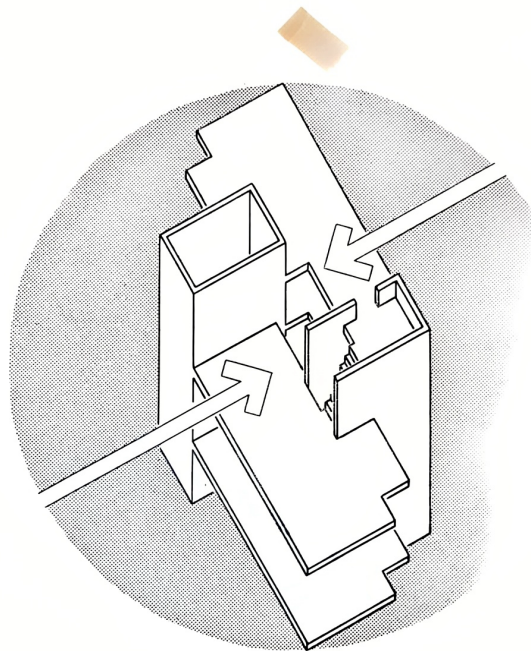


The In Between Space Of Herman Hertzberger

dcz



Front page Figure

Architectural History thesis

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Arnaud Bastiaansen

TU-Delft 6393217

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ABSTRACT:

Polyvalence spaces are the core of the experimental housing project of Diagoon Houses in Delft. Where diagonal visual and acoustic connections are being made through split-level floors around a void. This housing project is one of Hertzbergers earliest designs, while working on his own definition of Structuralism and architectural polyvalence. A space defined as the capacity of a space to generate pertinent solutions for unforeseen situations is translated into specific motifs that prioritize spatial conditions over fixed functions. But are the design intentions of Hertzberger as visible in the early sketches found in the archives or is it only in the theories, mostly written by Hertzberger himself. Are the motives for design decisions visible in the sketches and how do they relate to polyvalence.

Keywords: Hertzberger, Diagoon House, Delft, Polyvalence, Split-level

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Introduction

The Diagoon House, an experimental dwelling designed by the renowned architect Herman Hertzberger, was initially intended for a location in Vaassen. However, when the projected construction costs proved too high, the plans were altered (Von der Nahmer, 2025). On the initiative of the Stichting Experimentele Woningbouw (SEW, Dutch Foundation for Experimental Housing), the project was realized between 1970 and 1971, however relocated to the outskirts of Delft. Ultimately, only eight Diagoon Houses were built there (Von der Nahmer, 2025).

The immense demand for houses after world war 2 resulted in very high scale standardized development projects. Structuralism was a flexible, human centered response supporting social interaction and adaptability to the immense post-war housing development machine of The Netherlands. Key figures in this were architects like Herman Hertzberger, Jaap Bakema and Aldo van Eyck, who were also in the editorial board of the architectural magazine *FORUM* in 1959. The ideological shift gained momentum when *Forum* published "The Story of Another Idea" (Het verhaal van een andere gedachte) in 1959, which served as a fundamental complaint against the ideologies from the post-war public housing developments.

The experiment of the Diagoon Houses were meant as a social prototype for the SEW. In this case it was designed to create a free formwork for easy adaptability by the later resident of the houses. With split-level floors connected by a open stairwell connected by a void creating this open house in which all rooms are adaptable by the residents choice. Not a single house was built like one another because of the various options given in the brochure. Herman Hertzberger is known for leaving space for later interpretation by the user. Multiple books and research has been published about this topic of in between spaces. (Nahmer, 2025)

The purpose of this research is to investigate whether this was truly the intention by which the architect Herman Hertzberger designed the Diagoon Houses, and how this would be visible in the original sketches. This leads to the central research question: How do the preliminary sketches of the Diagoon House line up with the architectural theory written by, and about, Herman Hertzberger?

To answer this, the study will utilize the large collection of Herman Hertzberger's work preserved by the Dutch national architecture archives (Het Nieuwe Instituut), drawing on both their online and extensive physical archives. Analysing these drawings will be done as objectively as possible. However, absolute objectivity cannot be guaranteed, because any such visual analysis inherently relies on speculating about what the exact intentions of Herman Hertzberger were at that specific time. The purpose of this methodology is therefore to establish the most plausible connection between his early sketches and his established structuralist theories.

Chapter one, concepts of versatility

How do the theoretical concepts of versatility translate into specific architectural motifs in the design sketches of the Diagoon House?

A polyvalent space, one designed to be adaptive for own interpretation of the user. As Hertzberger states in *Architecture and Structuralism* about the Diagoon House: "Essential to the whole was the intention not to make a neutral shell to be filled in, but to deliberately proceed from a spatial form that could free the way for certain options for use, generating a spark in the minds of the occupants that could set the engine of ideas in motion" (Hertzberger, *Architecture and Structuralism: The ordering of Space*, 2015).

Hertzberger describes here the spaces around the staircase in the middle of the Diagoon House did not have a direct purpose but were free to be filled in by the imagination of the occupants. In the Diagoon House this meant that the cores of the A and B version of the Diagoon House were placed next to each other together with the usual utility spaces like the kitchen and bathrooms to create a cheaper structure. The other undefined polyvalent spaces which are directly connected to the stairs and void creating a connection between every split-level floor.

To Herman Hertzberger the a polyvalent space is not like an electric shaver which only serves a limited amount of purposes but a polyvalent space should be like a musical instrument where it is up to the user what music is being played.

But what does polyvalent mean in the architectural context? Herman Hertzberger aimed for polyvalent rooms in the Diagoon House but how does this differ from multifunctional rooms? In a multifunctional space the designer or architect specifically designs the space for several purposes which the space can adapt to, in a polyvalent space the designer or architect does not have a specific purpose in mind other than the later owner adapting it to its own needs. The space therefore does not necessarily need to be a blank space but should contribute "a maximum of spatial conditions that in principle can figure in every situation and in every designation" (Hertzberger, *Diagoon Housing Delft*, 2016). Hertzberger then gives the example of a cardboard box used by a child. The situation of the possibilities a child has with a cardboard box resembles a polyvalent space in a building, the polyvalent space stimulates every interpretation of whoever uses it.

Hertzberger then also describes how the idea of polyvalence is a thing hard to capture into a definite form but that the space should be made and materialized to a basic form that suits every situation. This is also key to the structuralist vision Hertzberger embraced, the polyvalent spaces serve as a structure for own interpretation and imagination of its future user.

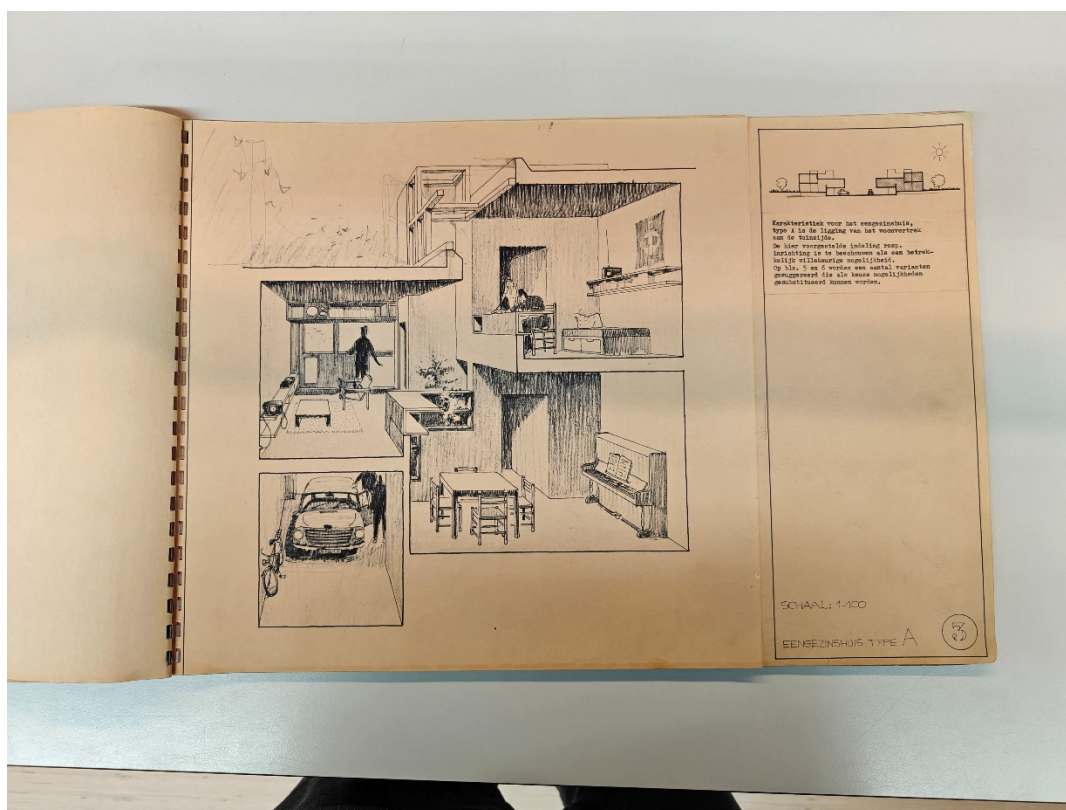
Structure can be interpreted in different ways. Structure organizes elements in systems and controls the elements so that they work or fit together. But when the structure is open enough it allows room for own interpretation. Then the structure is there to guide the user and gives the user a canvas to work with, only the grid of the canvas is already put together.

"Structuralism is about structures that are not only open to influences from their users but are actually dependent on them. Although that input can change over time, the whole essentially remains the same." (Hertzberger, *Architecture and Structuralism: The ordering of Space*, 2015)

By this structuralist vision the experimental Diagoon Houses were built in Buitenhof Delft with the motto: House = shell + infill. The architect delivers an unfinished "semi-finished product" (halfproduct), which the residents complete, expand, or finish themselves based on their functional and emotional needs. This half-product was built with the interior as a continuous volume of split-levels arranged around a central void connected by stairs. Through this void all the split-level floors are connected as shown in figure 1. Also visible is the diagonal viewlines the split-level floors create, that is also where the Diagoon House got its name from.

Figure 1

Eensgezinswoning A



Note. Section scale 1:100 by Herman Hertzberger (1971) in a lightly annotated version of the *Woonvorm* booklet. A section perspective on how multiple rooms are connected to each other through this void in the middle of the house.

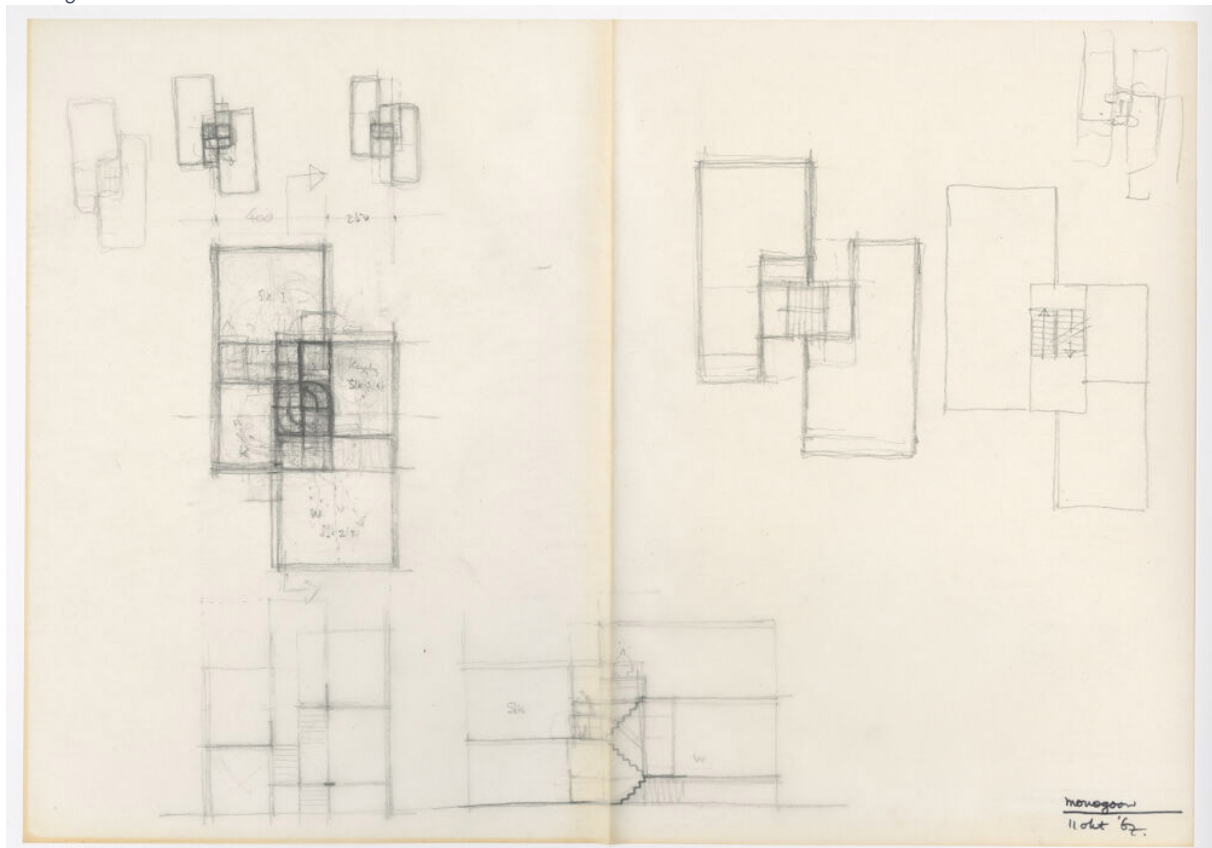
Chapter two, archival sketches

How do the archival sketches show the development of the intermediate space in the Diagoon houses?

As described in chapter one a polyvalent space is one within a structure, free to be interpreted by the creative mind of the future user. In 2013 Hertzberger donated a large batch of his early sketches to Het Nieuwe Instituut. A selection of the sketches on the theme of polyvalence in the intermediate space of the Diagoon House is made to research the development of the intermediate space. Hertzberger started designing with a monogoon version in which the floors are all connected by the stairs and split-level floors as shown on the sections and floorplans (figure 2). The early sketches from the Monogoon House start with the core in the middle of the building which creates a in-between scene around the stairs.

Figure 2

Monogoon

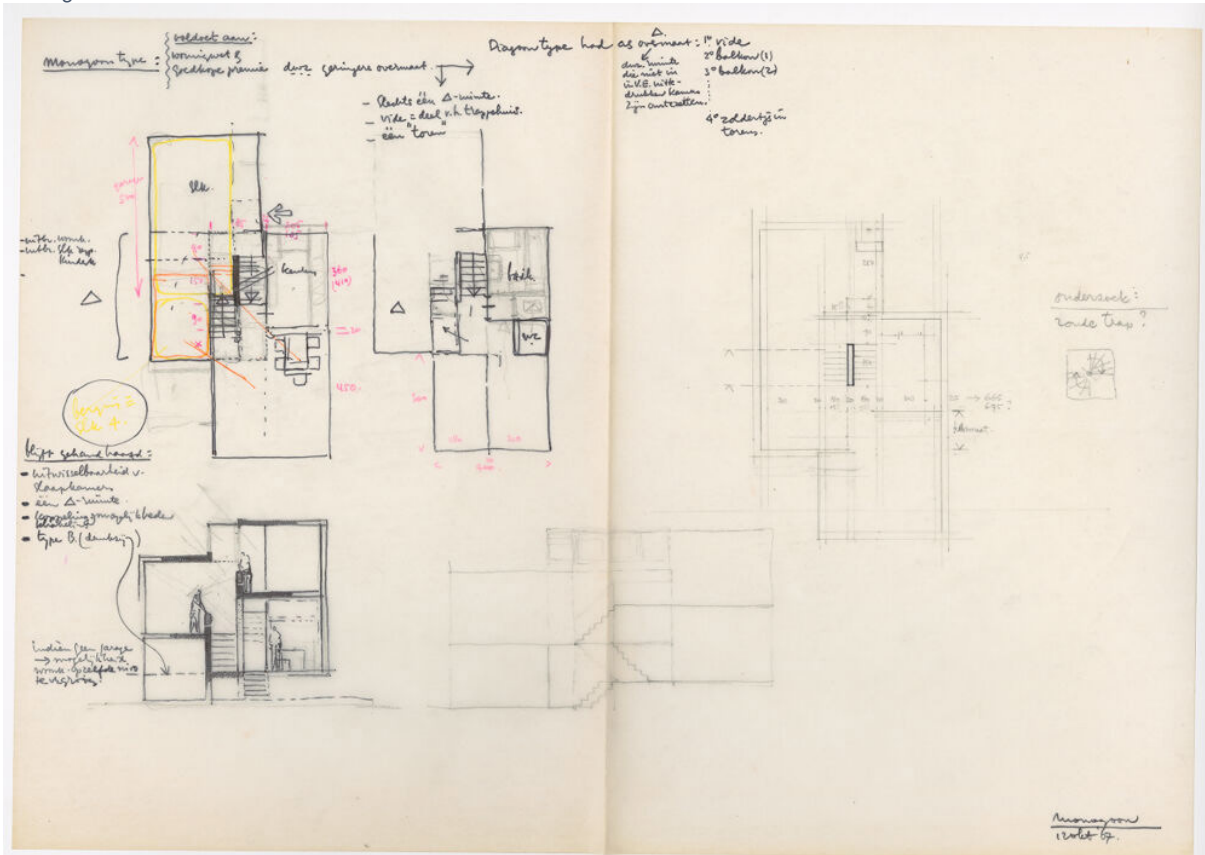


Note. Early design sketches for the Monogoon House from 11th of Oktober 1967 by Herman Hertzberger. The sketches focus on the circulation of the house with sections and floorplans experimenting with split-level floors.

In figure 3 is visible that the stairs are becoming a more important moment in section where people actually have the chance to have a visual connection diagonally (as is marked with the orange diagonal lines on the floorplan). With these overlapping rectangles with the stairs crossing on this section the floorplans created are again slightly bigger then in the drawn floorplans of figure 2.

Figure 3

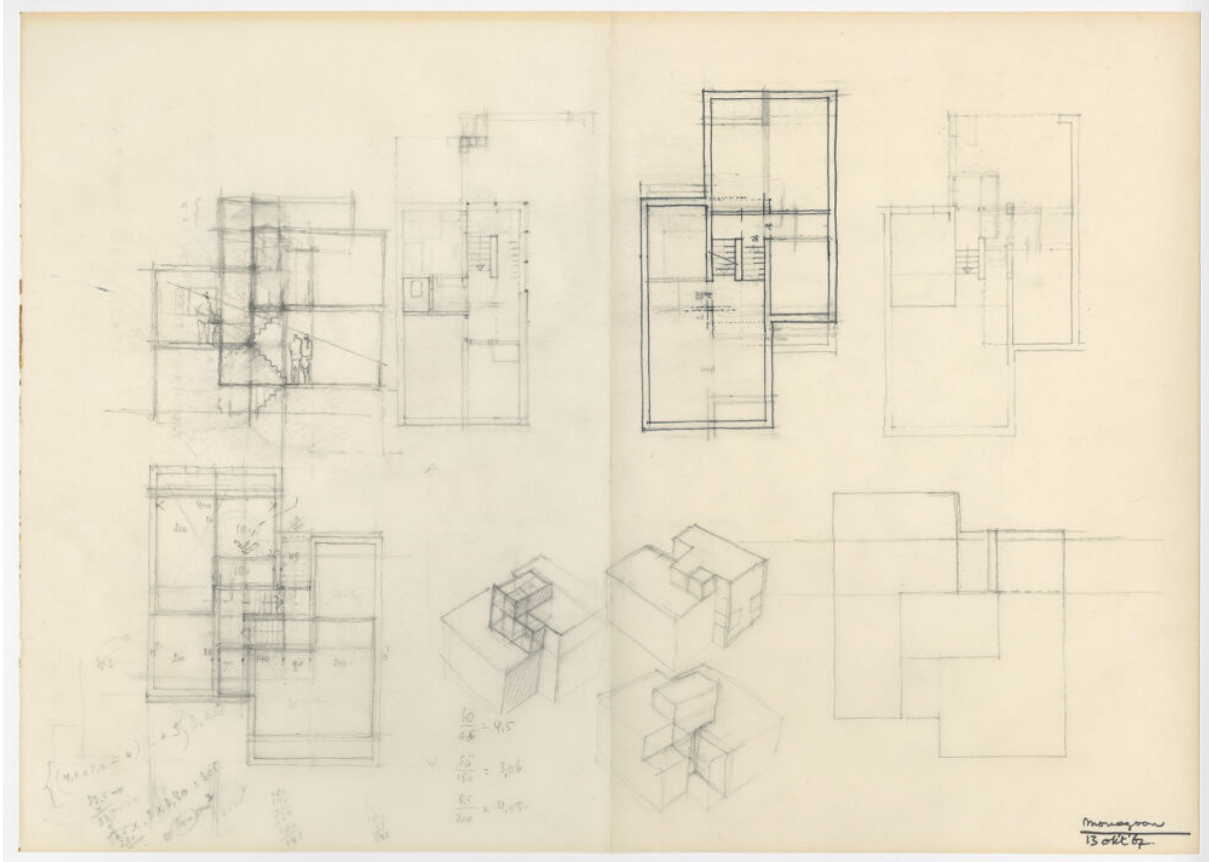
Monogoon



Note. Early design sketches for the Monogoon House from 12th of Oktober 1967 by Herman Hertzberger. The sketches focus on the circulation of the Monogoon House in plan and section. Also the description of differences in the Monogoon House and Diagoon House is written in the top of the drawing which is more excessive space in the Diagoon House.

Figure 4

Monogoon

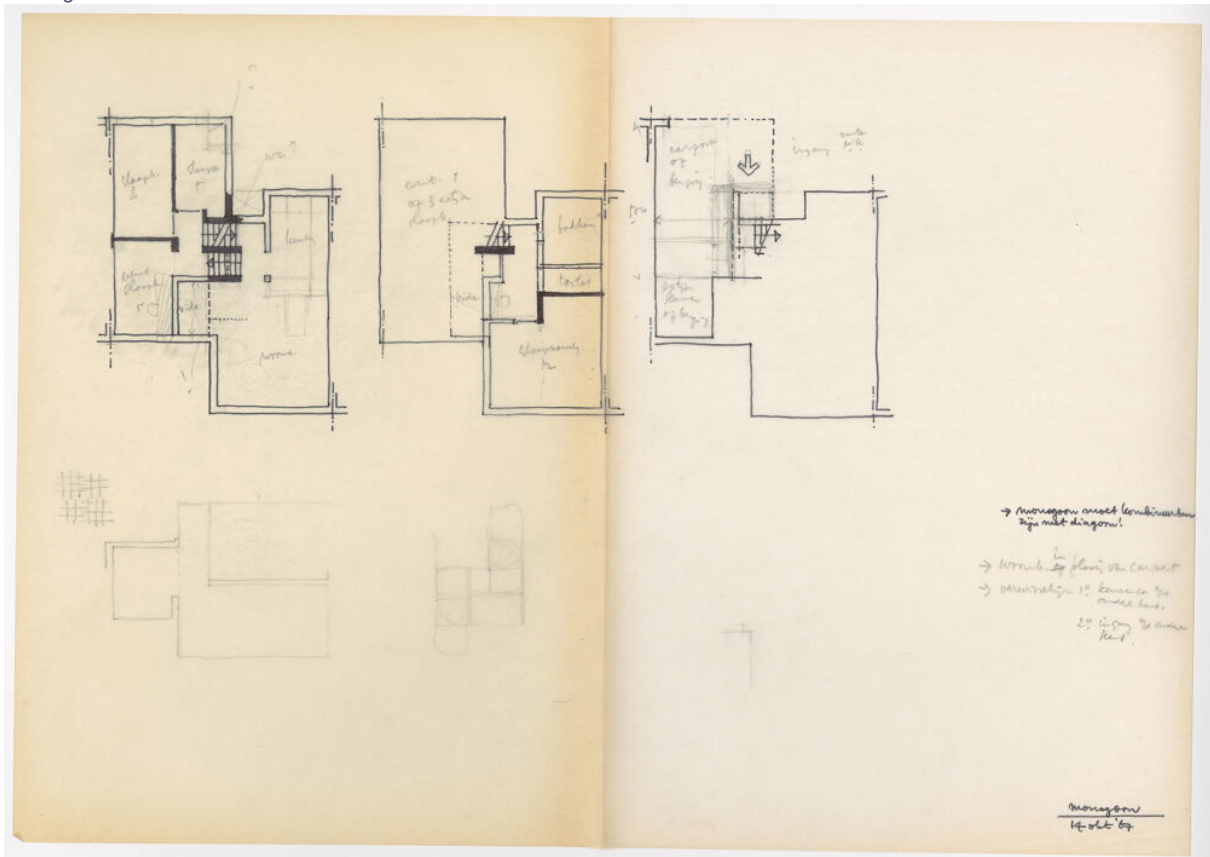


Note. Early design sketches for the Monogoon House from 13th of Oktober 1967 by Herman Hertzberger. The sketches represent studies on the stairs in plan, section and 3D volume.

In the sketches of figure 4 the draw more in detail plans, sections and perspectives of the stairs. The way Hertzberger makes use of the three different views is interesting, this shows the great three-dimensional thinking in how the void in core of the building reacts to changes made in dimensions. Again in section the relation between the split-level floors is drawn to design the structure as a whole.

Figure 5

Monogoon

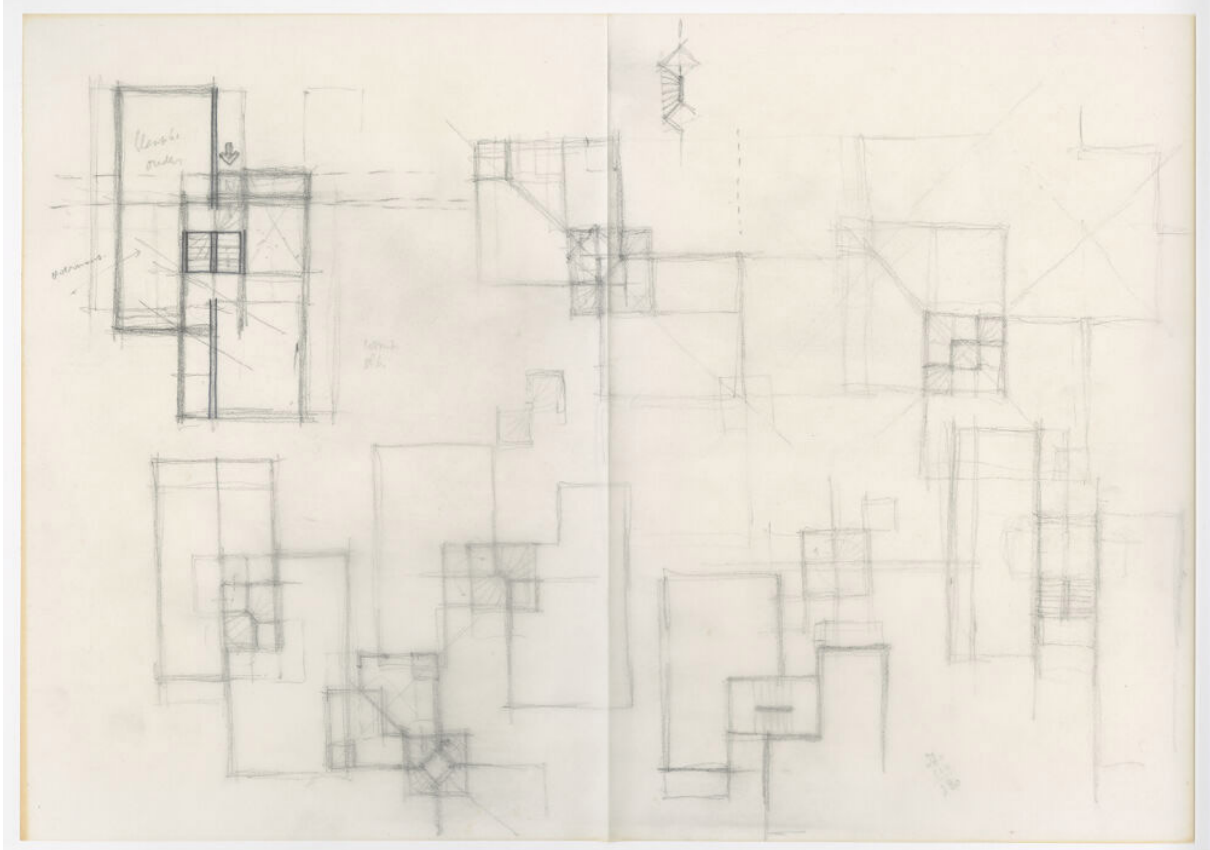


Note. Early design sketches for the Monogoon House from 14th of Oktober 1967 by Herman Hertzberger. The sketches represent studies on floorplans in relation to the stairs. A small note on the right side of the scan mentions that the Monogoon House has to be able to connect with the Diagoon House.

Interestingly Hertzbergers goal was to design a House with polyvalent spaces while in these sketches the floorplan is divided and annotated with specific rooms. Specific rooms like a bathroom can not be switched easily from its location in the building. Changing the water and sewage infrastructure is not that easy, so that tag is not a surprise. But the division of the floorplan into different bedrooms as shown on the left floorplan is a bit against the freedom of the future user. The polyvalence of the space has now been limited to smaller spaces.

Figure 6

Trappenhuis

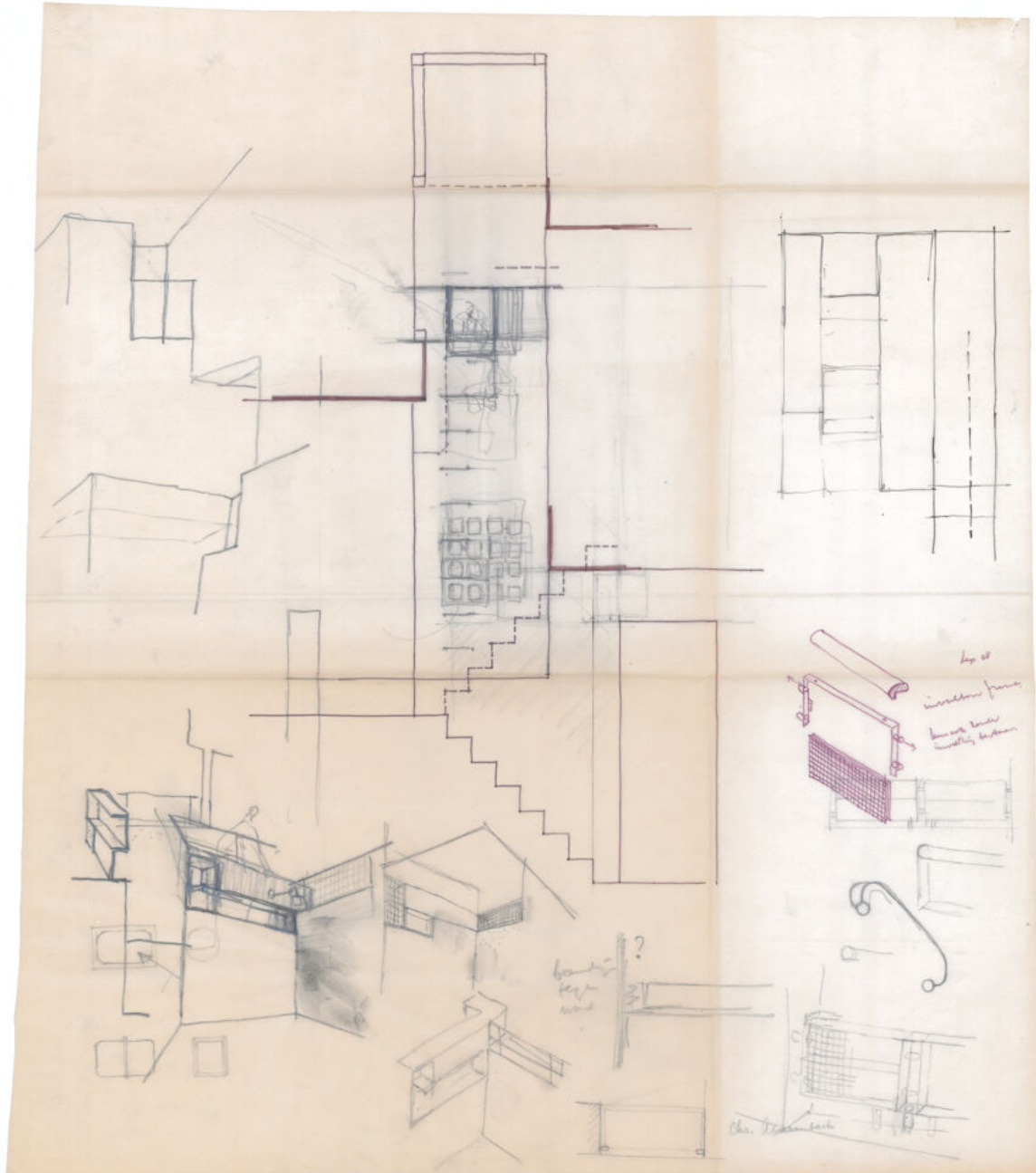


Note. Early design sketches for the Monogoon House by Herman Hertzberger. The sketches represent studies on the stairs trying out different configurations and positions.

The central core of the building is what Hertzberger experimented a lot with as seen on the sketches here. Initially visualizing the idea of a void where boundaries between floors become more vague in figure 3 to the sketches of figure 6 where more and more configurations of the stairs are drawn to create the most practical spatial plan.

Figure 7

Trappenhuis

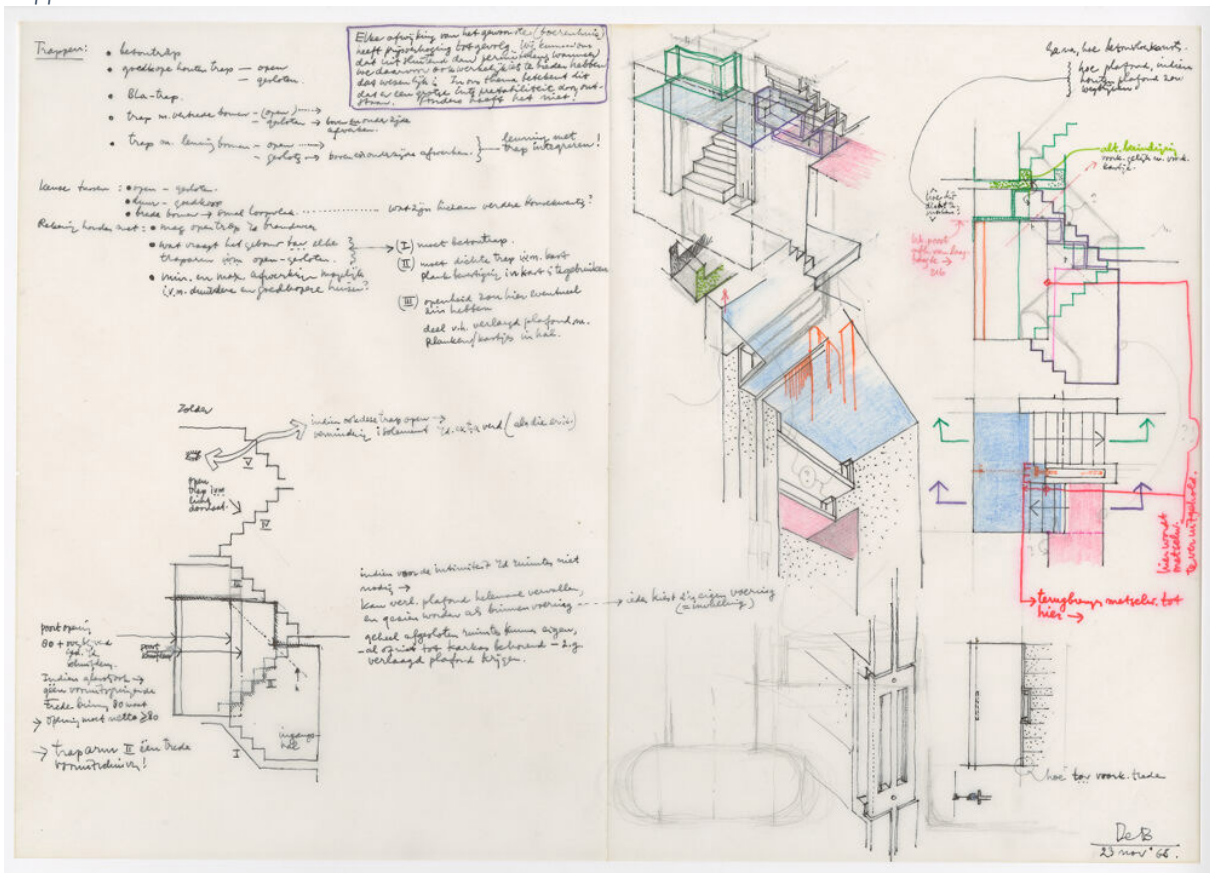


Note. Design sketches for the Monogoon House by Herman Hertzberger. The sketches represent studies on the stairs in detail, section and perspective sketches. Visualizing material usage and visual relations between split-level floors and the stairs through the void.

In Figure 7 quite early sketches show the thought which goes into choosing the right railing for this project. When a room needs to be as versatile as possible the box like railing as shown in the perspective drawing on the lower left side of figure 7 is creating a bit of distance between the user and the void but also creating a structure to give implementation for by the future user.

Figure 8

Trappen

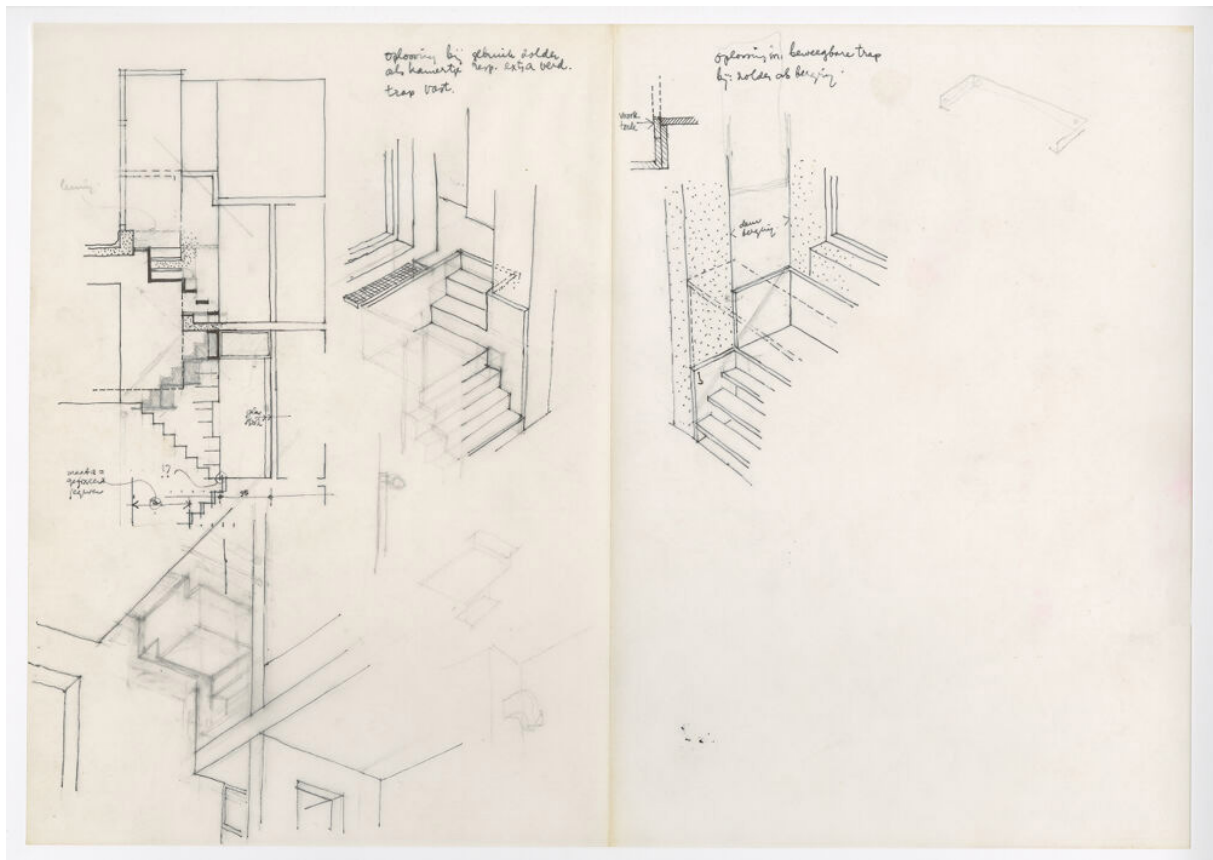


Note. Design sketches for the Diagoon House from 23rd of November 1968 by Herman Hertzberger. The sketches focus on detailing the stairs and circulation of the Diagoon House.

These sketches represent more of the technical issues with the stairs in detail. Especially interesting is how Hertzberger studied the way a stair step is being included in the floor or onto the floor. Also the pink and blue colored perspective drawing from a viewpoint underneath the stairs give a good impression on how not only the split-level floors are being connected by railings but also the stairs are being opened up to make it less of a visual barrier. On the other hand it does look like extra storage spaces are being drawn under the stairs to make the stairs a more versatile piece in the space.

Figuur 9

Oplossing voor zoldertrap

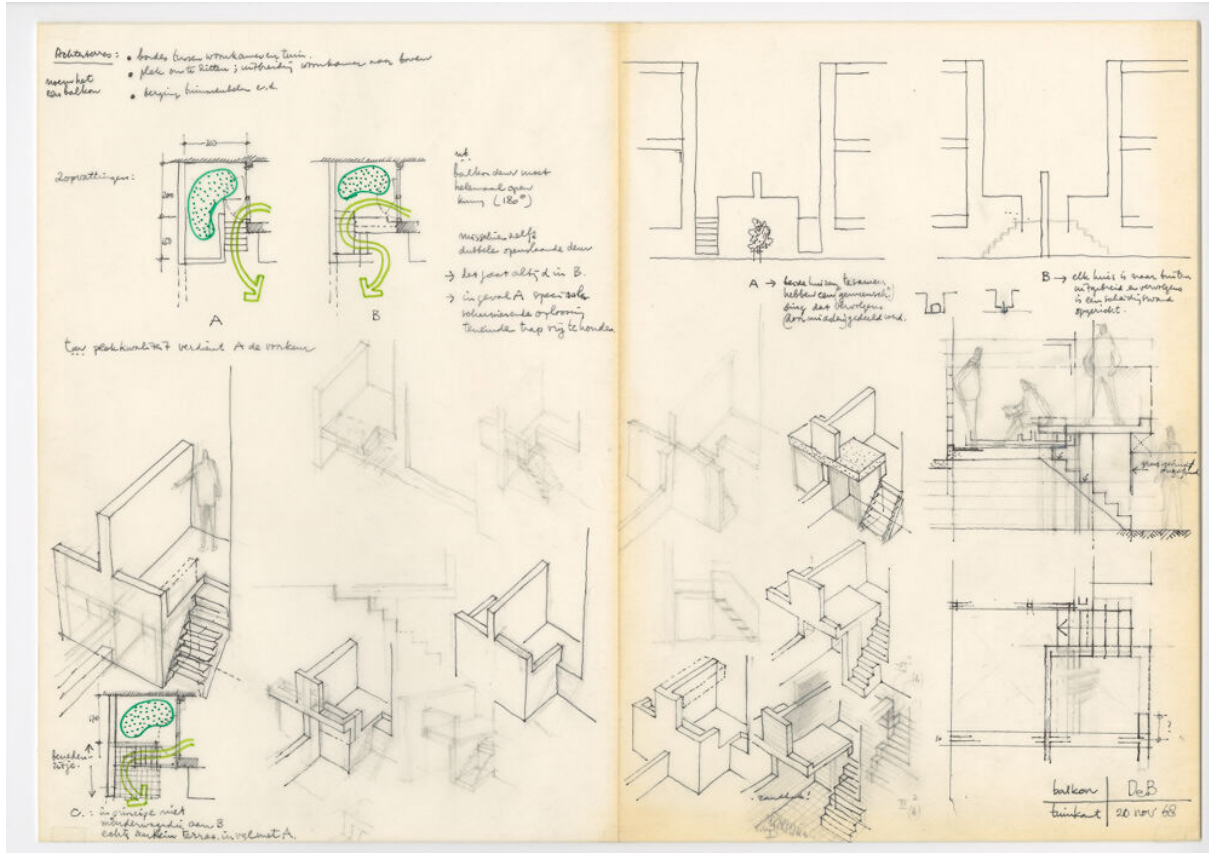


Note. Design sketches for the Diagoon House by Herman Hertzberger. The sketches represent studies on the top of the stairs leading to the attic. The sketches show a stair structure which is adjustable to create a railing and bridging to a storage room.

In this design sketch by Hertzberger becomes visible with what care for detailing adaptability Hertzberger works with. The sketches show stairs towards the attic, but when arriving on the attic there is another storage space located on the other side of the stairs. When folding the stairs upwards creating a direct barrier to guarantee safety of its user the door to the storage room gets accessible. This in a way shows how multi-layered some spaces in the Diagoon House get designed to allow ultimate versatile use of the house.

Figuur 10

Balkon / Tuinkant



Note. Design sketches for the Diagoon House from 20th of November 1968 by Herman Hertzberger. The sketches represent studies on a balcony on the gardenside of the Diagoon House. Visible on the right side is the positioning of people on the balcony.

The example of studies shown on the balcony on the gardenside of the Diagoon House makes clear that the human scale and use of the space is very important in the sketches. The sketches show multiple configurations of stairs dropping beneath the balcony and how the circulation responds to the placement of the stairs. The placement of the balcony is also in direct contact with the neighboring Diagoon House, this creates a point of possible interaction between neighbors. Interestingly in the sketches a wall is placed in between the houses, while in the built version of the Diagoon Houses only the first layer of blocks was built to inspire the residents to create the boundaries themselves. Structuralism is visible in those details, create a structure where the residents can built on or leave to create this open garden together with their neighbors. (Hertzberger, Diagoon Housing Delft, 2016)

Chapter three, blur of public and private boundaries

How do the sketches of the thresholds demonstrate the intended blurring of public and private boundaries?

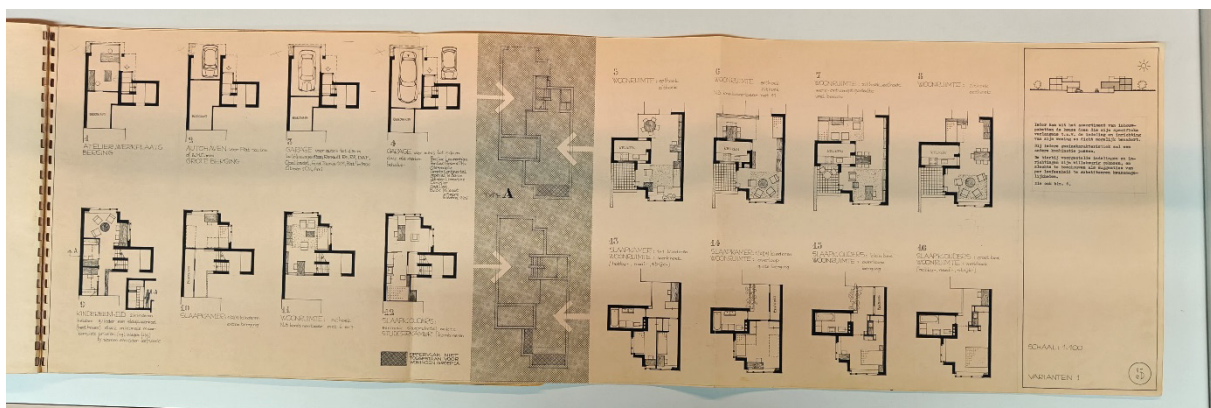
In Chapter two most analysis were on drawings from internal spaces of the Diagoon House (also the most innovative space). In this internal void between the split-level floors, the stairs and the void create this internal in-between space which is not accessible in the house. Eventhough it is not really accessible because it is a void, it still serves an important role in blurring boundaries of public and private.

As mentioned in Chapter one, the Diagoon House is intended (by a structuralist vision) to be built as a structure which needed to be filled in by its future residents. This open structure is meant to spark imagination of its users to adapt the spaces to their own needs, and keep changing them if the needs ever change. The polyvalence spaces on the split-level floors bring a characteristic openness to the floorplan which endlessly changeable to all different kinds of configurations because of its generic dimensions and of it being in contact with all the other floors of the house by the void in the middle of the Diagoon House.

In the following figures 12 and 13 a lot of different options visualized by the architect are shown on how to adapt the space to the needs of the residents. These configurations are standard configurations (also switching A and B types is possible), this means that buying an empty carcass comes with options of standard interior decoration like built in closets. This seems a bit opposite to the polyvalence vision of the Diagoon House, where you built a half-product house where residents get sparked to be creative. With this the creativity is kept small because of all the well thought about options instead of contributing to the design of the infill yourself.

Figure 12

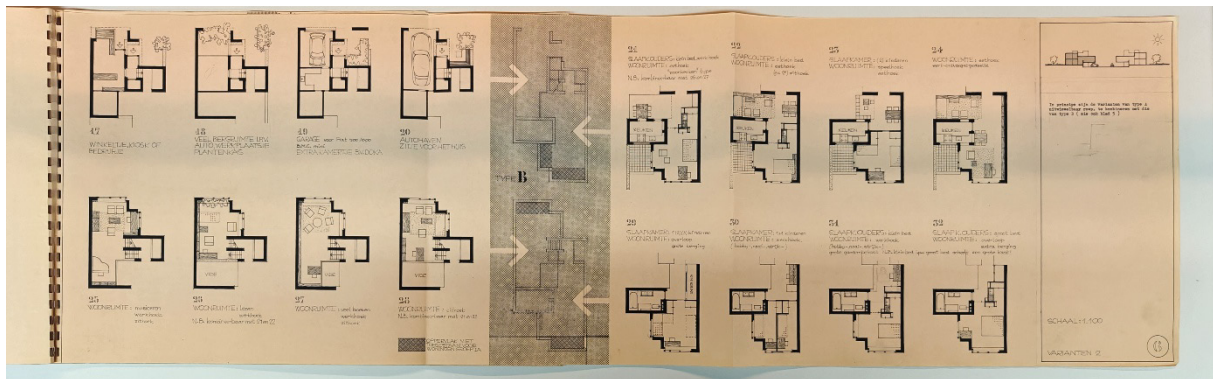
Varianten 1



Note. The Woon Vorm booklet by Herman Hertzberger showing the versatility of the spaces shown in the variety of configurations of rooms in House A.

Figure 13

Varianten 2



Note. The Woon Vorm booklet by Herman Hertzberger showing the versatility of the spaces shown in the variety of configurations of rooms in House B.

But on the other hand all areas and spaces of the Diagoon House are well thought of. As shown in Figure 3 and Figure 10 of Chapter two the circulations spaces like the backdoor and stairs working as real catalyst for human interaction in the spaces in between the specified rooms.

Chapter Four, theoretical reflections

To what extent do the usage scenarios visualized in the sketches correspond with Hertzberger's later theoretical reflections in Lessons for Students in Architecture?

The usage scenarios visualized in Herman Hertzberger's sketches for the Diagoon Houses correspond directly to the theoretical principles later codified in his books, *Lessons for Students in Architecture* and *Lessons in Architecture 2*. The Diagoon project served as a living laboratory of some kind and the example for his theories on architectural polyvalence.

The core of the Diagoon House is the inbuilt suitability to adapt to all new and unforeseen situations. Unlike a multipurpose design which is created with a set of predetermined specific functions in mind, polyvalence leaves the response to unspecified situations. In case of the Diagoon House this would mean that in any future, the future residents will have all freedom to get creative and configure the house to their likings within the structure. This is shown in the booklet drawings how many (and many more) situations are possible. The only problem with this is that the situations shown in the booklet are for built in furniture, which then by itself limits the freedom of the new home owner?

The split-level floors of the Diagoon House have hints of Adolf Loos's Raumplan (spatial plan) with Le Corbusier's Plan Libre (open plan), only then with a vertical connection as well made by the top-lit void. This vertical and horizontal connection ensures that residents on different levels maintain constant visual and acoustic contact, creating a diagonal flow of space and sightlines.

The thresholds as in-between spaces are also clearly visible in the circulation areas which flow into each living area and back into the main void connecting every floor. Similarly, the project avoids high separating walls in gardens, instead using a low footing of concrete blocks with holes; this acts as a "suggestive form" that residents can choose to complete with climbing plants or reed mats, requiring neighbors to coordinate their privacy needs collaboratively (Hertzberger, *Diagoon Housing Delft*, 2016)

Conclusion

This research demonstrates that Herman Hertzberger's preliminary sketches for the Diagoon Houses largely align with his structuralist theories of polyvalence and adaptability, though they reveal a pragmatic tension between theory and practice. The analysis of archival drawings from the "Monogoon" phase through the final Diagoon designs shows a clear evolution of the central void and split-level floors as the primary motifs for creating "in-between" spaces. These elements effectively facilitate the diagonal visual and acoustic connections that Hertzberger designed, allowing the house to spark creativity for its occupants while living in the Diagoon House.

However, the sketches also uncover a paradox: while Hertzberger aimed for a "semi-finished product" to spark user creativity, his early drawings often included specific room annotations and highly detailed standard configurations in the "Woonvorm" booklet. These prescriptive options, including built-in furniture, arguably limit the very freedom the polyvalent space was designed to encourage. Ultimately, the Diagoon House succeeds as a social prototype by providing a robust "suggestive form" such as the low-block garden walls that requires resident interaction and "infill" to be completed.

The diagonal connections over the split-level floors and vertical void will most definitely create a spark of inspiration for architects and architecture students, even when the in-built furniture might limit this.

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Image credits

Front page Figure ; Hertzberger, H. (1971, September). Diagoon Woning Logo [Scan]. HERT.110577813 Aanwinst 2015 (HERT 12.17), Het Nieuwe Instituut, Rotterdam, Nederland.

Figure 1 ; Hertzberger, H. (1971, September). Eensgezinshuis type A [Drawing]. HERT.110577813 Aanwinst 2015 (HERT 12.17), Het Nieuwe Instituut, Rotterdam, Nederland.

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Figure 3 ; Hertzberger, H. (1967, 12 October). Monogoon [Sketch]. HERT.110344478 Aanwinst 2013 (HERT 12.1), Het Nieuwe Instituut, Rotterdam, Nederland.
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Figure 4 ; Hertzberger, H. (1967, 13 October). Monogoon [Sketch]. HERT.110344478 Aanwinst 2013 (HERT 12.1), Het Nieuwe Instituut, Rotterdam, Nederland.
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Figuur 10 ; Hertzberger, H. (1968, 20 November). Balkon / Tuinkant [Sketch]. HERT.110344478 Aanwinst 2013 (HERT 12.3), Het Nieuwe Instituut, Rotterdam, Nederland.
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Figure 12 ; Hertzberger, H. (1971). Varianten 1 [Drawing]. HERT.110577813 Aanwinst 2015 (HERT 12.17), Het Nieuwe Instituut, Rotterdam, Nederland.

Figure 13 ; Hertzberger, H. (1971). Varianten 2 [Drawing]. HERT.110577813 Aanwinst 2015 (HERT 12.17), Het Nieuwe Instituut, Rotterdam, Nederland.