CENTRAAL BEHEER RELOADED

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Graz, 18. November. 2019 Andrea Peković

"It is only when a building´s character is excessively determined by one or another function that it becomes too specific and it is an arduous task making new designations possible."[1]

1 Hertzberger 2014, 135.

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INTRODUCTION

REVIVAL OR DEMOLITION?

Centraal Beheer, one of the most famous Dutch structuralist buildings, has been empty for six years now. It was commissioned in the late 60s for an insurance company which moved out in 2013, after more than 40 years, due to lack of space, but also the inability to adapt the existing structure to its current needs. There have been some attempts to reuse the building (school, residential building, ...) but so far none of the plans have been implemented and due to its prime location, but also historical importance, the urge to solve the abandoned building is pressing. The building is currently listed on UNESCO World Heritage *"as one of the most characteristic buildings of the 20th century"*[1] and once it reaches the 50 year mark, in three years, if it indeed becomes protected, it will have to remain the way it is, a halfway dilapidated museum.

After visiting the building site for the first time, I became aware of its massiveness - of space and building elements, exposed structure, maize like streets but also of many problematic aspects, such as lack of natural light and ventilation, confusing orientation, inadequate acoustics and vast energy losses. Extensive changes would have to be made to the existing base to obtain the necessary quality of the space needed for any new function. Also, even though the idea behind the building was innovative in the 70s, not even a decade later, employees were over its design, finding it difficult to work there, as it was too hectic and noisy. Two adaptations, made by the architect himself, failed to provide necessary solutions concerning privacy and better orientation. This conclusion led to the main focus of interest of my theses, whether CB could be reused, how extensive the changes would have to be and, finally, is the space indeed polyvalent, can another function fit inside the building effortlessly?

The master theses is divided in three parts - the first part is the historical analysis of events prior and during structuralism as a movement, second part is the analysis of Hertzberger, his building principals and projects that eventually lead to Centraal Beheer with analyses

1 https://indebuurt.nl/apeldoorn/nieuws/er-komt-een-documentaire-over-het-kubusgebouw-van-centraal-beheer~68068/

of the current state of the building. The third part is my take on the building itself, interventions and the new program.

I became aware of Centraal Beheer and its issues during my exchange studies at Delft University of Technology in winter semester 2017/ 2018. There I spent five months working on this project, first three months analyzing the building, location and architect and the next two developing the concept and strategy for the new program. We were given a detailed and almost complete program designed by our tutors. Its focus was on housing, with a small part consisting out of offices, school and services. For my thesis I have maintained the parts of the research relevant for the new project and a part of the program. It is still diverse and contains all functions, but in a different ratio. The reason behind the adapted program is that the first version with the focus on housing, wasn´t functioning well, especially with my position to preserve the space the way it is, as much as possible. Being originally built as an open plan office space, there aren´t many areas inside suited for quality housing, for e.g. due to the lack of direct natural light etc, so it made sense to assemble a modified program that could potentially function much better.

Even though Centraal Beheer is still not listed as a world or national heritage building (yet), it´s just under municipal protection, it still has important historical value attached to it and I will therefore be treating it as such.

STRUCTURALISM

part one

CHRONOLOGY OF CIAM MEETINGS

June 1928	CIAM 1, La Sarraz, Switzerland
October 1929	CIAM 2, Frankfurt, Germany: ("Die Wohnung für das Existenzminimum")
November 1930	CIAM 3, Brussels, Belgium: ("Rationelle Bebauungsweisen")
July-August 1933	CIAM 4, on board SS Patris II to Athens ("Die funktionelle Stadt")
June -July 1937	CIAM 5, Paris, France: ("Logis et loisirs")
September 1947	CIAM 6, Bridgwater, England: ("Reunion Congress")
July 1949	CIAM 7, Bergamo, Italy
July 1951	CIAM 8, Hoddesdon, England: ("The Heart of the City")
July 1953	CIAM 9, Aix-en-Provence, France: ("Habitat")
August 1956	CIAM 10, Dubrovnik, Yugoslavia
September 1959	CIAM '59 Otterlo, the Netherlands

Fig. 1: Founding of Congrès internationaux d'architecture, La Sarraz, 1928.

1.1 CIAM 1928-1960

Structuralism in architecture and urban planning is a movement that emerged as a critical reaction towards rigid maxims of Functionalism. The meeting in Otterlo in 1959 is marking the official beginning of the movement and at the same time the dissolution of International Congresses of Modern Architecture (CIAM). To understand the overlaying events which lead to the overturn in the architecture that went down in the beginning of the 60s in the past century, we have to go back to the founding of CIAM.

CIAM Functionalism was an avantguard ideology whose goal was to influence all spheres of life through design and urban planning. Main characters who initiated the establishing of CIAM, Le Corbusier, Sigfrid Giedion and other twenty-four architects from eight European countries, attended the first meeting in June 1928 at the Chateau de la Sarraz in Switzerland. It was a preparatory congress to establish CIAM goals with highlights being the constitution of the program for modern architecture and then it´s promotion in all spheres and at the end further advancement in ambiguous fields.

Le Sarraz declaration, the set of postulates for the new direction in architecture, were assembled by Sigfried Giedion, André Lurçat , Josef Frank, Le Corbusier and Hannes Meyer. The future Charter of Athens programme rests greatly upon Meyer's section on 'Urbanism' : *„Urbanism is the organisation of all the functions of collective life; it extends over both urban agglomerations and over the countryside.... Urbanism cannot be conditioned by the pretensions of a pre-existent aestheticism: its essence is of a functional order".*[2]

2 Mumford 2002, 25.

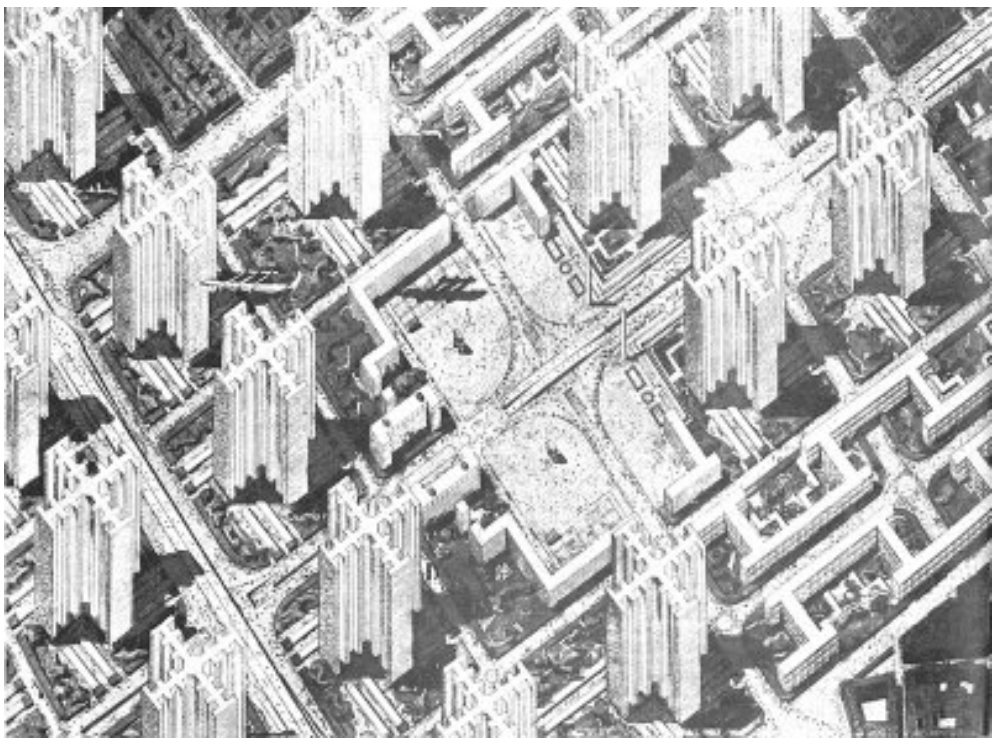

Fig. 2: Ville Radieuse, Le Corbusier, 1924.

1.2 PREWAR CIAM 1928-1939

CIAM functionalistic architecture can be observed as before and post war. Between 1928 and 1939 the organization was determined to severe ties with all forms of traditional architecture prior to 1920s. The first issue disscused on the first real congress, CIAM 2 held in 1929 in Frankfurt, was themed 'Die Wohnung für das Existenzminimum' (The minimum subsistance living). The focus was on finding the solution for minimal housing due to the problem of high rents and low income with an increasing housing shortage.

CIAM 3 held in Brussels in 1930 under the theme 'Rationelle Bebauungsweise' (Rational Lot development) was opened with Le Corbusier's presentation of the Ville Radieuse. It was devised as a general urbanistic plan to demolish the existing cities and rebuild a new, more efficient one, with a much higher density. It was a definite exclusion of the Garden City, Beaux-Arts, Berlage's urbanistic methods and any form of explicit formalism.[3]

The most important program for urban planning in the next few decades, the Charter of Athens with its four functions - residence, work, leisure and circulation, was devised mostly upon the CIAM declaration of Sarraz and the Ville Radieuse principles. Named after the fourth CIAM meeting that occurred on board of a cruise ship SS Patris heading to Athens in 1933 it would become highly disputed in the 1960s.

It was followed by the functional city exhibition that took place on the congress in Athens. National groups presented detailed analyses of 34 different cities that could help make useful conclusions for the implementation of the new urban plans. Because none of these presented plans were done in a unified and scientific way there were many disagreements amongst the members of the congress so they could not reach the consensus on the guidelines for the future city. In the end they did agree on two texts – 'Resolutions in principles' which were mostly based on Le Corbusiers' urbanistic visions and 'Constatations' which questioned whether the position of the congress should be of a

3 Mumford 2002, 58.

technician or a politician. The idea of 'The Functional City', became the new direction, an urban plan that could be used as a universal model worldwide, a new rational plan with its mass production, concrete and steel high rise buildings embedded in greenery, based strictly on scientific calculations and analyses.

Fifth CIAM Congress focused on Logis et loisirs (Housing and Recreation) commenced in June 1937 in Paris. The problem of dwelling and then its inseparable connection to leisure was to be examined. The exploration of the connections between the spare time activities and the possibilities of the environment could contribute to the ways of town planning and hence improve the well being of the society. A general shift appeared, from the initial 'economical efficiency', towards taking the human needs of the mass in consideration

During the last two CIAM congresses the political situation took a turn for the worse and many architects were forced to emigrate. Only two years later, in September 1939, the Second World War broke out - there would be a 10 year 'break' before the next CIAM Congress.

1.3 POSTWAR CIAM 1947-1959

Even though small groups continued to meet discreetly throughout the war period, the next CIAM congress was assembled two years after the official end of the war. Hosted by the British CIAM division and the MARS group, CIAM 6 began in September 1947 in Bridgwater, England. They couldn't agree on the theme so it became a preparatory congress for CIAM 7 and a reconnection of the members.

During the congress, four Commissions were discussed. Comission I 'Reaffirmation of the Aims of CIAM' confirmed the 'new conception of integrated planing' and a changed goal of CIAM *„to work for the creation of a physical environment that will satisfy man's emotional and material needs and stimulate his spiritual growth"*.[4] As one of the new generation member, Dutch architect Aldo van Eyck praised this turn in a lecture and stated that *„CIAM knows that the tyranny of common sense has reached its final stage"*.[5] The second Commission dealt with the organization and types of memberships and national groups were replaced with local groups, which no longer represented the country. This led to issues with the British MARS group, which, since the founding in 1932 by Wells Coats, grew from a relatively minor group to a club of 95 members. Most of these members held important functions in the British society and therefore became influential and dominated this congress. Comission III, titled 'Architectural Expression', discussed the preparation for the next congress and the fourth „Architectural Education".

CIAM 7 was held in July 1949 in Bergamo, Italy, with approximately a hundred members attending. Even though they aspired to be a global organisation, none of the representatives of North and Latin America attended.

In 1947 ASCORAL, founded by Le Corbusier during the war, developed the Grid, a new analytical method for a more understandable visual presentation of projects. Some thirty projects displayed in the grid mode showed the practical 'Applications of the Athens

4 Mumford 2002, 172.

5 Mumford 2002, 175.

Charter' which was officialy the aim of this congress. The grids didn't prove as the best solution, offering insufficient information on their own, while at the same time disabling any comparison to other grids.

Especially interesting were critiques made by Helena Syrkus, a Polish architect, and Bruno Zevi, an Italian architect and historian. Syrkus called out CIAM on their attitude towards ordinary people, 'man in the street', and similarly to Richards's lecture 'Common Man'[6] stated that *„Art belongs to people and must be understandable by the people"*.[7] Another key point was the importance of heritage because *„in defending our national culture we also defend international culture"*.[8] Of the same opinion is Zevi, emphasizing how important it is to discuss and understand the past, in order to be able to step forward. He was critical of the lack of cultural diversity and young generation of architects who could bring much needed fresh perspective that would revitalize postwar CIAM.

Last two congresses failed to unify the organisation and reach consensus on the general direction and the question was whether to continue the prewar model or make a radical change. As one of the most progressive groups at the time, British MARS organized the eighth CIAM meeting in Hoddesdon, England in 1951. Titled „The heart of the city" it was a continuation of their 'civic centers' exploration which were recognised as a potentially important urban layer during the reconstruction of war destroyed cities and the integration of new pedestrian zones. The aim of this congress was to determine how to deal with the core of the city and how to achieve the intangible 'sense of the community': To examine the core, five *„'scale levels' beyond the family"*[9] were proposed: the village, the neighborhood, the city sector ,the city and multiple city.

During CIAM eight Kenzo Tange presented his work for the first time. Amongst many presented projects and lectures the most significant ones were the presentation of the Amsterdam playgrounds designed by Aldo van Eyck and Jakob Bakema's 'Relations between Men and Things'. Bakema shifted the emphasis from physical forms onto the relations between men and things stating „when the isolation of man from things becomes destroyed: at that moment we discover the wonder of relationship between man and

6 Mumford 2002, 177.

7 Mumford 2002, 193.

8 Mumford 2002, 194.

9 Mumford 2002, 194.

things. *"For us in CIAM the relations between things and within things are of greater importance than the things itself"*.[10] They were grasping, but not fully defining what would later become the main focus of Team 10.

In July 1953, in Aix-en-Provence, France, the ninth congress titled 'La Charte de'l Habitat', was attended by hundreds of members and thousands of observers. Intentions for the redirection of the organisation that started a few years before were confirmed during this congress. The most prominent speakers who firmly advocated for the change were Alison and Peter Smithson. They firstly objected to the validity of 'The functional City' and Charter of Athens and then suggested that a 'new hierarchy of human associations'[11] should replace it. Their ideas are affirmed in their 'Urban Reidentification' grid, which was partially developed for the Golden Lane competition in 1952. The key point is the question of identity, or how to reconnect the man with the environment.

By using the elements like the house, the street, the district and the city to create different relations on different levels while expressing an association, an idea and not the reality. An example of this association would be their 'streets in the air' – gallery corridors that are linked to the housing, stacked vertically on top of each other, meant as a city in a city. Another influential group at the time, the Moroccan GAMMA lead by Georges Candilis, presented their investigation of the French North African settlements and brought the issue of 'housing for the greater number'. Jakob Bakema's report was focused as well on the enormous number of dwellings that need to be built, but also that the sheer multiplicity of living units does not satisfy all conditions. He was one of the first to address the man's need for the identification with the space he dwells in and that the need for belonging has to be fulfilled on all levels of urbanism. The congress was concluded with the visit to Unite d'Marseille, Le Corbusier's latest design.

10 Mumford 2002, 214.

11 Mumford 2002, 225.

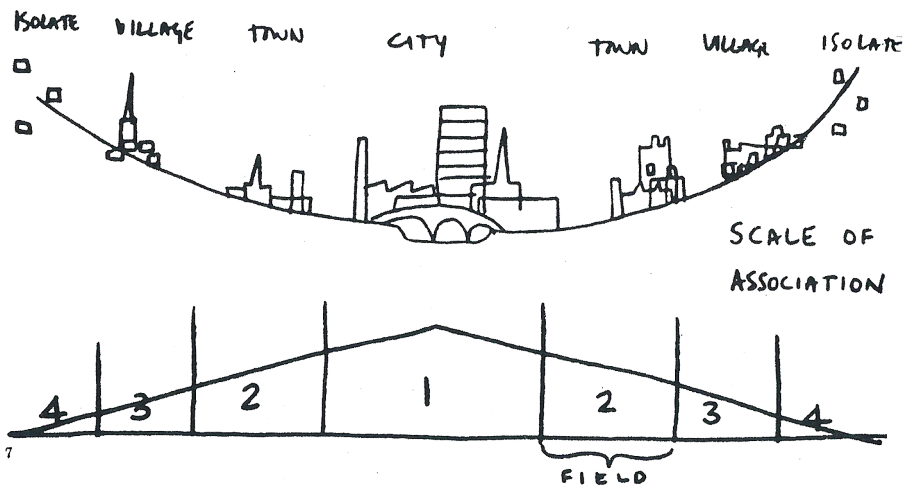

Fig. 3: Scale of Association, diagram from the Doorn Manifesto, Team 10, 1954.

1.4 TEAM 10

Right after the ninth congress, both the British and Dutch youth members, first separately and later together, met to discuss the future path. They were not content with the way of functioning of the last congress and its development, more precisely the lack of it.

One year after the Dutch group assembled in Doorn, the Netherlands. The Dutch members Van Eyck, Bakema, Van Ginkel, Mart Stam and Greve were joined by Alison and Peter Smithson and Voelcker (MARS group). The conclusion of this meeting was comprised as the "Statement on Habitat" with the rejection of Charter of Athens and its four functions because they could no longer serve the new urbanistic problems. They *"recognised the historical value of the Athens Charter as a method that was adequate for dealing with the chaos of the 19th century city, but it was a method in which ´vital human associations´ were ´inadequately expressed´"*.[12]

They reintroduced Geddes's Valley Section (city, town, village and isolate field), where each section should be seen and studied as one whole, a community with its own hierarchal relations. Its focus was on the specific demands of the inhabitants living in a particular section and not aesthetics or rigid universal program. Using surveys and sociological analyses of an area, this tool emphasized the individuality and unique patterns of each city, village, settlement, but also making each scale comparable to each other. Members of the Doorn meeting modified the Valley section into ´Scale of association´ - *" We suggest that ´working parties´operate each in a field on the scale of association... This will enable us to study particular functions in their appropriate ecological field"*.[13]

Even during the preparations for the next congress the differences between the English and Dutch members were tangible. Aldo van Eyck thought the directions and plans were too vague, and missing three crucial aspects: the threshold, the space of the in-between and aesthetics of a number. Together with Bakema, they added the "Dutch supplement"

12 Pedret 2013, 127.

13 Pedret 2013, 131.

which was in the end ignored by the Smithsons. They differed also in the themes they were interested in - the British group´s focus, with the forerunners being Alison and Peter Smithson was mainly on the scale of association, the investigation of the distinct fields in all aspects, leaning towards a revolutionary turn in CIAM and architecture. The Dutch group, led by Bakema and van Eyck, emphasized the importance of relationships and direct participation from inhabitants when creating built environment, while believing into the tradition and continuation of knowledge through the next generation. Their differences will result in two main directions after CIAM, English Brutalism and Dutch Structuralism.

Officially they became the 'Committee for CIAM 10' at the next council meeting in Paris in June 1954. By the beginning of the tenth congress the MARS subgroup and the CIAM committee merged and were identified as Team X. Their task was quite difficult, on one hand make way for the survival of the congress and everything it represents and on the other introduce the new way of thinking and analyzing.

1.5 CIAM 10 AND OTTERLO 1959

All together, there have been ten CIAM meetings in the span of some 30 years. The one held in Aix de Provence CIAM 9 in 1953 was already starting to show deep disagreements with the programme, *"when Alison and Peter Smithson and Aldo van Eyck undermined the functionalist categories of work and dwelling recreation and transport by proffering a radical cellular approach toward the aggregation of urban form for different generic densities".*[14]

On the tenth CIAM held in Dubrovnik in 1956, it was final with Le Corbusier's proclamation that it was the younger generation who - *„find themselves in the heart of the present period the only ones capable of feeling actual problems personally, profoundly, the goals to follow, the means to reach them, the pathetic urgency of the present situation. They are in the know. Their predecessors no longer are".*[15]

During the congress, mostly Team 10 and MARS group presented their grids, though the work remained in the shadows of Le Corbusiers's statement. The obvious discord between the older and younger members remained at the forefront. They agreed on the reorganisation for the future meeting, and that it would continue as an assembly of individuals instead of national groups.

Van Eyck´s statement sums the CIAM situation at the time:

"CIAM was originally a spontaneous gathering of people who wanted to achieve a mutual aim. During this period (before 1947) no constitutions were necessary. Since then, this dynamic character has been lost and the form of CIAM became static so that the essential work that had to be done became subordinate to a too formal structure".[16]

The meeting in Otterlo named CIAM '59, instead of CIAM eleven, shows the change in

14 Mumford 2002, XIV.

15 Mumford 2002, XIV.

16 Mumford 2002, 260.

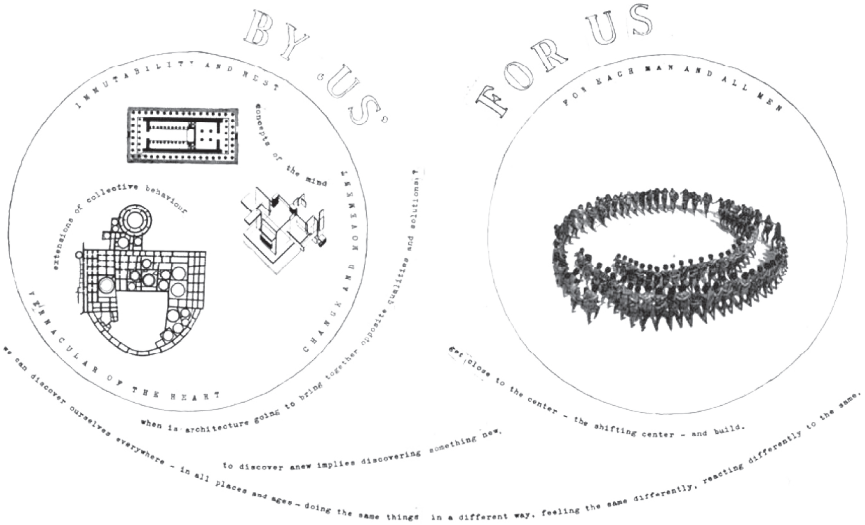

Fig. 4: The Otterlo Circles, Aldo van Eyck, 1959.

function – it should stay as a platform for exchange and debate, but it no longer represents the modern movement. Around 43 participants displayed their projects during the Otterlo congress. One of the more important inputs was Van Eyck's speech titled *'Is Architecture Going to Reconcile Basic Values?'* illustrated with Otterlo Circles where he distinguishes three types of architecture, the classical, the spontaneous and the modern stating the importance of all three and how one cannot be separated from the other. His stand was that instead of focusing only on technological progress, architects should return to the basic rules of human existence. Another new factor Otterlo Circles highlight is the ´by us for us ´statement, meaning the user is just as important as the maker - *"space is the experience of it."*[17]. Identification and user participation should be vital parts of any design humanisation. His manifesto will later on, be regarded as the foundation of structuralism in the 60s.

The significance of this meeting lies in the official dissolution of CIAM as a congress and an organisation. Members will meet again but not as representatives of/for CIAM. As for Team 10, the core members, Alison and Peter Smithson, Georges Candilis, Giancarlo de Carlo, Jacob Bakema, Aldo van Eyck for the next 20 years, but more as a group of friends exchanging opinions and ideas, than as an influencing assembly force CIAM was.

Team 10 was a small fraction, with several regular members, especially after the Otterlo 59 congress. The reason behind it was Alison Smithson´s desire to keep the circle private and ´club ´like' an approach that caused another discord between them (Smithson´s) and other members, in particular Van Eyck, Bakema and Voelcker, who wanted Team 10 to be inclusive and a ´free association´, opposite to the CIAM way of functioning.[18]

The ideological differences they already had would lead to the separation of the group and formation of two separate movements - English Brutalism, led by Alison and Peter Smithson, and Dutch Structuralism with Aldo van Eyck and Bakema. They would continue working with the changes Team 10 brought to light, but with different thematics and approach. Next to these two distinct currents Japanese Metabolists would also continue exploring the same path.

17 Ligtelijn 1999, 8.

18 Pedret 2013, 218.

Fig. 5: Tokyo Bay Plan, Kenzo Tange, 1960.

1.6 METABOLISTS AND KENZO TANGE

Devastated during World War II, Japan was being revived in the 50s and 60s with groundbreaking speed. Its reinvention was in close association with new approaches towards society and architecture. Architects and mostly urbanists were not only setting a new course of the country, but also dealing with the housing crisis, rise of population, its migration towards bigger cities and rapid technological progress. Their situation was fertile ground for establishing utopian ideas that were starting to develop at the time. These ideas are molded by metabolists, a group of architects that acted upon similar principles as Team 10 at the same time in Europe.

The leading figure of the metabolist movement was Kenzo Tange. He gained worldwide acknowledgement for the Hiroshima Peace center and Memorial Park in 1949, a large scaled museum inspired by Le Corbusier and his design principles combined with traditional Japanese elements. This project ensured him an invitation to CIAM 1951 in Hoddesdon. First as a member of CIAM and later of Team 10 he shared the opinions of the younger generation of architects about the outdated Charte of Athens and the need for new, more human oriented urbanistic approach.

During Otterlo ´59 assembly, he presented Kiyonori Kikutake´s projects - the tower shaped City and the Sky House that although at the time still unrealised, became the core of Metabolists. The Tower City, 300m tall, fixed infrastructure core with attachable capsules that could be easily replaced every 50 years, was in fact realised a decade later by Kisho Kurokawa (Nakagin Tower), though in a much smaller scale. Kikutake`s Sky house was suspended in the air on four concrete panels with a parabolic shell roof, the space inside divided only by storage space.[19] The idea behind it is, simultaneous change and growth of the family and the space it occupies. This was the first international exposure of metabolist ideas - organic growth and adaptation of the infill on a fixed structure, on an individual and urban scale.

19 Watanabe 2001, 123.

Tōkyō World Design Conference in 1960 set the foundations for Metabolist movement. During the congress they confirmed the name of the group. To explain their projects they used a Japanese word *shinchintaisha,* which could literally be translated as metabolism, an elementary biological process of energy exchange in an organism that is crucial for sustaining life. Most importantly they issued a Metabolist Manifesto ´The Proposals for New Urbanism` divided into four categories. Kikutake contributed essays and illustrations on the "Ocean City". Kurokawa contributed "Space City", Kawazoe contributed "Material and Man" and Otaka and Maki wrote "Towards the Group Form"[20]. The key idea was creating megastructures on water or in air, due to land scarcity, on a grid, which was perfectly embodied in Tange´s projects, Boston Bay Plan and the famous Tokyo Bay Plan. Boston Bay was an explorative prequel that resulted in the Tokyo Bay plan. Traffic gave structure to the complex, everything revolved around it Tokyo plan embodied Tange´s values - communication and symbolism which he explained in a text Function, Structure and Symbol, 1966.

For him communication is the main tool that shapes space, and space shapes the man - *"The most important aspect is, however, that space is the field of formation of man itself. In this sense, space has its own metaphysical meaning. Space is the world of meaning"*[21]. He distinguishes the main difference between the two periods, functionalism from 1920 to 1960 and structuralism from 1960 onwards. Functionalism organizes space into functional units that exist separately from each other and structuralism organizes space in flexible units that relate and communicate with each other, with a premeditated possibility of growth. Most structuralist projects were designing the transportation system as communication sphere, literally or figuratively, as the basis upon other layers were added (eg. design emphasis on circulation in Centraal Beheer) Metabolism as a movement reached its peak during the Osaka Expo, 1970. Beginning of the 70s brought energy crises in Japan, meaning most architects had to rethink the utopian approach, and the projects displayed in Osaka were critiqued for their discrepancy with reality.[22] The Middle East and Africa became the new Mecca for realisation of metabolist ideas.

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20 Lin 2010, 24.

21 Kulterman 1970, 243.

22 Lin 2010, 228.

1.7 NEW BRUTALISM AND STRUCTURALISM

Differences and disagreements during the Team 10 period between the English and Dutch members have resulted in two architectural movements after the final CIAM dissolution in 1959, English Brutalism and Dutch Structuralism. Mainly associated with New Brutalism are English representatives Alison and Peter Smithson and with Structuralism Dutch representatives Aldo van Eyck and Jacob Bakema. Together as Team 10 they brought a much-needed fresh and innovative attitude towards stale and rigid CIAM doctrines, but their personal fields of interest differed enough for them to branch out in two directions, instead of collaborating further as one entity.

Beton brut[23], or raw, unfinished concrete that displays the details of cast form, is how Brutalism got its name, since it was the preferred design expression between the 40s and 70s. It reflects the intention of exposing the material and structural elements for what they truly are. Brutalist buildings are usually towering massive blocks with prominent harsh geometrical lines. Austere facades show the functions from the inside, but overall the buildings don´t show any connections with social or historical values of their surroundings. New Brutalism is more a reflection of Smithsons theories and position towards CIAM than the original Brutalism connected to *beton brut*. They emphasized honesty, objectivity and responsibility an architect has towards users and society in large, incorporating human needs when designing spaces[24]. Structuralism used raw concrete unlimited as well, but the focus was on the structural system, the way elements relate to each other, hence the name. Another difference may be that the New Brutalism is concerned more with the outer, overall appearance and Structuralism concerns itself more with the spatial composition [25] It is very difficult to give a general precise definition of Structuralism, since it is observed from different perspectives by different authors. Both movements at their core ".. *attempt to instantiate similarly utopian ideals of growth and adaptability within a coherent structural frame.*[26]

23 expression made by Le Corbusier while working on Unite d´Habitation in Marseille, France 1952

24 see Joedicke 1990, 83.

25 see https://medium.com/on-architecture-1/the-new-brutalism-66014633336e8

26 https://architizer.com/blog/inspiration/stories/compare-and-contrast-structuralism/

Fig. 6: Hunstanton School by Alison and Peter Smithson is considered to be the first building in New Brutalism expression

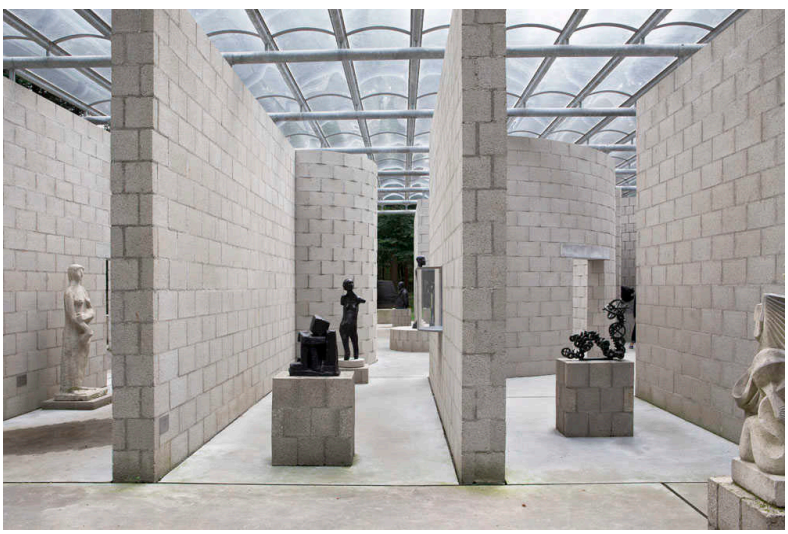


Fig. 7: A temporary pavilion to host 30 sculptures, in Sonsbeek, Arnheim designed by van Eyck in summer 1966. Reconstructed in gardens of Kröller Müller Museum, in Hoenderloo, 2006.

Structuralism developed on a slighter geographical surface and structuralist theories weren´t single-minded like brutalist were. Key figures of the movement had different approaches and fields of interest. Lüchinger divides them into two main ones - Aldo van Eyck was advocating his ´Aesthetics of the number´ and cultural anthropology, John Habraken primary and secondary structure and the importance of user´s participation in dwellings, published in his book ´Architecture of Lively Variety (Structure and Coincidence)´. Jacob Bakema focused on redefining the new residential types on an urbanistic scale. Herman Hertzberger second generation ´structuralist´ comprised and further developed the positions and theories of the initiators[27].

A typology that is common for both Brutalism and Structuralism (including Metabolism), during the 60s and 70s, is mat-building, the term coined by Alison Smithson. The prototype for this typology was Free University Berlin 1963 and the main features of such structure were multiple layers, on a grid, carrying different functions that are mutually linked, enabling natural growth and fluctuation of relations, activities and patterns. *"Architecture becomes a unified vessel for diverse clusters of activities moving in multiple directions."*[28] Mat-buildings were designed to be systems with the possibility of endless continuation, making them on one side efficient (if the scale remains reasonable) but also uniform and predictable.

Brutalist style has spread further in the world than Structuralism. In Europe, due to its utopian sensibility, it found fertile ground in communist countries, the Soviet Union, Yugoslavia, Romania, Bulgaria, where it remained popular well after the 70s[29], also in British colonies, other English speaking countries, Brazil, Japan etc. Both Brutalist and Structuralist relied heavily on prefabricated modular elements that were being mastered at the time. Besides concrete in all shapes and forms, highly used materials were steel, glass and brick. Building philosophies were applied with the intention to humanise the predecessor, the modernist architecture, but they rarely succeeded in doing so. They built for the idea of a society they constructed, while the real society couldn´t comprehend their intentions[30]. Seen as cold, unwelcoming, some inciting crime rise, later despised for the mammoth size and obstinate structure, the majority of building from this time period are either threatened to be destroyed today or are already demolished.

27 see Valena/ Avermaete 2011, 10.

28 https://architizer.com/blog/inspiration/stories/compare-and-contrast-structuralism/

29 https://www.designingbuildings.co.uk/wiki/Brutalism

30 see Joedicke 1990, 83.

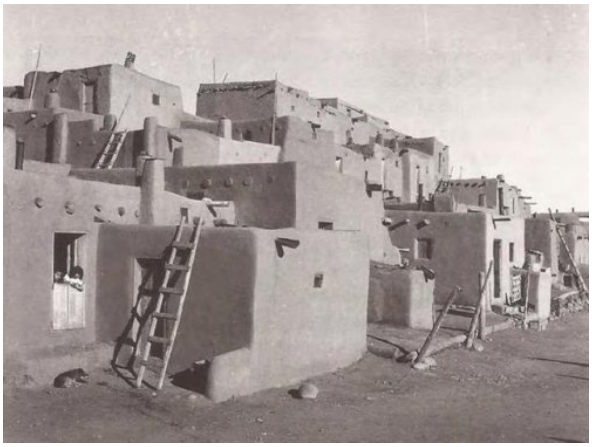


Fig. 8: Taos Pueblo in New Mexico where Aldo van Eyck explored the In-Between space, 1961.

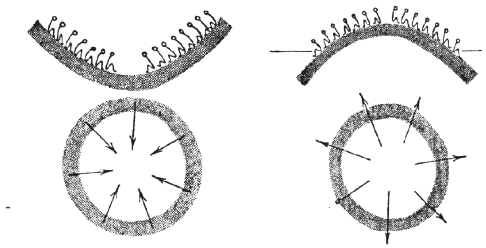


Fig. 9: ´Two kinds of Centrality´ diagram, showing the duality of one whole, by Aldo van Eyck 1963.

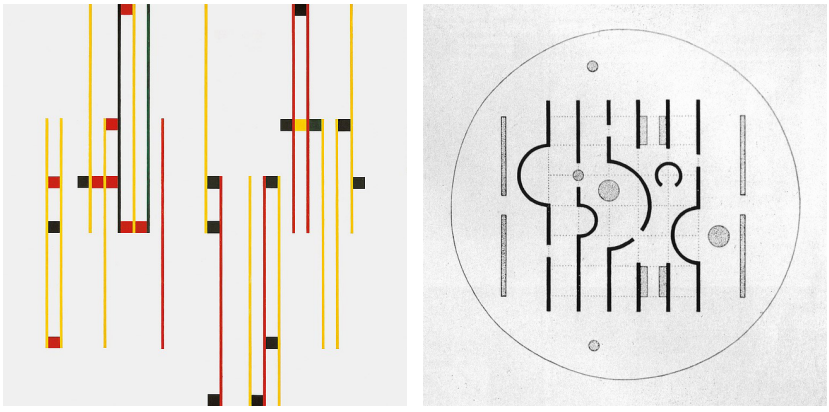


Fig. 10: *left* Konkretion I painting, Richard. P. Lohse 1946, *right* plan for the temporary pavillion in Sonsbeek, Aldo van Eyck, 1966.

Aldo van Eyck

When discussing historical formalism in architecture, a subject that arose during Otterlo ´59, demonstrated the difference between the architects. While Smithsons thought there should be a completely new way of conveying the present without historical ´symbols´, van Eyck wanted to reconcile the present and the past by returning to *"the archaic principles of human nature"*, a way of existence he observed in the Dogon villages in Africa and Pueblos in New Mexico[31]. The specificity and individuality of each tribe and their dwellings should be incorporated into modern building as well. Another interest of his was the in-between realm, or the importance of the first contact with the building or vice versa with the immediate environment, closing the gap between two worlds. The best realisation of Van Eyck´in-between planning is the Municipal Orphanage in Amsterdam (1955 - 1960). Built as a small city, with linked elements repeated in an orthogonal grid, it is considered to be the best example of structuralistic architecture. The in-between green courtyards partially close and achieve privacy to the residences, but also let the outer world seep inside, thus creating a connection between the public and private zone. The in-between reconciles two polar opposites, they *"..are not conflicting, mutually exclusive entities but distinctive components, two complementary halves of one and the same entity, while conversely a true entity is always twofold."*[32]

Smithsons called this transition the ´doorstep philosophy´or achieving the privacy and smooth transition between different zones by layering the facade[33]. The deliberate layering of zones can be seen in Robin Hood Gardens, London for e.g. (1972) It was a social housing block (demolished in 2019) with a new ´streets in the sky´notion that was supposed to add a more traditional house feel and make the massive residential blocks hospitable. Technique essential for van Eyck was his ´aesthetics of number´. It is basically a rhythmical repetition of elements, but with asymmetrical turns and shifts, that allow the opposites to alternate, such as open and closed space for e.g. The base for ´the greater number´ van Eyck found in the villages of Africa and their traditional weaving, in the painting compositions of Richard Lohse and De Stijl. He introduced the term in Forum 7/1959, a Dutch architecture magazine he co-edited together with Bakema, joined later by Hertzberger. Forum was used as a platform (1959 -63) to promote new values of Team 10.

31 see Pedret 2013, 204.

32 Strauven 2007, 16.

33 https://www.transfer-arch.com/materiality/alison-peter-smithson/

" Modern Architecture has been harping continually on what is different in our time to such an extent even that it has lost touch with what is not different, with what is essentially always the same. The time has come to gather the old into the new; to rediscover the archaic principles of human nature. Man is always and everywhere essentially the same."[34]

34 Lüchinger 1981, 20.

1.8 THE ORIGIN OF STRUCTURALISM

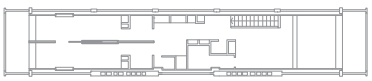
Beginning of the 20th century, a different way of thinking emerged, a new language form in linguistics, spreading afterwards onto philosophy and ethnology and almost all fields - arts, architecture, sociology, economy and other. This new language form rests greatly upon Ferdinand de Saussure's scientific approach, the "Langue et Parole", where the focus is not on the way the language is used, but on its composition, how elements relate to each other *"...language (langue) is a collective system within which the individual speaks (parole).*[35]*"*

It is a methodical and analytical outlook reserved until then for exact sciences and transferred onto disciplines related to the humanities. Course in General Linguistics, the book where de Sausser`s theory was first published, is generally seen as the beginning of the structuralist linguistics. His theory was developed further in the 50s and 60s by an anthropologist and ethnologist Claude Levy Strauss, the founder of French Structuralism. His most important work La Pensee Sauvage , or the Savage Mind in English, was published in 1962 where he states, after having observed primitive tribes, that there is no difference between `wild` and `cultivated` people, primitive people are not inferior, nor are they irrational. He further states that people should return to their roots, to the original state of being the archetypal.

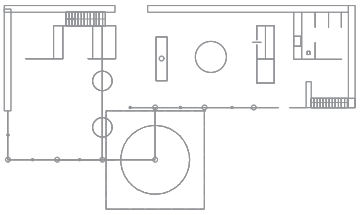
In the 60s architects were also observing and rediscovering old laws and archetypes in the primitive settlements, but also the relations between the inhabitants and architecture. Dutch Structuralists , van Eyck, Hertzberger were exploring indigenous villages - Dogon villages in West Africa, Indians in New Mexico, which immensely influenced their approach to architecture later. Nothing is really new, it is an interpretation of the old. The main critic delivered during Otterlo congress was that instead of focusing on technological progress architects should reintroduce the basic human principles that can be found in their primitive places.

35 Lüchinger 1981, 15.

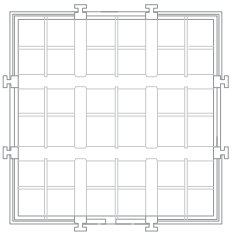
PROMINENT BUILDINGS



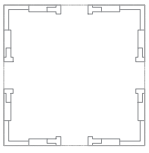
UNITE D´HABITATION
321 apartments (1. 5 units)
20,5m x 4,3m



ORPHANAGE
23m x 9.8m

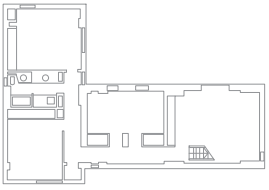


RICHARDS MEDICAL LAB.
14m x 14m



CENTRAAL BEHEER
198 units
9m x 9m

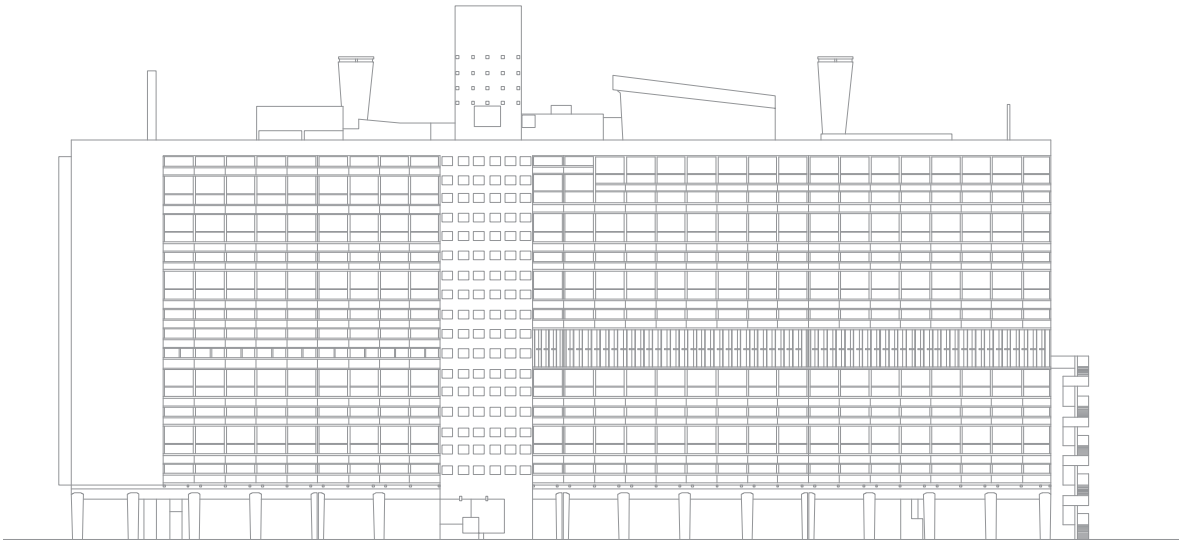
NAKAGIN TOWER
140 units
2,5m x 4m



2 UNITS

HABITAT 67
354 units
12 m x 5.33 m

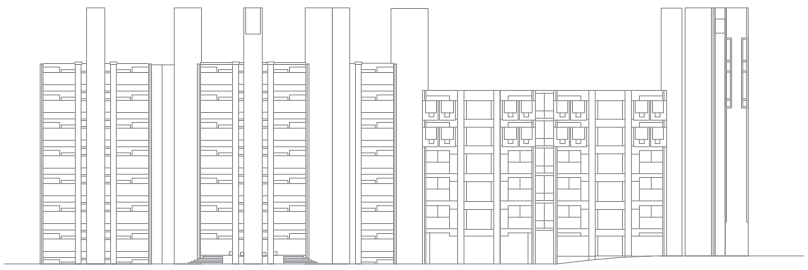
M 1:500



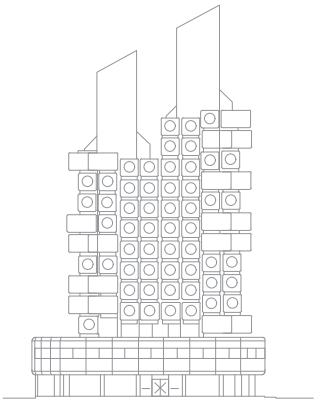
Unite d´Habitation, Marseille France 1947-1952, Le Corbusier

Orphanage, Amsterdam the Netherland, 1955-1960, Aldo van Eyck

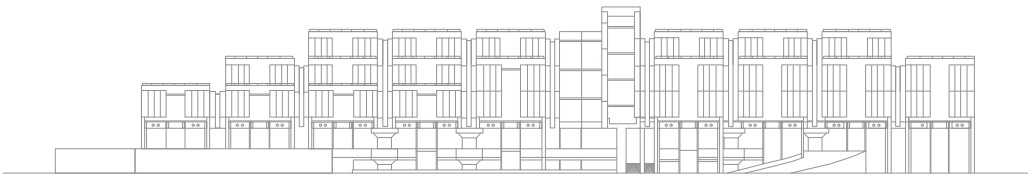
Habitat 67, Montreal Canada, 19



Richards Medical Laboratory, Philadelphia US, 1957-1960, Louis Kahn



Nakagin Tower,
Tokyo Japan, 1972,
Kisho Kurokawa



Centraal Beheer, Apeldoorn the Netherland, 1968 - 1972, H. Hertzberger

967, Moshe Safdie

M 1:1000

CENTRAAL BEHEER

part two

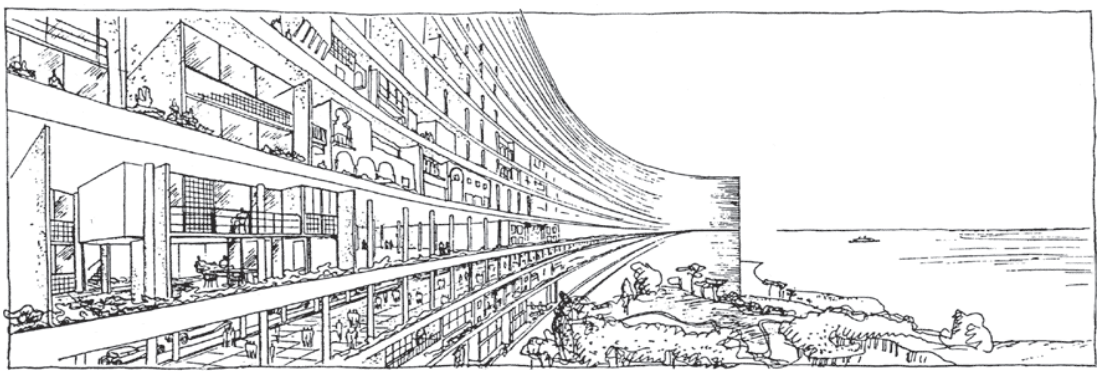


Fig. 11: Fort l'Empereur for Algier, part of Plan Obus, Le Corbusier, 1932

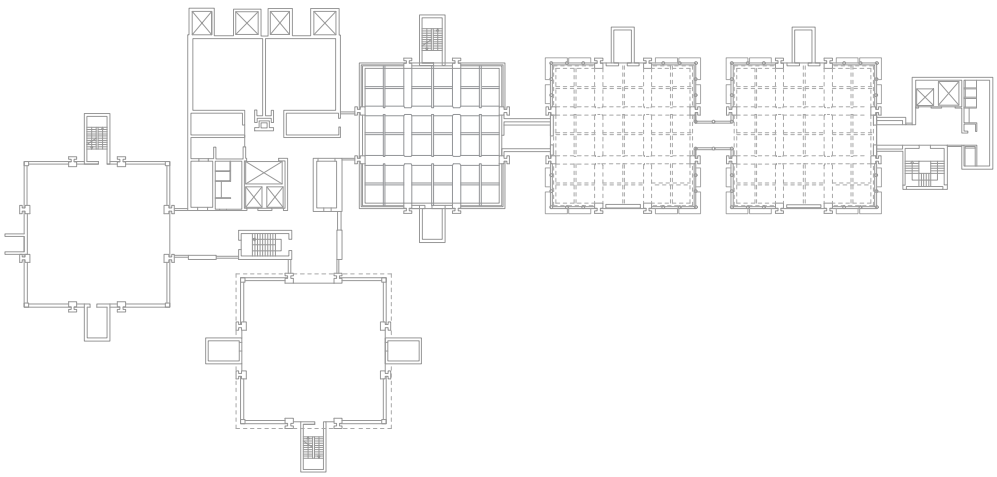


Fig. 12: Richards Medical Research Laboratories, Louis Kahn, 1965

2. 1 HERTZBERGER´S STRUCTURALISM

Next to Aldo van Eyck, Herman Hertzberger (1932) is one of the most prominent structuralist architects, prolific in theory and practical projects. After graduating from TU Delft, he joined the Forum magazine editorial team, which early on defined his stance on architecture. The magazine was led by Jaap Bakema and Aldo van Eyck at the time, leaders of the Dutch group in CIAM, and Team 10 later, whose ideas and associated work heavily influenced Hertzberger. He adopted Team 10´s programme, that Van Eyck summed for Forum´s first publication 7/1959 titled ´A story of another idea´, and later focused on developing particular areas of the new tendency.

Expeditions around the world and its detailed analyses were catalysts for undertaking a new direction when CIAM program and meetings became stale and inadequate for the needs that emerged after WWII. Studies about autochthonous structures, the relations between form and its inhabitants, the specificity and diversity of the built environment in each culture became the antitheses for the unbending and monotone architecture CIAM propagated.

In Hertzberger´s built work, elements and principles that influenced him from different times and cultures are easily recognizable (can be traced back to its original). Arenas in Arles, France and Lucca, Italy were in particularly influential on his work, because in time their general form remained, but the function changed drastically. One metamorphosed in a city square and the other became a residential structure. Similarly, Dioclecian's Palace in Split, Croatia dissolved into city streets and squares. The conclusion that form and function don´t have to be codependent and that function can change according to people´s needs was the beginning of his polyvalent approach when creating space.

Louis Kahn´s design for Medical Research Laboratory, Philadelphia in 1956 shows a similar approach. His frame is the `servant space` which enables the ´served space´ or basically

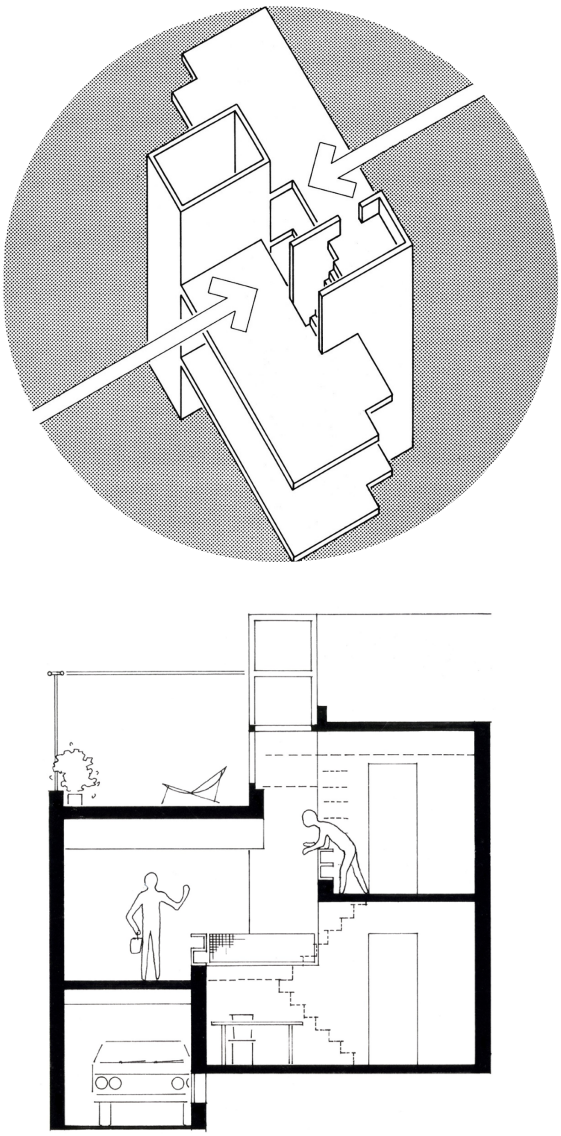


Fig. 13: Diagoon experimental housing, Herman Hertzberger, Delft, 1970

the infill and the are completely independent from each other. The ´servant space´ includes transit areas such as staircase and corridors, toilets, storage rooms, etc. remains fixed and the served space can change its function if/when necessary. The entire building consists out of exact square units that are repeated and linked. The repetition of linked units and the prefabricated structure was a direct inspiration for Hertzberger´s Centraal Beheer.

In 1961 John Habraken published his book ´Supports: an alternative Mass Housing´, which additionally complemented Hertzberger´s conclusion about the separation of form and function. Habraken distinguishes between ´support´or the structure of the building which is separated from the ´infill´that is chosen by the residents themselves. This way of designing allows user participation and integration of inhabitants when designing their own space. The idea of structure and infill was not a fully new concept - in 1930 Le Corbusier designed Fort l'Empereur for Algier, as a part of a much bigger urbanistic proposal ´Plan Obus´. Fort l'Empereur envisioned as a large highway that would serve as a viaduct and dwelling at the same time, where the structure acted as a frame for dwellings to be filled in. What would have been the biggest modernist complex at the time, was never realised, but it did serve as a role model for the megastructures that emerged in the next 30, 40 years. One of the earlier completed examples was Le Corbusier´s own design - Unite d´Habitation in Marseille, France in 1952. Built as a solution for mass housing demand after WWII, it consisted out of two elements - the frame into which dwellings were inserted.

Diagoon Housing was Hertzberger´s first project where he implemented these theories. It is a row of eight ´prototypes´ linked to each other with the idea of extension if necessary. Each dwelling is made in a way that room functions could be determined according to the inhabitants needs. The frame consists out of four units, each offset half a level, connected trough two cores that contain the only predetermined functions, kitchen and bathroom. As the needs of the household go through cycles of growth and change so can the space, without changing its original form. It is a half finished project, where the architect gives the frame and the rest is up to the inhabitant´s interpretation.

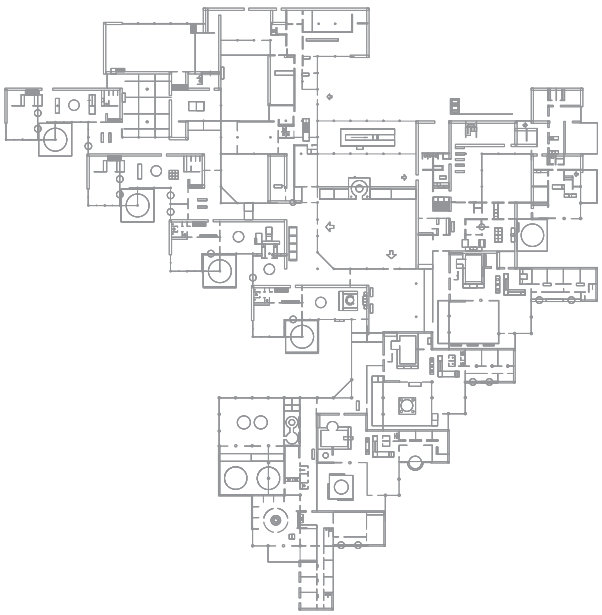


Fig. 14: Orphanage, Aldo van Eyck, Amsterdam 1960

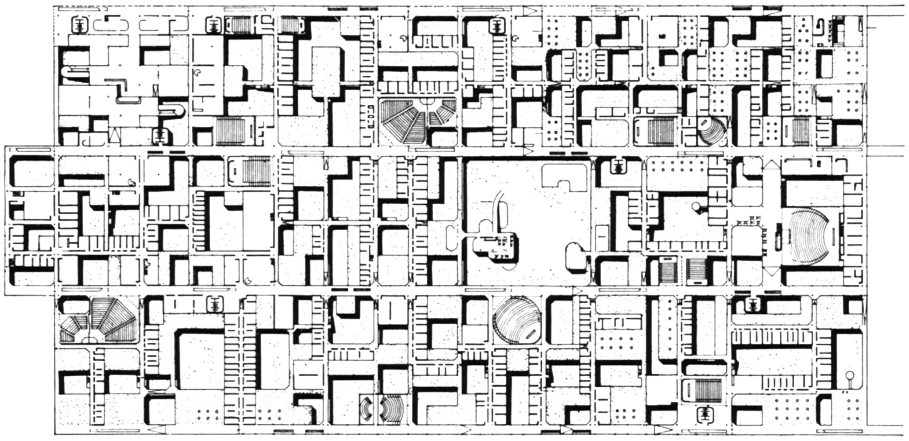


Fig. 15: Free University Berlin, Candilis-Josic-Woods, Berlin, 1963-1973

"Essential to the whole was the intention not to make a neutral shell to be filled in, but to deliberately proceed from the spatial form that could free the way for certain options for use, generating a spark in the minds of occupants that could set the engine of idea in motion."[36]

Which doesn´t mean that the space itself is flexible, it´s rather the opposite - every element is fixed, the frame cannot be modified, but it is built in a way that allows smooth change of functions. For Hertzberger neutral space is generic, meaning open to interpretation and change, but without identity, there is nothing specific about it, no attached qualities. He further compares generic - specific with competence - performance. Linguist Noam Chomsky introduced the terms where ´linguistic competence´ means the subconscious grammar rules we use in our native language and ´linguistic performance´is how we use them in our language and that they can be examined independently. Translated into architecture, ´competence´is form´s capacity of interpretation and ´performance´ various ways of being interpreted.[37] Polyvalent way of designing is at the same time key for sustainable architecture, because it means we are designing for longer life expectancy from the beginning, anticipating all possible changes, with minimal interventions on the structure. Buildings should possess identity, be of specific form that stimulates and invites it´s users to leave their own mark and be able to change function if the time comes.

Another tool or guideline, that was reintroduced by Team 10 was the Grid. Urbanistic organisation of a city based on grids has been used before the Ancient Greek and Roman time, Timgad, Algier and Miletus, Greece being the most noted examples. During Le Corbusier´s CIAM, the grid of Manhattan, New York was particularly explored, even scrutinised as a more contemporary case. During the modernist movement, it was seen as an unsuitable, poorly made urbanistic plan, with too narrow streets, not enough green parks, growing congestion, a city that should be leveled to the ground, to make place for a new more reasonable structure to rise. Later this standpoint reversed in a way, when Team 10 reintroduced the grid as a perfect base for planning and building. When using a grid it allows each block to be built independently and differently from others, each block can be added or removed according to the current societal needs, while remaining a part of the

36 Hertzberger 2014, 17.

37 see Hertzberger 2014, 36.

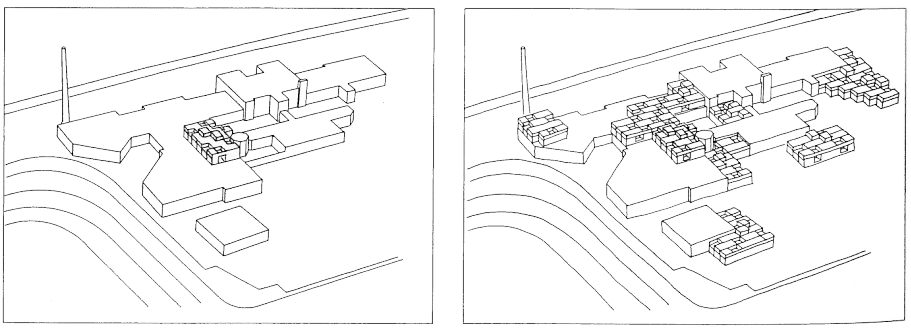


Fig. 16: Lin Mij Factory extensions, Herman Hertzberger, Amsterdam 1964

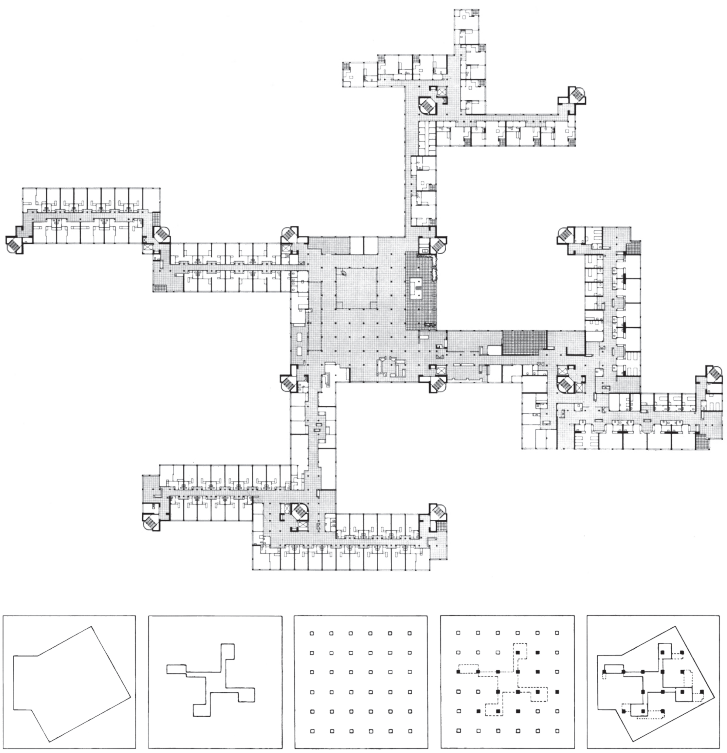


Fig. 17: De Drie Hoven, Herman Hertzberger, Amsterdam 1974

system that unifies the entire area that falls under the grid. Urbanistic plans based on grids are egalitarian, there are no main and side streets. Grids are boundless, easy to cut off.

The idea of a grid as a base was paired with the idea of open-ended structures. Buildings should be planned as small cities, unfinished, planned in a way that they could easily be extended along the grid, if necessary in the future. Structures that could grow and change in time, develop organically like real cities and last much longer than closed systems built before the 60s. *"It is only with open-ended strategies comparable to those which cities manage to avoid chaos, that building can be conceived in such a way that they are adaptable for other functions."*[38] The thought behind the theories was different and promising at the time, but the transition from paper to reality didn´t seem to be working for the function and people using them. The best examples are Free University Berlin by Candilis-Josic-Woods (1963-1973) and Van Eyck´s Orphanage (1955-1960) - both became obsolete in the first years of use and some decades later very difficult to adapt to new needs and standards.

Second built project Hertzberger designed was the Lin Mij factory extension in Amsterdam. This was the first time he implemented the idea of one unit type repeated and linked multiple times. The idea of a single unit repeated in a certain pattern or grid was explored by Louis Kahn and Also van Eyck at the same time. Due to low budget, the rooftop extension was planned as gradual, units could be easily added to the initial cluster when and where necessary. Again, when designing the units, polyvalency was the starting point. Units should be decent in size, have their own distinct character, be easily adaptable to any function *and "...the premises should be complete and whole after each extension..."*[39]. Entirely prefabricated units were independent ´served space´ from the rest of the factory.

His next project was De Drie Hoven (1964-1974), a home for mentally and physically impaired people. The complex consisted out of four towers, each with a different program, and a village green in the center. Diverse departments were unified with the structure made out of stacked prefab elements laid out on a grid. Hertzberger planned the home as a small city, each department can function independently, but gravitates towards the center.

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38 Hertzberger 2014, 72.

39 Hertzberger 1991, 128.

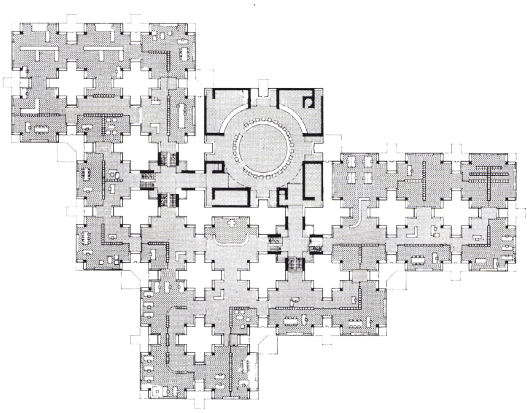


Fig. 18: Town hall competition in Valkenwaard, H.Hertzberger, 1966

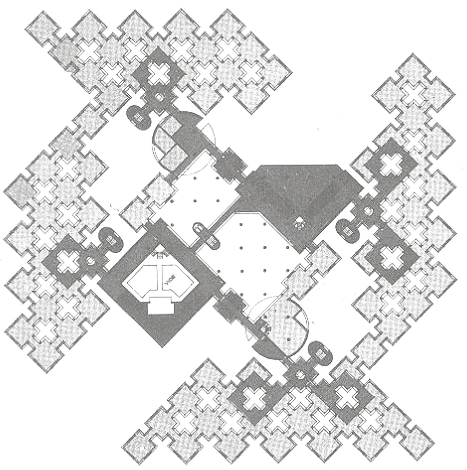


Fig. 19: Town hall competition in Amsterdam, H.Hertzberger, 1967

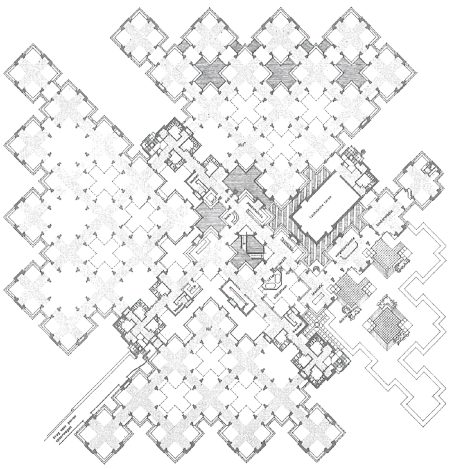
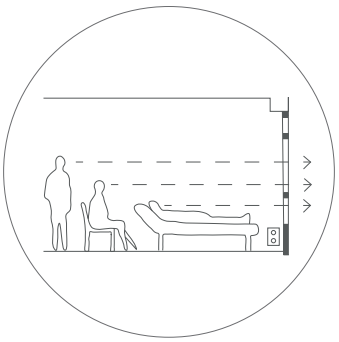


Fig. 20: Centraal Beheer, H. Hertzberger, Apeldoorn, 1968 - 1972

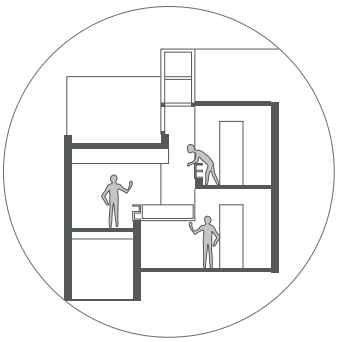
The polyvalency was mostly visible in the details - short walls designed for flowers, or storage or a table and doors made out of two wings, giving the opportunity to close only the lower part and achieve the semi privacy.

During the construction of the nursing home, he participated in two competitions for a town hall - one in Valkenwaard, 1966 and Amsterdam, 1967. The Valkenwaard town hall was smaller and denser, made out of autonomous prefab cube units stacked like towers and repeated in a pattern. The town hall in Amsterdam was more expansive and ´jagged´with four distinct sections spread around the center of the complex with the same structural system as the other town hall. Hertzberger didn´t get the opportunity to realise the town halls, as they were perceived as too avant-garde, but they were the perfect practice for his next project , the Centraal Beheer in 1968.

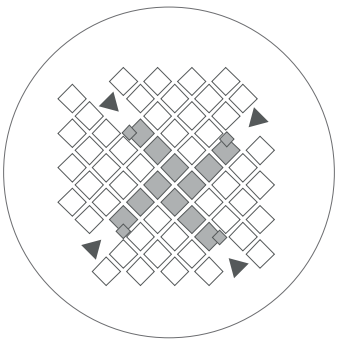
2.2 HERTZBERGER`S VALUES



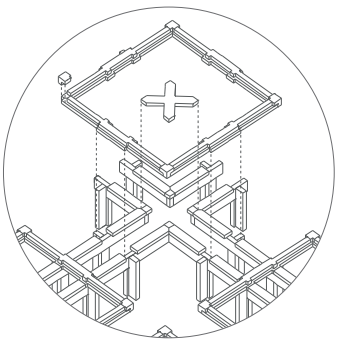
HUMAN SCALE



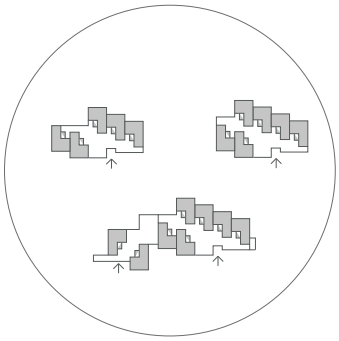
RELATIONS



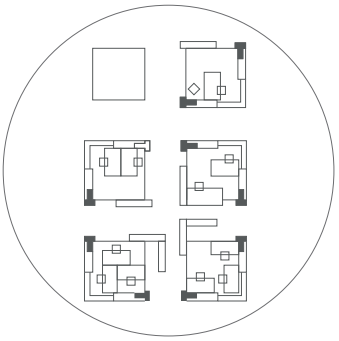
NO HIERARCHY



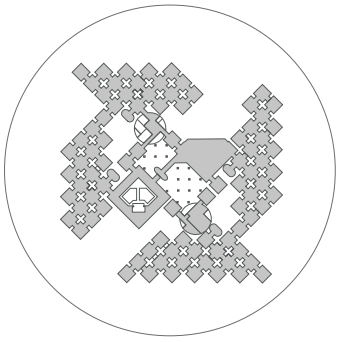
PREFAB



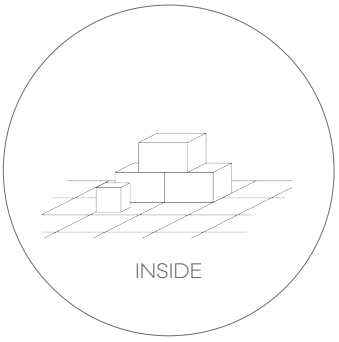
MODULARITY



POLYVALENCY



CITY IN A CITY



MATERIALITY

Province: Gelderland

Area: 341, 15 km2

Population: 160, 852

Density: 473 / km2

2. 3 APELDOORN MASTERPLAN 60S

During the first half of the 1960s a new master plan for Apeldoorn`s city center was established. Apeldoorn was a small, relatively unimportant town with around 100 000 inhabitants in the urban area, known mostly for the royal family´s country residence Het Loo. The majority of the surrounding buildings, built after the World War II were quickly demolished to make room for the new big plan. The main goal was to create the ´second writing of the country[40]´ or ´new´Hague in the central Netherlands. Randstad, the area consisting of the four biggest cities in the country, Amsterdam, Rotterdam, The Hague and Utrecht, was even then overloaded, but through the implementation of the new master plan, Apeldoorn could become the business capital of the province Gelderland. The entire masterplan, revolved around the main axes that stretched across the proposed pedestrian zone on the north to the proposed new train station on the south.

The Centraal Beheer insurance company was one of the first to come over from Randstad and settle here. Its building lot was strategically chosen since it lay on the newly proposed axis, incorporating the future plans in its spatial design. It was actually the first building built according to the new master plan. In 1977 next to it, on the left side, was built the Parkhoed Company building by Kamen and Davidse.

The primary task was moving the station more to the west, so that people enter/exit directly at Centraal Beeher. From there on, they continue moving to the north via a sinked in boulevard situated between two buildings (CBI and CBII). Intended as a shopping street it leads under dense traffic lanes towards the middle of the new city center. The city center was also intended to move more to the west of Apeldoorn. Five years after Centraal Beheer was finished, the master plan was abandoned - not a single measure was executed. Later in the 70s and 80s due to high employment rates in service sector the building expanded on the area intended for the boulevard. The train station stands still at the same place and the zone intended for the city center was fully rebuilt as residential area.

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40 ENGLISH def.bijlage 4 Monumentenbeschrijving Prins Willem Alexanderlaan 651.nl.en

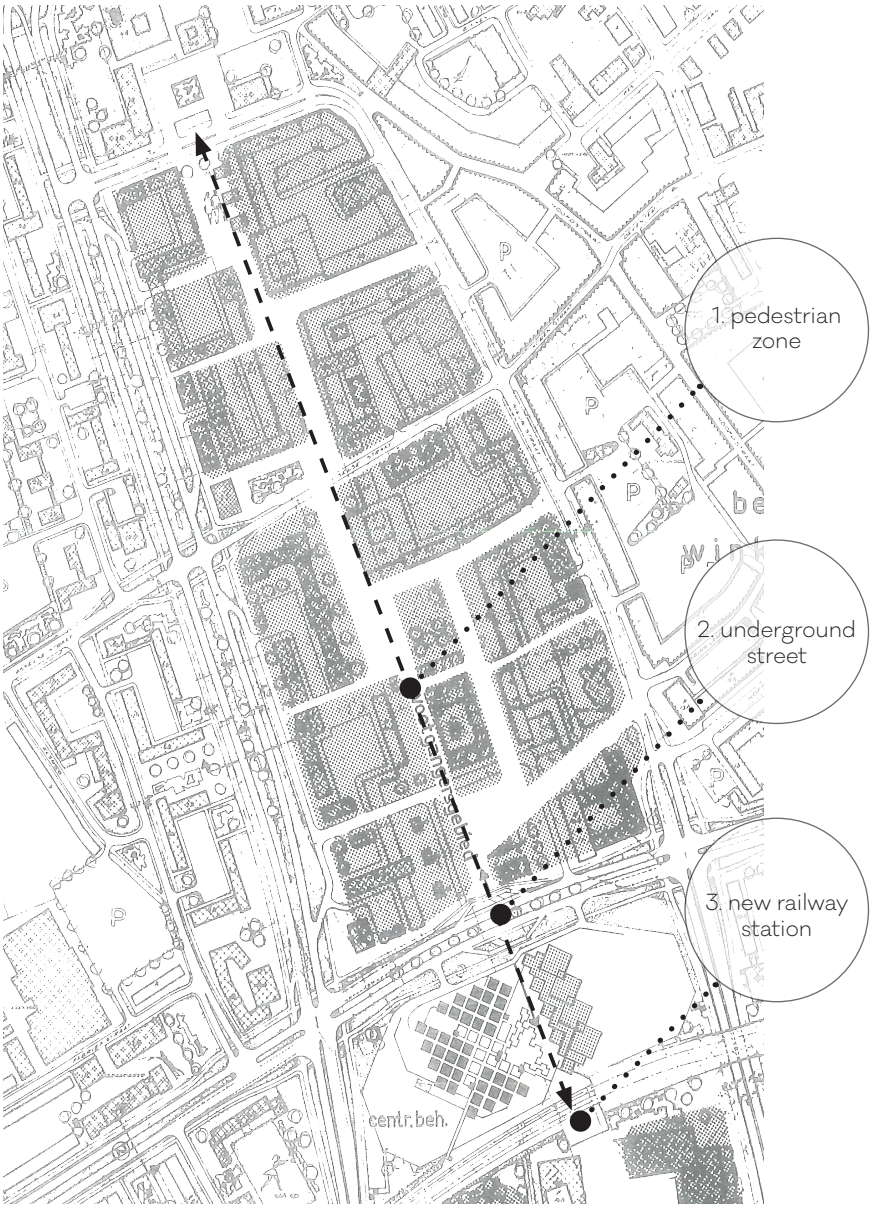


Fig. 21: Masterplan for Apeldoorn 1966

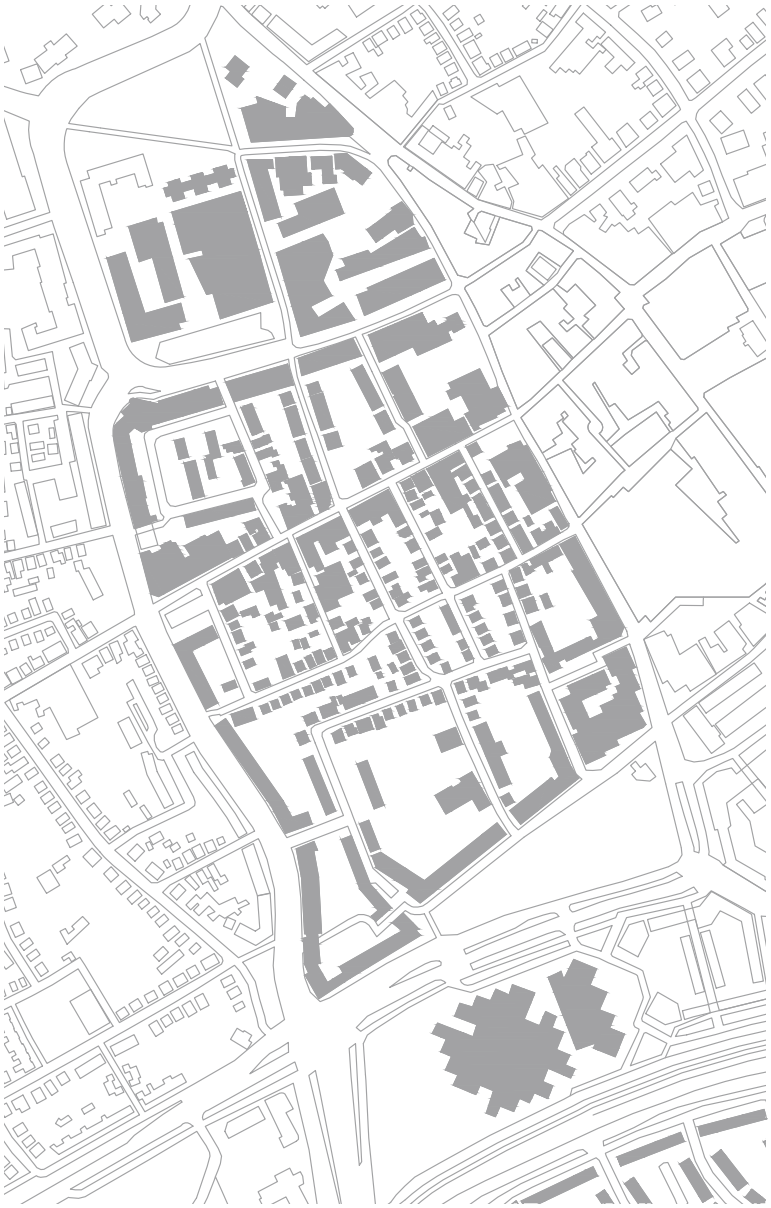


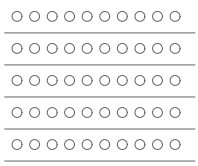
Fig. 22: Apeldoorn today, 2019

FUNCTIONS city center
M 1:5000

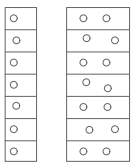
collective dwelling
individual dwelling
retail
retail and dwelling
offices
public services

2. 4 OFFICE TYPOLOGY 1910S - TODAY

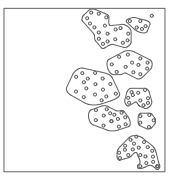
1910 1920 1930 1940 1950 1960



Taylorist plan



Cellular Office



Bürolandschaft

HIERARCHAL

NON HIERARCHAL

OPEN

- uniformed
- rigid
- lack of privacy

CLOSED

- private
- lack of communication and collaboration

OPEN

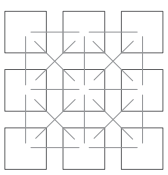
- communication / collaboration
- noisy
- lack of intimacy

eg.
The Willis Tower (1913)

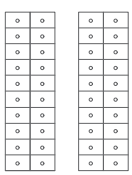
Empire State Building (1931)

Osram Offices (1963)

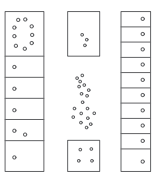
1970 1980 1990 2000 2010 - today



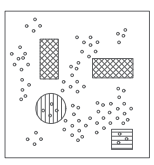
Structuralist Plan



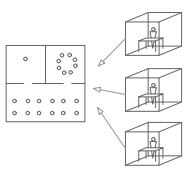
Cubicles



Cellular Office



casual/ alternative



virtual office

NON HIERARCHAL

OPEN

- communication / collaboration
- identification w/ space
- noisy
- hard to orientate (labyrinth like)

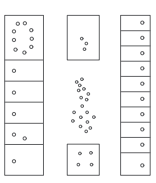
Centraal Beheer (1972)

HIERARCHAL

CLOSED

- isolation /privacy
- can be inefficient
- lack of communication and collaboration

Vienna Twin Tower (2001)



Cellular Office

- almost all office types are present today
- the values of the 70s are relevant again

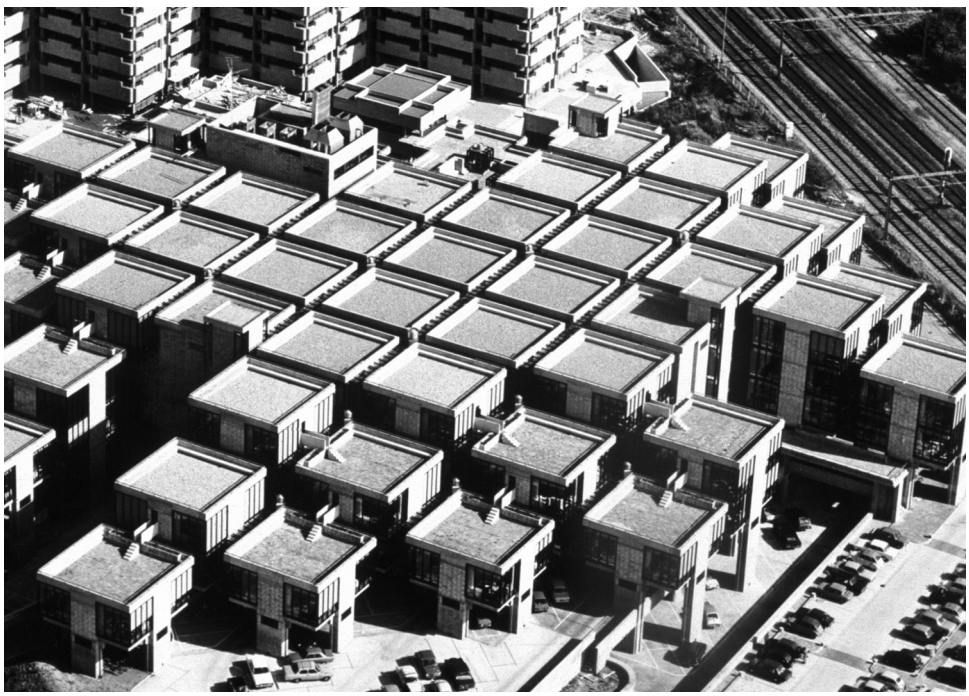


Fig. 23: Aerial photo of Centraal Beheer

2. 5 CENTRAAL BEHEER 1968-1972

Centraal Beheer was the megastructure that made Hertzberger and his design principles known to the architecture world in the 70s. He was approached by J. Ruiter, the director of the insurance company Centraal Beheer, to design an office building with a different spatial philosophy, that would respond to the societal changes at the time. It should be a *"workplace for a thousand people"*[41] where people would feel as a part of a community and be able to express their own identity. The 60s were marking a change is the Dutch society, emphasizing the need for freedom and personal expression, but also the entering of women into the workplace.

The idea was to create a city in a city, a settlement, very similar to the town halls in Valkenswaard and Amsterdam with linked towers, but much denser, with symmetrical office sections divided by the main street. The primary streets would be designed like passages, narrow and lofty, reminiscent of old cities, with natural light coming from above, an ideal meeting place. Being the main horizontal circulation, it trickles over the bridges into the secondary streets that connect the quadrants.

The main 9x9m unit or the island, that is stacked up to four floors and linked with bridges, repeats in two directions on a grid, creating and endless system. Around the towers stretch, from top to different lower levels, voids that allowed light to enter the building. Each island is divided cross like with the secondary path, leaving four 3x3 m corner areas to be used depending on the program. The islands have a particular form, but are completely separated from the function and are able to house and easily change any necessary program, making them polyvalent. The corner office areas should be appropriated the way employees desire, they have complete freedom to express their individual needs and creativity. In a way, the reason behind this approach is the fact that people tend to spend the majority of their day in the office, so it should be a place where they feel comfortable and at home. Another reason the voids are important for the overall concept is that they

41 Hertzberger 1991, 90.

allow relations between different levels, be it just the eye contact or verbal communication. This way the individuals are part of the community without having to directly participate. And also open levels with simultaneous activity create the cacophony of sounds similarly adding another real dimension to the city in a city concept.

Materials used probably contribute the most to the city like feeling. The almost entire structure is made out of prefabricated concrete elements - columns, primary and secondary beams, floor and wall blocks. The only elements made in situ are corners of the beam-frame and floor of the islands. Concrete blocks for the street floor and walls with rough texture, exposed concrete structure were purposefully chosen to signal outdoor space. Everything looks raw and is half finished, for its inhabitants to fill the interior the way they want to.
"The more responsibility users have for an area and consequently the more influence they can exert on it, the more care and love they will be prepared to invest in.[...] Thus users become inhabitants."[42]

Centraal Beheer´s structure is based on the frame and infill principle. The framework is fixed and supports the changeable infill areas. Primary frames (four beams with in situ corners to keep them together) guide the pipeline system and horizontal circulation and on the secondary frames, that are offset, are poured floor surfaces. So even though it looks like the towers are autonomous, the structure is very complex and trough out intertwined. Hertzberger planned the system inside out, so that when the need for more space rises, the structure can be continued. The facade wasn´t that important for him, it was just a way to close the building, hence the simple, fixed single sheet glass in a thin steel frame. Each tower has a flat roof and in between them gutters flow, which are part of the skin closing the gap between two rooftops and continue down the facade until the basement. Connected to the gutters but on the inside, right underneath are ventilation ducts.

If the islands are the ´served space´the ´servant space´is located in the technical tower, the only big exception in the overall structure, made out of two units connected and then stacked five times. All piping, heating and ventilation, water and electricity, spreads out from the tower and are hidden above the path lines, between the primary frames. The

42 Hertzberger/Lüchinger 1987, 119.

entire building is built as egalitarian, meaning there is no hierarchy in any aspect. There are four entrances on each end of the street, and an entrance per parking level leading straight to the core of the building. The core is also the main vertical circulation zone, with layers of stacked escalators. Next to them is the only elevator in the building. Around the staircase at the street end are clustered lavatories, changing and powder rooms.

The cascade form of the building comes from each level, having one row of edge units less than the level underneath. Even though the building has a symmetrical look, each section around the streets is different in height. The only one stretching from the basement to the top floor is the north section, west and south sections begin from the first floor, due to the two parking levels underneath and the east quadrant is basement to ground floor and a terrace on top of it. As for the programme, north and west office quadrants were planned for the insurance company, the south office section was supposed to be rented out and the east was restaurant.

2. 6 CENTRAAL BEHEER ADAPTATIONS 1972 - 2019

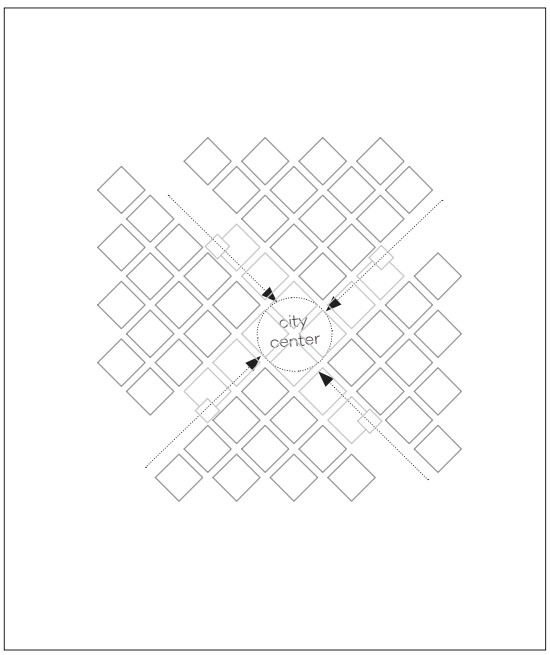
In almost five decades of its existence the building added a significant number of square meters. But not in the way Hertzberger initially envisioned, by adding 9x9 blocks, but by acquiring an adjacent building. Parkhoed Company building, built in 1974 by Kamen and Davidse, stood empty for a couple of years before Centraal Beheer bought it. Built in the similar structuralist way it fit into the ´66 master plan that included the planned train station and the pedestrian zone.

The next big change occurred in 1995 when Centraal Beheer insurance company merged with Zilveren Kruis creating Achmea Company. The change in administration was followed by physical changes inside and outside the main building. A glass atrium was added between the two buildings, with a short bridge connecting them on two floor levels, adding more square meters. On the north of the complex was built in the main entrance, meaning that the four entrances in the main building were disabled and entering the main building was possible only trough the adjacent building and then atrium and then the bridge, landing in the restaurant section. Inside the building the main changes were in terms of circulation. Vertical and horizontal circulation was additionally increased with new glass bridges, spiral staircases, modern elevators. Because of the bothersome echo, floor surfaces were covered with carpets to reduce noise and several 3x3 office spaces, next to the voids, were closed off with fixed glass. An adaptation of the space also clearly outlined a change in typology that occurred in the 90s. An open, individualistic, no hierarchy office space, was replaced by partitioned offices, signaling conservative cellular office type, popular at the time. Again Hertzberger`s architecture office carried out the redesign.

Some twenty years later, Achmea moved out and ever since the building stands empty. After a couple of unsuccessful propositions a new master plan was agreed upon in 2016. Certitudo Capital bought the complex and plans to revive it with AHH - Hertzberger`s office. Currently their plan is to turn the former offices into a residential complex, CB2 will

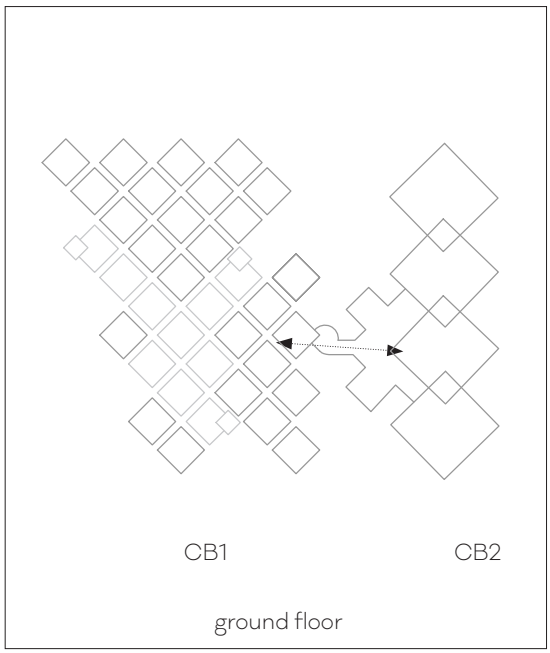
be demolished and in its place a new residential building will arise. The emphasis of this master plan is on the heritage values and the reconnection to the city. Even though it lays in a prime position, closely to the city center, it remains isolated. Hertzberger Parc, a park dedicated to Herman Hertzberger, should establish a relationship between the building and the Apeldoorn city center.

2.6 CENTRAAL BEHEER ADAPTATIONS 1972 - 2019



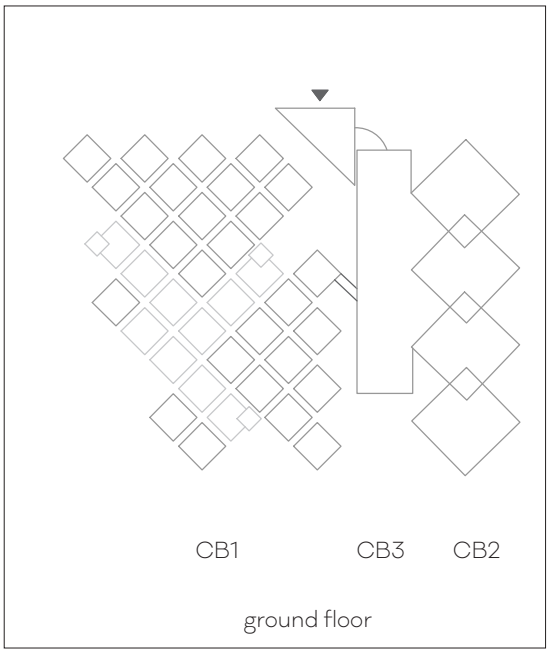
1968 - 1972

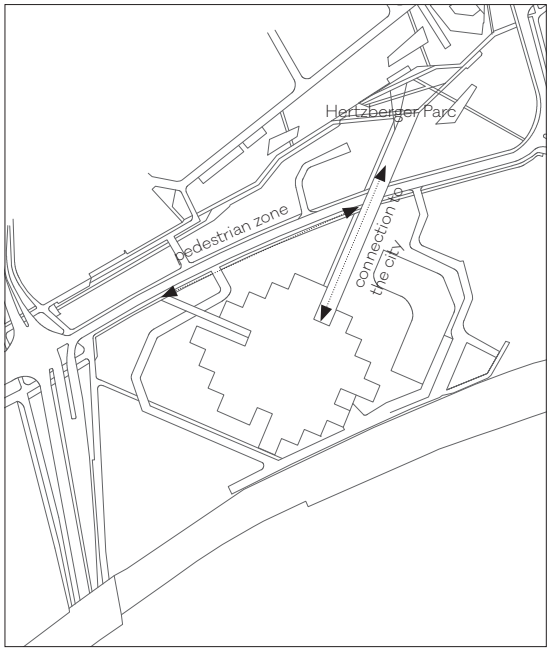
- Centraal Beheer insurance company moves in the finished building



1977

- Centraal Beheer buys the adjacent building (Kamen und Davidse)
- Hertzberger redesigns it
- a ramp connects the two buildings in ground floor (restaurant)





1995

- AHH builds an atrium between CB1 and CB2
- main entrance on the north between these two buildings
- the plan for a new train station abandoned
- adaptation of the inside - bridges, spiral staircase, elevators, partitions, carpets

2013

- Achmea moved out

2016 - 2019

- Certitudo Capital buys Centraal Beheer
- new master plan for the areal with focus on reconnection with the city center
- again AHH will redesign the abandoned building

2.7 INTERNAL ADAPTATIONS IN THE 90S

additions from the 90s

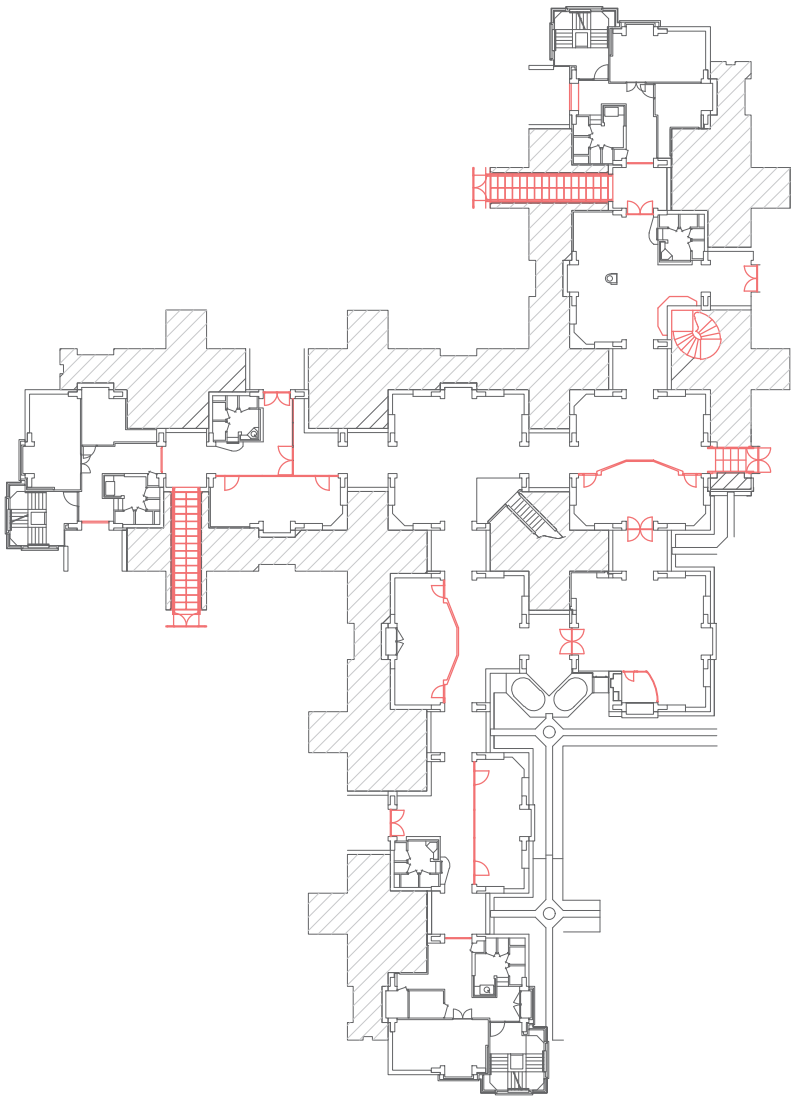


Fig. 25: Dilution of the street, 1995.

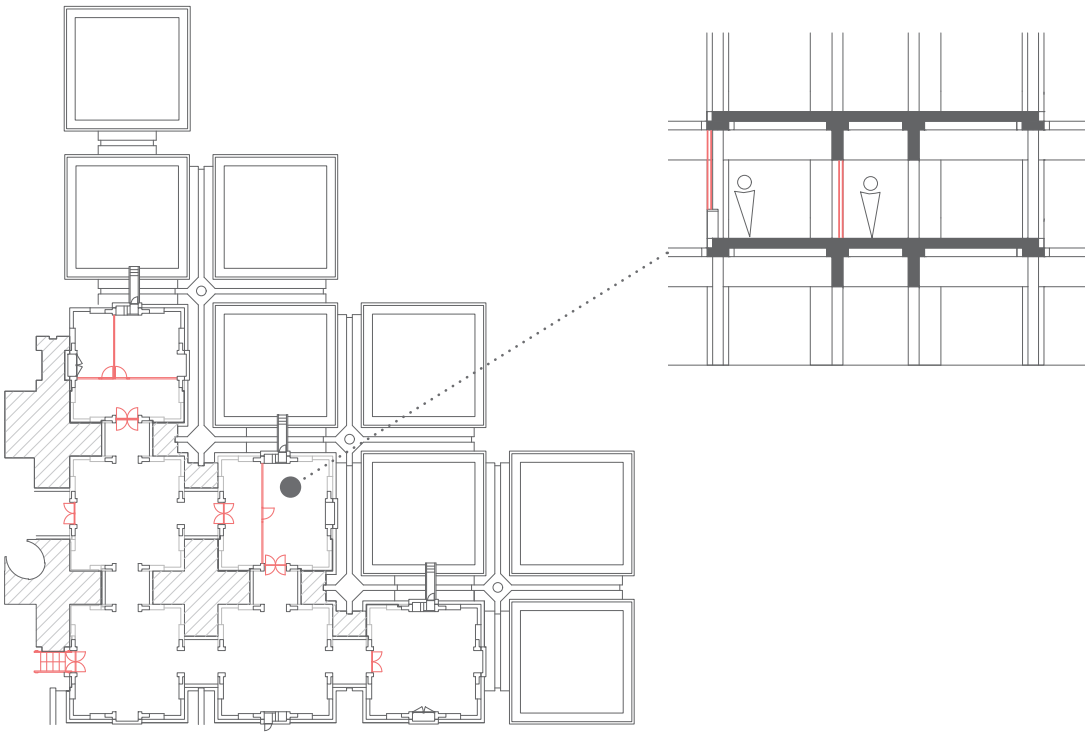
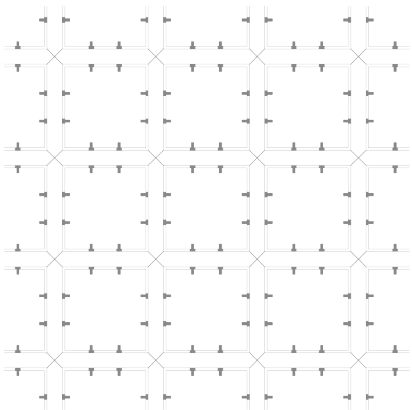


Fig. 26: New partitions and doors on the 4th floor, 1995.

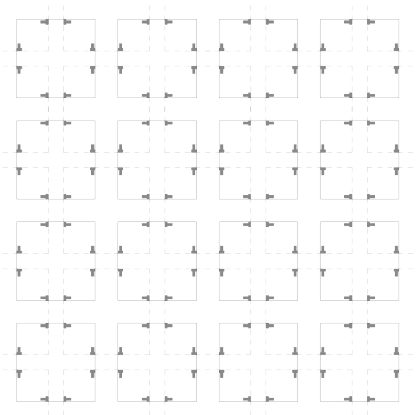
In addition to the new atrium in 1995, that was designed to connect the two Centraal Beheer office buildings, there were some additions and changes to the original layout inside. It was the first and only redesign on the inside of CB. The lavatories at the end of the streets were fully redesigned and expanded, closing off that area with walls and doors. Three bridges were added between the street and sections and spiral staircase on the street that connects all floors. The street was not only reduced in size by enclosing the ends, but also partitions and doors were added as well, changing the look and circulation flow. Office sections on all floors were partially partitioned with walls and doors. Some corner offices on the voids were enclosed with fixed glass. An already confusing floor layout became an even vaster labyrinth, that not even colorful, freshly painted columns couldn´t help orientate oneself.

STRUCTURALIST SYSTEM



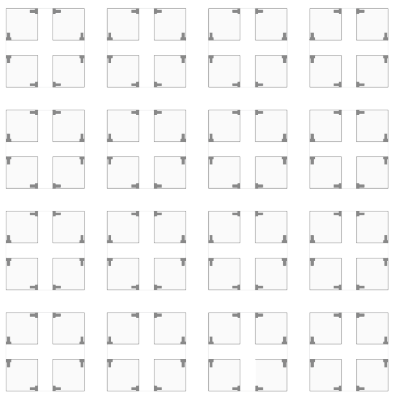
PRIMARY STRUCTURE

beams and columns on a grid - fixed structure



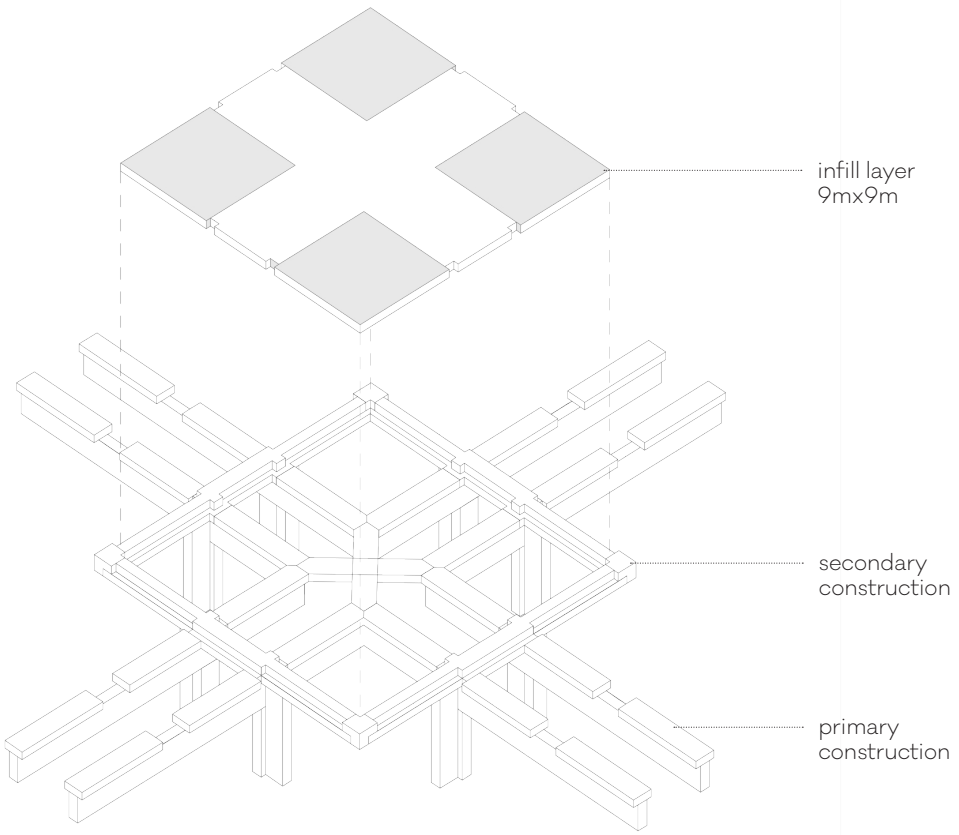
SECONDARY STRUCTURE

slabs out of poured concrete - fixed circulation layer



INTERCHANGEABLE ZONES - INFILL LAYER

one island=four infills



First layer of the primary construction is the most important one, the spine of the building. It carries the mass, piping and most importantly conducts the boundaries for the path zones. On top of it comes secondary layer which is offset. Floor surfaces, with four infill zones and inner streets, are poured in the secondary frame.

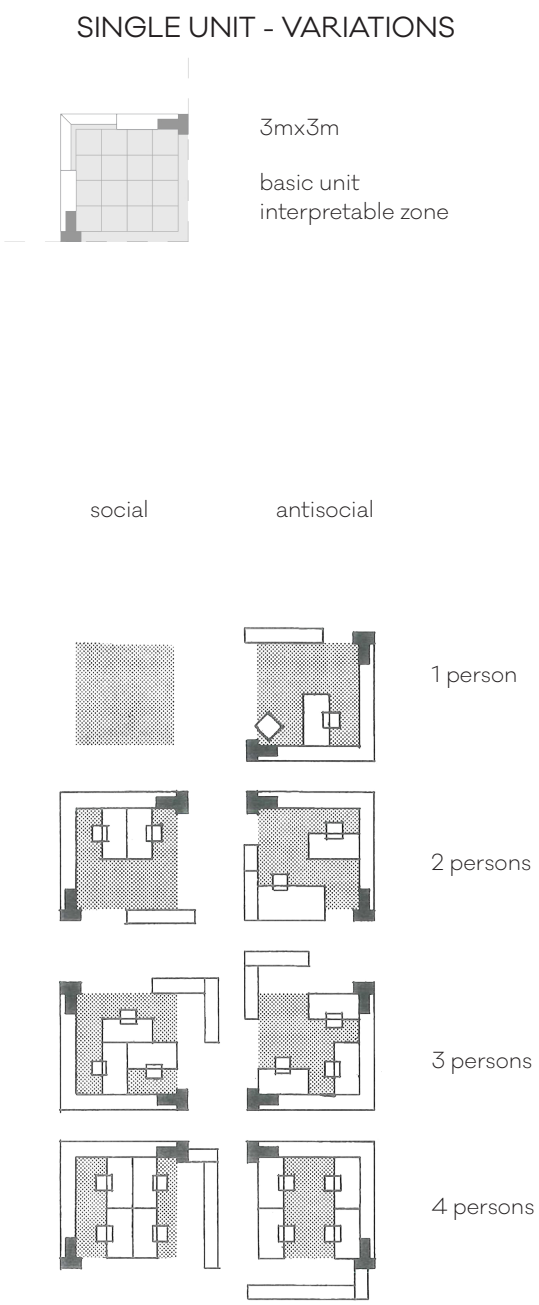


Fig. 27: Variations possible in the basic unit 3 x3

TWO OR MORE UNITS VARIATIONS

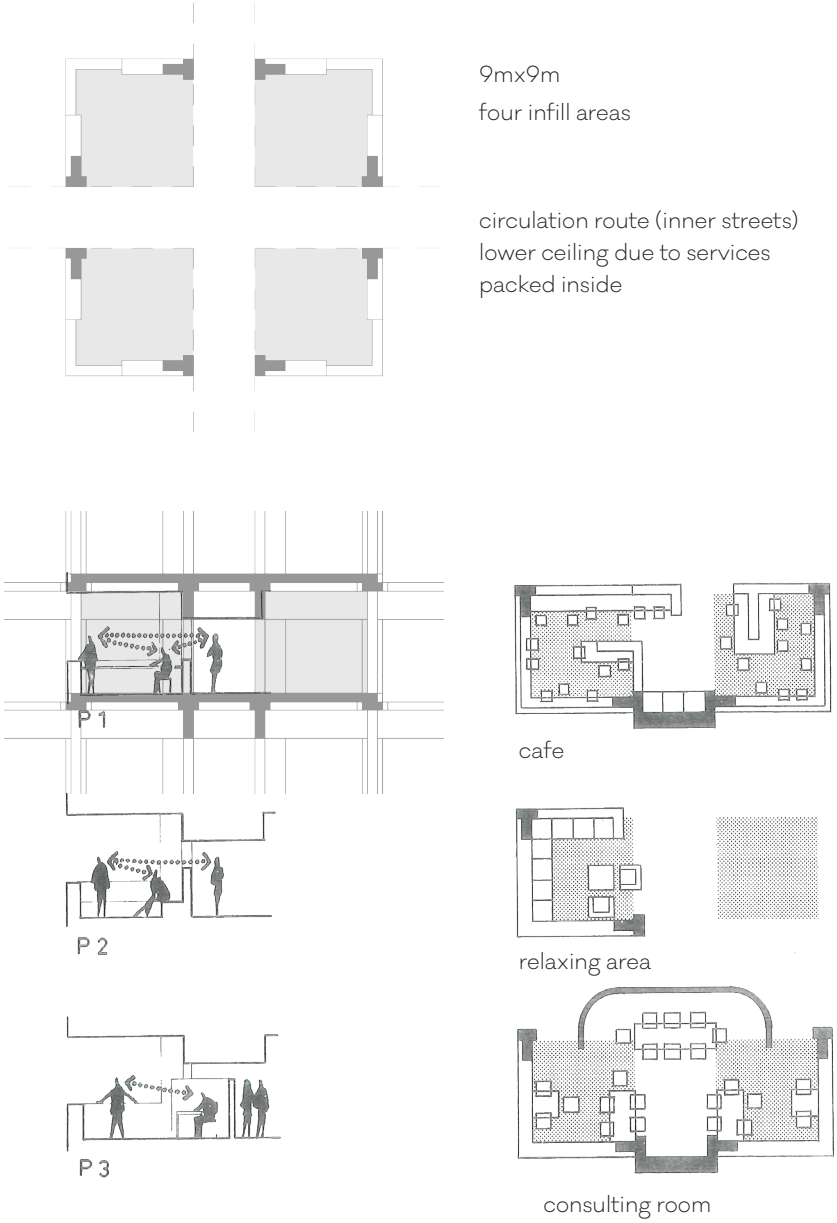
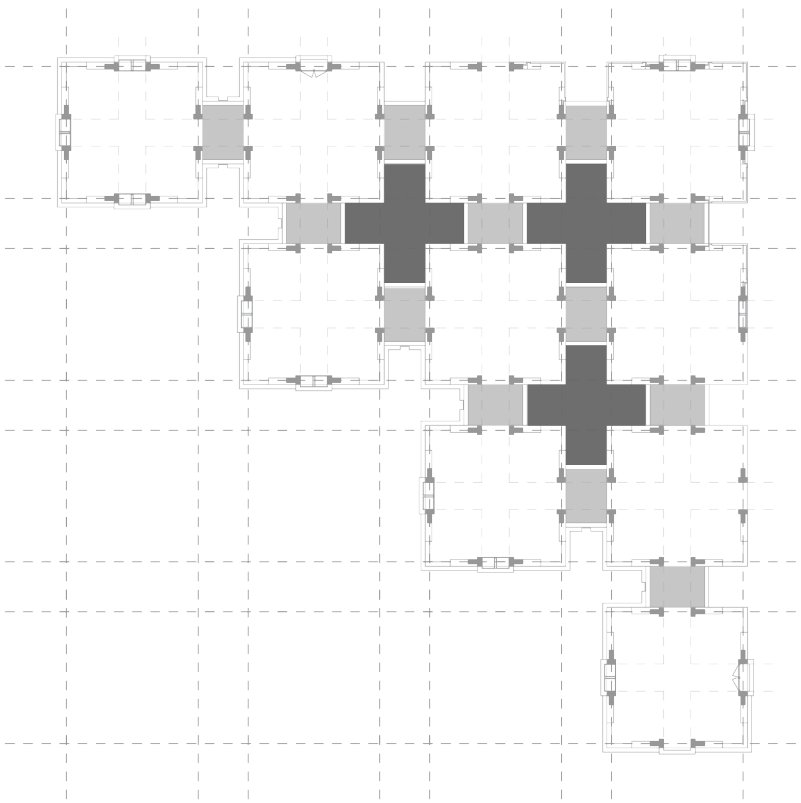


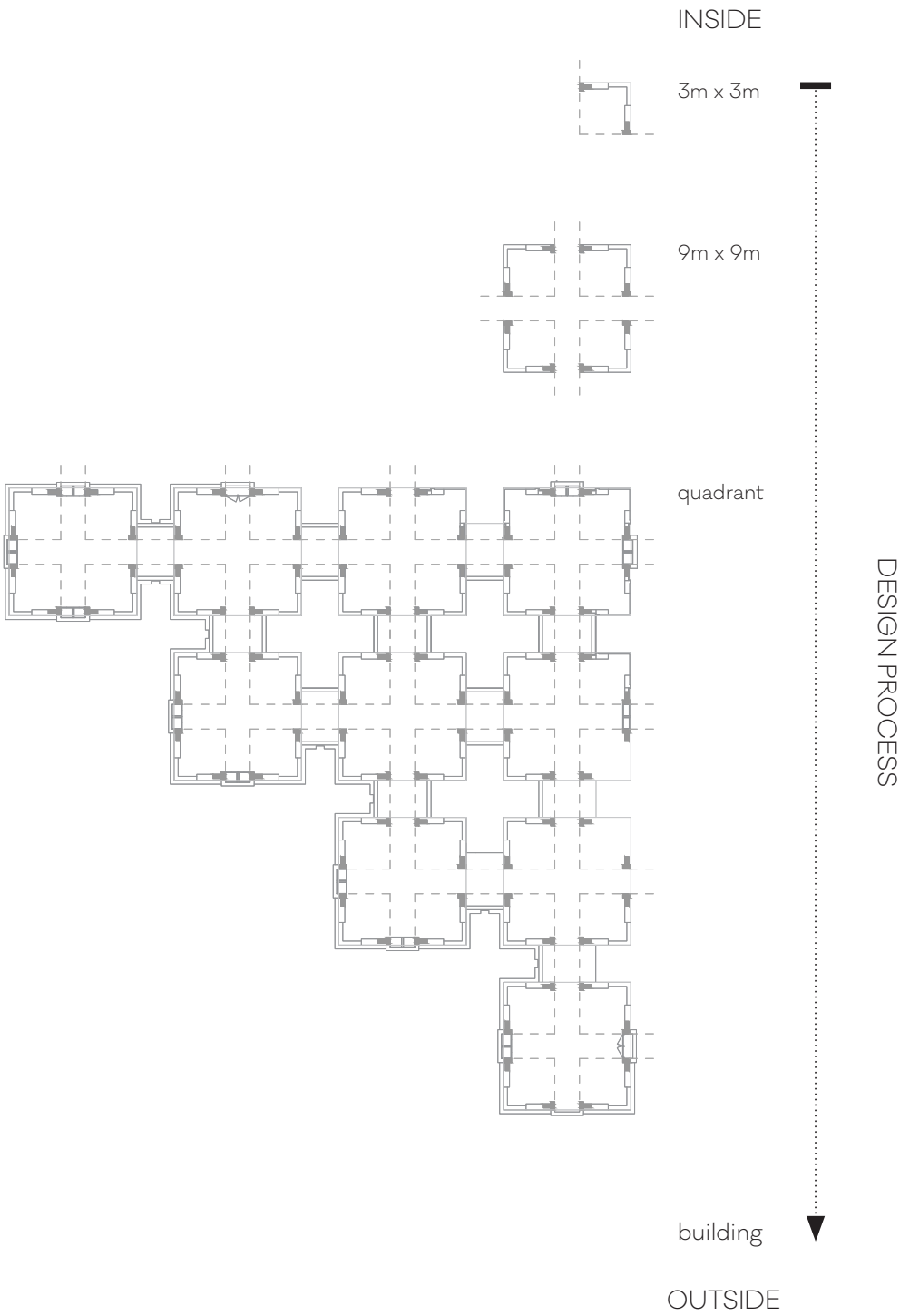
Fig. 28: *Left* different heights create different relations between zones, *right* other functions

QUADRANT

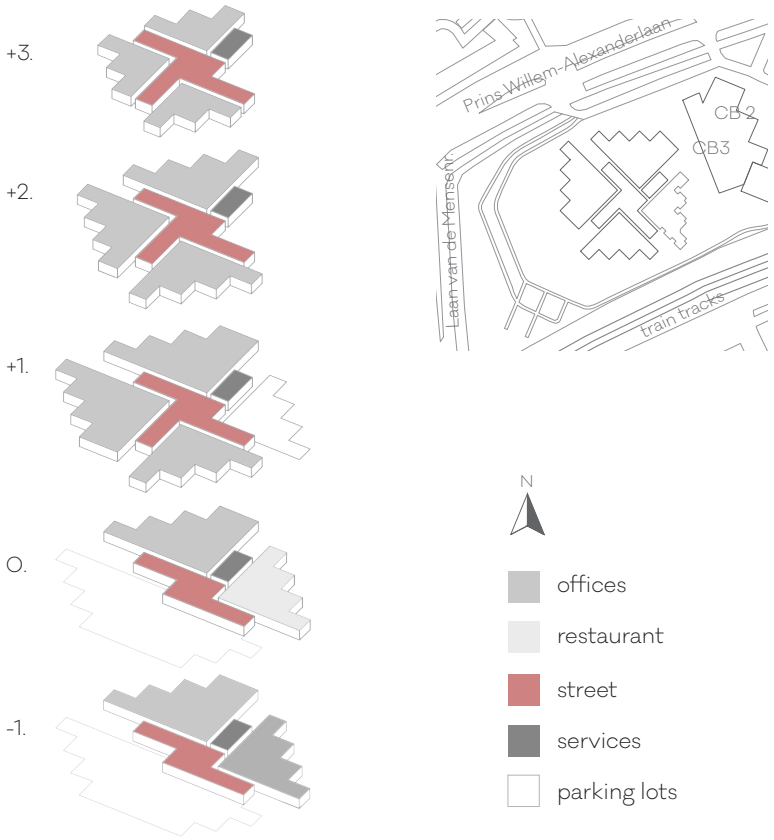
In the secondary layer the space between the islands is covered/ connected either with bridges, or left open to form voids in the upper floors, which have a dual purpose - they allow light to penetrate deeper in the building and visibility and communication between floors. The way the space in between is used, shapes and gives boundaries to the inner streets.

bridges voids




INSIDE
3m x 3m
9m x 9m
quadrant
building
OUTSIDE
DESIGN PROCESS

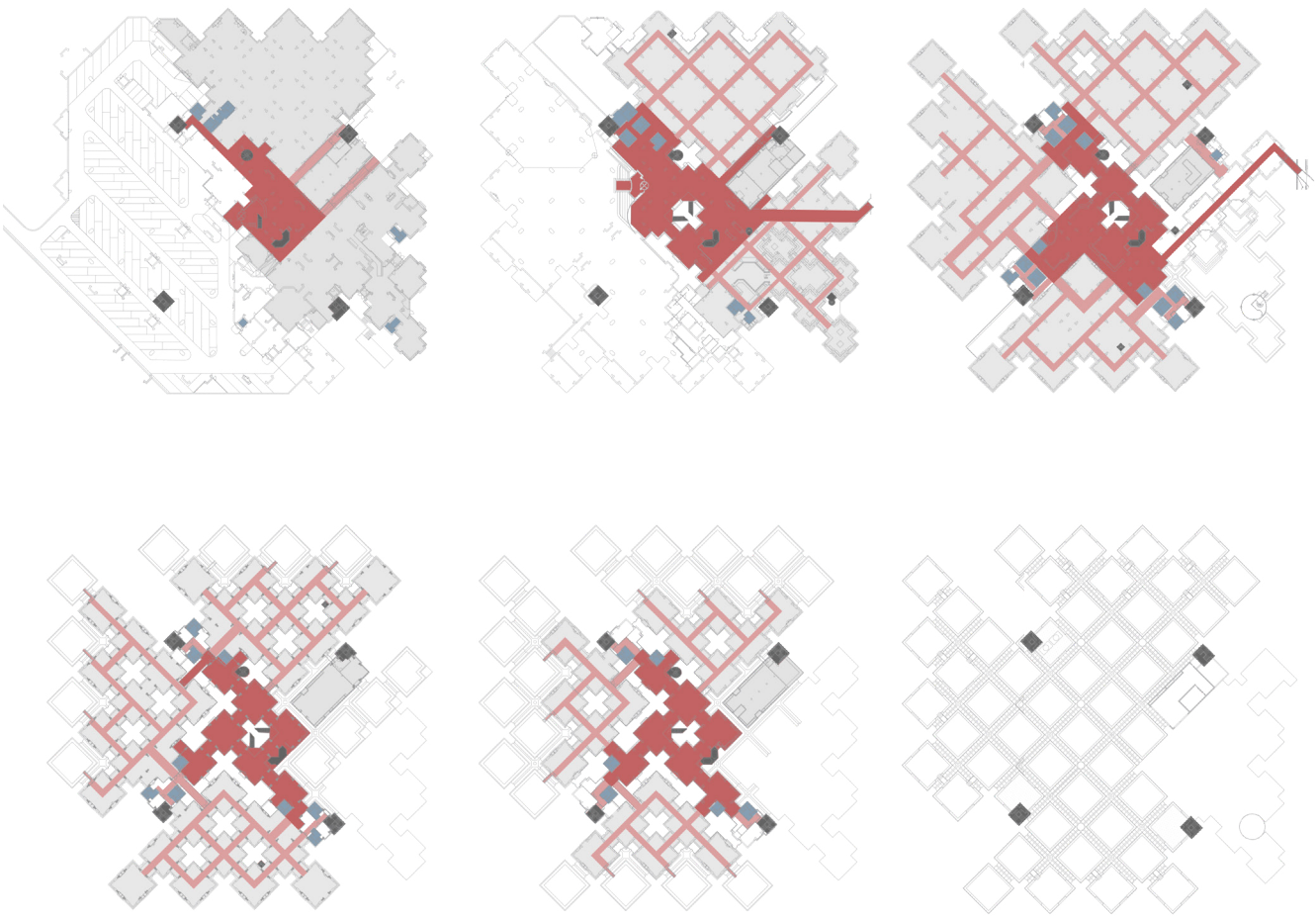
PROGRAM



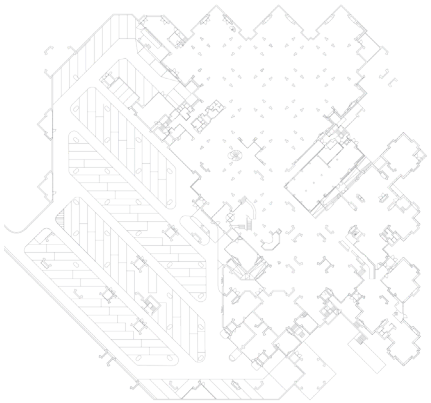
Centraal Beheer consist out of 4 quadrants - north, east, south and west. North and west offices belong to the insurance company and the south quadrant was planned as rentable office space. General public facilities, recreational area, and the restaurant are situated in the east quadrant which is connected to CB2 and CB3 buildings via bridges.

CIRCULATION

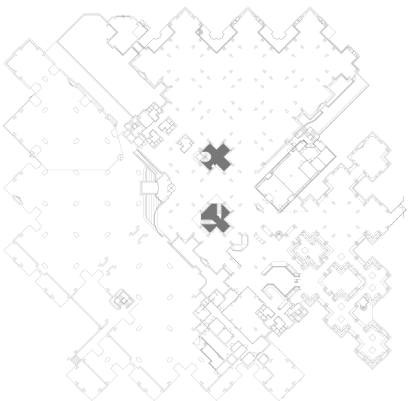
existing


primary circulation
secondary circulation
lavatories
vertical circulation
program
N
M 1:2000

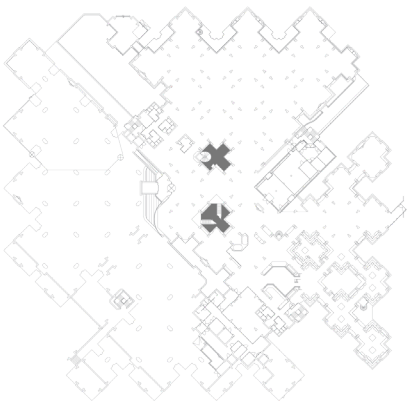
VOIDS



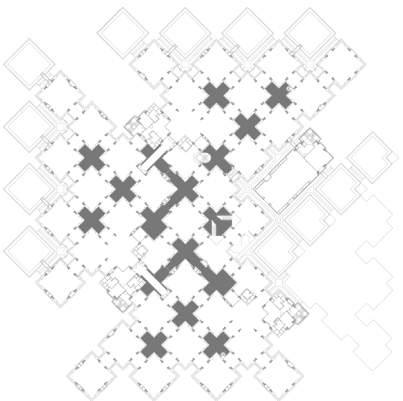
basement



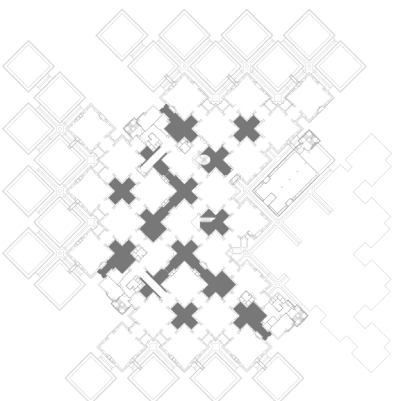
ground floor



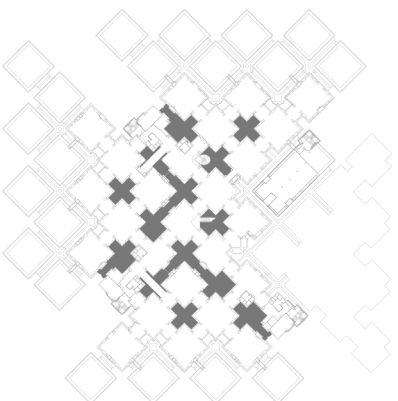
first floor



second floor



third floor



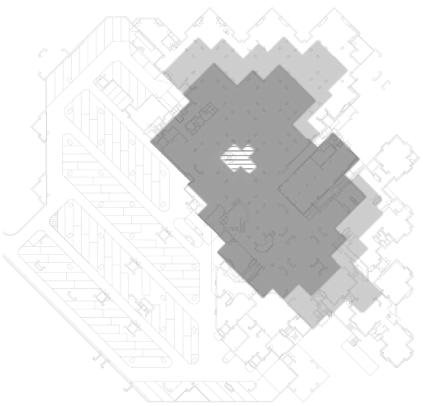
roof top

section

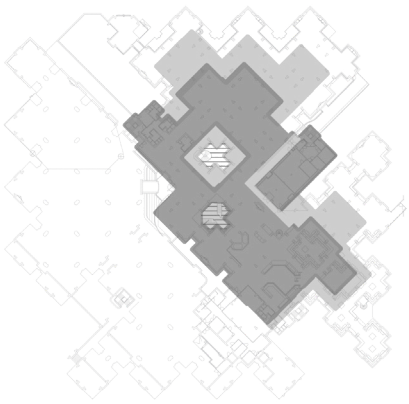
N

M 1:2000

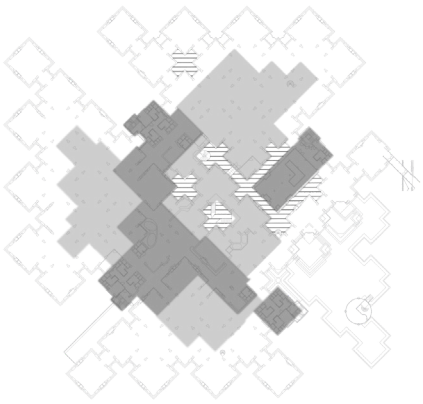
LIGHT



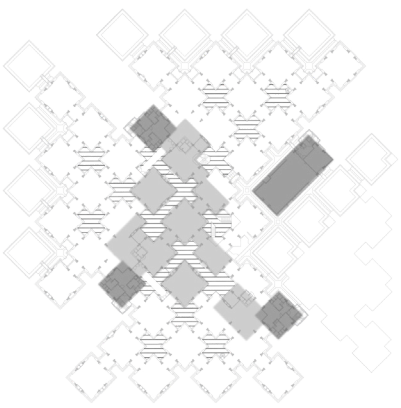
basement



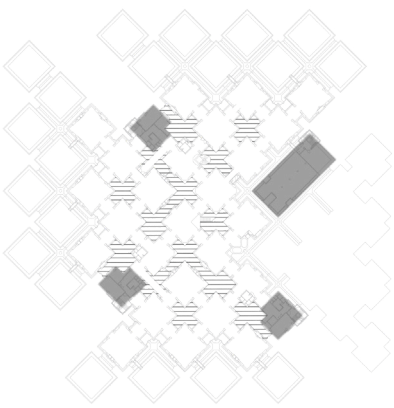
ground floor



first floor



second floor



third floor

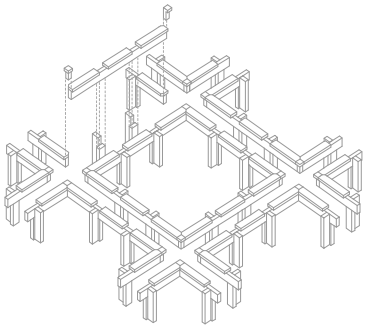
complete dark

deep shade

N

M 1:2000

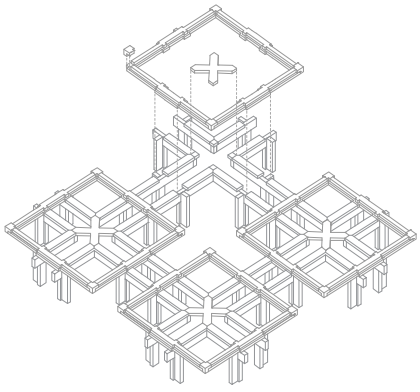
CONSTRUCTION
step by step



1. prefab columns

2. prefab primary beams

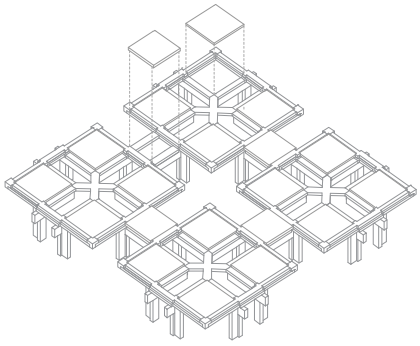
3. in situ connective corners



4. prefab secondary beams

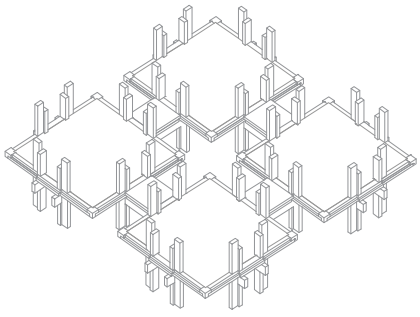
5. in situ connective corners

6. in situ connective crosses



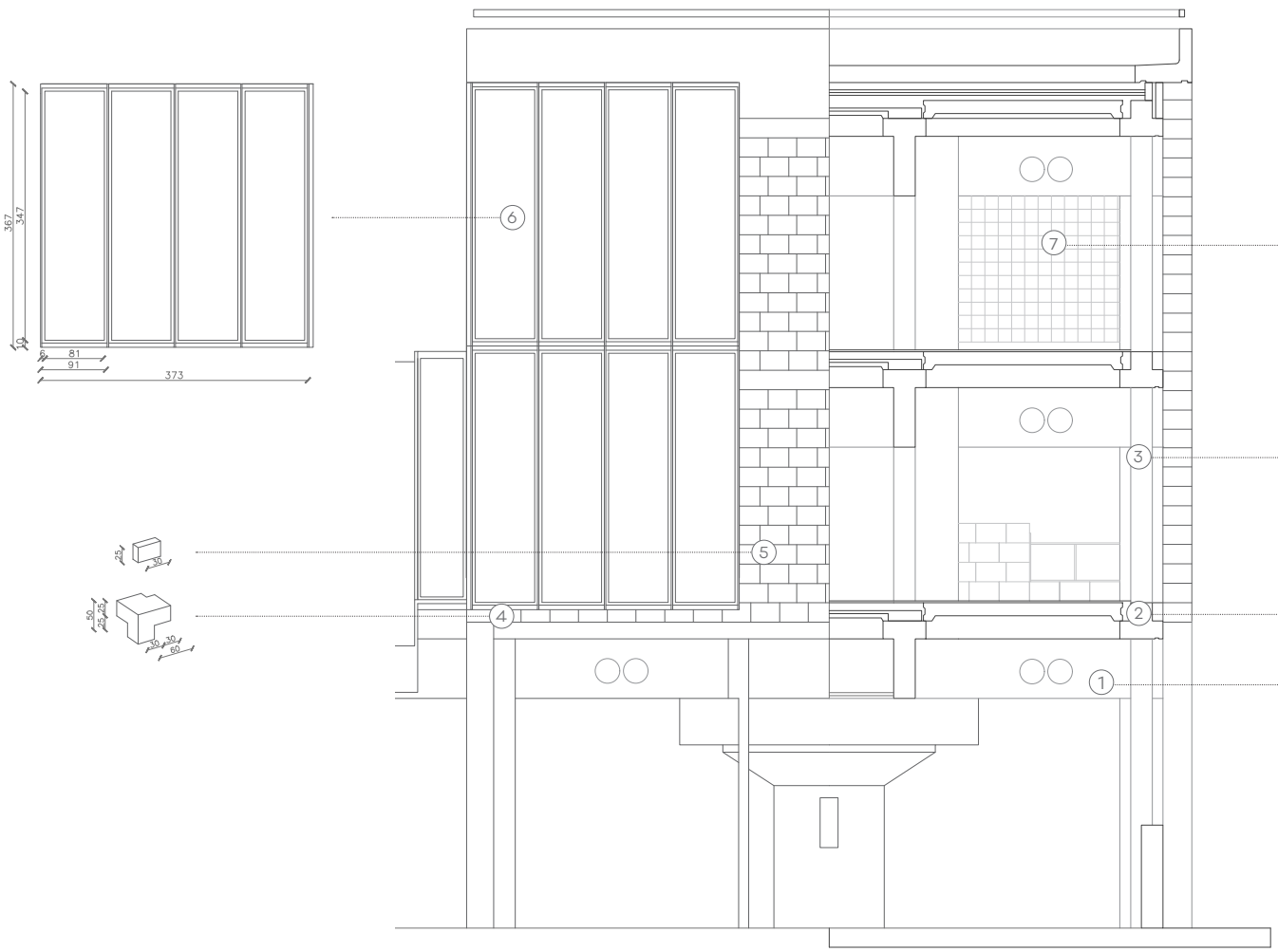
7. prefab floor slabs

8. connective bridges



9. in situ floor

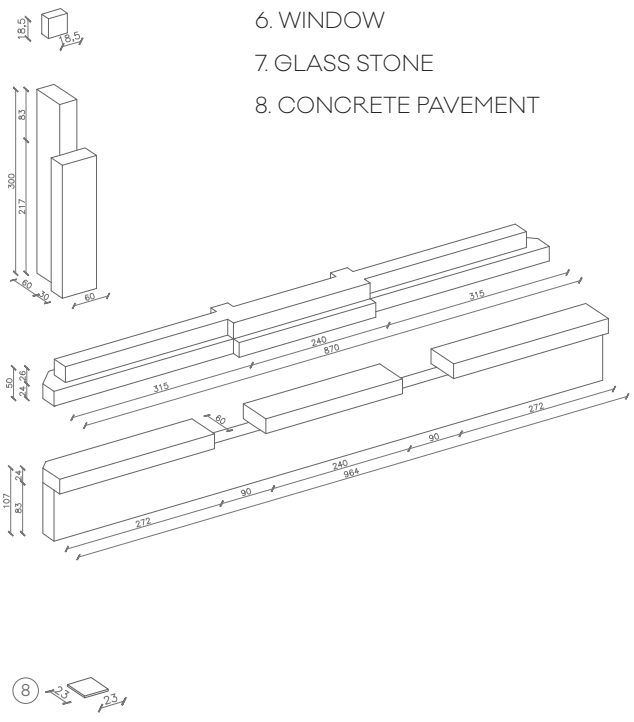
1. prefab columns



M 1:100

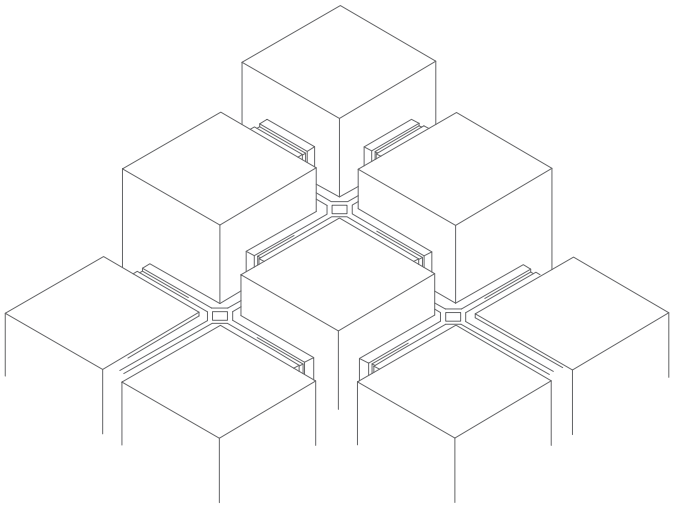
MATERIALS

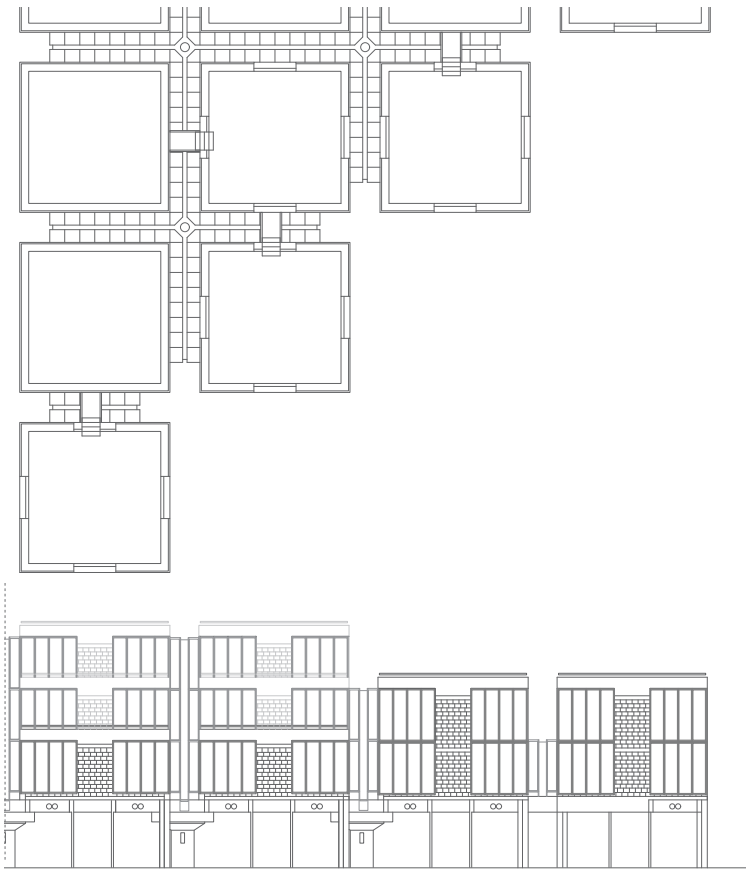
1. PRIMARY BEAM
2. SECONDARY BEAM
3. COLUMN
4. CORNER
5. CONCRETE BRICKS
6. WINDOW
7. GLASS STONE
8. CONCRETE PAVEMENT



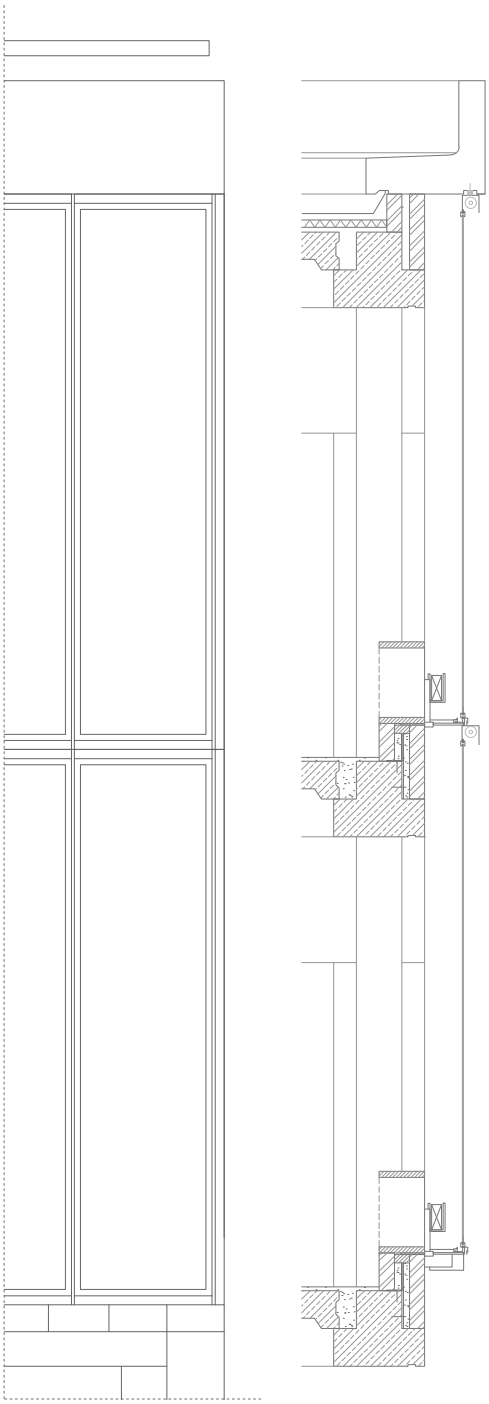
In the 60s, when Centraal Beheer was made, the use of prefabricated concrete elements was taking off, meaning the majority buildings built in the 60s and 70s were entirely out of precast systems. This uniform way of building went hand in hand with the orderly repetition concept of CB and also meant the building process would be faster and of higher quality.

Every structural element in CB is prefabricated concrete - primary and secondary beams, columns, concrete bricks, roof tops. The only in situ elements are corners of the secondary beams, done in this particular way to connect and reinforce the secondary frame and the flooring that comes on top of the secondary structure. The floors on the ground floor are also made out of prefab concrete stones, to mimic the exterior pavement. The only other material used is aluminum, for thin and tall window frames with single glass sheets. The intention to leave the inside exposed and industrial was deliberate. Hertzberger wanted to provide the future employers with an ´unfinished´ interior, for them to add their own touches and participate in building the space they will spend their time in. By individualising the space, it should feel more like a home. Another reason for using the raw exterior materials was to intensify the city like feeling.





M 1:500



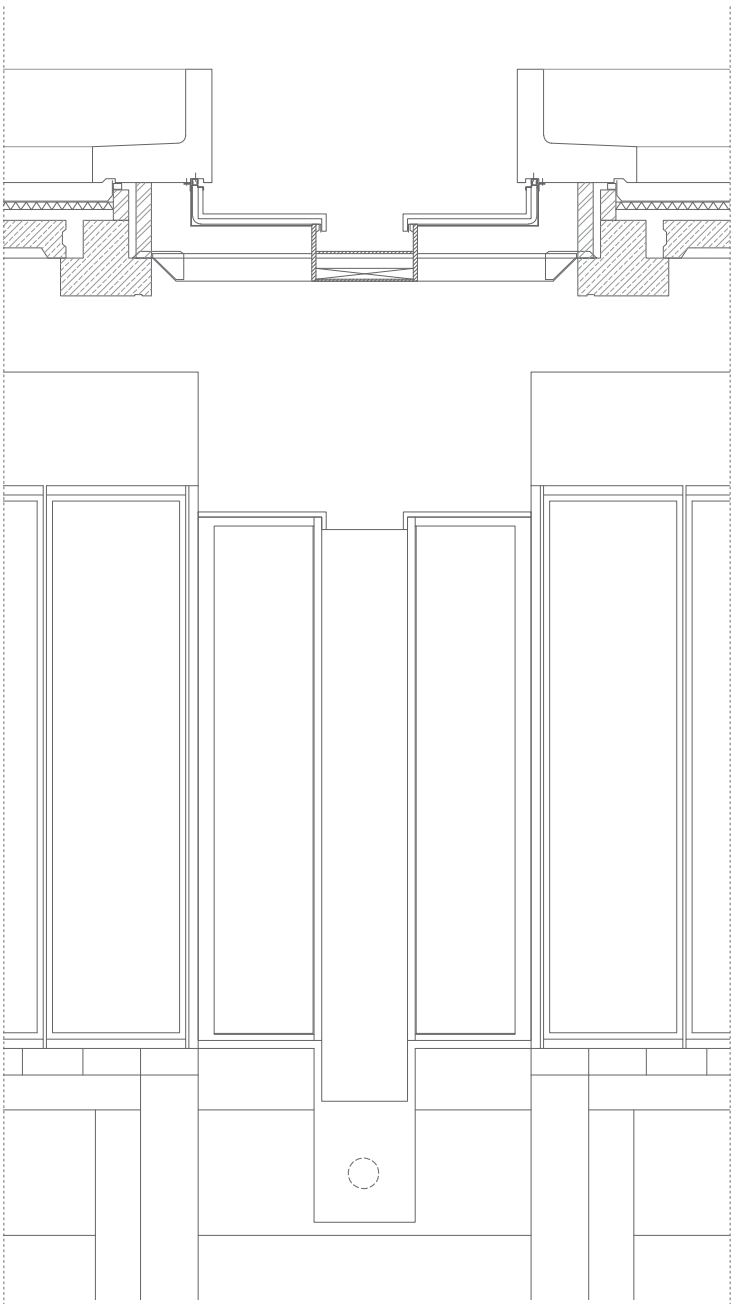
M 1:50

EXISTING FACADE

Hertzberger designed Centraal Beheer from inside out, meaning the spatial organisation took precedence over the design of the skin. This meant that the existing facade was just a means to physically seal the structure.

The facade is rather simple - eight thin aluminum frames close a corner and they are stacked vertically when there are two or more floors. The frames are mostly self-supporting attached to the structure with a few steel plates underneath the cantilevered concrete roof and on each floor. All windows have fixed single sheet glass. Between the two towers, the facade jumps back and connects the corner frames. These middle facade parts extend over the roof, with a dual purpose - they connect the roof and facade creating a single skin system and carry the gutters which flow between the aluminum frames. The drainage system is neatly executed since it cascades continuously from the third level all the way to the basement in the water tank. The gutters can be seen from the inside as well and serve as a guiding line.

From today´s perspective the entire skin construction is flimsy and doesn´t fulfil any of the basic conditions necessary for comfortable living.



M 1:50

CENTRAAL BEHEER 2.0

part three

Fig. 29: Void, Centraal Beheer winter 2018

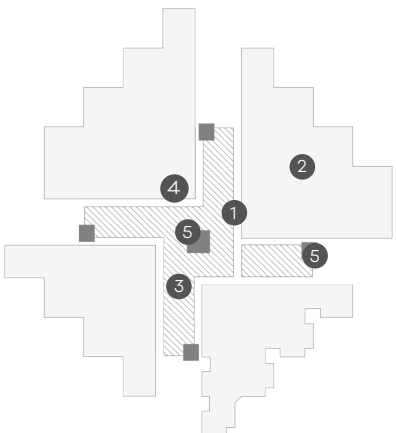
3.1 ADAPTATIONS

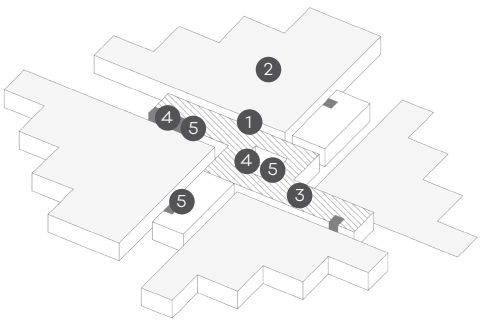
After a long and thorough analyses of the structural and conceptual aspects of the building and Herman Hertzberger´s approach while designing it, I have formed my position on the reuse of Centraal Beheer. My starting thought was to keep as much as possible intact, without compromising the quality of the future use. Since the building has a very specific structure inside and out, it would be very challenging to adapt it for the new program (vast open plan space, low ceiling height, intertwined structure, ...), especially for functions other than office space, but I wanted to work-around the existing framework, to emphasize the original principles and values of the building with minimal interventions.

Centraal Beheer made Herman Hertzberger and his way of designing worldwide acknowledged, and became, next to van Eyck´s Orphanage, the most recognizable structuralist building to this day. 'Workshop for 1,000 people'[43] or ´city in a city´was quite an innovative approach at the time. What sustained the concept the most were the streets, working both as the main circulation zones and casual meeting places. That is why I chose to work mostly on the streets, since they are a decisive element for the city like concept. They didn´t feel as another zone, their begin and end are noteless, sections and the street blend in one surface in many parts of the building. The reuse concept is bringing back the city feel into the building, staring at its core, with changes reflecting on the outside too.

The reuse plan can be divided into two main parts. The first part is the adaptation of the building and dealing with problematic areas. In the 50 years of its existence, there were only a few minor cosmetic alterations inside the building, meaning nothing has been maintained since CB was built beginning of the 70s. The regulations at the time were very different from today, making many parts unsuitable for today´s basic needs. On one hand the building stood the test of time, but on the other it has been vacant for 7 years now and has definitely decayed rapidly in these last few years.

43 http://www.nextsocialaffairs.nl/





	CB CURRENT	CB NEW
1. EDGE	voids	voids
2. DISTRICT	three sections + roof terrace	three sections + roof terrace
3. PATH	streets, bridges	(main) street, long stairs, bridges,
4. LANDMARK	escalators	entrance, long stairs, main square
5. NODE	escalators, exit staircases	square, entrance, stairs, elevators

During my first visit, one of the surprising aspects of CB was how dark the inside is. The building is completely shut down at the moment, meaning there is no electricity, so the lack of natural light is very apparent. When one looks at the photographs of the inside in the 70s, the lamps are everywhere and always turned on during the day. That´s why I dealt with the natural light, or the lack of it, first. In certain areas I removed parts of the secondary structure, mostly along the streets, creating new vertical voids, so that the light above can penetrate deeper inside. The street, a major element in Hertzberger´s concept, doesn´t have clear boundaries, it doesn´t feel like you are in another zone. With new voids along the edges of the street, it separates it clearly from the sections and creates a new vertical dimension. Also, the street now spreads in one direction, instead of three (four if you count the technical tower).

When CB was designed, Hertzberger wanted a non hierarchical building to emphasize the idea of community and togetherness without differences in social statuses. That is the reason there are four entrances on each end of the street, as each should be equally important. This idea never really took root, since the entrances were noteless, small and half hidden. Yet there was another, more convenient one, coming straight to the center from the parking lot. The lack of clear entrances disrupted the connection between the city and the building, and the majority of Apeldoorn never set foot inside until a few years ago when the opened empty CB for visitors, for one day. To reconnect the building with the city, I opened the street ends by removing the walls, which created a main entrance on the south-west side. It is the side of the building that looks on the busy street and is the only one on the same level, so that the balcony can be connected with the street.

Centraal Beheer was designed to be a city in a city. That´s where the idea of the inside streets, the materials used, light from above, come from. The city in a city is the principle I kept and wanted to further explore in Centraal Beheer. Kevin Lynch, an urban theorist, published in the 60s a book " Image of the city" where he stated that people form mental maps while processing their surroundings and that they are created with five basic elements: path, node, district, landmark and edge[44]. These elements can be easily recognised in Centraal Beheer on the plan, but when one is actually there, these elements aren´t easily recognizable. To reinforce the city like the image, I added a new element, the

44 Lynch 1960, 46.

Fig. 30: Centraal Beheer winter 2018.

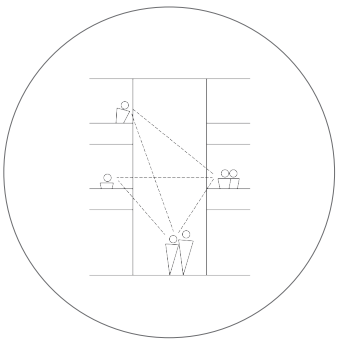
main stairs. They are located on the north-west side, right behind the main entrance. They span three floors and are not only a vertical circulation trough the floors, but connect the end of the street with the center. The line, entrance - stairs continues to the main square on the ground floor or the void that goes to the top and lets light all the way down.

The central void allows relations between all floors vertically and horizontally. The biggest adaptation in Centraal Beheer would be the facade, in terms of type and thermal performance. Being a monumental concrete mass without any insulation overall and big single pane aluminum windows, CB is fully unprotected from the outside elements. The building has a mechanical ventilation since the tall, thin, stacked windows are fixed. Having access to fresh air shouldn´t be a luxury, especially for apartments and school. Conceptually, the skin of the building doesn´t hold any meaning or value to the architect, it´s just a means to close off the structure and reflect the inside out. This gives a lot of freedom, but the massive cost and a tricky structure to work with makes designing a new skin challenging, especially in making Centraal Beheer more sustainable and durable.

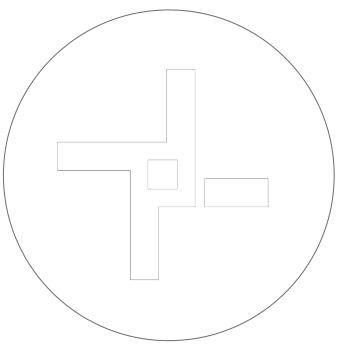
The second phase is the reinstatement of the new program. Hertzberger designed CB to be polyvalent, meaning it could host any new program seamlessly and effortlessly and that´s a statement I want to put to the test. It would be easy to accommodate offices again, but if the infill can host completely different functions, it makes the building exceedingly polyvalent. The newly assembled program reinforces the city in a city concept, because it is diverse and offers everything a ´citizen´ would need in one place. Living, working and leisure are associated with one another under one roof.

Both the first and second phase have been developed simultaneously and reinforce each other. They reflect my interpretation of the values Hertzberger wove into this and other projects. The values I chose to follow are grouped into two categories, the ´city in a city´ and ´structure´. The first one includes relations, street and connection with Apeldoorn and the second preservation of the structure, ´honest´use of original materials and modularity (infill rule). Both of these categories are mutually dependent and respond to the city in a city concept of the reloaded version.

3.2 MY VALUES



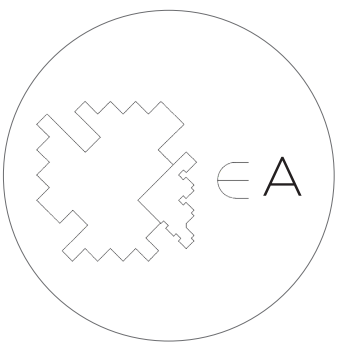
RELATIONS



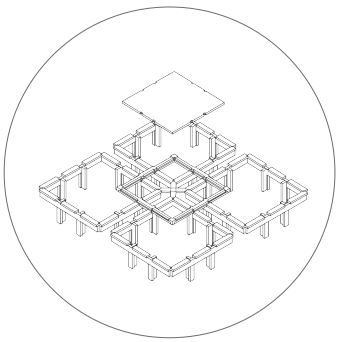
STREET

CITY IN A CITY

codep



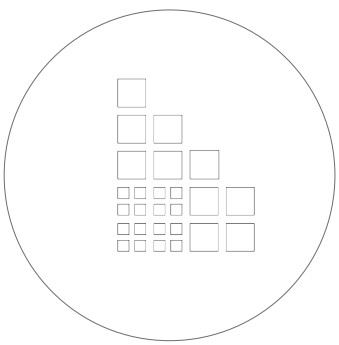
CONNECTION
WITH APELDOORN



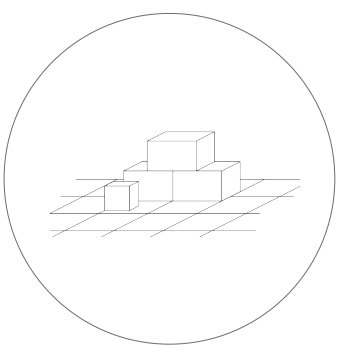
STRUCTURE

pendent

STRUCTURE



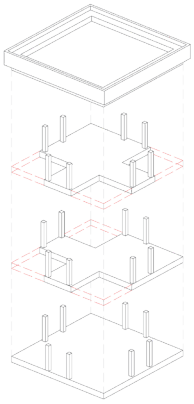
MODULARITY



MATERIALS

ADDITION/ REMOVAL
part one

TOWER

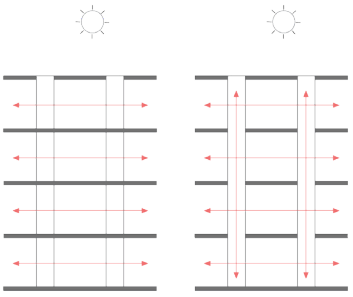


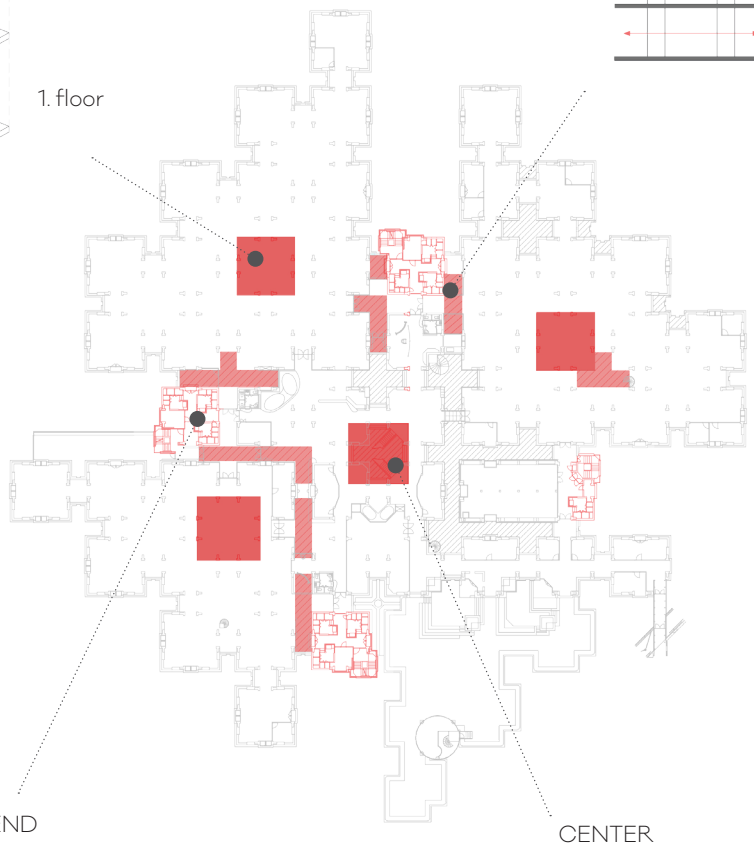
3. floor

2. floor

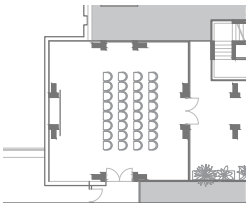
1. floor

VOIDS

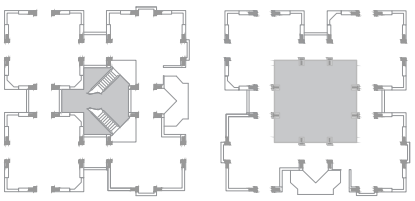




STREET END



CENTER



3.3 LIGHT

One of the first issues that had to be dealt with in the building was natural light sources, or the lack of it. Plenty of natural light is a basic necessity for a quality living in any space, and in Centraal Beheer it is unfortunately a luxury. Even though the majority of the facade is covered in glass, the low ceilings and thick columns don´t allow light to penetrate deeper than 3 meters. The darkest areas in the building can be found in the middle of the building around the street area, since it is only lit from above and even though the light can reach all the way to the ground floor, there aren´t many voids from top to bottom through out the building. In order to accommodate the new program and make the building a pleasant and healthy environment, natural light has to be directed inside.

My general approach was to make the least invasive changes without compromising the quality. The majority of the structural changes happen in the street area. Bridges and slabs between the street and districts have been removed in order for more light from above to reach the lower floors, which are very dark currently. Also, that way the street is emphasized and attains the vertical dimension. The darkest area in the entire building is in the middle, around the escalators. By removing them and expanding the middle void, it allows better visibility between levels and serves as an auditorium, that spans from top to bottom, for the square on the ground floor. Another unpleasant and pitch black area is on each end of the street. The area is completely closed off with walls and accommodates the exit staircase and a cluster of lavatories. During the 90s, this part was additionally sectioned off. Since these areas are on the facade and blocking the direct light, I cleared everything out and reclaimed the prime street areas. Another benefit to this move was the visual reconnection with Apeldoorn and easier orientation. As for the districts, the only intervention was the modification of the towers in the middle. Primary slabs are cut out and rotated above each other (creates vertical relations) and massive columns, which block most of the light, are replaced by thinner ones. The structural changes of the towers will then influence the program, making them the visible heart of the districts.

3.4 MAIN ENTRANCE

In order to open the building to its surroundings and make it more accessible, there should be a visible entrance. Originally, Hertzberger designed the access from a ´non hierarchal´ point of view, making four entrances at each street end equally important, and another accessed from the parking lot. In reality, they were never used equally, in fact the only entrance of the four that was used regularly was the north-east one and for loading supplies and produce. Also the entrances are quite unsightly and narrow, hidden in the dark, making them difficult to find. Each entrance is on another level and three out of four are underneath the street level. It is quite possible that the entrances were soon closed and the only left accessible were the ones from the parking lot.

Centraal Beheer was a private property for employees only, so the entrance issue wasn´t really a hindrance until 1995, when the glass atrium was added to between Centraal Beheer I and II, to connect the two existing buildings. As part of the adaptations four exits were definitely put out of use, other that emergency fire exit stairs, and a new main entrance was designed on the north for the entire complex that leads trough the atrium to the restaurant inside the main building. Now when it´s deserted it remains an isolated fortress, since the four narrow stairs, although functional, are not big enough to act as a public gate.

The first step was to remove the four stairs and walls on the street ends, to add more light and transparency to the darkest areas, but also to make a visual connection between the inside and outside, helping the overall orientation issue. Since the north-west side is the only one that overlooks the busy street and is connected to the street on the ground floor level, I placed the main entrance there. There is a terrace that connected to the street I expanded on the left to create a generous, public entrance.

For the megastructure the main entrance was created large enough to correspond to the

overall size of the building. It is three levels high, or 9 meters and 4 meters wide. Made completely out of glass, it is very delicate compared to the exposed concrete elements. The chosen glass facade highlights the contrast between the old and the new, but doesn´t take away from the existing structure that should remain a centerpiece. Its transparency allows visitors, or passerby, to see the structure and life inside. Using glass in this case is also a bit ironic, very contemporary and tech like, making a clear juxtaposition between the 1970s and today. The massive portal like doors and similar floor materials create a seamless inside outside transition.

When standing in front of the entrance, one is presented with three visible directions - to go up the long stairs, straight towards the illuminated core or left inside the district. The stone wall on the right has a dual role. One is to close of the parking space and the other to act as a guideline from outside towards the core of the building. New exit stairs are still on each street end, but moved to the inside. Their size has remained the same as before, with glass corner surfaces to add to that three dimensional circulation trough the levels.

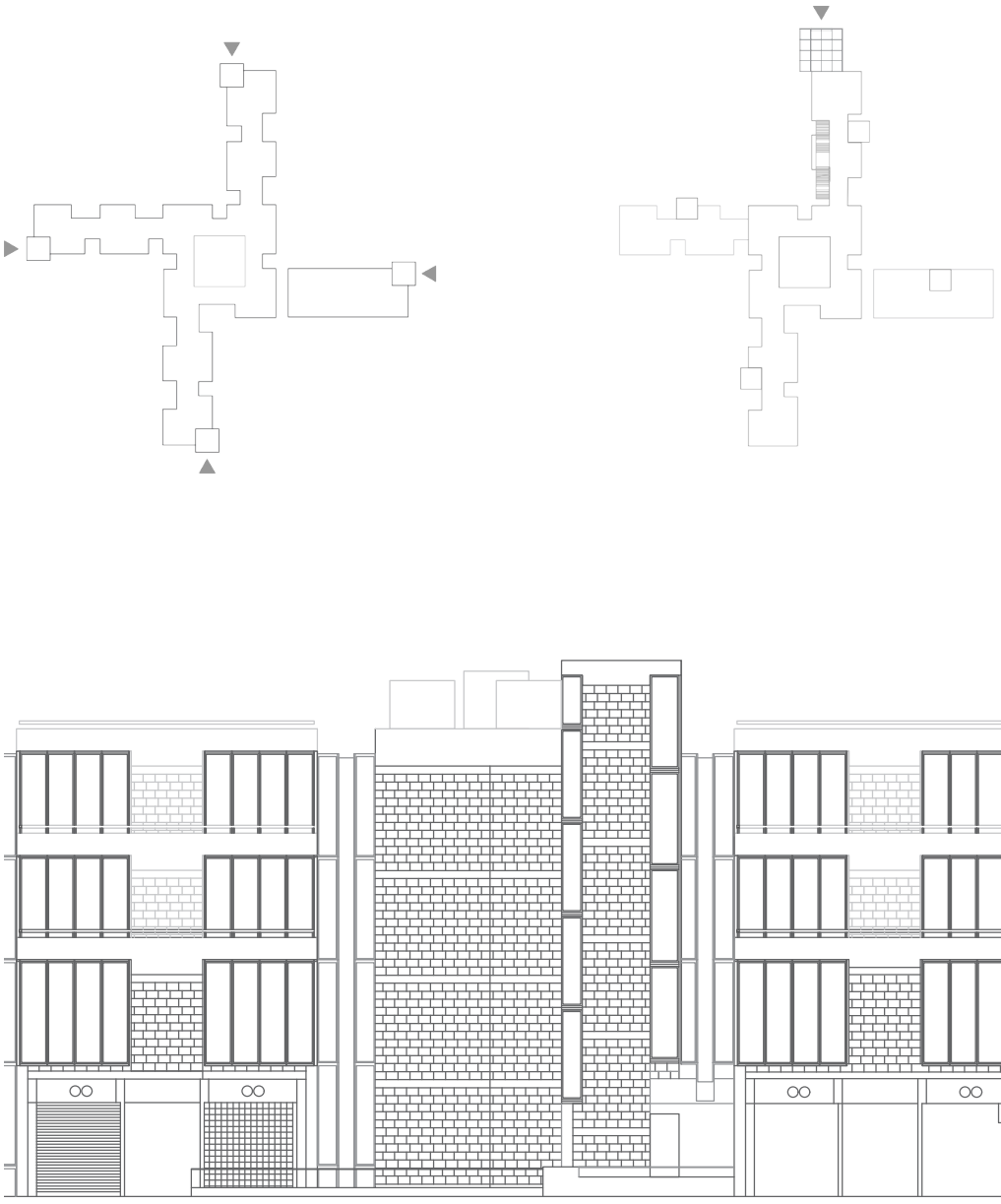
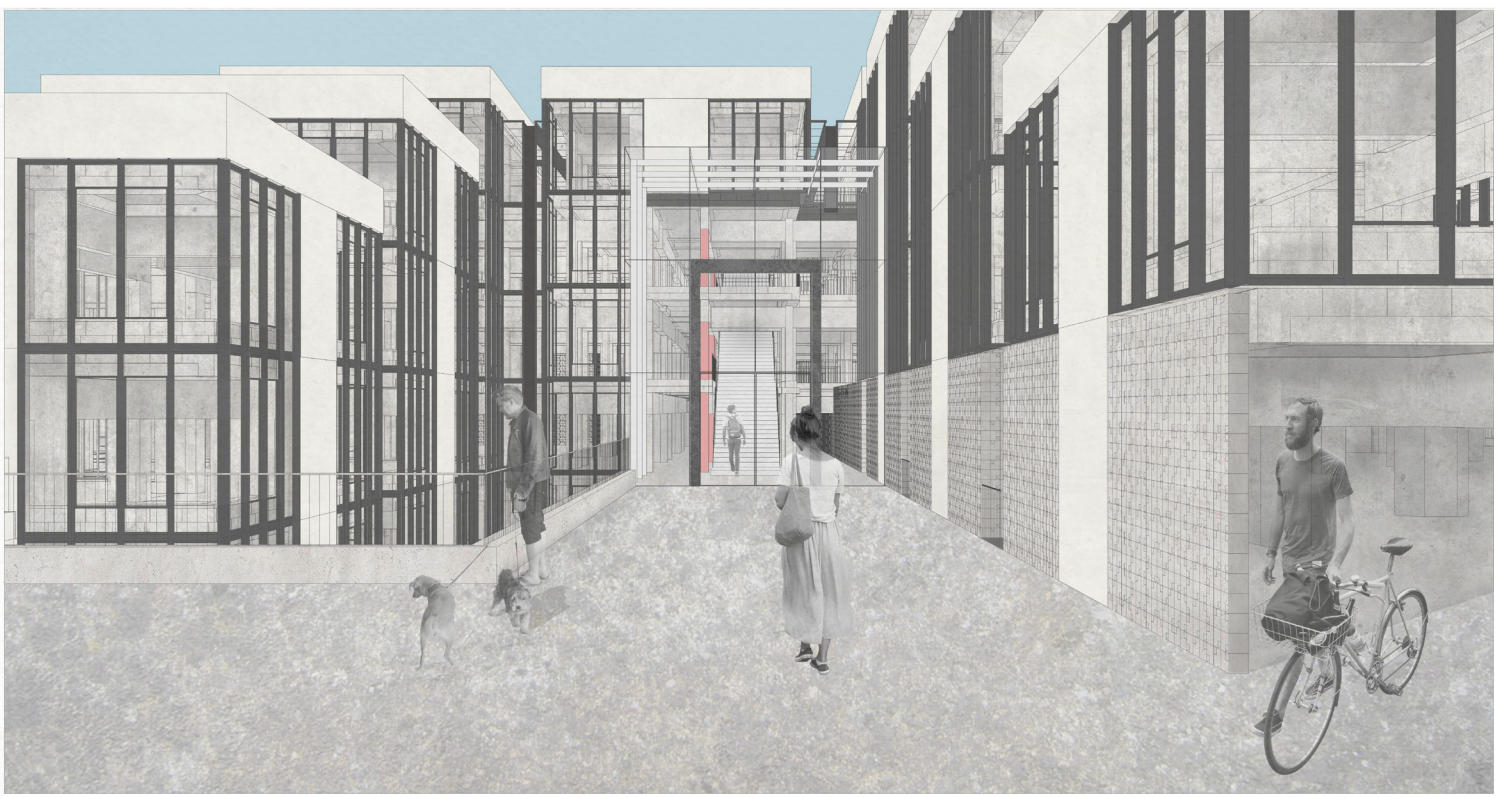
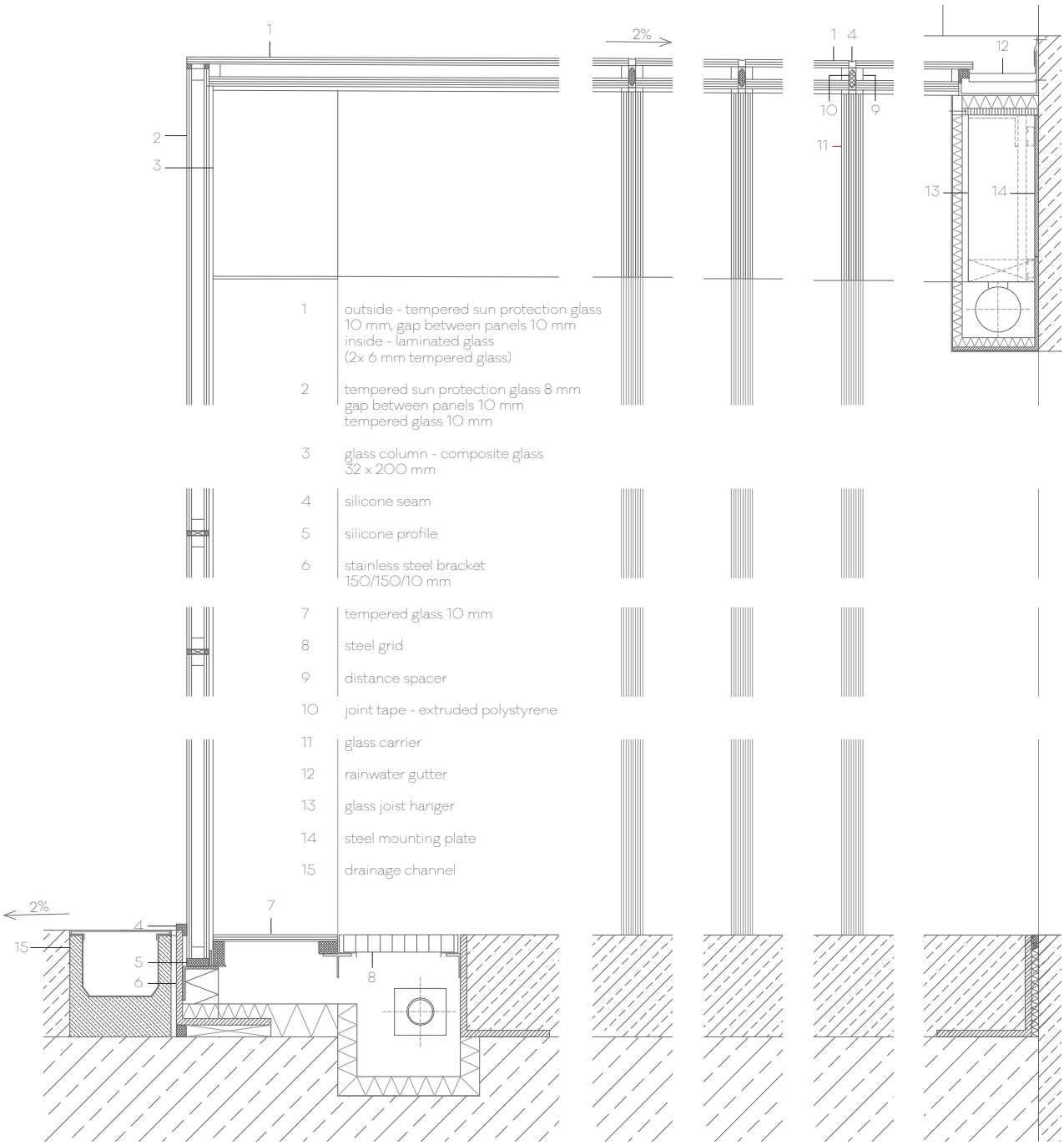


Fig 31: Section of the original facade on the north-west side showing the walled street with the exit stairs.



GLASS FACADE



1 outside - tempered sun protection glass 10 mm, gap between panels 10 mm inside - laminated glass (2x 6 mm tempered glass)

2 tempered sun protection glass 8 mm gap between panels 10 mm tempered glass 10 mm

3 glass column - composite glass 32 x 200 mm

4 silicone seam

5 silicone profile

6 stainless steel bracket 150/150/10 mm

7 tempered glass 10 mm

8 steel grid

9 distance spacer

10 joint tape - extruded polystyrene

11 glass carrier

12 rainwater gutter

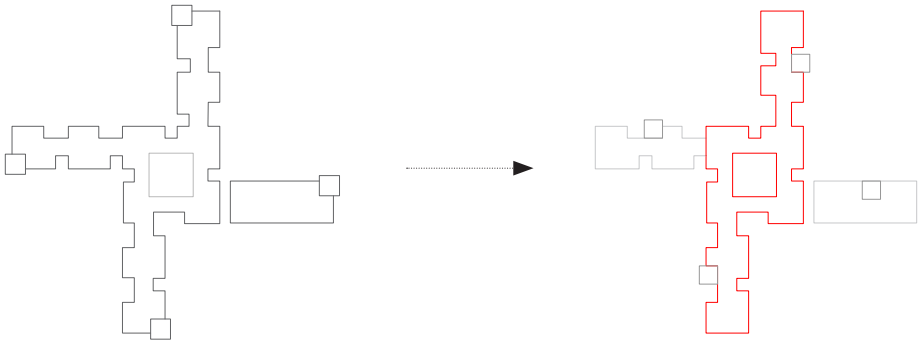
13 glass joist hanger

14 steel mounting plate

15 drainage channel

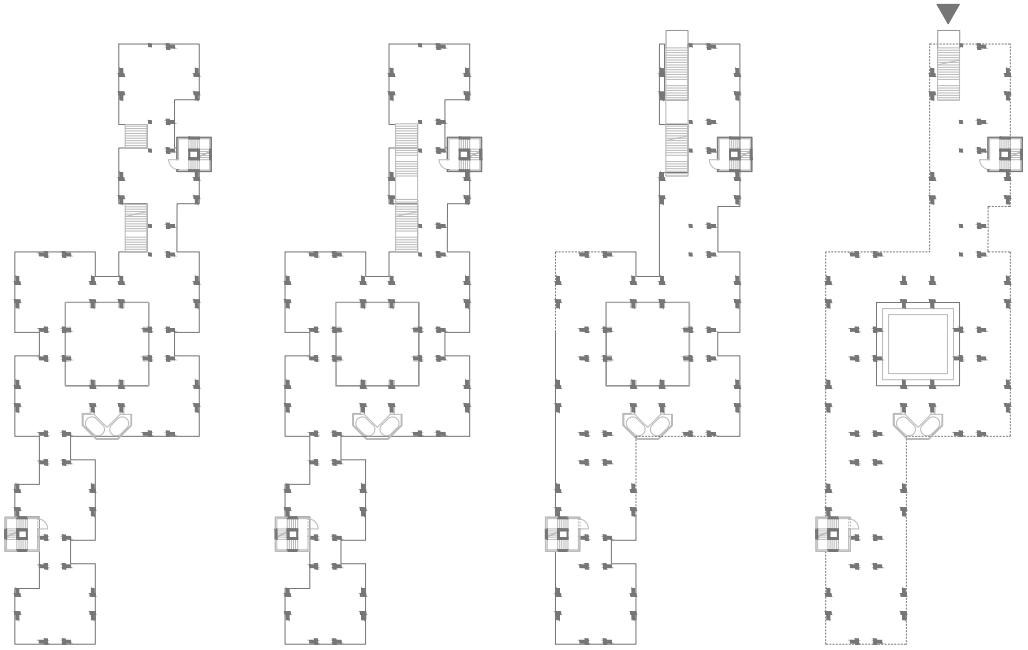
M 1:10

* reference project Glass Museum extension in Kingswinford, England found in Glasbau Atlas



EXISTING STREET

NEW STREET



3. floor

2. floor

1. floor

groundfloor

3.5 STREET

One of the key elements that add to the city quality in Centraal Beheer are the streets. Designed as the main horizontal circulation path and a meeting place for employees, but also an an information zone. Streets were equipped with quiet seating zones, telephone booths, reception areas, post office, escalators in the middle, dressing rooms, powder rooms and lavatories at the end. Over time, many of these functions became obsolete and because there wasn´t a clear edge between the quadrant and the street, the feeling of a main street got lost.

To emphasize the street, I decided to focus on the north-south line, since the east part was never really a street, the technical tower was there instead, and the west part stars from the first floor and is better suited to be a side street. The majority of the bridges is removed for more light to penetrate the inside, which created the edge necessary to accentuate where the street ends and quadrant begins. Narrow bridges connect the two on several spots on both sides, so while moving from the street to the district, you really get the feeling of entering another zone.

There are several new elements that revitalise the main street. The north-south line starts with the main entrance on the north and moves up the long stairs straight to the main void that belongs to the main square and continue for example to the terrace, which is visible from the moment you land on the first floor. Another possibility is to enter and go straight to the main square in the center of the building or left to the office section. Long stairs are a new node that gives the street a three dimensional quality. They make the upper floors more accessible with a gradual move from public to semi public to private function at the top. While climbing up or down the floors, the structure is more tangible and you get a better overview of the functions. The stairs emphasize another core value of Centraal Beheer and that are relations between floors and a sense of community. In the middle of the circulation line is the main square. The escalators in the core were blocking the light,

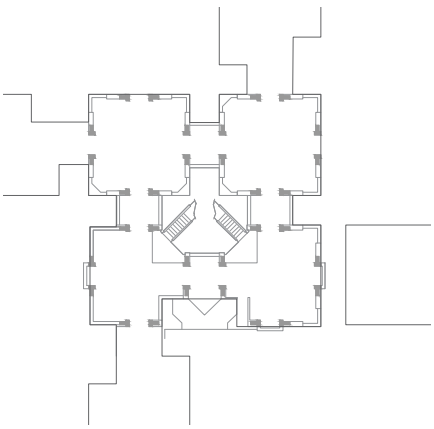

Art School
RECEPTION
Offices
SUPPLIES
LECTURE ROOM
PRINT SHOP
EXIBITION HALL
LAVATORIES
Offices
RECEPTION
CAFE
MEETING ROOM
Terrace
shared facilities
voids

making the core a dark and quite unpleasant area in the lower levels. By removing them, we get a city square and a main void that creates relations between levels and any occurrence that happens on the main square can be heard and seen to the top floor, again adding the third dimension to the entire complex.

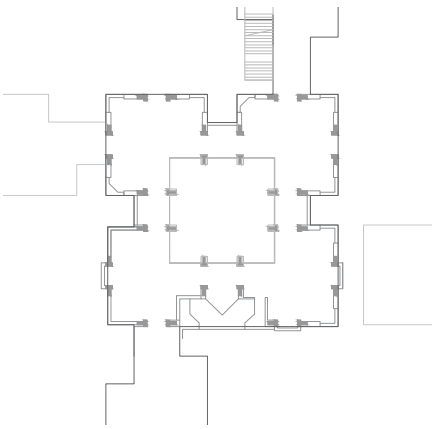
To make it feel like an actual city street, besides being a meeting place or resting area, there are functions that make it busy and diverse. The majority of the public programme is planned directly on the street or right next to it. Reception areas for office sections, supplies store, print shop, cafe, spacious meeting room and lecture room occupy the main street area, offering a reason for people to use every part of the street that can be across their work unit, or apartment. The public functions are accessible to Apeldoorn inhabitants as well.

The visibility of the street ends and new nodes make it easier to orientate in the building. All of these new elements make it really look and feel like a city. There is diversity, more and less important areas, different intensities of circulation, busy and quiet zones, wide and narrow street areas interchange.

3.6 CENTRAL VOID



EXISTING CENTRAL VOID



NEW CENTRAL VOID

Fig. 32: Escalators in the center of Centraal Beheer

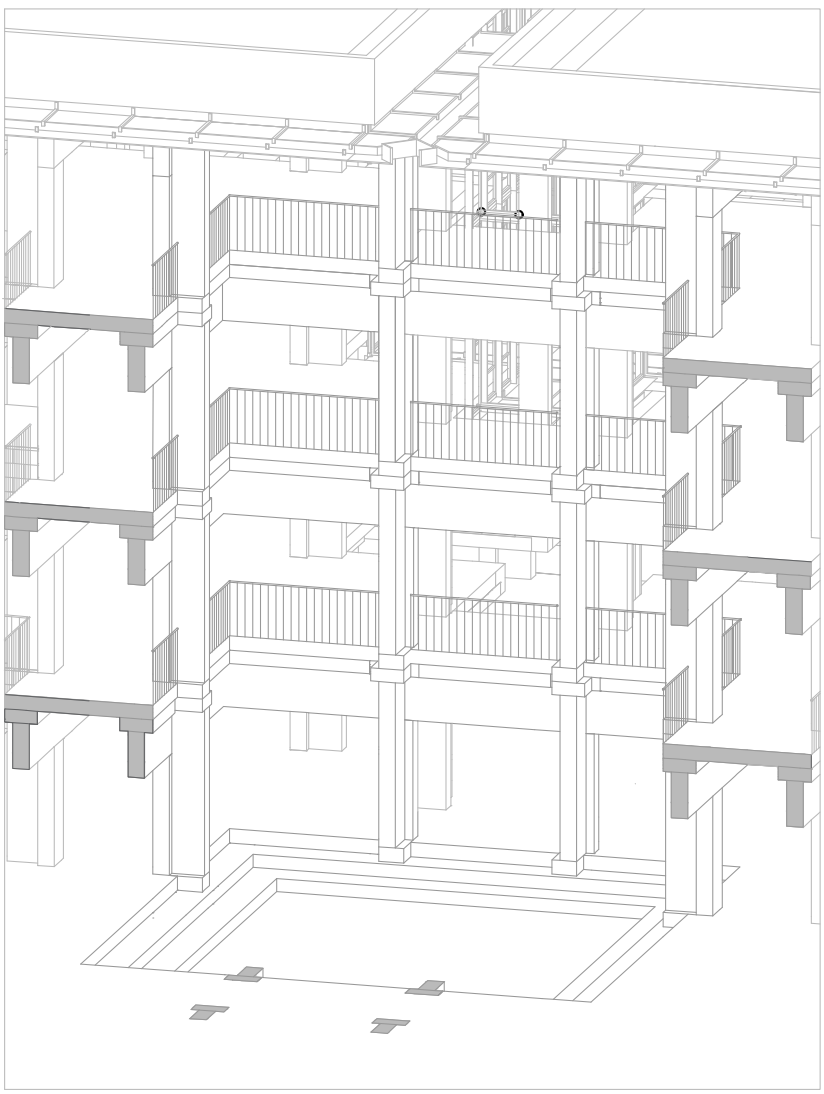
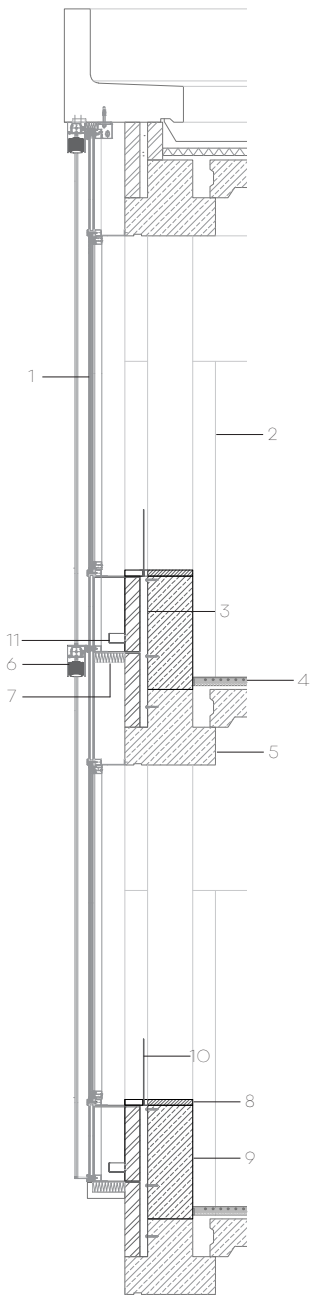


Fig. 33: New central void in place of the escalators.

3.8 NEW FACADE

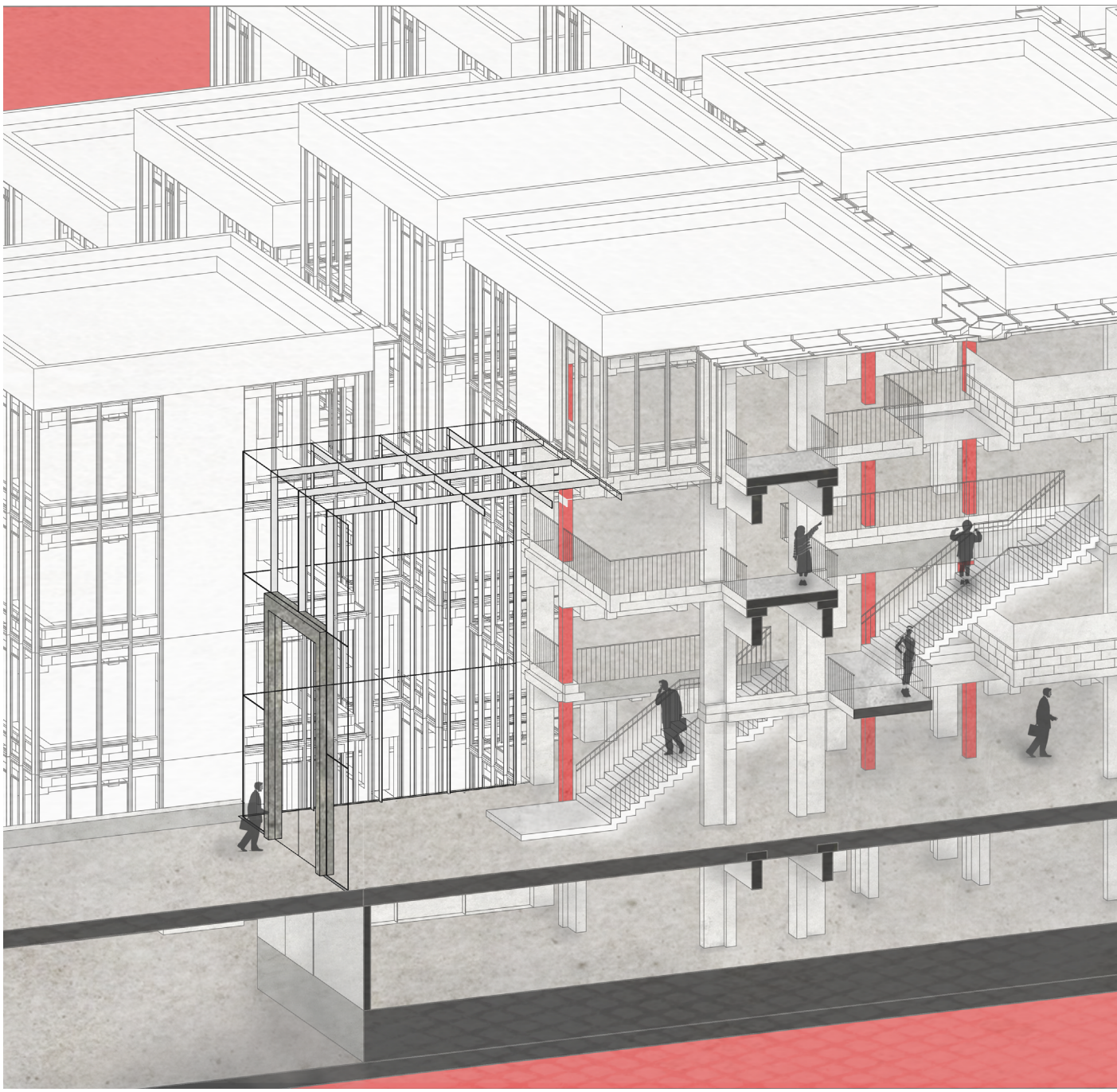
Initially the entire skin was poorly executed and it is currently in desperate need of an intervention. Redesign of the new facade lies somewhere in the middle on the intervention scale and is partially influenced by the new program. An office building can be mechanically ventilated but with functions like school, clinic and housing that is not the case. Original curtain wall facade was attached on the secondary structure and partially on the columns. It would have to be disassembled and tested if it can carry more load than it does now, since any new facade that hangs on the structure would be heavier from the original, if only for the weight of new double or triple glazing. The structure appears to be well preserved without visible damages.

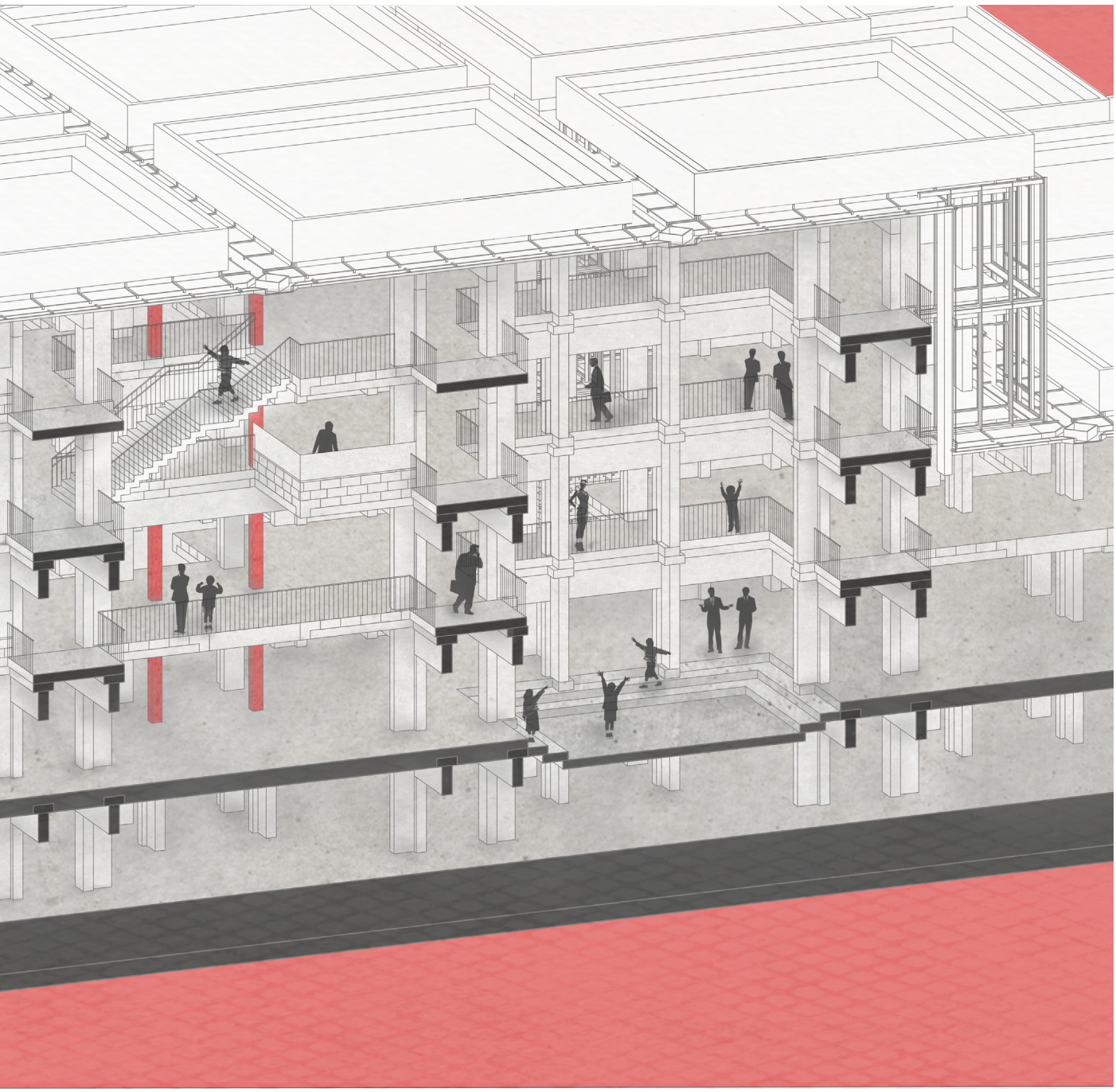
All together the appearance of the new facade doesn´t differ much from the original. There are still four window frames per side (each 90x355cm outer frame), the frames are thicker to accommodate the double glazed windows. Two middle panes of the curtain wall are top hung structural seamless glass. The improved facade is attached on the same position like the old one, but the steel profiles are much thicker. On the inside, the corner area is redesigned to additionally support the facade, but also to improve the functionality of the corner, that was never used for what it was planned. On the added prefabricated L shaped concrete block, with wood plank on top, is a steel plate attached. L profiles attached to the steel plate hold the facade in place. Concrete prefab bricks close the load bearing structure. In order to prevent condensation accumulation, there is a convector bar in the gap in the bottom of the window construction. Underneath it, a sound insulation board is placed to reduce airborne noise between floors. Insulation was not added to the facade even though it´s currently non- existent, because it wouldn´t make a difference when considering the whole building and lack of any thermal insulation. The concrete mass works as heat accumulation mass and is aided by the floor heating to reduce heat loss. Frontal part of the in-between facade with gutter remains the same and on the top only plastic foils need to be replaced, since this part is well preserved and functions the way it is.



M 1:50

1	structural sealant glass, top hung
2	prefab. concrete column
3	steel plate
4	floor heating
5	secondary structure
6	shutter slats
7	sound insulation
8	wooden plank
9	prefab. concrete block
10	glass railing
11	convector strip





PROGRAM
part two

3.9 PROGRAM

Due to its specific layout and structure, any other program beside the original function of Centraal Beheer is highly challenging, due to different quality demands. On the other hand, it poses a perfect opportunity to test the limits and polyvalency of the building, while retaining the initial frame. The new program is more diverse compared to the original function of Centraal Beheer and supports the city in a city concept. All functions necessary for a self reliant ´city´ are under one roof: housing, offices, art school, clinic, restaurant, cafe, supermarket etc. They are divided into three categories: public, semi public and private and distributed vertically in that order from the ground floor to the top floor. This way, with the new entrance and stairs as a guide, residents and outsiders have a better overview and the opportunity to reach deeper inside. This allows the establishment of the missing connection between Apeldoorn and Centraal Beheer, which was one of the values for the new adaptation.

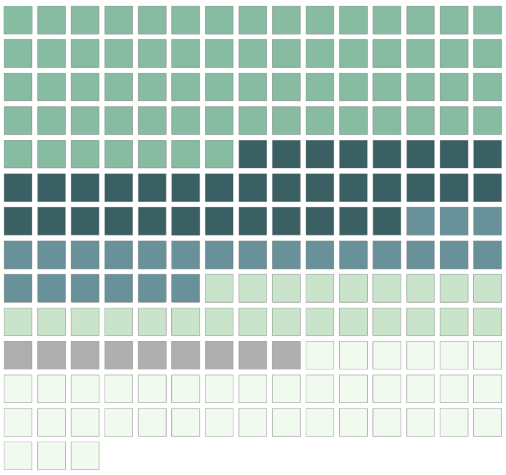
Public functions like clinic, supermarket, restaurant, supply and print shop are situated on the ground- and first floor, which can be accessed directly from the street. The gym is in the lowest two floors in the tower and can be accessed from the street or the basement via an existing entrance. The most prevalent function of the program, offices are situated in the north and south sections on all floors except the third. The art school covers the west section, first and second floor. Housing occupies the entire top floor and parts of the lower floors in the east section, since those are the prime spots in Centraal Beheer with plenty of light, view and terraces. Rooms in the west-east basement and ground floor have an irregular structure, with high ceilings and windows, making the spacious and well lit area perfect for housing. They can be accessed through two separate entrances from the basement level. The former service tower, which also has a different structure from the rest, is transformed into office space on higher and a gym on the lower floors, because of its perfect position, while the services with storage are reassigned in the basement with limited natural light sources.

Both the art school and offices, on the first and second floor, are organised in a similar way - both can be accessed from the street directly, via bridges, on both floors. The bridges connect the two horizontal surfaces in the voids and serve as a transitional zone, a threshold between the inside and outside. Entrances lead to the central area, where the modified tower is. The tower has multiple purposes - it lets more light in, trough its modified structure, it enables internal vertical circulation between two floors with spiral staircase and is a central communal area. Tower ´s adapted structure with thin columns signals the different role it has in the district. The communal area it houses, is the social core of each district, which again has multiple purpose. It works as a gathering zone, informal meeting area or a relaxing zone to enjoy one ´s lunch break. A canteen (art school) or a shared kitchen (offices) work as an extension of the shared zone. From the central zone other, formal functions branch out. This way of organising is reminiscent of the enclosed block development, with the buildings enclosing a large communal garden area. On the first and second floor there is a big lecture and a meeting room, meant to be used by both the art school and the offices, when needed.

Offices occupy the entire north-east district on the ground-, first and second floor and the south-west districts on the first and second floor. Originally, all sections were an open plan office, but that proved to be impractical over the years, with first employees installing shutters and partitions. After the adaptations in the 90s, certain areas were sectioned off. The employees complained it was too hectic, loud and hard to concentrate. That is the reason the new floor plan has different zones which are enclosed to ensure maximum comfort. There are single and double units enclosed with sliding glass doors, larger zones fit for up to 20 people and a few open offices in infrequent circulation zones. The goal was to arrange privacy without splintering the district. This way multiple companies can use the same floor. Other functions in the office section are a kitchen with pantry next to the communal zone, smaller meeting rooms, an archive and lavatories.

Art school occupies the entire north-west district on the first and second floor. It contains classrooms for different disciplines, workshop areas, photography school, teachers' and dean ´s offices, a canteen and lavatories. An existing exhibition area on the street belongs to the art school. All enclosed areas have glass sliding doors on corners, allowing them to

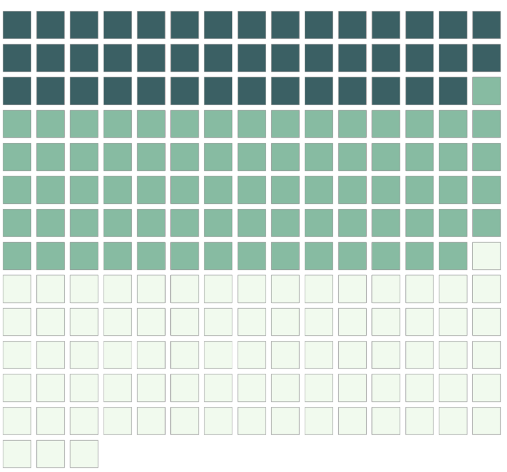
198 CUBES → = 81 m²



OFFICES 67
HOUSING 35
SCHOOL 24
SERVICES 24
TECH.ROOM 9
STORAGE
STREET

cafe
restaurant
supermarket
clinic
print shop
supplies
meeting/lecture room
gym

34%
17%
12%
12%
5%



PRIVATE
SEMI PUBLIC
PUBLIC

22% housing
storage
tech. room

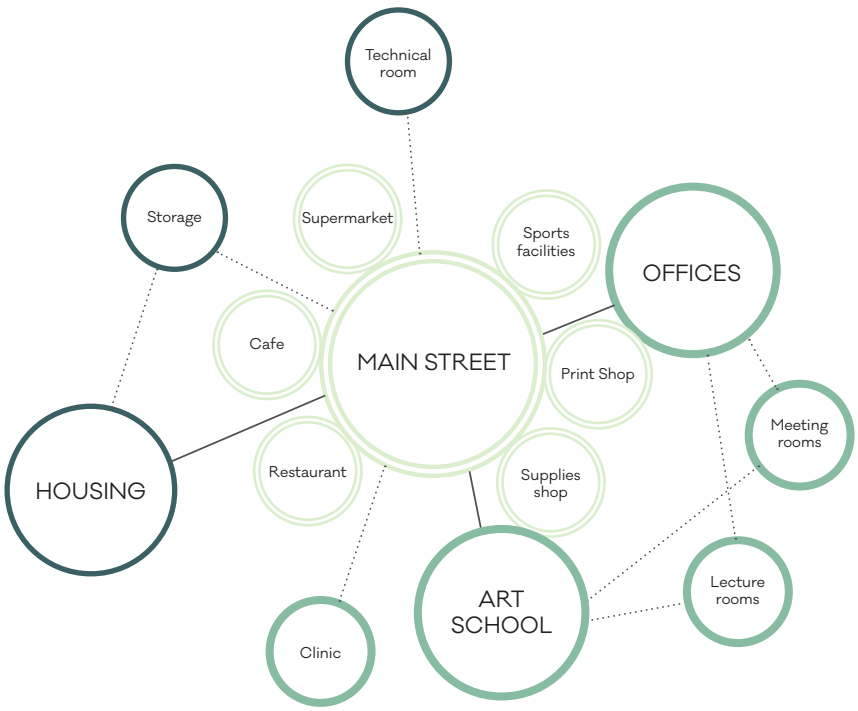
38% offices
meeting rooms
lecture rooms
clinic

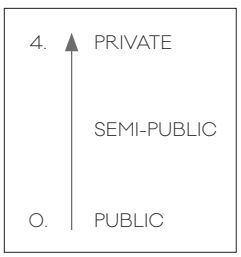
40% cafe
restaurant
supermarket
print shop
supplies
gym

control the degree of openness, while remaining transparent.

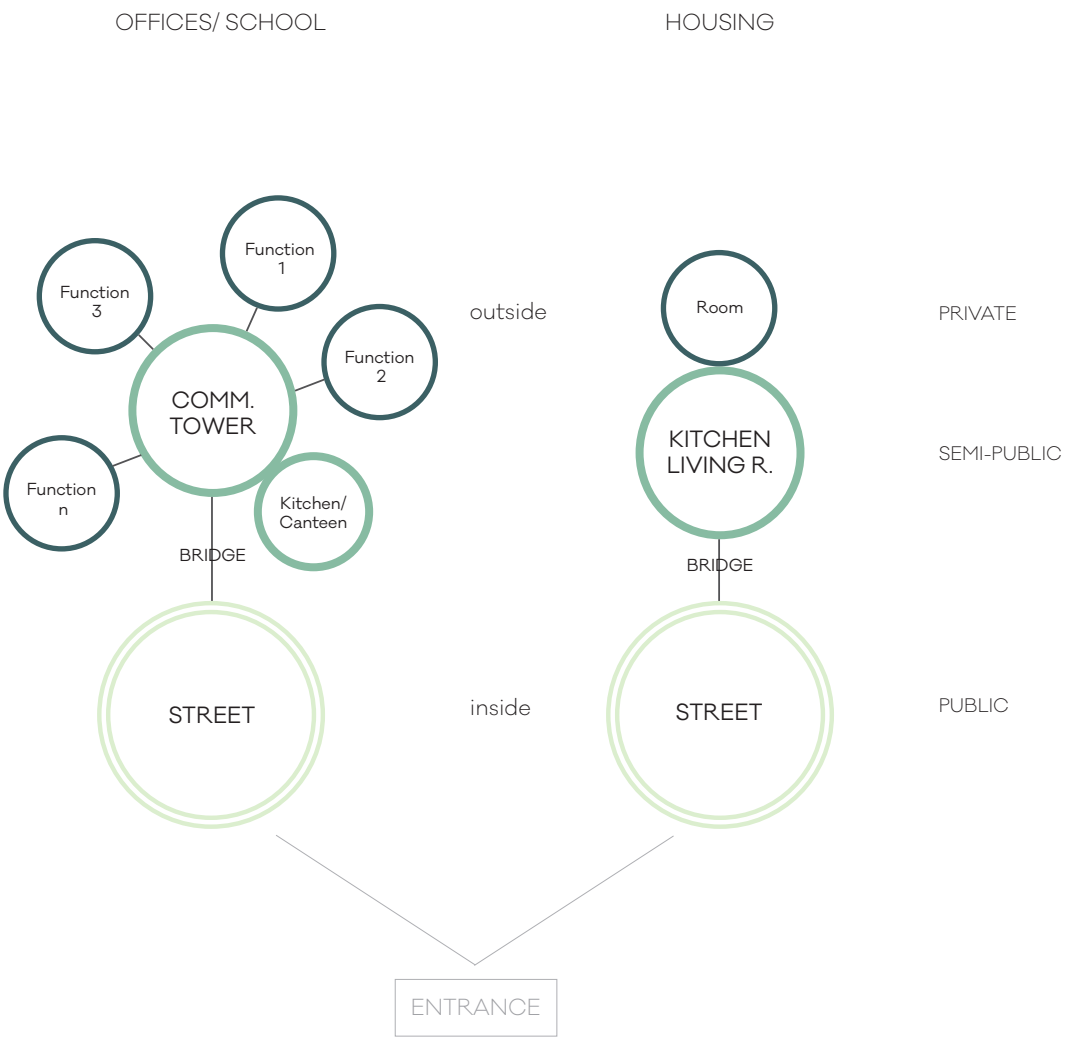
Housing on the top floor was designed with young professionals in mind, who work in CB, but Apeldoorn inhabitants aren´t excluded either. It follows the same principle as all functions in the building, public functions, such as kitchen and living area, are next to the street and private rooms are in the back. There are consecutive thresholds in the circulation, from the street, one crosses over the bridges and comes inside the kitchen and living room, from where the private rooms are accessed. This way the street becomes the extension of the shared living areas. It is especially practical with the weather conditions in the Netherlands, with lots of rainy days throughout the year. There are three different types of rooms, a single unit, extended single unit and double unit, with enough space for basic needs, a bed, table and wardrobe. With private rooms on the outskirts of the district, they have plenty of natural light and sunlight and access to fresh ventilation. Functions next to the street will have plenty of light but natural ventilation has to come from the roof windows.

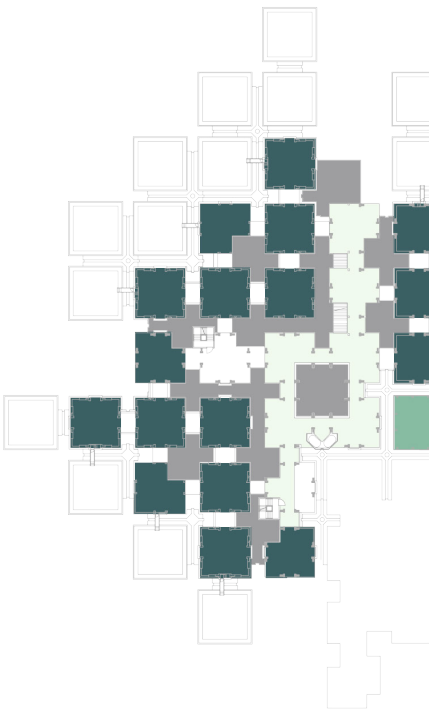
CENTRAAL BEHEER

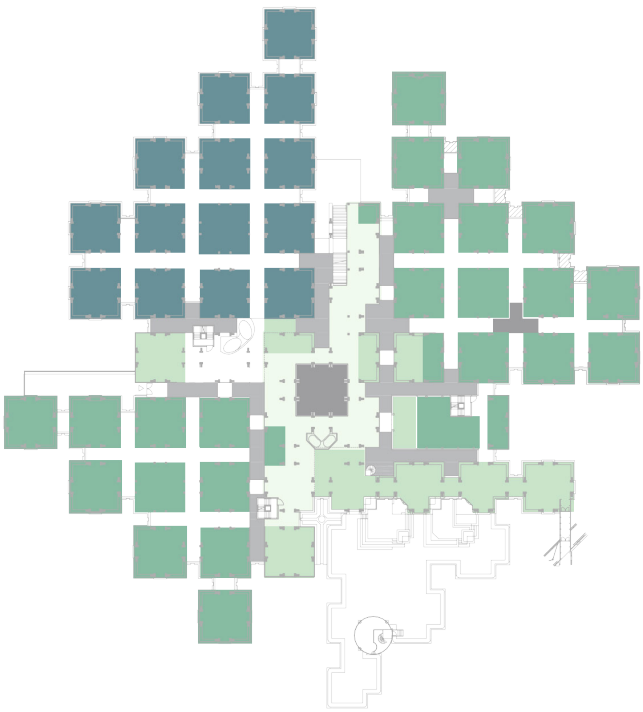


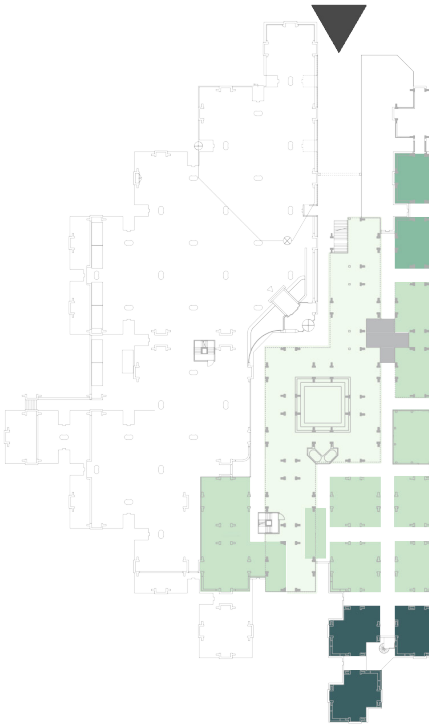


public
semi public
private


OFFICES/ SCHOOL
HOUSING
Function 1
Function 3
Function 2
COMM. TOWER
Function n
Kitchen/ Canteen
BRIDGE
STREET
outside
inside
Room
KITCHEN LIVING R.
BRIDGE
STREET
PRIVATE
SEMI-PUBLIC
PUBLIC
ENTRANCE








street
services
offices
art school
housing
storage/ tech.
voids

LAVATORIES

STAIRCASE

ELEVATOR

CAFE

MEETING ROOM

PRINT SHOP

SUPPLIES SHOP

GYM

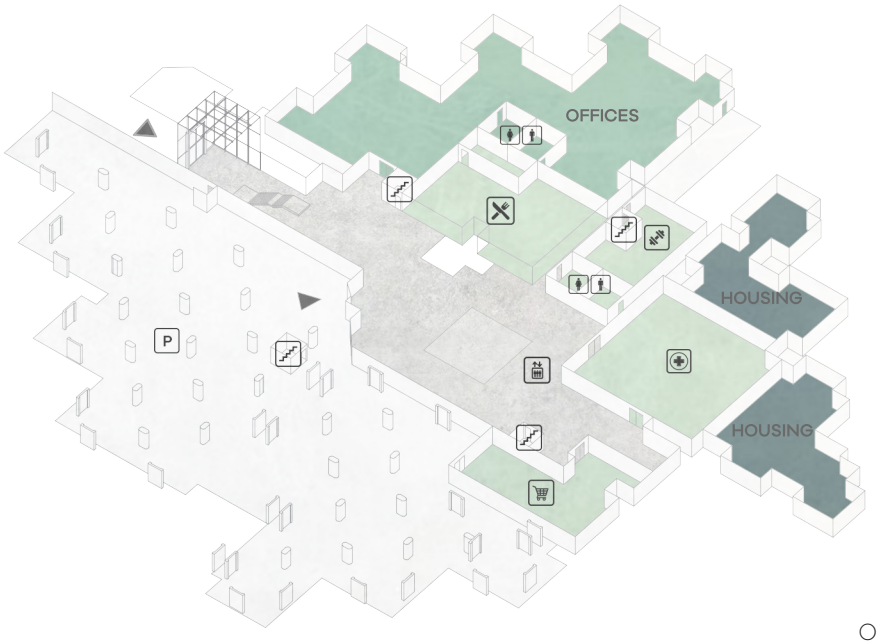
LECTURE ROOM

PARKING

RESTAURANT

CLINIC

SUPERMARKET


OFFICES
HOUSING
HOUSING
P

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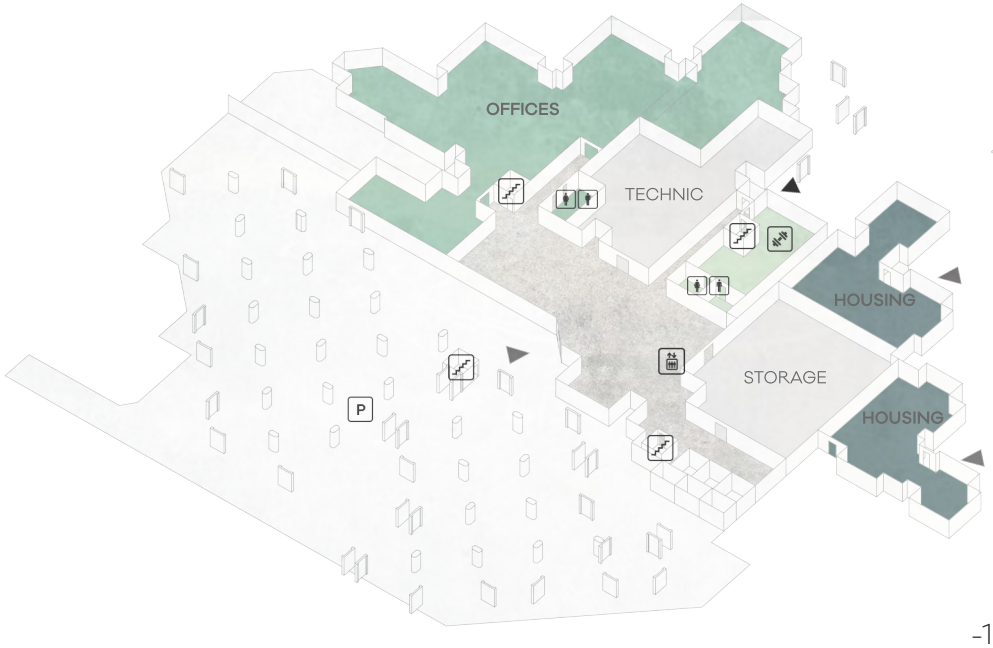
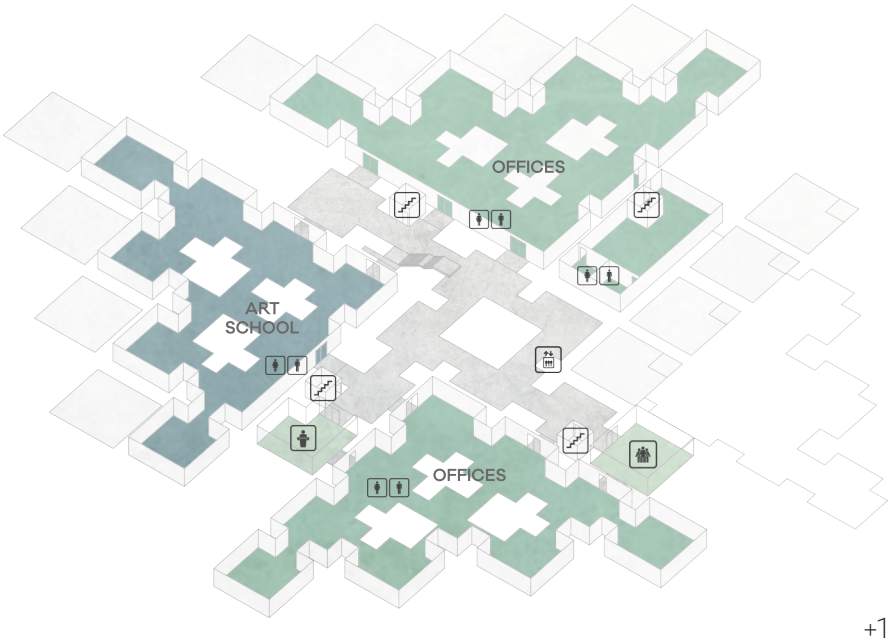
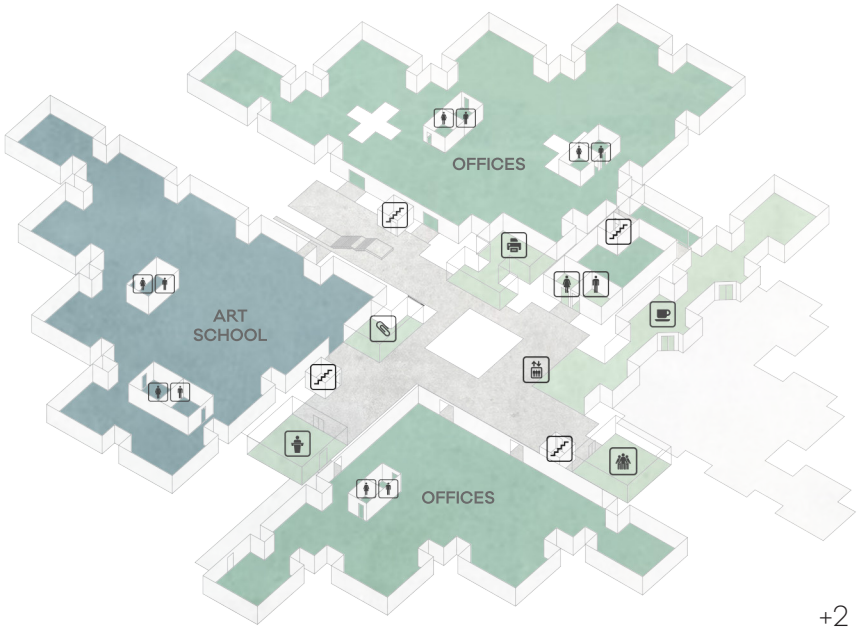

OFFICES
TECHNIC
HOUSING
STORAGE
HOUSING
P

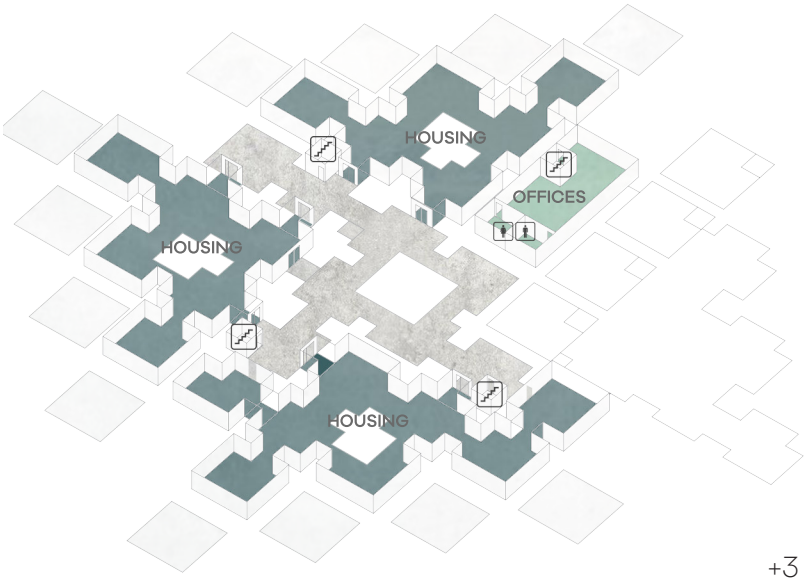
-1



+1



+2



+3

ART SCHOOL

N

FIRST FLOOR
M 1:500

The art school occupies the entire north-west district on the first and second floor. It can be accessed from the street, via bridges, on both floors. Both entrances lead to the central area, where the modified tower is, which also connects the two levels with a spiral staircase. Lockers are dispersed around the communal area. School canteen is an extension of the communal zone in the first floor. From there other functions branch out - three classrooms, a lecture room, smaller workshop zone, larger secluded workshop (far left) and a photography department. Another part of the art school is a supply shop, an extension of the school that encroaches the street.

OFFICES

N

FIRST FLOOR
M 1:500

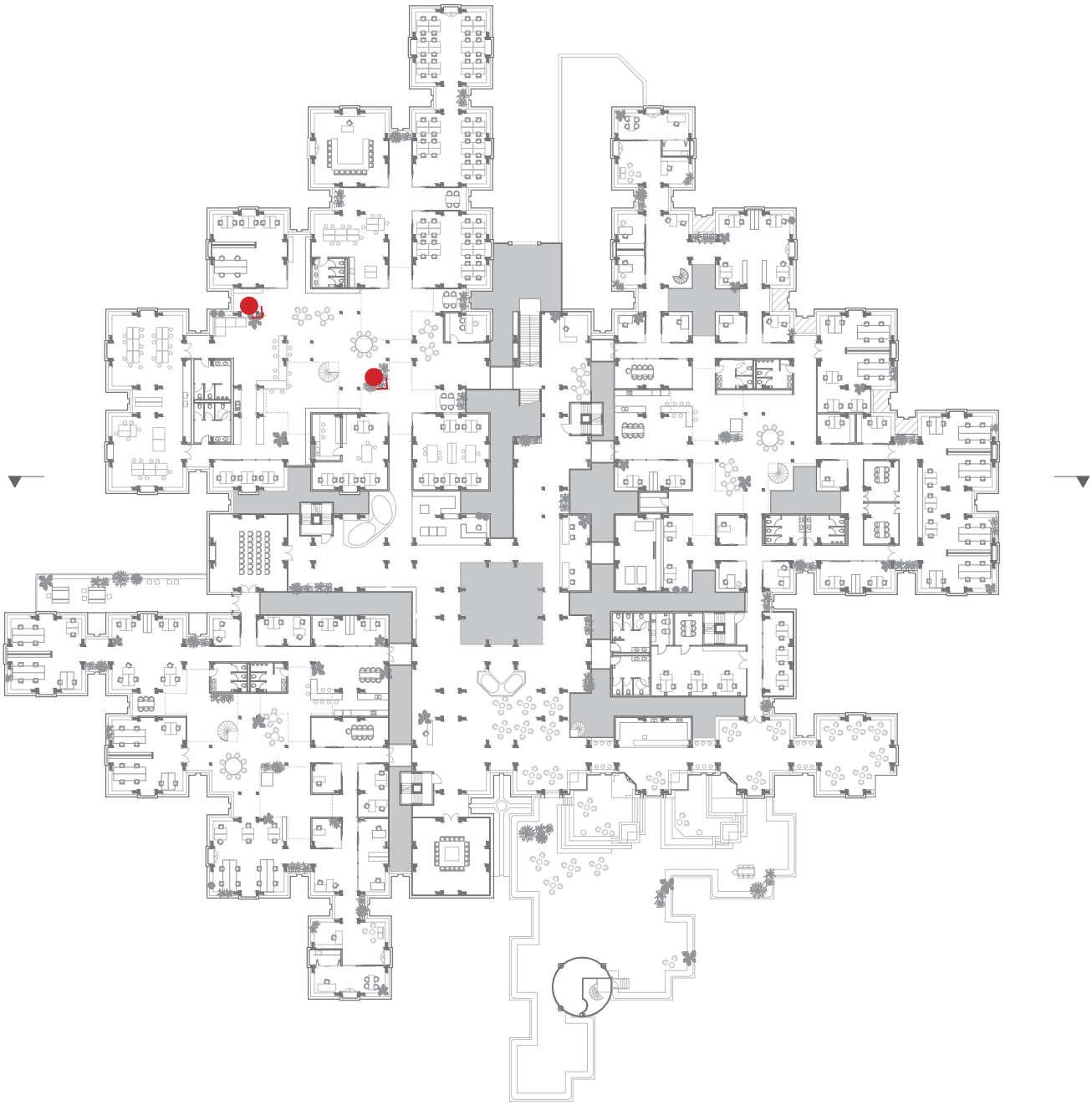
Office space on the left occupies the north-east district on the first floor. Additional staircase connects it to the floor above and/or under if necessary. It can be accessed from the street, via two bridges and a path from the cafe direction. Different spatial composition makes it possible to house more than one company on one floor. There are single infill offices, double infill offices and zones that accommodate up to 20 people, which create different zones in one floor section. Next to it, in the former service tower, are other offices that can be independent.
The path that connects those two leads to the cafe, i.e. terrace. The print shop, an extension of the office space encroaches the street.

LIVING

N

THIRD FLOOR
M 1:500

The housing on the left occupies the north-west section. There are all together three apartments that vary in size. One has three private rooms, another four and the third 6, for 16 people total per that section. They are accessed from the street directly, via bridges that are part of the flats, and serve as a buffer zone between public and private domain. Half private functions, kitchen and living room, are always next to the street with private units in back. The street is used as an extension of the living area. In other housing sections, street ends are partially used for housing purposes.



FIRST FLOOR
M 1:750

Fig. 34: *top* communal area in the school, *bottom* art school and housing in the void


▽18.50m
▽15.00m
▽11.50m
▽ 8.00m
▽ 4.50m
▽ 0.00m

NORTHWEST ELEVATION
M 1:500

SECTION
M 1:500

SITE PLAN
M 1:2000

4. CONCLUSION

During my research and afterwards during the installment of the new program, I have come to two conclusions about Centraal Beheer. The first conclusion is that it should be saved and restored to its former glory, but the degree of preservation may vary on the future program and today´s functional requirements. The second conclusion is that Centraal Beheer, in my opinion, is not really polyvalent, but a generic space enclosed through structure.

Hertzberger´s Centraal Beheer represents reflections and changes of a certain time in history. It persevered through cycles of societal changes that came along during the fifty years of its existence. Values that were woven into Centraal Beheer, marking an ideological breakthrough in the 60s and 70s, having somewhat disappeared in the 80s, are returning again today in a true pendulum swing form. With the addition of the historical importance, well preserved structure, efforts should be made to open its doors again, especially before potential UNESCO protection. Adaptation of Centraal Beheer is closely related to the function/s of the new program, because different functions demand different degrees of adaptation. Certain aspects of the building have to be revised and adjusted, no matter the program, since they were initially poorly executed during the building phase. One of those is definitely the entire skin and nonexistent thermal insulation, as well as lack of natural light towards the middle of the building. The position regarding interventions and preservation of the entire building, whether they´re minimal, extreme or somewhere in between, dictates the type of new program. Functions such as an archive, various laboratories and production lines, for example, could be suitable for the building with minimal interventions. Of course, it could always be conserved as a museum, with minimal to almost none interventions, but it would be a waste of great location and a chance for the building to remain what it is and for whom it was made.

One of the more challenging functions would be housing in any form, since it demands

qualities that aren´t present throughout the building in it´s current state. The new program I tried to accommodate lies somewhere in between on the intervention spectrum. The concept ´city in a city´ means, housing should be a part of the program for authenticity and versatility. Paired with my stand on adapting only the utmost necessary, it meant that housing would be limited to certain parts of Centraal Beheer that guaranteed light and privacy. Privacy and security, today´s primary values in all segments of life, have been omitted in the original design and would have to become part of any new reuse plan. The open plan office space never really worked for the employees, in a scale this substantial, due to the lack of privacy, disturbing noise and bustle of hundreds in a single room. If office space requires privacy, other functions such as school or housing would need an even higher degree of enclosed zones, more partitions throughout the sections, which could undermine the original design. The voids, placed strategically to allow more natural light and enable relations between levels, are adding to the hectic environment. Infill zones are only two meters apart around the void, so in case of different functions on one vertical, lack of privacy is an acquired taste.

In the extreme situation with housing being the predominant function, like in the program during my Delft studio or what is Hertzberger´s office AHH currently trying to do, there would have to be serious cuts in the structure, especially in the middle parts of either districts or the street, departing from the original form and philosophy, but resolving the privacy and much needed spaciousness.

The second conclusion I have come to, is about polyvalency or, in my opinion, lack of it. Polyvalence is the core of Centraal Beheer´s design and a strategy to create effective long lasting, effortlessly and indefinitely changeable form, but in a specific and individual way. For Hertzberger, any space that is designed for a specific purpose and can effortlessly accommodate a new function without any changes to the structure is polyvalent-

"The only constructive approach to a situation that is subject to change is a form that starts out from this changefullness as a permanent - that is, essentially a static - given factor: a form which is polyvalent. In other words, a form that can be put to different uses without having to undergo changes itself, so that a minimal flexibility can still produce an optimal solution." [45]

45 *Hertzberger 1991, 146.*

Initially *salle polyvalente* was used to describe multipurpose village buildings whose neutral form allowed high flexibility for housing different events. Today we refer to that kind of space as generic. In case of Centraal Beheer, according to Hertzberger, the specific frame, or the structure, has the polyvalent quality that allows, even suggests changes inside the infill zone. With changes he means different configuration of furniture elements for individual needs of it´s users. But what is really suggestive and polyvalent about the 3x3m infill zone? What sets it apart from any other generic space? The base is a square limited by two columns on the sides, primary beams separate the infill zone from the circulation zone on the ceiling and on top of them there is a secondary structure that encloses the corner on the top. The only part of the 3x3 zone that is suggestive is the dark wooden corner that can be used as storage or a low narrow table. Throughout the entire building, those can be found next to the facade and around voids, the rest of the space is open space with densely distributed concrete columns. Technically an infill can accommodate any function, like any other space, but that doesn´t necessarily mean that it works when relating to it´s surroundings. Only two infill 3x3 units can be joined as one, because otherwise the circulation line between could be hindered. And if partitions are added to ensure the required quality of space for the new function, is the space then truly polyvalent? There is nothing really different about the infill layer when compared to a generic hall, the space can be considered neutral and flexible as any other.

Hertzberger juxtaposes generic and polyvalent space. For Rem Koolhaas, a building is composed out of specific which accommodates the generic space. Generic spaces are subject to cycles of change and the specific is the structure, a constant that withstands the changes. Bernard Leupen used this interpretation in his book ´Frame and generic space´, referring to the specific as frame. He distinguishes three different types of changes possible in a generic space - alterability, extendability and polyvalence[46]. If the layout can be changed by adding or removing elements, then the space is alterable. If the surfaces can be lengthened, vertically or horizontally, then the space is generic. *"If the generic space contains no architectural elements and its form and dimensions invite different kinds of use, we may speak of polyvalence; in such instances the generic space is polyvalent space."*[47] Infill form and size are only tangible on second and third floor, other floors are plain open plan surfaces. When applied to Centraal Beheer, there is only one

46 see Leupen 2006, 25-26.

47 Leupen 2006, 26.

type of changeability, of the three forementioned, this generic space possesses and it´s alterability, which can be seen in the third part of the thesis. Centraal Beheer was designed to be extendable by multiplication of the towers on the base grid, but that would diminish the quality of the existing space, making it possible only in theory and plan. As for polyvalence of the generic space, the infill zones don´t suggest or hint on any different types of use more than other spaces. And then there is their lack of legibility on the majority of floors. If Centraal Beheer is to be considered polyvalent, than every other building is as well, just varying in the degree of polyvalence, and Centraal Beheer itself would score quite low on the scale of polyvalence.

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