looking at the exterior form of the building, it is clear that the interior configuration determines the outer volume. Scharoun built his conception of space from the inside out, creating an urban space inviting a flow of people to the center of the music hall. Looking at earlier example of Hans Scharoun's buildings, we see an underlying composition focused of flow and circulation, which can be described as a distinct architectural approach to the contemporary developing 'International Style' after World War II.

< Figure 22

Flow in the Berlin Philharmonie foyers. Retrieved from https://en.wikiarquitectura.com

40   Virilio, P., & Lotringer, S. (2001). After Architecture: A Conversation. *Grey Room, 3*, 32-53.

41   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

42   Johnson, D., & Langmead, D. (1997). *Makers of 20th Century Modern Architecture: A Bio-Critical Sourcebook.* Westport, Conn.: Greenwood Press.

43   Jones, P. (1978). *Hans Scharoun: A Monograph* (1st ed.). London: Gordon Fraser.

44   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

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1.3.3. Reforming the discipline and integrating the urban and city scale

One of the most influential poles of thought in respect to the architectural discipline in the years after World War II was the reconstituted CIAM, Congrès Internationaux d'Architecture Moderne. This dominant organization in the field of that time continued its existence after the end war with a number through a number of conferences and meetings, some of which were very important in their attempt to address the situation and circumstances of that period. The significance of CIAM in terms of the third generation of the phenomena goes back to the year 1933, before the end of World War II, during their fourth and one of the most consequential meetings. In which event, the group discussed matters concerning the 'Functional City,' and as a result of such deliberations, the scope of discussion of CIAM seems to have broadened from architecture to issues of the city. In that meeting a proposal was made which suggested that social problems facing cities in the 30s could be resolved by implementing functional segregation and the distribution of the population into tall apartment blocks at widely spaced intervals. Such line of thinking, which was presented in the proceedings of that gathering, however went unpublished until Le Corbusier published them in a heavily edited form as the 'Athens Charter,' which in turn had a significant effect on the dialogue within architectural circles[45].

The first CIAM meeting to be convened after the end of World War II was held in Bridgewater in 1947, and moreover, it was titled 'Cities re-imagined.' During that time and as secretary general, Sigfried Giedion declared in that meeting that the aims of CIAM have been redefined in order to enlarge the scale of the organization's approach in the creation of the physical environment. An aspect of the discussion of that gathering was the need for a more humanistic approach to building, as Giedion seems to be mirroring the concerns raised at that period, he mentions that the architect should satisfy man's emotional needs, as well as the material, thus by extension, architecture should stimulate man's spiritual growth[46]. It appears that whatever discussions were taking place with regards to the modern project, have been gradually but definitely shifting away from their earlier rigid attitudes. In that respect, Sigfried Giedion continues to state that: *"What interests us, at the moment, is the symptom that, together with the desire to use the means of expression at our disposal to give form to the requirements of the soil and the climate, there comes also a desire to free ourselves from the tyranny of the right angle and to search for a greater interior flexibility[47]."*

Theoretical and ideological fissures began to manifest within the CIAM group, at which point eventually, led to a series of internal conflicts and the dissolution of this congress. Prevalent disagreements were mainly on the conclusions reached in Athens which seemed to have evoked serious worries of the sterility of the city

envisioned by Le Corbusier, and by extension the hard-line thinking that has been guiding the architectural discipline. Chief among these doubters were the young British architects Alison and Peter Smithson who led a breakaway from CIAM in 1959. Even though it shows at that point in history that an official and widespread acceptance of modernism was stronger than ever, yet such concerns voiced by the Smithson pair and their allies, reflected a grimmer point of view of the Modern Movement that seemed to be in danger of creating an urban landscape that was hostile to social harmony. Such worries ultimately rose to a crescendo in the decades to come. In that same year, in 1959 CIAM planned its final congress, organized by Team X and held in Otterlo. This event led to the final dissolution of this influential organizations, which came about as a result to the increasing divergent opinions on the direction that CIAM was taking in envisioning the future of the built environment. Earlier in 1956, one of the most telling signs of this paradigm shift that was taking effect within CIAM, demonstrating that a new generation of thinkers had different priorities in terms of the architectural discipline. That year was the tenth congress, held in Dubrovnik, where Le Corbusier effectively resigned from CIAM by sending a letter to the organization. Le Corbusier's letter was read at the proceedings of the conference, with an opening statement *"CRISIS OR EVOLUTION? Answer: problem of generations[48]."*

Accordingly, the schism that began to appear between the old doctrines of modernism and the new generation grew greater as time passed. Equally, many members of the CIAM organization started reassembling together to rethink ways and strategies to address emerging concerns in the field. An example of such dynamics as CIAM was still dissolving was Aldo van Eyck and a small group of architects, such as the earlier mentioned Alison and Peter Smithson who eventually started forming their own groups[49]. And while they remained autonomous as designers, their formation of Team X was meant as a platform to discuss and share their work and ideas. Aldo van Eyck, later in 1962, in an essay titled 'Steps Towards a Cognitive Discipline,' he declared that: *"a house must be like a small city if it's to be a real house, a city like a large house if it's to be a real city[50]."* Van Eyck thus investigated notions of spatiality in architecture, and he arrived at the conclusion that: *"Whatever space and time mean, place and occasion mean more, for space in the image of man is place, and time in the image of man is occasion. Split apart by the schizophrenic mechanism of deterministic thinking, time and space remain frozen abstractions […] A house should therefore be a bunch of places - a city a bunch of place no less."* Eventually, and as a consequence, Aldo van Eyck would lecture throughout Europe and North America, advocating for the need to reject functionalism, all the while attacking the lack of originality in most post-war modernism. The position that van Eyck took as the co-editor of the Dutch magazine 'Forum' helped publicize his ideas and the concepts that were increasingly discussed, including with his collaborators in Team X, which primarily

45   Mumford, E. (2002). *The CIAM discourse on urbanism, 1928-1960.* Cambridge (Mass.): The MIT Press.

46   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

47   Giedion, S. (1951). *A decade of contemporary architecture.* Zürich: Girsberger.

48   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

49   Smithson, A. (1974). *Team 10 primer.* Cambridge, Mass.: The MIT Press.

50   Coleman, N. (2007). *Utopias and architecture.* London: Routledge.

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called for a return to humanism in the architectural discipline[51]. The collaboration between the members of Team X eventually led to the founding of Structuralism, and the influence of that group lasted for nearly two decades[52]. The meaning of Structuralism with respect to architecture is often times misunderstood. Lisbeth Söderqvist explains that architects and urban planners of such methods organized buildings and cities on the basis of communication routes, streets, and squares. In that regard, what constituted the patterns through which to create the built environment should and would be complex, often visualized as a jumble of corridors, roads, and bridges on different levels and connected by escalators, stairs and elevators. Within such structure, it is evident that there is an emphasis on movement between points of reference representing places (space) of events, and commonly formal aspects are thus not a priori. Söderqvist also notes another significant character of the Structuralist thinking in relation to the built environment, which is an emphasis on binary pairs such as outside/inside, nature/culture[53].

If we were to juxtapose the modernist approach of space-making, to that of the Structuralist, there are some fundamental differences, yet a few considerable similarities that reflect an evolutionary process to be taking place within some of the principal aspects within the architectural discipline. For instance, Aldo van Eyck's metaphors of space focuses not only on spatial antipodes or opposites, but takes a further step forwards where space is of dual characteristic that brings the dialectic sides into contact, thus reconciling their opposing forces[54]. In other words, van Eyck's formulation of space brings polarities to the in-betweens, brings the inside out and the outside in, the small becomes the large and the part becomes the whole, the house becomes the city and vice versa. If we look back at the modernist conception of space and time, the architect during which time conceived the architectural object through elements that where considered formally and functionally to be irreducible, the significance of the work of architecture in that sense was to be derived from the formal and functional context of the work itself and independent from stylistic and traditional connotations[55]. By comparison, in the Structuralist sense the architectural object turns into an architecture of spatial configurations, while having city scale aspects, the architecture thus seems to resemble characteristics of cellular tissue[56]. According to Arnulf Luchinger on the Structuralist approach to the built environment: *"Many Structuralists would describe a structure roughly in the following terms: it is a complete set of relationships, in which the elements can change, but in such a way that these remain dependent on the whole and retain their meaning. The whole is*

independent of its relationship to the elements. The relationships between the elements are more important than the elements themselves. The elements are interchangeable, but not the relationships[57]."

The Structuralist inspiration in the architectural discipline derived from projects such as the Amsterdam Orphanage by Aldo van Eyck, the Village for children by Blom and Joop van Stigt, and the Free University by Georges Candilis, Alexis Josic and Shadrach Woods. Such projects implemented a juxtaposition of centralized order and local freedom, an approach to a spatial configuration that combines order and flexibility. Van Eyck's design for the Amsterdam Orphanage was both as a home for the children, as well as a plan of a small city. He created a decentralized urban node with several points of junction and interaction. Conceivably, van Eyck was interested in a non-hierarchical development of the built environment, and in the Amsterdam Orphanage, he conceived a complex with many in-between conditions to break down the hierarchy of space by creating a threshold between public and private spaces[58]. Aldo van Eyck further more makes the interesting analogy of designing a house like a city, saying: *"a small world within a large, large world within a small one, a house as a city, a city as a home[59]."* Van Eyck's designs seem to resemble an abstract experimentation with components, whether architectural or urban, reminiscent to a much earlier and fundamentally elementary notion of Mies van der Rohe in his German Pavilion in Barcelona where he worked by assembling abstracted elements in space. In the Amsterdam Orphanage, van Eyck was able to reconcile several polarities, such as the notion of scale with regards to urban spatial arrangement and architecture. The orphanage is both a house and a city, it is compact and polycentric, unique and diverse, clear and complex, static and dynamic, contemporary and traditional, rooted in classical and in Modern traditions. While the complex is an assemblage of regular geometric units, the whole structure encompasses aspects of a dynamic centrifugal space. Correspondingly the design is a system of pavilions made up of two sized modules that transform it into a continuous and perforated whole. In describing his project, Aldo van Eyck asserts that: *"The building was conceived as a configuration of clearly defined intermediate places, which does not imply a continuous transition or an endless postponement with respect to place and occasion. On the contrary, it implies a rupture with the contemporary concept of spatial continuity and the tendency to erase all articulation between spaces, that is, between outer and interior, between one space and another. In contrast, I tried to articulate the transition through defined intermediate places that induce the simultaneous awareness of what is meant on each side[60]."*

In this respect, Alan Colquhoun claims Structuralism's significant role in the critique of Modern Architecture and modernist ideology. Colquhoun proceeds to assert that Structuralism provided a field of possibilities that

51   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

52   Risselada, M., & Heuvel, D. (2006). *Team 10: In Search of a Utopia of the Present.* Rotterdam: Netherlands Architecture Institute (NAi Uitgevers/Publishers).

53   Söderqvist, L. (2011). Structuralism in architecture: a definition. *Journal of Aesthetics & Culture, 3*(1), 5414.

54   Strauven, F. (1998). *Aldo Van Eyck.* Amsterdam: Architectura & Natura.

55   Colquhoun, A. (1988). Postmodernism and Structuralism: A Retrospective Glance. *Assemblage,* (5), 6.

56   Van Eyck, A. (1962). Steps towards a configurative discipline. *Forum,* (3).

57   Luchinger, A. (1980). *Structuralism in architecture and urban planning.* Stuttgart: Krämer.

58   Colquhoun, A. (2002). *Modern Architecture (Oxford History of Art).* New York: Oxford University Press.

59   Kultermann, U. (1993). *Architecture in the 20th century* (1st ed.). New York: Van Nostrand Reinhold.

60   Manolopoulou, Y. (2017). *Architectures of Chance* (1st ed.). London: Routledge.

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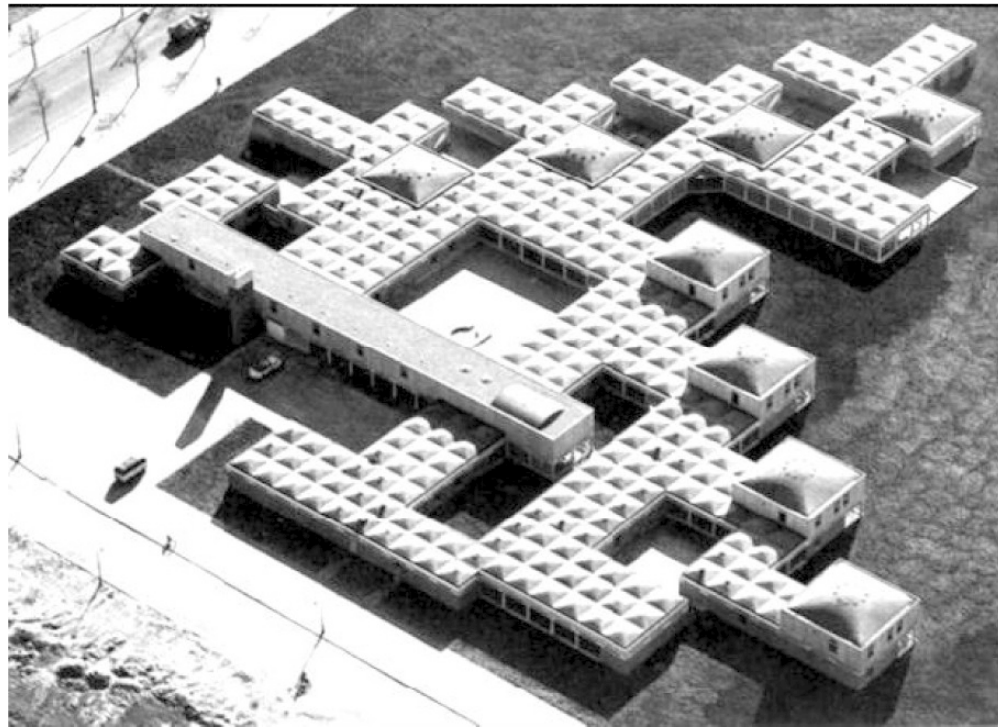
exists at any one moment, and in doing so, it reintroduced the element of choice that was excluded by notions of functionalism and historicism. Alan Colquhoun is also aware that Structuralism remained silent about the motives for choices that artists must continuously make, choices that, collectively, may determine the change from one set of paradigms to another. In explaining the Structuralist critique of modernity, Colquhoun uses language as an analogous example. Like an object of structure, architecture is generated the same way a language is formed, through the employment of preexisting elements. These elements interact with the tasks presented, in any moment in history, to form the entire system. Thus, the interaction with primary elements and the whole architectural object as a structure become a conceptual diagram of architecture. In that sense, the diagram enables a multitude of possibilities as a constructed spatial reality. Other examples of such thinking is in the Diagoon houses by Herman Henzberger, openness of the architectural object becomes a central aspect of it[61]. Accordingly, a spatial configuration in the Structuralist sense has the ability to carry aspects of complexity, multiplicity and plurality which were greatly sought after that period of time.

Several other architects, artists and thinkers continued to expand on such line of thinking and rethinking of the built environment. Another important Dutch example, a Situationist as well, is Constant Nieuwenhuys. After his time with CoBrA, a European Avant-garde movement active from 1948 to 1951, Nieuwenhuys developed an interest in abstract notions of spatial architecture, as well as three-dimensional works. With Aldo van Eyck, whom he met during his CoBrA time, he explored such idea by creating a space for the exhibition

'Man and House' at the Urban Museum of Amsterdam[62]. However, his work 'New Babylon,' one of his most known creations, is described to be a cry of protest. Looking at the sketches and models that he made for his Utopian city, Nieuwenhuys showed a visual representation of some of the ideas that were in dialogue in architectural circles, and were presented to public opinion by the 'Contestations' movements of 1968. The work of Constant Nieuwenhuys is of such significance at the time that his proposal has developed a thesis that was also debated by Herbert Marcuse, a greatly influential radical thinker during that turbulent period[63]. Constant's city New Babylon is based on a long-term prognosis of modern society. In this vision of the city, production and mechanical transportation occur at ground level, while all social life take place within the vast structure raised on pilots. Constant's structure is a network of continuous multi-story space containing all living and social functions, of which would be continuously rebuilt by the population. The population of this city would have the ability to migrate at will to continuously form and reform. Every aspect of the built environment can be controlled and reconfigured spontaneously. Social life becomes architectural play. Architecture becomes a flickering display of interacting desires[64]. *"In New Babylon, social space is social spatiality. Space as a psychic dimension (abstract space) cannot be separated from the space of action (concrete space). Their divorce is only justified in a utilitarian society with arrested social relations, where concrete space necessarily has an anti-social character[65]."*
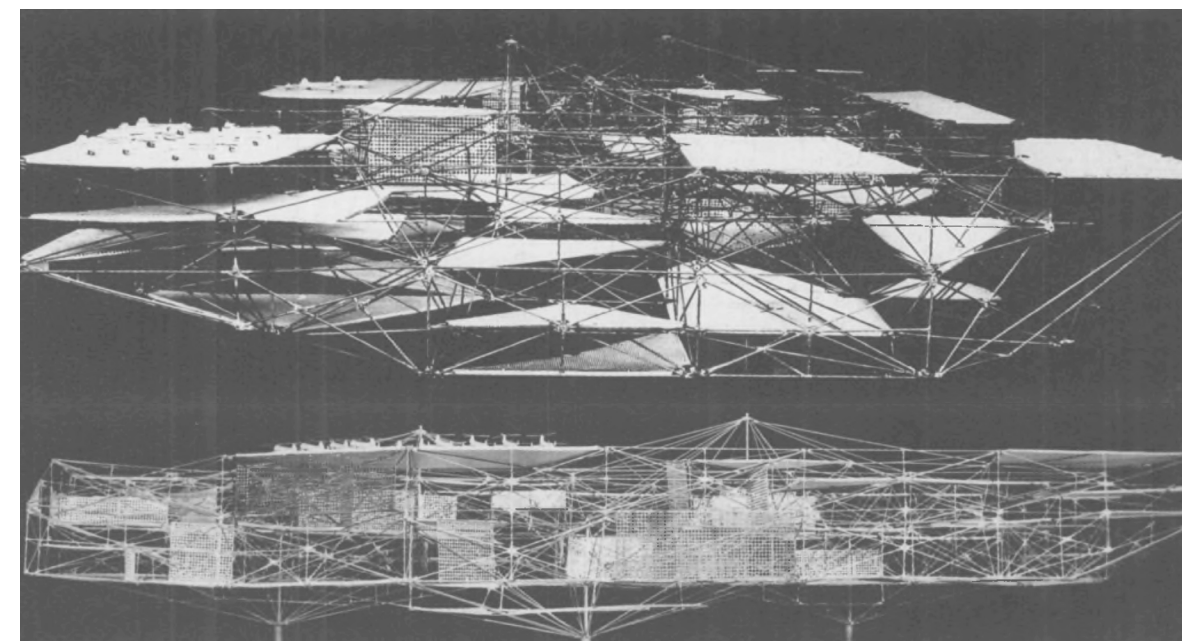
< Figure 24

Constant's New Babylon. Retrieved from Mark Wigley's book under the same title

As evidently illustrated, there was at the time a great curiosity in notions of spatiality and its urban connotations, not just on the architectural level, but with regards to the city as a whole. This interested appeared within

61   Colquhoun, A. (1988). Postmodernism and Structuralism: A Retrospective Glance. *Assemblage*, (5), 6.

62   Wigley, M. (1998). *Constant's New Babylon: The Hyper-architecture of Desire.* Rotterdam: 010 Uitgeverij.

63   Nicoletti, M. (1971). The End of Utopia. *Perspecta, 13*, 268.

64   Wigley, M. (1998). *Constant's New Babylon: The Hyper-architecture of Desire.* Rotterdam: 010 Uitgeverij.

65   Nieuwenhuys, C. (1974). *New Babylon.* The Hague: Haags Gemeentemuseum.

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different centers of thought in different place, as for another instance, we see Yona Friedman and his impressionistic drawings for 'la Ville Spatiale' of the spatial city where he proposed a multi-story metal space-frame suspended high above Paris in which *"the usable volumes occupy the voids of the infrastructure and their arrangement follows the will of the people[66]."* Friedman's proposal of the spatial city has observable similarities to the Situationist's take on the Utopian city New Babylon of Constant Nieuwenhuys. Both schemes are for the anticipated abolition of work, formally as well, they're both raised above the ground on stilts, creating a network capable of spanning the globe. Both Friedman and Nieuwenhuys employ a similar aesthetic, one very different from the pop sensibility of Archigram; their use of collage, subdued colors and models create an atmosphere that is less exuberantly optimistic but perhaps more real. However, it was Friedman's emphasis on participation that set his proposal apart from many of his contemporaries, because even Constant Nieuwenhuys has a slightly authoritarian character. What is interesting to note In Friedman's work, is that spatial agency occurs in the valorization of the user above the architect and the master builder[67].

Concluding remarks

To sum up this phase of the evolution of the phenomena, the Modern Movement in architecture was facing serious critique and was in crisis which took place along various fronts. A crisis in 'meaning' in the field, with this third generation of thinkers, gave way to the emergence of new theoretical approaches such as in semiotics, phenomenology and structuralism which will be discussed further on within the fourth generation of thinkers. Another issues to arise within the discipline was linked to methodology of design within an increasingly complex and chaotic world, in an atmosphere extremely political and ideological. Therefore, it is fair to assume that the phenomena was evolving in a climate of uncertainty and competing visions for the future which would continue to be present in the following decades[68].

The phenomena of continuous space maintained an evolutionary process, and as diverging thoughts continued growing in Europe and the United States, so did the reactions to changes happening during that period. A mixture of pessimism and reflection on the European side of architectural circles contrasted some of the views that appeared on the American side. While in Europe, some thinkers, theoreticians and architects demanded change and challenged the status quo, the notion of space as a concept would absorb new meanings and interpretations in the built environment. Thus, we see a surge in an interest in flow and movement, coupled with fluid shapes and structures. Movement and circulation would occupy thinkers of the city as well, emphasizing free flow in space, which would continue to evolve in the discipline.

66   Banham, R. (1976). *Megastructure: Urban Futures of the Recent Past.* New York: Harper & Row.

67   Hill, A. (1974). Yona Friedman: An Appreciation. *RIBA Journal,* (83), 105.

68   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

1.4.   Chapter 4: IV Generation

This fourth and final chapter, Generation IV, illustrates the latest revisions and progressions in architectural ‹ Intro to chapter 4 thought that occurred in the last few decades of the twentieth century. With regard to the previous chapter, the search for meaning maintained prominence in conjunction with influences from new ideas and conceptions in different field of knowledge, such as of philosophy and linguistic studies.

This chapter, representing the fourth phase in this reading of the evolution of the phenomena of continuous space, begins with a presentation of notions that emerged at the time which inspired some of the directions that the architectural discipline followed as a result. During this era we see a continued rejected of modernists and Modern Architecture's reductive handling of the built environment, and a sustained search for meaning in that respect. Some of the developments in different fields of inquiry, stemming from ideas that began evolving earlier during the 50s and 60s had an effect on a broad of sentiments and reactions at the time, arising in later years of the 60s, and well into the 70s. In the following paragraphs a comparative view on the earlier mentioned linguistic and phenomenological influences on the architectural discipline will be illustrated, which serves at establishing the different directions and lines of developments that affected spatial thinking and the concept of space in architecture, and in particular their practical application. For instance, one of the most remarkable issues is a revisit to the function of space in the broader sense of the built environment and in that respect, the city. And ultimately, some indications to further developments that assisted in arriving at novel methods and processes of architectural creativity through the agency of space and notions of spatial continuity.

Correspondingly, we see architectural circles strongly embracing notions of complexity and multiplicity by means of analytical publications, as well as works of architecture. Concerns with the social aspects of the built environment had a continued impact, which introduced social readings of space in architecture such as the work of the French philosopher Henri Lefebvre. Moreover, we see many architects occupied with analogies of the city such as notions of fragmentation and organization. As a response, the surge in methods of thinking of the built environment within a greater scale, primarily diagrammatic approaches in spatial analysis and design helped produce many of the key architectural works introduced in this chapter. An evaluation of such approaches is included with a comparison between spatial and temporal modes of architectural representations in relation to spatial organization, resulting in redirecting spatial conceptions in architecture towards a noticeable pragmatic direction and away from the conceptual connotations in architectural creations.

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As will be demonstrated in case studies discussed further on, spatial reasoning in the built environment, was established through diagrammatic and notational tools in a pursuit to work with space and time in an integrated way. Diagrammatic practices in this respect are related to the issues of time and duration, and they do so in two ways; diagrammatic time is understood as a structure informing the design and as an internal measurement punctuating the design process. Therefore, the diagrammatic notion will solidify time in the form of movement traces[1]. In addition to that, analogies related to the city, and the urban fabric in general terms will have an increased significance when considering and informing the design process that closely integrates the architectural with the urban scale, in the pursuit of a complex spatial organizations and in matters of flow and movement in space.

1.4.1.   Complexity and multiplicity

Following the numerous developments in circumstances that occurred throughout most of the 60s, a period of intense critique continued to be observed as a general sentiment. It is reported that up to that stage in architectural history, the field have had a poor reputation as it was recognized to a certain extent as a tool of authority. Contrarily though, that argument asserts, and as mentioned in the earlier chapter, the city generated different sentiments that of which represented something fascinating, complex and multiple in the world. In that respect, the city was a source of revitalization, offering alternative ways of thinking about the physical world we live in[2]. Under these circumstances, and as the 70s and the 80s approached, we see an evidence of strong influences within the field of architecture coming from structuralist thought and studies of semiotics, as well as significant inspirations from linguistic investigations, and ultimately from the emerging field of phenomenology in philosophy[3]. Such traditions and areas of research will have a substantial impact of the evolution of architectural thought at the time, and subsequently on the evolution of the phenomena of continuous space.

To begin with, the phenomenological tradition in architectural theory originated with Martin Heidegger's account on the nature of building and the built environment around him in general. For Heidegger, this approach which, defined space as 'place,' is interestingly identified by the material components and the characteristics they give. In that respect. Martin Heidegger conceives the phenomenological approach as a return to things, maneuvering away from abstractions of science and notions of neutral objectivity. Subsequently, Heidegger's phenomenology absorbs the subjective view, therefore, one of the key elements of the phenomenological approach is that 'places' rather 'spaces,' are understood through their use and experience[4]. Heidegger's

1   Berkel, B., & Bos, C. (1999). *UN Studio - Move: 3 Volume Set: Imagination/Techniques/Effects.* Amsterdam: Goose Press, Netherlands.

2   Migayrou, F., & Tschumi, B. (2014). *Bernard Tschumi: Architecture: Concept & Notation.* Paris: Centre Georges Pompidou.

3   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

4   Sharr, A. (2007). *Heidegger for architects.* London: Taylor & Francis Ltd.

thoughts in relation to the architectural discipline represented - and still does - a great interest for architects, especially during that period of confusion and crisis. In a late essay titled 'Art and Space,' Heidegger discussed in more detail the twofold nature of spatiality. He points out that the German term 'Raum' or space originates from the verb 'Raumen,' that is, the 'freeing of places for human dwelling;' *"In that respect, Heidegger contrasts the notion of space to the notion of place by implying that 'the place opens a domain, in gathering things which here belong together."* Furthermore, for Heidegger, places are embodied by means of sculptural forms, and these embodiments are the characters which constitute the place[5]. Jeff Malpas interprets Heidegger's inclination towards the notion of place as the result of his rejection to the modern formula of space identified by the likes of Albert Einstein. For Heidegger, such understanding is a characteristic of the Cartesian thinking[6]. In that regard, places for Heidegger expressed the bounded and lived spatiality, 'Being in the world,' is a philosophy that emphasizes the relationship and interaction between man and the world[7]. Heidegger's ideas were radical to his time, moreover, his views were distinctive to the views that were gaining significance during that period. Therefore, the Heideggerian notion of 'place' had a substantial influence on architecture, not just during his life time, but later on as well. While then, modernity was put under the microscope, and overthrown by post-modernity, phenomenology served at bringing the individual to the center, as well as asserted a return to culture's values and ideologies[8].

Alternative thoughts can be noted to take prominence in different circles, such as the structuralist reading of architecture and the built environment, which appeared in conjunction with the linguistic approach of analysis. Such lines of thinking have been observed to having the potential for practical applications in architecture, by means of the ordering and the amelioration of the 'physical' or built world. Traditionally, the architectural discipline had been especially resistant to the studies of linguistic theory, in addition to that, the impact of such directions of thought had been perceived as being limited and not wholly positive. However, this response to the linguistic approach in architecture has been attributed to the limited knowledge of linguistic theory, in addition to certain confusion when it comes to understanding what constitutes theoretical technical practices to begin with[9]. It should be pointed out that the linguistic approach is not exclusively novel at that point in time in the architectural discipline. Contrarily, these ideas have been retroactively attributed to the work of the architect Aldo van Eyck as mentioned in the previous chapter, who himself was influenced by thinkers like Levi-Strauss,

5   Norberg-Schulz, C. (1983). Heidegger's Thinking on Architecture. *Perspecta, 20,* 61.

6   Casey, E. (2001). J.E. Malpas's Place and Experience: A Philosophical Topography (Cambridge University Press, 1999) Converging and diverging in/on place. *Philosophy & Geography, 4*(2), 225-230.

7   Wollan, G. (2003). Heidegger's philosophy of space and place. N*orsk Geografisk Tidsskrift - Norwegian Journal of Geography, 57*(1), 31-39.

8   Sharr, A. (2007). *Heidegger for architects.* London: Taylor & Francis Ltd.

9   Patin, T. (1993). From Deep Structure to an Architecture in Suspense: Peter Eisenman, Structuralism, and Deconstruction. *Journal of Architectural Education, 47*(2), 88-100.

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but who never himself used the term structuralism[10].

Within this framework, structuralism, as well as phenomenology, both addressing the issue of 'meaning' and had a significant impact on the architectural discipline. Ferdinand de Saussure, the Swiss linguist and semiotician, whose ideas laid the foundation for the development of linguistics and semiology in the twentieth century, he defined this specific and abstract system that eventually evolved into semiotics in architecture[11]. Ferdinand de Saussure's discontinuation of the sign from the referent may be said to be corresponding, in its architecture theoretical versions, to Edmund Husserl's phenomenological bracketing. Kenneth Michael Hays explains that in both traditions we see a suspension of the commonsense perception of architecture as a vessel of meaning filled from the outside: *"They both install a code of intrinsically and irreducibly architectural elements or phenomena that are related within a generalized system."* Hays continues explaining that in both structuralist and phenomenological thought, architectural signification is autonomous, at a distance from reality, but however, an architectural concept is an idealized or total system of architecture that is still a kind of a map of reality, even if particular elements on the map lack a one-to-one correspondence with the world[12]. According to Fernande Saint-Martin, de Saussure's semiotics can provide a method for looking at the relationships between elements in accordance to culture. If we consider taking into account the critical influence of modern culture and society, such consideration is essential for analyzing the emergence of architectural space, which was resulted in the radical change of thought. In such a complex society of that time, looking into the one way relationship between object and individual is limiting. Any analysis of modern works of architecture should take into consideration the complex and interwoven relationships between modern objects, individuals and culture[13].

It seems that in both structuralist and phenomenological thought, meaning in architecture is independent or at a distance from reality. Nonetheless, an architectural concept is still a concept of something; an idealized version or an architectural system that, to a certain extent, represents a map of reality. In comparison, structuralism and phenomenology, address the issue of the subject differently. Structuralism characteristically liquidates the subject, interpreting it as no more than an effect of the signifying system, while phenomenology relies on concepts like consciousness and presence and tends to privilege the signified over the signifier, interiority over exteriority, subject over system[14].

One of the first architects to reflect on the emerging notion of semiotics during that epoch was the Norwegian Christian Norberg-Schulz, and important to remark that he was in fact a student of Sigfried Giedion in Zurich

and of Mies can der Rohe at the Illinois institute of Technology. Norberg-Schulz started out with his publication of 'Intentions in Architecture' in 1963, a work that was inspired by the structuralist studies in semiotics, sociology and psychology. He soon shifted his inquiry towards investigations of the phenomenological approach in architecture with his following publication in 1971 'Existence, Space and Architecture[15].'

It is argued that before the influx of changes in the architectural discipline, concepts on space were fixed as a result to the efforts made earlier by Sigfried Giedion and Bruno Zevi. Nonetheless, by the early 70s, concepts of space revived less currency in architectural circles and instead an emerging emphasis on architectural form and its meaning took over. In that respect, Christian Norberg-Schulz's book 'Existence, Space and Architecture' represents an attempt to salvage the notion of space in architecture as a vital architectural concept. In this book, Norberg-Schulz distinguishes no less than six types of space, 'pragmatic, perceptual, cognitive, abstract, existential, and finally architectural space.' Pragmatic space of physical action, perceptual space of immediate orientation, cognitive space of the physical world and abstract space of pure logical relations. Pragmatic space integrates man with his environment, perceptual space is essential to his identity, existential space makes him belong to a social and cultural totalities, cognitive space means that he is able to think about space, and logical space offers the tools to describe the others[16]. Having said that, for Norberg-Schulz, it was in the two types (existential and architectural) where his main interest resided. Norberg-Schulz's principal thesis was that architectural space concretizes existential space, which meant that architectural space is the symbolic form that mediates such spatial features as the place/node, domain/district, within the multiple existential dimensions of the built environment. What we should demand from architectural space, he concludes, is *"an imaginable structure that offers rich possibilities for identification[17]."*

In responding to the emerging prominence of the field of semiology in architecture, Alan Colquhoun seems to have less optimistic views on semiology's role in what it can offer for the sphere of architectural theory. Nonetheless, he acknowledges the importance of such school of thought as a tool in architecture in general. In that respect, Colquhoun warns against the acceptance of such notions as an exact explanatory science and thus, emphasized the significance of keeping the designer's freedom. In that sense, Alan Colquhoun suggested that for the architectural practice to be meaningful, architecture must therefore recombine elements already invested with conventional meanings. Colquhoun continued his argument, saying that: *"Meanings in architecture are social".* And again, more explicitly: *"Meanings cannot be deduced from forms. These can only be deciphered if we know the social and artistic context within which they have been produced. Forms do not have meaning*

10   Söderqvist, L. (2011). Structuralism in architecture: a definition. *Journal of Aesthetics & Culture, 3*(1), 5414.

11   Robins, R. (1997). *A Short History of Linguistics* (4th ed.). London: Taylor & Francis Ltd.

12   Hays, K. (2000). *Architecture theory since 1968.* Cambridge, Mass.: MIT Press Ltd.

13   Saint-Martin, F. (1990). *Semiotics of Visual Language (Advances in Semiotics)* (1st ed.). Bloomington: Indiana University Press.

14   Hays, K. (2000). *Architecture theory since 1968.* Cambridge, Mass.: MIT Press Ltd.

15   Hays, K. (2000). *Architecture theory since 1968.* Cambridge, Mass.: MIT Press Ltd.

16   Haddad, E. (2010). Christian Norberg-Schulz's Phenomenological Project in Architecture. *Architectural Theory Review, 15*(1), 88-101.

17   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

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in themselves; they are given meaning. Each set of forms can attract a number of different meanings, whose range is only limited by the extent to which form and meaning share certain structural properties[18]." Another perspective within this context is offered by Umberto Eco. For Eco, architecture should be considered for the most part for its functions. An architectural object does not communicate but its functions do. For instance, a roof has to fundamentally serve as a cover, a stair case has to function for vertical movement, ramps as well, and floors have the function of bearing the architectural activity or event[19].

On the same note, in his Opposition editorial 'Post-functionality', Peter Eisenman talks about this particular instance in the architectural discipline, describing these circumstances in the wider sense of the architectural field as an entirely new realm. This world we're arriving at - during the time, according to Eisenman, is one that transcends the oppositional dialect of form and function, and one that is characterized by the absence of the subject or originating agent. Interesting to point out that this editorial represents one of the first instances of French poststructuralist ideas making their way into the architectural discourse, ideas that are described to be notions of critique, emphasizing plurality of meaning and instability of concepts which structuralism uses to define society[20]. Looking at Peter Eisenman's employment of such theoretical inclinations, and as part of his unique processes of architectural conception, Eisenman offers a new notion that he terms as 'deep structure' in architecture. Deep structures for Eisenman are similar to the linguistic concept of deep structure as defined by Noam Chomsky, who respectively affirms that deep structure is partly determined by: *"universal rules [...] which specify an abstract underlying order of elements that makes possible the functioning of transformational rules [...] that map deep structures into surface structures."* In that respect, deep structure is thus defined by Peter Eisenman as a duality, a dialectic of two categories which he calls conditions and qualities where *"conditions are concerned with the relationships in architectural space which are abstract and thus with syntactic information which is notational[21]."* Along these line, Peter Eisenman explains two ways of how the use of diagrams as a practical application of linguistic theories would be of use in the discipline. On the one hand, diagrams can be used as a device with which to look at the world and to try to represent some of the bizarre conditions we observe in the built environment, and on the other hand, diagrams can serve as useful devices through whereby to trigger architecture which in turn enables to trigger architectural concepts[22].

During those particular last few decades of the twentieth century, complex thought in general and complexity theory to be more specific, emerged out of the changing scientific context brought on by the over-all realization of

the shortcomings of classical Newtonian science. From this perspective, instead of presenting completely novel discoveries, complexity theory offered a new viewpoint on many known, but hardly understood phenomena. Therefore, this notion of thinking has allowed architects the chance to move away from the linearity and determinism of earlier modes of thought, and therefore offered a change of perspective on complex readings of the built environment, in such a way that architects were able to reconsider complex processes of growth such as in the city and building morphology which in turn allowed them to arrive at new bottom-up approached to planning and design[23]. In this context, it is recognizable during this period an emergence of studies of complexity and complex systems, termed as complexity theory or complexity science. Complexity theory is an interdisciplinary theory that grew out of systems theory in the 60s. In some ways, complexity theory is an extension of General Systems Theory, which became the dominant model of organizational theory in the 60s as well. The dominant paradigm for the earlier decades, was reductionist, suggesting that a system can be analyzed by understanding each or its individual parts, adding to that, it was also thought that a general linear relationship between inputs and outputs can give a proper explanation to things[24]. As a consequence, in a few decades complexity theory would evolve as a new discipline that provides a broad scientific perspective towards dynamics real-life phenomena, and challenging the classical linear world view as well as simple cause-and-effect-style Newtonian physics. For the architect, the advent of such notions of science offers a chance to reconsider common design approaches and to invent new strategies based on similar paradigms[25].

To put these last lines of thoughts into perspective, Modern Architecture or the modern approach to the built environment, one of universal values, it is a view that subsequently resulted in feelings of placelessness and disorientation that were strongly criticized in its later years. In that respect, the problem with the modern notion of thinking is its reductive reading of problems it tried to solve, likewise the solutions it came up with. As a result, it is recognizable that Modern Architecture was at the time, not on a level with its contemporary modern science, poetry, or art, all of which recognizes complexity and contradiction. Thus, we see that the spirit of the day held heavy reactionary activities to such diminutive culture, and therefore demanded serious changes. Accordingly, during the 60s and well into the 70s, challenges to the Modern Movement and ideology accelerated and proliferated to become known as the post-modern critique. For this reason, and not surprisingly, an examination of architectural theory of those decades shows a multiplicity of competing ideas, and the absence of dominance of a single concept or a single viewpoint is characteristic of the pluralist period imprecisely referred to as

18   Colquhoun, A. (1995). *Essays in architectural criticism.* Cambridge, Mass.: MIT Press.

19   Leach, N. (1997). *Rethinking Architecture.* London: Taylor & Francis Ltd.

20   Hays, K. (1999). *Oppositions Reader: Selected Essays 1973-1984* (1st ed.). New York: Princeton Architectural Press.

21   Eisenman, P., & Koolhaas, R. (2009). *Supercritical.* London: AA Publications.

22   Hays, K. (2000). *Architecture theory since 1968.* Cambridge, Mass.: MIT Press Ltd.

23   Herr, C. (2019). Generative Architectural Design and Complexity Theory. In *International Conference on Generative Art.* Rome.

24   Grobman, G. (2005). Complexity theory: A new way to look at organizational change. *Public Administration Quarterly, 29*(3/4), 350-382.

25   Herr, C. (2019). Generative Architectural Design and Complexity Theory. In *International Conference on Generative Art.* Rome.

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postmodern[26].

1.4.2.   Diagrams and other architectural strategies

For the most part, by the late 60s the production of architectural theory appears to have integrated complex readings of architecture and the built environment. Furthermore, there seems to be a certain embrace of the uncertainty and intricacy of the world broadly speaking. We see then around that period one of the strongest and most controversial critics of the proudly functionalist and emblematically diminutive and reductive architecture of modern architecture of the 50s, Robert Venturi, formalizing the spirit of that time in his 1966 publication 'Complexity and Contradiction in Architecture.' This book is strongly linked to that specific moment of symptomatic crisis in history, which coincidentally was published around the same time as Aldo Rossi's 'The Architecture of the City'. The architectural historian Vincent Scully's famous assessment of Venturi's treatise as *"probably the most important writing on the making of architecture since Le Corbusier's 'Vers une Architecture."* In that respect, Venturi's publication is one of the few books that since have achieved a parallel significance in shaping the discipline's discourse[27].

In his book, Venturi reveals an architectural vision, declaring: *"I speak of a complex and contradictory architecture based on the richness and ambiguity of modern experience, including that experience which is inherent in art [...] I welcome the problems and exploit the uncertainties. [...] I like elements which are hybrid rather than 'pure', compromising rather than 'clean' [...] accommodating rather than excluding [...] I am for messy vitality over obvious unity. [...] I prefer 'both-and' to 'either-or', black and white, and sometimes gray, to black or white. [...] An architecture of complexity and contradiction must embody the difficult unity of inclusion rather than the easy unity of exclusion[28]."* During this period in consideration - last few decades of the twentieth century, a large number of publications and theoretical investigations were primarily concerned with the production of an architecture of heterogeneous, fragmented and conflicting formal aspects. Beginning with this earlier mentioned book by Robert Venturi, and followed by Colin Rowe and Fred Koetter's 'Collage City,' and in addition to later publication such as Mark Wigley and Philip Johnson's 'Deconstructivist Architecture[29].'

Within that frame of reference, Rem Koolhaas was one of the most relevant architects theorizing and consolidating

the culture of the fragment[30]. Koolhaas asserts that an architecture that is supposed to be able to generate complexity, as well as an architecture that operates on the human scale, in that category of architecture, space exists independently as a precondition in terms of organized space in an architectural system. The argument brought forward here is that an architecture of space can generate complexity, it can produce possibilities, and moreover, it can thus limit, by means of hindering or decreasing the unfolding of events. Thus, space becomes inevitably linked to power because it has the ability to bound and to enable, it can create and hinder through precise spatial arrangement. For instance, to invoke creativity and innovation, spaces must be generated in a particular manner, in a way where an architectural system of spaces can encourage plurality, contradictions and dissensus through its spatial organization. Such notions of specific spatial arrangements, function by organizing structures of flow and movement, determining actions which might take place and which might not, therefore such spaces assert a certain political ability in terms of decision making and non-decision making processes[31]. In that context, for Henri Lefebvre, space opened up to conceptualization in architecture just as it did to practical action, where the artist - and the architect in that respect, passed historically from objects in space to the concept of space itself. And even though Lefebvre is critical of abstract space, he is optimistic in its ability. Where in his own project, social space will be a space of difference. With regards to the point put forward by Henri Lefebvre, it is worth noting that it is claimed that it was not often the case that architectural production have been adequately conceptualized in terms of its social aspects[32]. Interestingly though when it comes to Lefebvre and the concept of space in architecture within the framework of this research study, It is argued that Lefebvre's space should be understood as relational moment within a continuous flow of ideas, not as a thing apart. Reflecting thus an evolutionary nature of space in architecture through time. Notwithstanding, in his publication 'The Production of Space,' Lefebvre suggests the idea of thinking of space in terms of a triad of spatial practices. The social practices through which space is materially produced, representations of space - the ways in which space is abstractly conceived, and representational spaces - the phenomenological spaces of lived experience[33]. Therefore, it is somewhere between the two notions of Lefebvre that a phenomena of continuous space can be unpacked and analyzed.

With respect to putting such spatial notions into practice, according to Robert Somol, over the second half of the twentieth century, the fundamental techniques and procedure of architectural knowledge has seemingly shifted from a notion of drawing to the method of the diagram. Diagrams have, in one way or another, formed an important part of the architectural discipline at various points in history, however it was only in the last

26   Nesbitt, K. (2005). *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965 - 1995* (2nd ed.). New York: Princeton Architectural Press.

27   Stiereli, M. (2016). 'Complexity and Contradiction changed how we look at, think and talk about architecture'. Retrieved from https://www.architectural-review.com

28   Venturi, R., & Scully, V. (2016). *Complexity and contradiction in architecture.* New York: The Museum of Modern Art.

29   Lynn, G. (2004). *Folding in architecture.* Chichester, UK: Wiley-Academy.

30   Martinez, A., Bosco e Silva, L., & Magalhães Castriotto, C. (2014). The diagram process method: the design of architectural form by Peter Eisenman and Rem Koolhaas. In *Arctheo Conference.* Istanbul: DAKAM Publishing.

31   Kornberger, M., & Clegg, S. (2003). The Architecture of Complexity. *Culture and Organization, 9*(2), 75-91.

32   Hays, K. (2000). *Architecture theory since 1968.* Cambridge, Mass.: MIT Press Ltd.

33   Wilson, J. (2013). "The Devastating Conquest of the Lived by the Conceived". Space and Culture, 16(3), 364-380.

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few decades of the century that the notion of the diagram has become fully actualized. In other words, diagrammatic approaches to the creative process in architecture has become almost completely the matter of the discipline. Fragmentation is the most genuine form of the postmodern condition, and when the starting point becomes this hybrid condition, it resists the temptation of unity and refers to mechanisms that recompose the multiple and fragmentary reality, through mosaic, collages, superpositions and other strategies that potentiates both the complexity and individualization of each part. Both Stan Allen and Robert Somol make the distinction between working 'diagrammatically' and simply working with diagrams. According to Somol, working diagrammatically *"implies a particular orientation, one which displays at once both a social and disciplinary project [...] Diagrammatic work is projective in that it opens new, or more accurately, 'virtual' territories for the practice."* Somol goes on to suggest that the work of diagrammatic practices attempts to displace design with the diagram, and deliver *"form without beauty and function without efficiency[34]."*

Spatial organization implies both program and its distribution in space, going beyond the conventional oppositions of function versus form, or form versus content. Thus, comes the significant role of the architectural diagram, where multiple functions and actions over time are implicit in it. The configurations that diagrams develop are momentary clusters of functions in space, subject to continual modifications. Along these lines, a diagram is a description of potential relationships among elements; not only an abstract model of behavior in the world, but a map of possible worlds. In such away, and unlike in classical theories based on imitation of systems (i.e. found in nature), according to Stan Allen diagrams do not map or represent already existing objects or systems but anticipate novel organizations yet to be realized in the world. In that respect, diagrams are useful tools in implementing complexity in the built environment through the notion of spatial arrangements for the reason that, as Allen explains, the content of a diagram is not embedded or embodied, but outlined and multiplied. Diagrams in that sense can be defined as: *"simplified and highly graphic, diagrams supper multiple interpretations [...] Diagrams are not schemas, type, formal paradigms, or other regulating devices, but simply placeholders - instructions for action, or contingent descriptions of possible formal configurations[35]."*

From this point of view, a particular distinction develops in the architectural discipline between space and place as architectural components in the spatial organization in a system. While space in simple words, and in agreement with Allen's argument, is the physical setting or composition in which things occur. The notion of place in architecture refers to social processes in space. Place is an imaginary product or desire and its primary role is to articulate space to transform it to a humanized landscape. With respect to diagrammatic practices in architecture, such processes begin with an intentional opposition to the materiality of the architectural object and to the immateriality of information, thus ignoring to a certain extent architecture's own rich history as

a procedure for actualizing the virtual. Architecture is invested and implicated in a number of media, such as sketching, and the architect is theretofore occasionally and out of necessity, constantly moves from one medium to another, transcoding from virtual to actual and vice versa. To move from drawing or writing to building, and back again, is only one of many examples of this; architecture's constant negotiations with issues of society, technology, ideology are some of the many inputs into a diagrammatic system. Historically, architecture has deployed limited modes or techniques for representing the architectural work to negotiate the actual and the virtual, such as techniques projection and calculations. In recent practices, this catalogue of methods has been incrementally expanded by the appropriation of new techniques, from film, video or performance, and by the simulation and visualization capacities of computers. However optimistic, it is argued that the conceptual apparatus of conversion, such as transcoding, translation, or transposition, are yet to be examined and expanded on[36].

In their book 'A Thousand Plateaus', Gilles Deleuze and Félix Guattari spoke extendedly with regard to the concept of diagrams in architecture: *"An abstract machine in itself is not physical or corporeal, any more than it is semiotic; it is diagrammatic [...] It operates by matter, not by substance; by function, not by form [...] The diagrammatic or abstract machine does not function to represent, even something real, but rather construct a real that is yet to come, a new type of reality[37]."* Again, confirming that the diagrammatic machine is not just a tool to represent reality, but a generative device that triggers a systematic architectural arrangement of space.

Accordingly, a diagram may function as an explanatory tool for functions and programs for the designer and to others, the primary utility of the diagram is an abstract means of thinking about spatial organization. The variables in an organizational diagram include both formal and programmatic configurations: space and event, force and resistance, density, distribution, etc. Ultimately, diagrammatic practices in the architectural discipline are not intended to represent what the architectural will eventually resemble in reality; instead, the purpose of such methods of design strategies is primarily to illustrate how the architectural project works as a system of organized spaces, as well as to represent and to argue how a particular architectural solution was conceived. In that sense, an architectural diagram is an abstract drawing of an assemblage of organized elements which can be coded according to a series of shared conventions in order to impose a transformation of reality. Therefore, the diagrammatic approach to the architectural project, as a complex system of organized spaces offers a privileged ability to access the realm of reality by means of its logic of structure. Thus, the diagrammatic approach represents a significant means to engage the complexity of the reality in the built environment.

We can mention in that regard James Maxwell who emphasizes the relational and transactional character of

34   Somol, R. (1999). Dummy text, or the diagrammatic basis of contemporary architecture. *Diagram Diaries*, 6-25.

35   Allen, S. (2009). *Practice: architecture, technique and representation.* Abingdon: Routledge.

36   Allen, S. (1998). Diagrams matter. *ANY: Architecture New York,* (23), 16-19.

37   Deleuze, G., & Guattari, F. (2013). *A thousand plateaus: Capitalism and Schizophrenia.* London: Bloomsbury Publishing PLC.

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the diagram which according to him can be described as a figure drawn in such a manner that the geometrical relations between the parts of the figure illustrate relationship between other objects. However, It is essential at this point to distinguish an underlying difference between the notion of notation in architecture, that of which comes from the more general category of the diagram. Often time the two terms are used interchangeably because they are closely related. According to Stan Allen, all notations are diagrams, but not all diagrams are notations. The reason behind this assertion is that notations belong to the element of time, while diagrams are particularly concerned with notions of organization in space. As a result, diagrams are syntactic and not semantic, more concerned with structure than with meaning. Diagrams specify part to the whole relationships and suggest a working model of the whole. On the contrary, time is a variable in notation methods, unlike in diagrams, it is not accidental that notations are essential tools in the arts that unfold in time: music, dance or theater[38].

Paul Virilio, in this context, offers an interesting account on the notions of diagrams and notation. Virilio introduces the analogy of the city and the experience in the city which belongs today according to him, more to the notion of time than space. Virilio explains: *"now speed – ubiquity, instantaneousness – dissolves the city, or rather displaces it, in time[39]."* In that sense then, the spatial capacity of notation is to make the measurement and unfolding of time take on a special significance: interval, duration and tempo, acceleration and accumulation are all key variables in a notational schema. Notations in that respect are necessarily reductive and abstract in order to introduce complexity and multiplicity into the system, but the products of notation do not necessarily resemble the notation itself, to the contrary, notational schemas have little to do with traces, imprints or indexes according to Stan Allen's analysis. Notations designate and reproduce new configurations of time and space by means of a system that has its own internal logic. The abstraction of notation is thus instrumental, and not an end in itself. According Stan Allen's definition of notations; they always describe a work that is yet to be realized; notations go beyond the visual to engage the invisible aspects of architecture; notations include time as a variable; they presume a social context, and shared conventions of interpretations because the use of notation marks a shift from the production of space to the performance of space; and finally, notations work digitally, through difference and not resemblance[40].

Taking into consideration the literary narratives as a notion in terms of organization of events in storytelling, to what extend could such analogies shed light to the processes of organizing events in the architectural sense of the word, whether referred to as 'use,' 'function,' or 'programs?' In that regard, if writers could manipulate the structure of stories in the same way they can twist vocabulary and grammar, architects as well could do the same by means of organizing the program of the project in a similarly objective, detached or imaginative way. It is argued that if the architect would self-consciously use such devices through diagrammatic approaches, applying techniques, as for example: repetition, distortion or juxtaposition in the elaboration process of the project, the architect, in such a way, has a level of freedom and creative capacity to come up with numerous organizations of space. If we look back at traditional methods of 'notation' or representation of the architectural project, it is obvious that they do not suffice in representing such intricate conceptions of space in time, such as what can be witnessed in the limited capacity of temporal representation of plans, sections, or even axonometric drawings. In that respect, Bernard Tschumi suggests that some methods of temporal notations can be borrowed and elaborated from other arts. Tschumi proposes that movement notations derived from choreography adopted, as well as musical scores can also be used for architectural purposes. In his projects, Bernard Tschumi incorporates such methods in order to juxtapose event, movement and space together. For example, especially in his earlier projects such as the 'Parc de la Villette' in 1983, Tschumi deconstructed the city, introduced lines of movement in the urban scenario and gradually increased the complexity of implementing parallels and sequences of events within a wider urban context. Thus, Bernard Tschumi arrives as exploring new codes of assemblage on a greater scale such as the metropolis with the totality of the built environment[41].

John Rajchman is a philosopher working in the areas of art history, architecture, and continental philosophy. He is relevant in this context because Rajchman notes the changing climate of the generation of his contemporary times, and with respects to the architectural discipline, declares what he witnesses as the birth of a 'New Pragmatism'. In bringing a certain complexity of processes to Avant-Gard abstraction, it is argued that pragmatism thus assumes a mediatory ground between practice and theory within an ongoing debate in the discipline[42]. In this respect, Rajchman explains: *"The diagrammatic 'mobilizes and connects' in other, indirect ways that work more through linkages, complicities, and alliances that grow up around new questions or in response to new conditions or forces than through adherences to the prior supervenient generalities of a theory, a project, or a program [...] It might help move beyond the impasses of older images of negative theology, transgression, or abstract purity and introduce a new problem: that of singularizing environments, of living an indefinite 'complexity,' prior to set determinations, which questions the simplicities and generalities of our modes of being and suggests other possibilities[43]."*

Rajchman, in his publication of the 'new Pragmatism' insists accordingly on the experimental aspect of architectural practice, as well as the need to develop new tools - diagrammatic tool, in order to enable architects to deal with complex and unstable situations. Against this background, some architects were eager to diminish

38   Allen, S. (2009). *Practice: architecture, technique and representation.* Abingdon: Routledge.

39   Virilio, P., & Lotringer, S. (2008). *Pure war.* Los Angeles, CA: Semiotext(e).

40   Allen, S. (2009). *Practice: architecture, technique and representation.* Abingdon: Routledge.

41   Tschumi, B. (1996). *Architecture and disjunction.* Cambridge, Massachusetts: MIT Press Ltd.

42   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

43   Rajchman, J. (1998). A new pragmatism? *Anyhow*, 212-217.

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the pretensions of theory and refocus on practice, in that regard, architects were seeking a fluid and responsive way of dealing with shifting realities and fast changes[44].

At a certain point in time, there appeared to be a wave of highly conceptualized notions of architecture emerging predominantly from American architectural theory. In that regard, and towards the 90s of the century, we see a series of architects in Europe who produced through their projects a completely different objective in the field. One of their principal aims was to arrive at a sort of spatial organization that completely fuses the individual architectural building with its site. In this respect, such approaches to architecture attempted to blur the boundaries between figure and ground, thus projects becoming themselves folded and punctured versions of the ground surface. This line of thinking can be traced back to the influences of Gilles Deleuze and Félix Guattari, as per such projects in architecture appear to resemble a continuously folding ground surface[45].

1.4.3. The architectural project as a complex system of continuous space

It appears to be that since the 60s, architectural theory has been pursuing an increasingly independent and often diverging path from architectural practice. One reason is attributed to the fact that theory was often times inclined to evoke many of its ideas from other disciplines than architecture. Moreover, the scale of practice by the 90s of the century is said to have overtaken the discipline, together with the rapid pace of construction explained by an increasingly globalizing world by that time. Fortunately, the level of technological sophistication during this period helped market and manage such larger projects that appear to be erected across the globe. If we take into consideration what is described as a fall-back in the field of theory of architecture and pair that fact with the rise of a new generation who sought more pragmatic approaches in the field, in that respect, this marks the beginning of yet a new phase in the architectural discipline. This new generation that focused on diagrammatic practices, demonstrated primarily by a wave of Dutch firms like that of OMA (led by Rem Koolhaas), UN Studio, and MVRDV, defined themselves as spontaneous, innovative, and multidisciplinary planning organization with a major emphasis on research. Additionally, and in connection with that we can mention other firms such as the British based Foreign Office Architects (FOA). These practices predominantly feature diagrammatic approaches as their architectural design strategy, challenging traditional and perhaps conventional practices in architecture[46].

Many of the projects designed my OMA exhibit notions of organized space and time which are clearly illustrated in the many diagrams of their work. Taking the example of the Seattle public library, the spatial

complexity is said to celebrate the integration of the public at the core interior spaces of the building. This project begins with an analysis of modern libraries and the problematic of expanding media types and social functions within such typological buildings. The shortcomings of the traditional and somewhat generic floor plan in library designs seems less than adequate in coping with the requirements of this fast advancing age of technology. To counter that concern, Rem Koolhaas follows a strategy of spatial and functional reorganization and compartmentalization. Koolhaas's design principle was expressed using diagrams explaining how the building works together like a spatial and functional system. The design of the library can be seen to be divided into eight horizontal layer, comprising of an intricate spatial configuration fitted accordingly with the specified functions of the different spaces. The programmatic uses of the building is thus stacked up to the same degree as the logic of the linkages and associations between the different spaces. Nine different functional clusters are determined and visualized; five are classified as 'stable,' and four 'unstable.' After a process of stacking up the differing functions horizontally, Koolhaas shifts them in different directions to create variations on the characteristics and qualities of different spaces. Each of the 'stable' compartments is scaled according to programmatic requirements and site constraints. Another aspect to witness in the diagrams of the design is that they offer a view on other forces influencing in the design decision-making processes, such as shade, light requirements, views over the city from the library, as well as urban requirements surrounding the building. Rem Koolhaas in his design for the Seattle library has attempted to find a new relationship between the virtual the actual, and this is clearly illustrated by the unprecedented book archiving on a long ascending ramp and thus,the centralization of all resources. This spatial arrangement, is unified by a light skin that wraps around this vast spatial programs, setting up a dialectic between the spatial organization, openness and flexibilities of the whole building as a complex system and on the other hand, the architectural object as an identifiable place within the city. Along these lines, the Seattle library's design is divided into its two main identifiable components, the exterior that objectifies it as an icon in the city, a civic destination; yet, the inside, as a conceptualized fluid intersection of spaces through which social actors move, rehearsing their role in civic life[47].
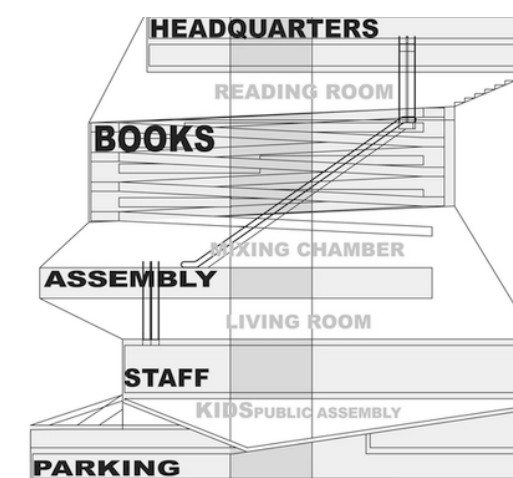
⟨ Figure 25

Seattle Public Library's design functional diagram. Retrieved from https://www.archdaily.com

44   Lefebvre, P. (2017). What difference could Pragmatism have made? From architectural effects to architecture's consequences. *Footprint*, 23-36.

45   Mallgrave, H., & Goodman, D. (2011). *Introduction to Architectural Theory; 1968* to the present. Malden, MA: Wiley-Blackwell.

46   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

47   Murphy, A. (2019). Seattle Central Library: Civic Architecture in the Age of Media. Retrieved from https://placesjournal.org

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What is particular about this library design is that even though the building seems to have a distinct form and appearance to its surroundings, the spatial arrangement is unconventional in attempting to strongly integrate itself with its urban settings. Beginning with a pedestrian passage through the building and the vast public lobby that work together with the other compartments of the library to create a more permeable spatial arrangement. In that respect, the compartmentalized and offset spaces of the library achieve qualities of continuous interior spaces which spiral up through the building, allowing for physical and visual connections throughout the different layers of this library. Such continuous effects act as a continuation and part of the urban context[48]. The city's urban order is seemingly continued into the building's interior and up through its levels, generating a prolonged sense of spatial continuity on an urban scale.

The Dutch embassy in Berlin, also by the Dutch architect Rem Koolhaas is yet another example of a design strategy that attempts to integrate a complex spatial understanding of the different functions of a building. In this building, Koolhaas employs movement at the core of the building's spatial system, where functions and uses of space are fixed around it. It is thus, one of many examples of the Route Building typology[49]. In this building, the wandering route continues vertically in a spiral fashion breaking through the different levels of the building, creating a continuous band of 15 functions. The spatial organization of the embassy resembles an analogy of small houses or buildings lined up on a street in a vertical city, the embassy's different functions are thus organized around a vertical pedestrian passageway at its core. *"A virtuoso spatial fantasie articulated within a limited, strictly cubic space, where it continually twists and turns upon itself. This playful and rather capricious exploration of the pleasures of complexity is an exacerbation of the theme of the architectural promenade; it constructs a controlled and joyful chaos[50]."*
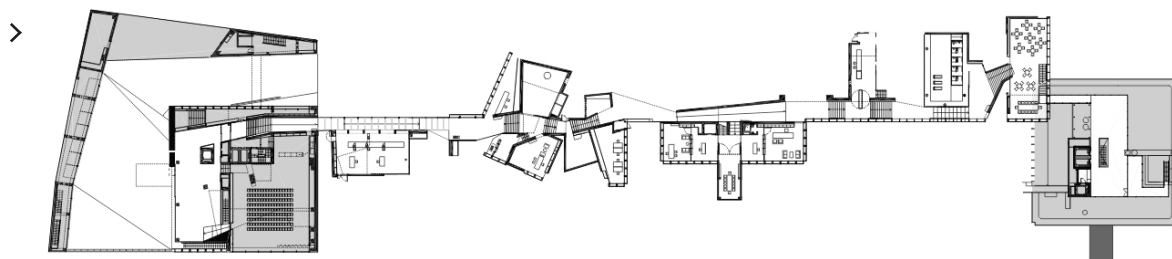
In the work of Rem Koolhaas, programmatic innovations include the production of fields of social encounter, new functional juxtapositions, and forms of spatial segmentation. Koolhaas seeks an architecture that encourages an eruption of events, social engagement, and opportunities for action. Rather than designing with a hierarchy of spaces and narratives of spatial movement in mind, he generally works towards a spatial structure that allows

a multiplicity of choices for pedestrian flow and encounter[51]. Koolhaas wants to *"liquefy rigid programming into non-specific flows and events […] to weave together exterior, interior, vestigial and primary spaces into a frank differential matrix that rids the building of the hackneyed bourgeois niceties of cosmetic hierarchies[52]."* There is considerable similarity between the two buildings discussed earlier and yet another architectural project proposal by Rem Koolhaas for the 1992 two libraries at Jussieu in Paris. Koolhaas attempts here the same technique of layering the building through a condensed spiral of continuously ramped floors. In this proposal for a library design, Koolhaas radically reconfigured the typical library layout. Rather than stacking one level on top of another, floor planes are manipulated to connect; thus forming a single trajectory. In describing their design objective, OMA writes: *"In this way a single trajectory traverses the entire structure like a warped interior Boulevard. The visitor becomes a Baudelairean flaneur, inspecting and being seduced by a world of books and information and the urban scenario[53]."*
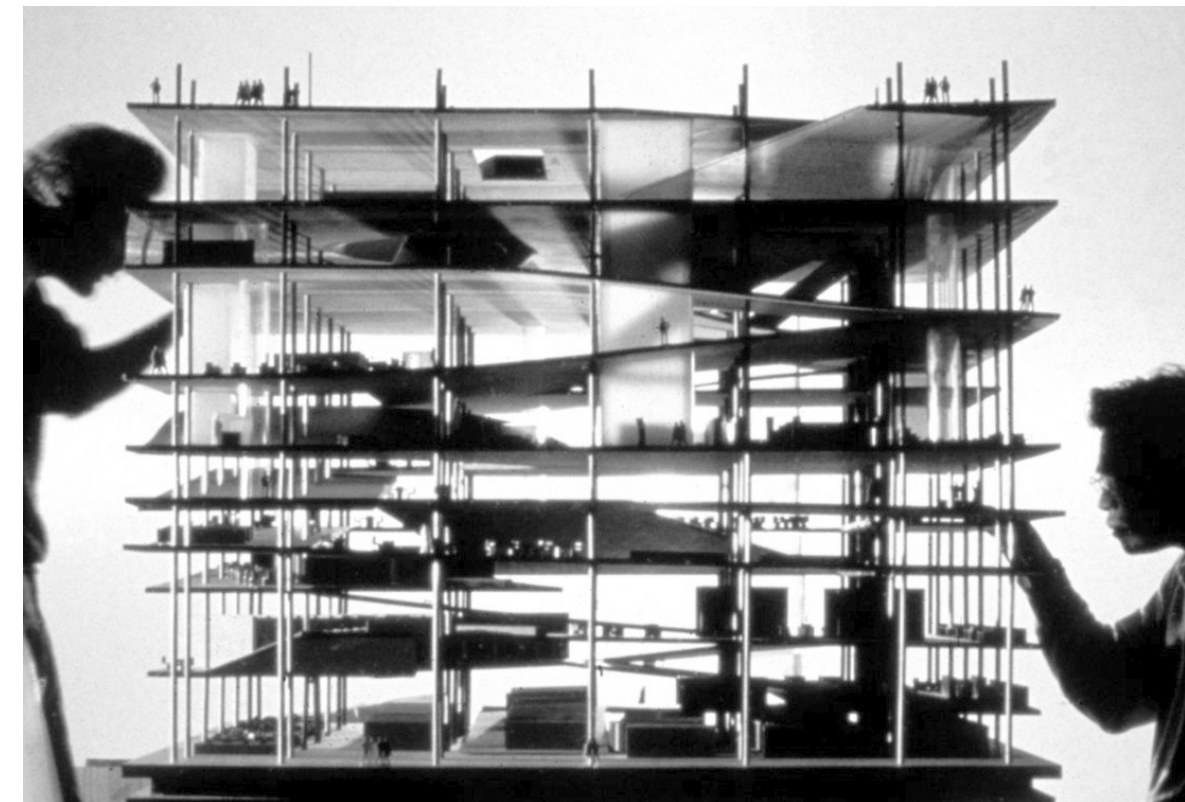
Within the same frame of reference, the firm MVRDV is seen as part of this architectural assemblage of a generation who is heavily engaged in project-oriented work. This generation is considered to be the heir of century-old effort to define architecture within a culture that is becoming more and more abstract and data-driven, in this sense, such architects chose a particular method of architectural work that is organizational and

48   Betsky, A. (2006). *Landscapers: Building with the Land.* London: Thames & Hudson Ltd.

49   Jencks, C., & Koolhaas, R. (2011). Radical Post-Modernism and Content: Charles Jencks and Rem Koolhaas Debate the Issue. *Architectural Design, 81*(5), 32-45.

50   Chaslin, F., & Höfer, C. (2004). *The Dutch Embassy in Berlin by OMA - Rem Koolhaas.* Rotterdam: NAi Publishers.

51   Dovey, K., & Dickson, S. (2002). Architecture and Freedom? Programmatic Innovation in the Work of Koolhaas/OMA. *Journal of Architectural Education, 56*(1), 5-13.

52   Levene, R., & Marques Cecilia, F. (2005). *OMA/Rem Koolhaas (1987-1998).* Barcelona: El Croquis.

53   Jussieu – Two Libraries. (2019). Retrieved from https://oma.eu

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based on research-oriented systems. The working method of the firm MVRDV is primarily conducting extensive research on the subject matter, gather massive quantities of data, and finally approach a design through rationality and objectivity in order to resolve an architectural problem[54].

Generally speaking, their projects are described as emerging out of a process of negotiation between different influences rather than as a result of a more linear and well-defined design process. It is worth noticing that in addition to utilizing the conventional tools of drawings, computer generated images and models, MVRDV supplement that with statistical methods, abstract diagrams and information mapping. Thus, creativity is not presented as an expression of an invention of new forms, but as the reformulation of existing elements and constraints. Therefore, by describing a problem in a new way, an unexpected solution emerges. In their design for the villa VPRO, which is the headquarters and studios for the VPRO broadcasting company in the Netherlands, MVRDV explored concepts such as the 'hungry box', 'endless interior', or 'labyrinth'. Such creative approaches meant that the box swallows the different program elements into a single volume, eventually producing a building that is without a beginning nor an end, without hierarchy, and without distinct building elements by means of combining and organizing the different programmatic elements of the building[55].
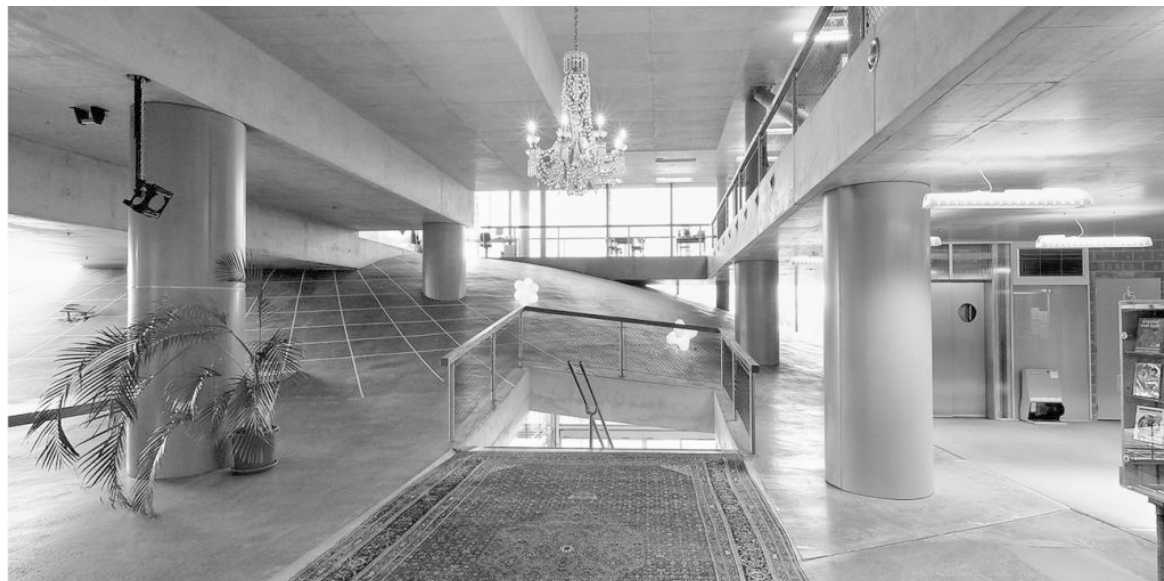
Figure 28

From inside villa VPRO by MVRDV. Retrieved from https:// miesarch.com

What is apparent in this architectural result is the reduced distinction between the inside and the outside, this is cause by the concept of a 'landscape' formation of the building that was conceptualized through a diagram. Under a heather-covered roof, a number of floors or layers are laid out like a geological formation. They are then connected through various ramps, grand stairs, and small hills and slopes that connect these layers together, forming a continuous route from the ground to the roof. This method aims to stimulate communication

patterns within the building. As the design firm explains, this result of an architectural building can be thus urbanized according to the changing demands of the company[56].

An additional project of MVRDV, which in this case represents a literal representation of the design diagram is their Expo 2000 building. In this particular case, we see that boundaries between the inside and the outside completely disappear, even the usual wrapping skin of a building that we see in similar design approaches, was completely dismissed. Hence, what is to take note of is precisely the absolute continuation of the urban ground on site, showing a direct translation of the programmatic agenda with a complete indifference towards architectural form. At its conception, Expo 2000 presents a yet untested typology and thus functioned as a laboratory for an experimental method of building continuously and seamlessly from the ground up.

Figure 29

EXPO 2000 by MVRDV. Retrieved from https://www. mvrdv.nl

Another Dutch firm that came to prominence in the 90s was UN Studio, founded by Ben van Berkel and Caroline Bos. Together they refer to their design process as one of 'deep planning,' which is according to the group an approach that draws heavily on digital analytical procedures as well as on traditional research into the larger economic, traffic, urban, and programmatic issues that are by nature, often in a state of social interpretation and flux. In their monograph 'Move,' arranged in three principal volumes under the titles Imagination, Techniques, and Effects, UN Studio talk about their architectural work's 'enduring ingredients'. Van Berkel and Bos employ

54   Mallgrave, H., & Goodman, D. (2011). *Introduction to Architectural Theory; 1968* to the present. Malden, MA: Wiley-Blackwell.

55   Betsky, A., Lootsma, B., Scalbert, I., Attali, J., Allen, S., & Bosman, J. et al. (2003). *Reading MVRDV*. Rotterdam: NAi Publishers.

56   MVRDV. (1997). Villa VPRO. *Assemblage*, (34), 92.

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these three elements to illustrate how architects can transform the organizational structure of architectural practice. The group's principal technique is the diagram, which, as van Berkel and Bos argues, comes from a source exterior to the actual project yet still provides a stable but sufficiently ambiguous map for the development of a design outcome. The work of UN Studio is focused on exploring the diagrammatic approach as a generator of novelty. In that respect, diagrams enable the architect to resist established typologies and find interpretations or solutions that might otherwise have not appeared[57]. UN Studio explain the reason for following the diagrammatic notion in architecture, which is primarily concerned with the creation of the new type by means of delaying the intrusion of signs and allowing architecture to articulate an alternative. Ultimately, they seek to superimpose the content and form of the building that results in the emergence of a new architectural 'type[58]'. This abstract machine, the diagram, is thus a broad instrument that serve to bring forth new meanings, by introducing an architecture that is the result of an inter-subjective dialogue[59].

UN Studio's Möbius house is the result of such diagrams which in this case illustrate a double-locked torus that conveys the organization of two intertwining paths. The idea is to trace how two people can live together, yet apart, meeting at certain points which becomes shared spaces. The Möbius house integrates program, circulation and structure seamlessly. The structure of movement represents a 24 hour cycle of dwelling, a whole day that consists of sleeping, working and living. The floor plan is made up of a loop of two inter-locking lines that intersect and integrate all elements of the house in an infinite loop. In that sense, the Möbius model was conceptualized through architectural ingredients, such as light, staircases and the way people move through the house. Therefore, while the Möbius model introduces aspects of time and space, in reality it is translated into the building in a mutated way. For van Berkel and Bos, the instrumentalization of the diagrammatic notion is to ultimately liberate architecture from language interpretation and signification[60]. Thus, the architectural object becomes the result of a programmatic process that translates a concept into the realm of organized space in time.

Figure 30 ＞
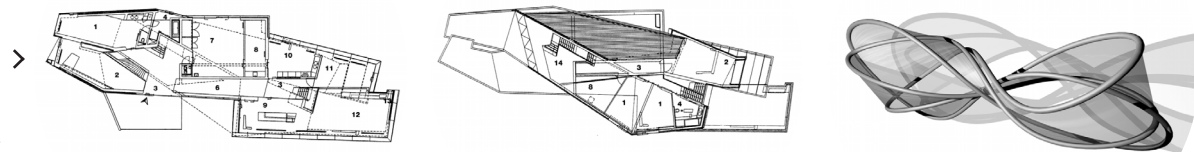
The Möbius House. Retrieved from https://www.unstudio.com

57   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

58   Berkel, B., & Bos, C. (1999). *UN Studio - Move: 3 Volume Set: Imagination/Techniques/Effects.* Amsterdam: Goose Press, Netherlands.

59   Van Berkel, B., & Bos, C. (1998). Diagrams: Interactive Instruments in Operation. *ANY: Architecture New York,* (23), 19-23.

60   Berkel, B., & Bos, C. (1999). *UN Studio - Move: 3 Volume Set: Imagination/Techniques/Effects.* Amsterdam: Goose Press, Netherlands.

The approach to architectural creation, such as in the Möbius house concept, is tested again by the UN Studio group in their Mercedes-Benz Museum in Stuttgart. This time the diagram is based on a DNA molecule, two floors spiral upwards in a continuous incremental fashion around a central atrium. Visitors would ascend to the top of the building in a lift and then make their way down along two alternative paths. The concrete building differs from the earlier talked about Frank Lloyd Wright's Guggenheim Museum in chapter III, in that no two surfaces of the Stuttgart design are ever arrayed in parallel[61].
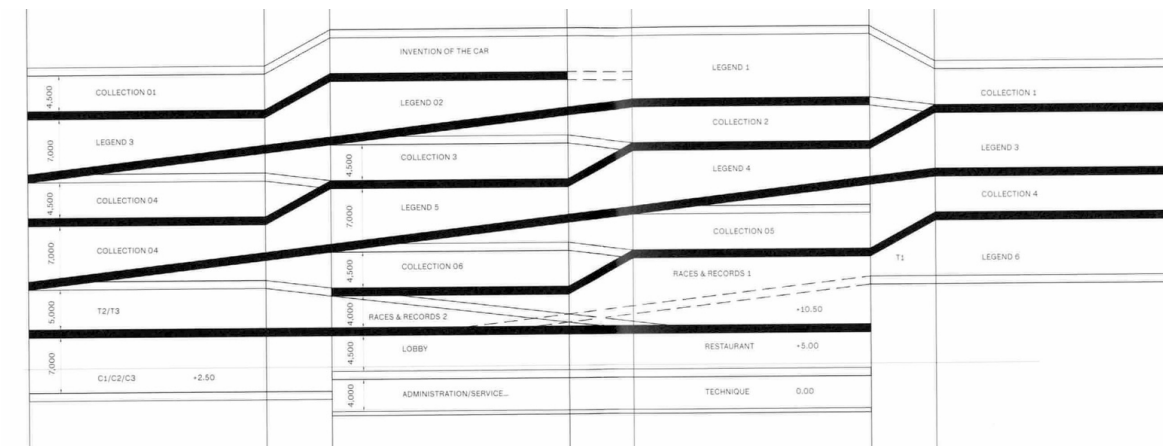
＜ Figure 31

Unfolded section of the Mercedes-Benz Museum. Retrieved from https://www.archdaily.com

Farshid Moussavi and Alejandro Zaera Polo, known collectively as Foreign Office Architects, won the 1995 for the design of the Yokohama Port Terminal in Japan. In their proposal, the architects are more interested in continuity and smoothness than in discontinuity and collage. The terminal building itself is subtly indented, folded, bent, and unpeeled along its length, like a progression of CATscan images along a body. In this design we see a clear occupation with the programmatic aspects of the project through the employment of a continuous surface to create such programmatic combinations. There are clear similarities between the Yokohama Port Terminal project and OMA's Jussieu library project mentioned earlier. Likewise, it makes a reference to Koolhaas's urban design proposals for Yokohama, which called for a reprogramming and transformation of an existing parking lot and market area into *"a single warped plane that would be sometimes highway, sometimes ramp, sometimes parking, and sometimes roof[62]."* For the Yokohama Port Terminal, FOA proposed a project that integrates the building with the open public space. The design exceeds the architectural scale, and blends the concept of spatial organization with the public urban landscape. FOA would continue to explore the idea of the reconstituted ground plane and define these 'new grounds' as platforms - not in the sense of a base or plinth, which they argued had traditionally been used to situate a monumental form, but as 'fundamentally active, operative' surfaces that were closer to the contemporary meaning of platforms as 'operating systems[63]'. The design concept therefore is generated from a circulation diagram that aspires to eliminate the linear structure

61   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

62   Koolhaas, R., & Mau, B. (2002). *S, M, L, XL.* New York: Monacelli Press.

63   Mallgrave, H., & Goodman, D. (2011). *Introduction to Architectural Theory; 1968 to the present.* Malden, MA: Wiley-Blackwell.

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characteristic of piers, and the directionality of movement is articulated through the spatial elements put in a way to fold space and circulation into one whole system.

Figure 32 >

Yokohama Port Terminal. Retrieved from https://www. archdaily.com

In his 1993 lecture at Columbia University, Mark Taylor argues on the concept of 'Seaming' as a counterpoint to the earlier concept of the 'Fold' of Deleuze. For Taylor, architecture has lost its ethical and political mission through its conceptual abstractions and populist attention to decoration. Thus, the seam, which Taylor advocates, draws emphasis away from form and surface, while at the same time serves as a metaphor for these anxious times. In his argument, Mark Taylor makes the point that while for the last few decades the radical move has been associated with the assertion of differences, which itself has been critical, it is now precisely these differences that represent a threat. In this situation, Taylor suggests that there is a paradigm change that is shifting towards finding areas of communality. According to Taylor: *"Never has the need for ethically responsible and politically effective architecture been greater, From questions to rebuilding cities in which community is not impossible to intervening in the design of the electronet to insure that the virtual environment is not uninhabitable, architecture – and not only architecture – must think in ways and on a scale never before imagined[64]".*

Concluding remarks

Following the spread of Modern Architecture around the world and its decayed interpretations, the second half of the twentieth century witnessed an unprecedented wave of pluralism and complex thinking in the architectural discipline. It is argued that no previous periods have seen an equivalent diversity in architectural production on such a wide scale[65]. In this fourth and last generation of this analysis of the phenomena of continuous

space, the focus was the final evolutionary moments which reflected the transition from the modern, to the contemporary situation in architectural history's time-line.

The evolution of the phenomena does not stop at this point, to the contrary, there are perhaps reasonable points of departure to speculate on future directions of notions of continuous space in the discipline. Nonetheless, working within a set time-frame of work helps contextualize the issue at hand in order to arrive at a more comprehensive and concise interpretation of the phenomena so far. Therefore, in the following paragraphs, in Part 02 of this doctoral dissertation thesis, the argument thus turns into establishing a reading, an interpretation and therefore, a precise definition of the phenomena of continuous space.

64   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

65   Haddad, E., & Rifkind, D. (2015). *A critical history of contemporary architecture 1960-2010.* Farnham: Ashgate.

Part 2

Evaluation of the phenomena of continuous space

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2.1.   Chapter 1: Generations of the phenomena of continuous space

As illustrated in the earlier chapters of Part 1, applying the Grounded Theory method of qualitative research ⟨ Intro to chapter 1
has revealed four identifiable generations of what can be described as the phenomena of continuous space,
occurring in parallel to the evolution of the architectural discipline as the twentieth century unfolded. This
method in turn incorporated a careful reading of crucial moments in history in relation to the phenomena by
means of their influence on its trajectory. Therefore each of the four generations offers a wide scope of the
circumstances surrounding notions of continuous space whilst they emerged and evolved over time. It is thus
important to clarify that these proposed four recognizable generations does not claim to limit notions of spatial
continuity within temporal limits. However, the structuring of the phenomena into four waves of development
provides a consistency and firmness in the interpretation of this dynamically progressing phenomena. Even
though it seems arbitrary and counterintuitive to periodize architectural history, as Alan Colquhoun would
assert[1], however any attempt to identify broad patterns of change helps establish a clearer perspective from
which to formulate a theoretical position on the subject matter. With respect to this doctoral research project, a
generational type of reading of the phenomena of continuous space is put forward by means of its relationship
to the past (as in its motivations for manifesting), to the present (its influencing context of being), and to the
future (its objectives and visions ahead). As Sigfried Giedion prefers to interpret history of architecture, it is
ultimately the case here to establish a thorough and comprehensive reading of events that allows to acquire a
better understanding of an evolving architectural tradition[2].

2.1.1.   Primitive architecture

In earlier paragraphs, we have mentioned Giedion's periodized reading of history of architecture in his return
to ancient history, thus offering an over-arching narrative of development with respect to his space conception.
And as shown in earlier paragraphs in Part 1, I Generation of this dissertation thesis, Giedion's reading aligning
with that of Hegel's, it is clear to see the strong link between notions of continuous space and the emergence
of Modern Architecture around the turn of the twentieth century, while the world woke to the idea of space-
time as the new manner of regarding itself, its existence and understanding it. However, and before moving
forwards in presenting this generational reading of the phenomena, it has always been intriguing during the

1   Colquhoun, A., & Chabard, P. (2013). Alan Colquhoun in Conversation with Pierre Chabard. *AA Files*, (67), 138-146.

2   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard
University press.

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process of this research to wonder whether similar readings of the built environment can be appropriated with respect to earlier example of architectural history (i.e. before the spatial turn). Therefore following is an attempt that is based on the assertion that the spatial conception does not exists as just a manner of reading architecture, but as a priori, a fundamental aspect of architectural creation. In that respect, Let us consider the idea of primitive tendencies in architecture - the origin of architectural creation, space versus form as can be suggested. Interesting to highlight at this point that in Hegel's reading of architectural history, he does not enter into a debate into enclosed space until his third stage of history - his symbolic conception of ancient architecture. This means that when Hegel transitions to the classical age of architecture, he suggests that early architectural tendencies are not born as built spatial enclosures. For instance, the Tower of Babel in this respect is considered as a solid object, a form of establishing an element, a pole for spiritual unity. Thus hollowed out buildings and spatial enclosures are conceptually posterior for him at that stage of history of architectural thinking. Hegel asserts in that respect that architectural form comes before architectural space, historically speaking. Contrary to that, other historians have a differing view, such as the debate present in France proclaiming that the 'Primitive Hut' is in fact the first architectural tendency. Abbé Laugier, the theorist of this notion, argues that this approach to architecture demonstrates operations of erection, support, and thus enclosure, contrasting in that respect the Hegelian view which assumes the primal act of architecture as marking and assembling. Hegel's precise reading claims in that case the cave comes conceptually before the hut. David Kolb continues explaining that caves do not explicitly embody an act of support, however, extending a natural cave into a terrain perhaps, uniting them together into one seamless space by the act of extending, surrounding, supporting, and the creation of limits, producing one undivided space can in fact play all those roles at once[3].

2.1.2. Ancient Egypt

Moving forwards in time, Jürgen Joedicke in his 'Space and Form in Architecture,' makes similar readings of early examples of spatiality versus formality with respect to ancient architectural history. In the Temple of Ramses III, in Medinet Habu, 1198 – 1167 B.C., Joedicke illustrates the sequence of spaces inside the temple, which seems to be characterized by a progressive increase in spatial density. Space in this ancient religious complex become smaller and smaller in planner view, and lower in height if we look sectionally, as we reach the inner sanctuary. The reduction in height is achieved both by stepping down the soffits and by raising the level of the floors. Different floor levels are accordingly connected by ramps, each situated in front of each room, with four columns set at the corners of each space. In that sense, Joedicke explains that a spatial field is thus set within the spatial container. Another aspect of this spatial sequencing is an alternation of spaciousness and constriction. Spaces which become progressively smaller, are linked by relatively narrow gateways. The sense

of confinement is then reinforced by towering pylons[4]. The Axis in the middle of the complex thus emphasizes the processional flow during a ceremonial celebration, and the increasing of spatial density could be understood as a form of a preparation for the inner sanctuary, which was strongly considered as a holy place where the deity dwelt. If this interpretation is correct, the arrangement of spaces and their articulation which were applied here as a conscious means of generating certain experiences[5]. Ultimately, there is no clear indication to the real reason for such spatial articulation and sequencing. However, it is interesting to witness an architectural articulation of space which perhaps can be read as purposeful arrangement of elements in space.
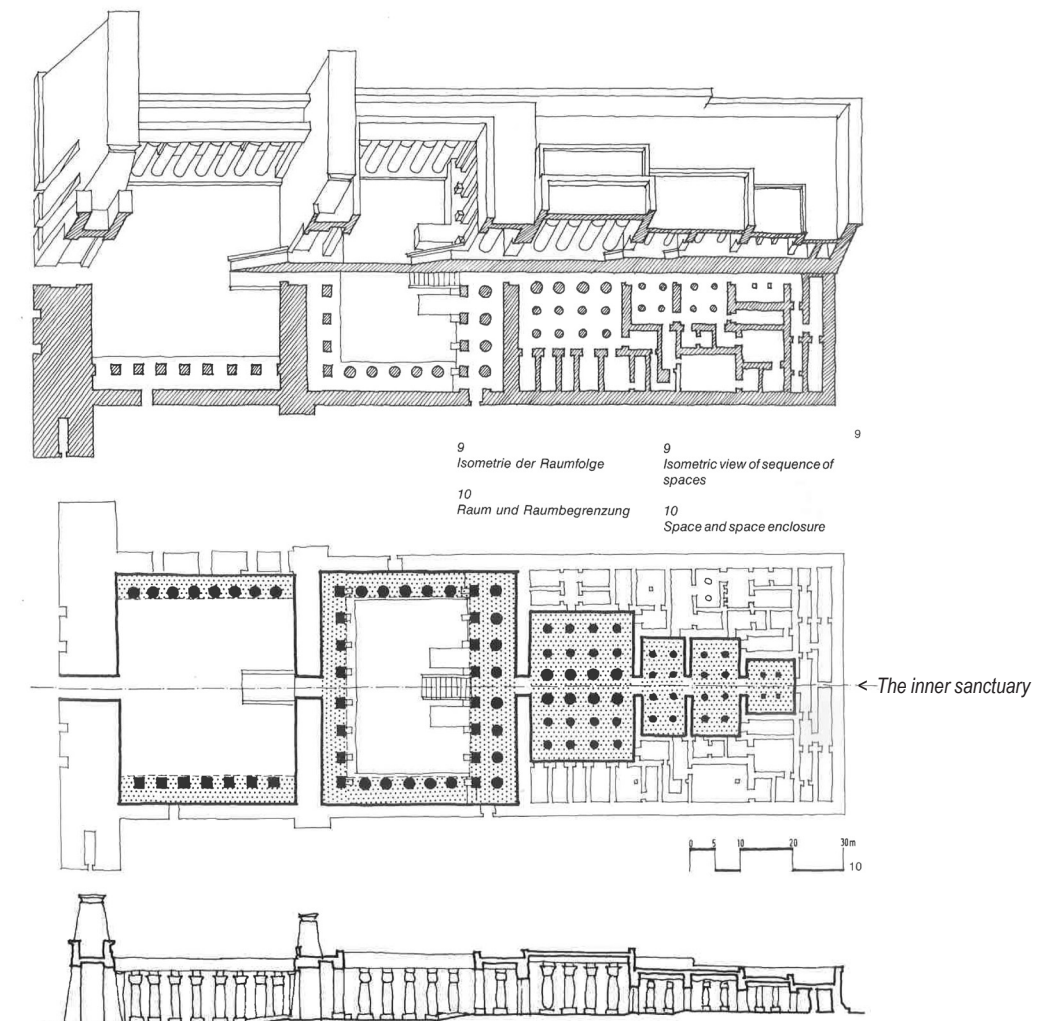
< Figure 33

Temple of Ramses III. Retrieved from J. Joedicke's book 'Space and Form in Architecture'

←*The inner sanctuary*

3   Kolb, D. (2007). Hegel's architecture. Stephen Houlgate (Ed.), Hegel and the Arts. Northwestern University Press.

4   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

5   Montet, P. (1985). *La Vie quotidienne en Égypte au temps des Ramsès.* [Paris]: Hachette.

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2.1.3.   Ancient Greece

In another example that seems to be recurring in architectural history books, Jürgen Joedicke also presents a reading of the spatial and formal makeup of the Acropolis of the ancient city of Athens dating back to 438 – 406 B.C. Here Joedicke illustrates how in this ancient composition, the entrance is marked by two bastion-like projecting wing structures, creating a secluded space that draws in the visitor towards the interior, a courtyard, enclosed on three sides. The welcoming and linking function of this courtyard is thus underlined by the form of its spatial confines. They consist of covered colonnades that link outside and inside in the form of a transparent screen. Again, here we see an axial route that spans through the Propylaea and ends in the sacred area of the complex. Furthermore, the axis of the Pantheon is out of alignment with that of the Propylaea. A person entering this area sees the Parthenon obliquely as a volume is space. The irregular shape of the Erechtheum can be explained by the fact that various existing holy sites had to be incorporated into it during the course of the construction. In that regard, the diagonal line of approach from the Propylaea, when reaching the Parthenon, the latter seems to appear like a sculptural object in space. Furthermore, the temple is linked to its surroundings by a series of transitional elements, the first of them is a peripheral set of stairs, connecting the temple with the ground through a raised plinth-like base. Additionally, the external rows of columns, set in front of the solid side walls are a second connecting element. A closed wall without a colonnade in from of it seems to represent a sharp separation of the inside from the outside. This effect of linking exterior and interior is reinforced at the end facades by the insertion of a second row of columns in front of the cella and the west hall. In this way the significance of the end elevations as entrances to these spaces is accentuated[6]. In this sense, the temple together with the whole complex represents visible spatial qualities. We see slow passage between the inside and outside, movement and flow through public spaces and across buildings through clear spatial elements of transition.
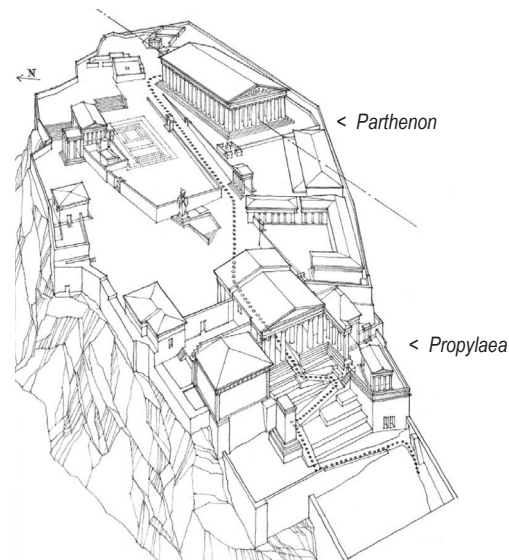
Figure 34   >

The Acropolis of ancient Athens. Retrieved from J. Joedicke's book 'Space and Form in Architecture'

< *Parthenon*

< *Propylaea*

Therefore, contrary to the believe that interior space did not play a major role in ancient architecture, in the examples mentioned earlier, there are valuable aspects of spatial characteristics that can be read in some of the key landmarks of the ancient world. Qualities of continuity of space, of transitioning in space and flow of movement. According to Bernard Tschumi: *"Sequences of space […] space aligned along a common axis - all are specific architectural organizations, from Egyptian temples through the churches of the quattrocento to the present. All emphasized a planned path with fixed halting points, a family of spatial points linked by continuous movement*[7].*"*

Looking at the romantic cathedral, as a structure, it seems to be closed in upon its own interiority and open to an inner realm. This architectural configuration differs from the classical temple that stands open to the finite surroundings while serving images of well-defined individual gods. As a consequence, mediating architectural spaces and broad outlooks of the classical temple disappear. Columns move inside and become pillars, the colonnade of the classical temple opens outward toward the natural and social world, but the windows of the Gothic church rise up to the indeterminate openness of the sky and a light other than the Greek sun[8].

From this point of view, it is possible as illustrated in earlier paragraphs, to have a reading of spatiality and spatial continuity in earlier examples of architecture before the spatial turn of the twentieth century, even when stretching back to ancient times. Nevertheless, it is only appropriate to assert that it was only after paradigm shifting events during the turn of that century, and with technological advances during the industrial revolution and the influence of science and rationality of the enlightenment, did the notion of spatial creation made its entry as a priori in the making of the built environment. Accordingly, Bruno Zevi concludes that spatial compositions with respect to their particular architectural qualities are abstract in nature, because in order to appreciate them it is necessary to shift one's attention from what the building consists of materially toward the way it enfolds empty volumes. Generally, Zevi explains that we do not perceive a building's interior in such a manner, as we have not learned to look at it this way[9]. In that regards Filip Mattens thus comes to the observation that there has been a lack of spatial education in the architectural discourse[10].

6   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

7   Tschumi, B. (1996). *Architecture and disjunction.* Cambridge, Massachusetts: MIT Press Ltd.

8   Kolb, D. (2007). *Hegel's architecture. Stephen Houlgate (Ed.), Hegel and the Arts.* Northwestern University Press.

9   Zevi, B., & Trichaud, L. (1993). *Apprendre à voir l'architecture.* Paris: Ed. de minuit.

10   Mattens, F. (2011). The Aesthetics of Space: Modern Architecture and Photography. T*he Journal of Aesthetics and Art Criticism, 69*(1), 105-114.

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2.1.4.   The twentieth century

It is evident to affirm that the phenomena of continuous space were born within increasingly shifting ideologies and in a rapidly advancing age. In that respect, this reading presented here as the four generations of the phenomena was, to a certain extent, an effort to isolate the primary characteristics of such architectural notions, ultimately to arrive at a theoretical framework that gives an over-arching view on the issue at hand. There have been numerous ways of regarding the evolution of the architectural discipline during the twentieth century, of which were taken into account with respect to the subject matter. For that reason, there have been two primary types of sources informing this research; on the one hand, and for in-depth and detailed accounts on notions of continuous space, this research relies on a selection of literary works that are closely linked and focused on specific events and works of architecture in place and time, thus providing a reading with a narrower but precise frame of reference; nevertheless on the other hand, and for a broader interpretation to the evolution of the phenomena, sources that may not in fact be of direct association to the specificity to the subject matter, do however offer a wider perspective and a comprehensive frame of reference. The former providing a vertical view on the subject matter, the latter thus offering a horizontal perspective with respect to the general evolution of architectural thought. Against that background, if the reader would refer back to Part 1 of this dissertation, it should be evident the two forms of resources incorporated together along with the selection of case studies, in arriving at the resulting work at hand.

Figure 35   >

Types of resources on the subject matter, [1] the horizontal over-arching, [2] the vertical specific in reading an evolving architectural thinking
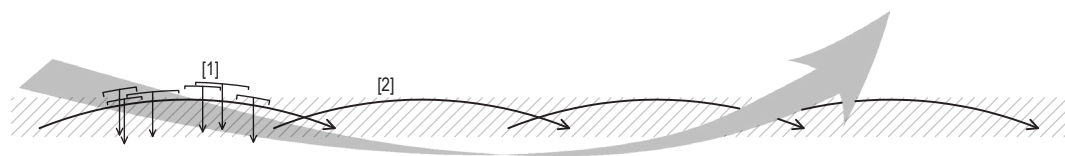
To give an example of the latter approach in reading architectural history, Harry Francis Mallgrave whose name appears recurrently in this dissertation thesis, and in his 'Architectural Theory,' he divides his reading of the twentieth century into two principal parts. It seems for the author that the first half of the century was guided by actual events such as Albert Einstein's theories of relativity and the European avant-gardism which belong to the cultivation of modernity, but even more so other events such as the two world wars, the Great depression, and concentration camps. Mallgrave asserts that, for five to six years, Modern Architecture managed to have its thriving period which was limited to Europe, at the time still recovering from the war. Thus, between 1933 and 1950 theory virtually ceased to exist in Europe according to him. Therefore, if the period following World War II offered a recovery in the form of optimism and increasing prosperity, notwithstanding the Cold War. In that respect, the year 1968 defines, for Mallgrave, the other major turning point in architectural thought as

the twentieth century unfolded. While political and social unrest dominated the scene, architects and their changing perception of the world responded accordingly to the changing atmosphere. Despite the fact that high modernism did not succumb, which continued flourishing as the International Style in the United States, architectural theory however did undergo a profound shift in direction as well as an intensification of interests[11].

In the following paragraphs, i shall therefore present my own division of the period seen here as the time where the phenomena of continuous space emerged and evolved, guided by the processes of the Grounded Theory, in pursuit to arrive at a precise generational reading of the subject matter at hand.

It is evident to witness the abruptness of changes that occurred around the turn of the twentieth century, as the world was experiencing firsthand a new reality stemming from a changing society after the Enlightenment and a rapidly advancing and evolving western world, aided by the industrial revolution. It is difficult thus to imagine that if it wasn't for such paradigm shifting events in history would western society have arrived at the space-time notion of conceiving the physical world. Therefore, instinctively and evidently, the first and most crucial moment of the emergence of the phenomena is regarding the world for its spatio-temporal qualities. At the same time as Albert Einstein was formulating his 'Special Relativity' theory in the early years of the twentieth century, man of that age began to understand and experience the world differently. And so did the architect and the makers of the built environment. In such away, the influence of the former on the latter can be observed to have taken place.

The industrial spirit of production, efficiency and reason thus influenced the architectural world as well, in the form of reasoning the built environment coupled with new structural capacities and new construction materials and techniques. In that regard, using steel, iron, and glass has made it possible to create vast and spacious structures, flooded with natural light, which in effect blurred the classical understanding between the inside and the outside. Thus unfamiliar works of architecture came alongside an unprecedented architectural taste on the one hand, and architectural experiences on the other, paving the way for more sophisticated and state of the art grasp of spatiality, fluidity, and flow in space. Architects, art historians, and architectural critics alike were strongly impressed with the machine of the industrial age, experiencing it through the railway, and therefore, experiencing speed quite differently. Their perception of time changed as well, which meant a shrinkage of space - traveling longer distances in shorter times. Those were some of the shifting attitudes towards a new perspective of the world at the turn of the twentieth century.

Notions of space-time found their way to the arts as well, where we see the Cubists most predominantly experimenting with such ideas by representing the world through a simultaneity of vision - seeing the same

11   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

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object from different perspective at the same time. At which point, whether in the arts or in engineering and the sciences of the time, this new spatial conception of the world took center stage, and with respect to the architectural discipline, it was a major turning point away from the classical and traditional notions of the 'Style.' Thus, and as mentioned in earlier paragraphs in Part 1 of this dissertation, we see a clear alignment between the Hegelian and that of Sigfried Giedion's reading of architectural history towards the twentieth century.

At this point we begin to see an expansion in the literary accounts on such notions of spatiality and space-time in the architectural discipline, chiefly coinciding within German speaking circles of architects and architectural thinkers; Richard Lacae wrote 'Meaning and power of space in architecture'; Gotfried Sepmper in that respect expressed his idea that space is the primary impulse of architecture, and materials are only secondary, Furthermore, we see Hans Auer writing on how space is the soul of the building, as well as claiming that architectural space as a significant style of architecture under development at the time and which architects need to pay attention to. Noticing that this explosion of reflections on space and their qualities within the realm of building, and as this happened within a predominantly German speaking population, we see the role of the language in enabling such ideas to continue to evolve.

Thus, around that same time, proto Modern Architect began to emerge in the architectural scene as early debates on modern thinking of space and spatiality took hold of the discipline. Some of the most prominent names of architects experimenting with such new ideas in architecture were Adolf Loos, Hendrick Petrus Berlage, and Peter Behrans. In addition to that, a large number of architectural critics began an extensive dialogue on the architectural significance of space, such as Alois Riegl, Paul Frankl, August Schmarsow, Adolf von Hildebrand, Theodor Lipps, Rudolf Schindler, and Theo van Doesburg.

Along these lines, numerous and divergent accounts that discussed notions of spatiality in architecture pushed the discipline towards further examination and experimentations. However, it appears that it was only until the early years of the twentieth century (and most significantly during the 20s) did such notions have a break through, and it was solely through the narrow gates of fitness for purpose and the rejection of historical and traditional styles that opened up to such architectural endeavors. Nevertheless, we see that the functionalist approaches to architectural creation reinvented basic architectural elements and components, such as the plane wall and the curtain glass wall. Thus, Modern Architecture was born. And one of the key issues to come out as a result was in that respect the most basic unit continuous space - an expanded space of flow.

There were numerous telling signs of the emergence of a new era in the architectural discipline, but as mentioned earlier in Part 1, two events mark such beginnings; on the one hand it was the appointment of Otto Wagner as a professor of architecture at the Academy of Fine Arts in 1894 which influenced the Viennese architectural scene by announcing a split with earlier traditions in architecture; and on the other hand it was the establishment of the German Werkbund which brought together the artists, architects, designers and industrialists to work and collaborate together in 1907.

Thereafter, and for a few decades, roughly somewhere between 1910 and 1960, modernity and Modern Architecture would flourish and dominate the architectural discipline. Conscious of its own inherent modernity, it strove for change, announcing a deliberate divide with earlier traditions in architectural thinking, and sought to fundamentally articulate and manifest the present by finding new meaning to transcend the past. Modernity came to be described as a project of progress and emancipation. It is characterized by an irreversible emergence of autonomy in the fields of science, art and morality which then can be developed to work 'according to their inner logic.'

Modernity seemed at the time to describe an inherent mode of that civilization, which is in opposition to tradition. There was a strong desire for innovation and the rebellion against the pressures of the past, coupled with a general acceptance of all ingredients of the modern. In that respect, a universal culture, and thus, a universal architecture was indeed in the making. And as modernity was advocating in part for a new architecture of space-time, it was by no means developing at the same pace in different corners of the world, thus, the phenomena of continuous space is to be witnessed as it manifested here and there, in different countries, at different times, and through different actors. Therefore, pinpointing those significants points in time and space are presented in the form of temporal axial represented in annex no.1, time-line of the evolution of the phenomena of continuous space.

There are two principal qualities that seem to be evident in the architecture of that time; on the one hand a strong stance and insistence on rationality in the design process, through which concepts of space, functional and economic efficiency to be employed and emphasized; and on the other hand, a complete rejection of ornamentation and the stylizing of the architectural object, instead the architect pursued a purification of architectural forms which at the time seemed to hold moral connotations. In that respect we see a surge in artistic and architectural manifestos that offer interesting insights into the convictions and believes held at that time within what is observed to be, a swiftly evolving architectural discipline.

Consequently, architectural projects of modernity seemed to have new qualities and particular characteristics to that of earlier notions of the field of building, namely asymmetry in composition, flat roofs and minimal shapes, the use of fundamental materials such as concrete, glass and metal, no ornamentation and most importantly, the result was an architecture of no stylistic references, which manifested first and foremost dynamism, and a sense of flow and movement. In that respect, this research asserts two primary lines of development with

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respect to notions of continuous space: [1] an exploration of what is described as the Semperian tradition of enclosed space - compartmentalized units of space, punctured and linked together through continuity of sight and movement (represented in case 2 of annex no.2) , and [2] a decomposition of this spatial enclosure, or container, resulting in implying spatial realms by means of positioning architectural component in space and thus demarcating spatial flow, horizontally and vertically as well represented in case 3 of annex no.2) . One of the key achievements - in both mentioned notions, of this development in architectural thinking was arriving at a novel capacity to abstract the architectural object, thus breaking completely with classical traditions of conceiving the built environment.

This optimistic scene would soon change, in Europe especially as the continent woke to a new reality. As the 30s arrived, Germany's Modern Architecture began to collapse. In Italy Mussolini reached a pack with Hitler, which in turn affected the Modern Movement there as well. Furthermore, even earlier in the 20s, when Stalin took power of the Soviet Union, he dismantled the Constructivist movement and all avant-gardist artistic spirit. Thus, only Great Britain was in that respect the bright spot on the European map, which ultimately and belatedly embraced Modern Architecture and maintained the movement for a while.

It wasn't long before World War II began, with it a flood of immigrants that included many of Europe's bright minds and intellectuals escaped the continent either to the east to the Soviet Union, or towards the west to Great Britain and the United States. Amongst them were architects who took with them their knowledge and advanced technologies in construction and building materials. Thus, in places like the USA, they inspired a whole generation with their new sense of spatiality in architecture by means of constructing buildings that eliminated load bearing walls, and allowing the possibility to think of space. Thus against this backdrop, Modern Architecture had a great chance to survive and flourish in the United States in the form of what was labeled as the International Style.

Contrarily in Europe, Modern Architecture started to face scrutiny for its attitude of over simplifying its solutions, understandably in such bitter atmosphere. However, the absolute geometry and purified elements of architecture allowed for rapid manufacturing of standardized and easy to construct components, which in turned came as a great benefit when there was an extreme need to rebuilt housing units across the continent. Nevertheless, this was coupled with and increasing and growing critique of Modern Architecture, as well as serious questioning of the state of the architectural discipline which dominated much of the 40s and 50s. For instance, distinguished writers such as Lewis Mumford wrote 'What is happening to Modern Architecture' in 1948, and Sigfried Giedion's 'the State of Contemporary Architecture' published in 1954. Thus, the phenomena of continuous space was naturally affected and influenced through the unfolding of such drastic change of circumstances.

During which time, Great Britain was becoming an important crossing point of exchange of ideas between Europe and the United States. Additionally, new centers of architectural thought started to emerge in Europe, such as in the Netherlands, Scandinavia, and especially Italy would finally assert itself a place in architectural debates, challenging many of the tenants of modernism. And as earlier architectural trends of modernity began to be regarded unfavorably, they began to be regarded as not having much in common with the earlier Avant-gardists visions and visionaries, in that respect there is recurrent evidence at the time for calls to break out of modernity that appears to have evolved into a straitjacket of ideas.

In view of such changing atmosphere, Modern Architecture was in a serious crisis as disagreement with its rigidity surfaced more explicitly. And as the demand for more humanistic approaches to the built environment continued to rise, notions of organic space and organic architecture began to appear more dominantly. Attempting to break away from an earlier machine-like regularity and typology, we begin to see equally evolving notions of continuous space. More fluidity and richness in movement, therefore, on that front we see architects manipulating the architectural object more innovatively (such examples at the time can be found in the single floor ramp museum of the Solomon Guggenheim museum, the 'Oblique Function' of manipulated ground figure and folding surfaces of Parent and Virilio, bending the wall surface into organic forms and spaces in Kiesler's Endless House, etc.) Around that stage of architectural history, we see that while some of the Modern Architects continued their rigorous development of universal architecture, others worked and advocated for an anti-regular form of architecture that seem to be more site and context specific in its approach. Such developments strongly demanded serious changes and called for freedom from the orthogonal, the right angle and from the axis of modernity, freedom from the ground surface, and most importantly, freedom from the constraints of inhibiting the box room - box space.

One of the key aspects of this evolving stage of architecture is its newly adopted concern with the city and the urban environment as they became crucial issues of debate as well, thus we finally see the phenomena of continuous space reaching a greater scale of the physical world. As CIAM maintained its strong influence from its former years before the war in advocating for Modern Architecture, the scope of its dialogue broadened to cover issues of the urban realm. However, CIAM was also facing a strong theoretical and ideological fissure that resulted in a series of conflicts and the ultimate dissolution of this prominent congress. Questioning whether the discipline was going through a crisis or a revolution, Le Corbusier makes the fitting statement, claiming that it was in fact an issue related to the different generations involved in such debates. In that respect, a fundamental schism began to appear between an older generation of modern architects and the new.

Within this context of change, new influences from different realms of knowledge found their way into architectural thought, and thus to notions of space. Such influences came from the field of semiotics, phenomenology, as

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well as structuralism. In that regard, new approaches to the built environment began to surface as a result. For instance, the structuralist notion inspired the idea of organizing buildings and cities on the basis of movement and communication routes, streets and squares. New emerging ideas created spaces that brought polarities to the in-between, reconciling the inside and the outside, the small becomes larger, and the part becomes the whole. The house becomes the city and vice versa. In addition to juxtaposing centralized order with local freedom, and combining multiplicities of non-hierarchical, complex and flexible structures. The result was a progressively dynamic configuration of space, and an increasing manifestation of a much more sophisticated form of continuous space in general. The spirit of that time demanded that the built environment should be able to answer to a world that is growing more chaotic and complex.

The search for lost meaning is observed to be maintained for a while thereafter, furthermore, we can see that there was evidence to an acceptance, as well as an adoption of notions of complexity and multiplicity which was developing in general at that time. On the other hand, negative connotations to the field of architecture continued to associate the discipline with tones of authority, while the city offered positive sentiments. In the meantime, alternative fields of study began to offer practical tools when it came to addressing the issue of how to ameliorate the built environment. Most prominently two notions seem to dominate the last quarter of the twentieth century; on the one hand, phenomenology inspired a pulling away from notions of abstractions, calling for a return to things; while on the other hand, linguistic approaches of thinking of the built environment maintained a preference to abstraction and conceptual notions of conceiving the world.

During the 70s, space seemed to gain less and less currency among architectural circles, instead there was a strong surge in notions and theories of place instead. That on the one hand, and on the other, a revisiting to notions of formalism and meaning found in the architectural form and its elements. However, the phenomena of continuous space did not stop at that point, it continued however evolving as the last decades of the twentieth century unfolded. For instance, the influence of the earlier mentioned linguistic approaches to reading the physical world inspired the discipline to explore the diagrammatic notions of creativity. One of the key elements of such approaches was that meaning in that respect was not found in the architectural form or element anymore, to the contrary, it was embedded in the functioning and the action taking place in space. Representing a common dialect that seems to be present still in contemporary architectural dialogue, one between form and function.

Arriving at that stage of architecture history, employing the diagram in conceiving spatial continuity in architecture can be seen to serve as a useful device through which to trigger innovative outcomes by means of enabling new architectural concepts to emerge. Such notions found an enthusiastic audience, as theories of complexity reached a height during that age resulting from decades of reductionist modes of modern thinking. Modern

Architecture and its universal values were beginning to be viewed more and more as inherently diminutive and over simplistic. Adding to that, strong influences from the French branch of philosophy of poststrucuralism which found meaning to be plural, and as much as the answers that should be given to problems, they should answer to the multiplicity and complexity of reality. Thus this age became known as the postmodern.

As the 60s witnessed an emergence of theoretical account, towards the 90s of the century presented a surge in practice and reason-behind-theory approaches to architectural production. The rapidly increasing pace of construction, coupled with a progressively globalized world had a great impact on the architectural discipline. With this, emerged a culture of fragments and multiplicity. Pragmatic diagrammatic methods found their to the discipline as means of generating designs that worked well in organizing the physical world by addressing it as a system of physical and metaphysical components, easy to manipulate.

Diagrams thus became the legitimate progression of architectural knowledge of representative techniques, as this concept already existed before, it was only till then that the notion has become fully actualized. Such methods are in that respect intentionally in opposition to the materiality of the world, and more in favor of the immateriality of information. Thus, they allowed for the negotiation between the actual and the virtual in a world that is increasingly computer-generated. Therefore, diagrams were very useful as they offered a privileged access to the realm of reality by means of its logic of structure. Notions of diagrams and notations during that age represented the closest possible entry ways in approaching a real method to work with the space-time concept with total fluidity and liberation from the limitations of the real world.

What is important to take note of from these last few decades of the twentieth century, not only the highly powerful methods and techniques of working with the built environment, but equally the ability to conceive increasingly spatio-temporal qualities in architecture. As mentioned, the abstraction of the diagrammatic method was thus instrumental in that case, nevertheless it was not an end in itself. Most of the architectural work of that period showed an increased abstraction and a pragmatic character that was data-driven and research orientated in its nature. In addition to noticing that more and more projects attempted to fuse together this psychical reality by means of fusing, stitching and seaming the architectural object - the building, with the ground - the site. Boundaries seemed to always be open for investigation, explorations and negotiations to the point of disappearance in some cases. Thus, one of the remarkable results of such notions was the separation of the skin of the building from the figure ground and the spatial organization of architecture within that envelope.

Breaking away from older traditions and inventing new forms of conceiving the built environment has been one of the key aspects and qualities of the phenomena from its early years of conception as an awareness of space.

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2.2. Chapter 2: The phenomena's inherent qualities

In defining the conceptual aspects of the phenomena, inherent qualities are what describe the permanent < Intro to chapter 2
and essential qualities of something[1], rather than offering a descriptive account on the subject matter, they
represent here the unchangeable characteristics of an architecture of continuous space. Therefore in this
respect, this doctoral research identifies a set of qualities that describe those notions of spatial continuity
operate in the built environment.

Along these lines, the following paragraphs presents these inherent qualities classified under three main
categories, reflecting the dynamics through which notions of continuous space operate in the physical world, as
well as how they inform and re-inform evolutionary processes of the phenomena. The three categories mirror
the phenomena's close relationship to time; [1] the past, with regards to issues of temporality, [2] to the present,
in terms of the phenomena's dynamics in the built environment, and [3] the future, in informing and envisioning
innovative and creative models of making the built environment.

2.2.1. Issues of temporality

It seems that 'Time,' in its most basic understanding is deeply rooted in any investigation of space in the
architectural discipline. Therefore, it is evident that strong association of time with space in arriving at a reading
of the phenomena of continuous space. Time is deeply embedded in the notion of continuous space as the
agent of giving space its qualities of continuity, and on the other hand the accompaniment of what constitutes
an evolving phenomena over time. Thus, time is an inherent quality of such notions - space-time conception,
and as defining feature in general (as illustrated with respect to the four generations of the phenomena).

For an extended period of time, the most widely used theory of cause and effect in architectural history has
been the notion of 'Period Style,' which can be traced back to the eighteenth century English aesthetic theory.
However, later in the nineteenth century, the masters of modern art history, such as Heinrich Wölfflin who
refined this concept and joined it with the Hegelian tradition of the Zeitgeist[2]. Wölfflin observes that *"The artist
quite naturally places the general canon of art in the foreground, but we must not carp at the historical observer
with his interest in the variety of forms in which art appears, and it remains no mean problem to discover the*

1   Inherent - Dictionary Definition. (2019). Retrieved 16 July 2019, from https://www.vocabulary.com

2   Betts, R. (1980). Historical Determinism, or Historical Precedent Be Damned. *JAE, 34*(1), 3.

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conditions which, as material element--call it temperament, zeitgeist, or racial character - determine the style of individuals, periods, and peoples[3]." From there, historical readings of the different periods of time the stylistic interpretation of the work of art and architecture, placing a stronger emphasis to the work's other-than aesthetic characteristics and qualities. Thus, the first inherent quality of the phenomena of continuous space is its strong and essential relationship to the spirit of its time in its perception and representation of it.

The notion of the spirit of the time, termed as the 'Zeitgeist' is mostly associated with the philosophy of Hegel, though he uses a more precise term of Volkzeit. Zeitgeist translates to 'Spirit of the age' or 'Spirit of the times', and it refers to the invisible agent of force dominating the characteristics of a given epoch of time in history. The theory of 'Period Styles' holds that, in any given period of history, artists were induced by the prevailing style to do what they did. Paul Frankl and Sigfried Giedion, both pupils of Wölfflin, adapted this theory to the nature of architecture and expressed it so forcefully that much of Modern Architectural history is indebted to them[4]. Frankl in that regard illustrates that: *"The development of style is an intellectual process overriding national characteristics and individual artists. It is a great man who can cope with the problems of his time, but the greatest genius is no more than a servant of this intellectual process[5]."*

Hegel believed that art reflected, by its very nature, the culture of the time in which it is created. Culture and art are inextricable because an individual artist is a product of his or her time and therefore brings that culture to any given work of art. Furthermore, he believed that in the modern world it was impossible to produce classical art, which he believed represented a 'free and ethical culture,' which depended more on the philosophy of art and theory of art, rather than a reflection of the social construct, or Zeitgeist in which a given artist lives[6]. The spirit expresses itself in ever more adequate, complex, and mediated activities. The shape of these movements is the deep content of works of art, overarching whatever particular content the artist or society chooses to work with. Artistic form expresses this doubled content; a painting may both represent a farm landscape and embody a certain shape of spirit's reflection upon itself. A building may be both a temple of Athena and an expression of certain way of being an individual in society[7].

As the architectural discipline was going through a significant change around the turn of the century, so was the spirit of the time, strongly present during that period of paradigm shifting development in all parts of daily life. For instance, we see how Modern Architecture born out of this age had a completely different look from its predecessors, and so the techniques and building materials that were used to erect these structures. The

3   Wölfflin, H. (1950). *Principles of art history.* New York: Dover.

4   Betts, R. (1980). Historical Determinism, or Historical Precedent Be Damned. *JAE, 34*(1), 3.

5   Frankl, P., & O'Gorman, J. (1973). *The four phases of architectural style, 1420-1900.* Cambridge (Mass.): M.I.T. Press.

6   Hendrix, J. (2005). *Aesthetics & the philosophy of spirit.* Peter Lang Inc., International Academic Publishers.

7   Kolb, D. (2007). *Hegel's architecture. Stephen Houlgate (Ed.), Hegel and the Arts.* Northwestern University Press.

reality of that age was deeply immersed in the surge of the industrial revolution and everything that came from it as a result. In that respect, the art historian, the architect and the architectural critic were equally immersed in these times and thus, a few of which mentioned in this dissertation thesis were some of the ones who explored and investigated this new vision of the world. Rapid progress in the sciences and technology on the one hand played an essential role in informing notions of continuous space, and so was on the other hand a wave of optimism and inspiration that came with the former.

Generally speaking, the twentieth century was dominated by a chain of events that heralded significant and irreversible alterations to world history, as it was a redefining era in and out of itself. If we were to take a step back and look at the bigger picture of the scene during those years, we see a situation immersed in artistic revolutions, technological advancements and scientific discoveries. This age coined the notion of space-time, and so did the architectural discipline, which accordingly, Sigfried Giedion asserts that this notion dominated the spirit of the 1910s onwards. During which time, Pablo Picasso and Georegs Braque were trying to find ways to express such notions in their paintings, and so were architects equally intrigued[8].

As extensively illustrated in previous chapters, the phenomena of continuous space maintained in that respect a very strong link to the spirit of its time, this does not reflect a cause and effect relationship, to the contrary, notions of continuous space appear to represent a serious reading while maintaining a continuous exchange of ideas and concepts with the different fields of knowledge and culture of the time. However, it is important to highlight that different subjects of thought and thus circles of thinkers can be observed to have an influence at particular times and within distinct circumstances. For instance, it is observable that a strong influence from the field of exact sciences maintained an impact during the early decades of the twentieth century, while in terms of technology in building materials and construction techniques found their way to the architectural discipline as early as the mid nineteenth century. With respect to the arts, we see a reading of their influence in the early decades of the twentieth century, with the surge of the Avant-gardist in the field and their ideas of simultaneity in representing space-time. However, the social sciences and humanities seemed to only influence architecture in the second half of the century - with the crises and anxieties that came with the two world wars, attempting to redefine their regard to the physical world and re-envision ways to ameliorate the built environment. Additionally, different philosophical takes were read and incorporated in the architectural disciplining at different times and through different conceptions and ideas, thus, the phenomena of continuous space seems to characterize strong dynamic qualities with respect to its sensitives and awareness of the sentiments and ideas in time.

8   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

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2.2.2. Dynamics of the notion of continuous space in the built environment:

In following paragraphs describe how notions of continuous space seem to affect and thus characterize the built environment in general were they manifest and reside. Thus the subsequent set of four qualities may seem to confuse some for their resemblance, however, each describes a very specific disposition of the notion within the whole arrangement of the spatial structure as a whole.

2.2.2.1. Interiority

The quality of interiority, in its most basic understanding, is to interiorize - to bring the subject of debate from the periphery to the center. This notion was essential with respect to the birth of space as an architectural category, and from its time of conception when the architectural object moved from issues of style, facade and formal composition, and aesthetic to the notion of space. The quality of interiorizing the subject matter becomes very clear when taking into account the early essays on space around the end of the nineteenth century, such essays describing the new found appreciation of architectural qualities of space, felt especially in large structures of steel, iron and glass.

Figure 36

Cast iron supporting structure, ceiling of the reading room of the Bibliothèque Sainte-Geneviève in1850. ©Marie-Lan Nguyen

Observing such spatial characteristics in buildings was the first step to a new line of thinking in the discipline, one that follows the inner logic of spatial arrangements in architecture. In that respect, while the first generation of the phenomena was able to observe and identify aspects of space, the second generation, equipped with

advanced technological abilities in building materials and construction methods, began exploring with the notion of space from the interiors of the architectural object. On the one hand we see an interest in an organic arrangement of spaces within a building, and on the other, a distinct interest in the relationship of the interior of the building with the exterior by means of continuity of vision and movement. We see this dialect strongly evident in the early years of Modern Architecture, one that was impressed with clean geometry and surfaces, where in that case there can be found a curiosity of exploring architectural space within a clean architectural envelope - the cubic container for instance, such examples can be seen in villa Muller in Prague by Adolf Loos, and in another instance in villa Savoye in Paris by Le Corbusier.

Figure 37

Clear geometries in Modern Architecture (left) villa Muller and (right) villa Savoye. Retrieved from https://www.archdaily.com

What is interesting with the arrival of a third generation, with respect to interiorizing the architectural object can be summed up in explorations of the qualities of interior spatial arrangements in larger buildings that most of the times were public buildings rather than housing projects in comparison to the earlier generation. Such investigations of spatial continuity in the architectural object can be found for instance in Hans Scharoun's Berlin Philharmonie where visitor's movement, observed in its fluid form, coming all the way from the street, through the foyers and to the concert halls where music was placed at the center of the design.

Figure 38

Concert hall of the Berlin Philharmonie. ©Vasilii Maslak

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Interiorizing the architectural object during the last quarter of the twentieth century seems to further abstract the notion of continuous space by means of brining the subject matter to a more profound point of reference, which in turn translated to what can be described as the non-physical approach to conceiving space in the built environment. For instance, in attempting to operate on an architecture of spatial organization, and through the use of diagrams and notation tools, space became the virtual medium where events and action is organized and structured. Interiorizing thus becomes embedded within the logic an architecture of continuous space.
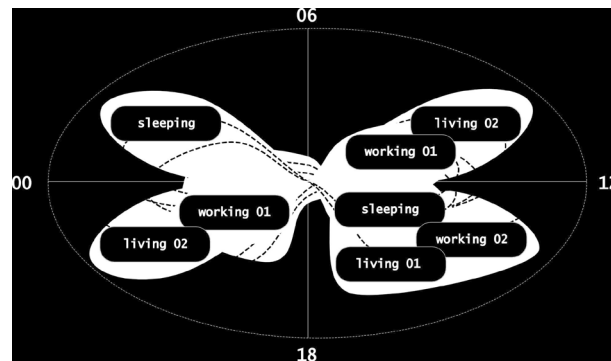
Figure 39

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Concept diagram of the Möbius House. Retrieved from https://www.unstudio.com

2.2.2.2. Durchdringung and simultaneity

'Simultaneity' appears on numerous occasions in Sigfried Giedion's writings. In plain language, the term means existing, occurring, or operating at the same time. Giedion explains that simultaneity refers to the presentation of objects from several perspectives or points of view, at least in the work of the Cubists, and for him, this notion is thus fundamentally bound to modern life. In parallel, Einstein in 1905 wrote 'Elektrodynamik bewegter Körper' which translates to 'Electrodynamics of moving bodies[9].' Michael Hays argues that the emergence of this notion opened up space to perception and conceptualization, thus moving from objects in space to the concept of space itself. As a result, Hays illustrates that this notion had a number of consequences; [1] A new consciousness of space whereby space was explored; [2] The façade as a privileged aspect of the work of architecture disappeared – referring to the notion of interiority mentioned earlier; and finally [3] Global space as the abstract void or medium waiting to be colonized[10]. The notion of simultaneity in space-time was a concept that can be seen evolving from an earlier notion of 'Durchdringung' - an essential characteristic of the new architecture, and its capacity to interrelate different aspects of space with one another. Moreover, at a conceptual level 'Durchdringung' further signified the blurring of disciplinary boundaries that traditionally defined architecture's self-identity. With respect to the emerging Modern Architecture, Heynen illustrates that *"Most interesting in this respect is the thought that architecture might no longer limit itself to the design of representative buildings but should develop instead into a more comprehensive discipline that is focusing upon*

the whole environment and that merges with social reality and with life itself[11]."

If we look at the Crystal Palace as an example of the first generation of the phenomena, one of its major effects on people was in challenging their visual perception of what was inside and what was outside the building, which in turn brought significant implications on new ways of perceiving the built environment as a whole. The interior/exterior topos is thus useful when examining this example for what it heralded in Modern Architecture in blurring what is defined as outside and inside. Upon witnessing the Crystal Palace, Richard Lucae said: *"We are separated from nature but yet we are scarcely conscious of it; the barrier that separates us from the landscape is scarcely perceptible. If we reflect on it, it is as if one has poured air, as it were, like a liquid; thus, here we have the sensation that the free air has kept its solid shape after the form in which it had been poured was again taken away. We find ourselves, so to speak, in a piece of sculpted atmosphere[12]."*

The German Pavilion in Barcelona, built in 1929, represents an extreme case of simultaneity. This building had no function to fulfill in the strict sense of the word - it was an exhibition pavilion and an exhibition object alike. The fragmented slabs of stone and sheets of glass defined individual yet interconnected spatial realms. Thus, sequences of spaces constantly unfold in time as one traverses it. Another example of such notions of spatial interplay can be observed in the houses of Frank Lloyd Wright, where each spatial zone is defined yet interconnected with its surrounding spaces of the house. This perspective can be felt when passing through the different rooms of the house as well. While we see a type of simultaneity happening on the horizontal plane, as seen in the two earlier examples, another type of simultaneity happens on the vertical plane as well. In Le Corbusier's Villa Savoye, this notion is noticed vertically by means of the ramp - an architectural promenade, through the different spaces of the villa creating a visual link and a path between the levels of the building.

For an example from the third generation, we can talk about Hans Scharoun, who himself was adept at working with zones of spaces and on the subject of the inside and its relationship with the outside, in his villa Schminke there we can see decks on both levels which create intermediate zones, neither outside nor inside, and in the solarium itself, which is a space more open to the outside than the living room but less so than the decks - a zone between the two realms. The dining area, not quite a zone in-between, but defined by the overhang of the landing above. It is at one end of the house, seeming like remnants of a parallel wall space, which sets up an axis into the countryside through the broad window over the dining table[13].

9   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

10   Hays, K. (2000). *Architecture theory since 1968.* Cambridge, Mass.: MIT Press Ltd.

11   Heynen, H. (1999). What belongs to architecture?' Avant-garde ideas in the modern movement. *The Journal of Architecture, 4*(2), 129-147.

12   Mallgrave, H., & Contandriopoulos, C. (2011). *Architectural theory.* Malden: Blackwell Publishing.

13   Unwin, S. (2009). *Analysing architecture* (3rd ed.). London: Routledge.

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Figure 40 >

*The interiors of
villa Schminke.
©Architektur Zeitung*

Looking at the evolution of the architectural discipline in general, we see that key projects analyzed in the fourth generation of the phenomena presenting at times a complete blurring of what constitutes the inside and the outside of the building. If we look at the example the Seattle Public Library by OMA where the flow of people in the library blends with the flow of people in public spaces together in intermediate spaces that stretches the realm of the inside out and the public sphere in. Or for instance, the Yokohama Port Terminal by Foreign Office Architects, we see a complete blending of spaces inside and outside.

Figure 41 >

*One of the Seattle
Library entries.
Retrieved from https://
www.archdaily.com*

2.2.2.3. Scale is obsolete

Processes of internalizing the architectural object on the one hand, and on the other hand, operating on the inner spatial structure of a building, both procedures appear to have strongly altered the understanding of space and its continuity. From the early days of architectural spatial conception, the abstract and individual interpretation of space itself stretched and contracted in such a plasticity to the point that scale became irrelevant at some point. Space is in its nature the all-encompassing medium of architecture. In that respect, aspects of continuity manifest accordingly. From this perspective, we can find a similar reading in Sigfried Giedion's writings on the matter of space in his earlier accounts on Durchdringung. Giedion's discourse on this issue maintains that spatial Durchdringung leads to a symbiosis with all kinds of metaphorical meanings associated with the word[14]. Due to Giedion's rhetorical strategy, it becomes clear that Durchdringung stands for and leads to a weakening of hierarchical models on all levels - social as well as architectural[15]. Such dynamics of the notion of continuous space thus represents a clue in dismantling of spatial hierarchy and scale in the work of architecture, as such: *"It seems doubtful whether the limited concept of "architecture" will indeed endure. We can hardly answer the question: What belongs to architecture? Where does it begin, where does it end? Fields overlap [Die Gebiete durchdringen sich]: walls no longer rigidly define streets. The street has been transformed into a stream of movement. Rail lines and trains, together with the railroad station, form a single whole[16]."*
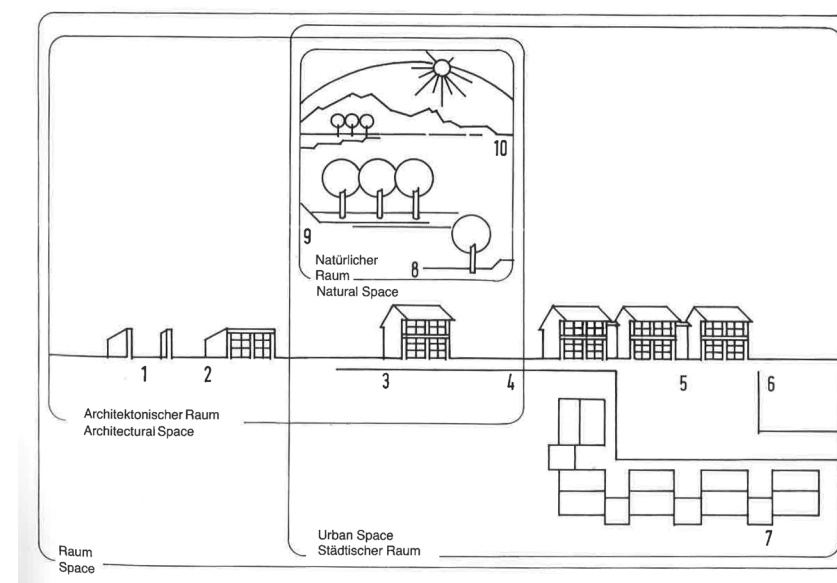
< Figure 42

*Architectural, urban
and natural space
according to J.
Joedicke. Retrieved
from his book
'Space and form in
architecture'*

14   Fische, V., & Höpfner, R. (1986). *Ernst May und das Neue Frankfurt, 1925-1930.* Berlin: Ernst, Wilhelm & Sohn.

15   Heynen, H. (2000). *Architecture and modernity.* Cambridge, Mass.: The MIT Press; Revised edition.

16   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

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In the scheme above, Jürgen Joedicke talks about the scale of space, explaining how natural space is always part of the architectonic and the urban realm. Architectural space comprises not only the individual rooms of a house, but at least those parts of natural space that limit the outward view as well. Thus, Joedicke sees the potentials of spatial blending in certain architectural arrangements. Joedicke also demonstrates that even public open space or the street in front of a house are part of architectural space as well, even if one assumes that a house is completely sealed from the street or square in front of it by the outer wall. This reading of space with respect to the built environment and even the global environment shows the level of plasticity that the architect is able to arrive at when the notion of continuous space is in effect. Joedicke thus illustrates that even if one assumes that a building is completely shut off from the outside the fact remains that this wall - in its function as a demarcation of internal space, on the outside, as its façade, also forms a boundary to the space in front of the building. There is thus not merely a single space, but many different kinds of spaces that are link to interpenetrate. *"The creation of space therefore always implies dividing off a smaller space from a larger one[17]."*

2.2.2.4. Dematerialization

For Giedion, who anticipates the idea of dematerialization - a few years later by Hitchcock and Johnson, Modern Architecture is essentially distinguished from the classical by the way it subtracts from material consistency to the supporting elements[18]. Dematerialization with respect to the notion examined here, is fundamentally linked to abstracting and conceptualizing the built environment. In that regard dematerialization is thus read within two key frameworks; [1] the dematerialization of the architectural element and thereafter the immaterial characters of some architecture of continuous space; [2] processes of abstracting the architectural object by means of conceptualizing the architectural subject matter.

This notion is evident from the early years of the phenomena. Starting with the use of steel, iron and glass with concrete as well, for the creation of a 'New Architecture.' It is thus clear from that time that such architecture, along with its elements (door, wall, window, etc.) began evolving towards their abstract versions. And because this phenomena was initiated with a the objective of shifting the architectural object from the notion of 'Style' and façade, to an architecture of 'Space,' in that respect an architecture of continuous space became an architecture of dematerialization. Interestingly in this context, Bernard Tschumi offers his thoughts on such architectural qualities and his personal experience in the field, saying: *"My Voyage into the abstract realm of language, into the dematerialized world of concepts, meant the removal of architecture from its intricate and convoluted element; space [...] Space is real, for it seems to affect my senses long before my reason[19]."*

The dematerialization of the door. Retrieved from OMA's publication 'Elements of architecture'

This diagram above, which was featured in Rem Koolhaas's publication for the 2014 Venice Biennale 'Elements of Architecture,' in this scheme Koolhaas illustrates the processes of dematerialization through the example of the door as an element of architecture[20]. It seems that this line of thinking is predominantly found in an architecture of continuous space as already demonstrated. Strangely enough, in a sort of prediction made within the Hegelian sense, with respect to a dematerializing architecture, it is argued that buildings will not have to support weight at all. The matters of which architectural elements are made might be experienced as opaque and impermeable but not as weighty in demanding support. An even deeper dematerialization is coming sooner, as we already see the beginnings of an architecture of pure image. Buildings become screens for giant displays. In theme parks and other emphatic environments, constructional and functional expression becomes completely subordinated to image and meaning. David Kolb makes such prognostic statements, and continues: *"This dematerialization will increase with virtual reality. In a virtual world, the resistance of materiality becomes a planned effect. Not only the architecture but also the physics can be designed at will[21]."*

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17   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

18   Amaldi, P. (2007). *Espaces.* Paris: Éditions de la Villette.

19   Tschumi, B. (1996). *Architecture and disjunction.* Cambridge, Massachusetts: MIT Press Ltd.

20   Harvard Graduate School of Design, Koolhaas, R., Trüby, S., Westcott, J., & Petermann, S. (2018). *Elements of architecture.* TASCHEN.

21   Kolb, D. (2007). *Hegel's architecture. Stephen Houlgate* (Ed.), Hegel and the Arts. Northwestern University Press.

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2.2.3.   Creativity and innovation

It appears that since the spatial qualities in architecture were embraced as an essential categories in the discipline that what accompanied and followed the notion was a continuous reinvention of architectural thought, as the notion itself was a paradigm shift in the practice and theoretical accounts of field of architecture. The notion itself seems to reinvent itself and evolve according to its own self-conscious quality, furthermore, it was a framework through which the notion even offered new typologies of buildings, and novel aesthetic outcomes. The phenomena of continuous space is in that sense observed to arrive at distinct works of architecture throughout the unfolding of the twentieth century. In that respect, investigations and explorations of the notion of temporal space can be asserted to be in perpetual change and evolution.

For instance, looking at the first generation of such thoughts in architecture, we see the adoption of advanced building methods which were not part of traditional architectural vocabulary. Thus, it gave way to new possibilities in the field of construction, as well as new ways of regarding the physical world. From that, the second generation of the notion arrived and offered yet again, an evolved manner of looking at the same thing - how to think of and create architecture. For example, this resulted in new layouts of private residential projects where the architect attempted to explore innovative solutions to an age old building. Additionally, as illustrated just earlier, with this generation, new elements and vocabulary of architecture began to surface as the 'New Architecture' of the time - in part leading Bruno Zevi to arrive at his 'New Language of Modern Architecture.

Optimism in the first few decades of the phenomena is contrasted with an atmosphere of anxiety and worry that dominated the second half of the twentieth century. Nevertheless, it can be asserted that the notion of continuous space continued presenting tools through which to address the circumstances of the time, thus, coming up with alternative solutions. Key aspects of the final two generations of the phenomena represent the merging of the architectural and the urban realms as one continuous habitable tissue, with it, tools and methods of conceiving the built environment through the lens of the notion of continuous space proceeded to evolve as time unfolded.

One of the reasons that seem to be behind such apparent qualities of innovation and creativity when it comes to the notion of continuous space is that the architectural discipline is the strong interaction and importation of ideas between the field of construction and theory of architecture on the one hand, and the numerous other disciplines that maintained an impact and influence through the century - as discussed in the first paragraphs of this chapter. This increased engagements with other fields of study, which seems to occur naturally in societies and communities, as a result to an increased level of communication, exponentially since the turn of the twentieth century. The discipline of architecture is described to have gone through something of a

metamorphosis in recent decades, as visible throughout this doctoral dissertation. There is evidence of a clear shifts both in the nature of debates within the architectural discipline and in its relation to other circles of knowledge and research. Ultimately, it is thus instinctive to assert that architects and architectural theorists - involved with notions of continuous space - appear to become more and more receptive to other domains, for instance, cultural theory, philosophy, sociology and many other disciplines, now seem to be increasingly engaging with questions of architecture and the built environment[22].

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22   Leach, N. (1997). *Rethinking Architecture*. New York: Routledge.

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2.3. Chapter 3: Continuous space strategies

For phenomena that seem to have dominated a period of well over one hundred years - additionally to being evident still in today's architecture, it is inevitable to assume that notions of continuous space would manifest through as diverse approaches as the different stage of architectural history in general. However, in applying the processes of the Grounded Theory method of research, this doctoral work has identified two fundamental classifications through which such notions appear in the work of architecture. This assertion is not made to claim that techniques and methods of conceiving an architecture of continuous space have not changed over time, to the contrary, this observation reveals the two most basic strategies of continuous space that seemed to apply on all case studies presented here in this work as part of the evolution of the phenomena of continuous space in the discipline. Which means, this presentation is the reduction of the practice of such architecture to its most basic ideas and concepts.

Along these lines, this chapter thus aims to introduce first of all, key concepts through which to regard and understand what a notion of continuous space means and consists of, and thus a description of architectural elements and their role in enabling qualities of continuity of space to emerge. In that respect this chapter is divided into three main segments; the first illustrates ways to observe continuous space in the work of architecture - contrary to encountering qualities of formal notions in architecture; the second focuses on the architectural element, realized from the point of view of enabling notions of spatial continuity to manifest; and finally, a presentation of the resulting findings in the form of two key strategies of conceiving continuous space, which are [1] exercising the plasticity of the architectural element, [2] Programmatic practices and their pliability.

2.3.1. Reading continuous space

Continuity in the abstract sense of the word refers to the unbroken and consistent existence or operation of something over time[1]. Therefore, this begs the basic question of how exactly observe such properties in the work of architecture? Instinctively, In order to get a precise interpretation to what constitutes spatial continuity with respects to the general built environment, it was essential from the beginning to follow the development of such notions (as illustrated as Part 1 of this dissertation work) and thus understanding how they were regarded over decades of evolution. In that sense, the method was first and foremost to arrive at the historical origins

1   CONTINUITY | Definition of continuity in English by Oxford Dictionaries. (2019). Retrieved from https://en.oxforddictionaries.com/definition/continuity

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of concept of space in the discipline, and in parallel to that, identify readings of space that carried temporal connotations.

A key principle was, as presented in 'Space and Form in Architecture,' the correlation between architectural space and form in informing notions of continuity in space, as illustrated by Jürgen Joedicke. While form might be regarded as the positive component of a building, space in that respect represents the negative, together they make up the physical container of space and the metaphysical contained.

⋀ Container

Contained

⋁ ⋁
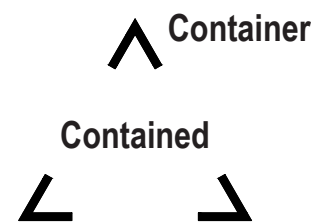
According to Joedicke, this describes a reciprocal relationship between form and space - space cannot be perceived without form, and conversely, space creates distance needed to perceive form[2]. Therefore, the two notions (space and form) distinct in essence, are fundamentally interdependent, as one enables the other. In that respect, a clear distinction arises between investigations of an architecture of form and an explorations of the form of space and spaces.

It is in certain circumstances that if architecture is to be considered a fine art, as some circles seem to regard the work of architecture as a creation for the eye alone - meaning that it is conceived for its visual and formal aspects. This reading of architecture resonates with the classical account of the discipline. Perhaps it is for this reason why Sigfried Giedion argues in his 'Space, Time and Architecture,' that in the act of referring to Modern Architecture, one should refrain from the term 'Style.' Giedion makes his point clear when he explains that the moment architecture is fenced within the notion of the 'Style,' the door is open formalistic suggestions[3]. In that respect, this doctoral investigation firmly assumes the turning point within the architectural discipline from the pursuit of architectural 'Style' to an architecture of 'Space' as the first step towards regarding an architecture of continuous space.

From this point of view, at a certain point in history, architecture moved away from the container - the architectural object, and into the enabler of space, responding to processes of interiorizing architectural thought and the architectural subject matter. And if we look at the early manifestations of such notions and the type

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2   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

3   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

of architecture that expressed spatial continuity, these qualities primarily manifested in monuments, bridges, and buildings related to industry and transportation broadly speaking - enabled through advanced construction techniques and building materials. Thus, human experience in such built environment offered a whole new perspective on regarding the physical world, as space became more expanded and dynamic thereafter. Two principals thus emerged immediately after: [1] Contained space, a static enclosure of space in the Semperian sense, as the first impulse to regarding spatial characteristics in architecture[4]; and [2] Animated space by the gestures and actions of those who inhibit it - where the human body is at the center as Zevi illustrates[5].
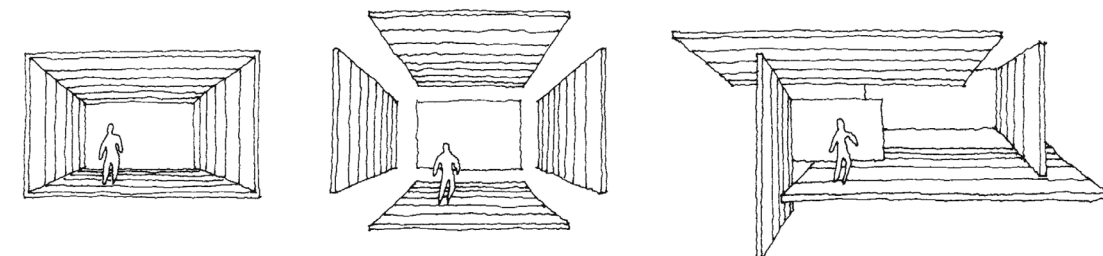
When it comes to the conception of space in architecture, Sigfried Giedion strongly associates this notion with a preoccupation with space-time. For Giedion, the notion of space in Modern Architecture is concerned with the notion of simultaneity, which as illustrated in earlier chapters, implies the simultaneous observation different perspective of space at the same time (i.e. inside and outside), through practices of transparency, overlapping and movement[6]. All things considered, the notion of continuous space is an architectural approach where the container, the architectural object becomes the enabler of continuous space, while the body, the occupant of space is at the core of this understanding - continuous space triggered by the associated of space-time, enabled by its very nature though movement in space. Space, the singular entity in and out of itself is described by Elizabth Grosz as discontinuous, infinitely divisible, and static. However, Grosz explains that duration is by contrast continuous. In that respect, she concludes that through the combination of space and duration does process of spatialization and temporality emerge[7].

2.3.2.   Concepts and components of continuous space

A.   Demarcation

The demarcation of space is a term cited in Jurgen Joedicke's writings in reference to the boundaries of space that are erected in the form of built elements. Joedicke explains that the general lay conception of architectural

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4   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

5   Zevi, B. (1978). *The modern language of architecture.* Canberra: Australian National University Press.

6   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

7   Grosz, E. (1997). The Future of Space: Toward an Architecture of Invention. *ANY: Architecture New York, 19/20*, 12-15.

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space indicates a distinction between two elements - equal to that previously mentioned, space itself as the contained and spatial demarcation in the form of the container. In that respect, Joedicke defines space as the thing between that does not exist for the moment[8].

Figure 46 >

Spatial demarcation as explained in Joedicke's 'Space and Form in Architecture'
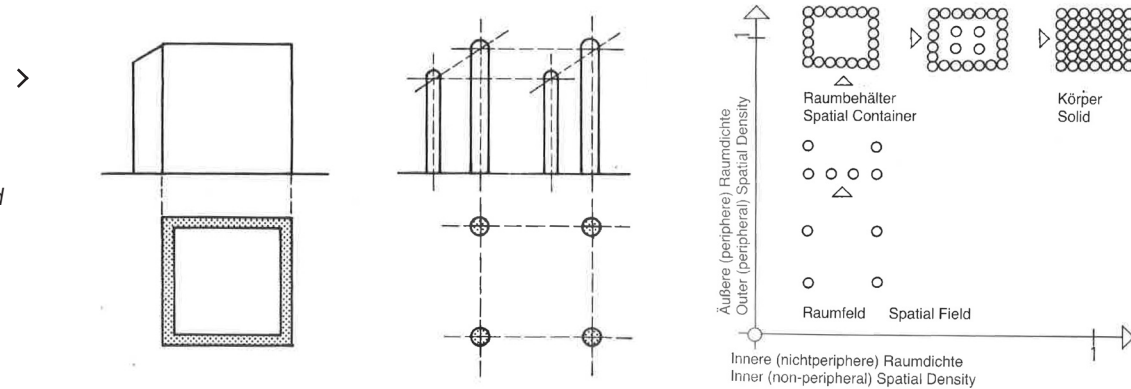
The basic understanding of the meaning of a wall in architecture evolved substantially at the turn of the twentieth century. It is even said that technological advancement meant an all-out assault on the interior wall that lead to new conceptions of space as a result, such as the 'limbed open plan' of Franck Lloyd Wright and 'permeable Raumplan' of Adolf Loos. Thus, the stuffiness of rooms and walls turned into more flexible spatial components as a result[9]. And while Semper's spatial enclosure, at the time was established as one of the earliest accounts of space in the discipline - as the first impulse of architecture, the wall therefore take its primary role as the enabler of the Semperian notion of space. This tradition evolved by his contemporaries, such as Berlage and Behrens[10].

In that regard, the most basic element of architecture becomes an indispensable component of an architecture of space, and in its most basic form, the simple slab plane, is able to separate the inside from the outside - allowing for the formation of movement by means of its placement in space. This notion is most clearly represented in Mies's 1929 German Pavilion in Barcelona. In parallel, August Schindler recognized such interpretations in the conception of spatial architecture, saying: *"We no longer have plastically shaped material-mass. The modern architect conceives the room (raum) and forms it with wall - and ceiling - slabs. The only idea is space (raum) and its organization. Lacking material-mass, the negative interior space (raum) appears positively on the exterior of the house. Thus the 'box-shaped' house has appeared as the primitive form of this new line of development[11]."*

8   Joedicke, J. (1985). Raum und Form in der Architektur. Stuttgart: Karl Krämer.

9   Harvard Graduate School of Design, Koolhaas, R., Trüby, S., Westcott, J., & Petermann, S. (2018). *Elements of architecture.* TASCHEN.

10   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

11   Ching, F. (2014). *Architecture: Form, Space, & Order* (4th ed.). New York: John Wiley.
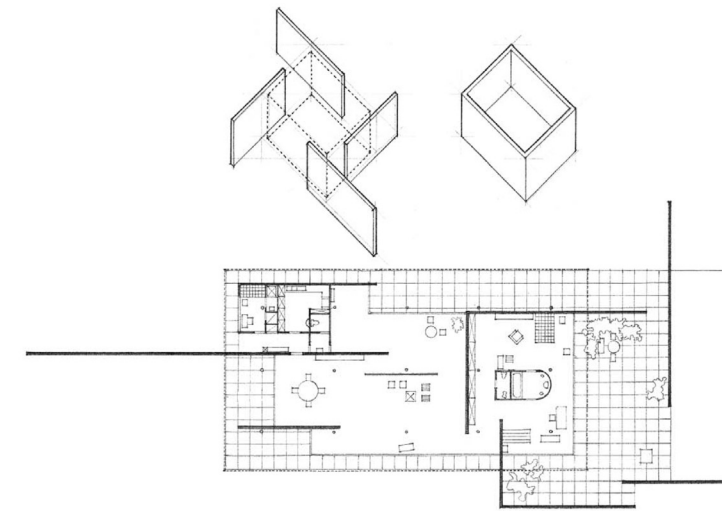
< Figure 47

House by Mies for the Berlin Building Exposition of 1931. Retrieved from Ching's ' Architecture: Form, Space, & Order'

Sigfried Giedion in this context explains the evolutionary processes that occurred on the architectural wall since the birth of Modern Architecture, during which time the wall for him was cleansed of all decorative elements popular in earlier traditions of architecture. In that respect, it represented a new found appreciation and a rediscovery of the pure surface plane, that of which according to Giedion was lost since Egyptian times[12]. The plane surface, in that respect, the most basic form of the architectural wall, was greatly during the early decades of the turn of the century. Examples of such distinct notions can be witnessed in the work of Doesburg, van Eestern, Rietveldt and again in the work of Mies van der Rohe. In their works, the architectural object of spatial arrangements becomes the result of an articulated practice of flat rectangular plane arrangements in space. Consequently, the pure flat surface wall of Modern Architecture asserted its fundamental standing in the domain of architectural creations, especially that of spaces of flow, movement and continuity. Thus, the link between space and form begin to diverge, as Laszlo Moholy-Nagy explains in 'The New Vision': *"If the side walls of a volume (i.e., a clearly circumscribed body) are scattered in different directions, spatial patterns or spatial relations originate[13]."* The wall as a flat plane is not just a wall, this plane slap is capable of taking the form and the function of other architectural components as well, a ceiling, a floor, a ramp etc. Thus the meaning of a wall in the classical sense of the word loses its meaning and becomes an abstract architectural element in this language of continuous space.

12   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

13   Moholy-Nagy, L. (2005). *The New Vision: Fundamentals of Bauhaus Design, Painting, Sculpture, and Architecture.* Mineola, NY: Dover Publications.

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B.   Transitioning

This notion refers to processes of shifting from one state or a condition to another, and it takes place on a direction or axis of flow of movement. Analogously, transitioning is constantly occurring in the built environment; transitioning in space (i.e. from open to enclosed space), transitioning in the city (i.e. from private to public space), transitioning in activity (from one to another) so on and so forth. In that regard a distinction arises between the architectural element as the enabler of space, and the architectural element as the facilitator of movement and transitioning in space, temporalizing space by creating flow and direction. As will be further demonstrated, elements of transition in architecture (i.e. door, window, stairs, etc.) work similarly to spatial demarcations. Meaning that the positioning of the element of space offers different qualities of spatial continuity in the built environment. The notion of transitioning is to be found in all styles and notions of architecture, as it is a fundamental aspect of the physical world. However, in an architecture of continuous space, this aspect is not to be found strictly in its tradition form. For instance, an entrance to a building or a room is through a door, a fundamental element that is naturally see from a purely functional point of view. Nevertheless, an architecture of continuous space pays close attention to how spaces connect, more precisely, to how a transition between spaces occurs. Bernard Tschumi equally affirms that *"architecture is not a matter of roofs, facades and windows. It is above all an envelope and means of entering and moving about within it[14]."*

Paths may be related to the spaces they link in the following ways. They may:
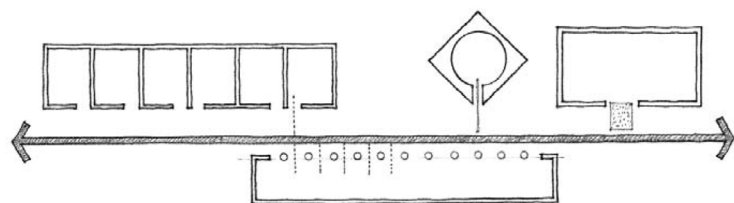
Pass by Spaces
- The integrity of each space is maintained.
- The configuration of the path is flexible.
- Mediating spaces can be used to link the path with the spaces.
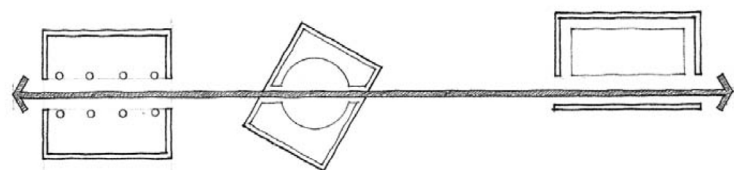
Pass through Spaces
- The path may pass though a space axially, obliquely, or along its edge.
- In cutting through a space, the path creates patterns of rest and movement within it.

Terminate in a Space
- The location of the space establishes the path.
- This path-space relationship is used to approach and enter functionally or symbolically important spaces.

Figure 48 >

Transitioning through paths in space. Retrieved from Ching's 'Architecture: Form, Space, & Order'

14   Migayrou, F., & Tschumi, B. (2014). *Bernard Tschumi: Architecture: Concept & Notation.* Paris: Centre Georges Pompidou.

B.1.   Horizontal transitioning (doors and windows)

The door is an architectural element of pronounced dialect. It is a thing that represents 'openness, entry, freedom' but also, 'security, safety, privacy.' To meet in private is 'to meet behind closed doors.' To be welcoming is to have 'an open door policy.' The door is a part of the wall, however a necessary breach in it. Throughout the twentieth century, and Modern Architecture strongly embraced notions of transparency and flow, the physical truth of the door becomes as some describe it, embarrassing and suspicious, thus the door in its original form dematerializes, almost disappears. In some contexts, a commercial or official for instance, the door concept is stretched into a zone, a heavy barrier that 'politely opened upon the presentation of credentials.' Equally - as technological advancement is never irrelevant in this context - for an effect of permeability, while fortifying the door, a 'key' from the 'right' person, sometimes biometric keys, can only allow a person through this point of access. *"The dilemma of the modern door: to be or not to be? Continuity has become the essence of our architecture; the door can only interrupt it. Its status has become a necessary hindrance, its identity easily compromised[15]."* While the wall, a spatial demarcation, the divider between the inside and the outside or of different spaces, the door becomes the link between the realms and spaces - the door is thus the threshold between realms.

The window on the other hand, is simply and most basically a hole punctured in a wall. It is a view into other space, and it allows for visual continuity. This meaning can be stretched as the concept of a window is equally evolved. During the evolution of notions of continuous space, the abstract conception of a window changed and developed greatly, For instance, by the mid twentieth century, the window concept grew to encompass the entire façade of a building, losing its singular identity in the process.

< Figure 49

Windows over time, (left) the Crystal Palace in London, © paristeampunk. canalblog.com, (right) the Seagram building in New York ©Jules Antonio.

15   Harvard Graduate School of Design, Koolhaas, R., Trüby, S., Westcott, J., & Petermann, S. (2018). *Elements of architecture.* TASCHEN.

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The boundaries of the abstract meaning of the architectural element, for instance the wall and window, begin to blur as their traditional understanding converges into something mew - a wall into a glass window face. One of the most well-known examples of such tendencies is found in the Tugendhat villa in Brno by Mies van der Rohe. In this house the windows of the southern façade become the façade itself, the whole wall in that respect turns into a structure like that disappears into a pocket in the ground, allowing for a complete continuity between the living room and the outside garden.

Figure 50 >

The window façade
at villa Tugendhat.
©Alexandra Timpau

B.2. Vertical transitioning (stairs and ramps)

Stairs and stairways provide vertical movement. Whether in a building or in an outdoor space, they connect spaces together on different elevations. Stairs can vary greatly in form, size and design, therefore stairs have a big impact on the flow and continuity of space. As mentioned previously in 'Part1, Generation III' of this dissertation, Paul Virilio remarks the unfortunate incident when architecture turned away from, in preference of the escalator and the elevator, thus, Virilio claims this event as one of the reasons why architecture was in decline during his time. Virilio make his statement, with a special emphasis on the 'flâneur,' - the wanderer in space, making it a significant point of view to the importance of the bodily movement in architectural creations[16].

< Figure 51

The flâneur in space.
Retrieved from http://
flnr.org

Ramps, another form of three-dimensional movement in space, are described as elements of powerful significance - elements that can change political systems and trigger revolutions. Ramps can announce a new age, a new man, the flâneur (the wanderer). The ramp is in an instant a creator of scenography, it generates flow and movement far more than stairs could. It directs the person by means of flow of vision and direction of mobility. If we were to look at the form of a stair, with its steps and angle of rise from one level to another, acts to reinforce the distinction between two levels, compare that to a ramp, a sloping plane that tends to feel more like a linking of two floors together. This distinction works on a visual level (the elevations of each of the two levels connected) as well as through bodily experience where 'stepping' that is needed in order to use stairs exaggerates the separateness and distinctness to two different floor levels[17].
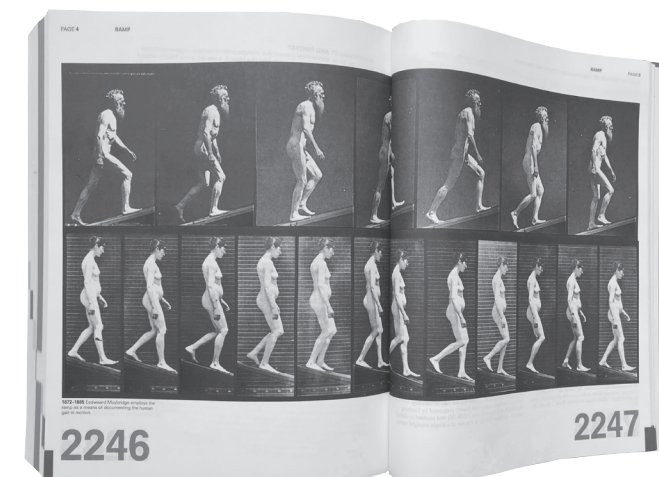
< Figure 52

Muybridge's
documentations
on the ramp 1872 -
1885. Retrieved from
OMA's 'Elements of
Architecture'

16   Virilio, P., & Lotringer, S. (2001). *After Architecture: A Conversation.* Grey Room, 3, 32-53.

17   Harvard Graduate School of Design, Koolhaas, R., Trüby, S., Westcott, J., & Petermann, S. (2018). *Elements of architecture.* TASCHEN.

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2.2.3.   Two strategies of continuous space

As notions of continuous space evolved over the twentieth century, so did the discipline in its practice of such architecture. While in Part 1 of this dissertation i illustrated a somewhat chronological overview of the development of architectural thought on the subject matter, in this chapter I present these techniques of conceiving continuous space, as classified and extracted through the Grounded Theory method of research. Just as stated in the objective of this research work, the phenomena is large part is represented by the practices of an architecture of such characteristics of continuity of space, and this is done so by means of questioning two essential facets: [1] the 'What' which refers to the architectural elements that enables the manifestation of spatial qualities, that of which continuity; and [2] the 'How' which looks at the mechanisms of employing the architectural component in conceiving an architecture of continuous space.

It is important to clarify, once again in this context, this doctoral research project does not encompass issues of spatial perception. Readings of architectural space in such ways has been deliberately dropped, instead, notions of continuous space presented in this dissertation thesis represent operative procedures by the architects, art historians and architectural critics in advancing such notions in the discipline, whether in their work of architecture or in the form of literary works in reference to the topic - the maker of continuous space rather than the user of space. Nevertheless, the body stays at the core of the notion of continuous space, as it is centered on the person and his/her being in space and time. Therefore the human body exists in space and time by experiencing space in time - movement, flow and continuity. Adolf Hildebrand in this respect emphasizes the two types of movement in space, movement of the body and movement of the eyes[18], as explained in previous chapters. However, it is important to note that Hildebrand's statement focuses on the immediate space of perception and ignores the all-encompassing sense of space - the built environment, the universe. In that regard and with respects to Hildebrand's account, my investigation into the notion has asserted that there are three types of being in space and time - three levels of continuous space; [1] the first can be experienced through vision; [2] the second can be lived through movement and circulation in space; and finally [3] the emblematic type which is being part of a the whole, a factor in the system that resides in absolute space.
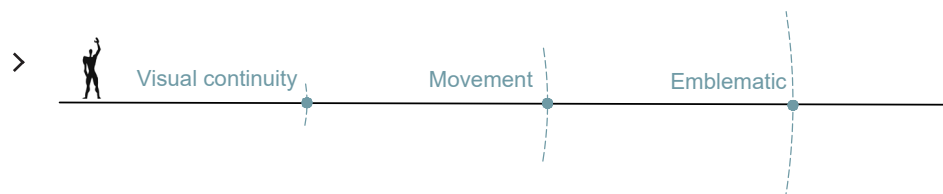
Taking into consideration that the 'What' in this equation clearly identifies physical, as well as the metaphysical components of any spatial arrangement in the built environment. The 'How' in that respect deals with the strategies of employing such components. Accordingly, the two fundamental mechanisms of reading/conceive continuous space are: [1] exercising the plasticity of the physical architectural component in creating architecture, [2] exercising the plasticity of the metaphysical component of architecture. Both angles of seeing the notion, as this research finds, depend on the architect's creative ability to practice such notions, think and rethink possibilities and arrive at his/her interpretation of space.

< Figure 54

Simplified diagrams of the two strategies of conceiving continuous space, (left) plasticity of the physical architectural component and (right) plasticity of the metaphysical component of architecture.

A.   Plasticity of the physical architectural component

New building materials and construction technique has been, from the beginning of the emergence of notions of continuous space, playing a fundamental role in advancing architectural thought. As the field in the early days of modernity began to employ iron, steel and glass, space rose up to becoming an ordinary category of architecture, with this in mind, the field was able to achieve new possibilities. The architect, together with the engineer of the time, arrived at constructing massive and unprecedented structures, such as bridges, trains stations and large exhibition halls, thus they were able to stretch the common understanding of space itself. Constructing massive structure in that respect pushed the discipline's knowledge in using earlier mentioned materials. Thus, it was mostly spaces of the masses at first, then with the second generation of architects in this context, explorations of employing such materials and technical knowledge were employed in buildings of smaller scales, and for an architectural for the individual or a few individuals.

In contrasting the first generation with the second, the former is described for its exploration of an expanded notion of space - pushed from the inside, space becomes larger and more expansive. The latter on the other hand began to experiment with this new sense of spatiality on the individual level, placing the human body at the center and creating an architecture of continuous space, imagined and activated from the individual point of view. It was only with the second stage of the evolution of such notions, did the architect arrive at redefining the physical aspects of architectural components.

Figure 53   >

The three facets and levels of continuous space

Visual continuity   Movement   Emblematic

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18   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

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*Expanded space,
(left) pushed from
the inside, (center)
in dialogue with
the outside, (right)
continuous with its
surroundings*
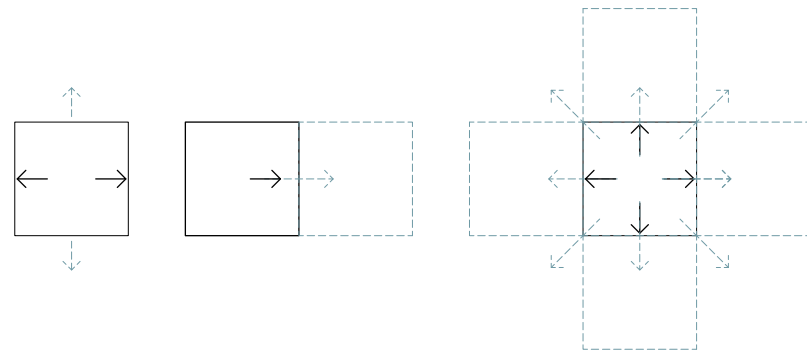
Modern Architecture's ability to expand, not just space itself, thus making the building a plastic architectural object, it expanded spatial thinking as well. The notion, ever since its emergence in the late nineteenth and early twentieth century evolved exceedingly. Nevertheless, it was Modern Architecture's self believe in its ability to control the physical world that pushed some architectural thinkers later on to critic its strictness and lack of innovation in envisioning new architecture, after falling victim to its approaches to the functionalist and efficient version of space. In that regard we see the third generation, frustrated with the direction that Modern Architecture seemed to have taken - its rigid ideology of objectivity, coupled with an anxious atmosphere following the two World Wars. As a result, some affiliates of this generation began introducing a softer, more flexible kind of spaces, paying attention to the human side of occupying and using space, chiefly leaving behind the right angle by means of bending and folding the flat surfaces of Modern Architecture. A parallel aspect to this generation is not just addressing the architectural object, but treating space as the all-encompassing aspect, universal characteristic. Therefore the urban realm (the city) becomes a constituent part in thinking of spatial continuity, in all directions, horizontally, vertically, and thus, diagonally.

*Bending and folding
the flat plane wall*
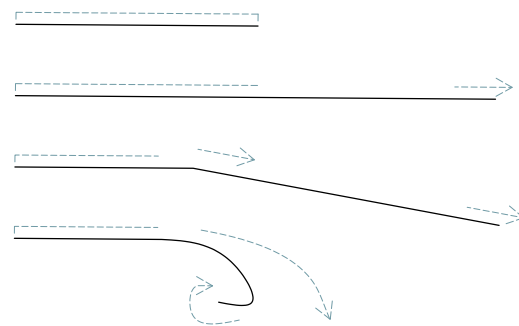
During the last few decades of the twentieth century, a culture of complexity and multiplicity continued to gain prominence across all fields interested in the built environment, whether in architecture or in the city. The fourth and finally generation investigated in this dissertation thesis represents the height of technological advances in the field of building, with an unprecedented capability to produce smooth and heterogeneously continuous surfaces that on the other hand, and on the other, processes of deconstructing the architectural object in its totality. Arriving at this stage of the evolution of notions of continuous space, the distinction becomes clearest between formal aspects of creating continuity and flow - with respect to creating surfaces and architectural forms of flow, and an architecture still interested in the plasticity of an architecture that enables the continuity of space in time. For that reason we will, in the following paragraphs, contrast those visions of spatial continuity with processes of exercising the plasticity of the metaphysical component of architecture and space.

B.   Plasticity of the metaphysical element of architecture

Coming back to the first phase of notions of continuous space, one of the resulting outcomes of the industrial revolution were the emergence of new typologies of buildings, and naturally, novel functions of spaces. New aspects of using space and the functioning of the building resulted in paving the way for the architect to rethink what a building is and architecture in that respect (i.e. factory, station, etc.) However, the functioning of space and the programmatic needs of a building maintained a close relationship with the singular unit of space, meaning that changes in rethinking architecture focused on rethinking space in terms of the needs and the functioning of the single box room and the relationship between that space inside and the outside (i.e. the AEG turbine factory in Germany by Behrens).

The second generation in that respect began to experiment with the combination and relationships of the different spaces of a building, chiefly the relationship between rooms and between the rooms and the outside by emphasizing continuity between them. In that regard, different investigations of connecting spaces appeared to take center stage of architectural thinking at the time, from fluid and organic organization of spaces (i.e. Villa Muller by Adolf Loos and Fallingwater by Frank Lloyd Wright), to open and fluid programmatic arrangements of space (i.e. the German Pavilion by Mies van der Rohe and Villa Savoye by Le Corbusier).

Again, the straight jacket of Modern Architecture continued to frustrate many of the architects and thinkers of the third generation, most prominently when it came to affect the urban realm and city planning - in an already devastated continent at the time. In terms of architecture, some architects leaned closer towards an architecture that is site-specific, paying close attention to movement through space. In that regard, we see the surge of a type of spatial architecture that bends the architectural program at will. The city however was still one of the major concerns of that generation that wanted to move away from Miesian notion to building

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- a notion of stacking floors. Thus, aspects of movement and flow between spaces, and floors in that matter, began to appear in the form of a disregard to the horizontal and vertical, thus combining the two in a fluid movement in three dimensional space (i.e. the Solomon Guggenheim in New York by Frank Lloyd Wright and the Oblique Function by Paul Virilio and Claude Parent). Furthermore, visions of cities, such as the proposals made by Le Corbusier, continued to concern thinkers of that generations and prompted a reaction to such rigid reading of the built environment (i.e. New Babylon by Constant Nieuwenhuys and the Spatial Urbanism by Yona Friedman).

Accepting the fundamental importance of regarding the physical world for its complexity and multiplicity was one of the principal aspects of the fourth generation. Architects and thinkers at this stage offered tangible works of architecture that innovated in envisioning a rethinking of the built environment in such terms. Reshuffling functions and rethinking use and function of space was a possibility by means of abstracting the programmatic scheduling of a building and reintroducing new typologies and spatial arrangements of flow and circulation. Diagrammatic and notational tools during this time were the primary mechanisms that were remarkably used in regarding the continuity of the all-encompassing space, allowing for novel ideas to manifest with respects to the architectural discipline as a whole (i.e. Mobius house by UN Studio and the Yokohama Terminal Port by FOA).

Figure 57 >

Architecture without building, an investigation into human functions. Retrieved from Bruno Zevi's 'Modern Language of Architecture.
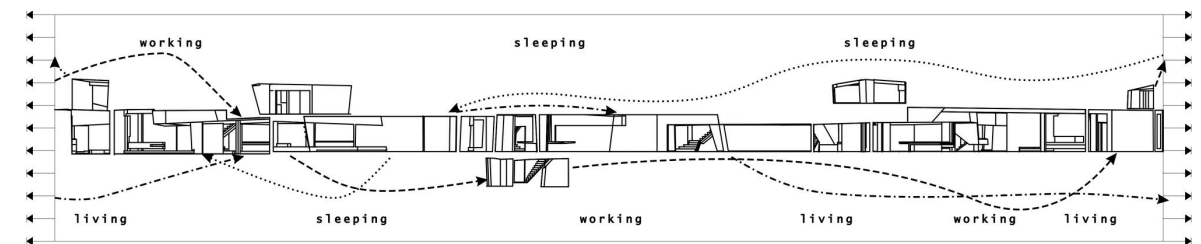
< Figure 58

Diagram of the programmatic arrangements in space of the Möbius House. Retrieved from https://www.unstudio.com

Conclusion

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Suffice to say, one of the most important intellectual developments of the twentieth century is the recognition < Sense of space, of time and of space-time

of the spatiality of human life, thus the observation of the built environment through the agency of space. According to Edward William Soja, the notion of space began in the twentieth century to be regarded with the same critical insight and interpretive power that has traditionally been given to notions of time and history on the one hand and to social relations and society on the other. Soja in that respect argues that the spatial turn has involved the end of historicism, which privileged time over space, thus led to the reassertion of space as a fundamental issue of scholarly investigations[1]. Our understanding of our position in space and time has also changed considerably during this last century, from notions of 'absolute time' that of which Plato and Newton believed in, where one could measure the interval between two events with certainty and where different observers would record the same result, to 'relative time' where observed time can be different for different observers[2]. Such positions, we see Sigfried Giedion strongly resonating with, for instance, in his argument on the Cubists and Futurists and their conception of space and time, attempting to represent movement in space through their techniques of interpenetration and simultaneity for example[3]. From this standpoint, it is clear that the concept of space has evidently preoccupied the European minds since the turn of the century, this can be seen in architecture by way of experimenting and defining spatial relations on an inside/outside model, and assemblies of spaces and boundaries between what is included and what is not. It is in this context suggested that the concept of organizing the built environment can be understood in this light as an interpretation of means of structuring, ordering and controlling the chaotic and uncertain external world outside[4].

On the other hand, it seems that the twentieth century also represent the historical event of the architectural preoccupation of its modernity, and with this, the discipline went through one of if not the most significant paradigm shifts. For instance, if were to look at the concept of an architectural project in general, it is regarded a permanent solid and static structure, however Colin Davies suggests that a building can somehow represent freedom and escape. An architecture of space for example, an architecture that is 'open,' 'free,' and 'flowing' is paradoxical to the traditionally static reading of the built environment. Davies argues that while an architecture of rooms might correspond to the human need for a home for the body and mind (enclosure, belonging), Modern Architecture saw through space an architecture that can correspond to the human need to escape from that home, and to explore the world. Therefore, along this line of thinking, this type of architecture is argued to having the power to transcend its own nature just as us humans sometimes can do, in their imagination,

1   Read, A. (2000). *Thirdspace: Expanding the scope of the geographical imagination* (1st ed.). London: Routledge.

2   Hawking, S. (2010). *A brief history of time.* Toronto: Bantam Books.

3   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

4   Kornberger, M., & Clegg, S. (2003). The Architecture of Complexity. *Culture and Organization, 9*(2), 75-91.

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transcend the limitations of our bodies[5]. Connotations of power in reading the built environment tis not all too strange or new to the architectural discipline, notwithstanding other fields of knowledge. Michael Foucault for example presents such readings through the agency of space as well, in his 'of other spaces,' for Foucault architecture exists to *'insure a certain allocation of people in space, a canalization of their circulation.'* And in an interview with Paul Rainbow, Foucault comments that *'Space is fundamental in any form of communal life; space is fundamental in any exercise of power[6].'*

Defining the phenomena of continuous space:

After a few years invested in investigating the greatest possible manifestations of notions of continuous space (as time and competence allows), such phenomena most defiantly represent an architecture that is conscious of the triad aspects of space, time and space-time. It is as well a transcending type of approach to architectural thinking that seem to always aspire to reinvent itself and evolve in time and through the different circumstances that engulf it. Continuous space seems to greatly invoke ideas of power, because of its nature of organization and ordering of the built environment and its occupation with the notion movement of man in space. In this dissertation thesis at hand and within its chapters, you see an attempt at and a presentation of a definition of the phenomena of continuous space.

Figure 59

The axes through which to examine the phenomena of continuous space
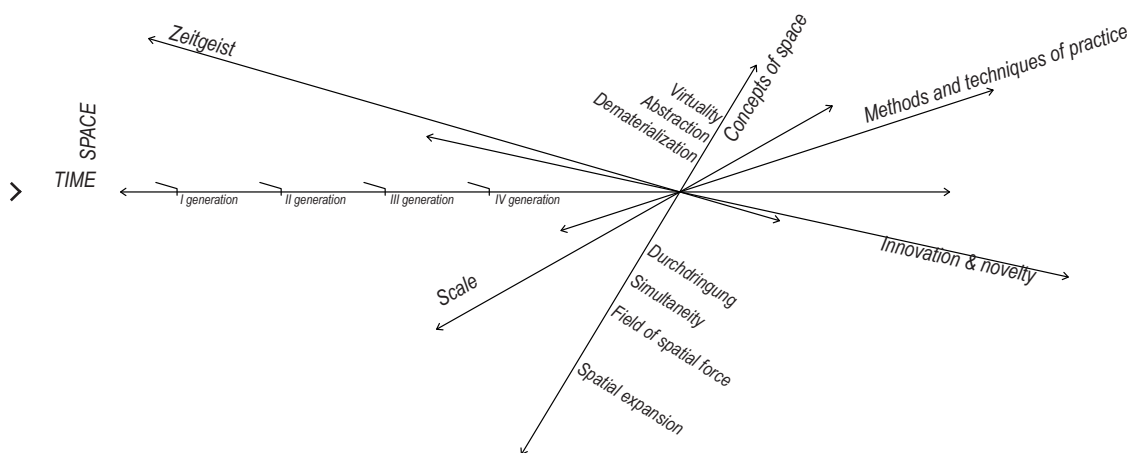
In 'Part 1' of this dissertation thesis, I chiefly presented a chronological view of the phenomena of continuous space and notions that can be described to be strongly linked to the subject matter, as well as events which strongly affected the natural evolution of the architectural discourse. Following the Grounded Theory approach, in 'Part 2' you find the result of a rigorous process of constructing a theoretical framework to define the phenomena, which involved the careful sampling and coding of information and as concepts and categories became more apparent, thus the different axes of regarding the phenomena emerged as the basis of a reading of the phenomena of continuous space. And in the following paragraphs you shall find a brief summary that

5   Davies, C. (2011). *Thinking About Architecture*. London: Laurence King.

6   Foucault, M., & Rainbow, P. (1991). *The Foucault Reader: An Introduction to Foucault's Thought*. London: Penguin Books Ltd.

highlights key concepts of what constitutes notions of spatial continuity in the architectural discipline:
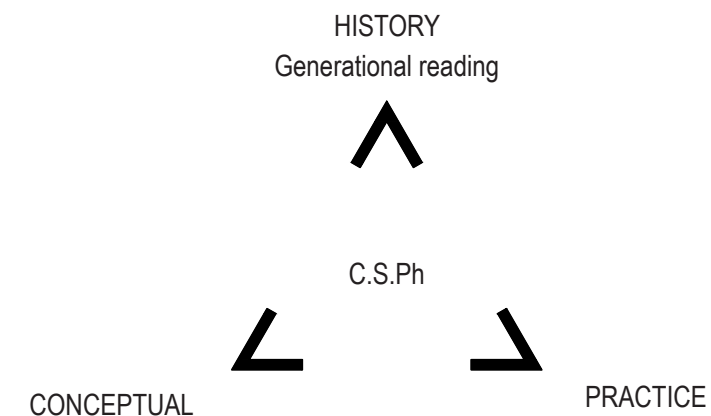
< Figure 60

A diagram of the three lines of defining the phenomena of continuous space

- Notions of continuous space appear to be dynamic and fluid concepts of thinking about architecture, as in being responsive ways of dealing with the architectural object.

- For such notions in history in general, in terms of their time of early manifestation, it seems that the phenomena followed the discipline's natural evolution in the western world as a direct result to technological advancement of the industrial revolution around the turn of the twentieth century. Accordingly, the phenomena's location of origin are strongly linked to Germany as the birth place of the Bauhaus and thus many of the key ideas of the Modern Movement in Architecture, in addition to the strong links with the German speaking world in general as the term 'Raum' which translates to space was greatly influenced by German art historians on the one hand and a linguistic comprehension of space as both a room and the boundless space of the universe simultaneously.

- The phenomena's manifestation in the work of architecture appear to be strongly influenced by what resulted from a rapidly advancing age of the enlightenment and the industrial revolution, for the former allowed for notions of continuous space in architecture to be thought, the latter offered the technical tools to build them. It is the result of an artistic vision coupled with a technical ability to realize such ideas that seem to represent the phenomena's emergence in the discipline.

- Throughout the unfolding of the twentieth century, the phenomena of continuous space seem to have equally gone through different phases or stages of development. This dissertation thesis asserts four distinct generations which elaborated on such notions in architecture. Notwithstanding an evidence that those notions went through periods of critical reflection, followed by others of creative exercises of such ideas.

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- Thus, in this document at hand, a definition is offered by way of looking at the phenomena from the three key perspectives illustrated in Part 2: [1] The generational evolution of notions of continuous space, [2] the notions' conceptual and theoretical connotations and significance in the discipline, and finally [3] the practice of continuous space in architecture. While the first offers a horizontal plane of looking at these phenomena, the second looks at such notions vertically, by means of transcending their chronological order in the interest identifying the phenomena's inherent qualities and fundamental characteristics. The third and last thus maintains a departure from the perspectives of place and time in order to classify the techniques and methods of creating such architecture as it was observed to happen in the discipline.

- The resulting definition of the phenomena is therefore expressed in the axial coding of what is observed to represent notions of continuous space in architectural thinking and practice, which meant breaking down the information at hand into their core themes. In the such a way, and by applying the Grounded Theory approach of qualitative investigation, a basic theoretical framework is established on what constitutes these phenomena in the wider architectural discipline.

Figure 61 >

The three track of defining phenomena of continuous space defined and the annexes presented at the end of this dissertation
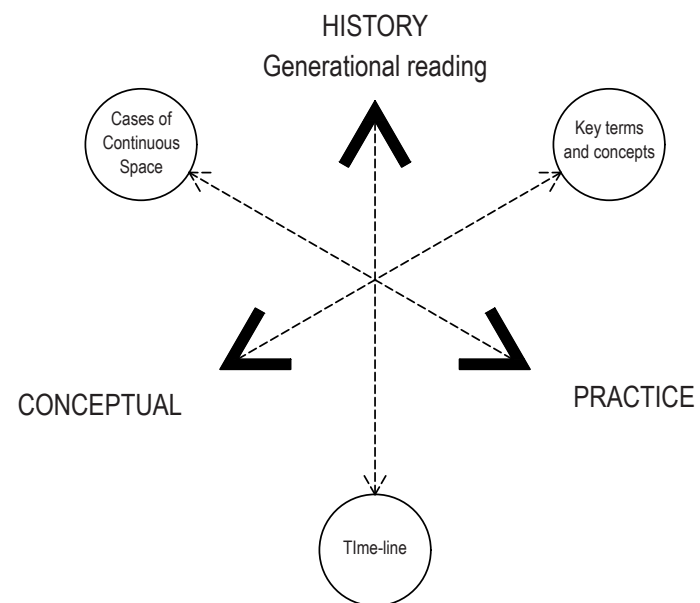
- Further concluding remarks assert the following additional observations:

  - The discipline in this reading of the phenomena and presented here in this dissertation thesis runs in parallel to the development of architectural thought in general. Thus, it offers a unique perspective on the interaction of the architectural discipline with other fields of knowledge, as well as world events occurring simultaneously, which in turn affected architecture in general and notions of continuous space in particular.

- The phenomena of continuous space makes up a large and significant part of the architectural discipline during the unfolding of the twentieth century, the link between notions of spatial continuity and this century cannot be separated, as the century itself was significantly preoccupied with the concept of space-time as presented recurrently in this dissertation thesis.

- As presented in previous chapters, the four generations are not to be understood as confined, strict spans of time, but approximations of notably identifiable periods of architectural thought. Separating architectural thinking into individual phases, was one of the results of applying the Grounded Theory approach, as it seemed the logical course of action to find those broad conceptions that characterize each period differently from its preceding and succeeding stages. Each generation is seen with respect to this study here to have fully immersed in the issues of its age, offering answers to demands raised by earlier generations, and thus paving the road – sometime by way of provocation, for further development by later thinkers in the discipline. Therefore, it is only reasonable to assert that it is with strong conviction that it is expected to be further developments of notions of continuous space in the near future. The question is whether to use the results of this dissertation as a basis of establishing a projection or projections of further evolutions, or tis it possible to observe already manifesting developments to such notions happening right now in the field.

- This research project shows that such notions have been practiced both as an objective by the architect, or sometimes as the case has been observed to be by accident or chance. The assumption is that as the concept of space is a general and all-encompassing notion – architecture does not exists without the concept of space, especially if considering any work of architecture after the birth of modernity, it is difficult to conceive a modern or contemporary architectural work without a distinct presence of spatiality, particularly because of technological advances that made the negative part of the building more present than the physical components of architecture themselves, even in an architecture that strives for formal fluidity, flow of space seems to follow.

- It appears to be that, an architecture of continuous space is fundamentally concerned with crossing and transitioning in spaces, even as well, defining, making or breaking the boundaries of space. The primary question with an architecture of space has always been an attempt to define it. Notions of continuous space in that respect are fundamentally in relation to how space continuous through one another.

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Thinking about architecture with respect to the notion of continuous space allows for the thinking about the built environment as a fluid, dynamic and changing entity, different from the earlier conception of the physical world as a solid and unchanging composition of materials. Such fluid and flexible thinking of the architectural object thus allowed for a more open, approachable and pliable way of addressing and working with the built environment.

Recommendations on further related research:

The modern conception of space, followed by an occupation with space-time and spatial continuity have had and still have a great deal of implications on the architectural discipline generally speaking. The vastness of notions of continuous space can thus manifest under diverse subjects, through different points of departure as well as interests. In the following brief paragraphs are a number of research tracks which surfaced constantly during the ongoing process of this research project and dissertation thesis, which at this moment seem to represent interesting subjects for further examination in relation to this doctoral investigation.

[1]   An absolute continuous space: If boundaries of space were, hypothetically and abstractly, pushed to their utmost limit, with regards to an experimental approach to such notions in light of the set of techniques and methods of conceiving an architectural of spatial continuity presented in Part 2, to what extend can we reach the creation of an absolute continuous space? How would it look like? What are the implications of such built

environment? For instance and as a thought experiment, this research shows that the function of space has a significant role in determining its spatial and formal appearance, therefore it seems self-evident that a study into the notion of use and function of space for example, represents an interesting reading into the architectural capacity to achieve spatial continuity with regards to its programmatic functionality.

[2]   The German pavilion: This case study which is one the most important mile stone projects in the architectural discipline in the twentieth century, and a key example of the phenomena of continuous space. It is an exhibition and an exhibition object alike. This line of thinking raises the question of investigating the nature of the architectural project, between functioning for its intended purpose (a house, a factory, a school and such), and representing the inherent characteristics of architectural creative practice in terms of thinking of the built environment and building it.

[3]   One interesting path this research nearly followed, was in fact presented at some point at the S-ARCH international conference on architecture in 2015, which was chiefly around the subject of techniques and methods of representing architectural space and spatial continuity. The presentation and the paper titled "towards a diagrammatic language of continuous space" was at the time and still is an intriguing notion to follow on. The possible resulting outcomes of this line of thinking seems to offer a significant pragmatic insight into such tools of architectural representation, thus opening to way for further examination of diagrammatic practices to aspects of reading and creating the built environment through the agency of spatial continuity.

[4]   The concept of power, as mentioned earlier in this concluding chapter, always found its way in the folds of notions of space in the architectural discipline. Inspired by the ideas of very influential thinkers and philosophers of the twentieth century such as Henri Lefebvre and Michael Foucault, it seems greatly intriguing and thought provoking to view notions of continuous space through its socio-political standpoint. In addition to seeming significantly relevant to current day subjects of interest. A slightly different yet relevant research track nonetheless, are notions of 'rhythm and speed,' which are readings of space and the built environment in relation to the thinker Paul Virilio.

[5]   As illustrated in earlier chapters, notions of architecture as a city and the city as architecture, and the obsoleteness of scale in thinking of the built fabric of the environment. This line of thinking emerges as an equally intriguing and highly significant track of research that could be followed in light of this dissertation thesis.

[6]   last but not least, as this dissertation thesis arrives at a definition of the phenomena of continuous space through the Grounded Theory approach, which have identified and established a theoretical framework

Figure 62

Recommendations for further research development in link with this dissertation thesis

[4] The concept of power in relation to Foucault and Lefebvre

[4] Rhythm, Speed and Continuous Space in relation to Virlio's reading of space

[2] The architectural object and its objective

[1] Absolute continuous space?

[3] Diagrammatic language of continuous space in architecture

[5] Architecture as a city, the city as architecture

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Dissertation Thesis
Eng. Arch. Laila Sabsabiová, M.Sc.

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Czech Technical University in Prague
Faculty of Architecture
Department of Architectural Design II

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on the subject matter. This research work has done so by means of achieving the four levels of the Grounded Theory approach in defining a phenomena; [1] Codes, [2] Concepts, [3] Categories, and finally [4] Theory. As this approach of qualitative research is a rigorous, continuous and ever evolving process, it seems logical to assume that it is highly recommended to further proceed with these processes in order to further develop a stronger and firmer reading of the phenomena that can rise to the proper level of arriving at a theory of such notions in the architectural discipline[1].

Final remarks

The broadness of the conception of space and the pliability of thinking space as continuous, seem to represent interesting and numerous points of departures for developing further subjects of research, and it is only up for the imagination to find those significant and perhaps critical axes of investigations to proceed with. Thus, i would like to end this concluding chapter with a few inspiring words by the German philosopher Hans-Georg Gadamer which seem both appropriate and highly relevant to the scope of this doctoral dissertation thesis.

Gadamer states that: *"A work of architecture extends beyond itself in two ways. It is as much determined by the aim which it is to serve as by the place it is to take up in a total spatial context .Every architect has to consider both these things. His plan is influenced by the fact that the building has to serve a particular living purpose and much be adapted to particular architectural circumstances. Hence we call a successful building a 'happy solution', and mean by this both that it perfectly fulfills its purpose and that its construction has added something new to the spatial dimensions of a town or a landscape. Through this dual ordering the building presents a true increase of being: it is a work of art … A building is never primarily a work of art. Its purpose, through which it belongs in the context of life, cannot be separated from itself without its losing some of its reality. If it has merely an object of the aesthetic consciousness, then it has merely a shadowy reality and lives a distorted life only in the degenerate form of an object of interest to tourists, or a subject for photography. The work of art in itself process to be a pure abstraction[2]"*

1   Kaiser, G., & Presmeg, N. (2019). *Compendium for Early Career Researchers in Mathematics Education.* Cham: Springer International Publishing.

2   Gadamer, H. (2014). *Truth and method.* London: Bloomsbury Academic.

Annex 1

Time-line of the evolution of 'Continuous Space Phenomena'

// Important world events

// Structures and buildings

1800

// Publications, Concepts and Ideas

'Phenomenology of the Spirit'
Georg Wilhelm Friedrich Hegel, 1807

1810

1820

1830

1840

Karl Marx

Communist Manifesto, 1848

1850

Gottfried Semper identifies the mighty art of space creation with the future of architecture in general

The Crystal Palace in London
Joseph Paxton, 1851

Generation

'The Four Elements of Architecture'
Gottfried Semper, 1951

1860

Mass-production of iron and later steel

Crystal Palace

1870
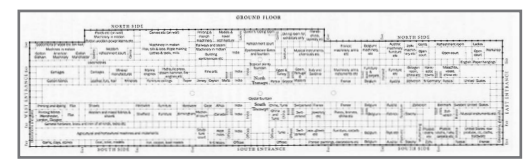
'On the Meaning and Power of Space in Architecture'
Richard Lucae, 1869

Founding of the German Empire after the end of the Franco Prussian war 1871

The Eiffel Tower

1880

Hans Auer, in a pivotal essay in 1883 describes the notion of space not just as the soul of architectural creation, but also the generative force in the development of a new architecture.

The Statue of Liberty erected in New York, 1886

Otto Wagner as a professor of architecture at the Academy of Fine Arts in Vienna in 1894

1890

Lumière brothers show first motion pictures using film projection, 1895

First modern Olympics held

The Eiffel Tower
Gustav Eiffel, 1889

AEG Turbine factory

1896

Hotel Tessel in Brussels, Vistor Horta, 1893

World's Fair, Paris 1900

1900
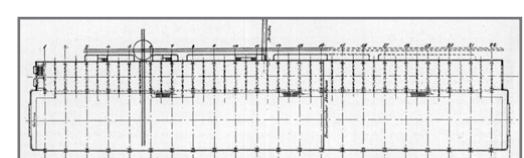
Franck Lloyd Wright wrote the article 'The Art and Craft of the Machine' in 1901

Paris Metro stations
Héctor Guimard, 1900

Sigmund Freud, Interpretations of dreams, 1900

Deutscher Werkbund established in 1907

Amsterdam Stock Exchange, Hendrik Petrus Berlage, 1903

Fagus Factory

Matisse coins the word "Cubism" for a painting by Georges Braque, 1908

Adolf Loos wrote 'Ornament is and Crime' in 1908

The founding of the German Werkbund in 1907

AEG Turbine Factory, Peter Behrens. 1908

In 1908 Hendrik Petrus Berlage proclaimed that 'the aim of architecture is the creation of space'

Robie House, Frank Lloyd Wright, 1909
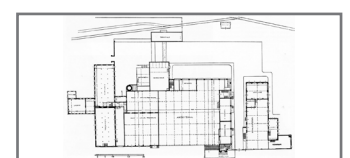
// Important world events

1910, Robert Delaunay,

'Tour Eiffel'

1916, Ferdinand de Saussure,
'Course in General Linguistics'

The Great Depression,

1929 - 1939

World War II ends in 1945

Stalinist coup in Czechoslovakia

Construction of the Berlin Wall

Events of 1968

The Industrial revolution

WWI

The Great Depression

WWII

Bauhaus

Gropius tenure at Harvard

CIAM

CoBrA

Modern Architecture

Situationist international

the International Style

// Structures and buildings

Fagus Factory, Walter Gropius, 1911

Monument to the third international, 1920

Villa La Roche – Jeanneret, Le Corbusier, 1923
Schroder House, Gerrit Rietveld, 1924
Brick Country House, Mies van der Rohe, 1924
Cité dans l'Espace, Fredrick Kiesler, 1925

Tristan Tzara House, Adolf Loos, 1926
Bauhaus Building in Dessau, Walter Gropius, 1926
Barcelona Pavilion, Mies van der Rohe, 1929

Les quatres compositions, Le Corbusier, 1926
Villa Muller in Prague, Adolf Loos, 1930

Villa Savoye, Le Corbusier, 1931

Villa Schminke, Hans Scharoun, 1933

Falling-water, Frank Lloyd Wright, 1935

Barragan House, Louis Barragan, 1948
Glass House, Philip Johnson, 1949
Haniel Garage, Paul Schneider-Esleben, 1950
Farnsworth, Mies van der Rohe, 1951

Ronchamps Chapel, Le Corbusier, 1954
Amsterdam Orphanage, Aldo van Eyck, 1955

Endless House, Friedrick Kiesler, 1959

Solomon Guggenheim, Frank Lloyd Wright, 1959

Case Study House No. 22, Pierre Koeing, 1960
Fun Palace, Cedric Price, 1961
Trans World Airlines Terminal, Eero Saarinen, 1962

Berlin Philharmonie, Hans Scharoun, 1963

Case Study House No. 18, Eero Saarinen, 1963
Air House Exhibition Project, Ron Herron, 1964
Maison Drusch, Claude Parent, 1965
Bunker houses, Claude Parent, 1966
Design for a private home, Roger Dean, 1966
Cambridge University History Faculty, James Stirling, 1967
Diamond House A, John Hejduk, 1967

House III (Miller House), Peter Eisenman, 1971

House VI (Franck House), Peter Eisenman, 1973

Centre Pompidou, Renzo Piano and Richard Rogers, 1977
Berlin State Library, Hans Scharoun, 1978

Generation

III

Generation

IIII

Generation

IV

Villa Muller — 1910

Falling Water

1920

Villa Savoye

Barcelona Pavilion — 1930

Villa Schminke

1940

Endless House

Solomon Guggenheim — 1950

Amsterdam Orphanage

New Babylon — 1960

Seattle public library

Two libraries at Jussieu in Paris — 1970

Villa Muller

Falling Water

Villa Savoye
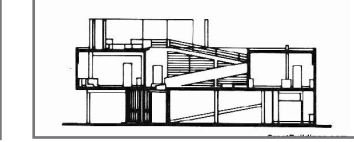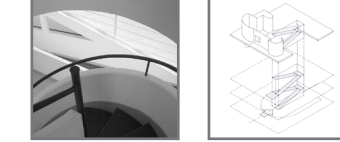
Barcelona Pavilion
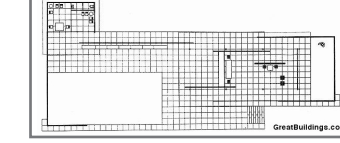
Berlin Philharmonie
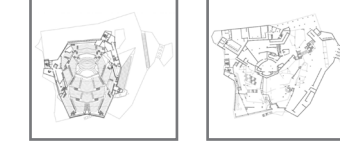
Endless House
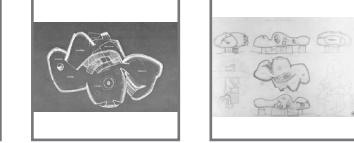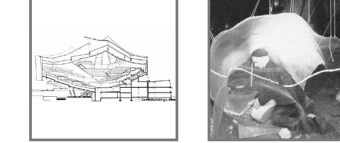
Solomon Guggenheim
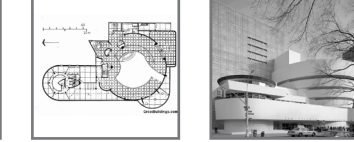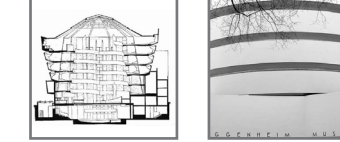
Amsterdam Orphanage
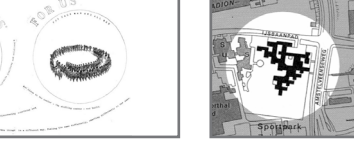
New Babylon
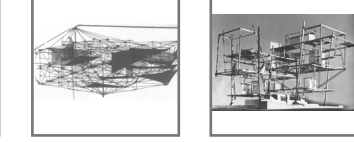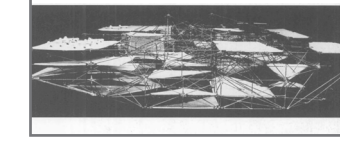
Seattle public library
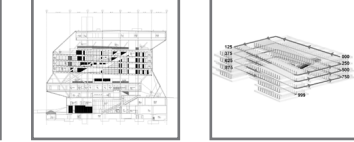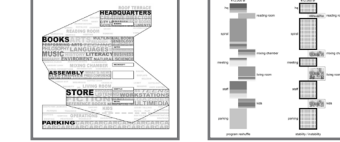
Two libraries at Jussieu in Paris
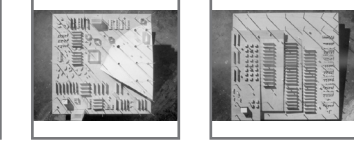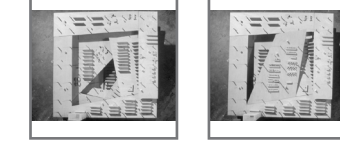
// Publications, Concepts and Ideas

1910, Franck Lloyd Wright, 'Organic Architecture'
Rudolf Schindler declares in his Manifesto of 1912 that the architect had 'finally discovered the medium of his art: space'
1915, Heinrich Wölfflin, ' Principles of Art History: The Problem of the Development of Style in Later Art'
Theo van Doesburg declares in 1916 that Space determines the aesthetic value of the building

1923, Le Corbusier, 'Towards an Architecture'

1927, Martin Heidegger, 'Being in Time'

1929, László Moholy-Nagy 'The New Vision'

1941, Sigfried Giedion, 'Space, Time and Architecture'

1944, Gyorgy Kepes, 'Language of Vision'

1947, Lewis Mumford, 'Status Quo'
1948, MoMA symposium, 'What is happening to Modern Architecture?'

1951, Mathew Nowicki, 'Origins and Trends in Modern Architecture'
Indicates that it is no longer 'how quickly to get there' but 'how to get there' what matters most to the plan design

1954, Sigfried Giedion, 'The State of Contemporary Architecture'

1960, Reyner Banham, 'Theory and Design in the First Machine Age'

1965, Christian Norberg-Schulz, 'Intentions in Architecture'
1966, Robert Venturi, 'Complexity and Contradiction in Architecture'
1966, Aldo Rossi, 'The Architecture of the City'

1969, Charles Jencks, 'Semiology and Architecture'

1971, Christian Norberg-Schulz, 'Existence,Space and Architecture'

1974, Henri Lefebvre, 'The Production of Space'
1975, Bernard Tschumi, 'Architecture and Transgression'
1976, Peter Eisenman, 'Post-Functionalism'

// Important world events

Fall of the Berlin Wall 1989

// Structures and buildings

Open House, Coop Himmelb(l)au, 1983

Parc de la Villette, Bernard Tschumi, 1987
Office extension, Coop Himmelb(l)au, 1988
Funder Factory Works 3, Coop Himmelb(l)au, 1989

Two libraries at Jussieu in Paris, OMA, 1992

Vitra Fire Station, Zaha Hadid, 1993
Seattle public library, Rem Koolhaas (OMA), 1995

Yokohama Port Terminal, Foreign Office Architects (FOA), 1995

Faculty of Architecture, Alvaro Siza, 1996
The Dutch embassy in Berlin, Rem Koolhaas (OMA), 1997

Villa VPRO, MVRDV, 1997

Möbius house, UN Studio, 1998

Jewish Museum in Berlin, Daniel Libeskind, 1999
Expo 2000, MVRDV, 2000

Mur Island Project, Vitto Acconci, 2003

Mercedes-Benz Museum, UN Studio, 2006

Denver Art Museum, Daniel Libeskind, 2006

Kortrijk Library, REX, 2009
The Center for Promotion of Science, Wolfgang Tschapeller, 2010

Block/Tower, Stan Allen and Rafi Segal, 2013

The Dutch embassy in Berlin

1980

1990

Villa VPRO
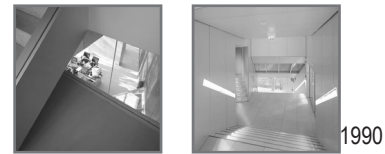
Möbius house

2000
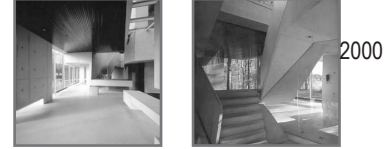
Mercedes-Benz Museum

Yokohama Port Terminal

2010
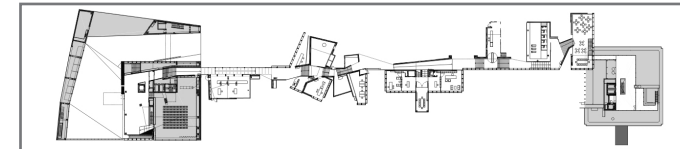
Villa VPRO
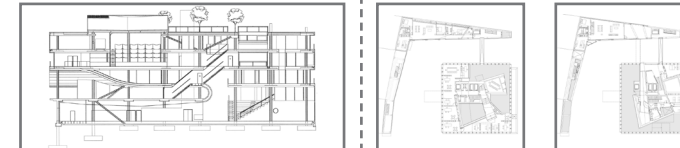
Möbius house

Mercedes-Benz Museum

Yokohama Port Terminal

// Publications, Concepts and Ideas
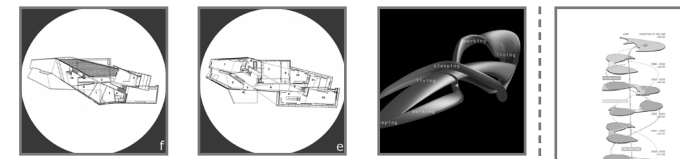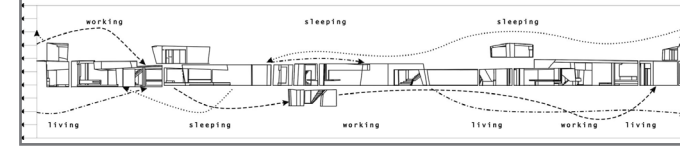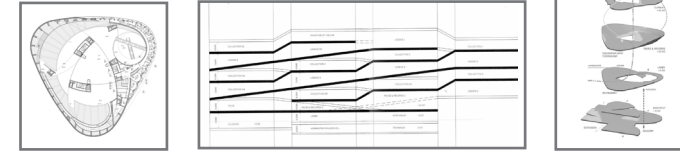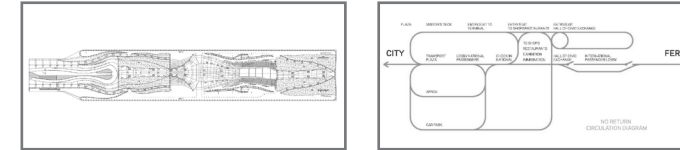
1988, Mark Wigley, 'Deconstructivist Architecture'

1991, Peter Eisenman, 'Diagram Diaries'

1993, Greg Lynn, 'Architectural Curvilinearity'

1993, Mark C. Taylor, 'Seaming'

1996, Winy Mass of MVRDV, 'Datascape'

1997, John Rajchman, 'A New Pragmatism?'

1999, Ben van Berkel and Caroline Bos of UN Studio, 'The new concept of the architect'

1999, Ben van Berkel and Caroline Bos of UN Studio, 'Move'

Annex 2

Cases of continuous space
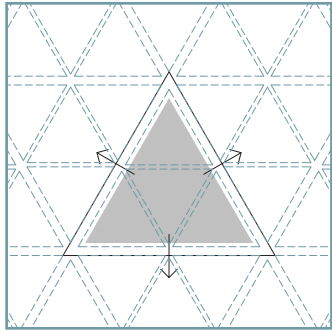
Generation

I

Category 1

Expanded
Space of Flow

Generation

II

Category 2

Spatial
Explorations
(of spatial
arrangements)

Category 3

Spatial
Explorations
(of elements of
architecture)

Generation

III

Category 4

Fluid, Organic
and Grounded
Continuous
Space

Category 5

The City
integrated into
the fabric of
Continuous
Space

Generation

IV

Category 6
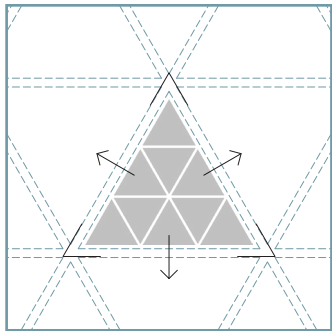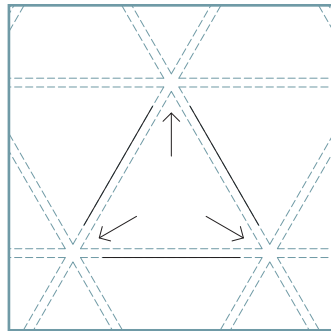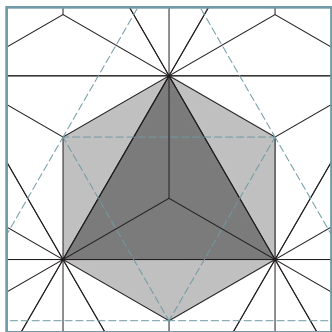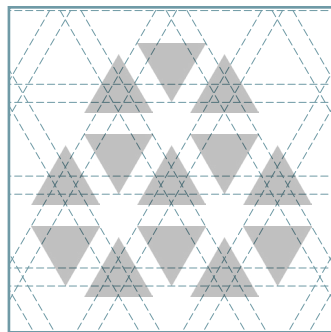
Hyper
Continuous
Space
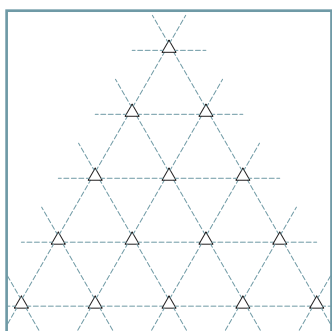
This dissertation thesis identifies 6 basic cases that represents the evolution of architecture thought the notion of continuous space in the architectural discipline

21	Case studies analyzed in this dissertation thesis
103	Case studies surveyed
13	Case studies surveyed as part of Generation I
33	Case studies surveyed as part of Generation II
24	Case studies surveyed as part of Generation III
33	Case studies surveyed as part of Generation IV

For each generation a list of surveyed cases studies are presented chronologically, followed by a brief description of key case studies, a diagrammatic reading of the case and a description of that case.

Generation

1951	The Crystal Palace in London	Joseph Paxton
1867	Bibliothèque nationale de France	Henri Labrouste
1889	The Eiffel Tower	Gustav Eiffel
1903	Stock Exchange in Amsterdam	Beurs van Berlage
1908	AEG Factory	Peter Behrens
1911	Fagus Factory	Walter Gropius
1913	Centennial Hall	Max Berg
1914	Slaughter house in Lyon	Tony Garnier
1914	Model factory for the Werkbund Exhibition	Walter Gropius
1919	Ateliers Esders	Auguste and Gustave Perret
1920	Monument to the third international	Vadimir Tatlin
1923	Airship hangars in Orly	Eugène Freyssinet
1925	Planetarium Jena	Walther Bauersfeld

Category 1   Expanded
Space of Flow

188

189

// Case studies

// Case 6 diagram   // Case description

AEG Turbine Factory, Peter Behrens. 1908
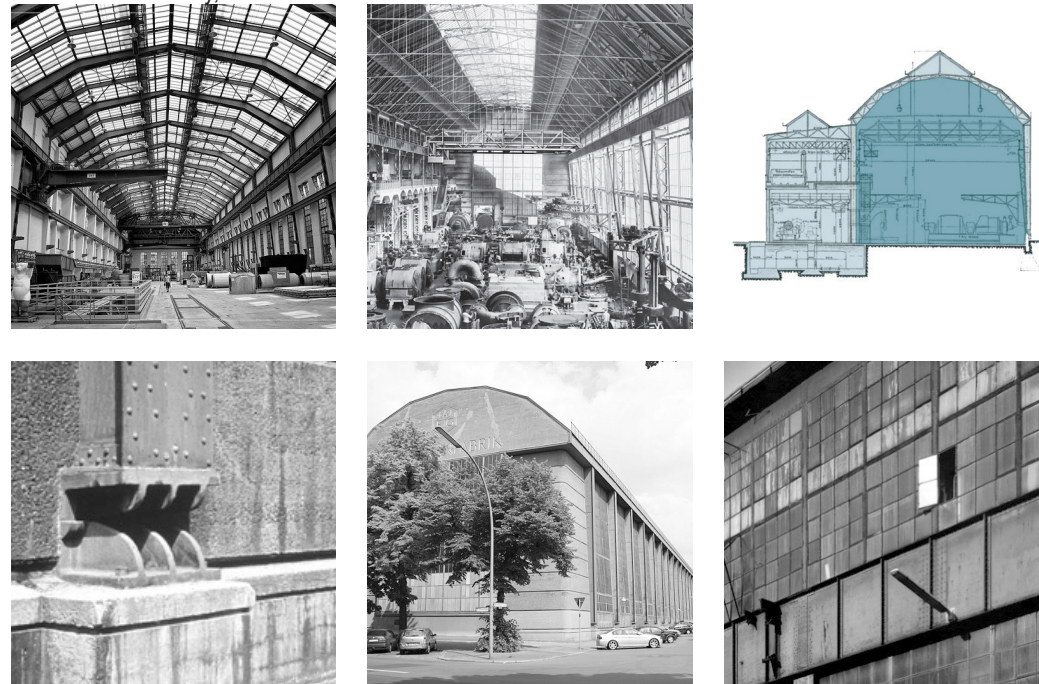
The AEG factory is one of the key buildings of the late nineteenth century, representing a turn away from earlier architecture of the style and a design that stems from the space inside, using advanced technologies in creating an architecture adequate to its function and its time.

Fagus Factory, Walter Gropius, 1911
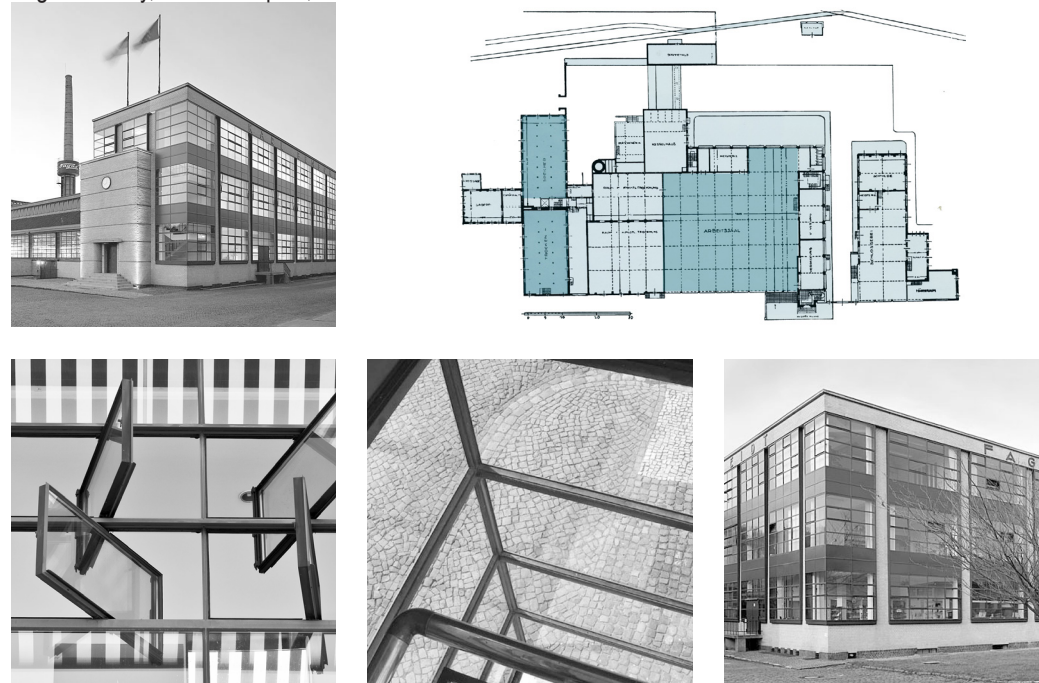
The Fagus factory is an architectural expression that mirrors the reasoning behind its design. Walter Gropius, the father of Modern Architecture, in this building built before the first World War, shows what the new wave in the architectural discipline in capable of conceiving, in Germany and then to the rest of the world.
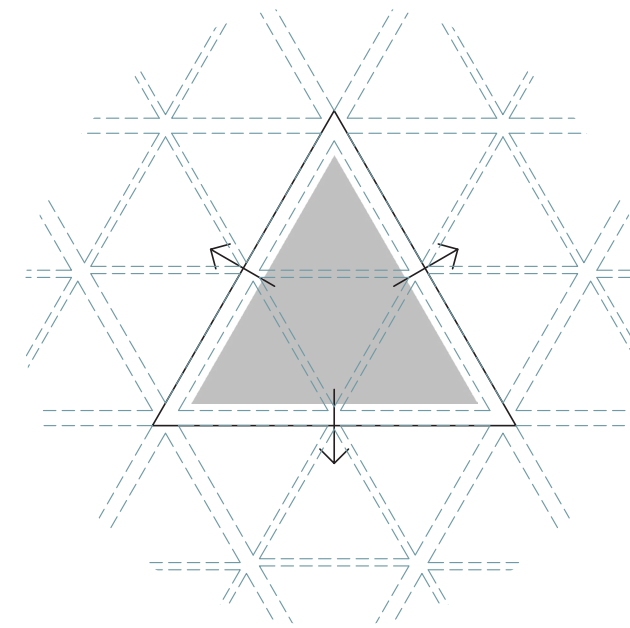
Advances in building materials and construction technologies around the turn of the twentieth century represented new capabilities in constructing large and expansive space with less materials. This early case of continuous space is the ability to achieve a new sense of space in constructing large structures. An architecture of such expanded space is an architectural performance from within the architectural object. Space is expanded from the inside out.

Generation

II

1903	Willits House	*Frank Lloyd Wright*
1909	Robie House	*Frank Lloyd Wright*
1910	Goldman & Salatsch Building	*Adolf Loos*
1911	Steiner House	*Adolf Loos*
1923	Villa La Roche	*Le Corbusier*
1924	Brick Country House	*Mies van der Rohe*
1924	Schroder House	*Gerrit Rietveld*
1925	Cité Frugès	*Le Corbusier*
1926	Tristan Tzara House	*Adolf Loos*
1926	Bauhaus Building in Dessau	*Walter Gropius*
1926	Lovell Beach House	*Rudolf Schindler*
1927	Villa Garches	*Le Corbusier*
1928	Muller House	*Adolf Loos*
1929	Lovell House	*Richard Neutra*
1929	Les quatres compositions	*Le Corbusier*
1929	German Pavilion in Barcelona	*Mies van der Rohe*
1930	Villa Tugendhat	*Mies van der Rohe*
1931	Villa Savoye	*Le Corbusier*
1931	Aluminaire House	*Lawrence Kocher*
1934	Kocher Canvas Weekend House	*Lawrence Kocher*
1934	Sommerhaus Walter Gamerith	*Ernst Anton Plischke*
1939	*Fallingwater*	*Frank Lloyd Wright*
1948	Barragan House	*Louis Barragan*
1949	The Eames House	*Charles and Eero Saarinen*
1949	Glass House	*Philip Johnson*
1951	Fransworth House	*Mies van der Rohe*
1954	The Corwin House	*Richard Neutra*
1956	SR Crown Hall	*Mies van der Rohe*
1958	The Seagram Building	*Mies van der Rohe*
1958	Case Study House No. 21	*Pierre Koenig*
1960	Case Study House No. 22	*Pierre Koenig*
1963	Case Study House No. 18	*Eero Saarinen*
1960	Case Study House No. 23C	*Edward Killingsworth*

Category 2   Spatial
Explorations
(of spatial
arrangements)

192

193

// Case studies

// Case 6 diagram   // Case description

Villa Muller in Prague, Adolf Loos, 1928
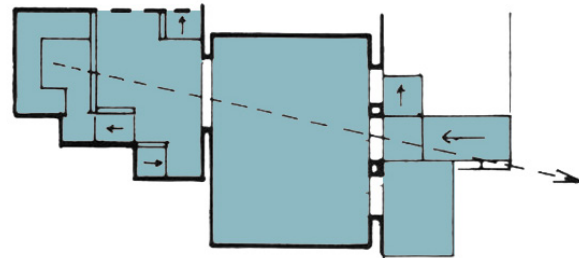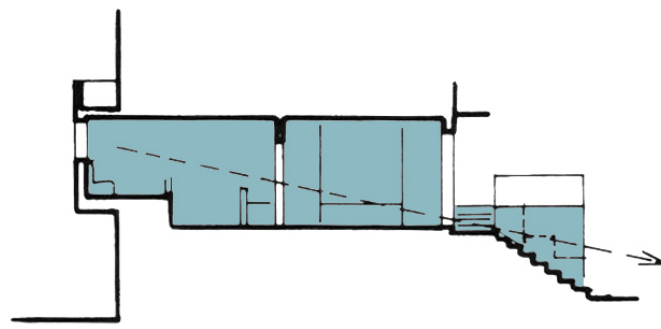
In villa Muller, Loos develops his ideas on the notion of Raumplan, a spatial strategy that connects spaces, adding a dynamic and continuous feel to the whole internal composition. The villa seems to be wrapped in a logically punctured skin, putting the architectural object at the center of the building, its spaces.

Fallingwater, Frank Lloyd Wright, 1939

Fallingwater by Wright represents an organic form of spatial assemblage, open and fluid programmatic arrangements of space. The heart of the house, the hearth is important to be at the core of the house design for Wright, spaces thus flow outwards from the center.
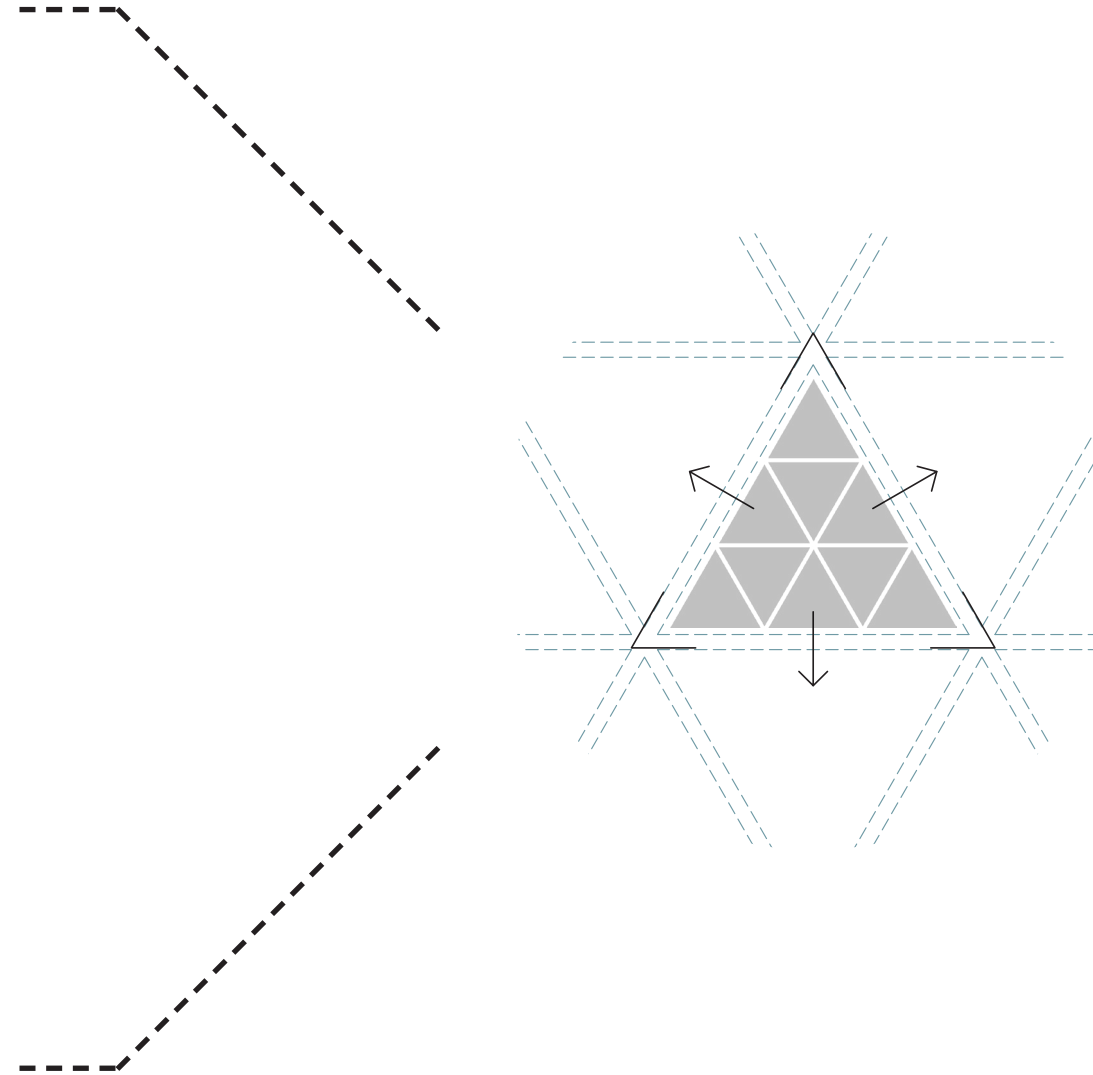
This case of continuous space seems to be strongly linked to the Semperian notion of enclosing space. Numerous architects representing this case work on composing a spatial and programmatic arrangement based on enclosing (compartmentalizing) functions, and connecting them together through fluid and sometimes organic manner of moving across the different spaces of the building.

Category 3 Spatial
Explorations
(of elements of
architecture)

194   195

// Case studies   // Case 6 diagram   // Case description

Schroder House, Gerrit Rietveld, 1924

In this house there is little
distinction between interior
and exterior space is ever
emphasized. The rectilinear lines
and planes flow from outside
to inside, and with this radical
approach to design a house and
of the use of space.

German Pavilion in Barcelona, Mies van der Rohe, 1929
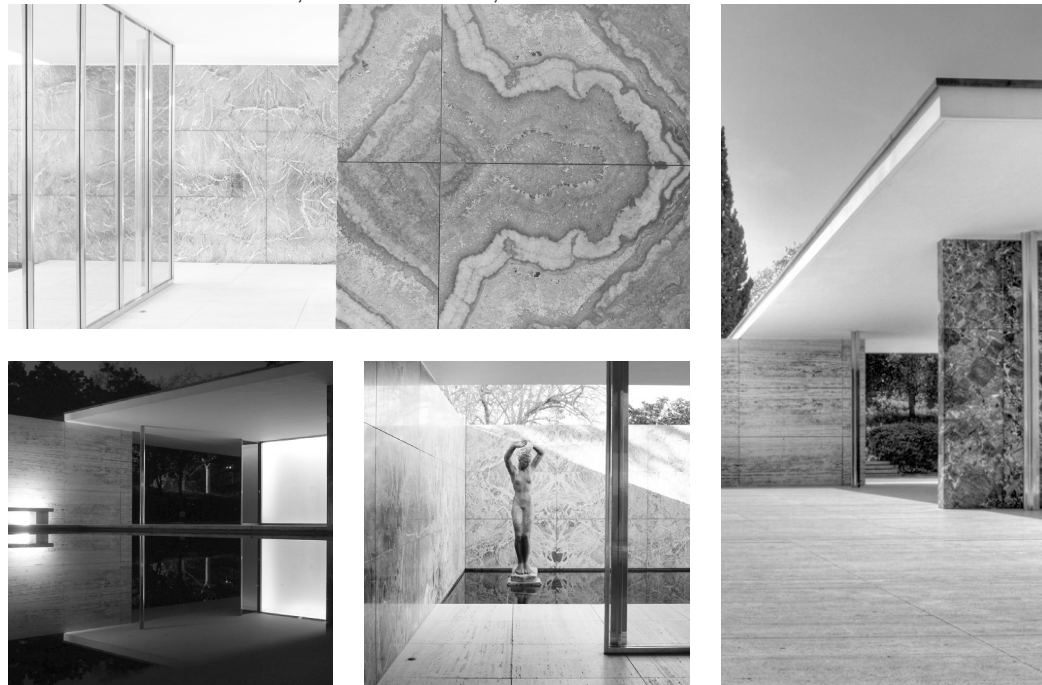
The German Pavilion is an
example of free-flowing and open
space. Mies in his composition
of the pavilion treated it as an
absolute continuous space,
blurring inside and outside.
This is done by an approach
of abstractly assembling
architectural elements in space.
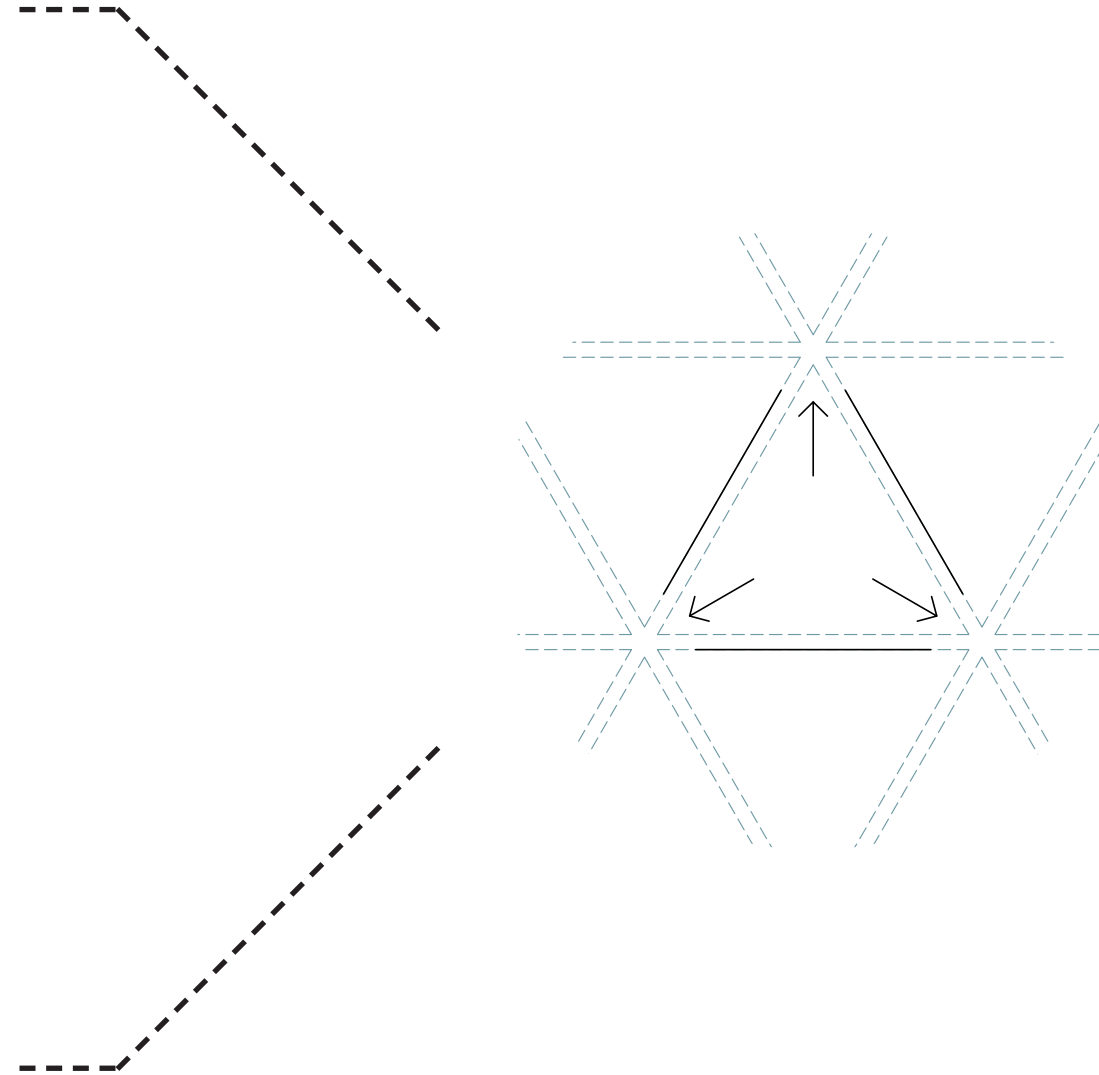
*The components of
architecture and of the
single unit of space is
deconstructed in this case of
continuous space, and what
the architect in here does
is a composition of abstract
arrangements of elements
in space in order to imply or
create flowing spaces. This
method completely ignores
the Semperian tradition of
enclosing space, freeing it up
from the sides and its corners.
As a result, architectural
elements are reduced to their
most basic and abstract form,
therefore, allowing for a freer
manner of thinking of the
architectural object.*

Generation

III

1925	Cite dans l'espace	Friedrick Kiesler
1933	Villa Schminke	Hans Scharoun
1944	Solar Hemicycle	Frank Lloyd Wright
1953	National Theater Project in Mannheim	Hans Scharoun
1945	Ronchamps Chapel	Le Corbusier
1959	Endless House	Friedrick Kiesler
1960	Amsterdam Orphanage	Aldo van Eyck
1961	Fun Palace	Cedric Price
1962	Trans World Airlines Terminal	Eero Saarinen
1963	Goldstein House	John Lautner
1964	Air House	Ron Herron
1964	Berlin Philharmonie Concert Hall	Hans Scharoun
1965	Maison Drusch	Claude Parent
1966	Bunker houses	Claude Parent
1966	House design	Roger Dean
1967	Diamond House A	John Hejduk
1967	Cambridge University History Faculty	James Stirling
1970	Falk House	Peter Eisenman
1974	New Babylon	Constant Nieuwenhuys
1977	Centre Pompidou	Renzo Piano and Richard Rogers
1977	The Atheneum	Richard Meier
1978	Berlin State Library	Hans Scharoun
1984	Neue Staatsgalerie	James Stirling
1995	Curtain wall house	Shigeru Ban

Category 4   Fluid, Organic
and Grounded
Continuous
Space

198

199

// Case studies   // Case 6 diagram   // Case description

Villa Schminke, Hans Scharoun, 1933

One of the key issues of villa Schminke is the architect's attempt to present a site specific solution, especially in the turning balconies and the livings rooms connected to them. In these parts of the villa there is a strong dialogue with the garden outside, in addition to Scharouns creation of what is described as in-between spaces.

Endless House, Friedrick Kiesler, 1959
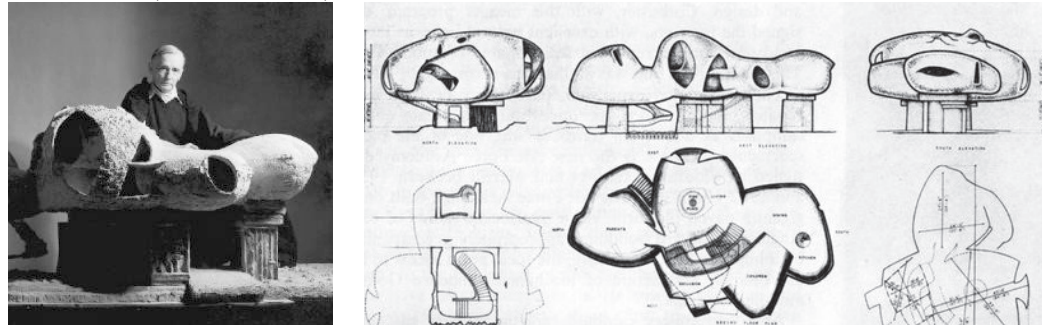
In his attempt to find the boundaries of space, Kiesler seems to relate it to the body, thus his creation is strongly organic formation of a housing situation. There are no walls to be seen here, but a continuously bent membrane creating pockets of connected spaces.

Oblique Function, Claude Parent and Paul Virilio, 1960
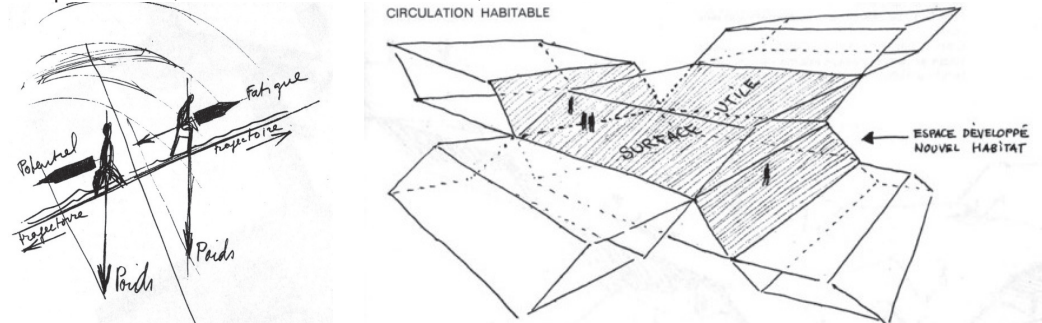
Virilio and Parent strongly contested to the right angle in thei proposal for the Oblique Function, freedom of movement diagonally, leaving behind the vertical wall, thus creating an endlessly folding spaces.

Berlin Philharmonie, Hans Scharoun, 1964
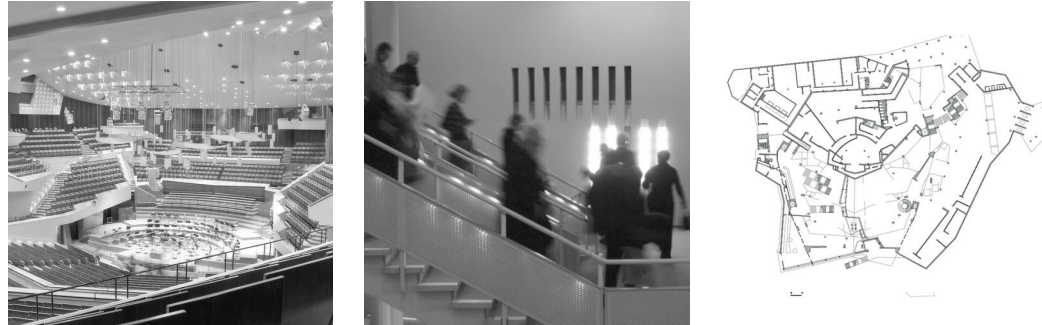
A key observation of this building is the flow of building from the outside all the way to the concert hall where music is placed at the center. Architectural components of this building are manipulated in order to cater for the visitor of the Berlin Philharmonie
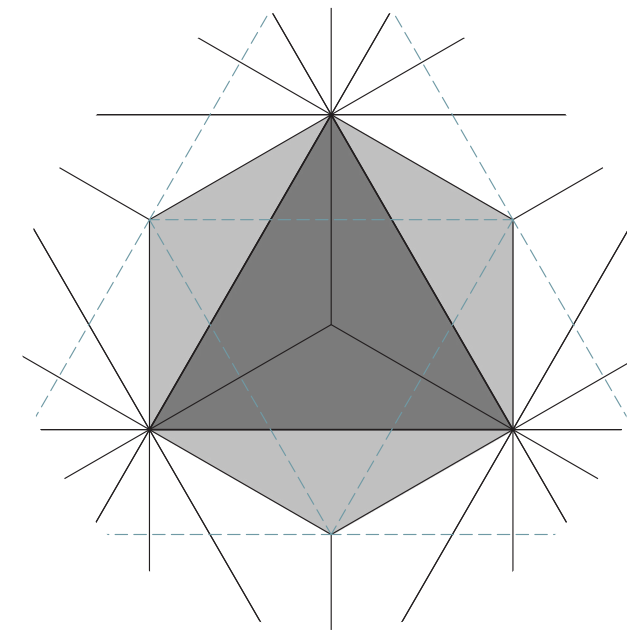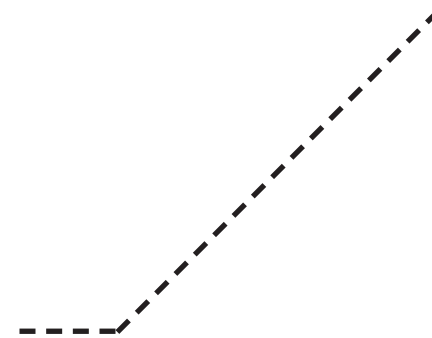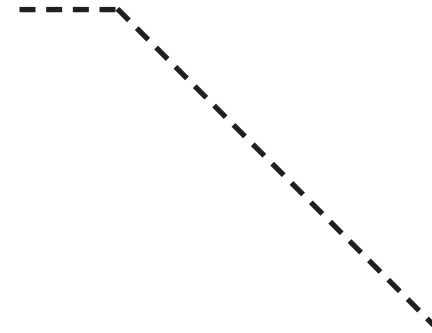
Flow and circulation are at the core of this case of continuous space. The single unit of space seems to expand outwards, bringing the outside world in and spilling out fluidly. Here we observe the three-dimensionality of movement, in all directions. Leaving behind the right angle and the vertical wall. Spaces in this case bend and fold at will, according to the desired pattern of circulation and the sought after functioning of space.

Category 5   The City
integrated into
the fabric of
Continuous
200   Space   201

// Case studies   // Case 6 diagram   // Case description

Cite dans l'espace, Friedrick Kiesler, 1925
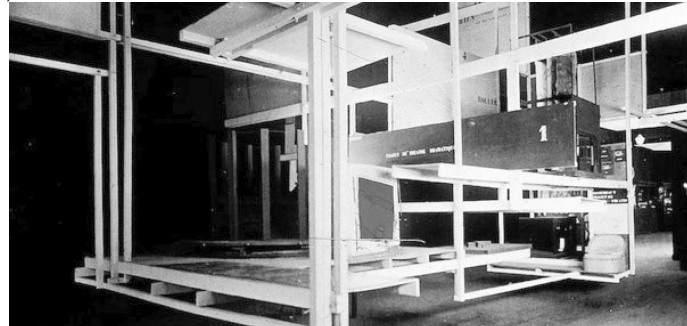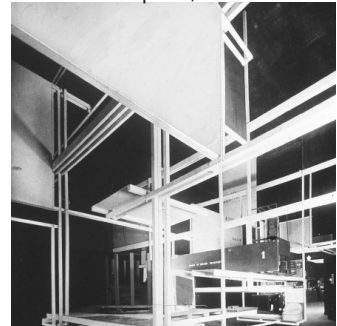
This installation by the Viennese Friedrick Kiesler is a system of tension in free space, a change of space into urbanism, no foundation, no walls, detachment from the earth, suppression of the static axis, creating new possibilities for living, creates a new society.

Amsterdam Orphanage, Aldo van Eyck, 1960
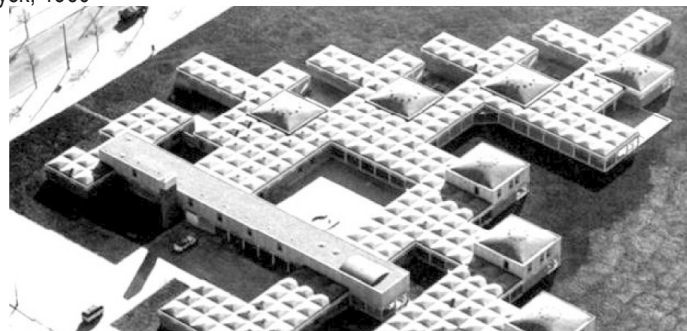
The Amsterdam Orphanage is an example of Aldo van Eyck's idea of a house as a city, and a city as a home. Here he created decentralized urban node with several points of junction and interaction. Breaking down the hierarchy of space by means of conceiving complex in-between place.

New Babylon, Constant Nieuwenhuys, 1974
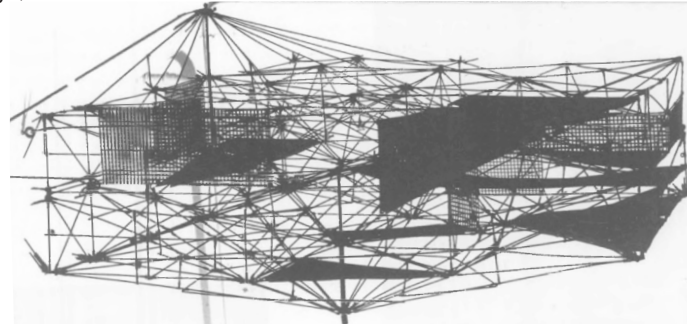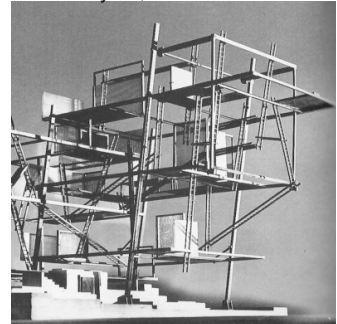
This installation as well by Constant Nieuwenhuys is a network of continuous multi-story space containing all living and social functions, of which would be continuously rebuilt by the population. Every aspect of the built environment can be controlled and reconfigured spontaneously. Social life becomes architectural play.
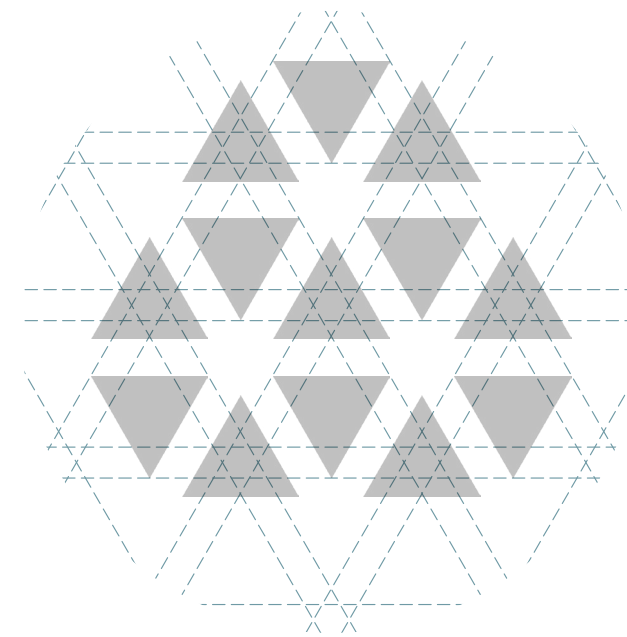
This case of continuous space is greatly occupied with the larger urban fabric of the built environment. Such specific notions started appearing during the second half of the twentieth century resulted from a genuine frustration with the strictness and simplistic attitude of the Modern Movement in architecture. Some of the key aspects of this particular case of continuous space is an emphasis on freedom of movement, in all directions, and on the urban scale especially. Spaces and places of the city become platforms, heavily connected through paths, bridges and whatever method of continuity.
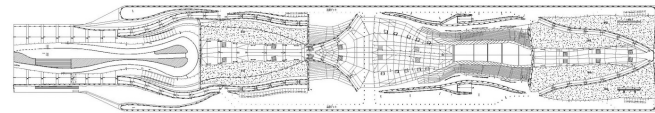
Generation
IV

1987	Parc de la Villette	Bernard Tschumi
1988	Roof conversion	Coop Himmelb(l)au
1989	Très Grande Bibliothèque	OMA
1992	Fire Station	Zaha Hadid
1993	Max Reinhardt Haus	Peter Eisenman
1993	Jussieu library	OMA
1994	Roof of Kantoren ING Bank in Budapest	Erick van Egeraat
1994	The Box	Eric Owen Moss
1994	Congress Center in Lille	OMA
1995	Yokohama International Port Terminal	FOA
1995	Blades House	Morphosis
1996	FreshH2O eXPO	NOX Architects
1997	Faculty of Architecture	Alvaro Siza
1997	Möbius House	UN Studio
1997	Guggenheim museum in Bilbao	Frank Owen Gehry
1997	Villa VPRO	MVRDV
1998	UFA Cineman in Dresden	Coop Himmelb(l)au
1998	V2 Lab	NOX Architects
1999	Jewish Museum in Berlin	Daniel Libeskind
2000	M-House	Michael Jantzen
2000	EXPO 2000	MVRDV
2001	Wall House	John Hejduk
2003	Dutch embassy in Berlin	OMA
2003	Mur Island	Vitto Acconci
2004	Son-O-House	NOX Architects
2004	Seattle central library	OMA
2004	Holocaust Memorial in Berlin	Peter Eisenman
2006	Denver Art Museum	Daniel Libeskind
2006	Mercedes Benz Museum	UN Studio
2012	CCTV in China	OMA
2012	Antwerp University Campus	West 8
2013	Block/Tower	Stan Allen and Rafi Segal
2019	Cape 2019	Coop Himmelb(l)au

Category 6 Hyper
Continuous
Space

204

205

// Case studies

// Case 6 diagram   // Case description

Yokohama International Port Terminal, FOA, 1995

In the Yokohama International Port Terminal, the architects here are interested in creating a continuous and smooth composition. The whole building bends and folds along its length and according to the diagrammatic design of the functions of its different spaces.

Möbius House, UN Studio, 1997
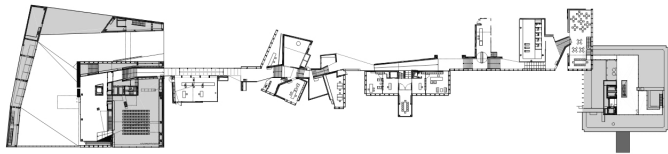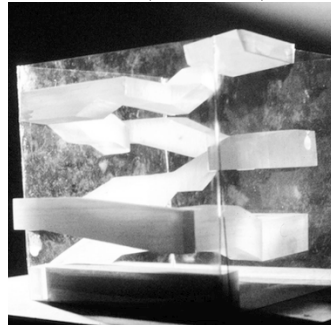
The architects created The Möbius house integrates program, circulation and structure seamlessly. This is done with a diagram that represents a 24 hour cycle of dwelling.

Dutch embassy in Berlin, OMA, 2003
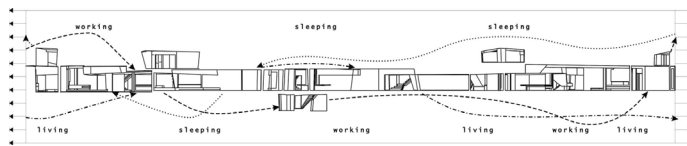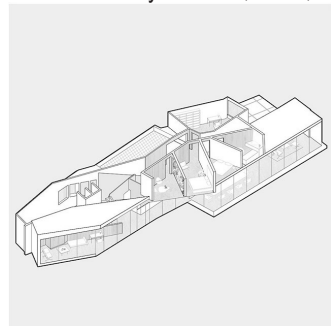
The Dutch embassy in Berlin is an attempt by the architect to integrate a complex spatial understanding of the different functions of a building. The design employs movement at the core of the building's spatial system, where functions and uses of space are fixed around it

Seattle central library, OMA, 2004
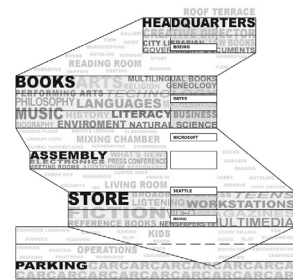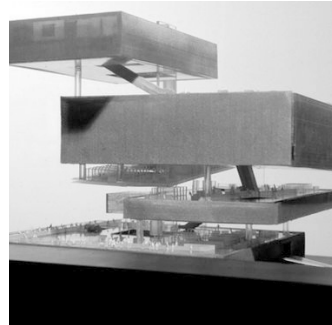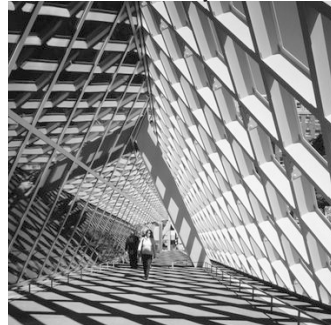
The flow of people in the Seattle Public Library blends with the flow of people in public spaces together in intermediate spaces that stretches the realm of the inside out and the public sphere in.
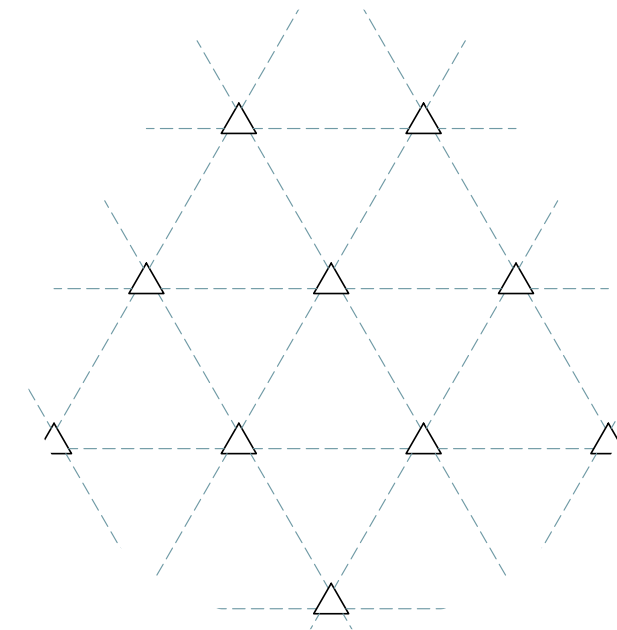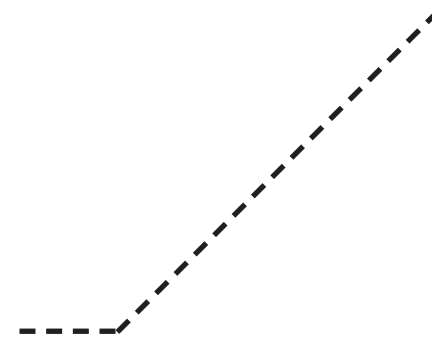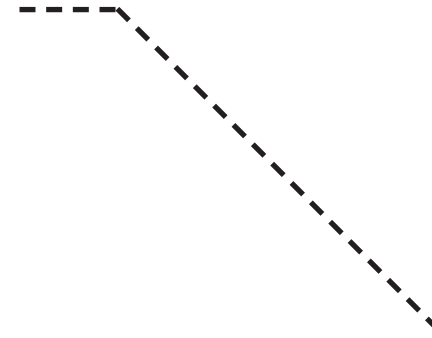
Hyper continuous space is an architecture that relies strongly on the diagrammatic method as a tool to generated spatial solutions that integrate movement, flow of people and functions of space together in a seamless built structure. This case of continuous space is where the fabric of the city integrated within the building and vice versa in the strongest possible way in comparison to earlier cases of continuous space. This case is the highest in terms of abstraction as well. In general it is logical to say that this case is most representative of the inherent qualities and characteristics of notions of continuous space.

Annex 3

Key terms and concepts

Architectural notations: are representative tools, as well as generative, and they are described by the following characteristics; [1] They always describe a work that is yet to be realized, [2] Notations go beyond the visual to engage the invisible aspects of architecture, [3] Notations include time as a variable, [4] Notations presume a social context, and shared conventions of interpretations. The use of notation marks a shift from the production of space to the performance of space, and finally [5] Notations work digitally, through difference and not resemblance[1].

Boundary: Pierre von Meiss in his 'Elements of Architcture' describes the term boundary as the interface between two places - spaces, a demarcation involving codependency of both separation and connection. Von Meiss suggests that before an architect begins his work he first has to define the limits of space or an area, then assign it with a role[2].

Complexity: In its broadest definitions, it deals with intricacy, elaboration, convolution and multiplicity. Complexity is associated with the writings of Robert Venturi who wrote his influential book 'Complexity and Contradiction' in 1966. According to Venturi, complexity in architecture is loaded with ambiguity (such as the double-functioning of building elements), and contradiction (such as the disjunction between interior and exterior), as well as contrast, tension and paradox. Such a multiplicity of meaning and content in a building can involve both the real and the abstract. Venturi argues that complexity is a symptom of a period in flux. Simple buildings, he suggests, are created by those who are over-selective about the problems they choose to solve; complex buildings result from embracing a much wider, hybrid and often conflicting issues[3].

Concept: is a general notion, an abstract idea, and a mental picture that forms in the mix of all related aspects. In architecture an initial concept doesn't need to say anything about the form of the design that it will adopt, but it is supposed to express the idea underlying a design and functions as a signpost to guide the direction of the design. When realized, a good concept or network of concepts give direction and guidance to the designer at every level, from the global to the detail, it provides a framework for innovation[4].

Conceptual architecture: Wikipedi a offers the definition that it is a form of architecture that utilizes conceptualism, characterized by an introduction of ideas or concepts from outside of architecture often as a means of expanding the discipline of architecture. This produces offers an essentially different kind of project than one produced by the widely held 'architect as a master-builder' model, in which craft and construction are the guiding principles. The finished building is less important in conceptual architecture, than the ideas guiding them, ideas represented primarily by texts, diagrams, or art installations.

Conceptual Framework: is defined as a network or a plane of linked concepts. A conceptual framework analysis or

reading offers a procedure of theorization for constructing conceptual frameworks based on the grounded theory method[5].

Constructivism: El Lissitzky says that: *"The artist is turning from an imitator to a constructor of the new world of objects."* Constructivism was an anti-realist, abstract movement that manifested itself in Russia shortly before the Revolution. Imitating processes of technology, the constructivists aimed to make art a detached, quasi-scientific investigation of the properties of materials, surfaces and their combination. From the 1920s their 'laboratory experiments' led them to make 'spatial constructions' using industrial materials and techniques. These were suspended in space in almost architectural fashion, and a notable installation in 1920 was Alexander Rdchenko's 'spatial constructions,' and Vladimir Tatlin's leaning tower 'Monument to the Third International[6].'

Continuum: Since the beginning of the nineteenth century, there has been an alternative concept of space as continuum, as the continuously modified surface skin between the pressures of form and space in which the shape of the space in our lungs is directly connected to the shape of the space within which we reside, which is in turn just a layer of the space surrounding our planet. In this sense, space is perceived as an extension of the body, a dimension of its imagined extension, a continuous force field activated by the body's movement[7].

Cubism: Occurred between 1909 and 1911, the cubist movement claimed to be a realist movement, and it came as the mother of all the radical art movements which coincided with the transformation taking place on the world stage at the turn of the twentieth century, especially in the fields of science and technology. Inspired by Einstein's Special Theory of Relativity of 1905, paintings artists like Pablo Picasso and Georege Braque shattered the single vanishing point of the Renaissance's linear perspective by means of responding with a binocular (two-eyed) vision rather than a monocular (one-eyed) perception, thus leading to the multiplicity of viewpoints[8].

Deconstructivism: It is a movement of postmodern architecture which appeared in the 1980s. It gives the impression of the fragmentation of the constructed building. It is characterized by an absence of harmony, continuity, or symmetry. Deconstructivism came to public notice with the 1982 Parc de la Villette architectural design competition, in particular the entry from Jacques Derrida and Peter Eisenman, and the winning entry by Bernard Tschumi, as well as the Museum of Modern Art's 1988 Deconstructivist Architecture exhibition in New York, organized by Philip Johnson and Mark Wigley[9].

Deep planning: is an approach found in the work of UN Studio, which draws heavily on digital analytical procedures as well as on traditional research into the larger economic, traffic, urban, and programmatic issues that often are by nature, in a state of social interpretation and flux.

1   Allen, S. (2009). *Practice: architecture, technique and representation.* Abingdon: Routledge.

2   Meiss, P. (2014). *Elements of Architecture: From Form to Place* (2nd ed.). Routledge.

3   Venturi, R., & Scully, V. (2016). *Complexity and contradiction in architecture.* New York: The Museum of Modern Art.

4   Porter, T. (2004). *Archispeak: An illustrated guide to architectural terms.* London: Spon press.

5   Jabareen, Y. (2009). Building a Conceptual Framework: Philosophy, Definitions, and Procedure. *International Journal of Qualitative Methods, 8*(4), 49-62.

6   Porter, T. (2004). *Archispeak: An illustrated guide to architectural terms.* London: Spon press.

7   Porter, T. (2004). *Archispeak: An illustrated guide to architectural terms.* London: Spon press.

8   Green, C., & Musgrove, J. (2003). Cubism. *Oxford Art Online*

9   Wigley, M. (2010). *The Architecture of Deconstruction: Derrida's Haunt.* Cambridge, Mass.: The MIT Press.

Deep Structure: Peter Eisenman explains it as universal rules which specify an abstract underlying order of elements that makes possible the functioning of transformational rules that map deep structures into surface structures'. Deep structure as defined by Eisenman is a duality, a dialectic of two categories which he calls conditions and qualities. 'Conditions are concerned with the relationships in architectural space which are abstract and thus with syntactic information which is notational[10].'

de-stratifying: to stratify is to divide and classify into groups. In this case, to de-stratify spaces of the city is to join the different clearly identifiable spaces and in more specific terms, to merge the flow of movement between the different type of spaces of the city in the context of this study of the phenomena of continuous space.

Diagram: Deleuze and Guattari explaint it as *'An abstract machine in itself is not physical or corporeal, any more than it is semiotic; it is diagrammatic It operates by matter, not by substance; by function, not by form The diagrammatic or abstract machine does not function to represent, even something real, but rather construct a real that is yet to come, a new type of reality[11].'*

Durchdringung or Interpenetrating space: is a type of space that is described as anti-cellular. It coincides with the blurring of edges and boundaries, i.e. when a sense of continuity is created between one space and another. Degrees of spatial interpenetration correspond to an increasing breakdown of the architectural envelope when openings allow space to flow and become as one with adjacent or surrounding space. Possibly the greatest exponent was Mies van der Rohe. His German Pavilion for the Barcelona International Exhibition in 1929 poetically exemplifies the liberation of free-flowing space in which mass fives way to floating, independent planes, and enclosure dissolves into openness and a spatial cohesion to provide a microcosmic extension of infinite space[12].

Enclosed space: This notion is familiar to the tradition established by Semper, and developed by Berlage and Behrens. For most architects in the early 1920s, this was the most commonly understood sense of space. It was just such a meaning that was incorporated in Adolf Loos's term Raumplan, a word that he first asserted to use in the 1920s to describe his volumetric house interiors[13].

Enfilade: a chain of rooms along a continuous axis[14]. It is a suite of rooms formally aligned with each other.

Euclidean space: In its simplest terms, it is the space of straight lines and flat surfaces creating rectilinear boxes. Euclid is knowns as the father of geometry due to his publication that was used for almost 2000 years. Until recently, Euclidean

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10   Koolhaas, R., Steele, B., Eisenman, P., Kuma, K., Turnovský, J., & Scott Brown, D. (2010). *Architecture words 1-4.* London: AA Publications.

11   Deleuze, G., & Guattari, F. (2013). *A thousand plateaus: Capitalism and Schizophrenia.* London: Bloomsbury Publishing PLC.

12   Porter, T. (2004). *Archispeak: An illustrated guide to architectural terms.* London: Spon press.

13   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

14   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

space has been the only space pallet of architecture[15].

Figure Ground: relating to or denoting the perception of images by the distinction of objects from a background from which they appear to stand out, especially in contexts where this distinction is ambiguous. The figure-ground theory of urban design and urban morphology is based upon the use of figure ground studies. It relates the amount of 'figure' to the amount of "ground" in a figure-ground diagram, and approaches urban design as a manipulation of that relationship, as well as being a manipulation of the geometric shapes within the diagram. A figure-ground illustrates a mass-to-void relationship, and analysis of it identifies a 'fabric' of urban structures. Other related theories of urban design employ different approaches. Linkage theory operates upon linkages between elements of an urban space, and manipulates those. Place theory operates upon structured systems of human needs and usage[16]. In the context of this research project, the figure ground approach refers to the notion of fusing the architectural object with its site completely to the point of blurring boundaries between the two.

Flâneur: from the French noun flâneur, means 'stroller.' The term flâneur was first used by the nineteenth century French poet Charles Baudelaire in his critique on modern life in Paris. In the early part of the twentieth century the flâneur reappeared in the criticism of German Marxist Walter Benjamin, who studied the origins of modernity as experienced in the city[17].

Grounded Theory (GT): The grounded theory (GT) is a systematic methodology used to reveal patterns in qualitative data and to develop theoretical positions or frameworks from these patterns[18].

Modern: There are several ways through which to grasp the terms related to modernity and the modern age[19];

Modernism, which is the cultural, aesthetic response to such developments;

Modernism, in its broadest sense, Berman claims that it can be understood as the generic term for those theoretical and artistic ideas about modernity that aim to enable men and women to assume control over the changes that are taking place in a world by which they too are changed. It represents in shirt the common position taken by all those who say wholeheartedly 'yes' to modernity[20].

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15   Porter, T. (2004). *Archispeak: An illustrated guide to architectural terms.* London: Spon press.

16   Trancik, R. (1986). *Finding Lost Space: Theories of Urban Design.* New York: John Wiley & Sons.

17   Porter, T. (2004). *Archispeak: An illustrated guide to architectural terms.* London: Spon press.

18   Bollo, C., & Collins, T. (2017). The Power of Words: Grounded Theory Research Methods in Architecture & Design. In *ARCC 2017 Conference – Architecture of Complexity.* Salt Lake City: Architectural Research Centers Consortium (ARCC) University of Utah.

19   Hays, K. (2000). *Architecture theory since 1968.* Cambridge, Mass.: MIT Press Ltd.

20   Berman, M. (2010). *All That Is Solid Melts into Air: The Experience of Modernity.* London: Verso Books.

Modernity: which is the project, since the eighteenth-century Enlightenment. the term stands for the attitude to life that is associated with a continuous process of evolution and transformation, with an orientation towards a future that will be different from the past and from the present. The experience of modernity thus provokes responses in the form of cultural manifestos and artistic movements, some of which are given the name modernism[21].

Modernization: which involves industrial and scientific progress, the reorganization and rationalization of production and administration, and the emergence of a mass market;

Organic space: as one of the answers architect arrived at in response to the problematic of Functionality vs. Objectivity in relation to the Modern Movement in architecture and its rigid response to approaching the built environment.

Phenomenon: A phenomenon in its broadest definitions is a fact, an occurrence or an observed recurring circumstances, therefore, to examine a phenomenon is to study something that is impressive or extraordinary, such as the study of natural phenomena. In popular usage, a phenomenon often refers to an extraordinary event, and the term is most commonly used to refer to occurrences that at first defy explanation or baffle the observer. According to the Dictionary of Visual Discourse, 'In ordinary language 'phenomenon/phenomena' refer to any occurrence worthy of note and investigation, typically an untoward or unusual event, person or fact that is of special significance or otherwise notable[22].

Plan libre or free space: is a concept first developed by Le Corbusier in his Dom-ino house and later incarnated in his radical Cook House and Villa Savoye. In these examples dominant is a framed structure in which internal dividing walls could be freely positioned whne and where required[23].

Raum: Is the German word for 'Space', which means both the common understanding of space or room and the limitless space that contains all 'rooms'. P. Collins points out, 'it requires no great power to the imagination for the German to think of a room as simply a small portion of limitless space, for it was virtually impossible for him to do otherwise'. As early as 1883, Auer in his pivotal essay describes the notion of 'space' not just as the soul of architectural creation, but also the generative force in the development of a new architecture[24].

Raumgestaltung: For Schmarsow, the essence of architecture resides in the generation of culturally stimulated rhythmic patterns of movement through enclosed inner rooms, passages, and courtyards. Traditional areas between spaces are of exceptional importance for his theory, spatial openings, to one or more sides, marked by walls or by columns, increase spatial relations by linking and combining inner space (Schwarzer and Schmarsow 1991). Schmarsow's writings on space

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21   Berman, M. (2010). *All That Is Solid Melts into Air: The Experience of Modernity.* London: Verso Books.

22   PHENOMENON/PHENOMENA | Dictionary of Visual Discourse: A Dialectical Lexicon of Terms - Credo Reference. (2019). Retrieved from https://search.credoreference.com/content/entry/ashgtvd/phenomenon_phenomena

23   Porter, T. (2004). *Archispeak: An illustrated guide to architectural terms.* London: Spon press.

24   Forty, A. (2013). *Words and buildings.* Thames & Hudson.

and architecture are principally contained in the short book Das Wesen von architektonischen Schopfung[25].

Raumplan: Is a planning method based on discreet rooms and a dynamic section. This method places great emphasis on the scale of individual rooms and often requires steps into each room or cluster of rooms. The method largely belongs to the architect Adolf Loos and requires a high level of structural awareness and ability to model spaces[26].

Route building: Is a term that Rem Koolhaas uses in describing an approach or a strategy to design the architectural object by making the building's program subordinate to the promenade of man in the spaces of the building.

Simultaneity: for Sigfried Giedion it means to see various aspects or viewpoints –different points of reference in space - of an object at the same time[27].

Space Conception: refers to Sigfried Giedion's notion of space which he advocated for in his 1941 book 'Space, Time and Architecture'. Giedion writes on the universal architecture of the time *"It has in common a space conception, which is as much a part of its emotional as of its spiritual attitude. It is not the independent unrelated form that is the goal of architecture today, but the organization of forms in space: space conception[28]."*

Spatial demarcations: is concept is mentioned in Jürgen Joedicke's book Space and Form, and within the context of this dissertation thesis, they are defined as the elements that rise or are raised where space is therefore determined as the thing existing between these elements[29].

Spatial transitional element: this concept is mentioned in Jürgen Joedicke's book Space and Form in the context of describing the spatial structure of the Acropolis in Athens[30].

System: A set of things working together as parts of a mechanism or an interconnecting network; a complex whole[31].

The Architectural Promenade: Derived from the concept of the picturesque revived in the nineteenth century theory, the term architectural promenade or in its French origin 'Promenade Architecturale' was invented by Le Corbusier to describe the journey through a building which can be found in his sketchbook study tours to Italy and Greece. Although being first

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25   Schwarzer, M., & Schmarsow, A. (1991). The Emergence of Architectural Space: August Schmarsow's Theory of "Raumgestaltung". *Assemblage*, (15), 48.

26   Risselada, M., Beek, J., Loos, A., & Le Corbusier. (2012). *Raumplan versus Plan Libre.* Zlín: Archa.

27   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

28   Giedion, S. (2008). *Space, time and architecture: the growth of a new tradition* (5th ed.). Cambridge, Massachusetts: Harvard University press.

29   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

30   Joedicke, J. (1985). *Raum und Form in der Architektur.* Stuttgart: Karl Krämer.

31   system | Definition of system by Lexico. (2019). Retrieved 3 September 2019, from https://www.lexico.com/en/definition/system

to verbalize the concept, Le Corbusier did not fully invent the idea. We know that the layout of the Athens Acropolis follows a sequence of spaces with direction of movements similar to Le Corbusier's concept.[32]

The Modern Movement: it refers to what self-consciously described by historians like Sigfried Giedion and Nicolaus Pevsner, who embodied the modernist position par excellence within architectural and urbanism[33].

The spatial turn: In the past three decades, a growing number of scholars in the humanities and social sciences have turned their attention to the spaces of the built environment as a means to understand historical and social processes, thereby dramatically affecting our understanding of the latter. Edward Soja has defined the spatial turn in the humanities and social sciences as 'a response to a longstanding ontological and epistemological bias that privileged time over space in all the human sciences, including spatial disciplines like geography and architecture[34].'

Zeitgeist: refers to the Hegelian philosophy of the spirit of the time, where he refers to the invisible agent of force dominating the characteristics of a given epoch of time in history in influencing individuals and societies, and appearing through their work of art. In the context of this work, zeitgeist is strongly identified as a dominant character of the spatial approach to architectural creation through the strong engagement of the architecture as well as the architectural thinker in his/her epoch and as a result of the consciousness of the age.

32   Samuel, F. (2010). *Le Corbusier and the architectural promenade.* Basel: Birkhäuser.

33   Berman, M. (2010). *All That Is Solid Melts into Air: The Experience of Modernity.* London: Verso Books.

34   Allweil, Y. (2010). Beyond the spatial turn: architectural history at the Intersection of the social sciences and built form. In *Spaces of History / Histories of Space: Emerging Approaches to the Study of the Built Environment.* Berkeley, USA

Annex 4

Experiments with the notion of continuous space

Competition No. 1
CTRL+SPACE Competition - The ISTANBUL Community Market

The proposal for the ISTANBUL Community Market Competition aims to introduce the notion of continuous space as a design solution, which can be considered as an answer to the question of 'how can we integrate added functions to the already existing urban structure?'. In contrast with the classical approach of self-standing designs, offering a composition of traditional architectural elements (rooms, walls, windows, doors and such). Here the proposed scheme of work is concerned with rethinking the built environment in such a manner that sets up a dynamic habitat for activities (the programmatic demands), composed and produced through event spaces and movement scenarios. Aiming to complement the vibrant urban life of the Turkish society by providing spaces to best service it and, by extension, revitalize its potentials.

Such approach is based on constructing scenarios of use by structuring a composition of spatial elements. This method is in a way theatrical, yet functional. Because of the strategic placement of the different programmatic requirements in space and time, and employing architectural elements to their service. Continuous spaces are mainly based on two fundamental entities, which work together as binaries (1. Movement; and 2. Events), while the latter represent the abstractly placing of functions and uses in space, movement is the tool by which those parts connect together into scenarios.

In this sense, events are the static component, which serves the question of "what?" should be the building's functions. Movement on the other hand is the agent that vitalizes this structure of events, it is the instrument of time that acts as the dynamic component of the architecture, and answering the question of "How?" should the building function. After an analysis of each of the requirements, understanding them as individual entities, and how they relate to each other, the following step in this method of work was establishing a structure, in relation with the urban fabric.

The site currently houses a 5 story building, in addition to a 2 story building at the base, attached to it a stone structure that seems to be neglected. As shown on the site plan above, the 5 story building will be kept, the ground floor and part of the back of the building will be used as an information center, and a shaft for an elevator. The stone structure will be relocated within the site as proposed. This neglected stone structure could be of high value., an my idea is to welcome students working on vernacular architecture to use this structure, to dismantle it and rebuild it either in the proposed location on the site, or on a different location of their suggestion.

Providing sufficient space for parking was the most problematic issue of this program, the site is considerably small to provide enough area for such a big number of cars, taking into account previously taken decision to keep the existing 5 story building on the site. The answer was to create double ramp parking, of which could not be made continuous because of the small area. One ramp is U shaped 'figure on the right', on top of it another L shaped ramp 'figure on the left'. Those two parking ramps are accessed from the north and the east, providing spaces for 30 cars on the upper ramp and 42 on the lower ramp, a total of 72 parking spaces.

The dynamics of the double parking ramps has generated a presence of a spiral spinning around the 5 story building as its core, partly juxtaposed over the two roads. From that an additional ramp was created on top as the market area, taking the shape of a ramp-like platform, and divided into segments of steps. The market area serves as a continuation of the space allocated as a public space, composed of a labyrinth of stairs and ramps. The market is designed as an imitation of the social life in the orient, a traditional market is an excessively interactive part of daily activities, between people and vendors, between venders themselves, and between people. It is an environment of communication and exchange.

The design of the market imitates a neighborhood, made up of market units in a variety of sizes which would be assembled in various configurations. As an answer to the question of 'How can this design proposal provide a solution that can be

adapted and integrated where the same typology might be applied?', my answer was (flexibility in adaptation to local demands), by which these market units can bring. Easy to manufacture, using locally produced materials and constructed by local craftsmen. My proposal is to provide a locally produced solution with the participation of various members of the society.

Besides the fact that movement around the different parts of the composition is via those stepped platforms, another core element is inserted in the middle of the whole layout, dedicated for direct vertical access to the different level. 3 shafts of stairs for each one floor level. Access to that core is from 2 different sides due to difference in height created by the slope of the stacked levels. The underlying slope degree of ramps is less than 8%. The notion of continuous space mentioned in the beginning of this presentation has to do with various aspects of the build environment, I intended to manipulate the different plane levels, playing with accessibility and promoting dynamic movement within different spaces of the composition.

Creating opportunities for engaging the community was approached again through another element of this design proposal. A skin for this composition as shown above is not ultimately defined, on the contrary, the envelope of the whole structure of spaces is left undetermined. Planes or panels are placed to be filled by different ideas (permanent/temporary), by inviting artists and creative minds of the local community to participate in the making of this community market place. This skin of fragmented panels are the horizontal edges which are represented in the elevations, and the vertical boundary of spaces, which also play the role of shading devices for people and venders in the market area. During non-market hours, market units can be closed down, and the area around it used as an open area gallery. While those units can be used as the backdrop of an exhibition, routes traveled between the units make up for an intriguing gallery experience.
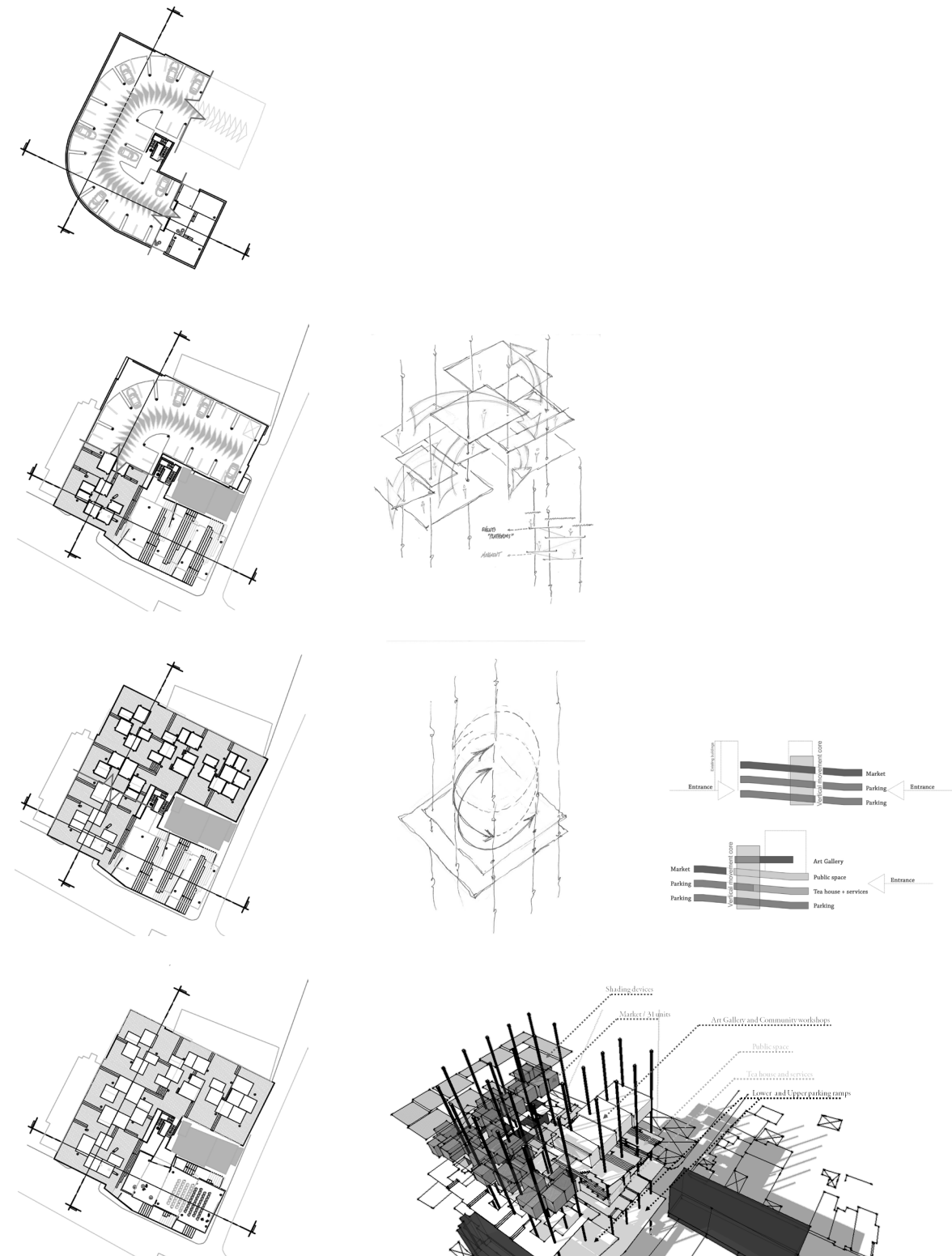
Competition No. 2
Reflecting on beauty a walk in space and mind

Architecture certainly possesses moral impetus, however, it has no power to enforce it. For us, the act of creating space offers suggestions instead of making laws. Thus, by asking about the essence of beauty we envision a scenario of reflection in space. Our approach for the Festival des Architectures Vives aims to generate an effect on the spectator using vision and movement in the courtyards of Montpellier through an installation that vanishes into the background while bringing the beauty of the place along with the spectator to the foreground. Our proposal aspires to accompany the spectator through a series of emotions, therefore, the installation attempts to engage, to shock, to elevate, to disorient, to distort and finally to allow to meditate in space, in contemplation of the beauty of the courtyard.

The conceptual idea of the installation develops in relation to the topic of the festival while materializing within the spaces of the courtyards. Further, the installation is site-independent and can hitherto be integrated into every courtyard. In its broadest definition, beauty is a characteristic of an animal, idea, object, person or place that provides a perceptual experience of pleasure or satisfaction. The German art historian Wilhelm Worringer wrote in an essay published in 1907 entitled 'Abstraction and Empathy' on two types of beauty; one is abstract and the other is realistic. While realistic beauty tries to mimic nature, abstract beauty tries to understand its qualities and logic. Accordingly, our proposal is an effort to understand the beauty of Montpellier's courtyards through an installation that besides having properties of beauty as a consequence of its materials, shapes and composition, turns the spectator's attention to explore the courtyard through its fragments and compels to take a moment to observe this space and its elements while experiencing oneself within.

In pursuit of the design idea, the notion of reflection is integrated into the concept. Mirrors reveal a truth or distort perception, seemingly. Yet, is it an object of contemplation, of reflection or of beauty? Conveniently enough, in our culture, the reflective surface of a mirror generally connotes beauty. Greek philosophy, specifically Socrates, referred to the mirror as a tool by which to *"know thyself"* that invited humans to not mistake oneself for almighty, to avoid pride by knowing one's limits, and to improve oneself – in fact, to recognize oneself. The element of the mirror is intended to act as a tool in part of the installation to reorient the spectator's visual focus by embodying him in his surroundings.

Mirrors, or in reality, fragments of visions of that space and the spectator at the foreground aim to act as an instrument to meditate and to contemplate on reality, presently, the courtyard. The technical design of the installation follows the intention of realizing a tangible, however appealing structure by constructing a configuration of walkable and reflective surfaces. This is done deliberately in a way that does not interrupt daily movement of the inhabitants by providing a securely accessible pathway whereas creating an experience for interested individuals or groups and particularly allowing inclusive accessibility through a ramp structure. First, a substructure is installed consisting of bevelled wooden frames that bears the surface and define the shape of the installation. Second, medium-scale triangular wooden panels are fixed to the substructure according to the specified bevels that are alternately furnished with reflective and mirroring – however, due to reasons of walkable accessibility, slip-resistant – surfaces. The result is a versatily tilted landscape shaped by triangular inclined panels that through the effect of mirroring and reflective surfaces disrupts the visual perception of the courtyard. Ultimately, achieving its conceptualized purpose.

In reference to earlier entries within the Festival des Architectures Vives that in part had similar approaches using mirroring surfaces, our proposal expands on the notion of reflection through the integration of visual stimuli with a physical experience of an accessible space, thus blending the substantial with the invisible.

All things considered, the intention of the installation lies on increasing the perception of the spectator within space by proposing an experiential process: The spectator enters the premises of the courtyard, already in anticipation. At this

point, he takes the first step on the installation, slightly tilted upwards. The spectator is elevated, his attention is alerted. He begins investigating this particular situation, while his vision is distorted, he is disoriented, and undoubtedly he begins perceiving himself in juncture with the courtyard, in fragments. The installation is designed to be inherently invisible, it is precisely an apparatus to engage the spectator in a moment of meditation, observing himself inhabiting the courtyard in this instantaneous occasion in space and time.

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