

Words of Architectural Theory

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ARCH 5006EL / Architectural Theory Seminar

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LaurentianUniversity
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Words of Architectural Theory Volume III

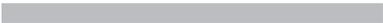
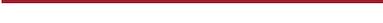
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Architectural Theory Seminar
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Introduction

Izabel Amaral

This document gathers twelve research papers produced by the students of the course ARCH 5006 Architectural Theory Seminar during the fall semester of 2020. Together, these essays form the collective book *Words of Architectural Theory Vol.3*, that is self-printed and donated to the McEwen School of Architecture Library. Due to the Covid-19 pandemic, the course was offered online, and despite the fact that we only worked remotely, students have shown an incredible resilience and great commitment towards their architectural education. The essays shown here are longer than the essays produced in the previous editions of the same project, prompting new reflections on the way words carry meaning in our discipline.

Intentionally, the selected words have not openly addressed themes that would be directly related to the transformative time we are going through this year, where one would understandably evoke terms such as social justice, race, health and climate change. By doing so, we were able to keep a safe historical distance for the analysis presented here, while allowing these themes to directly approached during class time with the support of lectures and group discussions. While I take this opportunity to thank guest lecturers Alike Economides, Carmela Cucuzzella, David Fortin and Ra'anaa Brown for the thoughtfulness of their presentations and their collaboration to this course, that allowed difficult themes to be carefully and deeply addressed, I also want to share a few more words about this project. With essays varying from historical to provocative modes, the third edition of the *Words of Architectural Theory* invites the reader to reflect beyond the semantic field of words, considering how words have travelled through time and disciplines to influence or disturb architectural practice, in the hope that we can contribute the best of ourselves to the world we inhabit.

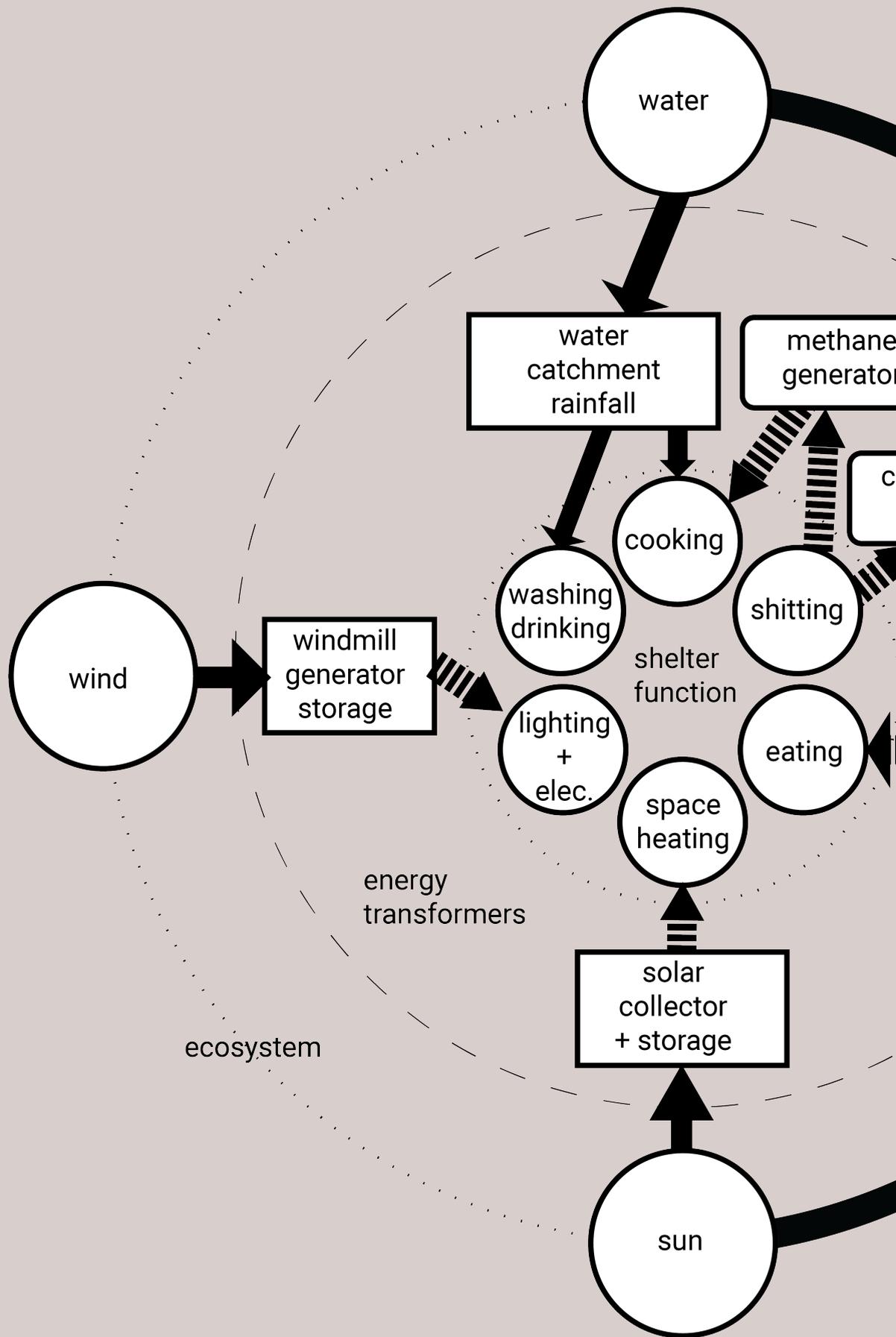
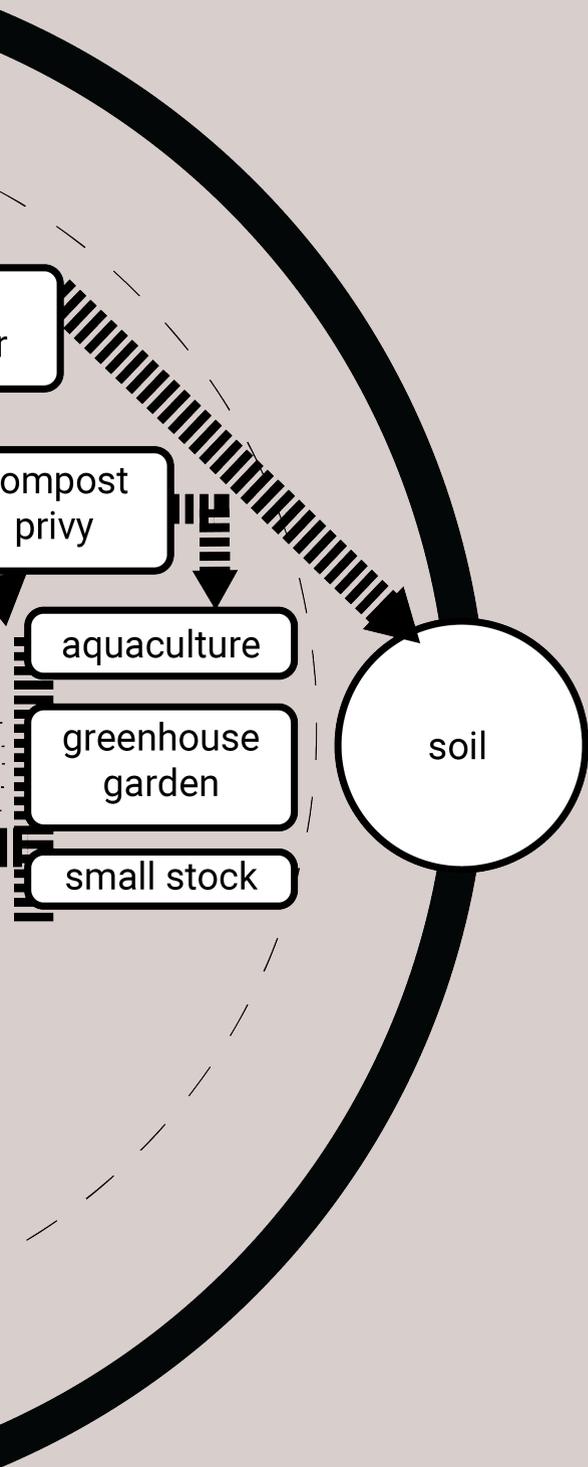


Diagram of Integral Urban House, Sim van der Ryn, 1973. Redrawn by author.



“But since nothing can enter architecture without having first been converted into graphic form, the actual mechanism of graphic conversion is fundamental.”¹

Diagram

by: David Gagnon, Michael Letros, and Lila Nguyen

Diagram (n)

/ˈdɪə,ɡrɑm/

“An illustrative figure which, without representing the exact appearance of an object, gives an outline or general scheme of it, so as to exhibit the shape and relations of its various parts.”²

French:
diagramme

***Ojibwe:**
Drawing as an action: mazinibii’ge
Draw to be seen: mazinibi’wa

Theorist:
Gilles Deleuze
Pier Vittorio Aureli
Stan Allen

*Note: These Ojibwe words are the closest in translation to the western language term diagram. The Anishinaabemowin words: drawing/draw, brings into a visual representation of the existence of the subject(s) of the drawing, honouring the source. Most indigenous languages are verb based and Ojibwe specifically delineates between animate and inanimate. Where in western languages that which is perceived as inanimate in many cases for indigenous cultures are animate/alive/with spirit. There is a value difference between Indigenous cultures and industrial western cultures in how we relate to the land and source. For Indigenous peoples a relationship is maintained and sustained with the environment and all that live within it. A western image/diagram is presumed from an Ojibwe value system as carrying a message from a collective to a collective, but not necessarily from a western perspective. A diagram is an individual proposing it or imposing it onto a collective.

The etymology of *diagram* was derived from two Greek words, *dia* (through) and *graphein* (write) which formed into *diagraphain* meaning marked out by lines.³ In the early 17th century the word Diagram derived from the Latin word *diagramma*.⁴ Diagram came from the Greek use of *diagramma* in the mathematical proofs.⁵ The use of the word diagram increased throughout the early seventeenth and middle of the nineteenth century to represent complex processes uncovered by scientific investigation.⁶ In the field of architecture, the concept of the ‘diagram’ was encouraged as an advanced mode of design and thinking about design.⁷

Pier Vittorio Aureli, in his essay “After Diagrams”, states that diagrams as tools are problematic, as they constantly change “the representation of a work beyond its effectual truth, and thus reducing it to an ever-changing image. The diagram, therefore tends to become an accessible language.”⁸ Translation of ideas, from mental image to drawn form to convey reasoning that would otherwise be more complicated to explain or represent. As is the case with all forms of translation, however, a certain morphing of concepts and ideas is to be expected.⁹ Diagrams are quite useful in recontextualizing the known and unknown qualities of a given project or idea into digestible chunks. Thus enabling the compression and translation of information from one to the next and the processing of ideas into architectural forms. More precisely, diagrams are problematic as,

1. Allen, Stan. “Diagrams Matter.” *ANY: Architecture New York*, no. 23 (1998): 18. Accessed October 5, 2020. <http://www.jstor.org/stable/41856094>.

2. “diagram, n.” OED Online. September 2020. Oxford University Press. <https://www.oed-com.librweb.laurentian.ca/view/Entry/51854?isAdvanced=false&result=1&rskey=1EsPrM&> (accessed October 05, 2020).

3. *Ibid.*

4. *Ibid.*

5. John B. Bender and Michael Marrinan, “Scenario,” in *The Culture of Diagram* (Stanford, CA: Stanford University Press, 2010), 7.

6. *Ibid.*, 8.

7. Simon Sadler, “Diagrams of Countercultural Architecture,” *Design and Culture* 4, no. 3 (November 2012): 345. Accessed October 5, 2020. <https://doi.org/10.2752/175470812x13361292229195>

8. Aureli, Pier Vittorio. “After Diagrams.” *Log* 6 (2005): 5.

9. *Ibid.*

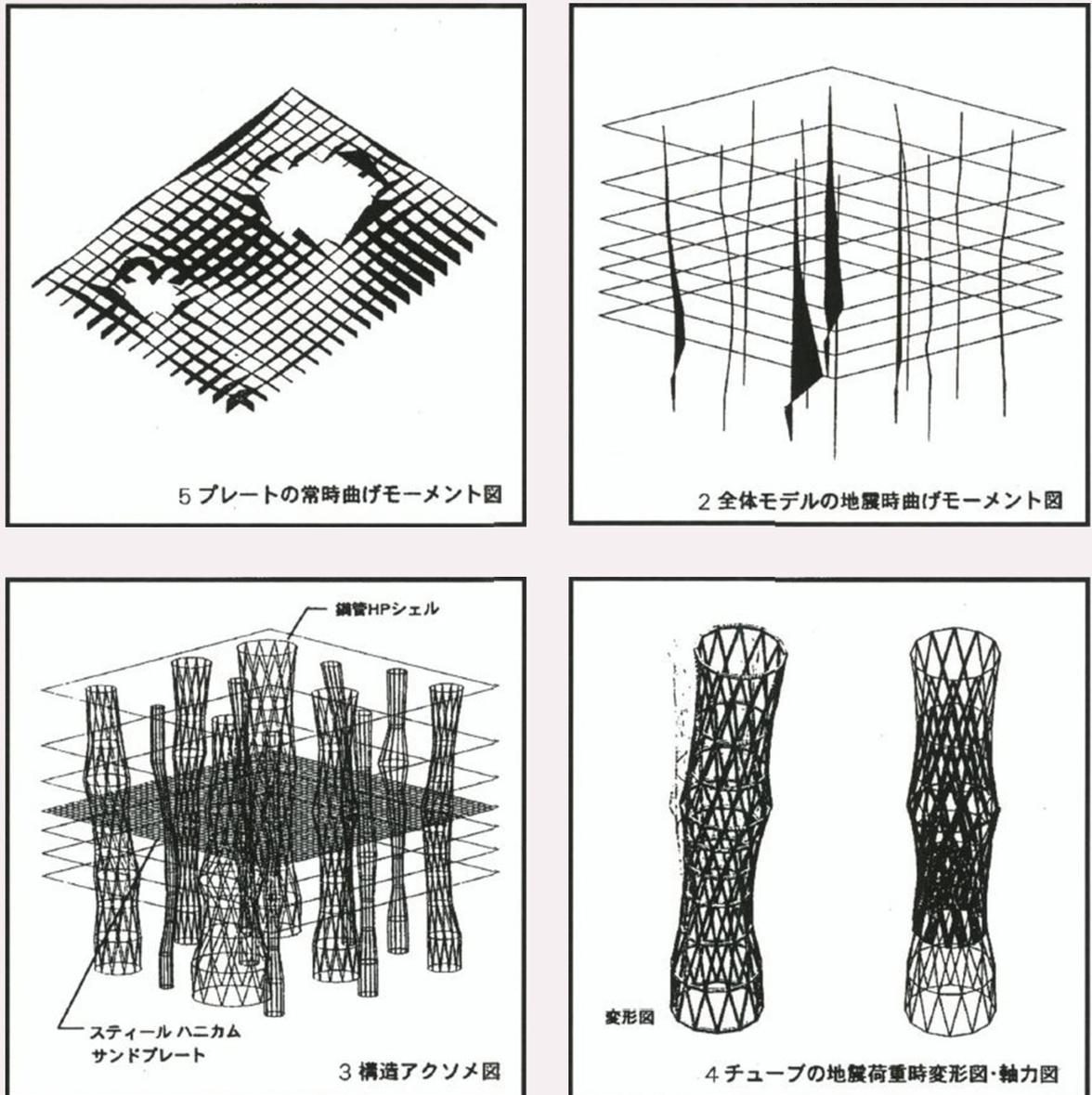


Figure 1 Toyo Ito "Structural Diagram", Sendai Mediatheque, 1995

A structural diagram of Toyo Ito's Sendai Mediatheque (1995). These diagrams show the different forces acting upon the structure of the building and how the different components work together. This building is a prime example of Diagram Architecture, clearly showing its intension through design, materiality, and form, with no hidden meaning or interpretation.

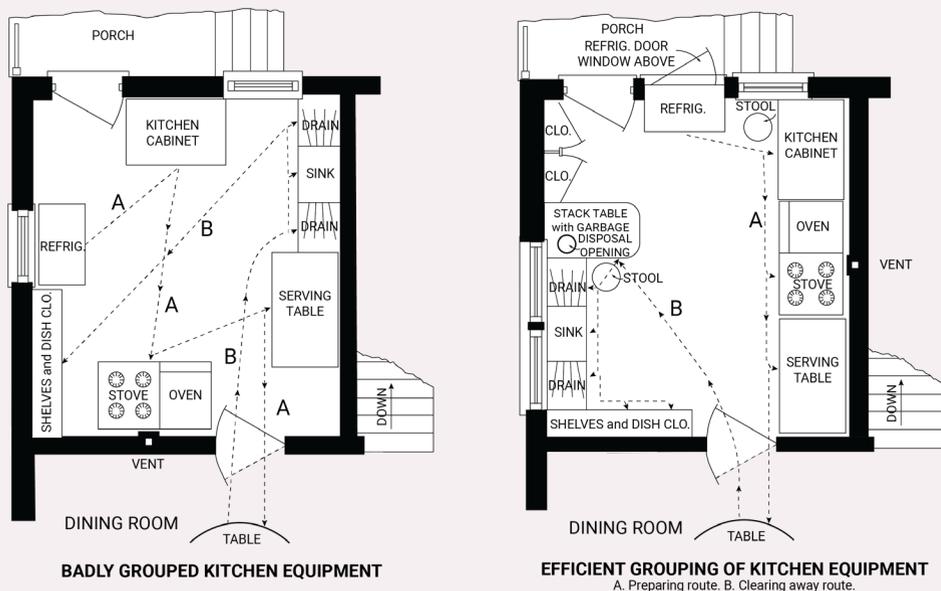


Figure 2
Diagram of inefficient and efficient Grouping of Kitchen Equipment, Christine Frederick, 1919. Redrawn by author.

Using diagram to show circulation routes to point out the inefficiencies of a kitchen layout and ways to improve the layout with simple changes using “triangle” layout rule.

“It both acknowledges the irreducibility, complexity, and contradiction of the urban environment, and at the same time reduces these complexities and contradictions to an idealization that always changes and starts again by virtue of its own logic.”¹⁰

Aureli recommends involving some skepticism when dealing with the use of diagrams for a project or for their own sake. As allowing the diagram to overtake the whole of the thing, the task, essentially means reducing the breadth of a concept down to some abstracted collection of shapes and lines on a piece of paper, rendered down

into its most simple and vague, incomprehensible.

One way of contextualizing an architectural project, especially through the design phase, is with a bubble diagram. Bubble diagrams are arrangements of lines, circles, and symbols which, when aggregated form a generalization and an abstraction of an architectural plan or idea (see Cover Image).¹¹ Typically describing an arrangement of spaces and their interrelationships, bubble diagrams serve as one of the many possible ways to utilize diagrams as tools for furthering an architectural project. Seminal architects such as Le Corbusier and Hannes Meyer have discussed bubble diagrams and their prevalence in the field.¹² According to Aureli, bubble diagrams “are the ancestors of many diagrams produced today.”¹³ They delay the “inevitability of decision, (...) of form.”¹⁴

10. Ibid.

11. Emmons, Paul. “Cosmogony of Bubble Diagrams.” In *ACSA Annual Meeting and Technology Conference: Constructing Identity*, University of Pennsylvania, 1998, 420-425. University of Pennsylvania.

12. Ibid.

There are many forms of diagrams, one of these is the circulation diagram, which details the movement/circulation through a space. The notion of circulation diagrams became a common part of the nineteenth century for advice about hygiene and domestic matters.¹⁵ Circulation diagrams were not a new concept as it appeared in the book, *Notes of the Art of House Planning* published in 1888.¹⁶ This influenced Christine Frederick, in her book *The New Housekeeping* (1913), from which the illustrations became an example of the routing/circulation diagrams of a kitchen both the women's and modernist movement endorsed that in Berlin and Frankfurt.¹⁷ It was a space designed by a woman who used the area most frequently, which looked at the efficiency of movement or in this case 'circulation' of the space.

Architectural historian Stan Allen affirms that architecture cannot become reality unless made into graphic form, and diagramming is a channel that graphic information runs through.¹⁸ Because of the differences apparent from moving from one medium to the next, a direct translation cannot take place.¹⁹ This is where the topic of transposition comes into play. Diagrams, thoughts and interpretations cannot be transposed as a whole, rather they are slowly "moved part-by-part" until the whole is re-created.²⁰ Diagrams work actively in the "realms of meaning and representation", working through these layers to create surface level meaning at differing levels.²¹ Diagram Architecture also uses this same principle. Meaning is located at the surface level and in materiality. What is lost in the depth of interpretation and hidden meaning is gained back in the speed of understanding its relationship.²² Depth of meaning is attained by layering these surfaces to create a new and honest representation.²³ This is similar to the way a diagram is meant to clearly show its intentions and does not lose its meaning through translation and individual interpretation. This provides an honest way of looking at architecture as each element has a purpose which is reflected in its design and materiality. A simple yet effective way of creating meaning with something

less subjective, with no translation or story to decode. This shows a type of architecture that is open to reflect on its acceptance to the constraints that have been laid upon it making it comfortable with where it exists in the world and the forces that it will interact with.²⁴ This conscientious approach to design leaves nothing left for interpretation and thus behaves in the same manner as a diagram.

Diagrams serve many purposes in design. Most of all, the interpretation and development of ideas and concepts for architectural projects. Since their development as a means of communication, diagrams have been instrumental to the creation of complex architectural and urban projects, yet it is essential to be wary of the ease by which diagrams translate ideas. It is impossible for a drawn interpretation to properly convey, an idea so as to be understood by another person. As such, other methods must be used. One of these methods, requires the creation of many surface-level diagrams which are figuratively layered to create depth (Figure 1). This helps to reveal buried meaning that would be nigh-impossible to reveal otherwise. Attempting to utilize diagramming as a means to achieve an end product, without the use of other additional tools or methods, is a sure way to finish with a project which fails to communicate, to its fullest extent, the intent of the architect or designer. In conclusion, the multitude of diagramming typologies can be interpreted in a vast way, each with a specific purpose and intention. As Gilles Deleuze says, "the diagram is indeed a chaos, a catastrophe but also a seed of order and of rhythm."²⁵

Cover Image

Sim van der Ryn, "Diagram of Integral Urban House". Image. Accessed from *Diagrams of Countercultural Architecture* (2012), pg 357

Figure 1

Sendai Mediatheque, "Toyo Ito, Structural Diagram". Image. Accessed from *Diagrams Matter* (1998), pg 23.17

Figure 2

Christine Frederick, "Diagram of inefficient and efficient Grouping of Kitchen Equipment". Image. Accessed from *Household Engineering: Scientific Management in the Home* (1919), pg 22-23

13. Aureli. *After Diagrams*, 6.

14. Ibid.

15. Pai, Hyungmin. "Scientific Management and the Discourse of the Diagram," in *The Portfolio and the Diagram: Architecture, Discourse, and Modernity* (Cambridge: MIT Press, 2002), 177.

16. Ibid.

17. Ibid., 178.

18. Allen, *Diagrams Matter*, 18.

19. Ibid.

20. Ibid.

21. Ibid.

22. Ibid., 19.

23. Ibid.

24. Ibid.

25. Gilles Deleuze, "The Diagram," *The Deleuze Reader*, ed. Constantin V. Boundas (New York: Columbia University Press, 1993), 197



“The dirt, the earth is the required ground in which concepts can be planted and eventually blooms as flowers or weeds.”¹

Dirt

by : Sarah Cen, Jennie Philipow & Jozef Miguel Radvansky

Dirt (n)

/dɜːt/

The idea of matter that contaminates other disciplines by placing itself into another context. It is an entity that traverses from one category to another, challenging the notion of each.

French:

Saleté, Souillure

Ojibwe:

azhashki in

Spanish:

La suciedad

Theorists

Hélène Frichot

Mary Douglas

Ben Campkin

Heather I. Sullivan

Dirt is understood as an unwanted matter that can appear wherever. When something is “dirty,” it usually means that something has been contaminated by another source that was not supposed to place itself where it was found. Dirt also does not appear from nothingness.² It is a broad concept that can not be categorized by itself. In the book *Dirty Architecture* written by Hélène Frichot, a key theoretician to the term “dirt”, she suggests a whole new perspective to the term. Most often, dirt is associated with an act of making another object or topic unclean; as a type of pollution. However, it is not merely the opposite of cleanliness but as a confusion of categories.³ “Dirt” is understood by anthropologist Mary Douglas as “matter out of place” when we remove its association to pathogenicity.⁴ Labelling something filthy is a viscerally powerful means of excluding it.⁵ To Douglas, it is a subject that “necessitates thinking across different scales of evidence.”⁶ The concept of “dirt” involves a variety of categories, such as linguistics and material, that are discussed by Frichot to challenge the norms.

This mobile hybridity is not only due to dirt’s ability to travel, but also is a result of its actual components. The soil contains very small rocky pieces of the Earth along with vast multitudes of species and mixes of biotic matter. It is rich with microscopic organisms like bacteria, fungi, mites, nematodes,



Figure 1 Unknown Photographer, “Dust Storm over an African Town”, 1905-1915.

1. Helene Frichot, *Dirty Theory: Troubling Architecture* (Germany: Spurbuchverlag, 2019), 8.

2. *Ibid.*, 6.

3. Ed. William, A. Cohen and Ryan Johnson, *Filth: Dirt, Disgust, and Modern Life* (Minneapolis-London: University of Minnesota Press, 2005), XI.

4. Mary Douglas, *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo* (London-New York: Routledge & Kegan Paul Ltd, 1966), 36.

5. William, Cohen and Johnson, *Filth: Dirt, Disgust, and Modern Life*, IX.

6. Ben Campkin, *Placing Matter out of place: Purity and Danger as Evidence for Architecture and Urbanism* (Volume 18, August, 2013), 47.



Figure 2
University of California "Rome: Cloaca Maxima (Great Sewer): general view exit", Creation date unknown.

yeasts, molds, rotifers, beetles, worms, and ants, as well as minerals and, all too often, industrial byproducts. As a hybrid of organic and inorganic matter—a cyborg of sorts—soil actively participates in small-scale ecological processes that are themselves integrated into the larger niches of other assemblages.⁷

Dirt is a byproduct of a system in place. This system includes “a systematic ordering and classification of matter.”⁸ Dirt is the absence of order. Uncleanliness must be absent if a maintained pattern is to be upheld. Dirt is a byproduct; this is the first step towards an awareness of pollution.⁹ Dirt is a matter of perspective. Dirt is creative power. When used in a ritual for good, body dirt is observed as powerful. The same can be seen

when used in ritual for defence. Body dirt can be used in a ritual for harm.¹⁰ Blood can be seen as a type of body dirt, it has been used in rituals and is seen as the source of life.¹¹

How can sacredness be blended with uncleanness? Mary Douglas poses the question, “how dirt, which is normally destructive, sometimes becomes creative?”¹² Dirt is the process of rejection from identity. It is the leftover byproduct, which gets accumulated. This rejection from order becomes a threat. When dirt becomes unwanted, it comes in forms of excess hair or food. “This is the stage at which they are dangerous; their half-identity still clings to them.”¹³ This dirt becomes rubbish and waste; it is unpleasant. When there is no identity for the rubbish, it is not dangerous. It is only when this identity is trying to be revived. There is a life cycle to everything, including dirt. Dirt is the decay of a

system. In religious symbolism, water plays a reviving role. Through water, all things are dissolved, and forms are broken up. “Water purifies and regenerates because it nullifies the past, and restores—even if only for a moment—the integrity of the dawn of things.”¹⁴ Dirt is something we deal with everyday, “nothing is more basic than dirt.”¹⁵

The term “ordering” involves rejecting inappropriate elements, which removes the idea of dirt and the challenges it brings.¹⁶ Therefore, if by “ordering,” we strive for purity, then the broader image of things restrains the challenge of creativity. Concerning architecture, the term dirt allows for creative expression since it challenges the idea of pureness. “Dirty theory helps to think about the ordinary gestures of care, repair and maintenance that can form part of its mandate.”¹⁷ A profound relationship is formed within the environment when this mandate is combined with the creative movement of dirt.¹⁸

“...dirt is essentially disorder. There is no such thing as absolute dirt: it exists in the eye of the beholder. If we shun dirt, it is not because of craven fear, still less dread of holy terror. Nor do our ideas about disease account for the range of our behaviour in cleaning or avoiding dirt. Dirt offends against order. Eliminating it is not a negative movement, but a positive effort to organise the environment.”¹⁹

The idea of purity disregards the involvement of a variety of topics concerning one another in a given discipline. Dirt is an additive form of thought or physical entity. It involves reflecting the relationship between order/ disorder, being to non-being, form to formlessness and more.²⁰ This notion is composed of two things, according to Douglas, who wrote on the concept of dirt. She states that it is compounded of care for hygiene (sometimes associated with aesthetics) as well as respect for conventions.²¹

The dirty theory involves the notion that “dirt” is fluent and touches upon various categories, (the environment, society, cities, culture, art and more) at all times. The dirty theorist observes the flow of materials, where things arise, where they are going, and where things originate.²² Dirt can be seen as a form of integration within a series of disciplines. These include but are not exclusive to architecture, ethnography, geography and philosophy.²³ It involves a more extensive picture rather than observing a single approach to things. For example, observing that which connects a study to multiple practices; looking at things that might affect the disciplines when it becomes important in its context. It is crucial to understand that dirt is seen as the foundation from which ideas and concepts can be derived. This is when the idea of dirt can be seen as a valuable element that enriches topics. However, without the consideration of matter, “not much would be achieved, for good or for bad, and you are bound to get dirty either way.”²⁴

What can be called dirty theory is the concept of “preferring indiscipline” as a wayward approach to problems.²⁵ It involves a consideration of multiple disciplines and challenges boundaries and contravention norms.²⁶ Again, implying that dirt is transferable and spread throughout a variety of disciplines. According to Frichot, the concept of ‘dirty theory’ is neither good nor bad.²⁷ It can be viewed as an unbiased element that is subjective to numerous factors and what determines its value is its capability to transfer matter between content.

Cover Image
Bouchard, Karen. *Boone Hall Plantation, Slave Street, view. House*. Brown University Library. creation date unknown. Photograph. https://library-artstor-org.libweb.laurentian.ca/asset/ASAHA-RAIG_111211354209.

Figure 1
Unknown Photographer. *Dust Storm over an African Town*. 1905-1915. Landscape photographs. Wellcome Collection. <https://library-artstor-org.libweb.laurentian.ca/asset/24864018>.

Figure 2
Rome: Cloaca Maxima (Great Sewer): general view exit. University of California. creation date unknown. Photograph. https://library-artstor-org.libweb.laurentian.ca/asset/ART-STOR_103_41822003521950.

7. Heather I. Sullivan, *Dirt Theory and Material Ecocriticism* (Trinity University Digital Commons, Modern Languages and Literatures Department, 2012).

8. Douglas, *Purity and Danger*, 36.

9. *Ibid.*, 41.

10. *Ibid.*, 121.

11. *Ibid.*, 121.

12. *Ibid.*, 161.

13. *Ibid.*, 161.

14. Douglas, *Purity and Danger*, 162.

15. Ben Campkin, *Dirt: New Geographies of Cleanliness and Contamination* (London: I.B. Tauris, 2007), 1.

16. Douglas, *Purity and Danger*, 36.

17. Frichot, *Dirty Theory*, 6.

18. *Ibid.*, P.6.

19. *Ibid.*, 10.

20. Douglas, *Purity and Danger*, 5.

21. *Ibid.*, 6.

22. Frichot, *Dirty Theory*, 6.

23. *Ibid.*, 6.

24. *Ibid.*, 8.

25. *Ibid.*, 7.

26. *Ibid.*, 9.

27. *Ibid.*, 8.





“Without the balcony there would have been no history”¹

Element

by : Daniel Everett, Cole Maclsaac & Max Vos Coupal

Element (n)

/ˈe-lə-mənt/

An individual architectonic component of the architectural proportion of design, be it structurally supporting, containing of the building envelope, or allowing for motion throughout the building.

French:
Élément

Ojibwe
tbd

Theorists

Gottfried Semper
 Harry Francis Mallgrave
 Henry Wotton
 Laurent Sadler
 Le Corbusier
 Leon Battista Alberti
 Marcus Vitruvius Pollio
 Rem Koolhaas

Semper builds his theory upon the humus of Vitruvius' ten books, while distilling and refining the pillars of architecture into four distinct elements. The origins of these elements stem from the necessity of survival, as experienced by a number of ancient civilizations. An exploration into Egyptian, Chinese, Assyrian, and Phoenician cultures sheds light on to how each of these groups developed their primitive architecture using the same principles, despite exposure to vastly different circumstances and context. ²

Of the four elements, the hearth is deemed the first and most important. "Around the hearth the first groups assembled; around it the first alliances formed; around it the first rude religious concepts were put into customs of a cult. Throughout all phases of society the hearth formed that sacred focus around which the whole took order and shape."³ It has and always will be the most important, moral element of architecture. The three remaining elements were all derived as a means of protection to the hearth from the hostilities of nature and opposing groups. The roof, the enclosure, and the mound. Collectively, these four elements formed the archaic basis of what Semper refers to as the original dwelling.

For Semper, despite evolving and thriving under different climates, social relations, and racial dispositions, all of the aforementioned civilizations used

1. Rem Koolhaas and Irma Boom, "Introduction," in *Elements of Architecture* (Venice: Marsilio, 2014), pp. 187-312.

2. Gottfried Semper, *The Four Elements of Architecture and Other Writings*, (1851) Trans. Harry F. Mallgrave and Wolfgang Herrmann (Cambridge University Press, 1989), 101.

3. *Ibid.* 102



Figure 1 Forum of Trajan, Apollodorus of Damascus, 113 CE



Figure 2
La Cava Iberian Building, Victor Saina, 2019.

This excavated site shows evidence of settlement by Iberians, Romans, and Visigoths over a span of 2500 years. Despite conquest, each subsequent civilization implemented their own interpretation of the elements surrounding the same hearth.

this combination of elements to develop their primitive structures. Depending on geographical location and natural surroundings, the “combinations in which the four elements of architecture were arranged had to change, with some elements becoming more developed while others receded into the background.”⁴ Semper argues that depending on which of the elements required the most prominence in a given society, in turn drove the technological advancements of those people.

Semper’s work forgoes the attempt at defining a singular building typology, in favour of celebrating the collective commonalities that evolved separately to form a unified architectural theory. This harmony of elements is one that continued to mature throughout the Hellenistic period, and arguably is still at the forefront of contemporary design. *The Four Elements of Architecture*

characterizes history in terms of the metamorphosis of the four elements. The underlying theme suggests that this evolution continually evokes new eras, however Semper digresses that the wall should never be permitted to lose its original meaning. It has, and always will be a protective element; enclosing essential space and shielding the central hearth from the asperity of nature.⁵

In interpreting the works of Semper on the four essential elements of architecture, Mallgrave describes the “cabin” as the ideal amalgamation of base elements, a “proto-monumental form[...] a rational distribution of paneling, a structural relation of parts, and a variety and unity of effects.”⁶ It is with this simple and undecorated common architecture that the purest understanding of individual elements can be revealed, by the elegantly plain timber framing, the minimal wall, ceiling, and

4. Gottfried Semper, *The Four Elements of Architecture and Other Writings*, (1851) Trans. Harry F. Mallgrave and Wolfgang Herrmann (Cambridge University Press, 1989), 103.

5. *Ibid.* 127

6. Harry Francis Mallgrave, “Gottfried Semper: Architecture and the Primitive Hut,” in *Reflections: the Journal of the School of Architecture* 3, no. 1 (Fall 1985): 61.

floor comprising what is necessary for shelter utilizing Eurocentric ideals. While the primitive hut elucidated by Semper also constituted the means for habitation, the cabin is seen by Mallgrave as containing “intentional elements of form-making”⁷ and establishes the means of “essential architectural thinking.”⁸

Thus far, elements have been described in their purest conceptions- and this underlying condition is typical of all theories on the subject- though there is indeed a correlation to ornament within this concept, as most elements do now come with adornment. For any structure that moves past the primal need for shelter, there becomes the desire, by human nature, to decorate; this decoration predominantly begins its course with the fundamental members of the construction.⁹ The relevancy of ornament comes in its ability to accentuate key parts of the core architecture; when combined with effective order and composition of elements, it creates beauty and overall character of the building (including each individual element).¹⁰ To illustrate this discussion, Henry Wotton states, “the solid may answer to the solid, and the vacuities to the vacuities, as well for Beautie, as strength of the Fabrique.”¹¹ With this description of the careful arrangement of columns, these emblematic assemblages of pristine structure could then be embellished with mosaic or alabaster, ornamental but bestowing beauty and longevity to its elemental base.¹²

“elements change independently, according to different cycles and economies, [...turning] each architectural project into a complex collage of the archaic and current.”¹³

Building techniques have varied depending on the era created, or the architectural trend at the given moment. By studying the evolution of change in architectural elements such as materials and techniques, we can better understand our own modern architecture and trace its roots back to the centuries before us¹⁴. More recently *Elements of Architecture* by Rem Koolhaas

and Irma Boom, a 2600 page encyclopedic book that identifies tools and techniques in an encompassing understanding of typical elements in architecture. Covering a range of elements from doors to walls and everything in-between, it creates a friendly user guide about elements and their contribution to design¹⁵. Koolhaas and Boom create an emphasis to examine the elements that make projects great. The authors accomplish this through comparing elements and how they are incorporated into the various projects. The balcony has always held a position within architectural discourse and practice as a prime site of architectural innovation and expression. An element that mediates between public and private realms. Some balconies have strong ceremonial links and can create a narrative. Take Vladimir Lenin’s speech in 1918, the power that it presents when standing on a balcony creating a position of power in order to deliver his famous dialogue¹⁶. Lenin delivered a speech to workers at the Moscow Corn Exchange, where he was shot. This assassination attempt boosted Lenin’s popularity and helped him spread his views to the citizens of Russia¹⁷, displaying a position of power, creating the balcony as a famous element.

The balcony very often refers to the catholic religion. Popes have been speaking to the masses in the Vatican City, displayed on a balcony. In Rome, the Pope periodically delivers his blessing from the large stone balcony situated at the centre of St Peter’s Basilica¹⁸. The element of the balcony creates strong and historical links through it’s simple design gesture, it retells and illustrates stories and events from the past and for the future.

Cover Image

NCR Staff. Bannon’s Emerging Anti-Francis Movement Threatens Church Unity. National Catholic Reporter, April 23, 2019.

Figure 1

c. 106-13 CE; Column dedicated 113 CE. Forum of Trajan, Column of Trajan, Basilica Ulpia columns. architecture. https://library-artstor-org.libweb.laurentian.ca/asset/SCALA_AR-CHIVES_10310474080.

Figure 2

Victor Saina 2019, La Cava Iberian Building Excavation 2014. Garcinarro, Spain. El Pais.

7. Harry Francis Mallgrave, “Gottfried Semper: Architecture and the Primitive Hut,” in *Reflections: the Journal of the School of Architecture* 3, no. 1 (Fall 1985): 63.

8. *Ibid.*, 63.

9. Henry Wotton, *The Elements of Architecture*, Ed. Charles Davis, Heidelberg: Universitätsbibliothek der Universität Heidelberg, 2012, 37.

10. *Ibid.*, 73.

11. *Ibid.*, 45.

12. *Ibid.*, 73.

13. Rem Koolhaas and Irma Boom, “Introduction,” in *Elements of Architecture* (Venice: Marsilio, 2014), pp. 193.

14. George Vangelatos, “How Does Architecture Impact Society? A High-Level Look: Thought Leadership,” *The Importance of Architecture*, HMC Architect, October 21, 2019.

15. Rem Koolhaas and Irma Boom, “Introduction,” in *Elements of Architecture* (Venice: Marsilio, 2014), pp. 187-312.

16. Vladimir Lenin, “Introduction,” in *V. I. Lenin Speech Delivered at the First All-Russia Congress of Working Cossacks*, trans. George Hanna, vol. 30 (Moscow: Lenin’s Collected Works, 4th English Edition, Progress Publishers., 1965), pp. 380-400.

17. *Ibid.*

18. Paul Marie Letarouilly and Ingrid D. Rowland, *The Vatican and Saint Peter’s Basilica of Rome* (New York: Princeton Architectural Press, 2010).



“Form follows function.”¹

Functionalism

by : Breana Chabot, Simao Da Silva, & Riya Patel

Functionalism *(n)*

/ˈfʌŋɡ(k)ʃ(ə)nɪˌɪzəm/

“Functionalism means that the design is above all orientated towards the practical, utilitarian use of a building or everyday object, so that purpose and functionality take priority over aesthetic principles.”¹

French:
fonctionnalisme

Ojibwe
inaabadad

German
Sashlich
Zweckmassig
Funktionell

Theorists
Adrian Forty
Jon Lang
Walter Moleski
Le Corbusier
Jan Michl

The term Functionalism originated in the social sciences at the turn of the 20th century, relating to how the mind functions to adapt to an individual environment (Merriam-Webster). Functionalism was soon after adopted into architectural terminology through modernism. Before then, the word function was primarily used to speak about the tectonics of building.² Modernists fundamentally questioned classical ornament in architecture. This critique raised questions about a building’s relationship of use to its appearance and design, effectuating functionalism into the profession.³ Although not a singularly defining term for Modernism, architectural historian John Sommerson argued in 1957 that it was a shared element amongst Modern architecture.⁴

Function in architecture alludes to the motive for social activities within the building, establishing a direct association between user and building. Historically, more emphasis was placed on architectural style, but the buildings also served their programmatic purposes. In *Functionalism Revisited*, Lang and Moleski define functionalism in architecture as “traditionally been concerned with the instrumental activities to be housed by a building, the technological mechanisms for holding it up structurally and operating it, and what a functional building looks like.”⁵ Function can also be thought of as “the movement of bodies in space, together with the actions and events that take place within the social and

1. ‘Functionalism’, *Industrial design*, Emamidesign, accessed 30 October 2020, <http://www.industrial-design-germany.com/design/functionalism.html>.

2. Adrian Forty, “Function,” in *Words and Buildings: a Vocabulary of Modern Architecture*, Thames and Hudson, 2004, 175.

3. *Ibid.*

4. Stanford Anderson, “The Fiction of Function,” *Assemblage* No. 2, February 1987, 21. <https://www.jstor.org/stable/3171086>

5. Lang, Jon, Walter Moleski. *Functionalism revisited: architectural theory and practice and he behavioural sciences*, 2010. 31.

6. Stanford Anderson, “The Fiction of Function,” *Assemblage* No. 2, February 1987, 18-31. <https://www.jstor.org/stable/3171086>

7. Lang, Jon, Walter Moleski. *Functionalism revisited: architectural theory and practice and he behavioural sciences*, 2010.

8. Karen Lisa Burns, “Salon Conversations: Communicating Architecture,” *Architectural Review Australia*, 113, accessed February 16 2018. [http://monash.edu/research/explore/en/publications/salonconversations-communicating-architecture\(95e81627-cd97-4d9b-a68d-679c6a7b23a4\)/export.html](http://monash.edu/research/explore/en/publications/salonconversations-communicating-architecture(95e81627-cd97-4d9b-a68d-679c6a7b23a4)/export.html)



Unité D'habitation, Le Corbusier



Figure 3
Villa Tugendhat, Mies van der Rohe

political realm of architecture.”⁶ Functionalism can be defined as a broad term that refers to characteristics that are both intrinsic or extrinsic to architecture.

Lang and Moleski propose a historical interpretation, separating rationalist architects into two generations. The first-generation of rationalists from 1890-1930s had a similar concern for functionalism and the use of orthogonal geometries.⁷ They rejected the use of applied ornamentation but accepted the use of modern technologies and standardization of building forms.⁸ The second generation of functionalists (1930s-1970) included the communication of ideas through the symbolic qualities and form.⁹ This speaks to the visible hierarchy of human motivations that varies by person, time, and culture. These factors determine the functions within a given architecture.¹⁰ Context is crucial

to design: it can become an economic catalyst and spur development in the area; generate both positive and negative traffic; create or destroy a sense of place; have an impact on biological ecology; cast shadows, create wind tunnels and reflect heat; etc.¹¹ These are all resultant of design decisions that could be foreseen or consequential. Understanding a building’s entire role would determine its whole function. Lang and Moleski introduce a design methodology to functionality in order to deploy a series of activity systems and programmatic mapping to satisfy the user’s needs. Buildings are divided into links (stairs, footpaths), places (programmed space), and it is their adjacencies that determine the function.¹² The authors apply this logic on different scales, from urban parks to utopian proposals such as Buckminster Fuller’s dome over Manhattan.¹³ The functionality of these spaces are then critiqued on

physical and psychological levels, concerning user safety and experience. Consideration should also be placed into a building’s identity in the urban fabric, how it creates a sense of place, and the dynamics of visual form.¹⁴ All of this to say, although architects are critiqued for overextending their analysis of context, functional theory provides a useful framework to disentangle the intricacies of designing architecture.¹⁵

Excellent architectural examples of functionalism include Alvar Aalto’s Paimio Sanatorium, Le Corbusier’s Unité D’habitation, and Mies van der Rohe’s Villa Tugendhat. Aalto’s Sanatorium is thought of as a medical instrument, with elements such as colour, natural light, and object heights carefully curated to rehabilitate tuberculosis patients.¹⁶ Le Corbusier’s Unité D’habitation is devoted to suiting a modern, communal life through efficient design as a “vertical garden city”.¹⁷ Van der Rohe’s Villa Tugendhat embodies the living requirements of the modern lifestyle through housing; using iron framework to allow more light into interior spaces and better the quality of life of the inhabitants.¹⁸

In *Words and Buildings*, architectural historian Adrian Forty devotes an essential chapter to the notion of function. Forty claims there are five different functions: function as mathematical metaphor; as a biological metaphor that serves as structure; a biological metaphor that serves as destiny; function as program and use; and function as space.¹⁹ Within the first category, Forty critiques the classical system of ornament, speaking about functional dishonesty.²⁰ Neoclassical architecture of the 18th and 19th centuries copied and borrowed from preexisting styles, interchanging columns, pediments and domes from different cultures and time periods. This raises a critique of material honesty by Venetian friar Carlo Lodoli and French architect Viollet-de-Luc, which was clearly counterpointed through Modernism’s stripping of these decorations.²¹ The second and third categories speak to the biological metaphor of a building within the structural paradigm and the organic paradigm, respectively.²² Both describe the purposes of the parts of

the construction relative to one another, and to the entire building.²³ However, Forty introduces the differentiation between mechanical and organic, where organic form occurs when a material moulds itself without human input, and mechanical form occurs when material is artificially shaped by humans.²⁴ This speaks to “form follows function,” a relationship coined by Louis Sullivan.²⁵ In this axiom, function is the inner spiritual force that determines an organic form. This form responds to program rather than being forced. Function as program, use and space explores the significance of activities the building was designed to support.²⁶ Here, German translations of functionalism encapsulate these thoughts: *sachlichkeit* meaning thingness; *zweckmassig* meaning purpose; and *funktionell*, which is the root of the English counterpart *functional*.²⁷

Along with the criticism on modernism, there has also been criticism of functionalism. Historian Harry Francis Mallgrave discusses that the doctrines of modernism, rationalism, and functionalism fail to relate to the everyday experience and therefore cannot be within architecture. It impedes designers from “studying forms and knowing the world of architecture according to its true laws”.²⁸ Aldo Rossi in *The Architecture of the City* relates function to a bodily organ; the function of the organ justifies its formation and development. However, this form is deprived of complexities and instead, reduced to simple organization that possesses no autonomous value.²⁹ Lastly, it can be said that the shortcomings of functionalism are: the lack of aesthetic value, little contribution to coziness, large heat-conducting windows, and underlying machine aesthetics.³⁰

Cover Image
Alvar Aalto, Paimio Sanatorium. Accessed from The Welcome Collection, 2019.

Figure 2
Le Corbusier, Unite D’habitation. Accessed from Arch Daily, 2011.

Figure 3
Mies van der Rohe, Villa Tugendhat. Accessed from Arch Daily, 2011

6. Adrian Forty, “Function,” in *Words and Buildings: a Vocabulary of Modern Architecture*, Thames and Hudson, 2004, 174.

7. *Ibid.*, 4.

8. *Ibid.*

9. *Ibid.*, 5.

10. *Ibid.*, 68.

11. *Ibid.*

12. *Ibid.*, 80.

13. *Ibid.*, 120.

14. *Ibid.*, 265.

15. *Ibid.*, 319.

16. Heikinheimo, Marianna. *Architecture and Technology: Alvar Aalto’s Paimio Sanatorium*. Aalto University, 2016, 51.

17. Kroll, Andrew. “AD Classics: Unite D’ Habitation / Le Corbusier.” *ArchDaily*. November 05, 2010. Accessed October 28, 2020. <https://www.archdaily.com/85971/ad-classics-unite-d-habitation-le-corbusier>.

18. Centre, UNESCO World Heritage. “Tugendhat Villa in Brno.” UNESCO World Heritage Centre. Accessed October 28, 2020. <https://whc.unesco.org/en/list/1052/>.

19. Adrian Forty, “Function,” in *Words and Buildings: a Vocabulary of Modern Architecture*, Thames and Hudson, 2004, 15-194.

20. *Ibid.*, 178.

21. *Ibid.*

22. *Ibid.*, 180.

23. *Ibid.*, 181.

24. *Ibid.*, 183.

25. “Functionalism.” *Encyclopedia Britannica*. April 11, 2013. Accessed October 4, 2020. <https://www.britannica.com/art/Functionalism-architecture>.

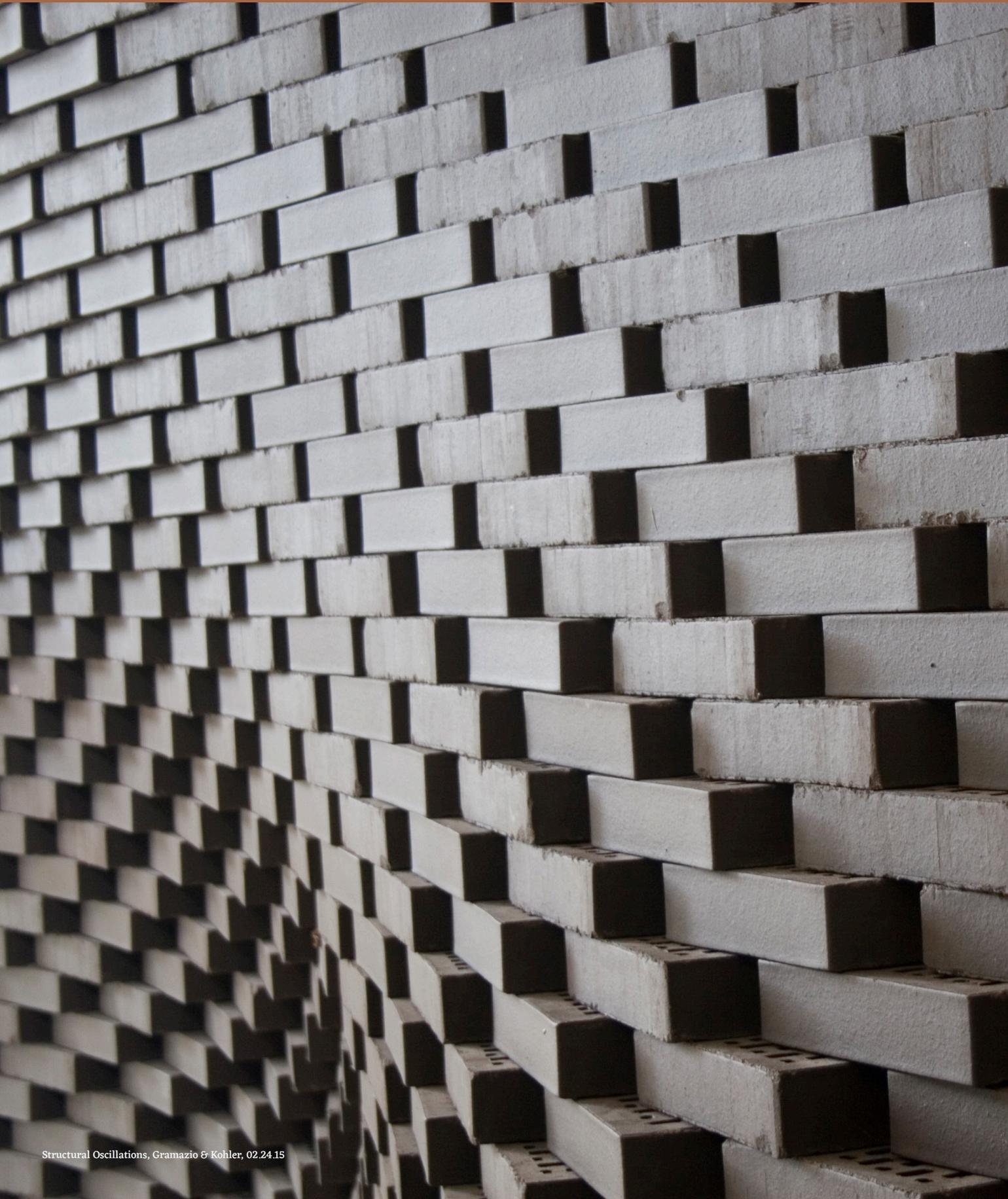
26. Adrian Forty, “Function,” in *Words and Buildings: a Vocabulary of Modern Architecture*, Thames and Hudson, 2004, 183

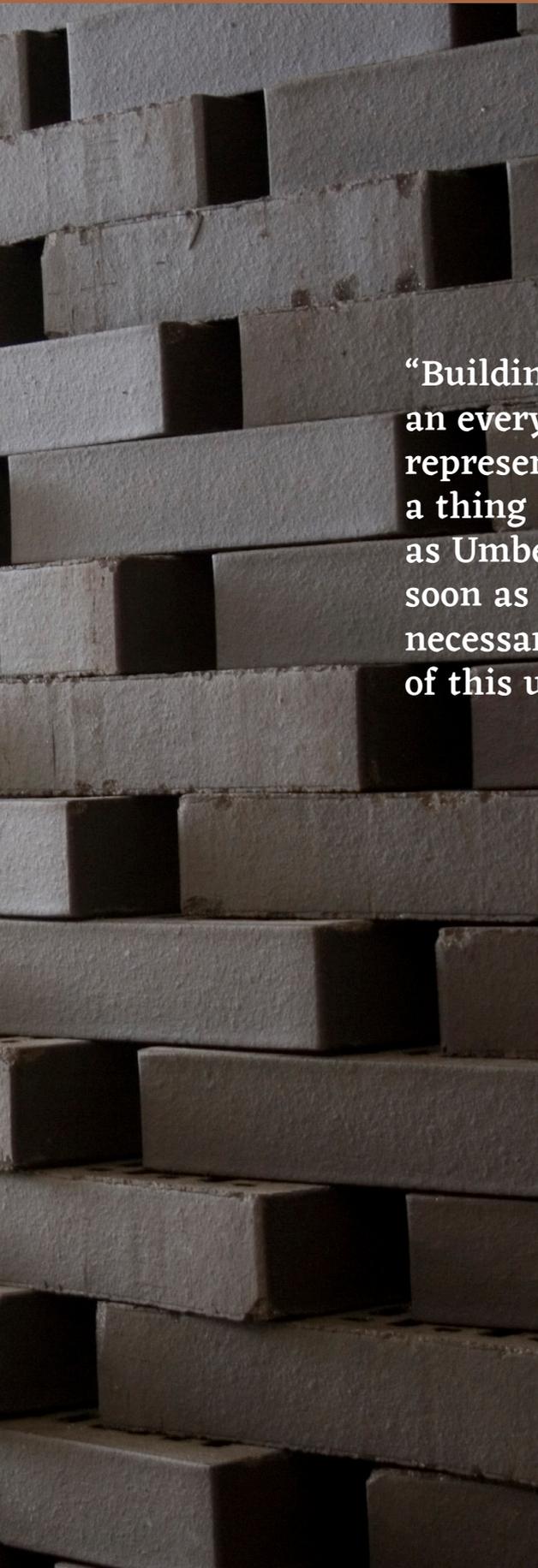
27. *Ibid.*, 191.

28. Mallgrave, Harry Francis. *Modern Architectural Theory: A Historical Theory, 1673-1968*. Cambridge University Press, 2005, 378.

29. Rossi, Aldo. *Architecture of the City*. The MIT Press, 1982, 47.

30. Mallgrave, Harry Francis. *Modern Architectural Theory: A Historical Theory, 1673-1968*. Cambridge University Press, 2005, 376-379.





“Building, unlike fine art, is as much an everyday experience as it is a representation and that the built is a thing rather than a sign, even if, as Umberto Eco once remarked, as soon as one has an object of “use” one necessarily has a sign that is indicative of this use.”¹

Matter

by : Kody Ferron Alex Langlois & Devin Tyers

Matter (n)

/ˈmɑːdə/ ²

Anything that gives shape to architectural ideas. Matter ranges from the tangible; material, materiality, form, to the immaterial; atmosphere, perception, feeling. Matter, within the field of architecture, transcends that which we can touch.

French:

Matière ³

Latin:

Materia ⁴

Theorists

Antoine Picon

Simon Unwin

Kenneth Frampton

Sandra Karina Lösckke

The word matter comes from Latin and Old French, meaning substance, timber, and subject of discourse. ⁵ Within the realm of architecture, the definition of matter is similar, but is less limited to the traditional meanings. The notion of matter relates to conditions that can be material, immaterial, natural, artificial, feeling, and sensory. Thus, it encompasses everything from building materials and finishing materials, to the quality of light in a space, and even the emotions a space can evoke.

Architecture is understood as material art, relying on dimensions of expressiveness through construction, encompassing practices by means of which the architect designs the order of matter. ⁶ The use of materials is connected to human behavior and to ways of conceiving the world that are manifested through material means. ⁷ Picon builds his theory on the matter being used in constructing architecture such as masses of wood, brick, stone, concrete or steel is dependent on tools, technology and machines for the innovative tectonics. ⁸ The materiality extends Architectural thinking beyond the confinement of current design approaches to further express the correlation of the image and materiality to make architecture part of a mindful strategy. Moreover, materiality engages the relationship between matter and the language used by the designer, to organize the perceptions through conscious thoughts. ⁹

1. Kenneth Frampton, *Studies in Tectonic Culture*, (Cambridge, MA: MIT Press, 1995), 2.

2. Douglas Harper, "Matter (n.)," *Online Etymology Dictionary*, 2001, <https://www.etymonline.com/word/matter>.

3. Matter (n.)." *Index*. Accessed October 04, 2020. <https://www.etymonline.com/word/matter>.

4. Douglas Harper, "Matter (n.)," *Online Etymology Dictionary*, 2001, <https://www.etymonline.com/word/matter>.

5. Antoine Picon, *La Matérialité De L'architecture* (Marseille: Éditions Parenthèses, 2018), 19.

6. *Ibid*, 64.

7. Antoine Picon, *La Matérialité De L'architecture* (Marseille: Éditions Parenthèses, 2018), 65.

9. *Ibid*, 69.



Figure 1 Ningbo Museum Materiality, Wang Shu.



Figure 2
Katsura Palace, Kengo Kuma,
09.21.2020.

The relationship between the subject and the environment is re-defining matter in the Katsura Palace.

The Ningbo Museum by Wang Shu highlights the role played the architectural detail and building material in the creation of an architectural image. The material used in the construction of the exterior walls are the collective use of fragmented pieces coming from a previously demolished Ningbo village. Through this act, the building reconnects with the labor, tools, techniques, and builder's desire from buildings that are now destroyed.¹⁰ Thus, the commodity is altered for dual use within the physical and the mindfulness of the object.

Materiality and tectonics share a bond. Their use and function are dependant within architecture. Materiality is embodied within tectonics and can be seen through the material objects which form the joinery within a structure.¹¹ There is an artistic quality within the material selection. Frampton uses examples of Japanese

transitional layered spaces to illustrate the difference made from the representation to the construction; the difference is between the skin which symbolises the composite character of building, and the center of production, which together forms the structure.¹²

Kengo Kuma's Katsura Palace highlights the framing of nature within nature with the translucent design of 'Water and Glass'. This example makes the distinction of the skin and the center of production less clear. The relationship of tectonics and matter creates architectural beauty through the production of meaningful built environments. This notion is seen in 'Water and Glass' where the human perception of space guides this link to matter.¹³ The perspective of materiality is objective, and each user of the space will shape their own relationship with the natural built world.

10. Sandra Karina. Loschke, *Materiality and Architecture* (Basingstoke: Taylor & Francis, 2016), 73.

11. Kenneth Frampton, *Studies in Tectonic Culture*, (Cambridge, MA: MIT Press, 1995), 4.

12. *Ibid*, 16.

13. Antoine Picon, *Digital Culture in Architecture*, (Basel: Birkhäuser, 2010), 146.

The meaning of materiality will alter based on the social and cultural biases. Picon addressed materiality as a social and cultural construct, rather than an interpretation of structure.¹⁴ In recent years, the way people view the environment has evolved. Materiality is dependant on the perception of materials and objects as static realities.¹⁵ Computer advancements have assisted the architect in material design. Materials are no longer limited to scale and can be designed with more detail.¹⁶ Thus, there are fewer limits to material choices, and the production can reach new levels of perception which blurs the distinction of materials.

Unwin outlines in *Analysing Architecture*,¹⁷ many modifying elements within the forces of architecture, some of which are closer to the immaterial than matter. The immaterial represents the factors within our experience that are not as tangible as building materials, finishing materials, or materiality. These modifying elements include but are not limited to; light, colour, sounds, temperature, air movements, smells, tastes, the qualities and textures of the materials used, use, scale, and the effects and experience of time.¹⁸

As an immaterial phenomenon, light can be used to modify a space. There's warm light, cold light, harsh light, and soft light. All of these different kinds of light lend themselves to creating different atmospheres, different feelings. Unwin discusses how light can even allude to the function of a space. "such as theatres, where there is a stark contrast between light (the stage—the place of the action) and dark (the auditorium—the place of the audience)."¹⁹

Light possesses the ability to animate space, to create emotion, to allude to function, and yet, it is immaterial. We cannot touch light, nor hold it. Of all five of our primary sense, and all 18 of our speculated senses²⁰, it would seem that vision is our only means to perceive light. However, we can feel a light's heat (although perhaps not its coldness). The effects of light even extend to our neurochemistry.²¹

The colour of light changes throughout the day, from warm light in the mornings and evenings, and colder, more blue light during the day's peak. However, in more northern and southern climates, the sun doesn't always get very high in the sky. In some places even further north, the sun won't rise for days during the winter. The amount of exposure we have to natural daylight impacts our mood. The impact can be so extreme that in many places affected by limited natural daylight, suicidality rates increase dramatically²². Loschke proposes that for the French Architects,

“The truth of architecture rested neither in the empirical reality of material, nor in its compositional form, but somewhere between form and substance, between architecture and construction, where image and materiality become fused.”²³

To be able to fully articulate one's architectural intentions, it is imperative to understand and use the principles within the notion of matter. Material science, the phenomena of materiality, the ways in which the immaterial elevate the material, these are all facets of the concept of matter. Essentially, the notion of matter addresses all elements that are the medium in which architect's work as artists and designers. The architect can leverage materiality and the immaterial to create a design that expresses the significance of the subject.

Cover Image

"Architecture: Structural Oscillations by Gramazio & Kohler: CFile - Contemporary Ceramic Art Design." CFile. February 24, 2015. Accessed October 04, 2020. <https://fileonline.org/architecture-structural-oscillations-gramazio-kohler/>.

Figure 1

Brownell, Blaine. Amateur Architecture Studio's 2008 Ningbo Historic Museum Features a Bamboo-Formed Concrete Wall (Left) as Well as Wapan Masonry Construction (Right). July 1, 2015. Architect Magazine. https://www.architect-magazine.com/technology/contemporary-architecture-in-china-part-2-what-works_o.

Figure 2

"Kengo Kuma And Associates Erieta Attali · Water Glass." Divisare. Accessed October 04, 2020. https://divisare.com/projects/326306-kengo-kuma-and-associates-erietta-attali-water-glass?fbclid=IwAR12J9DQ2vjEbj5L9rJcN8QwmgGtDmmt3mJ_1Z1U962fP2_Yj5APa5_-d0. Drawing.

14. Antoine Picon, *Digital Culture in Architecture*, (Basel: Birkhäuser, 2010), 144.

15. Ibid, 146.

16. Ibid.

17. Simon Unwin, *Analysing Architecture* (New York, NY: Routledge, 1997), 26.

18. Ibid, 25.

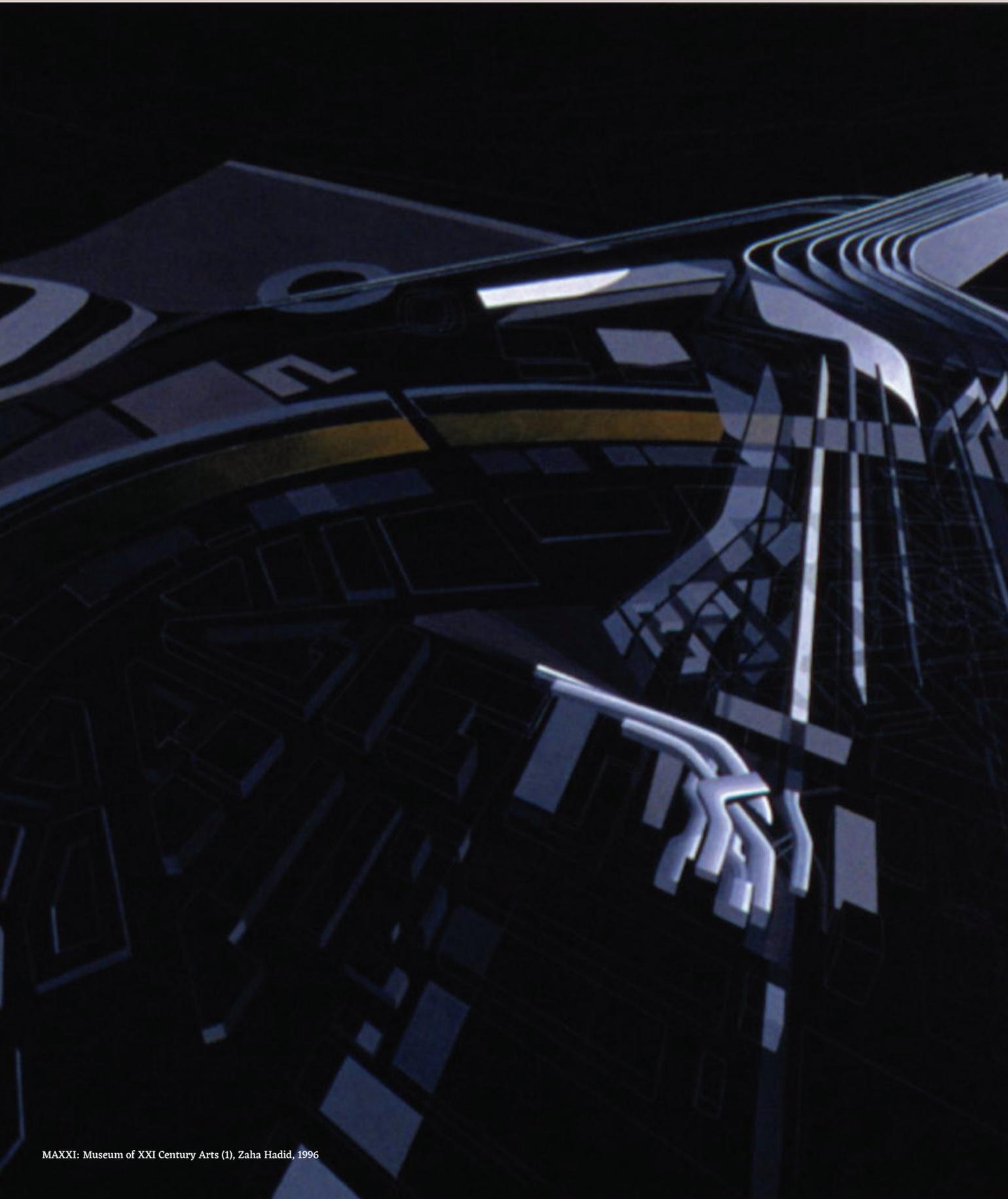
19. Ibid, 26.

20. Daven Hiskey, "Humans Have a Lot More Than Five Senses- Here Are 18," *considerable.*, September 12, 2019, <https://www.considerable.com/health/healthy-living/humans-five-senses/>.

21. Andréa de Paiva, "NeuroArchitecture and the Impacts of Light on the Brain," *NeuroAU*, March 25, 2020, <https://www.neuroau.com/post/neuroarchitecture-and-the-impacts-of-light-on-the-brain>.

22. Ibid.

23. Sandra Karina. Loschke, *Materiality and Architecture* (Basingstoke: Taylor & Francis, 2016), 61.





“[A]n object has a vast number of qualities, some knowable, some unknowable; to select any one of them to represent its full reality as an entity would be pointless.”¹

Object

by : Maeve Macdonald, Michelle McLaren & Evan Lavallee

Object (n)

/ˈ ɔbjekt /

Object is something that can be seen or touched but that is not a person, animal or plant.

French:

Objet

Latin:

Obiectum, Obiectus

Ojibwe

N/A

Theorists

Adrian Forty

Mark Foster

Graham Harman

Gevork Hartoonian

Kengo Kuma

The word *Object* originated in the 14th century and was first described as a tangible thing, something perceived with or presented to the senses. The etymology of the word *Object* comes from the latin word *obiectum* “the put before” (the mind or sight).² In the 15th century the word evolved with the latin term *obiectus* “that which presents itself to the sight” further evolving into “that toward which a cognitive act is directed” in the 1580’s.³ According to the Cambridge Dictionary, *Object* is presently defined as “a thing that you can see or touch but that is not usually a living animal, plant or person.”⁴ The word in French can be translated to *Objet*. Western language shakes the notion *Object* and *Objet* from the latin *obiectus*, whereas the term is not present in Ojibway. This is due to the fact that words in Ojibway are not animate, and typically are produced with a composition of verbs (animating markers).

The term *object* has evolved over time in the profession of architecture. The Industrial Revolution influenced the theory behind the term within the profession of architecture. In *The Architecture of Theatricality*, Gevork Hartoonian discusses the *Crisis of the “Object”* which occurred after the Industrial Revolution, when architects like Le Corbusier and the Bauhaus started to make distinctions between “objet d’art and utilitarian object.”⁵ Aesthetic ornamentation was deemed useless and rejected in favor of designs that displayed an object’s function.⁶ A common theme running

1. Mark Foster, Gage. “Killing Simplicity: Object-Oriented Philosophy in Architecture.” *Sociology of Power* 29, no. 1 (2017): 96.

2. “Object (n.)” Index. Accessed October 5, 2020. <https://www.etymonline.com/word/object>.

3. Ibid.

4. “OBJECT: Definition in the Cambridge English Dictionary.” OBJECT | definition in the Cambridge English Dictionary.

5. Gevork, Hartoonian. “The Crisis of the Object.” Essay. In *Crisis of the Object: the Architecture of Theatricality*, 4.

6. Editorial, Artsy, and Karen Chernick. “How the Bauhaus Became the 20th Century’s Most Influential Movement.” *Artsy*, March 20, 2019

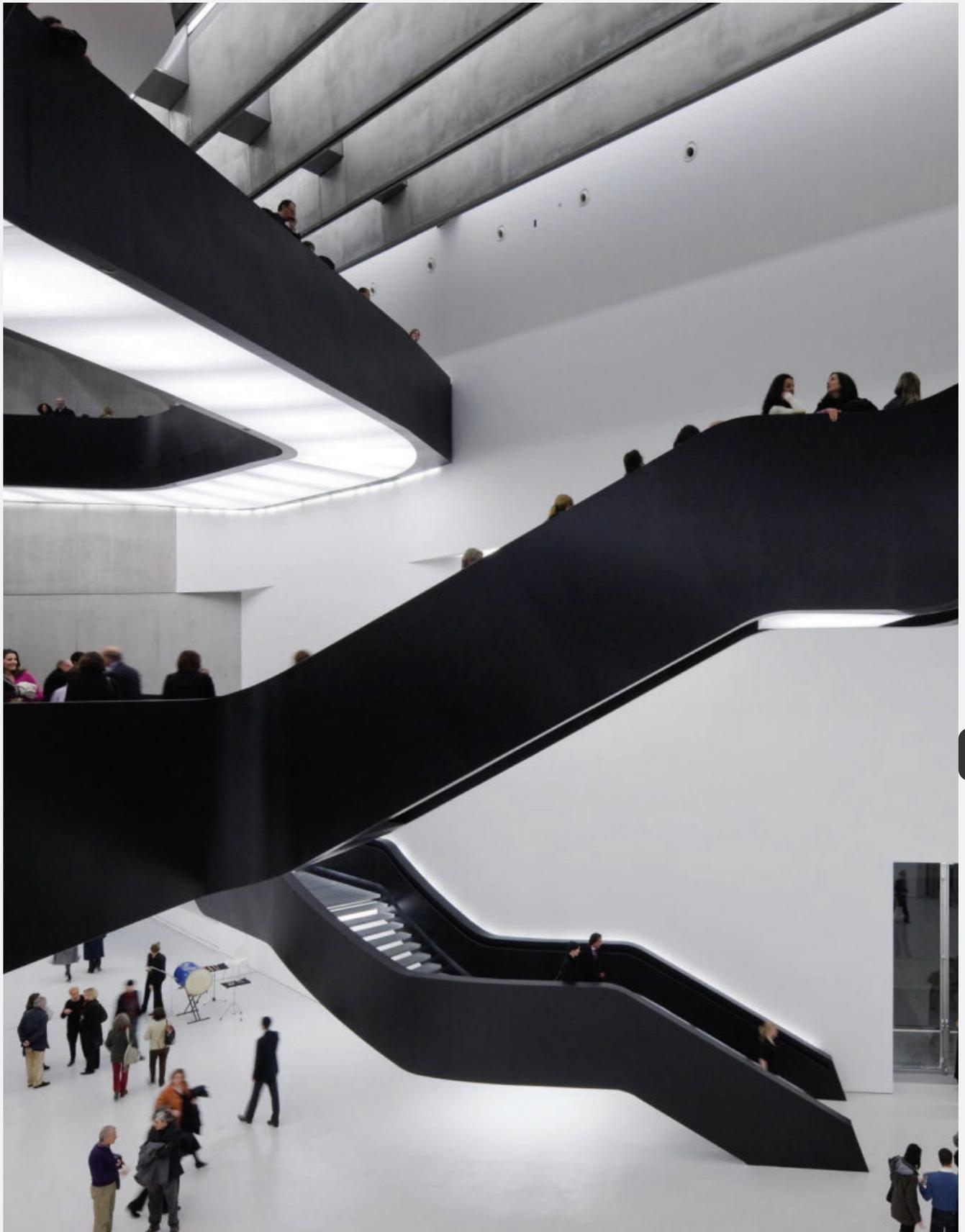


Figure 1 MAXXI: Museum of XXI Century Arts (3), Zaha Hadid, 1996



Figure 2 (Left)
World Trade Center Transportation Hub, Bryan Carnathan (Photographer), Santiago Calatrava (Architect)

Figure 3 (Right)
World Trade Center Transportation Hub sketch, Santiago Calatrava (Architect)

through the theoretical developments surrounding the term *object* in architecture is that “instead of emphasizing the thematic of the disciplinary history of architecture”⁷ (culture of a building), modern day architectural-object consists of a “marriage between philosophical concepts and the computer-generated form.”⁸ This marriage can be seen in Zaha Hadid’s MAXXI Museum of XXI Century Arts. “*The design discards the external concepts that a museum is an ‘object’ or fixed entity, but instead presents it as ‘a field of buildings.’*”⁹ The architectural profession presently believes that buildings participate in a larger study of context, multiple relations define architecture, some examples include: local ecologies, social contracts, economy, urban infrastructure, etc.¹⁰

Traditionally the term coined by Louis Sullivan “Form Follows Function” was used to describe the

importance of a building revealing its structural system. Presently, the term has been used with regards to the program of the building, and how the program defines the architecture. Architecture today revolves around the concept of: “Form Follows the Function of the Program.”¹¹ The current understanding of the term *object* in the architecture profession includes the intricate connections between form, function, and program. The architecture becomes both a representation of art through its form, and function through its use.

The concept of object-oriented ontology describes that objects are entities, and should not be exhausted by external relations with other objects or humans.¹² Architecture defines an object-building as “one that rejects its context.”¹³ The reading *Killing Simplicity: Object-Oriented Philosophy In Architecture* discusses

7. Gevork, Hartoonian. “The Crisis of the Object.” Essay. In *Crisis of the Object: the Architecture of Theatricality*, 5.

8. Ibid.

9. “MAXXI: Museum of XXI Century Arts – Zaha Hadid Architects,” accessed October 6, 2020, <https://www.zaha-hadid.com/architecture/maxxi/>.

10. Mark Foster, Gage. “Killing Simplicity: Object-Oriented Philosophy in Architecture.” *Sociology of Power* 29, no. 1 (2017): 100.

11. Ibid, 97.

12. Harman, Graham (2002). *Tool-Being: Heidegger and the Metaphysics of Objects*. Peru, IL: Open Court. ISBN 978-0-8126-9444-4.

13. Mark Foster, Gage. “Killing Simplicity: Object-Oriented Philosophy in Architecture.” *Sociology of Power* 29, no. 1 (2017): 98.

undermining or overmining topics that are impacting modern day architecture. Undermining is to believe “that objects are simply collections of atoms.”¹⁴ Overmining the reality of an *object* would be to say “that an object only becomes real when it is perceived by an observer (...), or that a small part of a larger network of forces in which it is enmeshed.”¹⁵ An example of overmining is discussed by Mark Foster by describing a leaf. “[A] leaf is really only a part of a tree, or a tree merely part of a forest, or a forest merely part of an ecosystem. In object-oriented ontology the leaf, tree, forest and ecosystem are all considered objects.”¹⁶



When an architect develops the design of a building through big ideas, concepts or metaphors, this is considered overmining.¹⁷ An example of architecture that falls into the overmining category is “*Santiago Calatrava’s claim that his World Trade Center Transportation Hub is a flying bird that reflects the theme of transportation.*”¹⁸ Object-oriented ontology in the field of architecture discusses how the core of a building (reality) is always unknown and covered up by big ideas, concepts and metaphors. The reality of the building requires a new, focused, acknowledgement to be fully comprehended.¹⁹ The building can be defined as both a condition and an *object* of experience. Architecture has the ability to capture our attention and direct it into a larger entirety

through the sensory experiences we have within the space (touch, see, smell, taste, feel).²⁰ How do we create architecture of obvious clarity? *Killing Simplicity: Object-Oriented Philosophy in Architecture* discusses that when the concept becomes the architecture itself, that is when the architecture can be understood with obvious clarity.²¹ This architecture removes all the aesthetic shapes, forms and distractions visible in present design, and instead advances a “principle from which everything would derive.”²²

Object-oriented ontology sheds light on the notion that architecture is immobilized by current perceived obligations revolving around external studies of context, sustainability, economics, social relations etc.²³ Mark Foster discusses the idea that architecture can be maintained by its existence and not be defined by all of the obligations it strives to meet. *Object-Oriented Philosophy In Architecture* communicates that “modern architecture can exist not as a connector of things, or the result of analysis, but as a free agent wherein the rules emerge from the productive tensions between deeply complex realities and their sensorial perception.”²⁴ This theory defines real *objects* and sensual *objects*, “real objects should be able to withdraw from all experience, sensual objects are those that exist only in an experience.”²⁵ “Object-oriented ontology considers the sensual *object* (and real *object* on equal terms, giving significance to the *object’s* encoded qualities as well as to the real object itself. In summary, the object-building in architecture is defined as a building that is not perceived by external obligations, but instead is viewed as an entity, it should not filter perceptions through human experience, instead exist independently.

Cover Image

MAXXI: Museum of XXI Century Arts (1), Zaha Hadid, 1996

Figure 1

MAXXI: Museum of XXI Century Arts (2), Zaha Hadid, 1996

Figure 2

World Trade Center Transportation Hub, Bryan Carnathan (Photographer), Santiago Calatrava (Architect)

Figure 3

World Trade Center Transportation Hub sketch, Santiago Calatrava (Architect)

14. Mark Foster, Gage. “Killing Simplicity: Object-Oriented Philosophy in Architecture.” *Sociology of Power* 29, no. 1 (2017): 98.

15. *Ibid.*

16. *Ibid.*

17. *Ibid.*, 101.

18. *Ibid.*

19. *Ibid.*, 102.

20. *Ibid.*, 35.

21. *Ibid.*, 75.

22. *Ibid.*

23. *Ibid.*, 104.

24. *Ibid.*

25. “Object-Oriented Ontology,” Wikipedia. Wikimedia Foundation, July 31, 2020.

26. Mark Foster, Gage. “Killing Simplicity: Object-Oriented Philosophy in Architecture.” *Sociology of Power* 29, no. 1 (2017): 105.





“We are the architects, and I don’t want to escape from that responsibility of being or deciding etc., but I do not want to decide alone.”¹

Participation

by : Aidan Lucas, Alexander Scali, Pascal Rocheleau & Shiyun Pu

Participation (n)

/pärˌtɪsəˈpɑːSH(ə)n/

Participation in architecture refers to a specific approach with the intent to involve all participants in the design process to ensure the outcomes successfully meet their needs and desires.

French:
Participation

Ojibwe
Wiidookodaadiwin

Theorists

Doina Petrescu
Jan Gehl
Jeremy Till
Lucien Kroll
Markus Miessen
Peter Blundell Jones
Sir Peter Hall

The term participation has its etymological roots in the Late Latin term *participationem* meaning ‘partaking’.² The term participation is defined as: “The act or fact of sharing or partaking in common with another or others; act or state of receiving or having a part of something”³

According to Peter Blundell Jones, architectural participation is defined as ‘the involvement of the user at some stage in the design process’.⁴ Involving the client in architecture stems from the importance attached to the profession. Without a client with funds or desires, architects would have only themselves to design for. This unfortunately leaves the desires of the potential users excluded.⁵ This also tends to leave a disconnection between the built environment and the world imagined and desired by the user. By including the idea of participation in the earlier stages of the architectural design process, the result is a sense of ownership along with a project which is more flexible and susceptible to accept change.⁶ The practice of participatory design is not only a driving force to transform the role a user has on the design, but also the transformation of the practice of architecture itself.⁷

The notion of participation within the architectural process was heavily redefined following WWII. The introduction of mass housing and subsequent

1. Lucien Kroll, ‘Animal Town Planning and Homeopathic Architecture’, in Peter Blundell-Jones, Doina Petrescu and Jeremy Till (eds.), *Architecture and Participation* (London: Routledge, 2005), p. 186.

2. “Participation: Search Online Etymology Dictionary.” Index. Accessed October 6, 2020. <https://www.etymonline.com/search?q=participation>.

3. *Ibid.*

4. Peter Blundell Jones, Doina Petrescu, and Jeremy Till. “Architecture and Participation”. London: Spon Press, 2005. https://ebookcentral.proquest.com/lib/jndlu-ebooks/detail.action?docID=214723#_p.13

5. *Ibid.* p.14

6. *Ibid.*

7. *Ibid.*



Figure 1 Medical Faculty Housing (La Mémé), Lucien Kroll, 1970-76



Figure 2
Medical Faculty Housing (La Mémé),
Lucien Kroll, 1970-76.

Children working on the housing
models for the housing project (La
Mémé) for the University of Louvain.

advent of the welfare state changed things fundamentally. As the scale of housing projects grew larger and more complex the user was no longer the commissioner and by default participation no longer existed.⁸ The modern notion of participatory design originated in the 1960's. Architectural trends of the "1960's catered to a largely anonymous population of tenants, categorised by the similarity of their needs."⁹ In the 1970's users of these 'copy-and-paste' buildings became increasingly disenfranchised with the lack of engagement they had in the planning of their housing, turning participation into a protest tool against the uniformity created by the welfare state. Post-Modern theorists and design trends of the 1980's shifted focus towards the individual and new approaches to design were developed. The programmatic needs once again began to become a matter of user preferences and demands, albeit in an often less successful way than the architects intended.¹⁰ "For example, participation as a tool for citizen-orientated

planning and design processes were heavily used as part of the urban renewal processes of the 1970's. Users could express their wishes, but the architect was still bound to the client's desires. This suggestion of power discredited the whole notion of user participation, leading to its notoriety as a frustrating process for users and architects. The stigma within architectural circles of the public's weariness, mistrust and resistance to proposals during these meetings finds its roots here.¹¹

Lucien Kroll, a Belgian architect, was one of the pioneers of the participation movement of the 1970's. He was a true champion of the users' desires, a feat that is uniquely illustrated in the design of the Maison Médical (La Mémé) student accommodation at the University of Louvain (1970-1976). This unique process was, and still is, an architectural anomaly within large-scale projects. Kroll had witnessed the vast quantities of anonymous, modernist housing arise in post-WWII

8. de Graaf, Reinier, "Few architects have embraced the idea of user participation; a new movement is needed." From: *The Architecture Review*, EMAP Publishing Limited, July 26, 2016.

9. Ibid

10. Ibid.

11. Ibid.

12. Dorian Moore, "Participation", Spatial Agency. Accessed October 6, 2020. <https://www.spatialagency.net/database/participation.1970s>

13. Reinier de Graaf, "Few architects..."

Europe. He self-imposed an ultimatum on his practice: “if industrial building methods were indeed an inescapable reality, then the only possible approach for diversity would be to pursue a tailored, case-by-case application. Only in the individual wishes of users could an authentic source of diversity be found.”¹² The design of La MÉMÉ was participatory from conception. In a form of protest against the monotonous design originally proposed by the university, students approached Kroll to design an alternative and act as their architectural mouthpiece. The realised design was developed in intense and sometimes secretive consultations with students and other users of the building. The participatory design process was recorded through an evolving physical model. The modeled building was then split into sections and each part was handed over to a separate team within the office. The resulting building has a fragmented look, as if each element was chosen by a different individual. Kroll’s then-innovative method of compartmentalizing and then customizing the details of the overall building allowed him to create a highly unique building with ‘off the shelf’ materials.¹³

“If industrial building methods were indeed an inescapable reality, then the only possible approach for diversity would be to pursue a tailored, case-by-case application. Only in the individual wishes of users could an authentic source of diversity be found.”¹⁹

Chilean architect Alejandro Aravena and his firm defined participatory design as incremental design, based on community engagement. Aravena uses the slogan ‘As far away from architecture as possible’ to start the design process. Participatory design work, used as a form of in-depth community consultation, begins to decode what the design questions should be.¹⁴ The Quinta Monroy Housing (Half a Good House) project provides a flexible living condition to residents to allow them to fill in the void according to their needs and situation. On the other hand, the most reasonable plan for Constitución is to build a high wall which prevents the floods. Instead,

they ended up creating a strip of coastal forest that can dissipate the force of tsunamis and provide much-needed public green space for citizens. The new design idea is based on interviews with many local residents who feel the public space is as bad as the floods.¹⁵ Participation, a useful tool to establish a dialogue between the population and architects.

A new kind of architecture movement called ‘non-planning’ was proposed by Reyner Banham, Paul Barker, Peter Hall, and Cedric Price as a new acting of architects to the community.¹⁶ Jan Gehl saw the potential in town squares as a successful form of participation through planning. By locating parts of the town such as schools, homes and offices near the square, this would open up possibilities of further participation not only between patrons but the functions as well. “City functions can be located similarly along the street or in the public area itself, so that borders between different functions and groups are removed.”¹⁷ Although not exactly as described Gehl noticed that the architect Frank Van Klingeren shows this planning principle in the form of city centres or ‘covered squares’ as Gehl calls them. These centres that were developed around the 1960’s are in Dronten and Eindhoven in Holland and had a much higher participation level than most dutch towns at the time.

The modern design process has disconnected the users and the designers of spaces. Post-WWII mass housing and the standardization of materials skewed power dynamics in the design process and thus effectively eliminated the traditional notion of participatory design. However, modern architects, planners and theorists have risen to the challenge, developing new engagement processes for all stages and scales of design.¹⁸

Cover Image

ELEMENTAL. “Quinta Monroy,” n.d. Photograph. Accessed from https://www.archdaily.com/10775/quinta-monroy-elemental/S0102e3c28ba0d4222001005-quinta-monroy-elemental-image?next_project=no

Figure 1

“La MÉMÉ” n.a, n.d. Photograph. Accessed from <https://ioannoulga.blog/2019/07/31/la-meme-experience-of-participatory-design/>

Figure 2

Kroll, Lucien. “Children working on the housing models for the housing project” n.d. Photograph. Accessed from <https://www.architectural-review.com/essays/few-architects-have-embraced-the-idea-of-user-participation-a-new-movement-is-needed>

14. Anna Winson, “Architects are never taught the right thing says 2016 Pritzker laureate”, ArchDaily, January 13, 2016. <https://www.dezeen.com/2016/01/13/alejandro-aravena-interview-pritzker-prize-laureate-2016-social-incremental-housing-chilean-architect/>

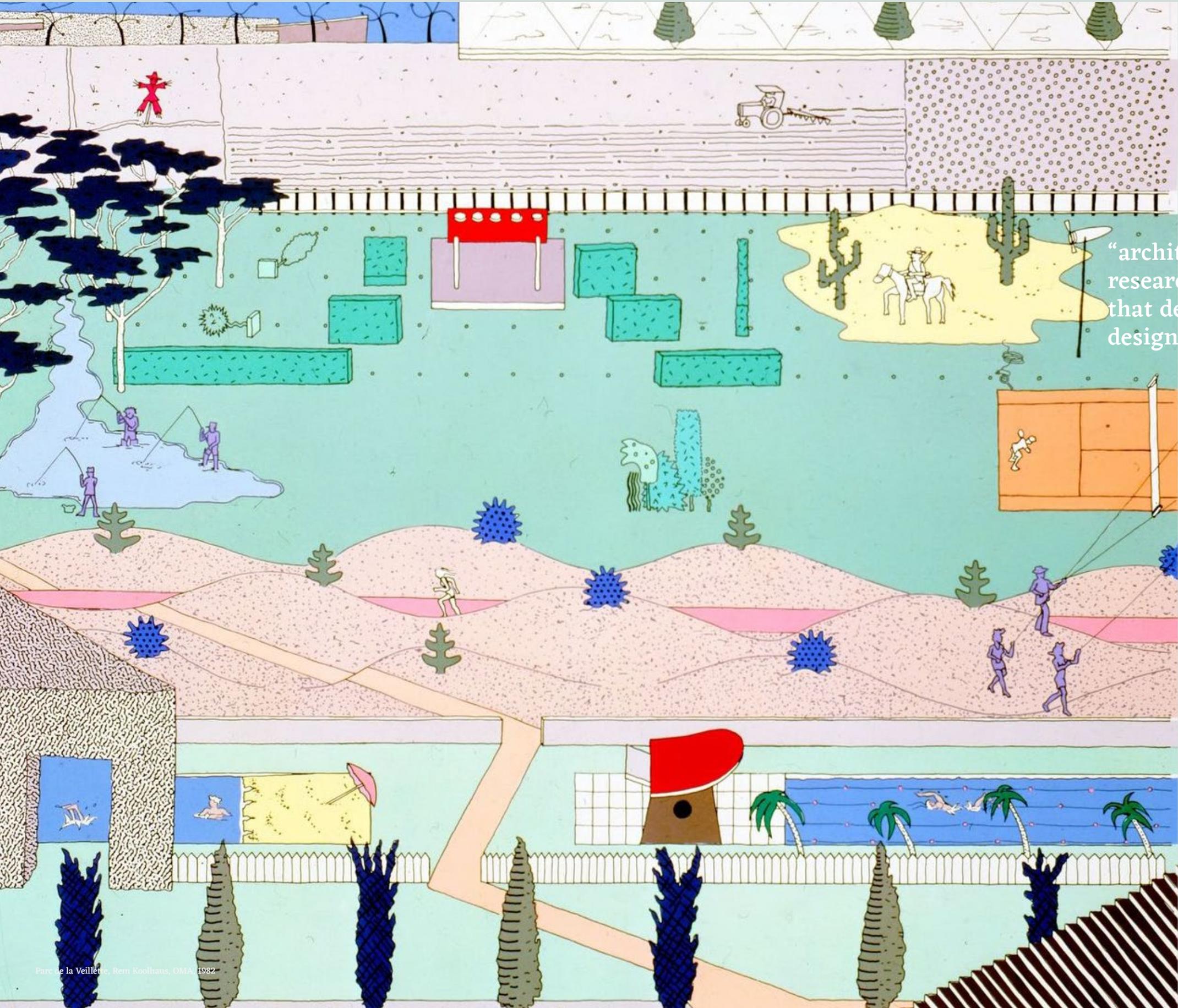
15. Amanda Kolson Hurley “How an Architect Who Designs ‘Half-Houses’ Rebuilt a City”, Bloomberg, September 09, 2019. <https://www.bloomberg.com/news/articles/2019-09-26/alejandro-aravena-on-designing-for-disaster>

16. Hughes, J. and Sadler, S. eds. (2000) Non-plan: Essays on freedom participation and change in modern architecture and urbanism. Oxford: Architectural Press.

17. Jan Gehl, *Life between Buildings :Using Public Space* / (Washington, DC :, 2011), <http://hdl.handle.net/2027/uc1.31822042693978>. pg. 107

18. Peter Blundell Jones, Doina Petrescu, and Jeremy Till. “Architecture and Participation”. p. 13

19. Reinier de Graaf, “Few architects...”



“architectural programming is the research and decision making process that defines the problem to be solved by design.”¹

P

Program

by : Isaac Edmonds, Sarah Fox & Matt Steacy

Program (n/v)

/prō-gram/

“architectural programming is the research and decision making process that defines the problem to be solved by design.” (Cherry, 1999)¹

French:
Programme

Ojibwe
Does not exist as an independent word. The closest translations would be peripheral program *maminwazina'igewin* or finalize plans *giizhaaknige*.²

Theorists
Edith Cherry
Rem Koolhaas
Bernard Tschumi

“Ai' kidáá ashstíó Náásgóó” is Navajo for “the past weaves into the future.”³ This way of thinking can be beneficial when studying the etymology of the word program. The Merriam-Webster Dictionary provides several definitions for the word program with the following being the most relevant to this discussion: “a plan or system under which action may be taken toward a goal.”⁴ In an architectural context, Edith Cherry provides a more pointed definition, stating that “architectural programming is the research and decision making process that defines the problem to be solved by design.”⁵ Programmatic intentions arise in response to factors such as the client, site, budget and climate among others. Since the designers are not the end users of the space, programming is an integral part of any successful design process.

The term “program” can be traced back to the Greek words *pro* (before) and *graphein* (write).⁶ Which combined from *prographein*, meaning to write publicly.⁶ This shifted into the late Latin *programma* (a public notice) and until the 17th century “program” has been reserved for defining reference to written notice.⁷ According to Cherry, the contemporary definition of programming in Western culture related to architecture corresponds to the societal shifts occasioned by the second world war. During the Second World War, communications technology advanced at a breakneck pace and the value of communications techniques was

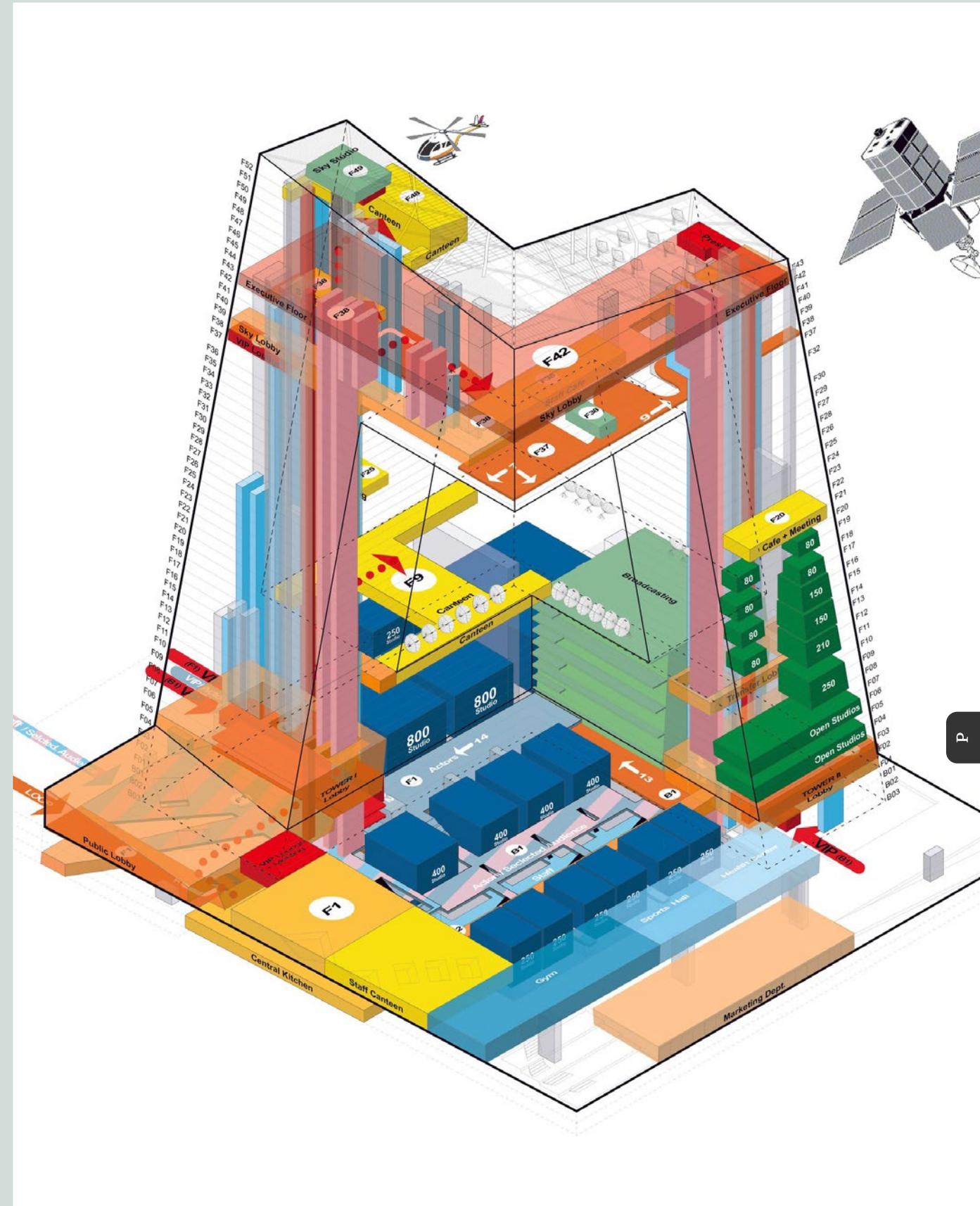


Figure 1 CCTV Headquarters Beijing, OMA, 2002-12

1. Edith Cherry, *Programming for design: from theory to practice*, 3.

2. Nishnaabemwin Online Dictionary: Public. “Program.” Nishnaabemwin Online Dictionary: Public. Accessed October 3, 2020. <https://dictionary.nishnaabemwin.atlas-ling.ca/>.

3. Nishat Awan, Tatjana Schneider and Jeremy Till, *Spatial Agency: Other Ways of Doing Architecture* (Abingdon, Oxon: Routledge, 2011), 29.

4. Merriam-Webster Dictionary. “Program.” Merriam-Webster. Merriam-Webster. Accessed October 3, 2020. <https://www.merriam-webster.com/dictionary/program>.

5. Edith Cherry, *Programming for design: from theory to practice*, 3.

6. Online Etymology Dictionary. “Program (n.)” Index. Accessed October 3, 2020. <https://www.etymonline.com/word/program>.

7. Ibid.

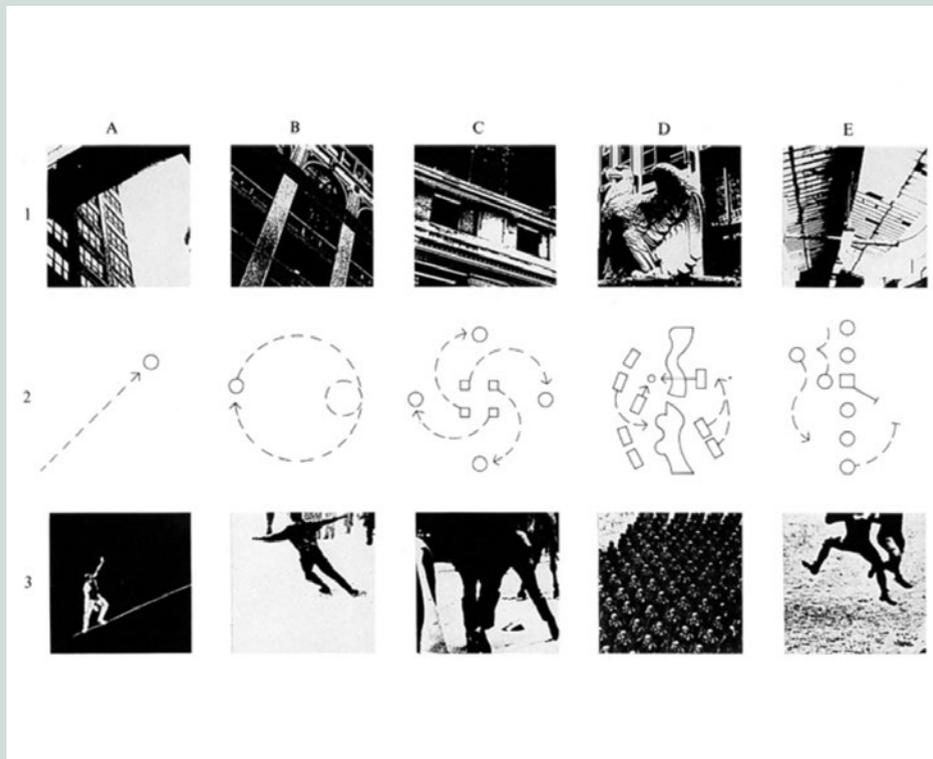


Figure 2
The Manhattan Transcripts, Bernard Tschumi, 1976-81.

Tschumi analyzes the theoretical/theatrical use of program. Comparing the set and script to the type and program of architecture.⁹

not lost to the public following the war. In this context, the term program entered architectural vocabulary as a tool to communicate design intentions.⁸

The current standards in the 2012 Canadian Internship in Architecture Program Manual (IAP) defines programming as “the process of understanding and setting forth in writing the client’s requirements for a given project.”⁹ Although current architect-client contracts assume that the program is the responsibility of the client, architects will often be hired in a separate arrangement to help the client develop the program.¹⁰ This is completed within a separate arrangement because the traditional agreement for design and construction administration does not include writing the program as the architect’s responsibility.¹¹ The IAP also notes that the input of the following entities is essential in the

programming phase, in order to maintain an orderly and productive design process for the mortgage lenders, public health officials, welfare and safety organizations, and future occupants.¹² Although programming is not a contractual obligation for the architect, it is a powerful skill to have in the architectural tool kit. It is essential to have a program methodology to begin design work.

In architectural theory, the concept of program or programming can be instrumental to analyse previous work. Given that the current use of program has not always been instrumental to architectural practice, we’re interested to see what practice or business models architects used before they introduced such a specific and standardized program phase. Based on the aforementioned research, a calculated program is an advantageous part of modern practice. When designed

mutually by the architect and client, programming outlines issues in order to streamline design solutions preserving time and money.¹³ A well-planned program can determine the optimum size of a building.¹⁴ We can create a well-planned program by methodically reviewing the “Functional Program” section of the latest Canadian Handbook of Practice for Architects alongside the latest literature theorizing program methodologies.

Rem Koolhaas and Bernard Tschumi are architects who are considered by various critics to be the main program theorists. *Delirious New York* by Koolhaas and *The Manhattan Transcripts* by Tschumi were both publications written in New York in 1976 that developed the theory. Koolhaas describes his intentions for *Delirious New York* “to assert that the city, or its architecture, did not have a program but in fact was a program”.¹⁵ Tschumi saw the city as a stage and explored theatrical spatial connections and sequential routes in *The Manhattan Project* seen in Figure 2. In an interview for *Praxis* magazine, they discuss how the program is like a screenplay.¹⁶

Tschumi states “a program is never neutral” as the relationship between form and program take one of three stances of the architects choosing; reciprocity, indifference, or conflict.¹⁷ Tschumi explains that Greek temples, department stores, railway stations, airports, shopping malls, all use premeditated programs. Lack of critique to the program has existed since the early 20th century. This idea of designing the program was missed in the modernist theory of “form follows function” to the “form follows historical allusion” in postmodern theory. Modernism rejected the idea of program design and designed buildings as universal structures to house all variations of activities.¹⁸

Both Architects sequentially designed proposals for the Park de la Villette, Koolhaas’ being the cover image for this section. In the proposal, strips, point grids, and access/ circulation are used to explore varying program methodologies. The idea was that “combining

programmatic instability with architectural specificity - will eventually generate a park”.¹⁹ These 1980s-90s proposals are recent to today. As program is fairly new to architectural theory it will continue to be explored and built upon.

“the city, or its architecture, did not have a program but in fact was a program”

Cover Image
Rem Koolhaas, OMA. “Parc de la Villette,” OMA.eu, Office of Metropolitan Architecture, 1982, accessed October 3, 2020, <https://oma.eu/projects/parc-de-la-villette>.

Figure 1
Rem Koolhaas, “CCTV- Headquarters,” OMA.eu, Office of Metropolitan Architecture, 2002-12, accessed October 5, 2020, <https://oma.eu/projects/cctv-headquarters>.

Figure 2
Bernard Tschumi, “The Manhattan Transcripts,” tshumi.com, Bernard Tschumi Architects, 1976-81, accessed October 4, 2020, <http://www.tschumi.com/projects/18>.

8. Edith Cherry, *Programming for design: from theory to practice*, 5.

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10. IAP, A2.

11. Ibid.

12. Ibid.

13. Architecture Canada. *Canadian Handbook of Practice for Architects (CHoP)*. Ottawa: RAIC, 2nd Ed, 2009, ch. 2.3.4, pg. 3.

14. CHoP, ch. 2.3.4, pg. 5.

15. Bernard Tschumi, “The Manhattan Transcripts,” tshumi.com, Bernard Tschumi Architects, 1976-81, accessed October 4, 2020, <http://www.tschumi.com/projects/18>.

16. Koolhaas, Tschumi, “2 Architects 10 Questions on Program.”

17. Ibid.

18. Ibid.

19. Koolhaas, “Parc de La Villette.”

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Nishnaabemwin Online Dictionary: Public. “Program.” Nishnaabemwin Online Dictionary: Public. Accessed October 3, 2020. <https://dictionary.nishnaabemwin.atlas-ling.ca/>.

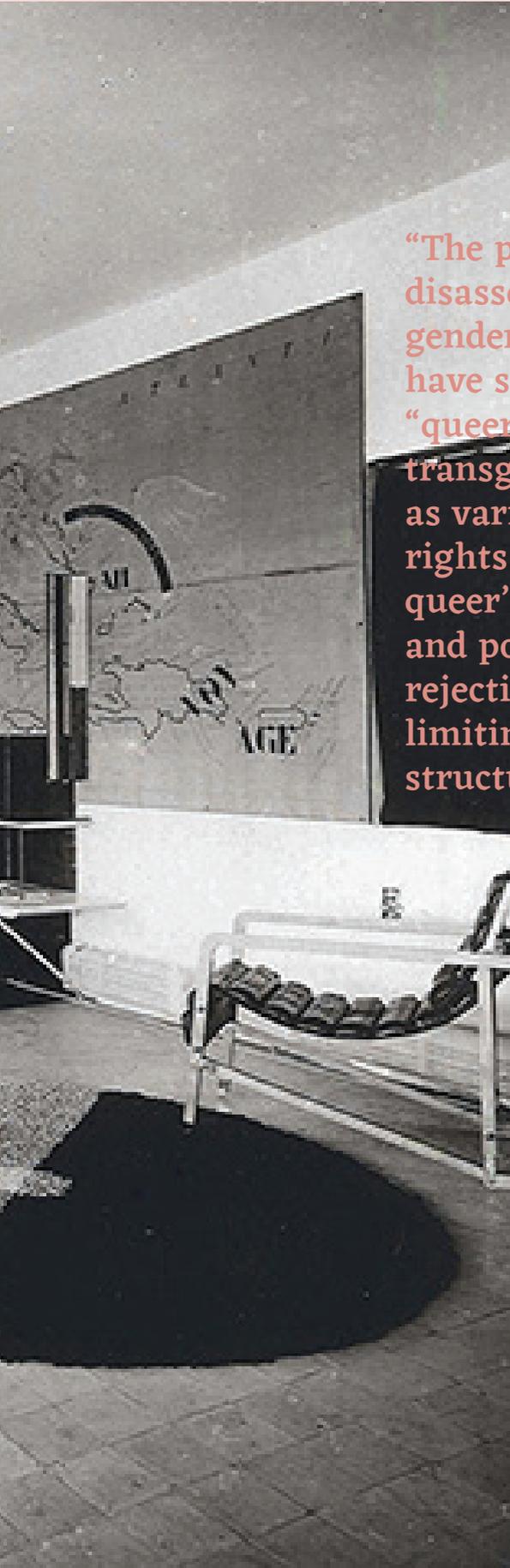
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Koolhaas, Rem, Bernard Tschumi, Ana Miljacki, Amanda Reeser Lawrence, and Ashley Schafer. “2 Architects 10 Questions on Program.” PRAXIS: Journal of Writing Building, no. 8 (2006): 6-15. Accessed October 4, 2020. <http://www.jstor.org/stable/24328969>.

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Villa E.1027 Interior, Eileen Gray



“The principle of “queer,” then, is the disassembling of common beliefs about gender and sexuality . . . As activity, we have seen the assertion of identity of “queers,” notably held as lesbian, gay, transgender, bisexual, and transsexual, as variants of human behavior that have rights on their own terms. As theory, queer’s derivation from postmodernism and post- structuralism leads to the rejection of all categorizations as limiting and labeled by dominant power structures.”¹

Queer

by : Kristina Hakala, Cassidy Duff & Kelly O'Connor

Queer (n)

/kwɪə(r)/

Formerly a derogatory term expressing contempt towards gay individuals, now reclaimed as an umbrella term for those who do not identify as heterosexual or cisgendered.

French:

Bizarre
Étrange

Ojibwe

tbd

Theorists

Christopher Reed
José Esteban Muñoz
Max H. Kirsch
Judith Butler

After decades of fighting for sexual and gender rights, discrimination still occurs.¹ Andrew Sullivan, editor and author explains, “asserting that homosexuals have no more choice in their orientation than those born into a race category have about their racial group.”² For years, queer people have been fighting for inclusion, recognition, acceptance, and to be treated equally. According to the National Gay and Lesbian Task Force, an encouraging number of Americans support homosexuals, aiding in continuing the discussions and fight towards their freedom.³

In conjunction with the increasing number of citizens supporting the gay community, scholars engaged in further debates, leading to the integration of identity studies in the academic environment, more specifically, Queer Theory.⁴ In relation to traditional views, author Max H. Kirsch explains, “the focus of this theory has been loosely directed at showing how and why traditional disciplinary expositions have failed to do justice to queer populations.”⁵ The critical understanding of queer beliefs and the development of queer theory still continues today. Early queer theory was influenced by postmodernism and post-structuralism between 1970 and 1980. The introduction of queer theory into academic programs brought a “period of rapid social change: structures of the family, notions of the individual, and definitions of the ‘social’ all were transformed.”⁶ During the late 20th Century of postmodernity, knowledge, and cultures were questioned. The understanding of queer

1. Max H. Kirsch, “Part 1: Positioning Queer Theory,” in *Queer Theory and Social Change* (London, UNITED KINGDOM: Taylor & Francis Group, 2001), <http://ebookcentral.proquest.com/lib/jndlu-ebooks/detail.action?docID=165924>. 15.

2. *Ibid.*

3. *Ibid.*, 16.

4. *Ibid.*, 17.

5. *Ibid.*, 32.

6. *Ibid.*, 19.



Figure 1 "Out of the closet and into the streets", National Museum of American History.

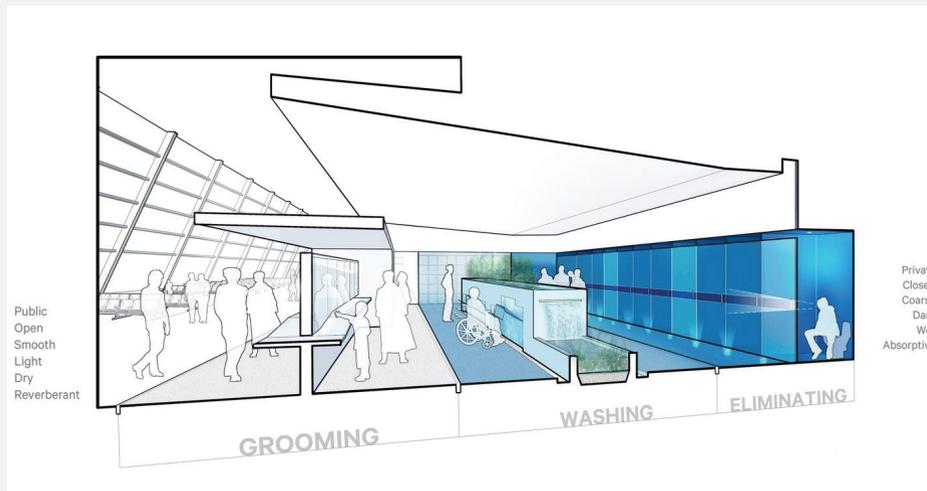


Figure 2
Airport Prototype, Stalled!, 2015.

A section perspective showing the relation and progression of public to private space in this gender neutral washroom.

began to shift and destabilize.⁷

Each individual has their own unique experience; however, they must be able to adapt to change through observation and at minimum, attempt to understand other individuals' experiences.⁸ Kirsch explains, "*dominant strands of current Queer theory, such as the signification of the self, the concentration on performativity, and the deconstruction of roles and identities pose the danger of forgetting that observable norms do exist...*"⁹ Opinions and theories on the subject of queer cannot be discussed effectively without expanding your knowledge and understanding beyond your own experience; similar to the study of architecture.¹⁰

Christopher Reed defines queerness as a choice of identity, pulling from gay and lesbian movements in the 1980s, joining "all manner of sex/gender scofflaws under

a simple in-your-face term."¹¹ He believes that queer space is not the physical space itself, it is the collection of queer people that inhabit the space and claim their territory. Reed often defines queer space with the word imminent, which means "ready to take place".¹²

A commonly known architectural metaphor for queer space is the closet and the washroom. "Although it wasn't until the 1960s that the term "coming out of the closet" entered the cultural lexicon, the closet itself is foundational to queer narratives and how they've been told."¹³

The U.S. government has tried to put restrictions on the use of public washrooms by dividing them by gender. American architect Joel Sanders and professor Terry Kogan are challenging this with their project "Stalled!", where they are "using space to explore constructions of bodies, gender and accessibility, the

7. Max H. Kirsch, "Part 1: Positioning Queer Theory," 20.

8. Éloïse Choquette, "Queering Architecture: (Un)Making Places — The Site Magazine," The Site Magazine, n.d., <https://www.thesitemagazine.com/read/queering-architecture>.

9. Max H. Kirsch, "Part 1: Positioning Queer Theory," 18.

10. Éloïse Choquette, "Queering Architecture: (Un)Making Places — The Site Magazine."

11. Christopher Reed, "Imminent Domain: Queer Space in the Built Environment," *Art Journal* 55, no. 4 (1996): 64.

12. Ibid.

13. "What Do We Mean By Queer Space? - Azure Magazine | Azure Magazine," accessed October 1, 2020, <https://www.azuremagazine.com/article/what-do-we-mean-by-queer-space/>.

design provides a conceptual template for a new kind of public facility.¹⁴ Stalled! consists of three zones; washing, grooming and eliminating, and aims to “address an urgent social justice issue: the need to create safe, sustainable and inclusive public restrooms for everyone regardless of age, gender, race, religion and disability.”¹⁵ Multiple washroom prototypes have been created to apply their design to different public programs. Figure 2 is a diagram of the Stalled! prototype for an airport, showing the progression from grooming to washing to eliminating, and from public to private spaces.

Queer space theorists have stated that while notions of public and private space exist, these spaces are continually overlapping and that the division of these spaces are not relevant.¹⁶ Eileen Gray's E.1027 house can be studied through the lens of a queer space analysis.¹⁷ The struggle between Gray and Le Corbusier for the ownership of E.1027, along with Gray's intimate and deliberate design that left the sphere of private space to reach the public realm, are important features of the building's history.¹⁸ In Gray's design, seclusion and comfort were important aspects to consider. E.1027 was built as a two level house on a secluded plot along the French Mediterranean coastline, accessible only via a winding footpath.¹⁹

“While questions of gender and sexuality are never explicitly addressed by Gray, she is careful to avoid the use of the supposedly gender-neutral term ‘man’, the standard in modernist architectural theory of the time, replacing it wherever she can with ‘individual’, ‘inhabitant’ or ‘human being’.”²¹

Each room of E1027 was designed to be multi-purpose, functional, include sensually engaging furnishings and have the possibility for privacy and independence.²⁰ Within the main living room is a sleeping alcove, this space is a part of the main room but the

impression of separation can be experienced through the window shutters that blocked out exterior light, creating a shadowed area.²¹ Next to this sleeping alcove, a shower niche is located behind a screen that does not reach the ceiling.²² Nothing can be seen from the main room while one takes a shower, but the sound of water can be observed throughout the room.²³ These specific examples blur the lines between public and private space, that overlap the functions of the main room.

All Queer people face different forms of discrimination and have a common goal of fighting for inclusion, recognition, and acceptance, which has led to the introduction of queer theory into the academic and architectural circles. The rapidly changing discussion on the social and now architectural aspects of queer theory, have led to the development and adaption of new ways of thinking how people interact with each other and the queer space. Most define queer space, not through the physical space itself, but through the group of people in the space. Queerness is an identity, and architectural projects, like many other professions, are transitioning to the new social standard of gender neutrality. Spaces such as the washroom prototypes in the Stalled! project, bring everyone into varying degrees of overlapping public and private domains. The overlap of public and private space is studied through the lens of queer space analysis. Eileen Gray's Villa E-1027 is an example of this overlap, shown through the main room with sleeping and showering areas that are both connected and separated from the main space. “Fundamentally, queer space is space in the process of, literally, taking place, of claiming territory.”²⁴ There is a need for queer space in architecture that provides all with the opportunity to exist in the overlap of private and public space.

Cover Image

Gray, Eileen. “Villa E.1027 Interior.” n.d. Photograph. Accessed from Minniemuse: Colby Mugrabi (2017), <https://www.minniemuse.com/articles/musings/e-1027>.

Figure 1

“Out of the closet and into the streets,” National Museum of American History, n.d. Photograph. Accessed from Azure Magazine: Evan Pavka (2020), <https://www.azuremagazine.com/article/what-do-we-mean-by-queer-space/>.

Figure 2

Stalled!. “Airport Prototype.” 2015. Drawing.

14. “What Do We Mean By Queer Space? - Azure Magazine | Azure Magazine.”

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20. Ibid, 113.

21. Ibid, 113-114.

22. Katarina Bonnevier, “A Queer Analysis of Eileen Gray's E.1027,” In *Negotiating Domesticity: Spatial Productions of Gender in Modern Architecture*, 169. Florence, UNITED STATES: Taylor & Francis Group, 2005. <http://ebookcentral.proquest.com/lib/jndlu-ebooks/detail.action?docID=243244>.

23. Ibid.

24. “What Do We Mean By Queer Space? - Azure Magazine | Azure Magazine.”



“Wherever there is life there are norms.”¹

P

Standard

by : Kristen Aleong, Muriel Barker & Miguel Veillette

Standard *(n, a)*

/standərd/

Standardization identifies norms or types that can be seen as rules or limiting factors. As regulatory measures, standards may be facilitators of efficiency and order.

French:

Norme ou standard

Ojibwe

Aki (land/location)

Ningoding (time)

Inawemaagan (relationships/kinship)

Theorists

Le Corbusier

Siegfried Giedeon

Nader Vossoughian

Today, standards are mainly seen as a means of regulating industry practices. All fields of work are governed in some way by standardization, from labour practices to units of measurements and certification requirements. In fact, it can be argued that every man made object was influenced by a set of standards. The use of the word 'standard' has two intentions. The first being, a norm or the typical of a set of classifications.² The second meaning a set rule or limiting factor. Standardization has long been referred to as normalization. Norma, in Latin means set-square and normalis, meaning perpendicular.³ The concept of the norm and the standard arise from the desire to give order, particularly in geometric space. Anything that deviates from perpendicularity and the cartesian grid is seen as skewed and abnormal. The purpose of the norm or the standard, is to regulate the abnormalities, to contextualize, them and to alienate them from the ideal.⁴

Standardization can and has been used as a form of oppression and dominance just as it can serve important regulatory measures. On one hand, the standardization of building practices proved revolutionary in occupant safety. However, by creating norms and standards, one assumes something to be normative, which is in itself militant and intolerant of the abnormal.⁵ Standards must define a certain level of tolerance to properly define themselves, making anything outside of such standard intolerable, insufficient or valueless.⁶

1. Canguilhem, Georges. "Normality and Normativity," in *A Vital Rationalist: Selected Writings from Georges Canguilhem*, ed. Francois Delaporte (New York: Zone Books, 2000), 351.

2. Merriam-Webster's Learners Dictionary, s.v. "Standard." Accessed October 1, 2020, <http://www.merriam-webster.com/dictionary/Standard>.

3. Pottage, Alain. "ARCHITECTURAL AUTHORSHIP: THE NORMATIVE AMBITIONS OF LE CORBUSIER'S MODULOR," *AA Files*, no. 31 (1996): 68. Accessed October 6, 2020. <http://www.jstor.org/stable/29544004>.

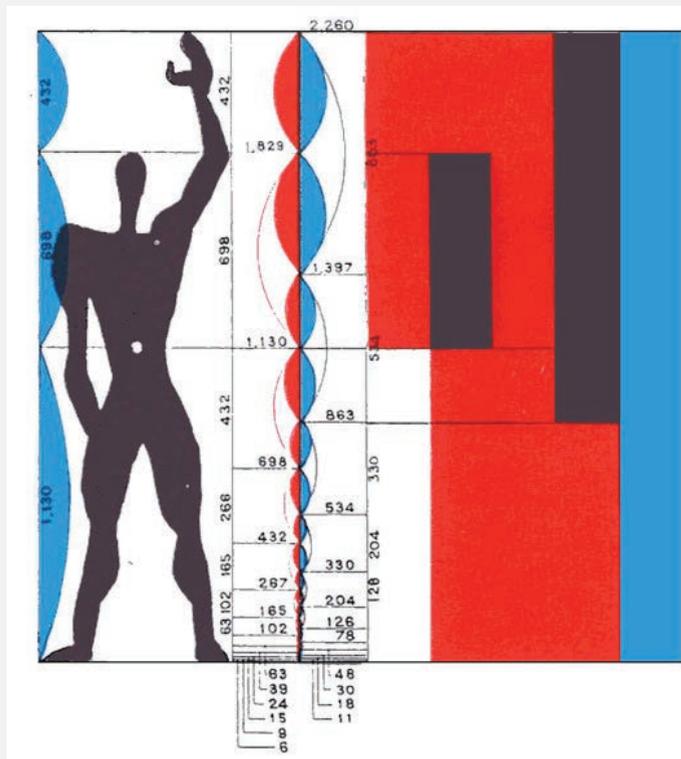
4. Canguilhem, Georges. "Normality and Normativity," in *A Vital Rationalist: Selected Writings from Georges Canguilhem*, ed. Francois Delaporte (New York: Zone Books, 2000), 383.

5. *Ibid.*, 364-365.

6. *Ibid.*



Figure 1 Aircraft Assembly Line, The Portal to Texas History



“Standards such as DIN 476 [paper format standards used today] specifically help us to understand better how we can use modular systems to comprehend more successfully complex spatial conditions. They simplify and help to rationalise the design process.”⁷

Figure 2
The Modular, Le Corbusier, 1946.

Le Corbusier's attempt to create a standard proportion of the male body, developing a scale at which to improve both function and appearance.

Standardization became increasingly valued with the acceleration of fabrication during the industrial revolution. With the advent of mechanization, mass production of products required little human intervention.⁸ Mechanized production demands that a standard of the product be established. Standards are based on several factors, such as the average or popularity.⁹ The issue with this method is that it assumes customs. Standardization of industrial objects depict an untrue uniformity to society. When these technological mechanized assembly lines or production methods are formed standard size, shape, and quality of items are chosen, often making it exceedingly difficult for designs to further evolve.¹⁰ Introducing mass production not only meant that items could be created more uniformly, and in a timely manner, it also meant products would become cheaper. Through mechanization machine could replace

man, eliminating the need to use skilled labour to craft products. In turn this created a use and dispose societal mentality. This also results in a diminished appreciation for the product and its innovative design due to the ability easy replacement.¹¹

On the other hand, particular standards came to play paramount roles in society. For instance, the ohm, without which the British telegraph network would not have proliferated, and the meter, which signified unity during the French Revolution and became the default unit of measurement in most of the world.¹² Likewise, the standardization of building components greatly expedited and optimized building procedures, allowing a general consensus on fabrication and assembly processes.¹³ The prefabrication of material was less costly and produced less waste because of such standards.¹⁴ Standards also

allowed members of society to acquire occupations that otherwise require years of experience and education.¹⁴ Standards themselves transformed the architectural practice as “standardization in industry went hand-in-hand with the standardization of workplace procedures”¹⁵ The increasing use of design and buildings standards in offices decreased the need for knowledge and experience previously required to work certain positions. To this day standard occupational requirements reciprocate the evolving standards of design technologies such as BIM softwares.¹⁶

The degree to which standards control the architectural practice cannot be overlooked. When space is created there are standards set by others that architects must abide by, such as municipal building codes, developers and even furniture sizes. Members of power have long used standardization to enforce control over general populations.¹⁷ An example of this is China's use of standardization. Yingzao Fashi, by Li Jie, was the first official book to standardize building across China, Standardization of building methods, sizes, labours, and materials allowed for control over spending.¹⁸ The architecture of each of China's climatic zones would look very different today without the unification that standards allowed.¹⁹ This unification is a government tool, representing the power of one ruler. The creation of building standards was used as a method to consolidate national control over the general population.

Modern architect Le Corbusier used standardization as a form of control. Illustrated in his urban planning methods and five points of architecture. These principles create a standard for architecture to control the existing relationships, what he refers to as “chaos”.²⁰ A single mind plans the city and the factory so a single brain directs its activity.²¹ What Le Corbusier fails to recognize is that people are much more than just a standard. There is a complexity to people that reaches beyond the standard. There are emotions, conversations, interactions that are happening within the space that a standard does not detect. This is seen in Le Corbusier's

attempt to create a standard modular system with his publication of Modulor which has proven unsuccessful in its ignorance of the variety of body types and sizes.²²

In conclusion, the relationship between the environment and the living is what determines the standard.²³ Although there is a sense of control that comes with the word standard we also have the ability to change the standards. What is standard at one time may become atypical in another time. Within all disciplines, “[s]tandardization must itself be understood as a process that transforms the subject and not just the object. Standardization participates in shaping our thoughts and not just our things.”²⁴ The use of standards set for the whole is helpful as the decision to standardise is representative of a collective.²⁵

“It is better just to hand students the elements of architecture, as is done in this Architect's Data, where I have attempted to reduce the building blocks of design to the essentials, to schematise and even to abstract in order to make imitation difficult and force students to produce form and content from within themselves”²⁶

Cover Image
Standard construction lumber production. Photograph by author.

Figure 1
“Aircraft Assembly Line.” The Portal to Texas History. Lockheed Martin Aeronautics Company, Fort Worth.(accessed October 7, 2020) <https://texashistory.unt.edu/ark:/67531/metaph04750/>.

Figure 2
The Modular, Le Corbusier, 1946.

7. Nader Vossoughian, “From A4 paper to the Octametric brick: Ernst Neufert and the geo-politics of standardization in Nazi Germany,” *Journal of Architecture* 20, no. 4 (2015): 675-689. <http://libweb.laurentian.ca/login?url=https://doi-org.libweb.laurentian.ca/10.1080/13602365.2015.1072232>

8. Giedeon, Siegfried. “Toward a Typical Approach,” in *Mechanization Takes Command*. (New York: Oxford University Press, 1948). 10. [http://libweb.laurentian.ca/login?url=https://www-fulcrum-org.libweb.laurentian.ca/epubs/h128nd83d?locale=en#/6/182\[xhtml0000091\]/4/4/1:0](http://libweb.laurentian.ca/login?url=https://www-fulcrum-org.libweb.laurentian.ca/epubs/h128nd83d?locale=en#/6/182[xhtml0000091]/4/4/1:0)

9. Giedeon, Siegfried. “The shaping of the Standard type,” in *Mechanization Takes Command*. (New York: Oxford University Press, 1948). 706. [http://libweb.laurentian.ca/login?url=https://www-fulcrum-org.libweb.laurentian.ca/epubs/h128nd83d?locale=en#/6/182\[xhtml0000091\]/4/4/1:0](http://libweb.laurentian.ca/login?url=https://www-fulcrum-org.libweb.laurentian.ca/epubs/h128nd83d?locale=en#/6/182[xhtml0000091]/4/4/1:0)

10. Ibid., 704.

11. Ibid., 706.

12. Russell, Andrew L. “Standardization in history: a review essay with an eye to the future.” *The standards edge: Future generations*, vol. 9 (2005): 248. From: <https://arussell.org/papers/futuregeneration-russell.pdf>.

13. Aapaaja, Aki & Haapasalo, Harri. “The Challenges of Standardization of Products and Processes in Construction.” in *Proceedings IGLC-22* (2014), 384. 10.13140/2.1.3993.7600.

14. Ibid.

15. Johnston, George Barnett. *Drafting Culture: A Social History of Architectural Graphic Standards* (Cambridge: MIT Press, 2008) from: http://mitp-content-server.mit.edu:18180/books/content/sectbyfn?collid=books_pres_0&id=7692&fn=9780262101226_sch_0001.pdf (accessed October 5, 2020).

16. Russell, Andrew L. “Standardization in history: a review essay with an eye to the future.” *The standards edge: Future generations*, vol. 9 (2005): 253. From: <https://arussell.org/papers/futuregeneration-russell.pdf>.

17. Johnston. *Drafting Culture: A Social History of Architectural Graphic Standards* (2008).

18. Guo, Qinghua. “Yingzao Fashi: Twelfth-Century Chinese Building Manual,” *Architectural History* 41 (1998): <http://libweb.laurentian.ca/login?url=https://www-jstor-org.libweb.laurentian.ca/stable/1568644>

19. Ibid.

20. Ibid., 4.

21. Scott, James C. “The High Modernist City: An Experiment and a Critique.” In *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, 103-146. New Haven: Yale University Press, 1998. 108.

22. Ibid., 112.

23. Pottage, Alain. “ARCHITECTURAL AUTHORSHIP: THE NORMATIVE AMBITIONS OF LE CORBUSIER'S MODULOR.” *AA Files*, no. 31 (1996): 68. Accessed October 6, 2020. <http://www.jstor.org/stable/29544004>.

24. Canguilhem, Georges. “Normality and Normativity,” in *A Vital Rationalist: Selected Writings from Georges Canguilhem*, ed. Francois Delaporte (New York: Zone Books, 2000), 354.

25. Ibid., 376.

26. Nader Vossoughian. “Standardization Reconsidered: “Normierung” in and after Ernst Neufert's “Bauentwurfslehre” (1936).” *Grey Room*, no. 54 (2014): 34-55, Accessed October 30, 2020. <http://www.jstor.org/stable/43832436>.

27. Neufert, Ernst, Peter Neufert, Johannes Kister, David Sturge, and Nigel J. Luhman. *Architects' Data*. Fifth ed. Chichester, West Sussex: John Wiley & Sons, Ltd, 2019. xiii.



“You do not have the right to eliminate yourself, you do not belong to you. You belong to the universe. The significance of you will forever remain obscure to you, but you may assume that you are fulfilling your significance if you apply yourself to converting all you experience to highest advantage of others. You and all men are here for the sake of other men.”¹

P

System

by : Carolina Hanley, Derrick Pilon, and Chad McDonald

System (*n*)

/ˈsɪstəm/

a regularly interacting or interdependent group of items forming a unified whole

French:
Système

Latin:
Ratio

Theorists
Buckminster Fuller
Paul Edwards
Kazys Varnelis

A system consists of a group of interconnecting elements that form a whole.¹ There are many types of systems that can be studied that are useful within architectural design. Climate studies are an important part of designing buildings. Understanding the climate as a physical system can help change the perception of how it functions as well as how it changes.² Understanding and predicting global warming and its climatic changes involves studying many interlocked systems.³ In his essay *Thinking Globally*, Paul Edwards describes the planet as a network of complex and dynamic systems that interlock rather than an object with one main force.⁴ Edwards stressed the importance of sustainable design and that global warming should force modern day architects to design with a thinking of systems.⁵

Infrastructure can be defined as the system of public works of a country, state, or region.⁶ City infrastructure is a part of the human living system which should ideally connect and respond to respective community needs. These needs can range from socioeconomic issues to environmental issues. Infrastructure too has its layers and complexities. Common stages of infrastructure development involve invention, development, and innovation phases which are summed up as “system builders” which fill a functional need.⁷ According to Edwards, no system can ever fill all requirements needed because of their limited reach. He explains that when the creation of newer systems

1. Merriam-Webster, “System,” Definition of System. Accessed October 1st, 2020. <https://www.merriam-webster.com/dictionary/system>

2. Paul Edwards, “Thinking Globally,” in *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (Cambridge: MIT Press, 2010), Intro pg 14

3. *Ibid* pg 15.

4. *Ibid* pg 2.

5. *Ibid* pg 15.

6. Merriam-Webster, “Infrastructure,” Definition of Infrastructure. Accessed November 1st, 2020. <https://www.merriam-webster.com/dictionary/infrastructure>

7. *Ibid* pg 10.

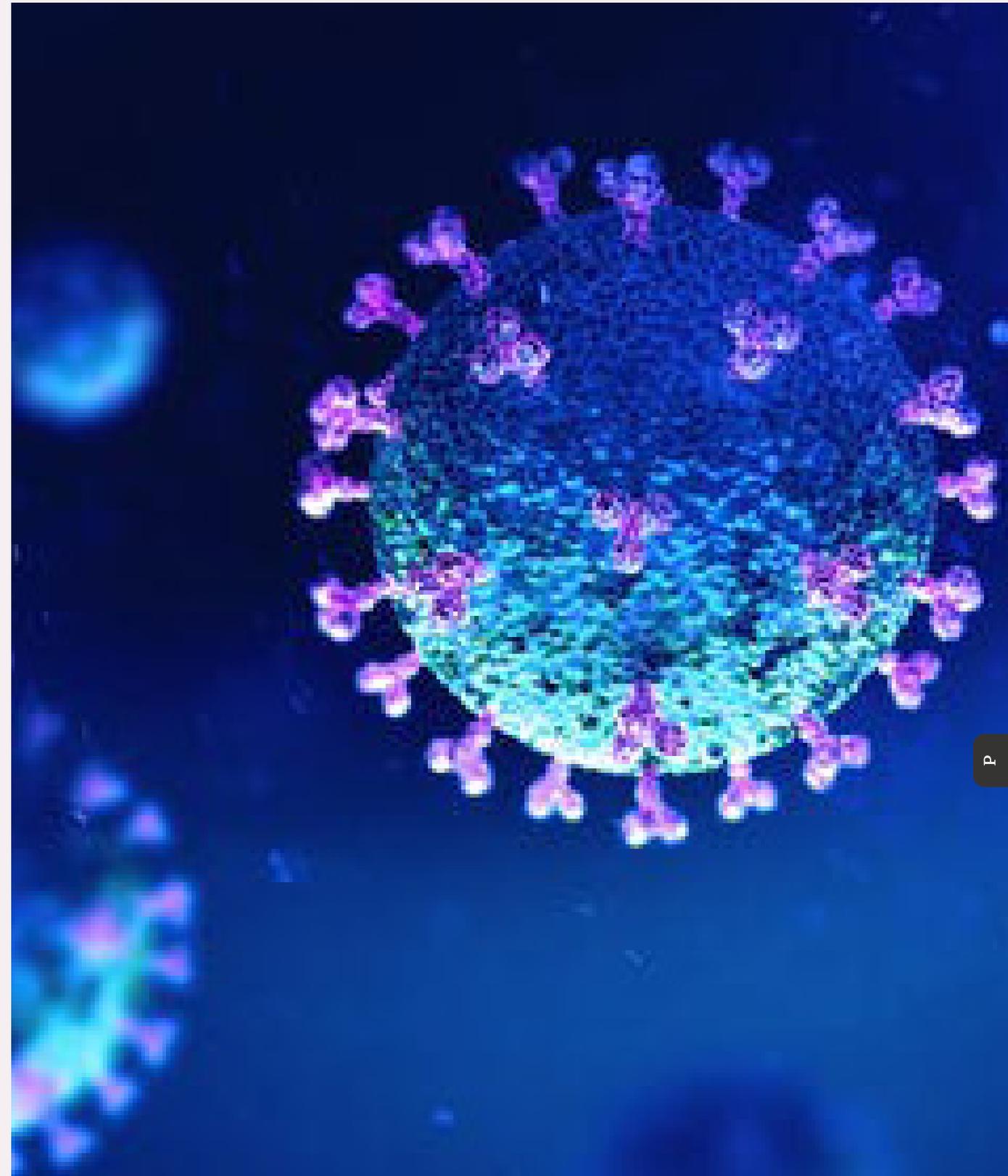


Figure 1 Coronavirus



Figure 3
Geodesic Dome

begins, it responds to the needs from its precursor. Sociotechnical systems have the capabilities of producing knowledge about the whole world.⁸ This is known as Infrastructural Globalism. If this can be done successfully it could create social and scientific legitimacy.⁹ These sorts of complex infrastructural systems theoretically hold influential power, as these have the potential to emerge as leading complex systems.¹⁰

In Buckminster Fuller's text, *Operating Manual for Spaceship Earth*, he begins to talk about the notion that architects are seen as specialists, however they have a wider focus of study compared to most fields of work.¹¹ With this wider lens, taking advantage of a development called general systems theory would help us immensely intellectually.¹²

The earth as described by Buckminster Fuller in the *Whole Earth Catalog* (1968) is already full of the abundant wealth of industrialization.¹³ The past had systems where temporary wealth is what kept our day to day functions in order. We, the people of the future, have this abundance of wealth, and subsequently no longer have the need to work as a result. He explains that humans need political systems and use them to form the functionality of societies, and can no longer change them, barring some sort of revolutionary tactic. The change needed in order to put this scheme in place is beyond the regular societal system of operating, so many people are not comfortable enacting such change that would uproot their life.¹⁴

The universe as a whole operates in a similar way to the structures created by Buckminster Fuller, with

systems operating on the microcosmic and macrocosmic scales.¹⁵ This goes to show that relationships, regardless of scale will always interact in similar ways given the correct proportionality. Man, as we know it has little understanding about just how tentative our situation on earth is in relation to the invisible cosmos.¹⁶

“Developers care about keeping costs low, not about such structures physical appearance.”¹⁷

This statement largely makes sum up the present relationship between that of architecture and Data centers. The author Karzys Varnelis disputes the relationship between Data centers, architecture and its socio-political impact.

Data centers are generally regarded as infrastructural buildings. They focus less on aesthetics and more on function, this leaves the architectural discourse adrift.

“The data center is derived from the warehouse and the supermarket, not a place of production as much as of throughput, aimed at maximizing flows.”¹⁸

What this results in is a space of work that has limited consideration of its occupants and surroundings. It results in a design language that aspires to invisibility¹⁹ meaning they would rather blend in than stand out. This comes contrary to other large corporation's place of works whose designs are contrived as statements.

Where factories typically embrace and embody their internal processes in the building design language, data centers tend more towards that of simply encapsulating the internals with little exterior identification other than that of 'considerably sized cooling equipment'.²⁰ This “anonymous” architectural language results in big box-like designs.

Socially data centers exemplify what Gilles Deleuze calls “Control society”²¹ which discusses the emergence of discipline, surveillance and control some of which through technological advancements. These are marked

by these “discrete” spaces such as data centers. We are reminded of the ethical and humane factors that can be overlooked. With this emergence what's the need to be so discrete if they have nothing to hide?

The discourse between Architecture and Data centers, although in ways extraneous to the ethical issues surrounding data centers and the social implications, is very progressive and opens the doors to betterment for the people and the businesses operating with the people.

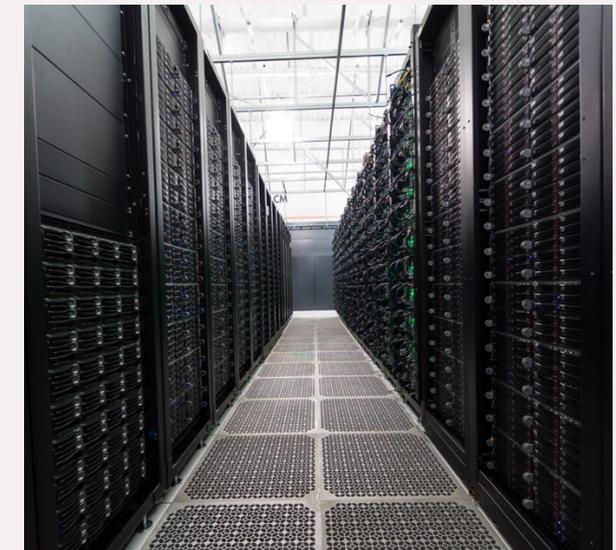


Figure 3
Super Computer

Cover Image
Microsoft. “Systems and Networking Research Group.” Digital Image.
https://www.microsoft.com/en-us/research/group/systems-and-networking-research-group-asia/?lang=fr_ca

Figure 1
Daniel M Davis Professor of Immunology, and Sheena Cruickshank Professor in Biomedical Sciences. “Coronavirus: We Must Step up Research to Harness Immense Power of the Immune System.” *The Conversation*. September 06, 2020. Accessed November 04, 2020. <https://theconversation.com/coronavirus-we-must-step-up-research-to-harness-immense-power-of-the-immune-system-138071>.

Figure 2
Martin, Hannah. “Buckminster Fuller's Geodesic Dome and Other Forward-Looking Architecture.” *Architectural Digest*. February 29, 2016. Accessed October 07, 2020. <https://www.architecturaldigest.com/gallery/buckminster-fuller-architecture>.

Figure 3
staff, TOI, et al. “Israel Pushes Ahead with Tender for Massive Cloud-Based Data Center.” *The Times of Israel*, 27 Aug. 2019. www.timesofisrael.com/israel-pushesahead-with-tender-for-massive-cloud-based-data-center/.

8. Merriam-Webster, “Infrastructure,” Definition of Infrastructure. Accessed November 1st, 2020. <https://www.merriam-webster.com/dictionary/infrastructure> pg 25.

9. Ibid pg 25

10. Ibid pg 25

11. Buckminster Fuller, “General Systems Theory,” *Operating Manual for Spaceship Earth* (New York: Simon and Schuster, 1969). pg 5.

12. Ibid pg 60.

13. Stewart Brand, *Whole Earth Catalog*, 1968-72. https://monoskop.org/images/0/09/Brand_Stewart_Whole_Earth_Catalog_Fall_1968.pdf pg 5.

14. Ibid. pg 4.

15. Stewart Brand, *Whole Earth Catalog*, 1968-72. https://monoskop.org/images/0/09/Brand_Stewart_Whole_Earth_Catalog_Fall_1968.pdf pg 5.

16. Ibid pg 5.

17. Karzys. “Harvard Design Magazine: Eyes That Do Not See: Tracking the Self in the Age of the Data Center.” *Harvard Design Magazine*. Accessed October 7, 2020.

18. Ibid.

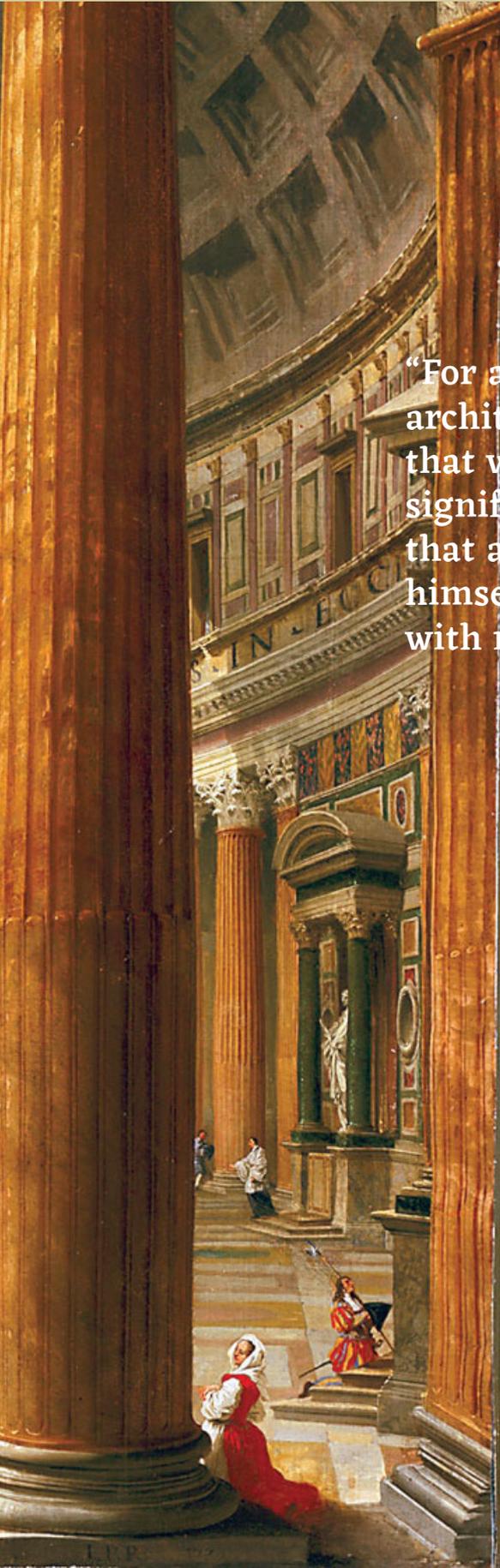
19. Ibid.

20. Ibid.

21. Gilles Deleuze, “Postscript on Control Societies,” in *Negotiations: 1972–1990*, trans. Martin Joughin (New York: Columbia University Press, 1995), pg 177.



Giovanni Paolo: Painting of the interior of the Pantheon, Rome



“For all fields, and especially architecture, comprise two aspects: that which is signified and that which signifies it. [...] Therefore it is evident that a man who wants to proclaim himself an architect must be proficient with regards to both aspects.”¹

Treatise

by : Vennice de Guzman, Rhiannon Heavens, and James Walker

Treatise (n)

/ˈtrɛdɪs/

A formal and systematic exposition in writing of the principles of a subject, generally longer and more detailed than an essay.²

French:

Traité

Latin

Tractatus

Italian

Trattato

Theorists

Marcus Vitruvius Pollio

Leon Battista Alberti

Andrea Palladio

Antonio Averlino

Euclid

This essay will explore the word, ‘treatise’, and its significance in the architectural world. “The word ‘treatise’ first appeared in the fourteenth century as the Medieval English word *tretis*, which evolved from the Medieval Latin *tractatus* and the Latin *tractare*, meaning to treat or to handle.”³ Latin holds significance as this was a primary language in ancient Rome, employed by architectural theorists in the development of their treatises.

There are two major Treatises that have dominated architectural theory; *De Architectura* and *De re aedificatoria*.⁴ The oldest known architectural treatise was written towards the end of the first century B.C. by Roman architect and theorist Marcus Vitruvius Pollio.⁵ The treatise, “*De Architectura*” or “*On Architecture*” was discovered roughly 1500 years after being written, eventually published as “the Ten Books on Architecture”.⁶ Vitruvius dedicates his treatise to Roman emperor Caesar Augustus. He dedicates his treatise to Augustus, in hopes that his writing will be published. Vitruvius “expounds a complete system of architecture” in the Ten books. In book I, he describes the training of an architect, architectural principles, engineering and town planning. In books II-X, Vitruvius systematically addresses architectural matters during his time; building materials, temples and orders, building types, civil engineering, sciences, and war machines.⁷

1. Vitruvius Pollio et al., *Vitruvius: Ten Books on Architecture* (New York: Cambridge University Press, 1999). Pg 6.

2. “Treatise,” accessed October 4, 2020, <https://www.dictionary.com/browse/treatise>.

3. “Treatise,” Merriam-Webster (Merriam-Webster), accessed October 4, 2020, <https://www.merriam-webster.com/dictionary/treatise>.

4. C.W. Westfall, “Why We Need a Third Architectural Treatise,” Newington-Cropsey Cultural Studies Center, 2006, <http://www.nccsc.net/essays/why-we-need-third-architectural-treatise>.

5. Mario Carpo, “Vitruvius, Text and Image,” in *ARCHITECTURE IN THE AGE OF PRINTING: Orality, Writing, Typography, and Printed Images in the ... History of Architectural Theory* (Place of publication not identified, MASS: MIT Press, 2017), pp. 16-22.

6. “Marcus Vitruvius Pollio Biography- Infos for Sellers and Buyers,” Marcus Vitruvius Pollio Biography- Infos for Sellers and Buyers (Art Directory), accessed October 5, 2020, <http://www.vitruvius-pollio.com/>.

7. Vitruvius Pollio et al., *Vitruvius: Ten Books on Architecture* (New York: Cambridge University Press, 1999).



Figure 1 Tempera on wood, Leon Battista Alberti



Figure 2

1521 Italian edition of the Tenth Book of Vitruvius' *De Architectura*, housed at the Metropolitan Museum of Art.

Leon Battista Alberti presents his treatise, “*De re aedificatoria*” or “*On the Art of Building*” approximately 1500 years after Vitruvius. Alberti’s treatise relies heavily on the theories and format of Vitruvius’ “*De Architectura*”. Alberti writes “*On the Art of Building*” in Ten books, which he dedicates to the patron Lorenzo de’ Medici.⁸ Following Vitruvius, he engages in a systematic explanation of matters concerning architecture. Contrary to Vitruvius, four of Alberti’s books focus on ornament, while much of Vitruvius’ text focused on engineering. The other six books in Alberti’s Treatise discuss architecture principles, drawing, materials, construction and public works.⁹ Throughout Alberti’s writing, he subtly compares his opinions to Vitruvius’ in his modern age.

According to Caroline Van Eck, “*Vitruvius’ treatise* is a manual, a summary of contemporary or obsolete

practice, proceeding step by step from subject to subject, without a guiding principle.”¹⁰ Alberti on the other hand, did not address his fellow builders, but spoke as a “counsellor-at-antiquity” who approached architecture as a humanist, trying to discover the principle on which it is based, its parts, and how they can be executed.¹¹

C. W. Westfall on the other hand believed that “*De re aedificatoria*” came out of a need for a new foundation of architecture based upon the rationality and mathematical theories that were emerging in the Enlightenment. Vitruvius’ theories were also pagan in origin, and Alberti needed to create a new treatise on architecture that was based in Judeo-Christian values and sentiments.¹²

Our group finds that the concept of an architectural treatise seems rather quaint in the post-modern secular

8. Westfall, “Why We Need a Third Architectural Treatise”.

9. Leon Battista Alberti and Joseph Rykwert, *On the Art of Building: in Ten Books* (Cambridge, Mass: MIT Press, 1988).

10. Eck, Caroline van. “The Structure of ‘*De Re Aedificatoria*’ Reconsidered.” *Journal of the Society of Architectural Historians* 57, no. 3 (1998): 280–97. <https://doi.org/10.2307/991347>.

11. *Ibid.*

12. Westfall, “Why We Need a Third Architectural Treatise”.

day. The ancient treatises are marked by a desire to condense all that architecture is and could be down into a single encyclopedia of knowledge, as shown by Vitruvius' desire to create "a complete system of architecture"¹⁴ and Alberti's desire to compare himself to Vitruvius.¹⁵ Today, it seems pointless to try to create a systematic description of how architecture should be practiced and pretend that there is only a singular cultural underpinning that should guide that practice. For that reason the architectural treatise has divided into other types of texts which aim to be less final in their intentions. Much of the technical knowledge has been documented in manuals, the cultural and theoretical frameworks moved into books on critical-theory, and the ground-breaking theoretical concepts assigned to manifestos.

Westfall affirms that Vitruvius understood that architecture was an intractable subject for a treatise when he said,

...perhaps it will seem wonderful to inexperienced persons that human nature can master and hold in recollection so large a number of subjects. When, however, it is perceived that all studies are related to one another and have points of contact, they will easily believe it can happen. For a general education is put together like one body from its members.¹⁴

The point being that there is never an end to architectural understanding, because it is a conflagration of many different subjects and understandings of the ways in which humans can live and create.

To that end, we should no longer look to these ancient treatises as holding relevance to our modern world, but as historical artifacts to be appreciated for what they reveal about their time. With every new book that is written on architectural understanding and practice in our contemporary world, we write another chapter in the larger treatise which is the architectural canon.

“Anyone who builds so as to be praised for it -- as anyone with good sense would -- must adhere to a consistent theory; for to follow a consistent theory is the mark of true art.”¹³

Cover Image

Pannini, Giovanni Paolo. *Painting of the Interior of the Pantheon*. Giovanni Paolo Pannini, Italian Painter. Encyclopedia Britannica, 1998. <https://www.britannica.com/biography/Giovanni-Paolo-Pannini>.

Figure 1

Leon Battista Alberti, *Ideal City*, c. 1450. Tempera on wood, 67.5 x 239.5 cm. Urbino, National Gallery of the Marche.

Figure 2

Marshall, Sarah. *1521 Italian Edition of the Tenth Book of Vitruvius' De Architectura*, Housed at the Metropolitan Museum of Art. October 31, 2019. *De Architectura: Vitruvius to Alberti*. <https://www.classicist.org/articles/de-architectura-vitruvius-to-alberti/>.

13. Vitruvius Pollio et al., *Vitruvius: Ten Books on Architecture* (New York: Cambridge University Press, 1999).

14. Ibid.

15. Westfall, "Why We Need a Third Architectural Treatise".

14. Ibid.