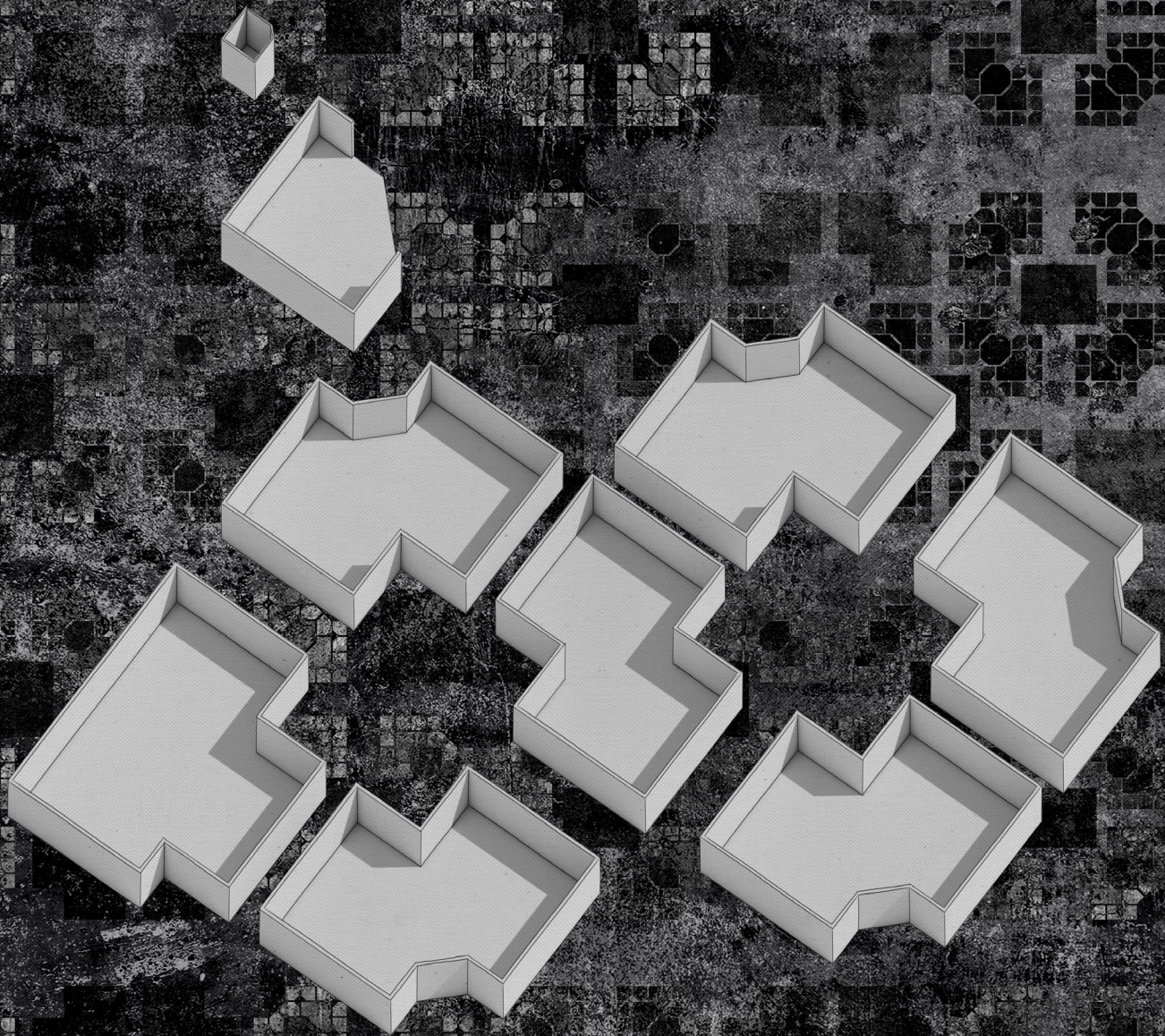


Structuralism

Joop van Stigt

Faculty of Humanities



An analysis

Jeroen Moerman

Structuralism

City and structure

Structuralism is first noted in the field of linguistics. The term is based on the works of Ferdinand de Saussure in 1916. He proposed that language can be separated into two realms. The first one provides the structure, while the second is the performance of language. So each individual can, within the structure, use language to communicate in their own way. In anthropology the term is also used. Claude Levi-Strauss uses structuralism when he notices that among different cultures a common structure can be found, that within each culture is appropriated. Therefore, both in linguistics and anthropology structuralism is defined by a common structure, that enables different effects to be propagated.

In architecture however structuralism cannot be seen till the 1960's. The prelude to this architectural style can be found in 1953 when a group of young architects formed Team10. Later, at the Otterlo CIAM congress in 1959, Team10 declared the death of CIAM, leading to a break with CIAM and the emergence of new architectural styles as Brutalism and Structuralism. The work of Piet Blom that Aldo van Eyck presented in an article in Forum7 reflects the aspiration of modern architecture interwoven like an African Kasbah village. In addition to this Kasbah living, structuralism was influenced by Dogon society in Mali, in these villages buildings are not individual. But all buildings contribute to a public whole. Again, this fascination for African societies is shared with other paradigms in sociology and anthropology.



F. de Saussure



Levi Strauss

The term structuralism was only later contributed to the work of this select group of architects. Often associated with architecture consisting of a multiplication of elements or units.

However, it would be blunt to state that all architecture that uses units within a structure is regarded as structuralism. Based on the work of structuralist architects it becomes clear that *social interaction*, and *open ended* structure is far more important than the units themselves. The focus within this group of architect differs. Some focus more on the modularity of elements, while others focus more on social cohesion through an architectural framework. Herman Hertzberger defines structuralism as "*an unchanging, extendable structure that can accept and enable local changes and infill.*"

The definition of Hertzberger leads to the image of a city, because in cities the structure of streets and squares remains rather constant throughout history, while individual buildings can change drastically. Therefore this is one of the concepts proclaimed by structuralist architects. It is the reappropriation of the city, and developing these ideas on the scale of a single building. This is most notably done by Aldo van Eyck, Piet Blom and Herman Hertzberger in the Netherlands. Although again, these architects differ in the execution of this concept. For Piet Blom for instance, many single entities combine in one 'building as a city', while for Hertzberger the building itself is seen as a city. Thereby structuralism shows different elaborations, with different aspects, this will be further explored in the next chapter.

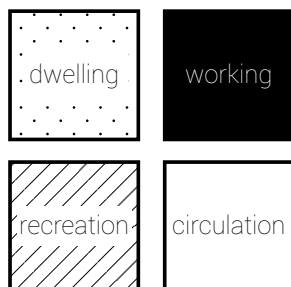


Dogon village in Mali



Aldo van Eyck at CIAM, 1959

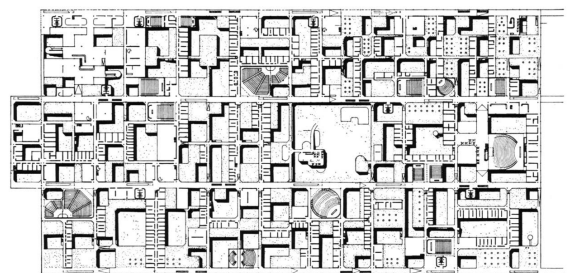
The hypothesis is that the concept of 'building as a city' within structuralism is most profound within the work of Joop van Stigt and this concept is therefore regarded as the basis for this analysis. The fascination for the city within the realm of Dutch structuralism is not detached from developments in the rest of the world. On the contrary, this tendency is strongly related to the *Zeitgeist* from that era. The newfound fascination in regard to cities developed as a reaction on the cityplanning as broadcast by CIAM. CIAM proposed the partitioning of cities in four separated functions defined as dwelling, working, recreation and circulation, which resulted in monotonous cityscapes. As a result this led to a re-evaluation of the historic cities among architects and social critics. The re-evaluation is brought forward by numerous publications, of which most notably *the architecture of the city* by Italian architect Aldo Rossi, *the death and life of great American cities* by American activist Jane Jacobs and the image of the city by American planner Kevin Lynch. All these publications focus on the appreciation and experience of the city and are published within a few years from each other. Jane Jacobs for instance advocated a more diverse mix of functions in the American cities, which in turn should lead to lively streets. While Rossi assumes the city to be architecture, and should be studied as a construction over time, criticising functionalist architecture simultaneously. Kevin Lynch is more concerned with the experience of the city and the sequences of space, which he defines by the term wayfinding.



CIAM, Four functions

This shift towards thinking about cities in structuralism leads to the image of the building as a city, because cities provide social and lively atmosphere. The first step to build a building as a city is seen on a small scale in the Burgerweeshuis by Aldo van Eyck. However, this building is fixed in its finished form and not open ended. Therefore, the first modular building as a city was created in Berlin by architects Candilis-Josic-Woods in 1963. The Freie Universität in Berlin was designed as a multilevel city, with streets and squares connecting them. As a teacher of not only structuralist architects as Herman Hertzberger and Piet Blom, Van Eyck also taught Joop van Stigt at the Academy of Architecture in Amsterdam. Van Stigt in addition worked at the firm of Van Eyck most notably on the project of the Burgerweeshuis. This, next to other influences, arguably had great impact on Van Stigt's work.

As with many ideologies, a reaction is inevitable. This can also be seen in the last decade of the 20th century. For instance in *The generic city*, as published by Rem Koolhaas is his book *S M L XL*. He states that generic buildings, without character, are liberating from the rules of historic city centres. A clear schism with the identity driven architecture of the '70s and '80s. Today there is again a somewhat society driven tendency within architecture. The buildings from the '70s are in need of renovation. Even architects as Koolhaas are making more specific buildings. This will be further explored in the last part of this analysis. It is clear that the *Zeitgeist* changes and different era's can be appreciated.



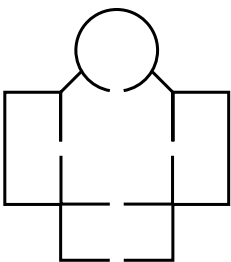
Freie Universität Berlin 1963

Joop van Stigt

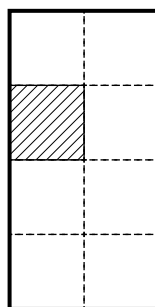
Foundation

Joop van Stigt was born in 1934 and grew up in Amsterdam in the area of the expansion plan by Berlage and near the open-air school from Duiker. This environment made him enthusiastic for architecture. From a young age he wanted to learn the profession from below. This is characteristic in the way of working of Joop van Stigt throughout his career. He thinks that the basic knowledge of technique and the making is essential for designing. Besides his early job and evening classes he first worked in the office Bodon from the threesome Bodon, Salomonson and Waterman. During this internship he got in touch with Aldo van Eyck and Herman Haan. Those men introduced him with the Dogon culture which is a big inspiration source in his oeuvre. Together with his background in the functionalist way of thinking he built with primary constructions and honest material. Joop van Stigt explains this by saying that the dogon culture is able to coordinate all matters of life with each other in an exceptionally harmonious way.¹

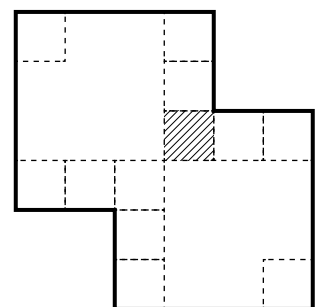
The Dogon home is originated from a system of people and space. The dimensions are inspired by the human measurements. The Dogon home has a central space surrounded by sleeping-rooms and kitchen. All of his future projects are derived from this sizes 5,4 m and 7,2 m. The central space with adjacent functions is also a scheme that van Stigt used in his projects. He always wanted to create an efficient use of space and wanted to limit the access space. The access to the private rooms is most of the time collective route through the building.



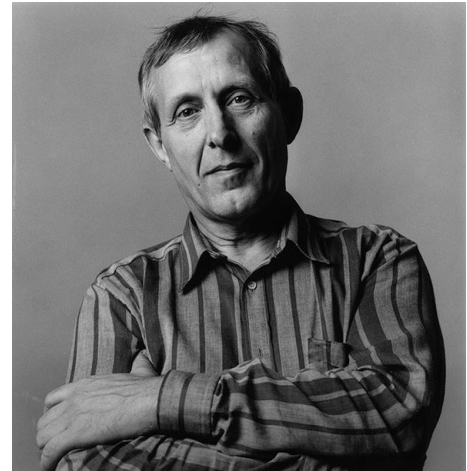
Dogon house



Student homes, 1959



Prix de Rome, 1962



Joop van Stigt, 1980

Student work

During his study he used a more functionalist style of designing but gradually he develops a more structuralist approach. Of course when you have Aldo van Eyck as professor and also starting to work with him it will be reflected in your work. In his project for student homes in 1959 he uses the brick as a building component and makes housing modules out of it. He combines the bricks in their full width and divides them in half. Then he makes a vertical connection to create one house type. When he decides to participate with the Prix de Rome in 1962 he makes a range of squares. Within the bigger squares he divides the space in smaller squares with the service spaces at the edges. The space that remains is the communal sleeping area.

Office work

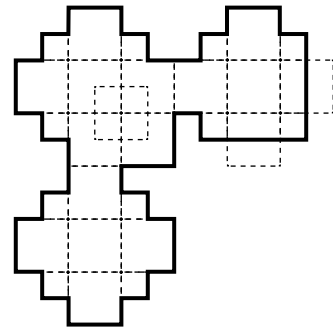
After van Stigt did the Prix de Rome he earned his first assignment at the T.H. Twente and started his office. The canteen consists of a subdivision of squares. This canteen is a public building so the entire space is collective space. He only had to place the furniture and service spaces like kitchen and toilets. A few of them are placed to define the walking route and the others are placed within the squares or along the edges.

When he worked on the town hall in Ter Aar he had the freedom to design on an empty plot. The building had to get a certain ceremonial appearance.

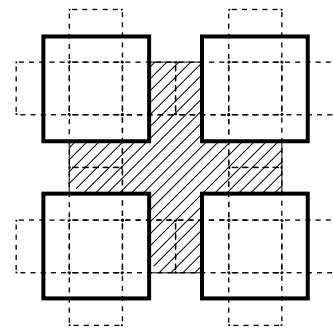
He uses therefore a central reception point. From there you can make your way to the office spaces. The service spaces are placed in the corner of the bigger square shaped clusters. In the roof he uses overhangs to give direction to the polder landscape around the building. In the later transformation they placed three new clusters joining the existing ones. They follow the same dimensions and pattern but are newer versions of the old ones.

Just before he started on the faculty in Leiden he did the "Gouden Leeuw". A flat in the Bijlmer. He refused to make a gallery flat. In the center of the building he placed the vertical access to individual homes. On each floor there are four houses situated around this core. Each home is again divided into four squares and two are used for living room and kitchen and the rest for sleeping and service. There is no separation between these spaces through a corridor but he uses only one small square to make the separation. This is a minimal loss of functional space. We see this solution coming back in the Faculty of Humanities.

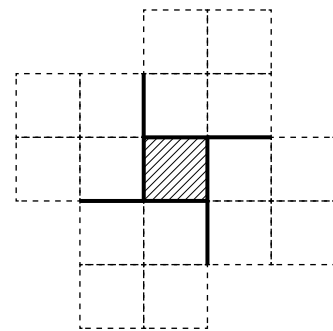
In the Faculty of Humanities van Stigt had to take the urban fabric into account. The access space in this building is therefore more dominant. He connects the inner courtyards with the entrances of each building cluster. From there he organises the functions like earlier project around this central space just like the Dogon home mentioned in the beginning. During the design process we see a lot of variations within these two squares. The placement of the interior walls doesn't seem to be important but have to follow the system. This is the most important thing we could take from his work. A collection of squares is defined as the system and within this system he defines access and program.



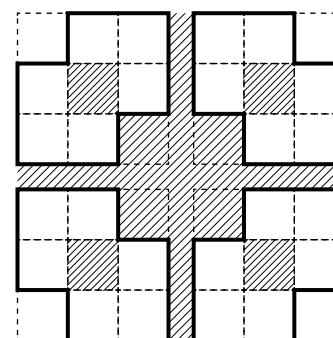
T.H. Twente canteen, 1963



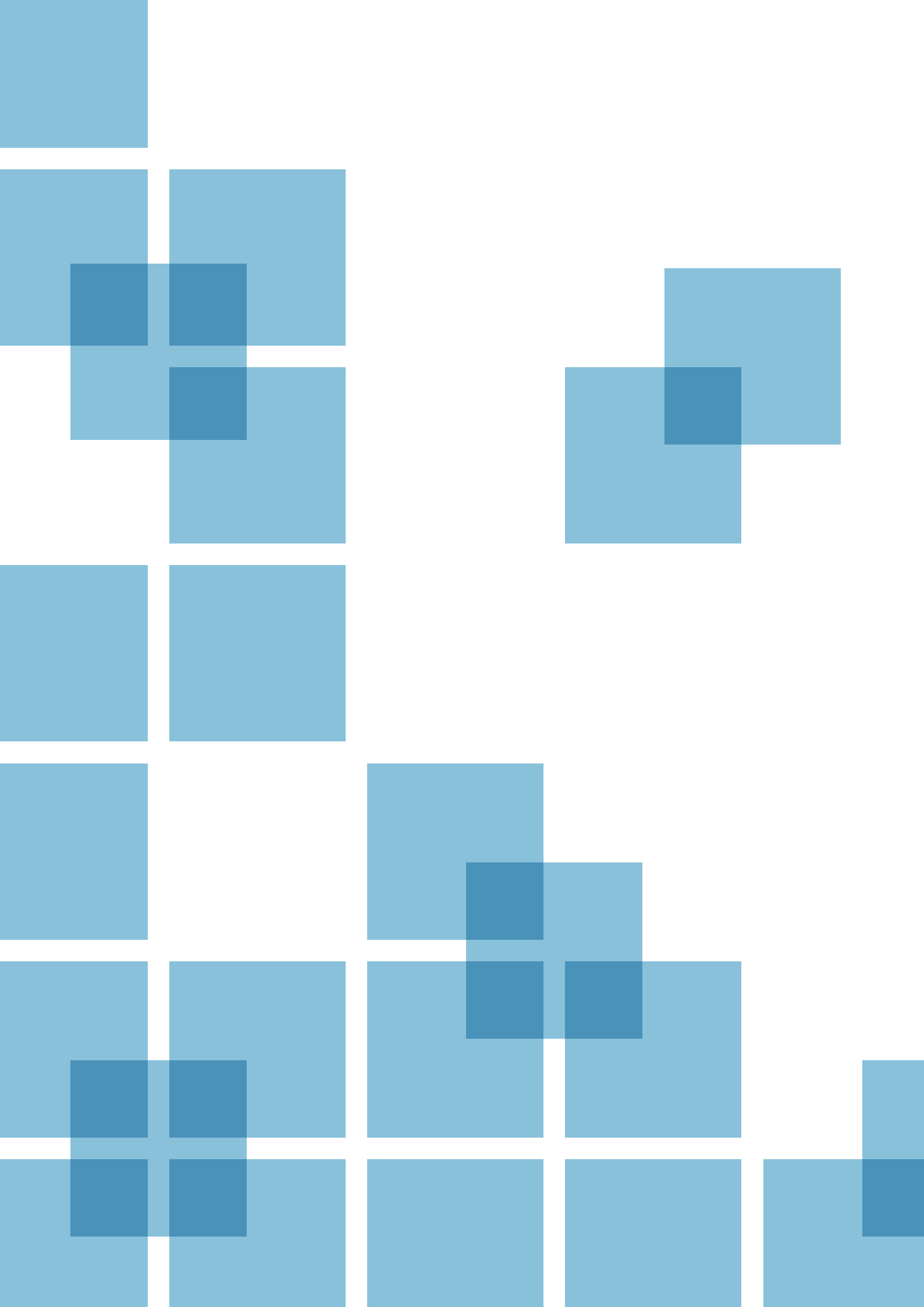
Huis ter Aar, 1965



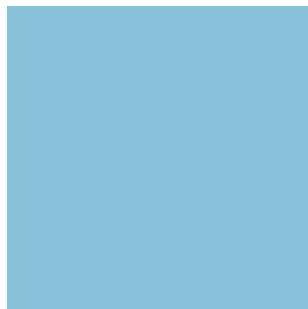
Bijlmerflat "Gouden Leeuw", 1968



Faculty of Humanities, 1983



5 Icons of structuralism



5 Icons



Blaakse Bos

Context of structuralism

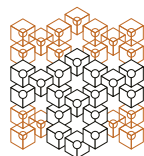
Structuralism cannot be seen without the influence of post-war modernity in architecture as advocated by CIAM and later Team 10. As an important player in these platforms Aldo van Eyck is an early instigator of the values and structural, social approach to architecture that would define the later movement, his Burgerweeshuis being the most visible example. His students - Blom, Hertzberger, Van Stigt - would together with Van Eyck join in an intellectual architectural discussion searching for a reaction to the brutalist and inhumane tendencies of the modern movement. In articles and magazines like FORUM they assembled an ideology covering the social, human aspect of what new contemporary architecture should incorporate, focusing on buildings that facilitated equality and livability through a strong sense of human scale, humble materials and intended space for social interaction. One way of materialising these concepts that can be seen

with all of these architects, would be a set-up of repeating elements, spaces and parts of buildings in a structure to shape the whole of their buildings. These structural approaches theoretically allowed for flexibility, the ability to expand buildings in a continued pattern and the idea of a living building that was shaped by its users. The structure meant more to the individual architects than merely a gridded means of construction. However, while these aspects can be recognised in the work of these architects, to everyone it supported different ideals and possibilities, resulting in a great variety of material execution, though always maintaining the social aspect as the ultimate motive for designs. In the end this diversity results in buildings expressing very much the individual characteristics of the different architects, though all sorted in the same style through their shared structural grid and humane focus.

Blaakse Bos, Piet Blom

Structuralism in the work of Piet Blom is visible through three main aspects:

Multiple units contribute to one entity. Each unit or house is autonomous, in this he differs from other structuralist architects. This autonomy facilitated the multiplication of elements. Removing or adding one unit does not interrupt the design. The supercubes are exceptions, while still following this system.



Most importantly, the cube houses act as a framework in which social interaction can take place. Blom uses sightlines from the houses to street level, raised communal spaces and sequencing of open and narrow spaces to encourage people to interact and to occupy the spaces to make them their own.



Bloms vision of 'The city can be lived as a village' is materialised by the smaller spaces and multiplication of elements. Thereby creating a liveable space in contrast to the post-war redevelopment.





Huis ter Aar



Burgerweeshuis



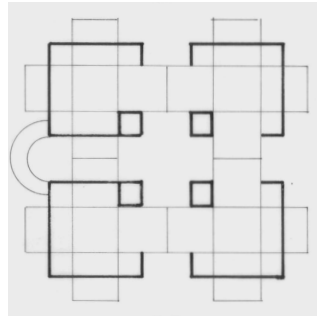
't Karregat



Vredenburg

Huis ter Aar, Joop van Stigt

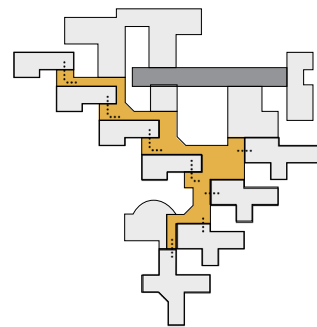
The structuralism of Ter Aar is defined in the form language, basic scheme, repeated overlapping squares, using the grid, visual load bearing limestone walls and timber roof construction, visual social interaction between spaces and also the connection with nature. The entrance of the building used to be on the front centre position. This was the place where the inhabitants and employees would interact together.



Burgerweeshuis, Aldo van Eyck

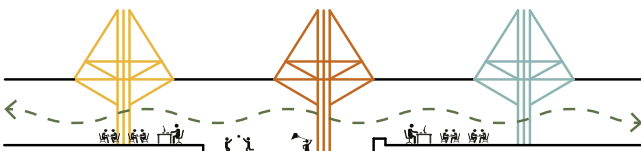
The structure of the Burgerweeshuis is defined by a system of living units that are structured in a diagonal, non-hierarchical way. The living units can function autonomously, but are connected by an 'inner street' and courtyards to create a whole. This allows for contact between the users and relations between the units.

The repetitive use of smaller construction elements such as the columns, architraves and cupola's gives the building uniformity and clarity as it creates a sense of human scale.



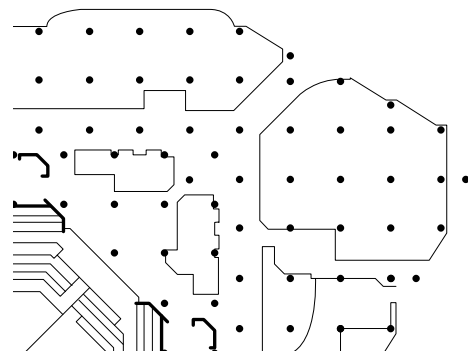
't Karregat, Frank van Klingereren

The essence of 't Karregat consists of a repetition of umbrella-like steel columns. These columns and roof the construction are made in modular components. The architect envisioned that this structure could later be expanded throughout the neighbourhood. This was in line with the idea of declotting and hinder to create a better community, based on the users' own interpretation of the space: The fact that all the installations were placed in the roof zone meant that the floor space plan was flexible for change. There is also a strong transition between inside and outside spaces. Multiple entrances were created from different sides and the use of a glass facade.



Vredenburg, Herman Hertzberger

As a function-specific building Vredenburg is shaped around the geometrically centred concert hall that sets the symmetry for the surrounding column structure. Designed from this central point outward the spaces and structural elements form a gradient from strict geometric repetition to environment-abiding lobbed facade compositions.



Blaakse Bos

Architect

Piet Blom

Period

1978-1984

Location

Overblaak, Rotterdam

Cube Houses

Piet Blom was a Dutch architect known for a number of notable projects, mostly built between the 1970's until 1990's. One of his most famous projects is the dwelling complex Blaakse Bos in Rotterdam, due to the extraordinary cube houses. Piet Blom was generally listed as one of the structuralist architects, together with Aldo van Eyck and Herman Hertzberger. His work has a strong focus on the social consequences of architecture, and is recognizable by the small elements contributing to a larger whole. However, the spatial expression of his work was in his words not important. He believed in the social effect that architecture can have on society, leading to his stubborn attitude. Due to his stubbornness not many of his projects are actually realized.

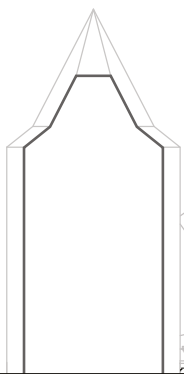
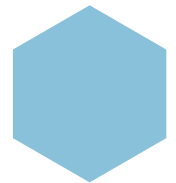
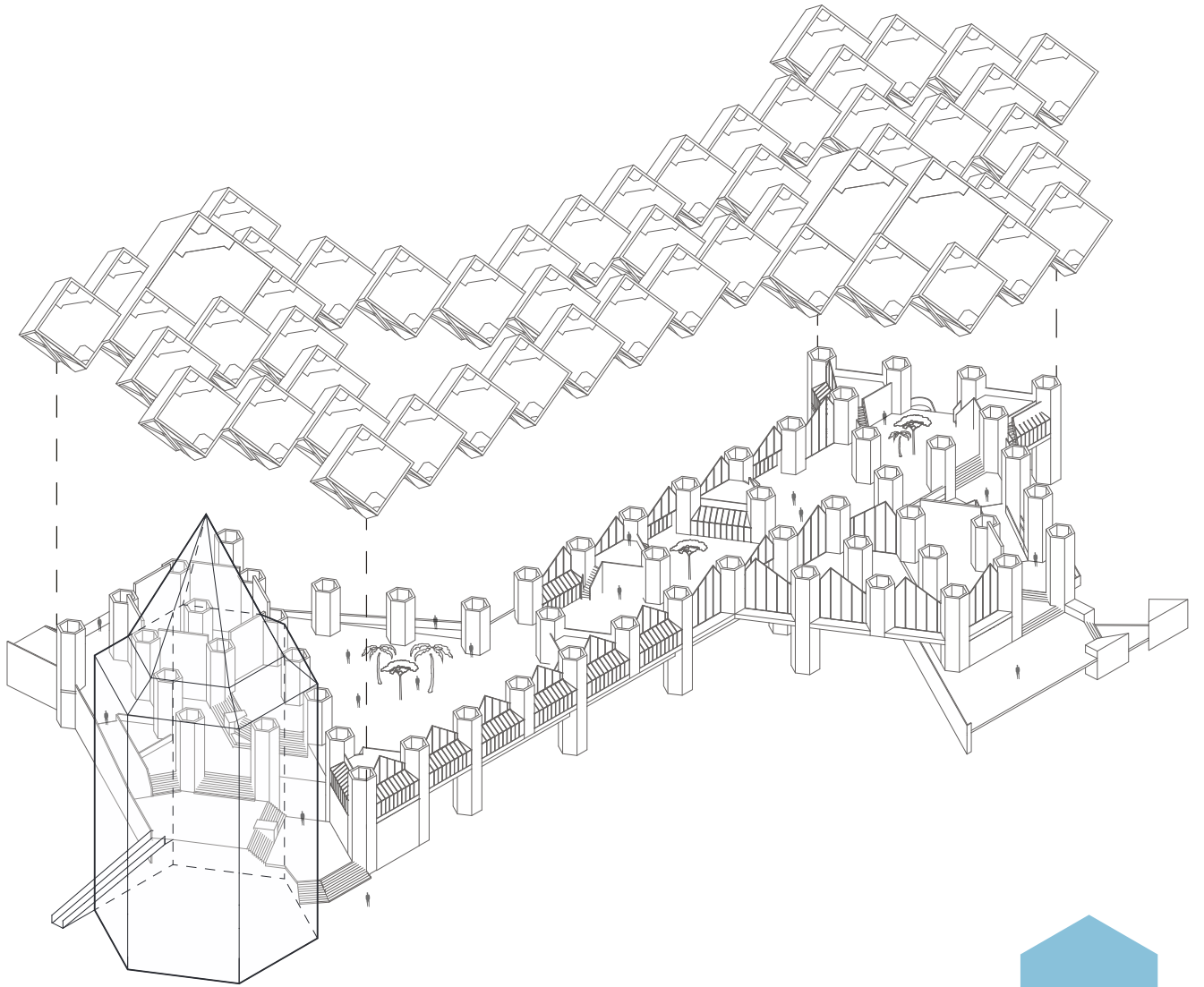
The plan is characterized by the lifted level that was meant as a bridge between the Oude Haven to the Blaak. This new level is the place for social interaction and commercial activities. Just above this level you will find collective space for the owners and up there the private homes as if you would live in the foliage.

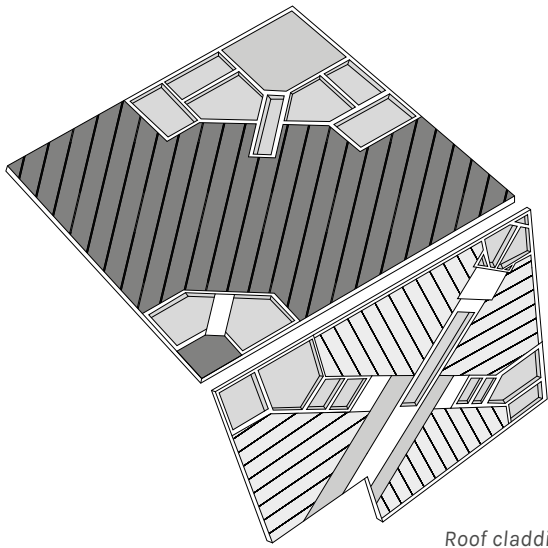
In a first draft the cube houses were spherical. Blom made 4 models ('77-'78) for the passageway from Blaak to the Oude Haven, including a submerged underpass and a bridge enclosed by shops and dwelling.

The fourth model is more like a fabric within the urban environment. This proved to be most sufficient to the situation, combining dwelling, commercial space and an overpass over the busy road.

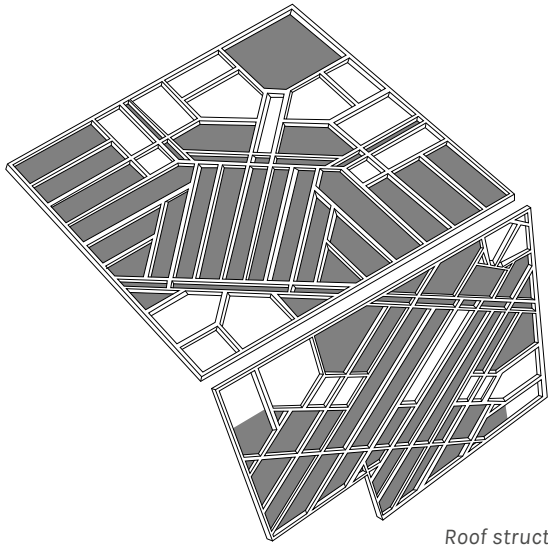
On 10 Jan. '78 Blom also proposed a different location for his cube houses, next to the Oude Haven. This in combination with the aforementioned underpass.

The first 'final' design (15 jun. '78) had cube houses along the Gelderse Kade, and featured a more gradual ascent via multiple staircases. In the end this design was changed due to exceeding costs. Therefore the number of cubic houses was reduced and the Blaaktoren and Zuidflat were added to provide sufficient dwelling.

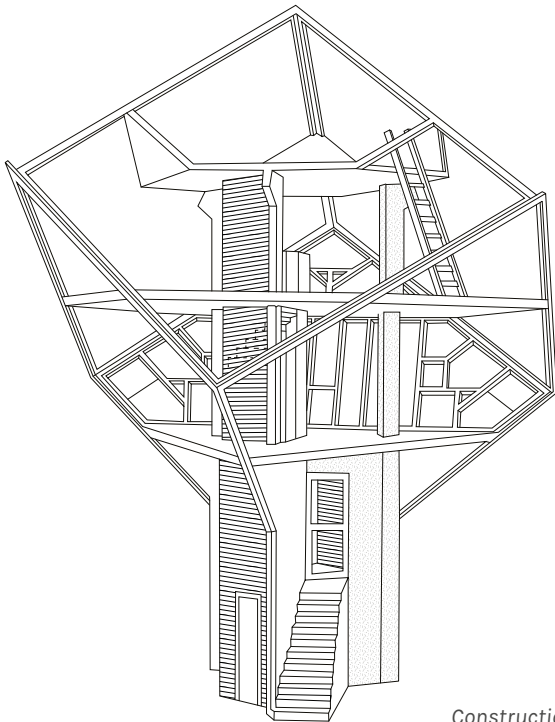




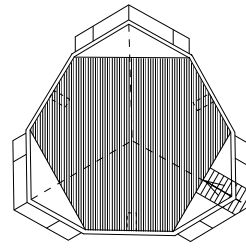
Roof cladding



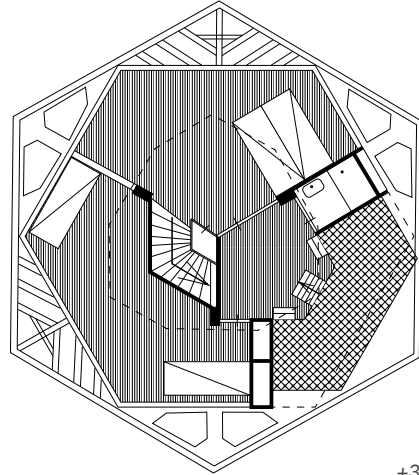
Roof structure



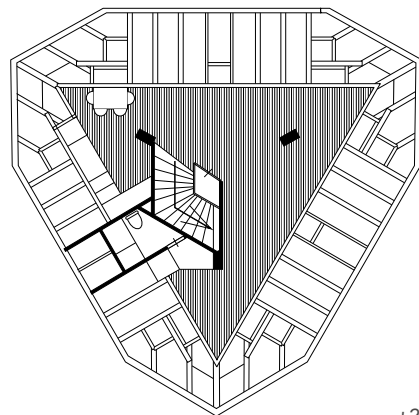
Construction



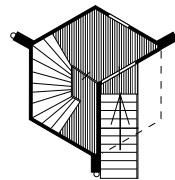
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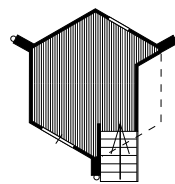
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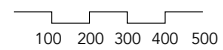
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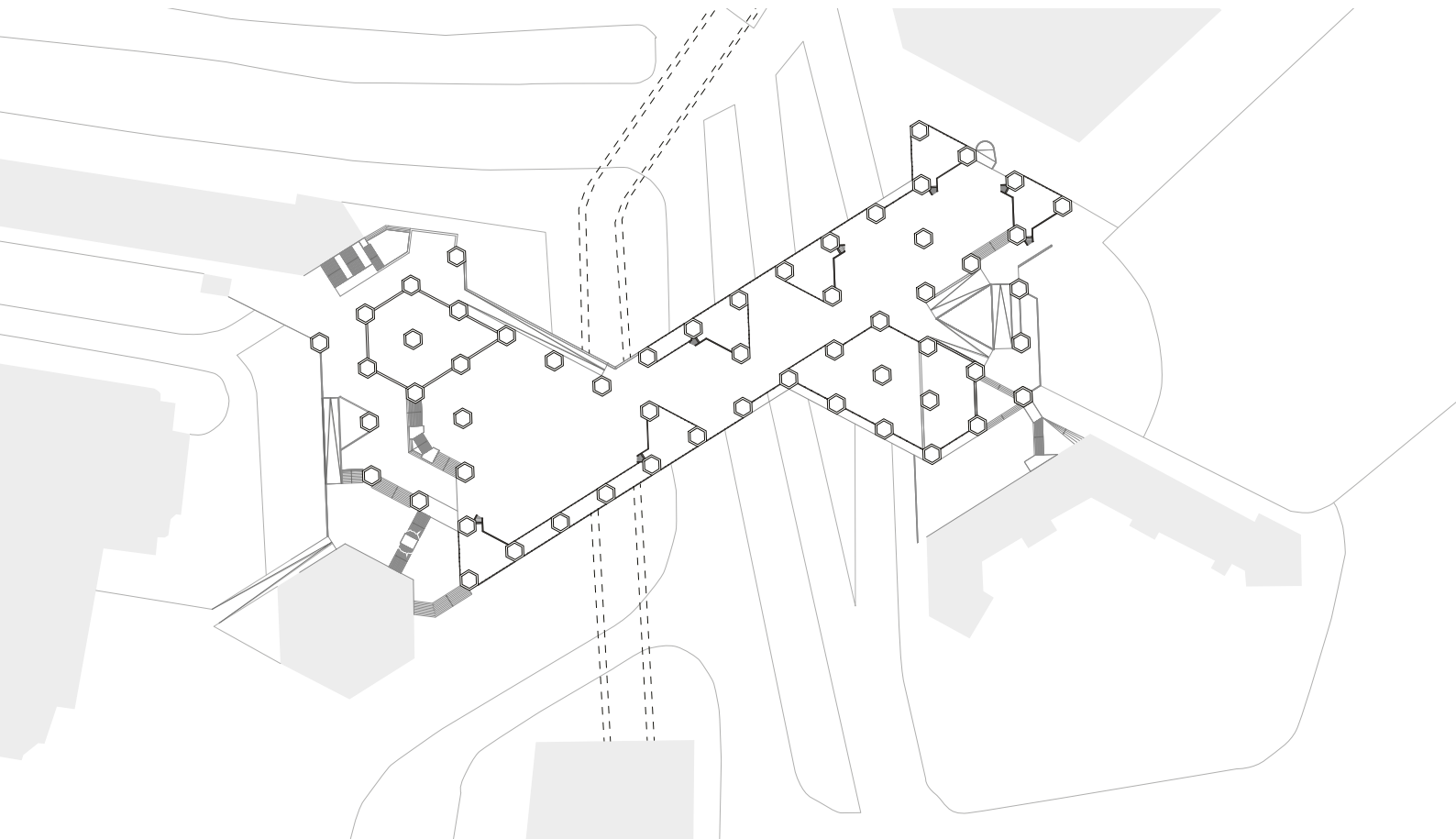


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Raadhuis Ter Aar

Architect

Joop van Stigt

Period

1965-1968

Location

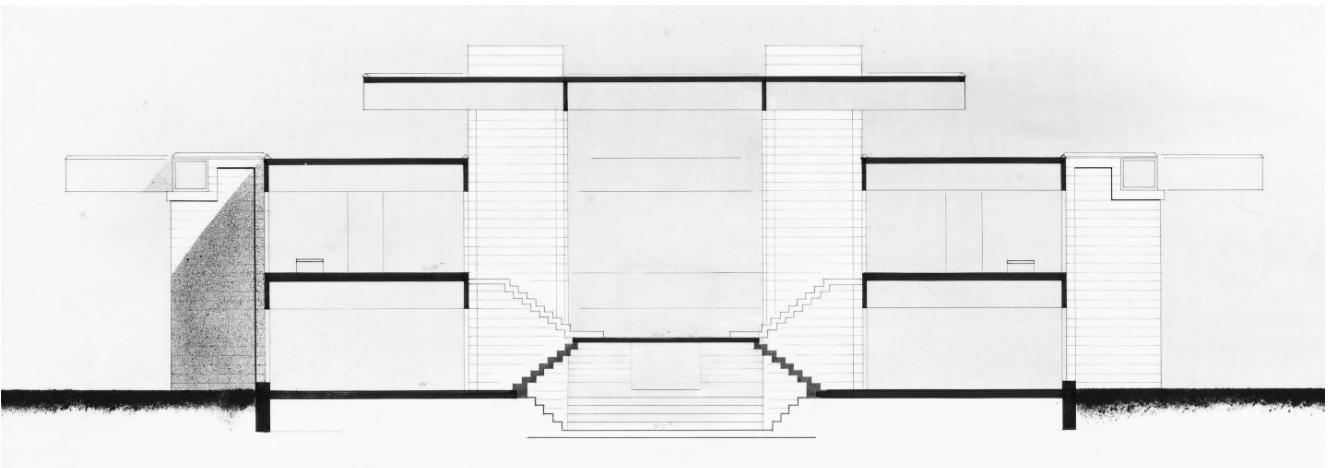
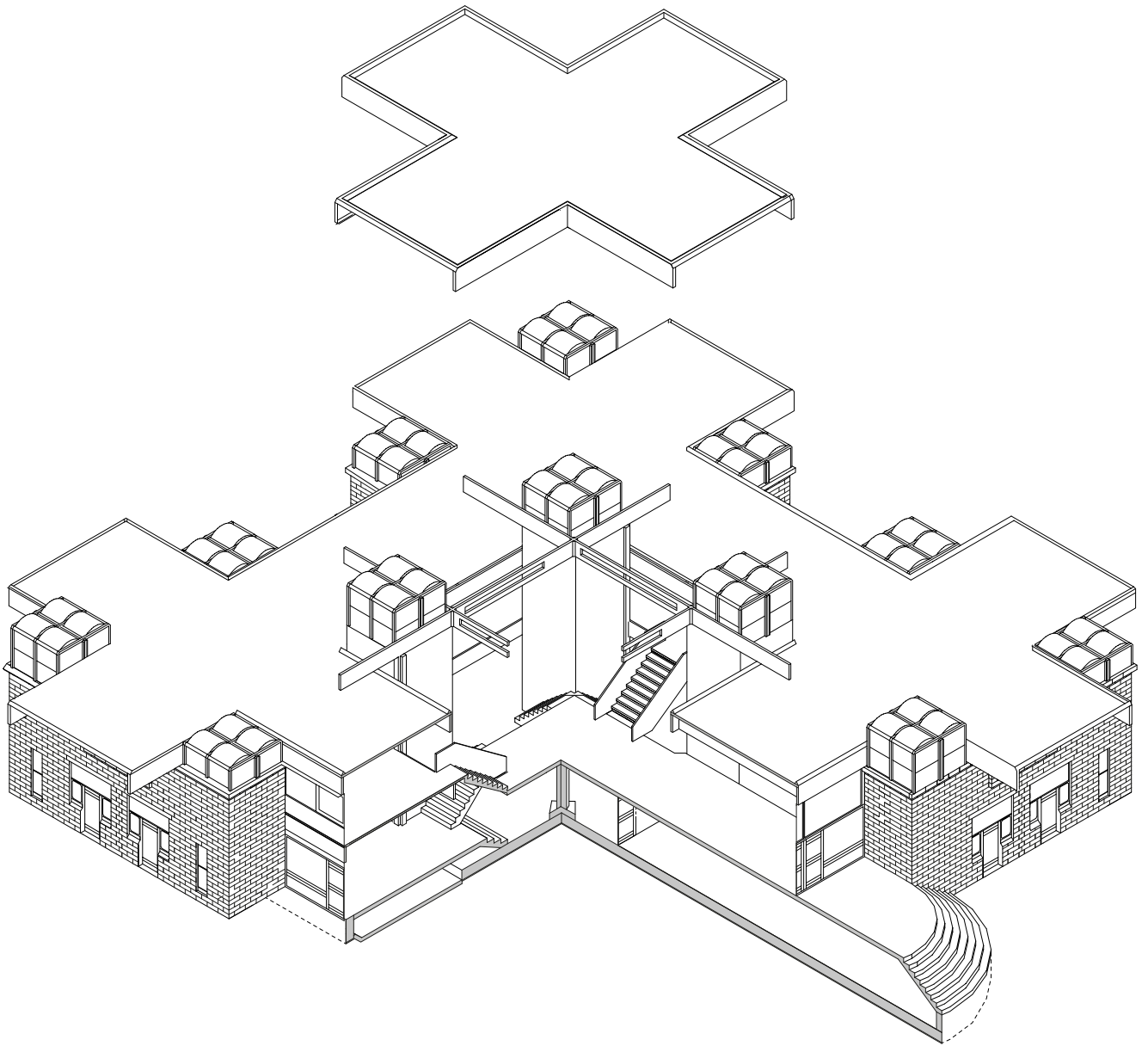
Aardamseweg, Ter Aar

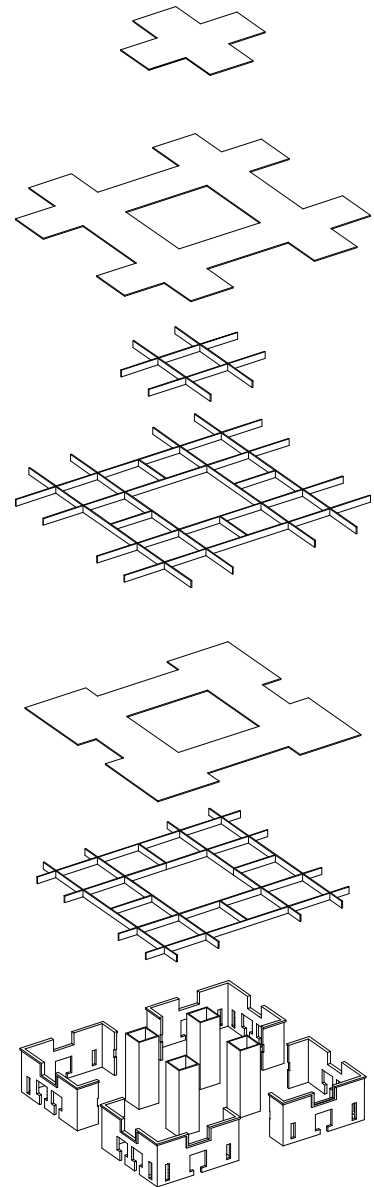
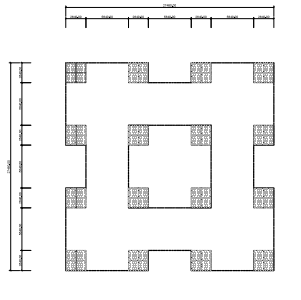
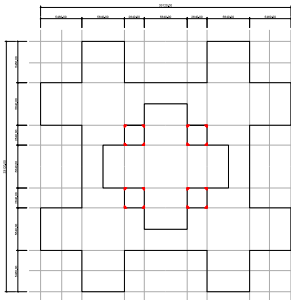
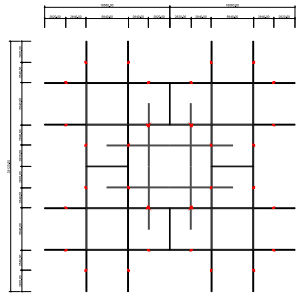
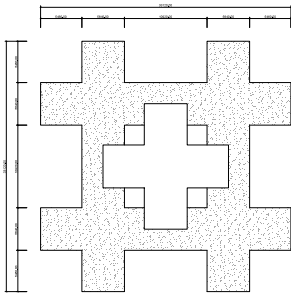
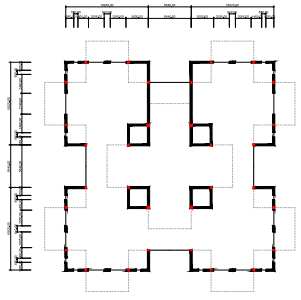
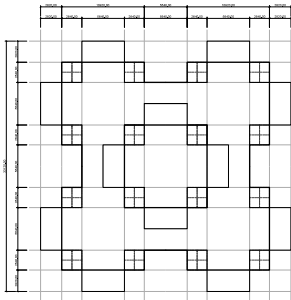
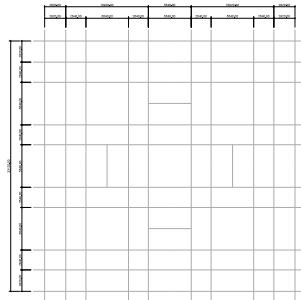
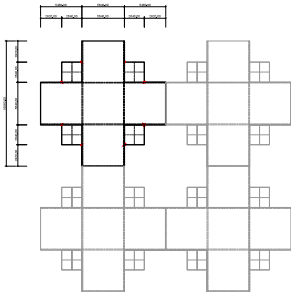
Modular blocks

Joop van Stigt's motivation to become an architect was rather unusual. He was born in Amsterdam in a large family of fourteen children. His older brother would become a missionary and Joop van Stigt decided that if his brother became a priest then he would need to build churches. His brother didn't become a missionary but Joop did become an architect. In the ten years it took for him to complete his study he worked full time at a construction company. As a result he understood the fundamentals of construction well. Later he gained practical experience working at Bodon, Van der Linden, Aldo van Eyck and Boon and finally started his own practice.

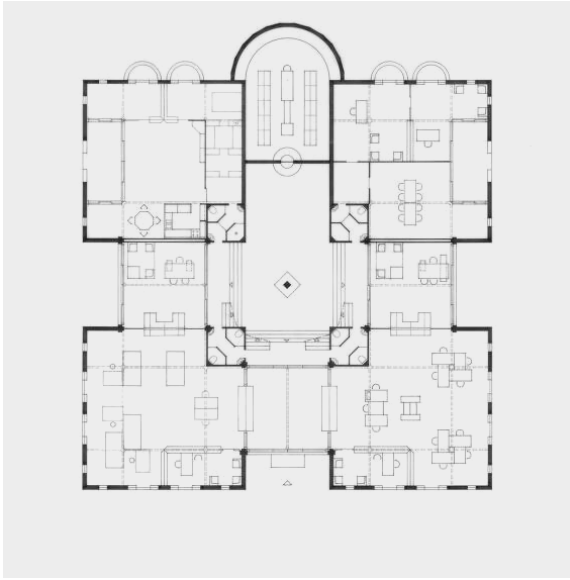
The municipality of Ter Aar wanted a building which would be situated in the polder landscape of Ter Aar and to make the interaction between the geographic place, the historical context, between the municipal workers and the local citizens. The vision of the client together with the methodology used by the architect a unique structuralist building was created in on the outskirts of Ter Aar. Certain characteristics appear more frequently in the buildings' design from a structuralist mentality. These characteristics are to be highlighted in the next few pages. The findings from the analysis highlight the values that this structuralist building provides.

The module of 11m x 11m is arranged in an interlocking pattern in plan to create the following form. The plan of Raadhuis Ter Aar by Joop van Stigt has a strong geometrical character. It's centralized and symmetrical composition with grand steps shows clear relation to the work of Renaissance architect Palladio. At the same time, the geometrical shape and the division between the serving and served space using structural vacant columns was clearly influenced by the works of Louis Kahn. As one of the best students of Aldo van Eyck, Joop also redeveloped the social and spatial ideas of van Eyck. By creating the public atrium and the open office space using what can be called configuration design (interlocking squares), Joop meant to stimulate social interaction between the public and the civil servants in the town hall.

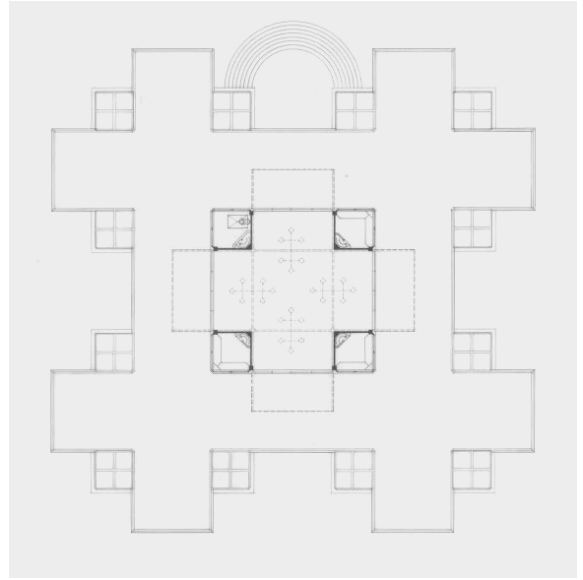




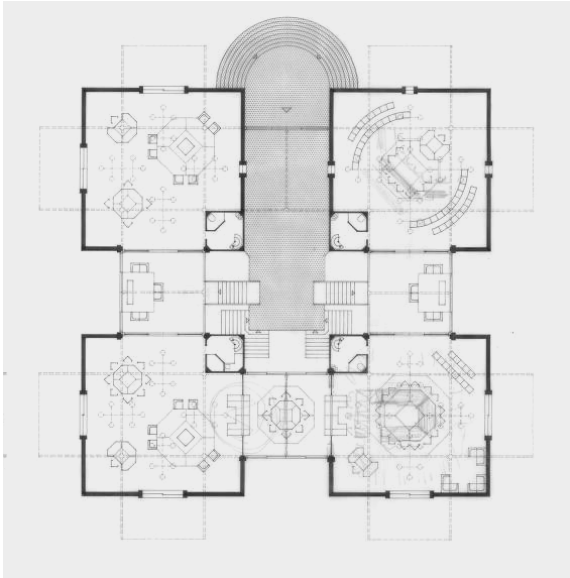
Everything is built in prefabricated elements to be put together in a similar manner as a furniture set. The basic scheme is an interwoven grid of wooden crosses, overlapping square that interlock. The form language that is associated with structuralism was not to have a certain purpose. The craftsmanship in the buildings of van Stigt were more important than the envelope.



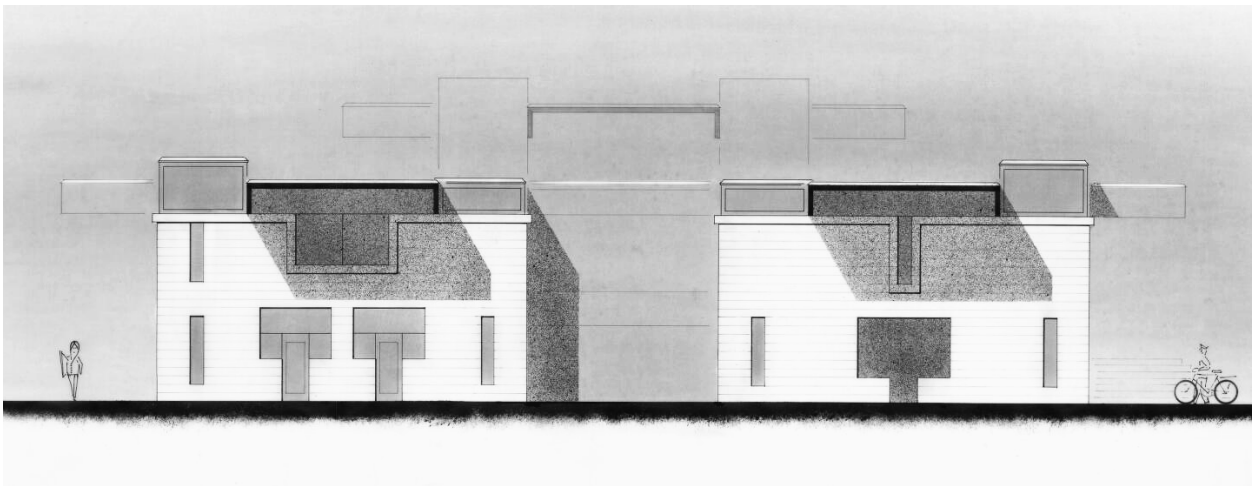
+2

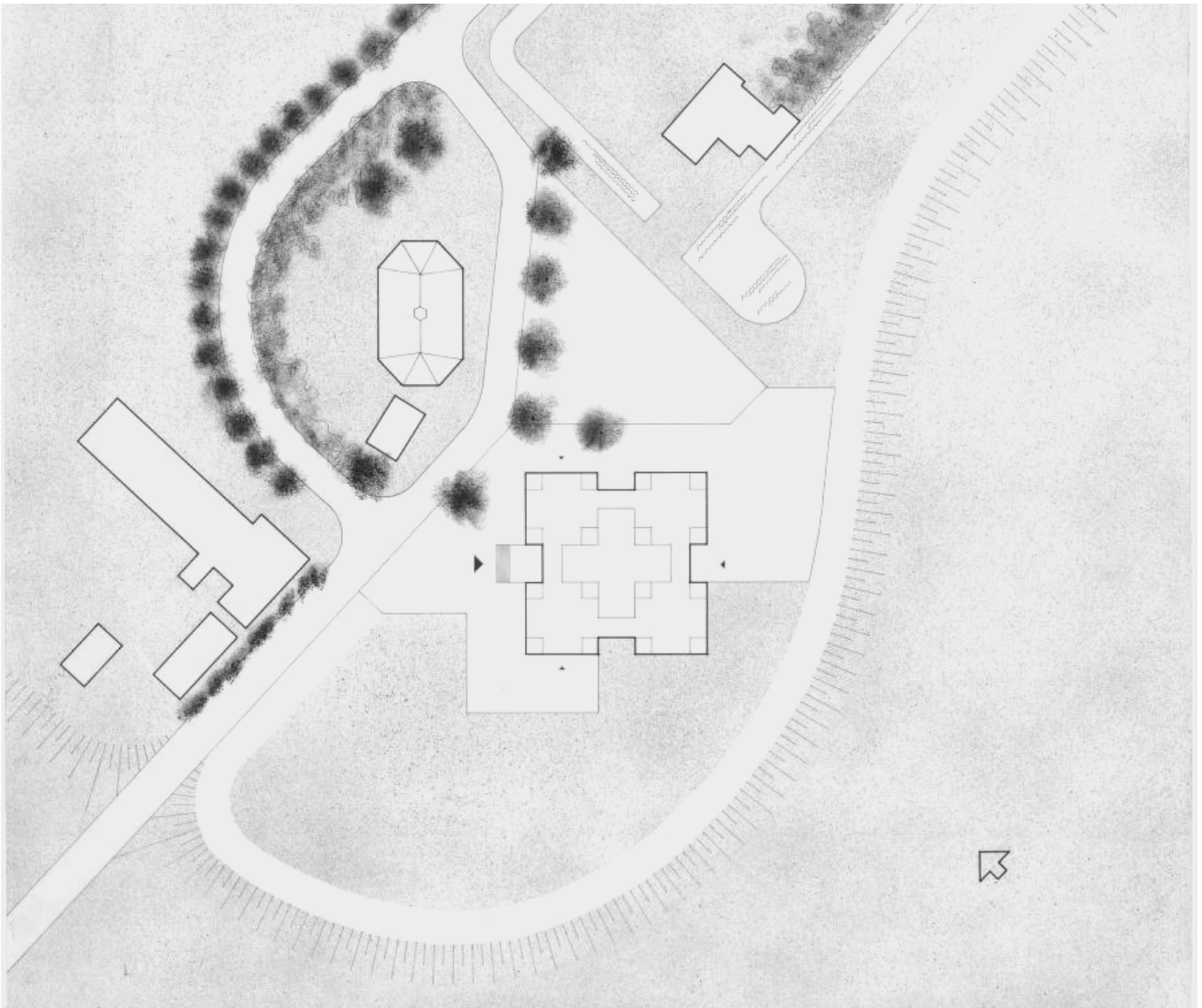


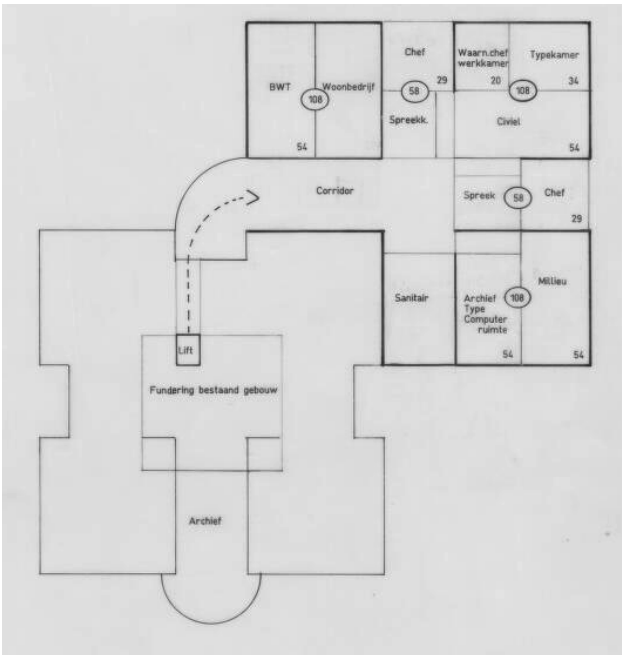
Roof



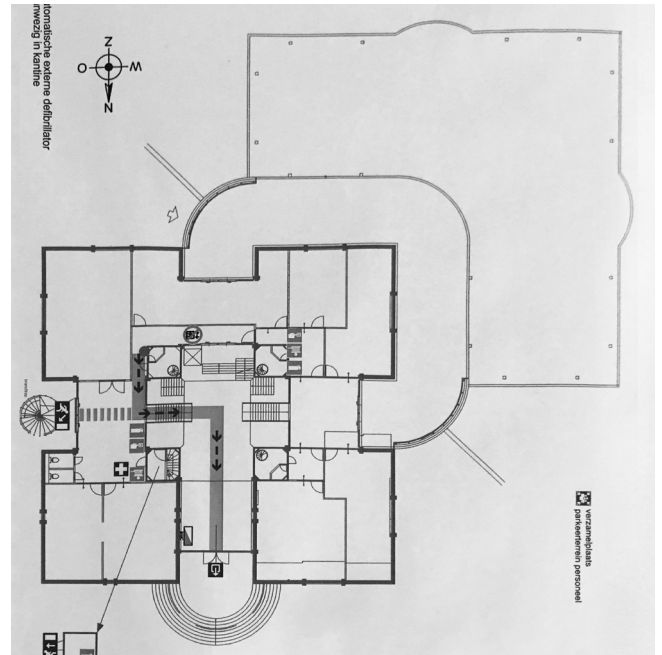
+2







1992 addition



2006 entrance addition



Impression of extension by Joop van Stigt



Current situation

The complexities of current building can be regarded as a result of social, economical and functional changes through almost 50 years of time. In 1965, the whole planning appeared to be a huge room shared by both the municipal workers and visitors. With no solid separations or enclosed space which are usually considered as rooms, structural elements, spatial compositions and even furnitures were all designed in order to shape a plural, flexible and public space. An extension was conducted with the same logic of interlock squares in planning in 1991 and offered more serving space for functional considerations. Situations of the building by the time of our visit is a result of the renovation in 2006 when the building was transformed into a private office for a company. The formal entrance using big stairs

was abandoned signifying the disappearance of publicity. With all the fundamental structural elements kept as initial, additional walls were added for separating private office areas and reorganizing the circulation. Two more toilet rooms were disturbingly placed in what used to be a bright corner with skylight in the original design. A glass elevator was added in the corner of the atrium for more friendly usage and all original furnitures which offered possibilities for flexibility were removed. Even though to some extent, later occupations and separations did prove the potential for adaptability and exposed the functional problems during its usage, the renovations on site have largely damaged the original spatial order and the correspondence between spatial experience and functional, social ideas.

Burgerweeshuis

Architect

Aldo van Eyck

Period

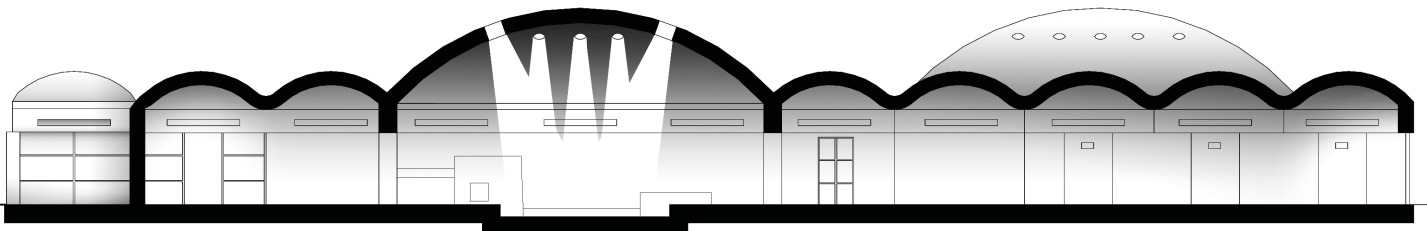
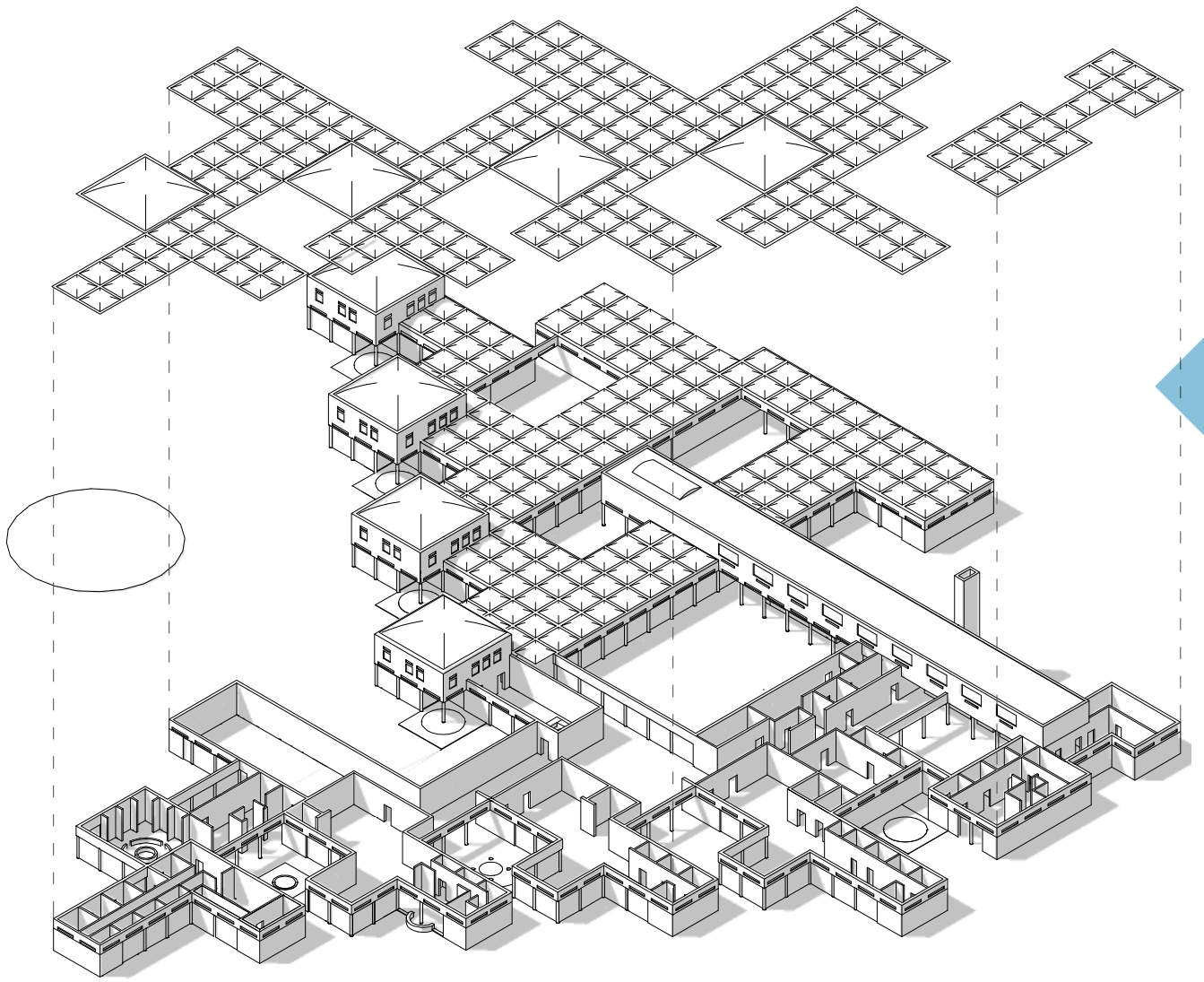
1955-1960

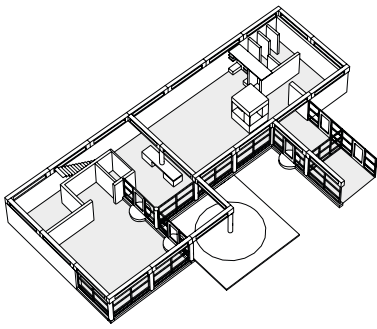
Location

IJsbaanpad, Amsterdam

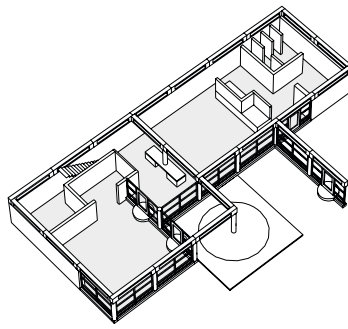
Aldo van Eyck, born in 1918 in Driebergen, grew up in London and graduated in Zürich. After being a member of CIAM, Aldo van Eyck was in 1956 one of the founding members of Team 10, a group of young architects that discussed and criticized architecture and each others work. One of their collective ideas was found in criticism on post-war modernism, mainly for a lack of human element. The first building of this new generation of architects that was realized was the Burgerweeshuis, a building that was a first step towards architecture that would later be defined as structuralism. Before building his first building Van Eyck designed hundreds of playgrounds for the city of Amsterdam. These playgrounds can be seen as exercises in relativity and non-hierarchical compositions, as the mutual relationship of elements was essential and they are all equal. The modularity of the playgrounds was also essential for the designs, as in different cases the same playing elements were used, yet arranged differently to fit the specific surroundings. The reason the former director of the Amsterdam Orphanage, Frans van Meurs, chose for Van Eyck as the architect for the new Orphanage was because of the way Van Eyck's ideas matched the desires that Van Meurs had for his orphans. He wanted to create a friendly building that would really be a home for the children. He wanted to create a place where children of all age groups had to grow up with a certain level of independence, but would be in contact with one another in an unforced manner.

The Orphanage was built on the periphery of city of Amsterdam. It was located on the edge of the city close to the olympic stadium and surrounded by polders. It was built there because Frans van Meurs had a desire to move his orphans away from the bustle of the inner city to a small, ideal world bathed in healthy air, sunshine and greenery. Later though the surroundings of the Orphanage got built and it was no longer located in green surroundings. In the early 90's the Tripolis towers were built (to a design of Van Eyck and his wife) right next to the site, but the Burgerweeshuis was at the time no longer in use as an orphanage.

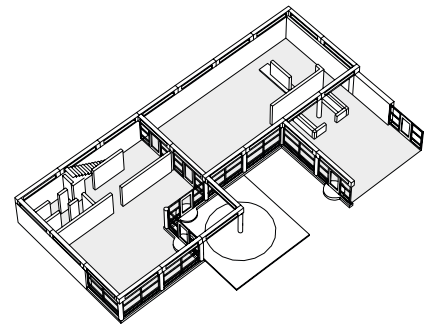




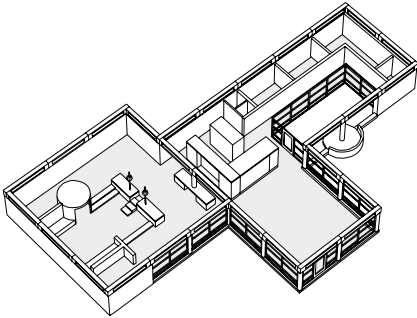
kids: 2-4



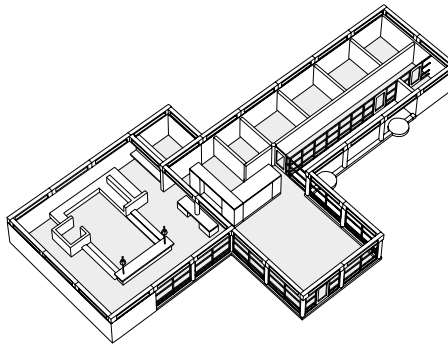
kids: 6-10



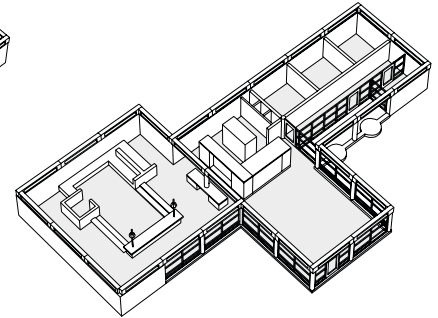
kids: 4-6



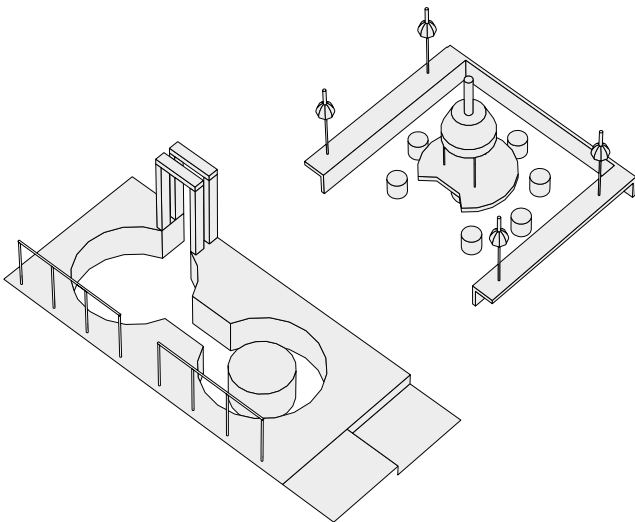
Boys: 14-18



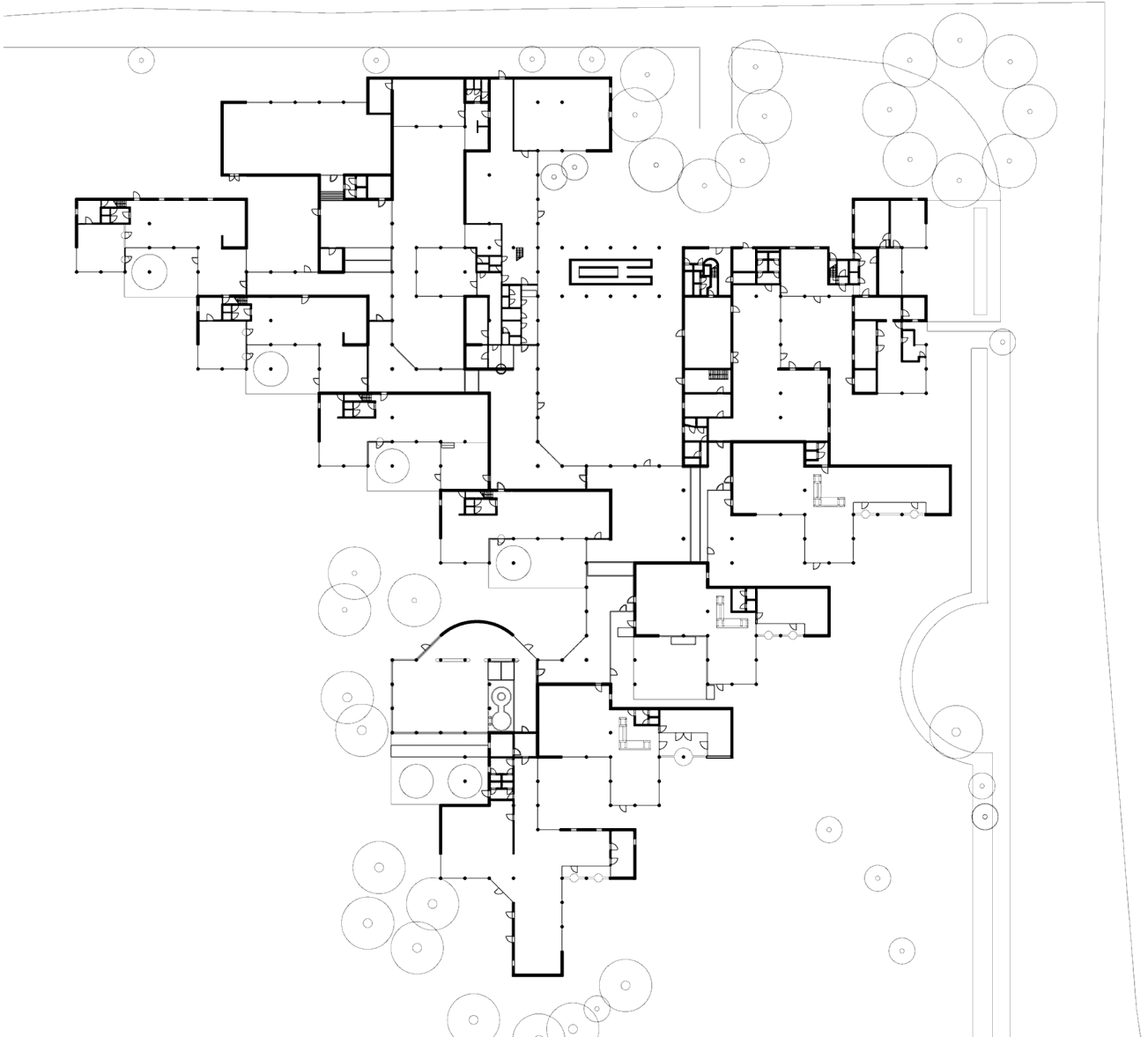
Girls: 14-18



Boys: 10-14



Contrasting the repetitive application of the structural elements, the interior spaces are much more specifically designed. This can be seen in the original setup of the building units. These units were meant to be dwellings for specific groups of age and gender. And even the objects designed inside the dwelling were accustomed to the specific needs of the expected users. The differences in height of the floors between different parts of the building is done deliberately to accommodate the older and younger children of the orphanage. These height differences are seen in the hallway and the dwellings of the younger children.



't Karregat

Architect

Frank van Klingeren

Period

1970-1973

Location

Urkhovenseweg, Eindhoven

Frank van Klingeren was born on February 4th 1919. He studied civil engineering and architecture, but never finished the later one. After working for several companies as a civil engineer, he started his own studio for building engineering in 1948. Later he started doing more architectural projects, of which the Meerpaal in Dronten, the Agora Lelystad and 't Karregat in Eindhoven are his most well known works. These projects also express some of Van Klingeren's central themes.

In reaction to the modernists tendency to separate functions, a central theme in Van Klingeren's work was 'ontklontering' (declotting). By combining functions and removing boundaries new possibilities for meeting and public life arise.

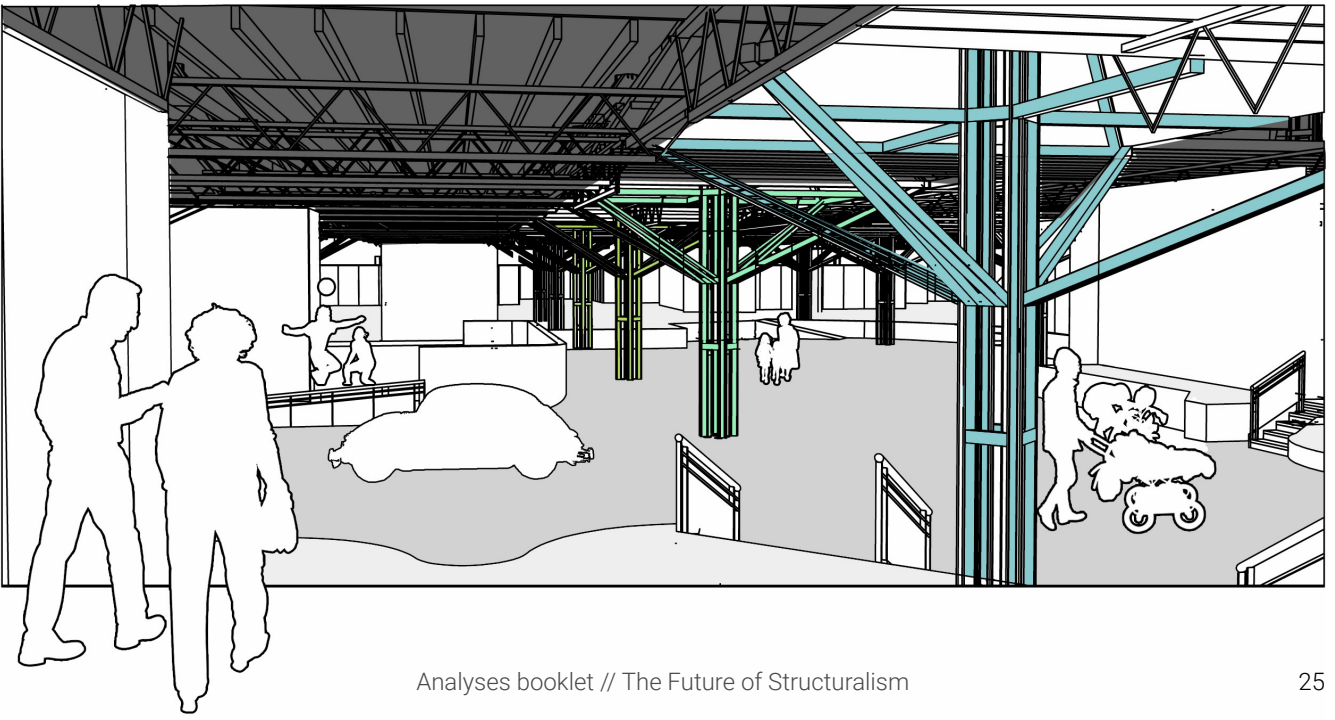
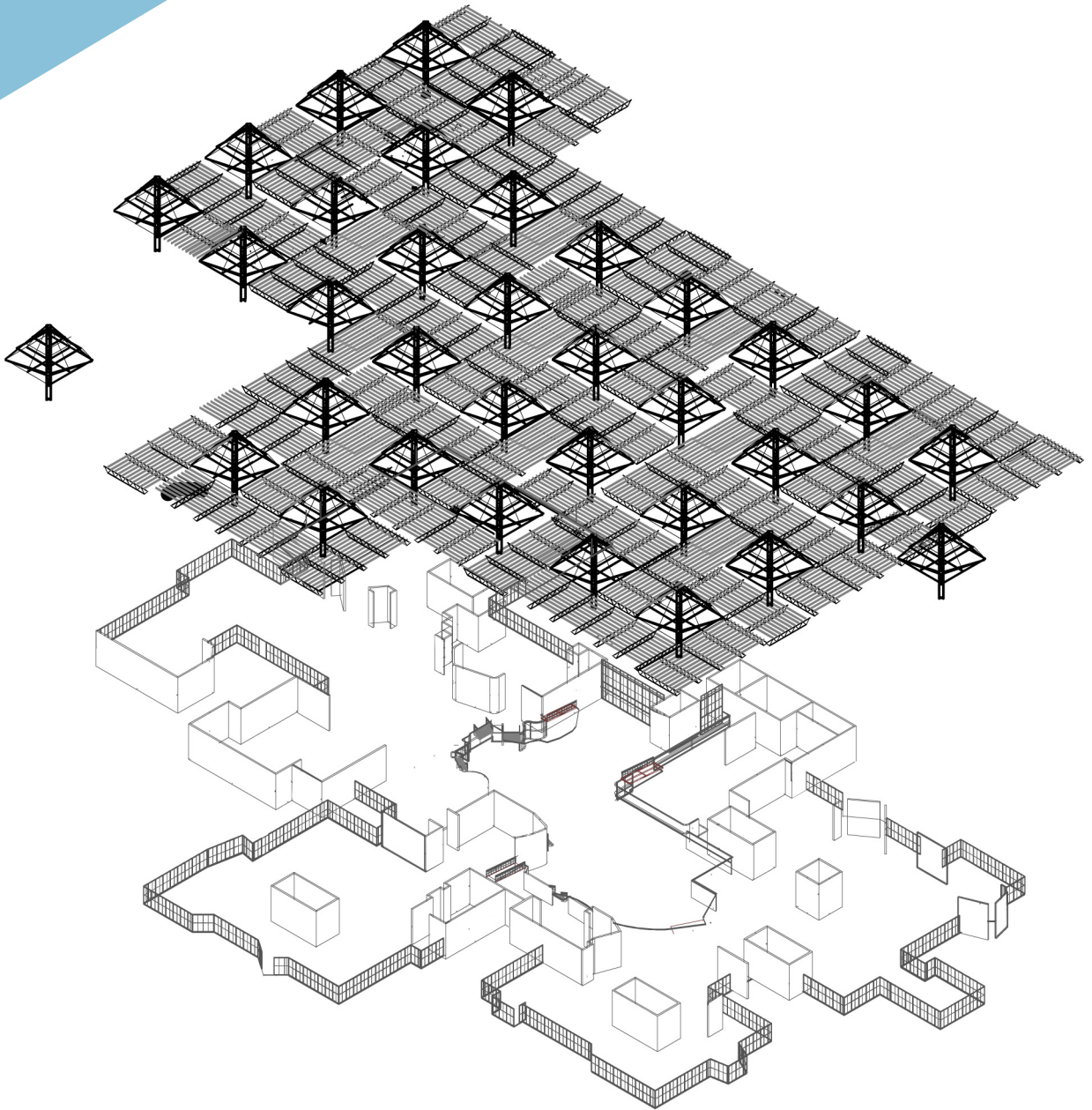
Another theme in Van Klingeren's work is 'hinder' (nuisance). Declotting causes nuisance. This is usually considered as negative, but he turns it into something positive. Nuisance is contact and contact can lead to friendship or enmity or anything in between.

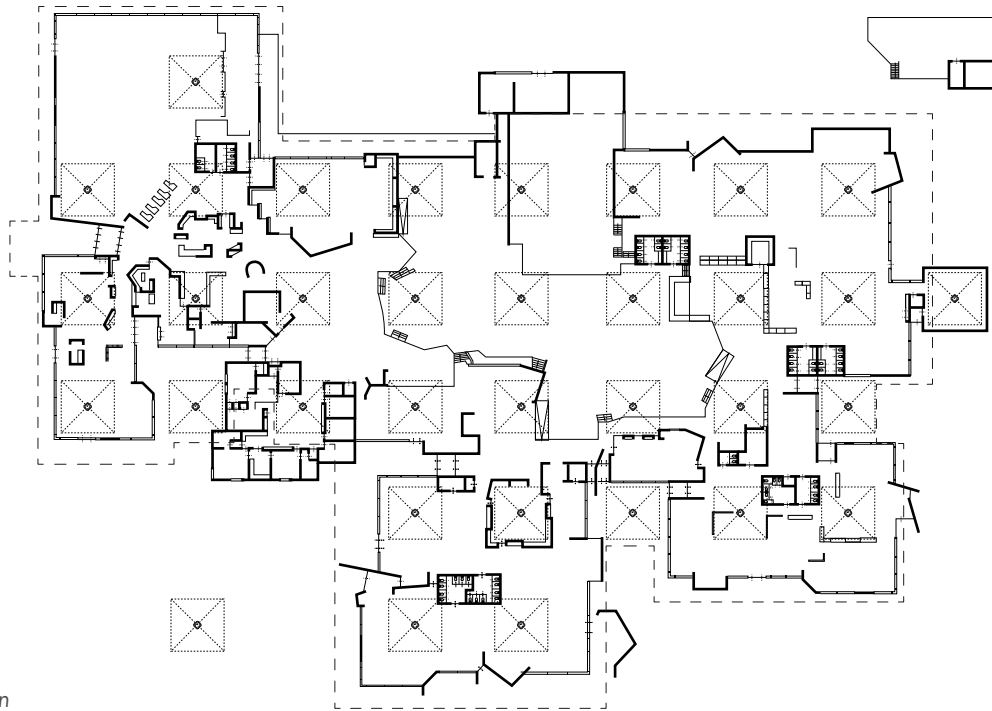
More with less is not just about material in Van Klingeren's work. It is also about the program. By being less specific, more is possible. His engineering background was always subordinate to the architecture and social intentions. He also believed in imperfection and the unfinished. Comparable to the 'more with less', leaving things imperfect and unfinished creates possibilities for unexpected things to happen.

Van Klingeren often collaborated with artist Pierre van Soest. Of all projects realised after 1953, Van Soest was involved with two-thirds of them. The art gave the buildings a human touch, created more expressive buildings and was accessible to a large public.

The neighbourhood Herzenbroeken was built in the beginning of the 1970's in Eindhoven. The municipality wanted to create an alternative to the large-scale developments of the post war era. The new neighborhood should be experimental with new ideas about living and working with a strong social cohesion.

Herzenbroeken was situated in isolation from the center of Eindhoven and lies in between two railroads and a road. To accommodate the neighborhood, the municipality proposed a shopping center. Soon the idea arose to combine commercial and social functions in one building and in 1970 Frank van Klingeren was commissioned to make a design. The program of the building was extended to also include schools and a neighborhood center, but the budget was slim. Van Klingeren was the perfect person for the commission to design and build the building for this unique challenge and with his strong will the 't Karregat became a reality.

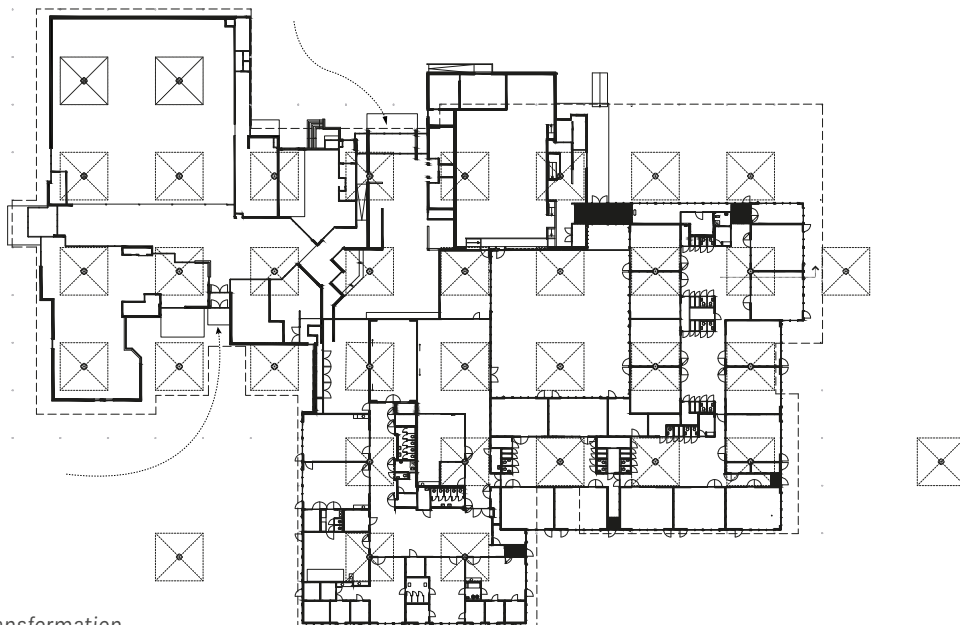




1973 original plan

The building is not a monument but is considered valuable by the municipality. This is partly due to the unique design by van Klingerén that responded to the demand for an experimental neighborhood center. It is considered as a design with a unique reflection of his time. Diederendirix Architecten (restoration background) and Architecten en-en (school background) were the chosen architects to focus on this project. The first conclusion of their research was that the open space never worked and the needs of the school were to have individual classrooms. Therefore

dividing walls were added even though the original design was not to separate different functions from each other. For the transformation they chose to restore the floor, roof and construction and make it sustainable. They brought back the original colour gradient of the columns which was designed by Pierre van Soest. The new construction ensures decent spaces, corridors, transparency and still retains its spaciousness. By making the inner walls movable, the flexibility of the building is preserved, partly through the integration of sliding doors.



2015 plan after transformation



1973



2015



Vredenburg

Architect

Herman Hertzberger

Period

1973-1978

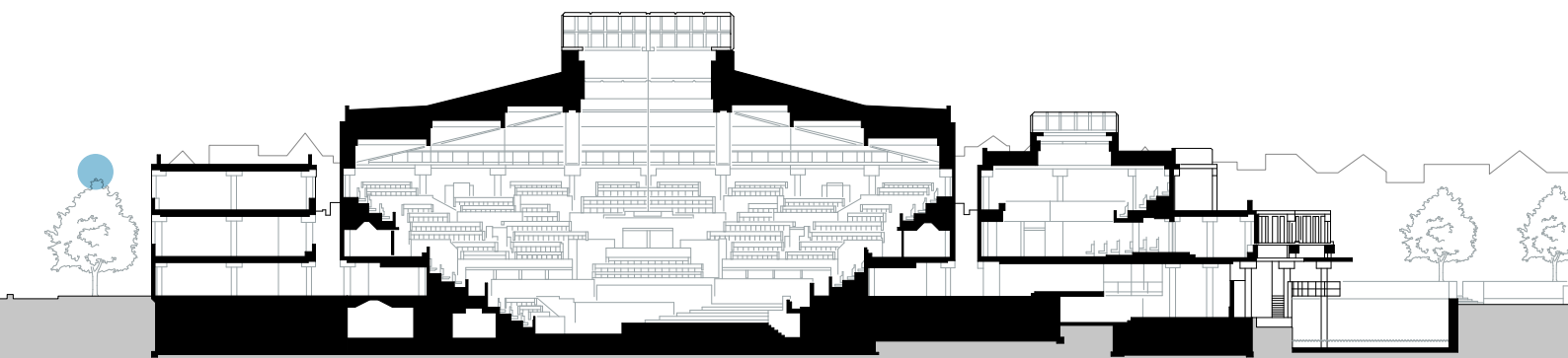
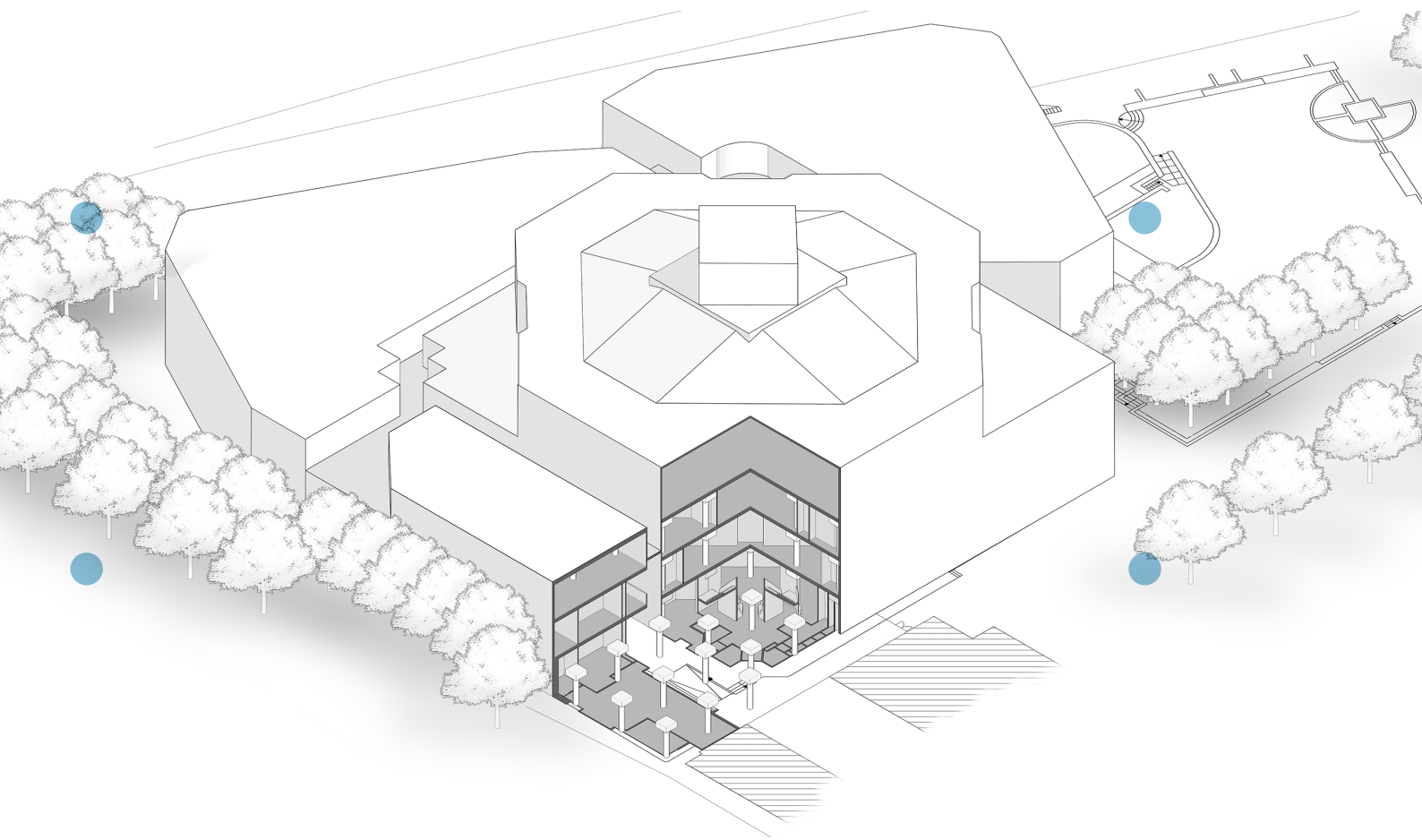
Location

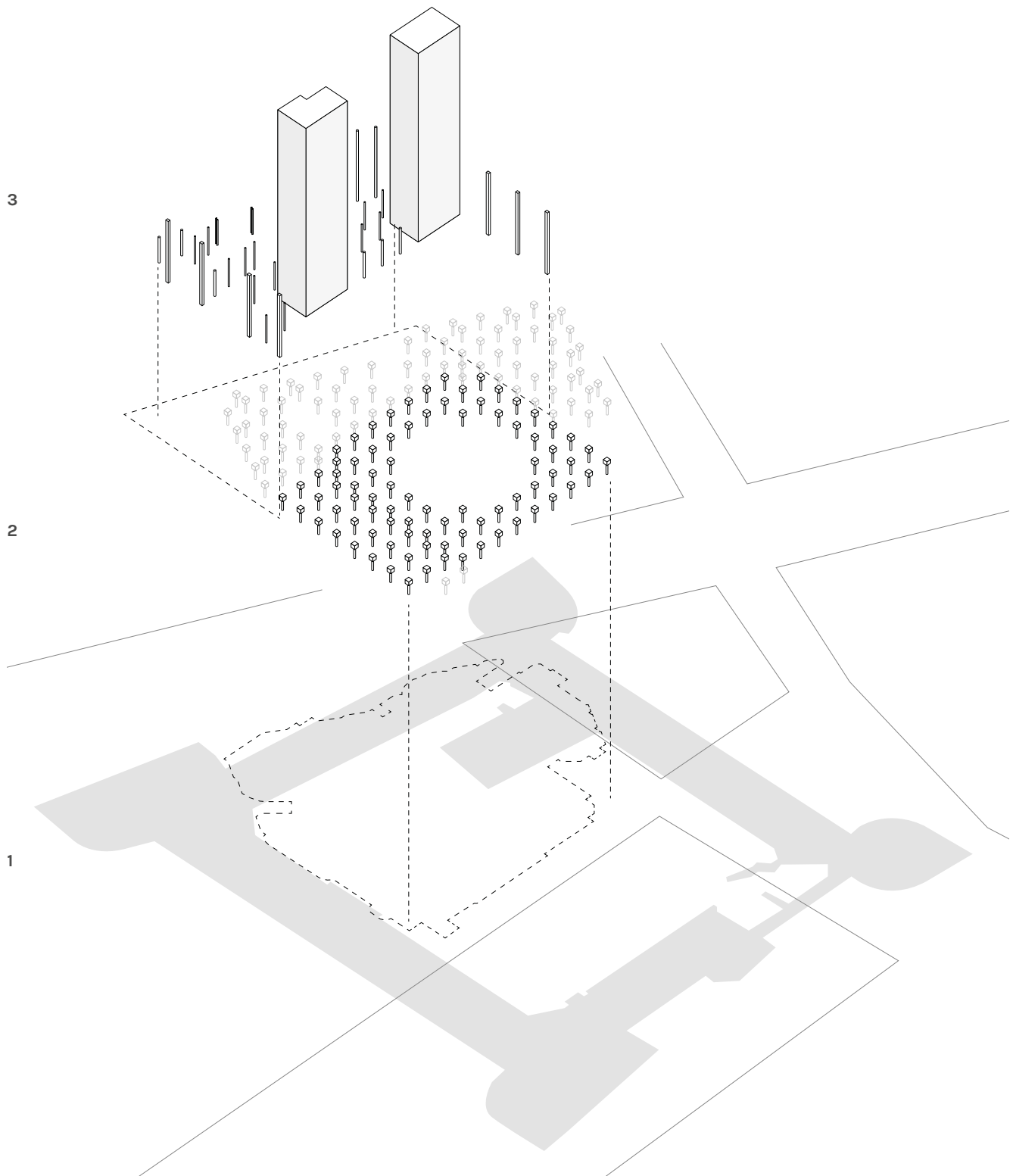
Vredenburgplein, Utrecht

In Hertzberger's early years, after also attending lectures from Aldo van Eyck at the TU Delft, Van Eyck and grand contemporary architects of the time like Le Corbusier formed a major inspiration for Hertzberger's first designs. He clearly uses the principles and building methods of the modern architecture movement, already aiming for a more idealistic approach to architecture. In the age of congresses like CIAM Hertzberger was invited by Van Eyck to join magazine Forum less than a year after his studies, writing on his ideals and principles which he would later describe as the foundation for Structuralism as an architectural movement. Hertzberger sees himself as an important instigator for this movement, being a driving force behind the social aspect of architecture. For Hertzberger this meant a focus on architecture designed from the interior, deprioritizing outer beauty of buildings, but also adapting to the contemporary thoughts and critiques on architecture. This change is important to him as later

in his career he breaks with his old inspirations and tries to aim for an independent own architecture bound to a more modern timeframe. In this he also criticizes his former professor Van Eyck when they jointly work on the transformation of his Burgerweeshuis and Eyck appears to be a stubborn conservative. Over his career Hertzberger sees his structuralistic buildings as transformable buildings that achieve a durability due to their adaptable nature, achieved with flexible column structures and humble designs. To him buildings are not a set object, but merely a set structure that facilitates an ever-changing group of users.

Apart from the characteristic facade the concept and layout of the building are not immediately apparent to be structuralistic. Yet a concert hall is a quite specific building type. The plan-libre type construction of grid elements is an essential part of the building as well as the humble materials used. Apart from curtains, acoustic wooden panels and the necessary wooden finish in the hall itself, the building is entirely made up of insitu concrete, concrete blocks and simple wooden and steel furniture. This was in line with the social equality so important in the structuralism movement. This equality plays a major role in the approach to the building's layout. The symmetry and equality in spaces in Vredenburg facilitate a strong sense of togetherness in a hall where everybody has seats of the same quality and with the same view on the stage. Most important though is the sense of human scale Hertzberger shows. The building is a composition of small scale spaces and cozy nooks and corners, allowing for a grand array of intimate atmospheres, focused strongly on bringing people together. This is also achieved by the use of a publicly accessible street with shops through the building and the possibility of opening the hall and entire building from all sides, creating a completely open space. This openness is in turn a connector of the city, blurring the transition between inside and outside space, also integrating the composition of the square into building and urban fabric. Hertzberger ultimately sees this square as a permanently changing place that adapts in use and composition to a changing city and users.

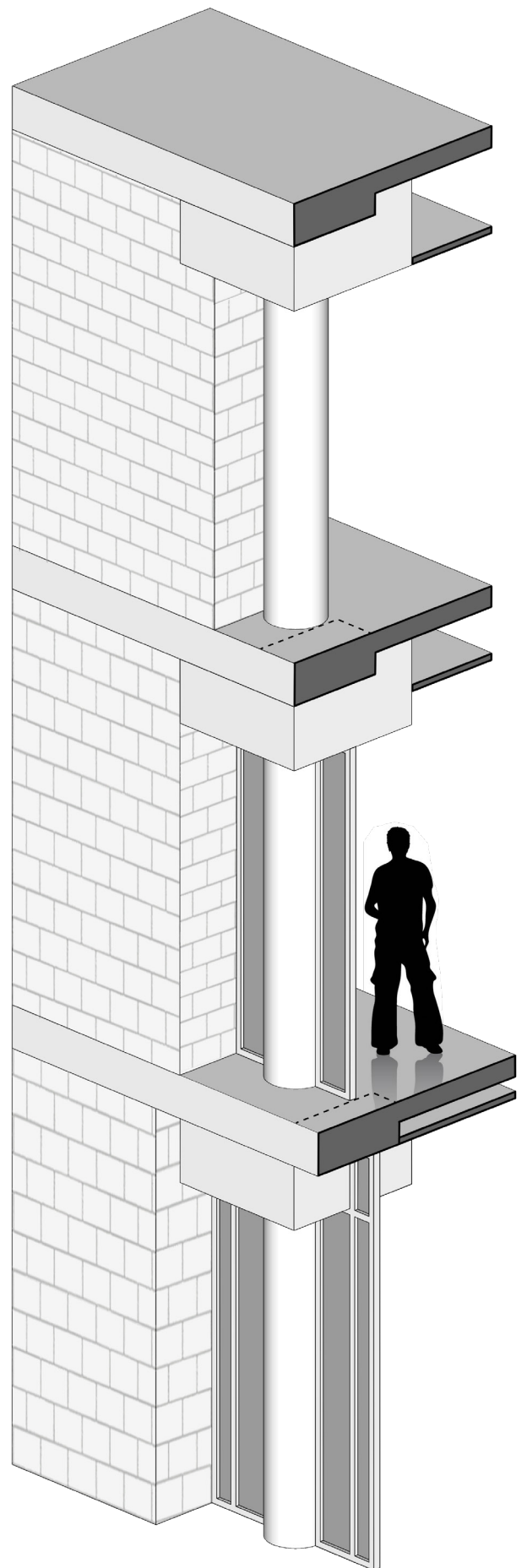
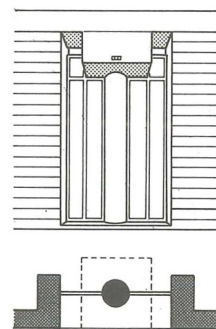
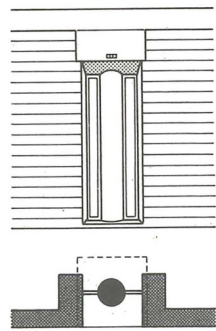




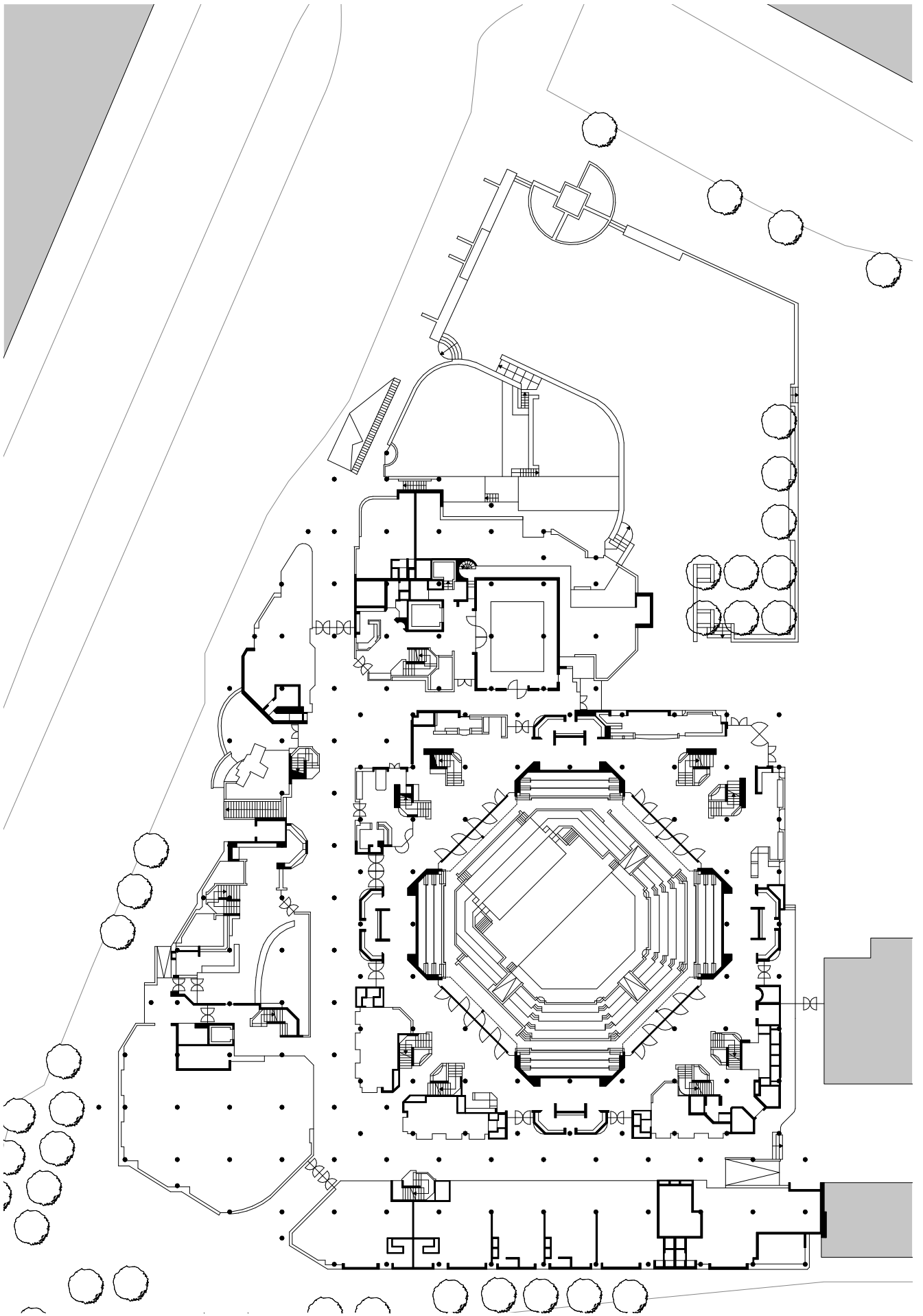
An important part of the atmosphere and structure in the building is created by the distinctive round columns with broad square heads. Hertzberger explains their use for guiding people around and using the heads for a large variety in structural uses, also allowing for a larger span of floors with more space in between the individual columns, largely in contrast to the beam-supporting square columns of earlier designs. They create a square grid with wide flexibility. There is a careful exploration of the

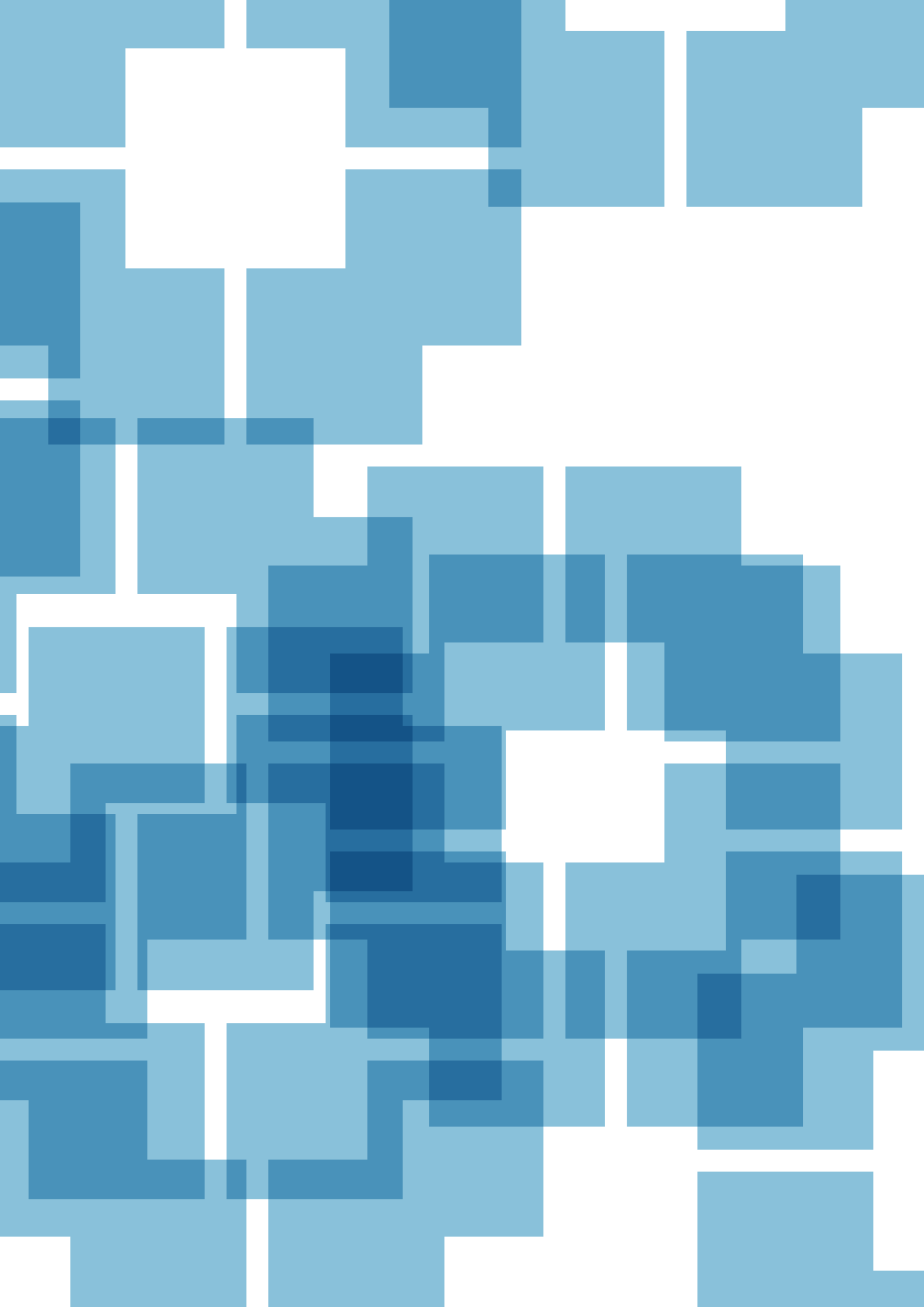
different connecting points between the columns and differing wall-, ceiling-, and window sill compositions, as well as a variation of three different ceiling heights giving spaces different atmospheres and transitions. By knitting the outer facade around the columns in different ways and placing the column grid in line of entrances and hallways the repeated columns form a (dis)placement that - compared to conservative designs - does create strange occurrences in the middle of entrances and hallways and form an

almost disastrous penalty to insulation and climatization. With the new construction of the transformation (3) being a contrasting modern way of building and parts of the old castle (1) still present underneath and old Vredenburgs characteristic column structure (2) in between, the whole can be seen as a timeline between different ways of construction to achieve different goals. All in all the columns form an intrinsic part of the structuralism in the building, showing the wide range of characteristic possibilities with repeated standard elements and a strong representer of it's contemporary architecture.









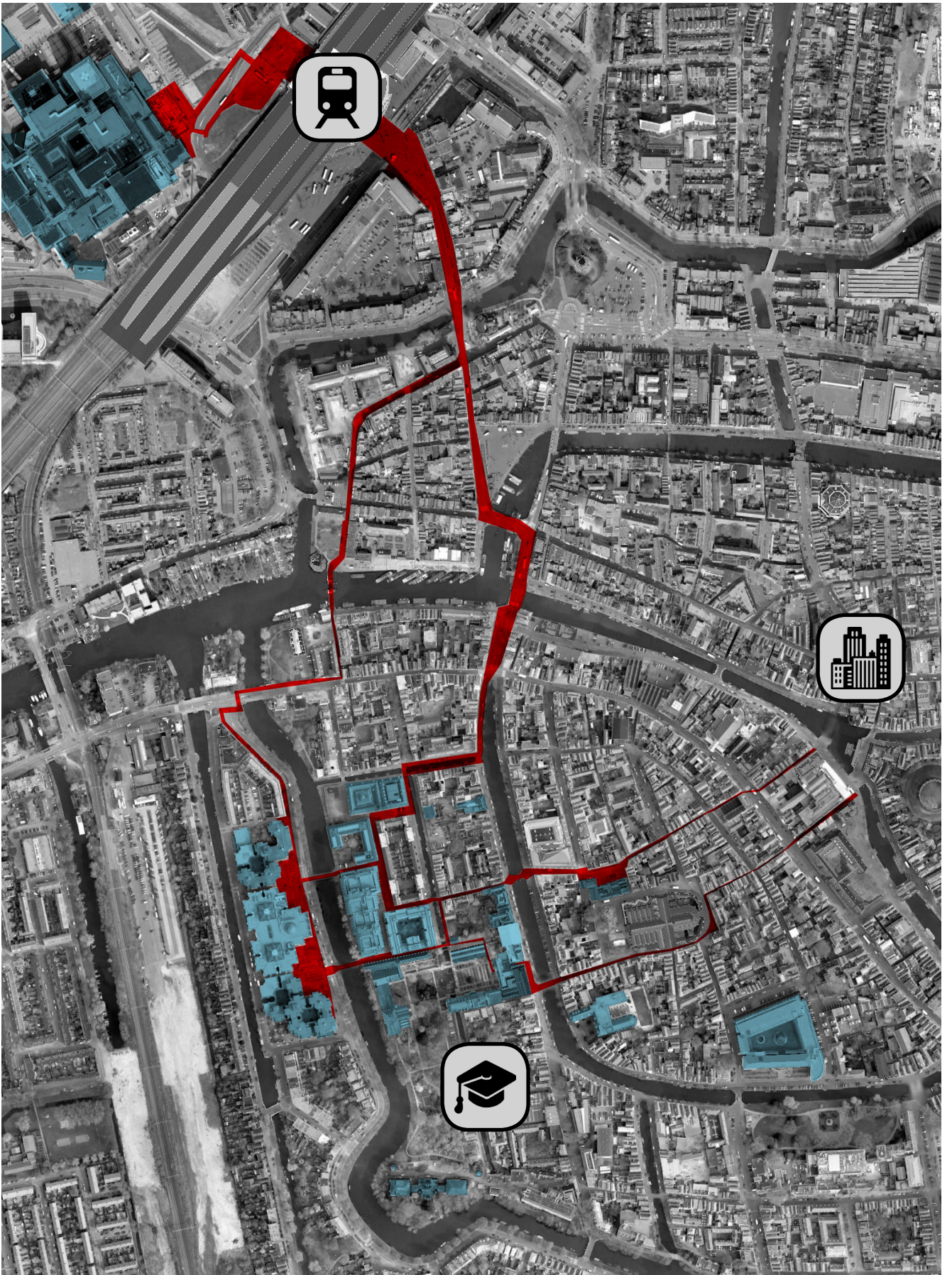


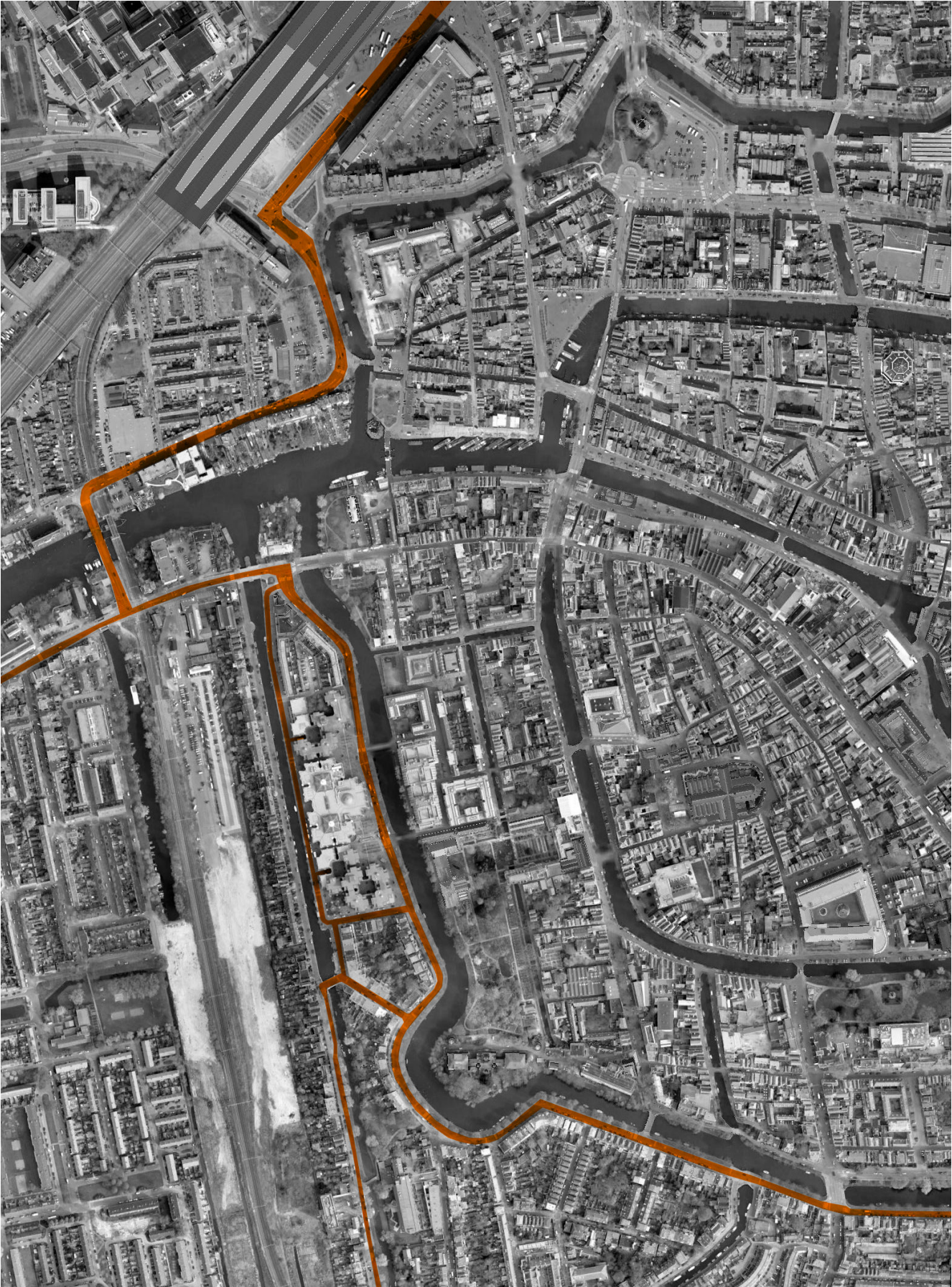
Faculty of Humanities

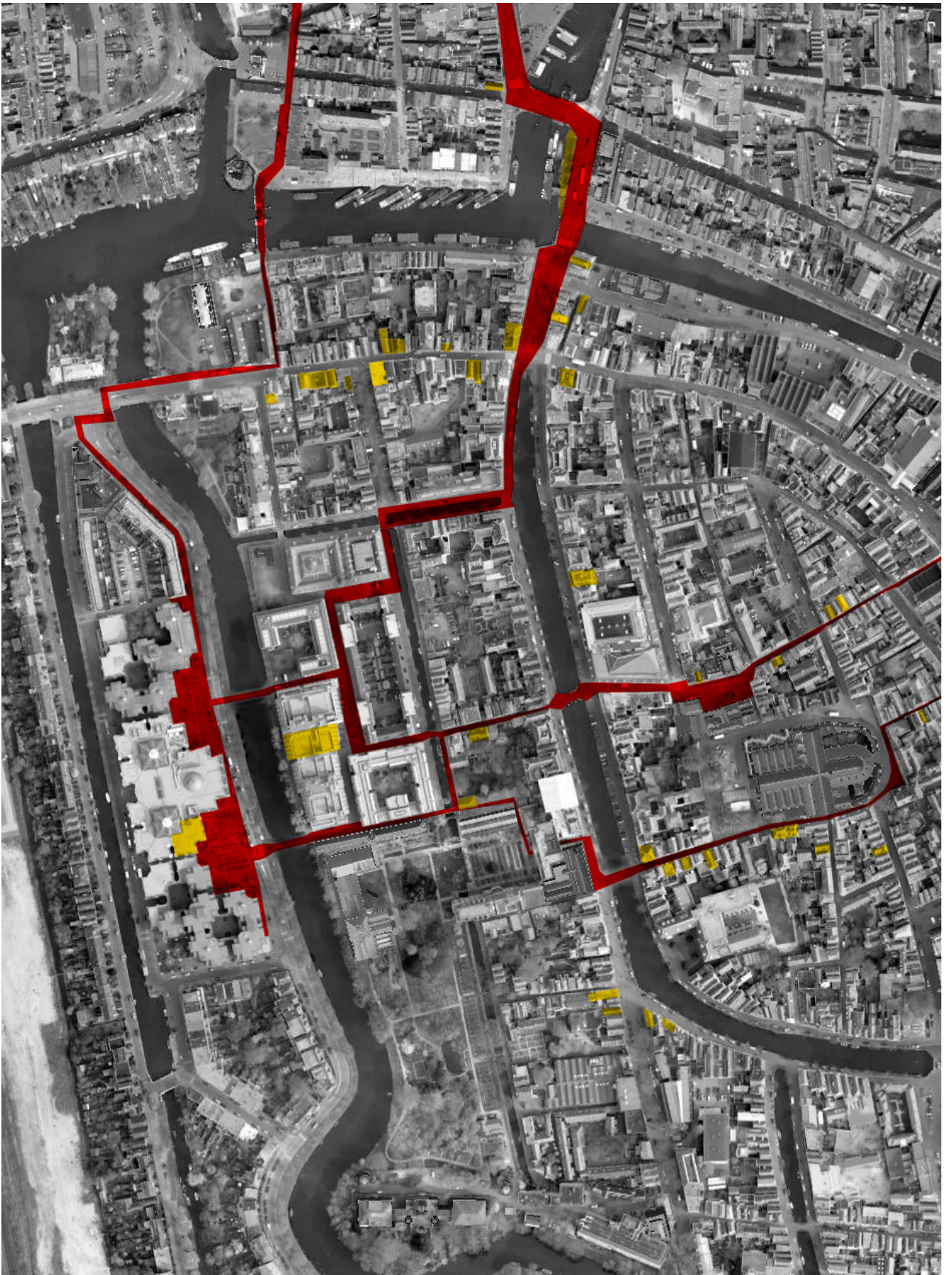


Context of the city



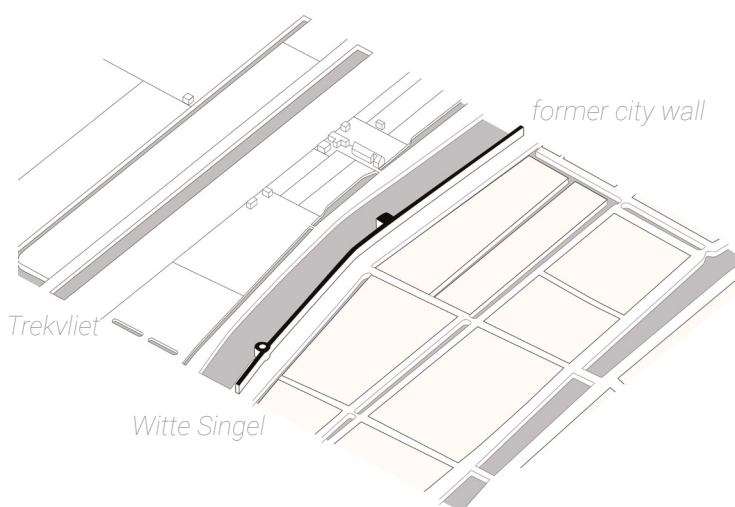
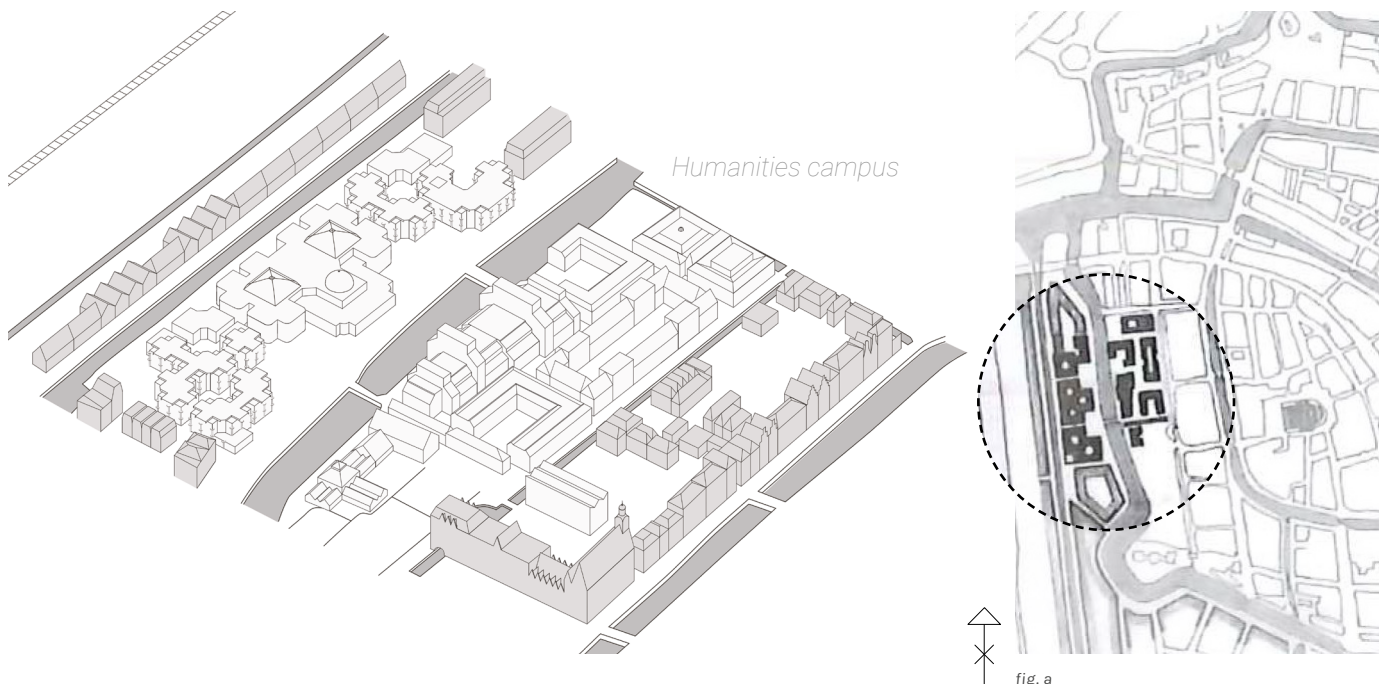






Fragment of Leiden

Fragment WSD Complex



The Faculty of Humanities in Leiden covers a big portion of the West edge of Leiden's historic city center. In the general 'composing analysis' we try to uncover how the small relates to the whole, and the context.

This segment is about the context or surroundings in which we try to find out whether or not the Faculty designed by J. van Stigt has incorporated certain features that resonate with the local characteristics. This is interesting because the usual structuralist building seems to alienate itself by only building from its own building block and strategy, leaving context out of the realm of consideration.

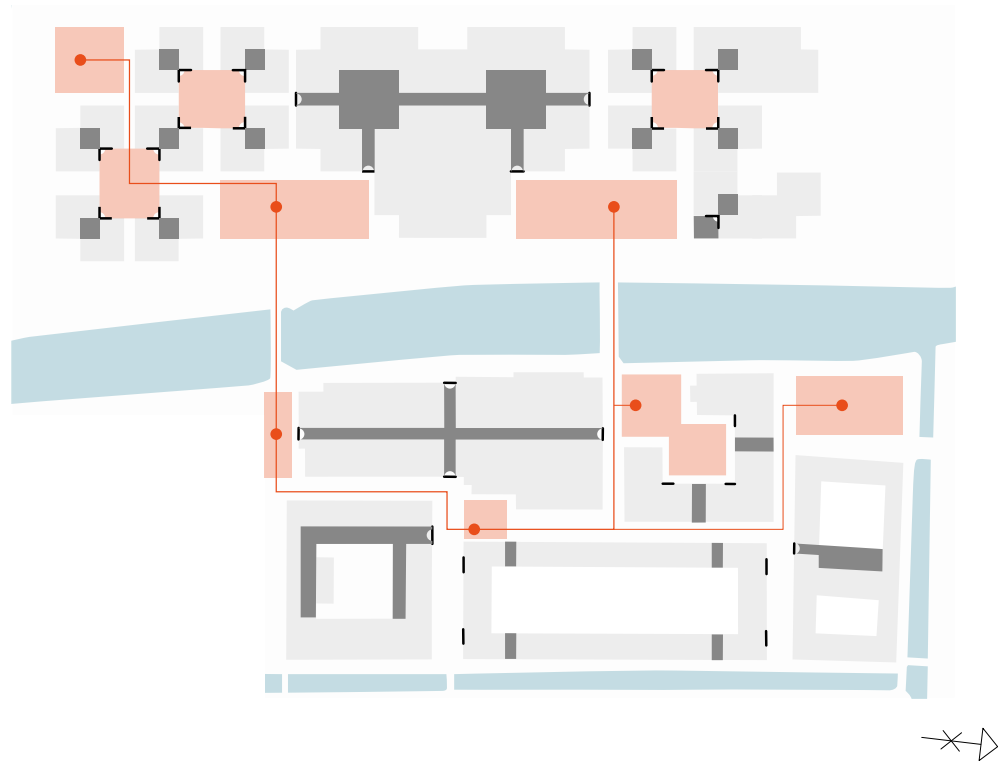
Starting with the primary set-up of the land, the rectangular urban structure beyond the former city edge, between the Trekvljet and Witte Singel was already present. When the city wall was removed in the 2nd half of the 19th century the place around the canal gradually became more dense. Until the Humanities campus came in 1982 and claimed its presence.

Campus intro

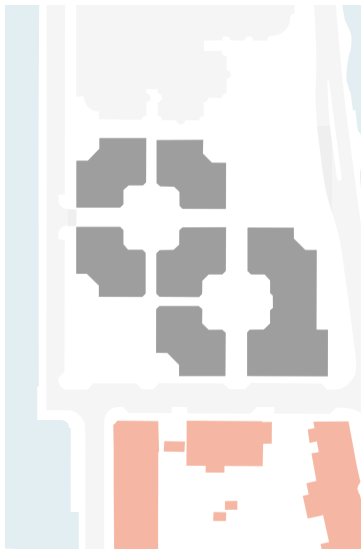
J. van Stigt together with Bosch, Kasteel, Kleijer and Dijkstra constructed the WSD complex that includes the University expansion that was finished around 1984.

One of the main features of this campus is the way it has facilitated a routing through squares and indoor streets that connects all the buildings together.

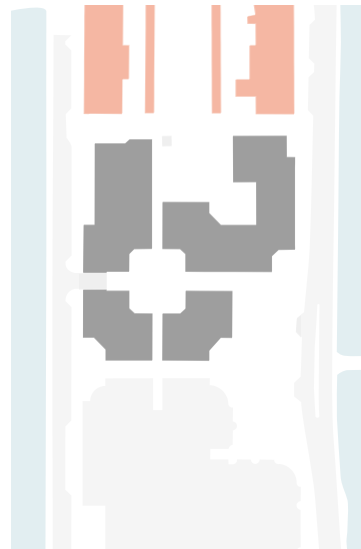
- Outer squares
- Inner streets



South



North



4.5 m

8 m

11.5 m

15 m

Looking at the two buildings by van Stigt, at the North and South of the University Library which is located inbetween, the corners of these buildings seem to deviate from the system of volumes that the building is structured by. With the North building (right picture) the alignment of the building lines to the adjacent row of houses seems precise. At the South-East corner of the South building (left picture) van Stigt seems to have put a volume in the recess of the repeated volume to deliberately create a better alignment to the adjacent buildings.

The height of the different building volumes differs but is mostly 11,5 meters. with few variations of 15 meters and 8 meters.

South(van Stigt) square

But how do these squares relate? Do they all function more or less the same?

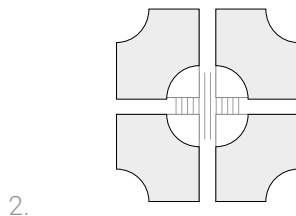
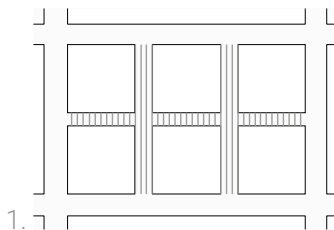
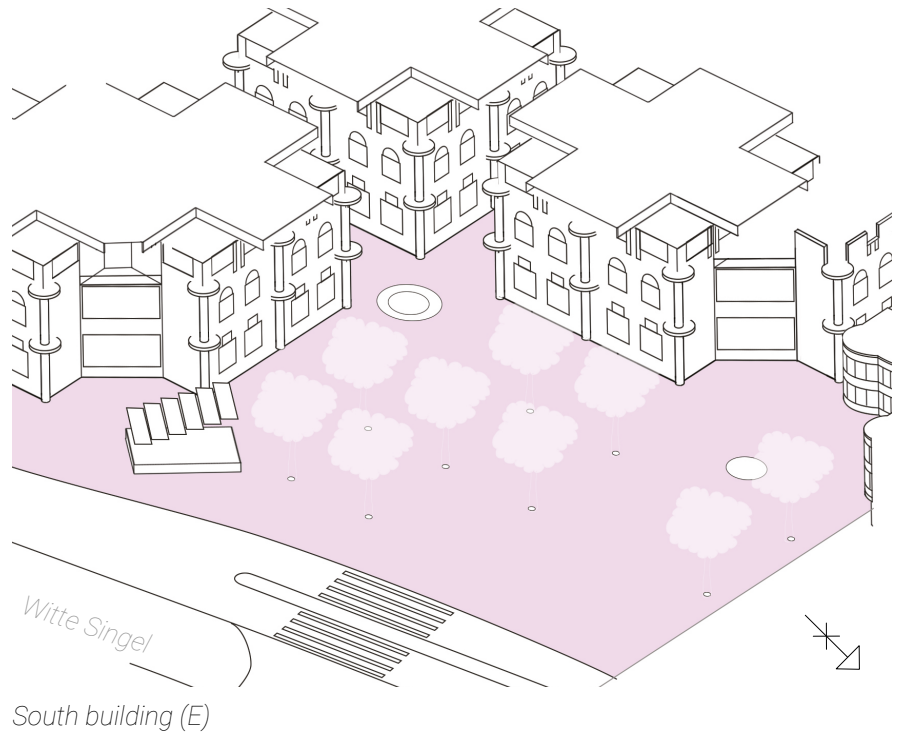
Van Stigt his buildings flank the University Library and they share two squares at the East along a two lane road.

(1) The seperated building volumes are of a street structure. Like the street structure it is in. The grid within a grid principle.

(2) The entrances are located on the courtyards enclosed by the building units. Making the building less accessible for the general public.

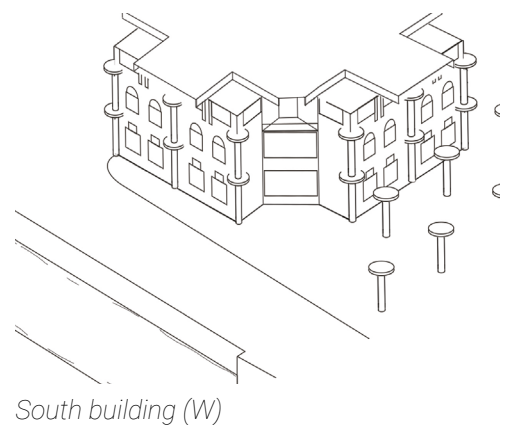
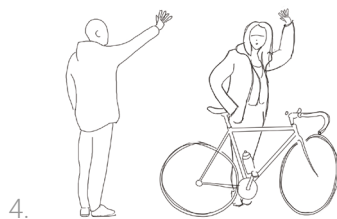
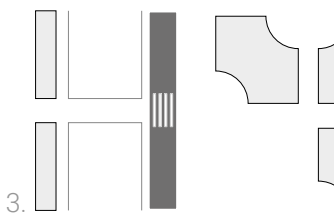
(3) The squares connect via a bridge to the other side of the University campus.

(4) Despite the bicycles being a visual problem, it does facilitate a specific social interaction.



The relation to the water on the East side is comparable to the tradiational canal structure that is found in the inner city of Leiden.

Except that the road dimension in between the facade and the Trekvliet is bigger. To accomodate the accessibility by car. Hence why the entrance to the car garage is positioned at this side.



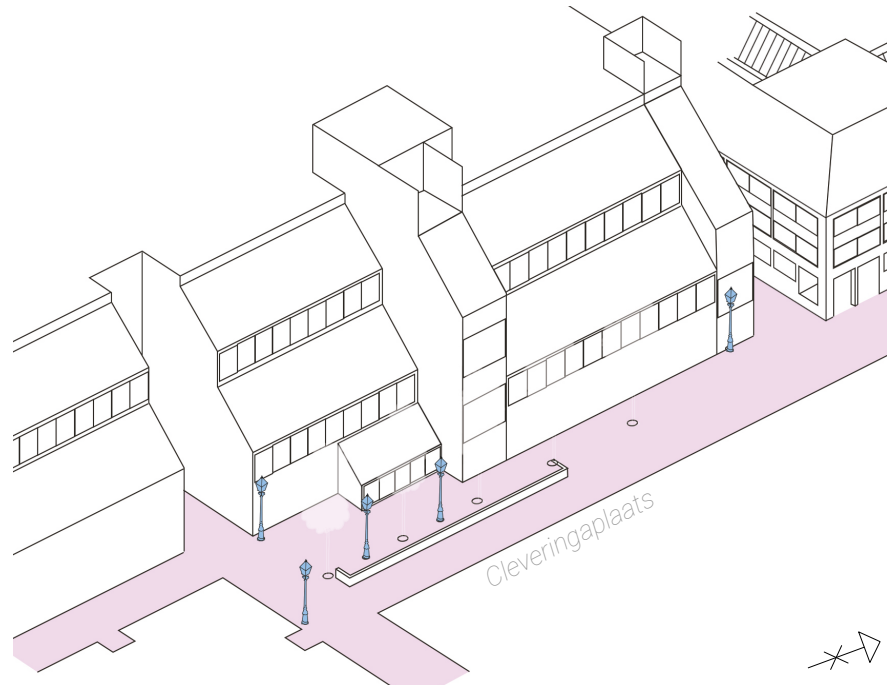
Lipsius square

On the opposite side of the canal the Lipsius building by H.P. Ahrens and E. Kleijer is situated. This building differs much in size to the other surrounding buildings. And contrasts the rather small street to the East of the building.

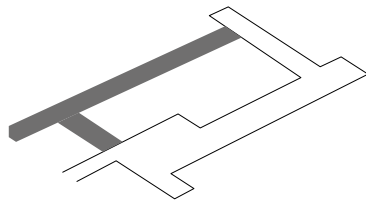
(1) What is striking however is that the outside streets flows into an inside street of the building.

(2) The building at its highest is 20 meters tall, while the most regular height in the area is 12 for the newer buildings and 10-16 meters for the older canal houses.

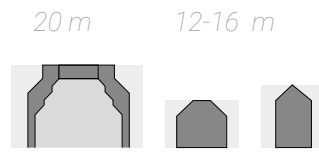
(3) Thirdly, the trees alongside the building resemble the main direction. Similar to the trees at Faculty of Humanities and at the Arsenaal.



Lipsius (E)

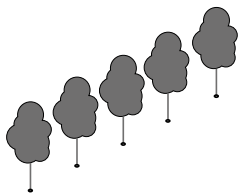


1.

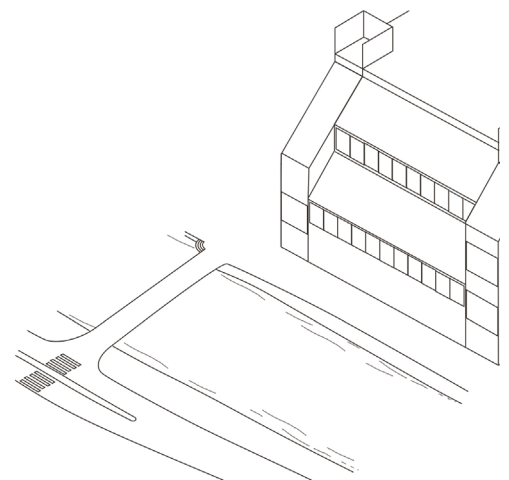


2.

On the East side of Lipsius it is oriented towards the Witte Singel canal. Here the height of the building strikes as dominant. The steel grid facade elements give a distinct impression. There is no space to walk in front of the building along the water. This makes the relation to the water only relevant from the inside.



3.



Lipsius (W)

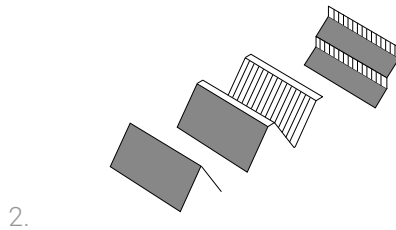
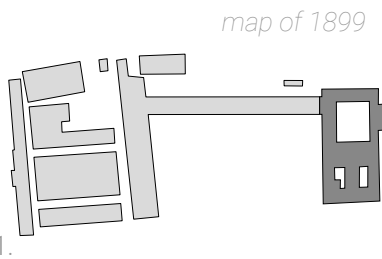
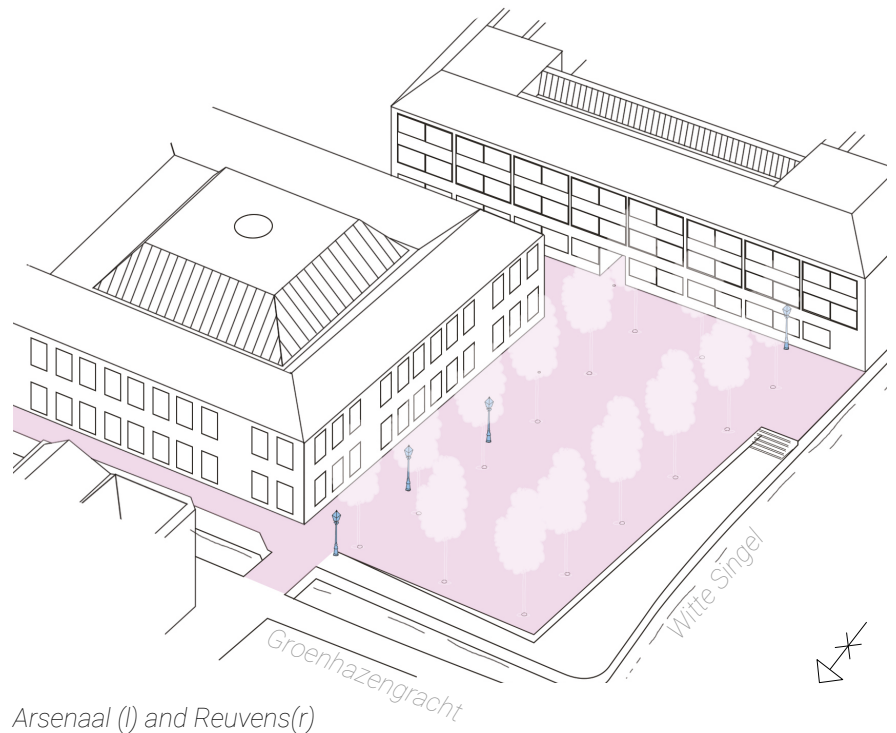
Arsenaal square

The Arsenaalplein(square) is situated along the Witte Singel canal and the Groenhazengracht. And connects the Arsenaal and the 'Reuvens' building.

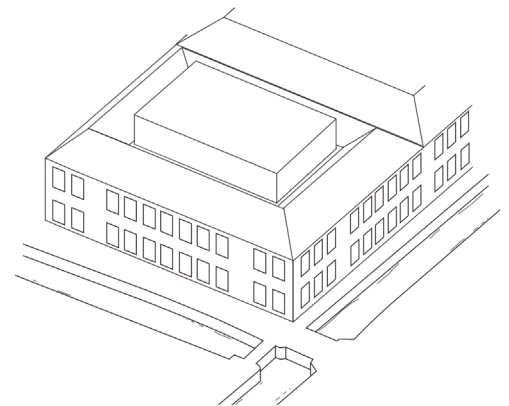
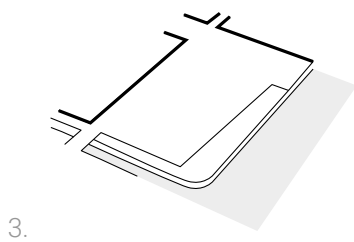
(1) The arsenaal is one of a few remnants of the former military complex that was situated here called the 'Doelen'. And stretched from the Arsenaal all the way to the Hortus Botanicus.

(2) The pitched roof of the Arsenaal and of the older buildings in Leiden in general is incorporated in the design of many of the campus buildings(Lipsius, Reuvens).

(3) Similar to the other two squares the Arsenaalplein facilitates a connection between multiple roads and buildings.



The canals on North, West and East side make the Arsenaal interact with many of the characteristic features of an old Dutch city like Leiden. The small scale, use of material and canals create a character that is very distinct.

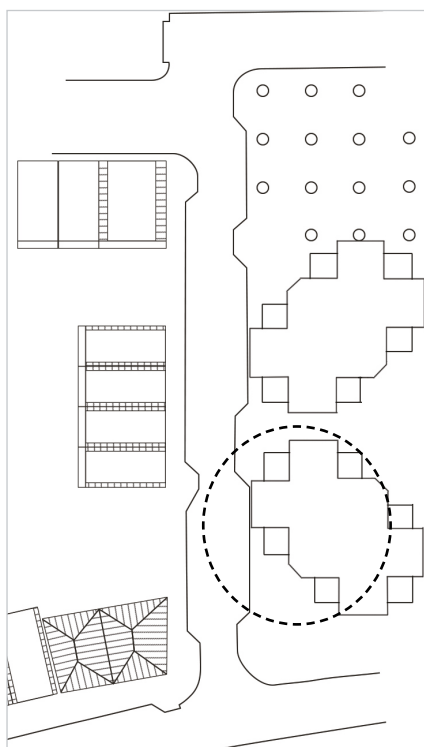
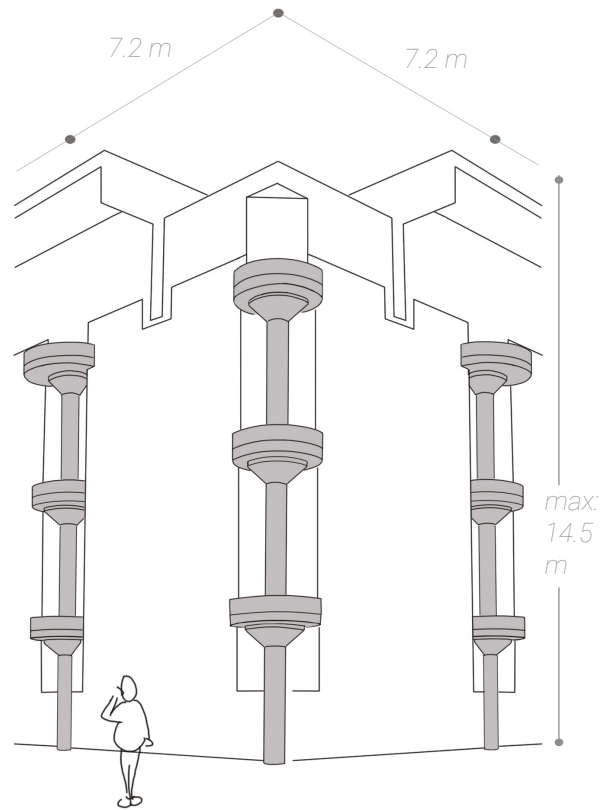
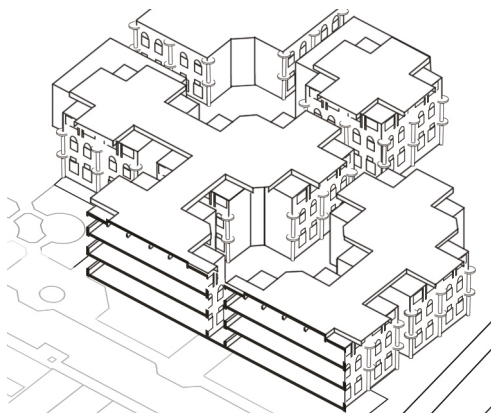


South(van Stigt) building structure

With the buildings around the P. N. van Eyckhof, van Wijkplaats and Matthias de Vrieshof, the names of the respective courtyards that the building encloses, van Stigt used reinforced concrete as primary construction. Round columns with mushroom heads support the post tensioned concrete floors. This enables the floorspan to increase to the desired 7,2 m.

The building is made to vertically extend 1,5 storey. The top floors are made out of wood and are therefore much lighter.

The height of the building reaches 14,5 meters at one unit inbetween the van Eyckhof and van Wijkplaats. But overall stays at a height of 11,5 meters.



In the direct surroundings the buildings by van Stigt stand out distinctly. Because even though the building tries to establish connections through building material, height and volume, there are multiple characteristics that differentiate the building from all others. The round concrete columns, the equal span direction along the grid of 7,2 by 7,2, the flat roof and its protruding roof elements, the unique window shapes, etc. This contrasts the regular house structure on the opposite side of the street.

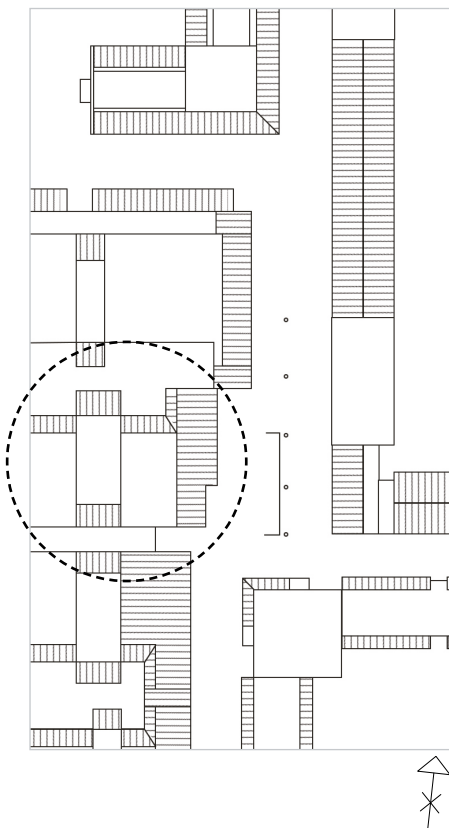
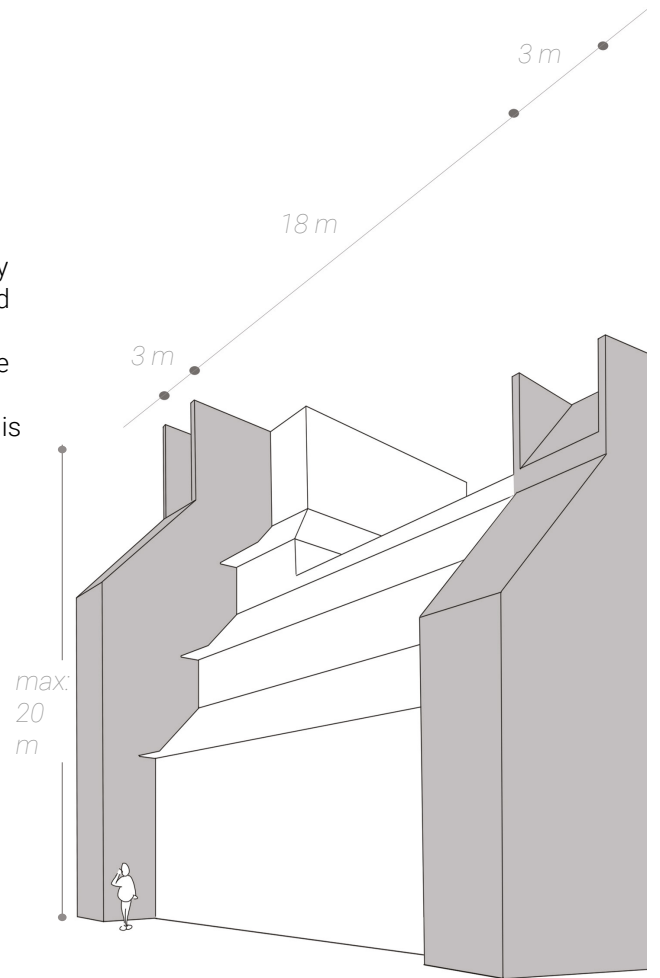
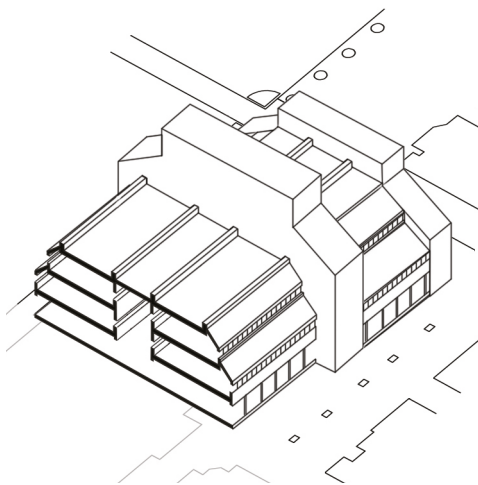


Lipsius building structure

The Lipsius building beats the aforementioned 7,2 as its floors span 18 meters: six grid rows of 3 meters. It is able to do this by incorporating vertical concrete disks which support cantilevered floors.

Through this form of construction the floors could be made free from columns.

The building is higher in the center of its general volume than it is at the ends(North and South) of the building.

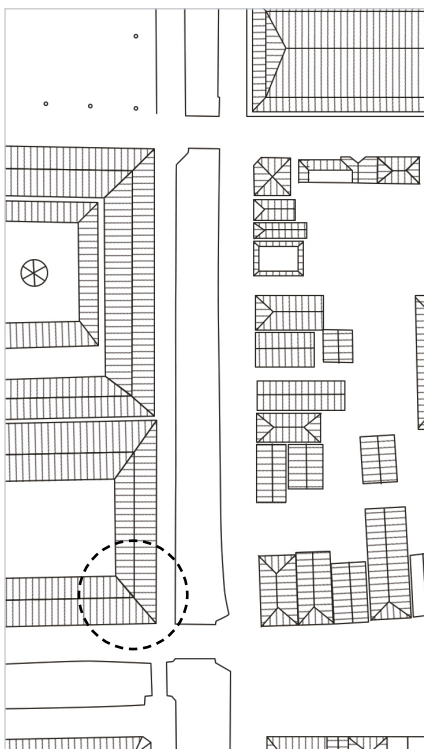
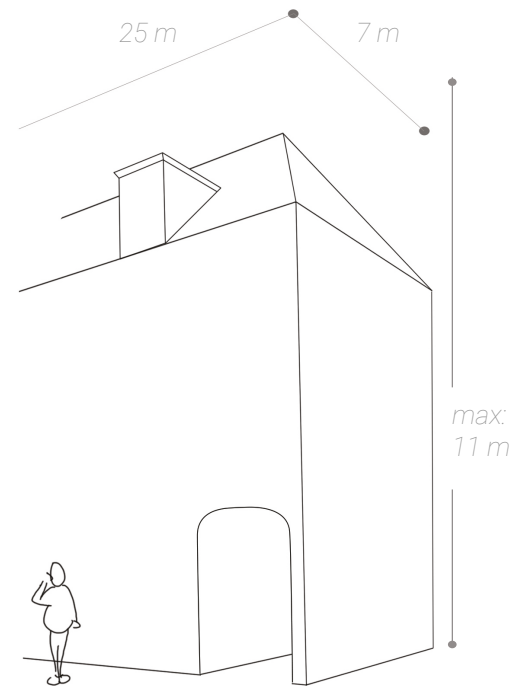
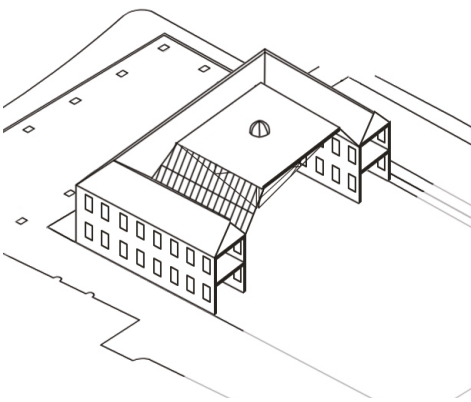


The Lipsius by Ahrens and Kleijer, like the van Stigt buildings has a locally unprecedented quality that sets it apart from the surroundings. The connection between the outer and inner street through a long hallway explains the choice of construction.

In the surrounding buildings, respectively: Reuvens, the housing cluster and the Johan Huizinga building, concrete was also used. But following traditional sizes that fits the overall shape and volumes of buildings in Leiden.

Arsenaal building structure

The Arsenaal is a building from 1808 (east) and 1819 (west) made from brick with floors and a roof made from wood. Tjeerd Dijkstra revitalised the building in 1978. Not much changed on the outside. On the inside the walls were strengthened to support the new floors which were poured concrete on top of the existing wooden floors. The existing span of the floors was already 7 meters. In the East courtyard a partly transparent roof covers the space. The building is used as a university faculty of Asian languages.



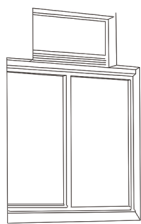
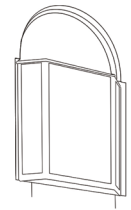
From the rooftop view the obvious relation between the Arsenaal gable roof structure and that of the rest of the existing houses in the inner city of Leiden is visible.

Originally the span of these houses was limited to the strength of wood. A normal width for a Dutch house was approximately 5 to 6 meters due to the constraint of wood.

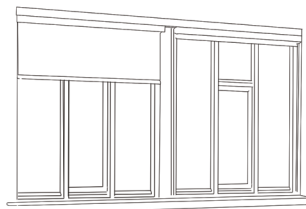
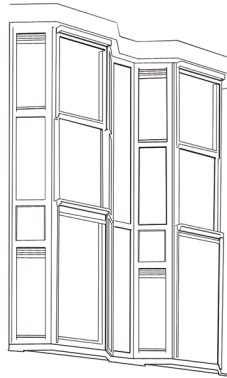
The load bearing walls often have a wider base that is supported by wooden poles that carry the load into the ground.



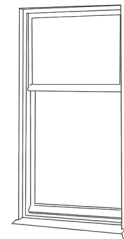
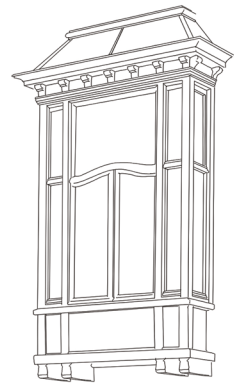
Protruding windows and freestanding columns



South(van Stigt)

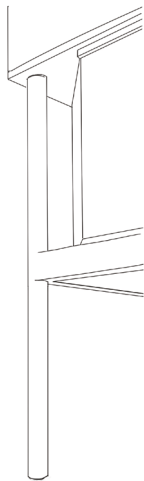


Johan Huizinga building

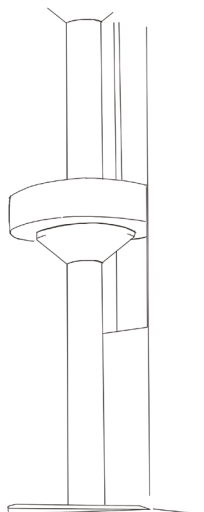


House near the South building

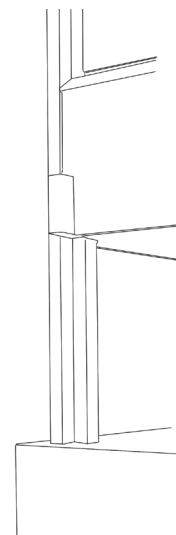
In the design for the windows it seems like van Stigt tried to resonate an already recurring element: that of the protruding window on the first floor. The already existing houses to the South, along the Witte Singel had this old classical window style, and that seems to have been incorporated within van Stigt his building and in the Johan Huizinga building.



Johan Huizinga building



South(van Stigt)



Reuvens building

Another recurring feature is that of the free standing column in front of a diagonal exterior wall. This can be seen in the Reuvens, Johan Huizinga and van Stigt his building. Which purpose it held remains unclear.

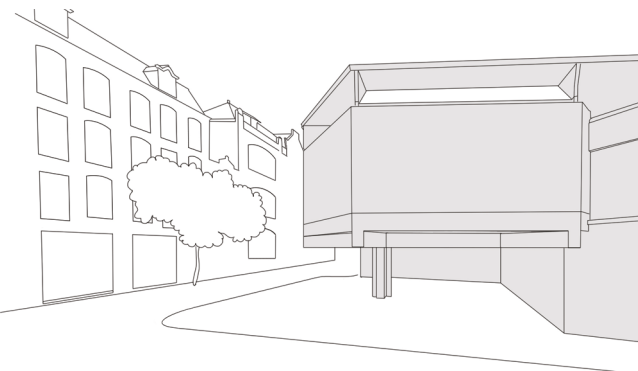
Oeuvre comparison



Faculty of Humanities (1982)



Dwelling Almere Haven Oost (1979)



Sint Willibrorduskerk (1968)

In comparison to the earlier works by van Stigt, the character of the Faculty of Humanities South and North building seems to resonate with the environment better than his former buildings. Of those the dwellings in Almere Haven Oost, and the Sint Willibrorduskerk are illustrated here.

With the dwellings in Almere Haven Oost van Stigt repeated a building volume. The outside of the dwelling district is guarded through these long facades with little entry points so the block of houses is secluded. Similar to how van Stigt positioned his entrances around the courtyard at the Faculty of Humanities. In the facades van Stigt uses shapes for the windows that he had used in Ter Aar and later in the Faculty of Humanities as well.

With an earlier work, the Sint Willibrorduskerk, van Stigt noticeably distanced himself from the Amsterdam row houses. The recess on the ground floor where people enter the building. And the closed facades. Light only coming in from above. No shapes that resonate to the outside world.

This leaves the Faculty of Humanities building as somewhat of an odd turningpoint in his style. Where despite his use of repeated elements, a dominant concrete structure, precise detailing, contrast in his roof, all the things that lean towards structuralism and functionalism, he also incorporated a more city-esk expression in his facades. An open relation to the outside.

Other buildings of his like: St. Rosa Huishoudschool, Raadhuis Ter Aar, and the Gouden Leeuw en Groenhoven are more or less built on a big piece of land where there is little to no relation to other nearby buildings and thus are not mentioned here.

Conclusion

The Faculty of Humanities buildings by van Stigt seems to incorporate multiple local aspects, as well as incorporate features introduced with the introduction of the new Humanities campus, and resonates with its context this way. Unlike van Stigt his earlier works he used regular size bricks with ornamentation for his facades. And he created one storey volumes at those places where his systematic structure would not align with the already existing buildings. And used protruding first storey windows that are seen elsewhere in the vicinity as well. Then the relation to the water at the West which is very like a traditional Leiden canal except flanked by bigger roads to accommodate car traffic.

But there are also aspects in which he does not resonate with its surroundings. And those involve building scale, due to the choice in structure. The building elements like the mushroom columns and protruding roof plane. And the lack of entrances on the outside. Still, the ways in which he did relate to the context makes this building stand out in his works as one where he changed his approach towards context.



fig. b

Ensemble

'The building is characterized by its possibilities of a good social interaction of the student society, thanks to the meeting places both intern and extern (such as hallways and squares), connections and possibilities to 'doorlopen' (visual ranges), recognizability due to differentiation in the loose buildings of the different departments (vakgroepen) of the 'alfafaculiteiten' (www.burovanstigt.nl).

I will test this quote by analysing the ensemble on these different topics.

Main research question : Which design tools are used to contribute to the social interaction of the university community?

*University community: Professors, Students and passers by



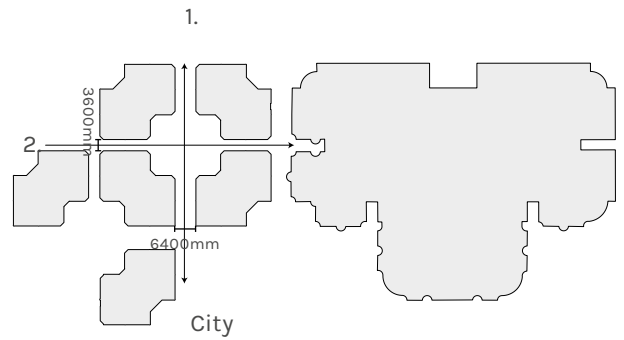
fig. a

ENSEMBLE. / VISUAL RANGE - BOUNDARIES FOR INTERACTION

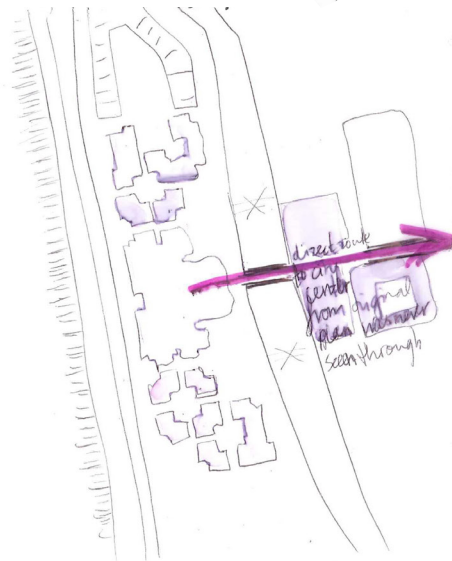
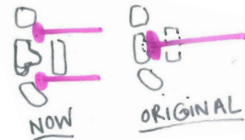
The horizontal views through all of the buildings.
How far can you see? The vertical insight from down to up. How far does the interaction reach?

The visual lines are confined by the building volumes.
The location is derived from the context. In the drawing below it is clear to see that the location of the city center was considered in the original plan for the location of the bridges.

Although by making 2 bridges as it is now instead of the one bridge one would arrive on 2 different areas of the complex which is a more comprehensible size to approach the building. Furthermore this is a given by the 'Bestemmingsplan'. The location of the bridges is continued through the building ensemble creating visual ranges from the front to the back of the building (see visual range 2).



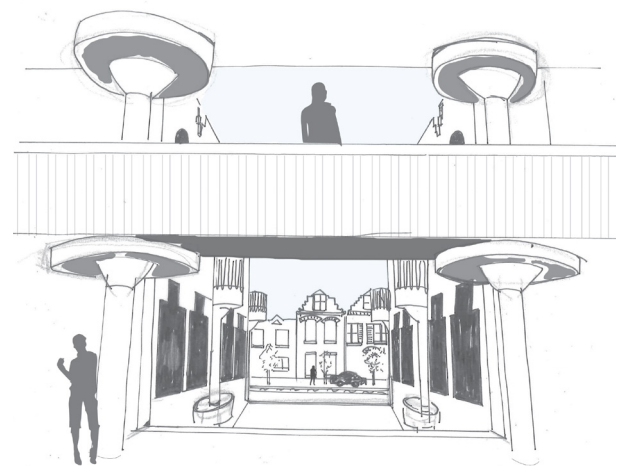
The width is determined by the goal of the views.
Visual range 1 is 6400mm wide to make the connection with the City. Visual range 2 is 3600mm wide. The narrower dimensions are meant to give a feeling like one is still contained inside the ensemble.



Drawing of city center of Leiden used to decide on bridge location and therefore influences approach to building

1. VISUAL RANGE 1

The view to the housing behind the faculty is like looking through a picture frame. The view reaches from Housing behind the Faculty to the City. Both sides can be seen.



Perspective drawing visual range 1

2. VISUAL RANGE 2

The view to the library is meant to keep the library in sight at all times since Joop van Stigt considers the library the center of all knowledge, so it should be the center of attention. The view looks right into the library, though it is not accessible from there.



Perspective drawing visual range 2

Looking past the series of columns and bridges is like visually jumping through hoops of frames formed by floor, columns and a corridor (A). The view is almost perfectly symmetrical if it was not for the right side being 4 rather than 3 floors high. This allows the right side to slightly dominate the left (B)

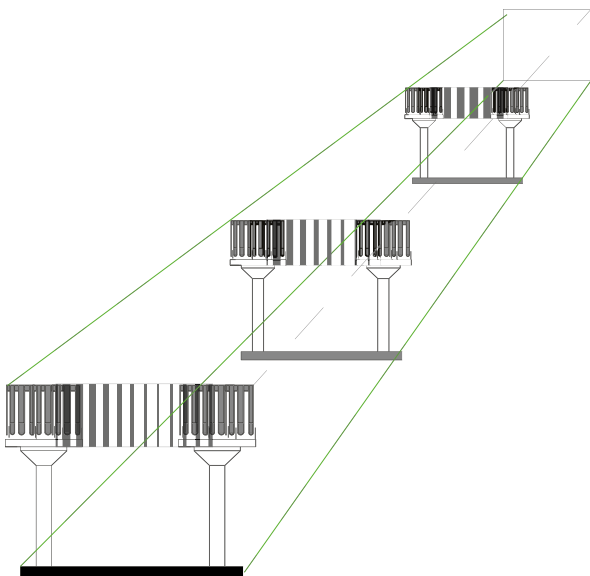


Diagram A.

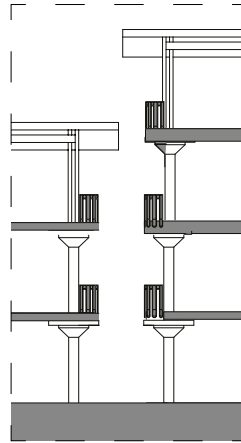


Diagram B.

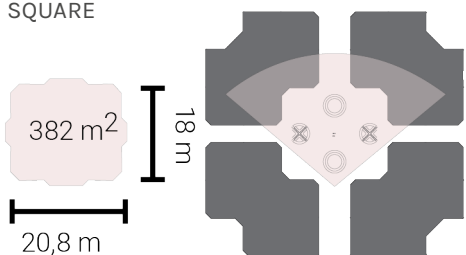
Conclusion

The size of the ensemble is broken up into smaller buildings. This gives the possibility to create clear visual ranges which allows for more interconnected outer spaces of the ensemble.

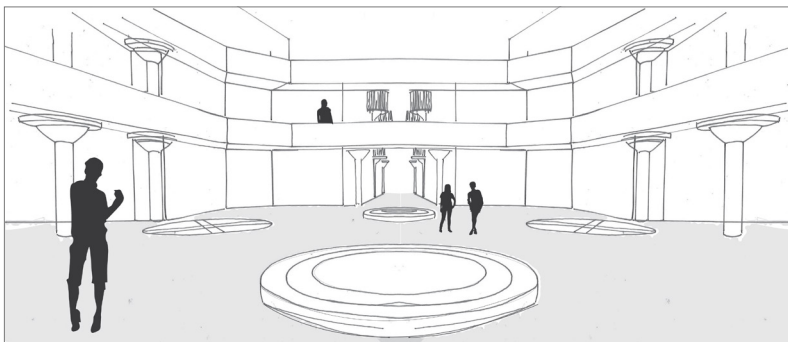
ENSEMBLE. / COMPLEMENTARY SPACE PLACE TO MEET (EXTROVERT)

What kind of space is it? How do people use this space?

INNER SQUARE

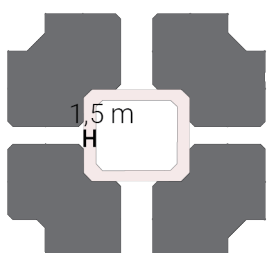


All of the entrances are around the inner squares. This is place where everyone can meet before entering the buildings.

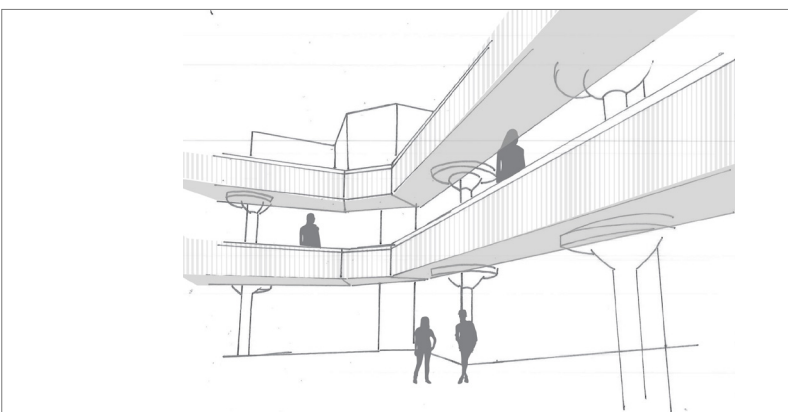


Perspective drawing of inner square

GALLERIES

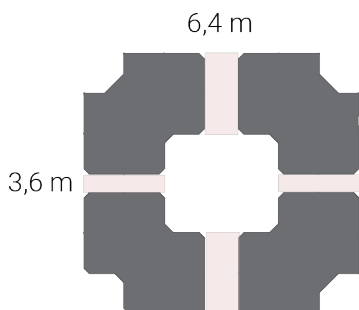


The galleries are 1500mm wide. they connect the 4 buildings, but don't continue to the other buildings. In a way the central inner square is lifted to this level.

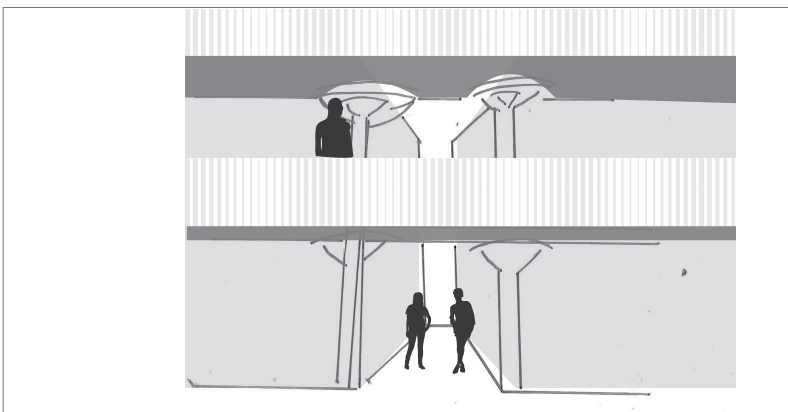


Perspective drawing of galleries

INNER STREETS

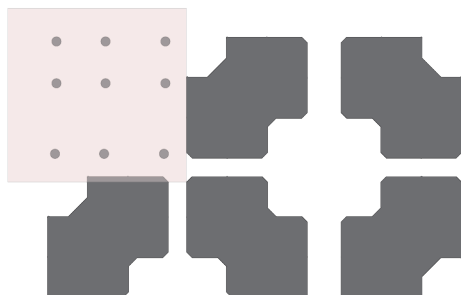


The inner streets differ in width according to their function. In the visual ranges chapter this is explained further.



Perspective of inner streets

MUSHROOM GARDEN



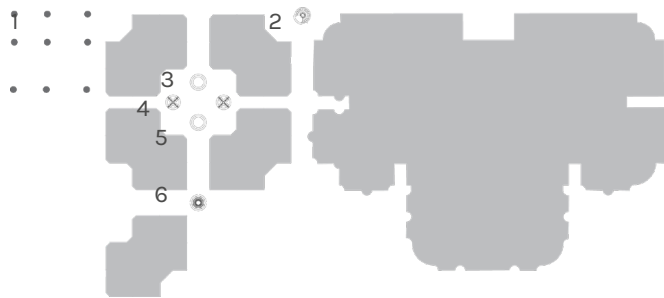
In the mushroom garden the free standing columns are sometimes surrounded by benches. They create a place that is unique and easy to define to meet others. 'Hey meet me at the mushroom garden'



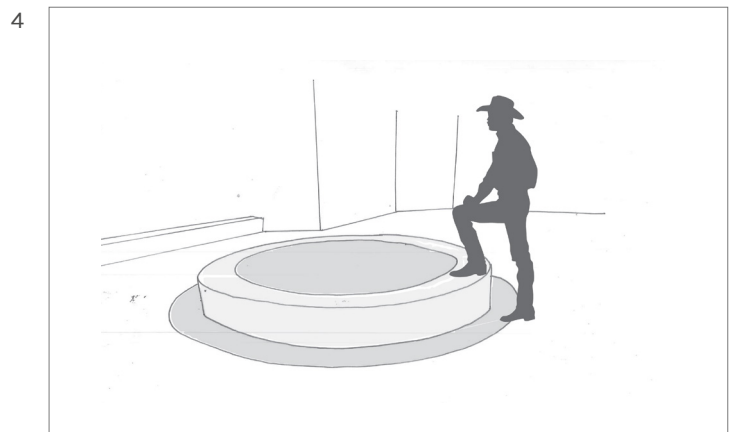
Perspective drawing of mushroom garden

ENSEMBLE. / SOCIAL OBJECTS - PLACES TO STAY

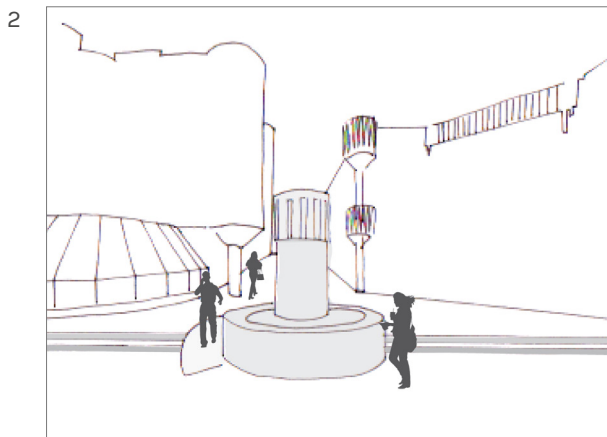
These are places where people stand around for a chit-chat, like benches, free-standing columns or in front of certain entrances.



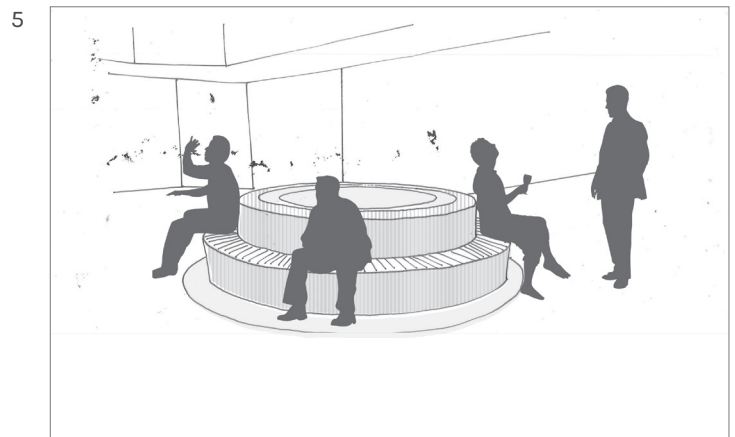
1 The mushroom garden benches



4 This object is very low, so you cannot sit on it.



2 This object is placed somewhere people always pass by it as they go up those stairs. It is a design for the exhaust pipe from the engine room.



5 This bench is placed at a couple of locations throughout the building and is a good solution for outside furniture in the same round design theme



3 Flat see-through object above garage.



6 NOW

PAST

ENSEMBLE. / DIFFERENTIATION - A PLACE FOR YOUR OWN

All the entrances are the same, but they are numbered on the 'balconies'. Everyone has 'a house of their own'. This is an introverted part of the design.

The passages are displayed on every gallery surrounding the squares at the Humanities Faculty in Leiden. They derive from a poem by Robert Frost:

The Road Not Taken:

Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveller, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

Then took the other, as just as fair,
And having perhaps the better claim,
Because it was grassy and wanted wear;
Though as for that the passing there
Had worn them really about the same,

And both that morning equally lay
In leaves no step had trodden black.
Oh, I kept the first for another day!
Yet knowing how way leads on to way,
I doubted if I should ever come back.

I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I—
I took the one less travelled by,
And that has made all the difference.
Source:



fig. b

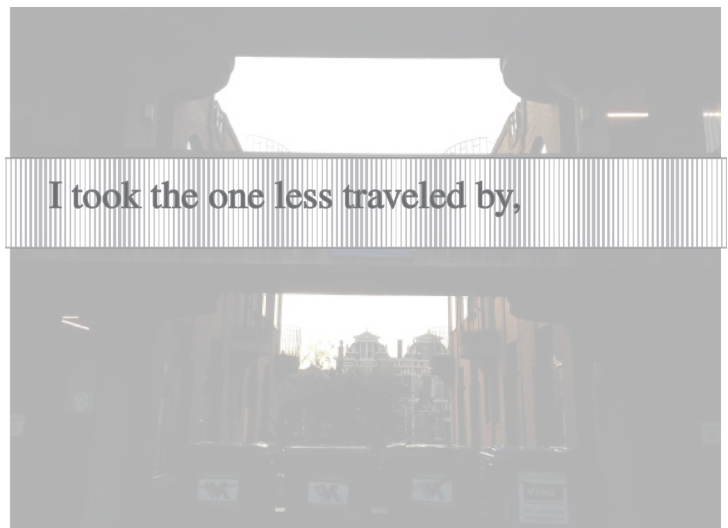


fig. c

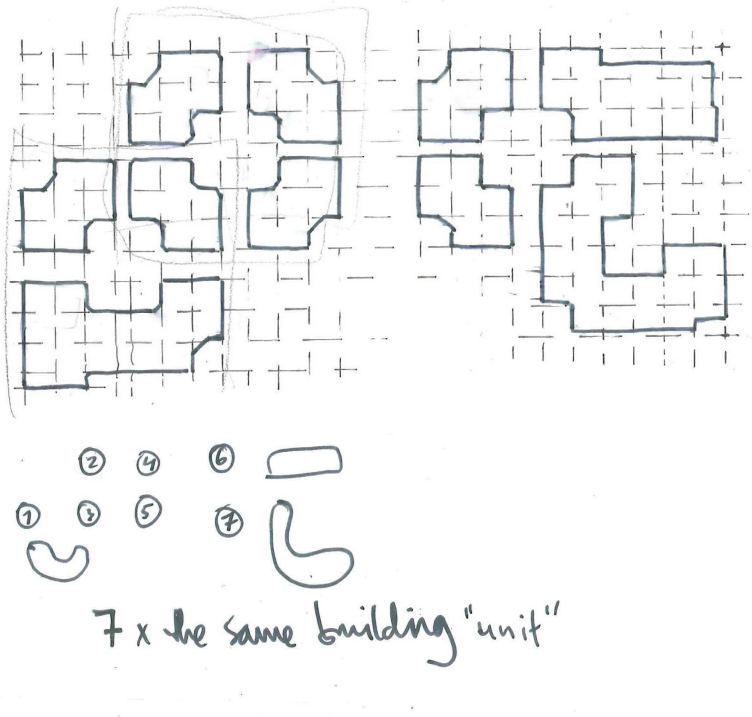


fig. d

ENSEMBLE. / UNIT STRUCTURE GRID

Grid of the building complex Ground Floor

Structure of the units differs in the bottom 2 floors and the uptopping.



Building units diagram

The building consists out of 7 of the same type of units. The other 'peanuts' in the diagram are combinations of multiple units.

The ground floor and the 'uptopping' are derived from two different shapes but when placing them over one another it becomes clear that they are on the same grid (Diagram C). The optopping from the two plus-signs is a design from the earlier stages of this building, as was analysed in the report from Analysis of last year.

Grid of the building complex ground floor and roof

When drawing the grid of the roof on top of the grid of the ground floor till the first (and sometimes second) floor it becomes clear that they fit perfectly on top of one another in a 7200 x 7200 mm grid. This is illustrated on the next page.

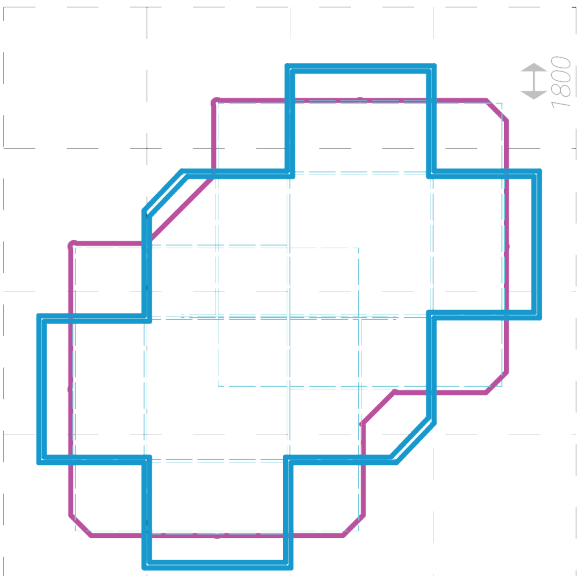
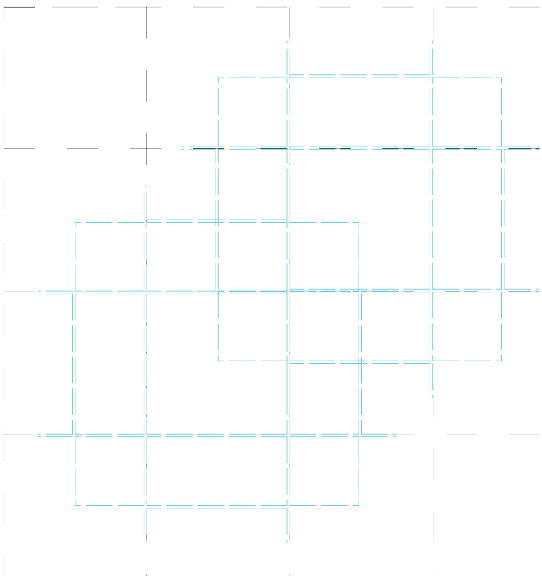
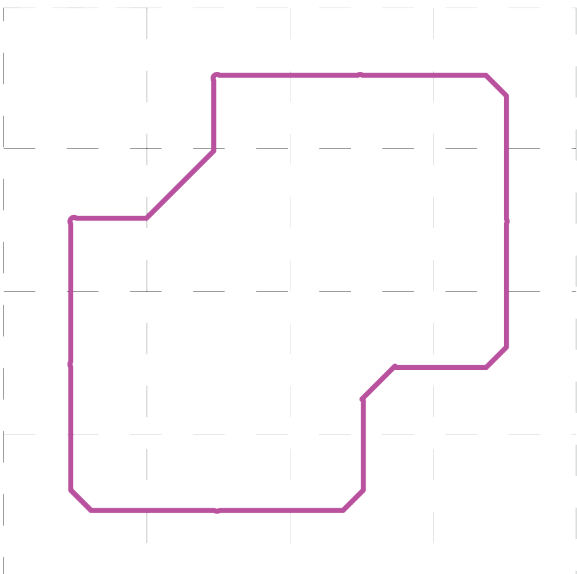
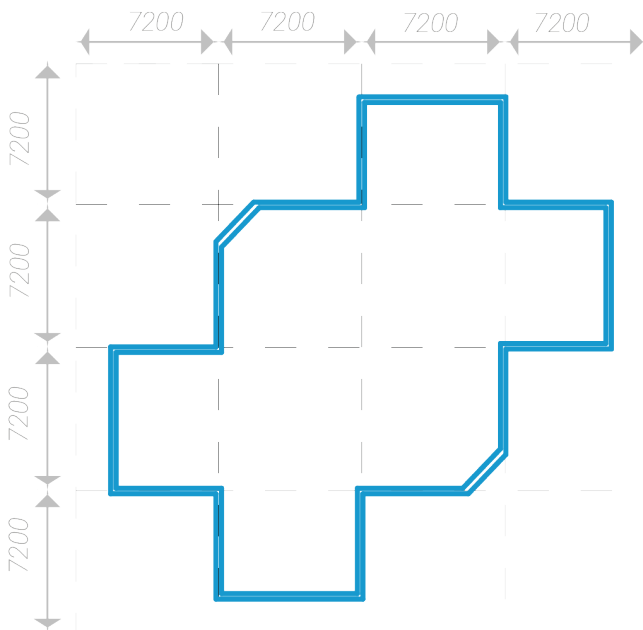
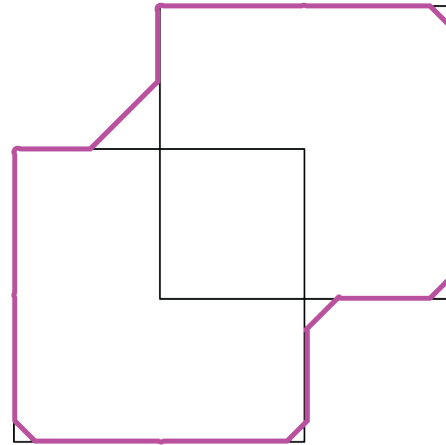
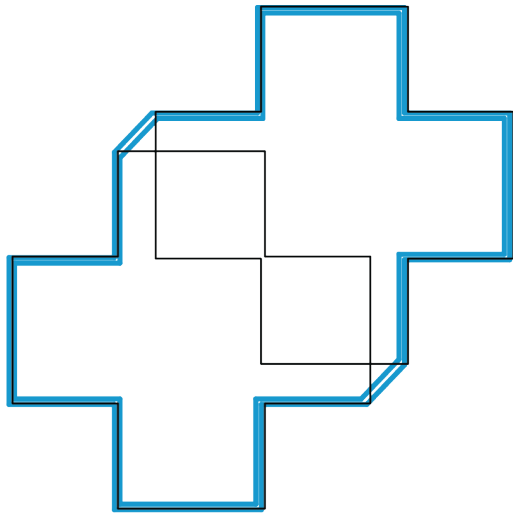
The cantilevers are 1800 mm which are they only exceptions where they do not fit perfectly on top of one another.






Unravelling the structure step by step reveals a well thought through layering of structures which on first sight might not seem so.

The uptopping differs in materiality and feel so drastically that one would not think they are so linked.



fig. e



-  Abstract shapes of building outline
-  Grid
-  Roof outline
-  Building outline (ground floor and first floor, once second floor)
-  Roof Structure Grid

Conclusion

The Faculty of Humanities building is characterized by its possibilities of a good social interaction of the student society.

Countless opportunities have been created where people meet. They pass by each other through narrow inner streets and the wooden galleries. They can sit outside in open spaces.

The downside to the design is that its not very inviting during cold seasons due to excessive wind. This is a missed opportunity because people run passed one another to hurry back inside and then all social interaction is lost. (unless you have to be in the same building).

The visual ranges make it more clear to orientate around the building. But the differentiation of the squares is unclear and the wayfinding is problematic. Especially for first-time visitors. So in that sense the recognizability due to differentiation in the loose buildings could use some work.

Van Stigt has clearly stuck to the design of round social elements. even objects in the ensemble that do not have any puprose such as the exhaust pipe or the flat glass are made round so they stick to a theme and do not disturb the symmetry.

Van Stigt has clearly paid a lot of attention to the possibilities for interaction, starting from the level of building ensemble, before one enters the building.



fig. f

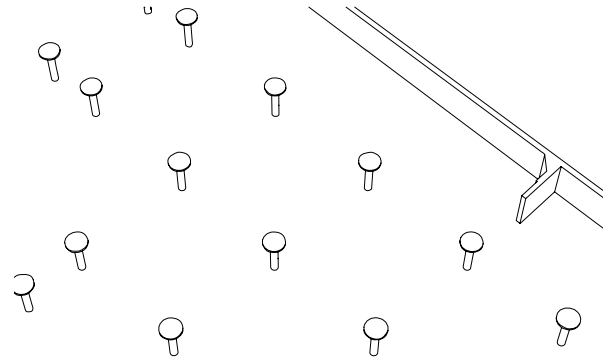
Floor overview

Different use of elements per floor

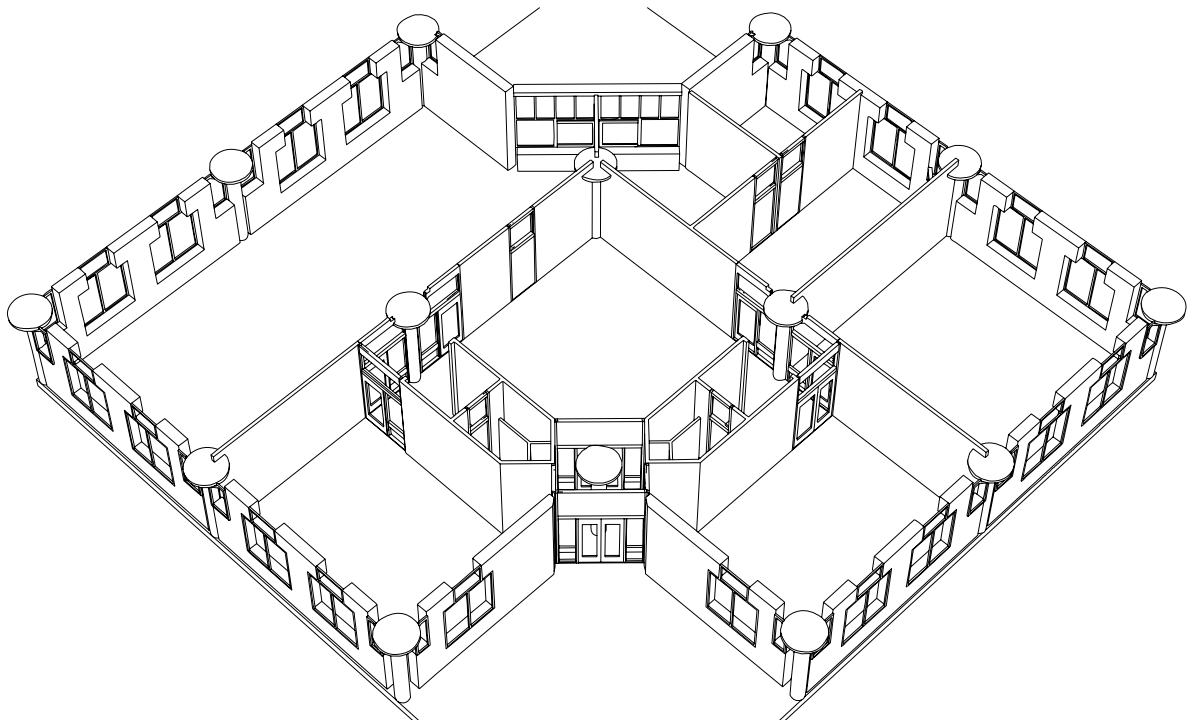
Throughout the building the use of elements changes. Though the column structure and floors stay roughly the same.

This segment is that of the building volume oriented on the Trekvliet and the mushroom garden.

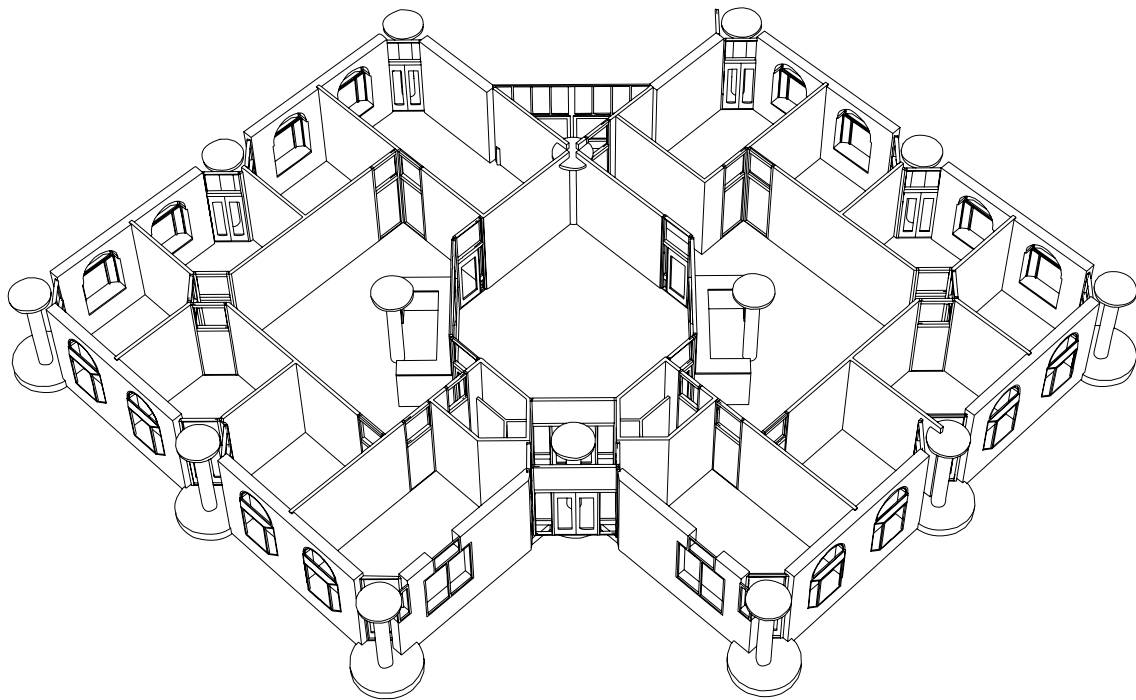
The basement is an open space with columns. The ground floor has a more differentiated ordering of space per building volume. The first and second floor are much more the same in every building volume. With exception of the second floor which is sometimes kept half empty leading to a square floor plan.



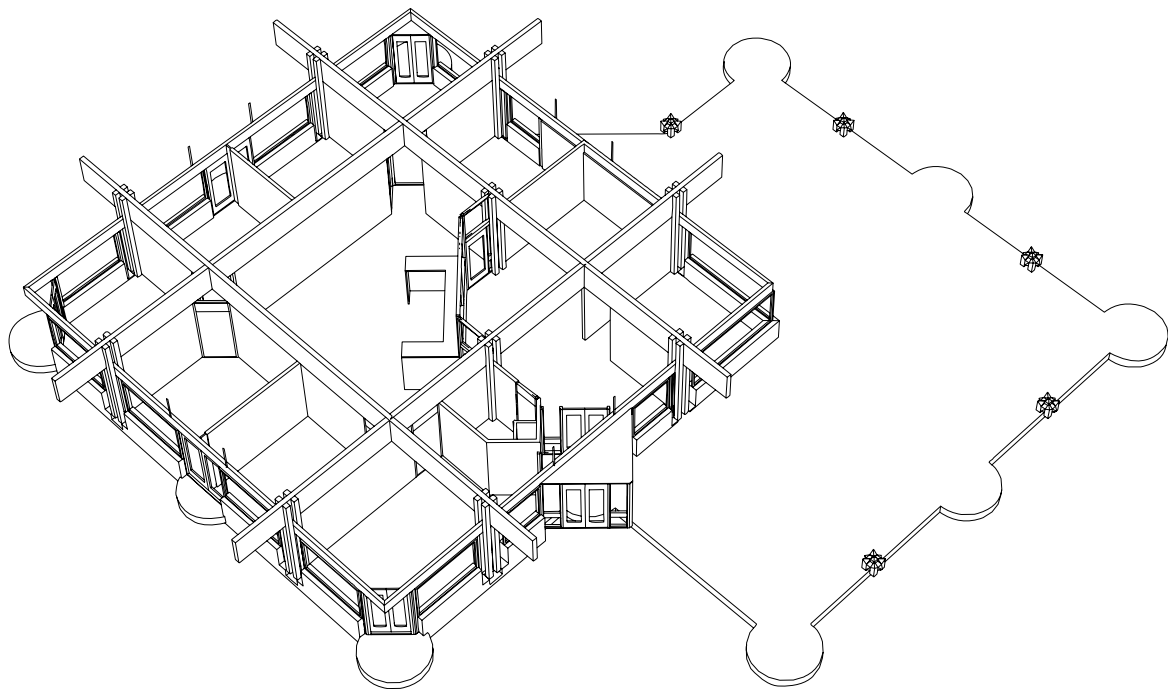
Axonometric view basement (-2900)



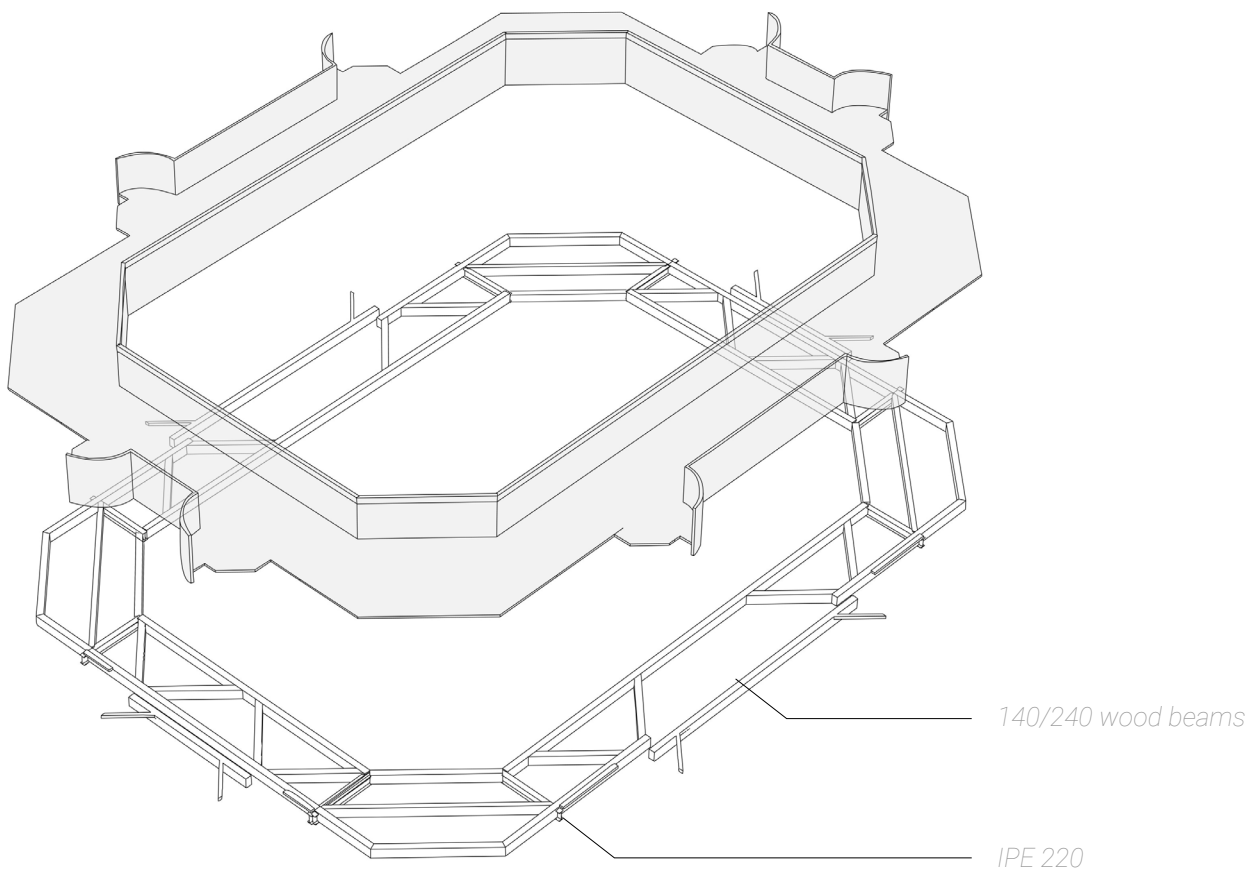
Axonometric view ground floor (-40)



Axonometric view first floor (+ 3560)



Axonometric view second floor (+7160)

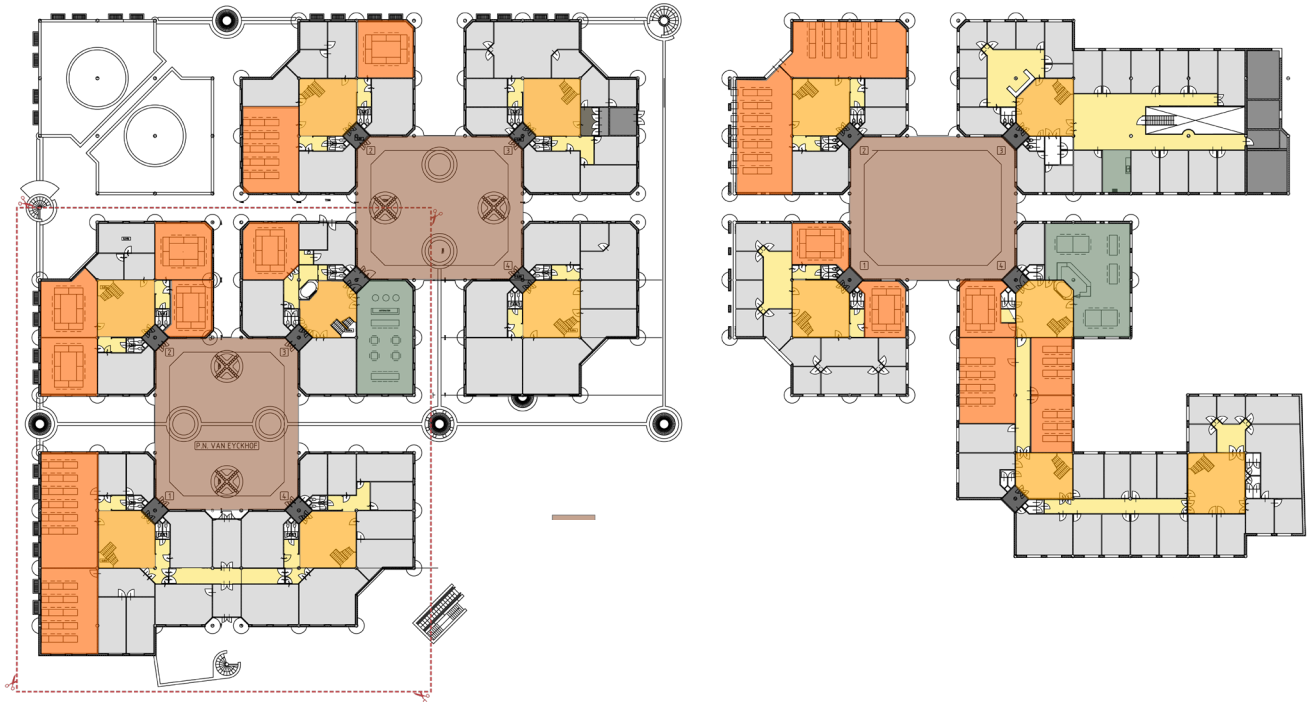


Axonometric view gallery (+7190)



The wooden floors of the gallery are supported by a wooden beam structure that spans from column to column. And is additionally supported by IPE 220 beams, that have been covered with wood.

Interior order

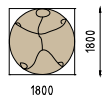
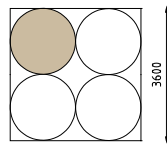
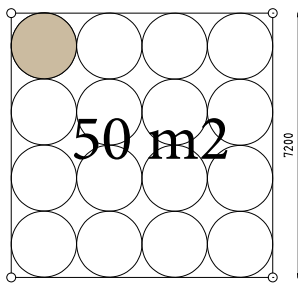


- Courtyard
- Entrance hall
- Lecture rooms
- Main circulation area
- Cafeteria
- Office spaces
- Secondary circulation area

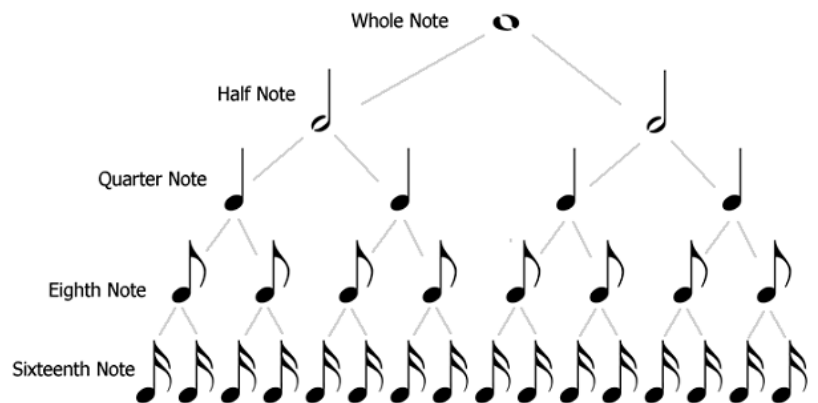
INTERIOR SPACES

Structuralism as an architecture movement is about repetition of elements and spaces. In this building the spaces are also repeated several times with the same character and the same measurements. However there are less exceptions. Was the influence of structuralism positive or negative on the quality of the spaces? And which solution joop van sticht provide to create spaces? Figure above, you see different spaces that are marked with different colors. In the ground-floor of the whole complex the courtyard is three time repeated, but not always in the same direction. This complex excepting the big library, it has 13 entrance halls and 13 main circulation areas with the same character repeated. In addition, there are lecture rooms and offices that are repeated but with small variations. And the 2 cafeterias and other spaces are unique.

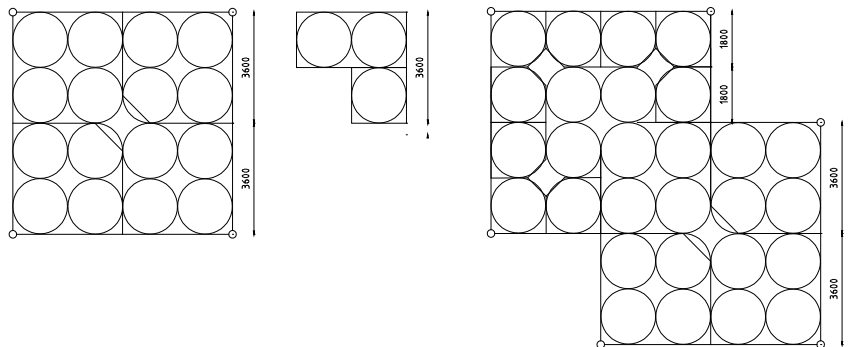
COMPOSING. / Rhythmic repetitions



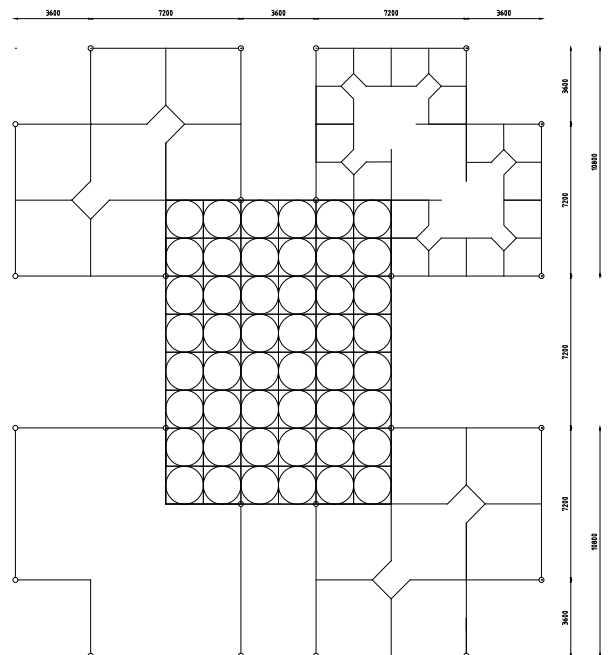
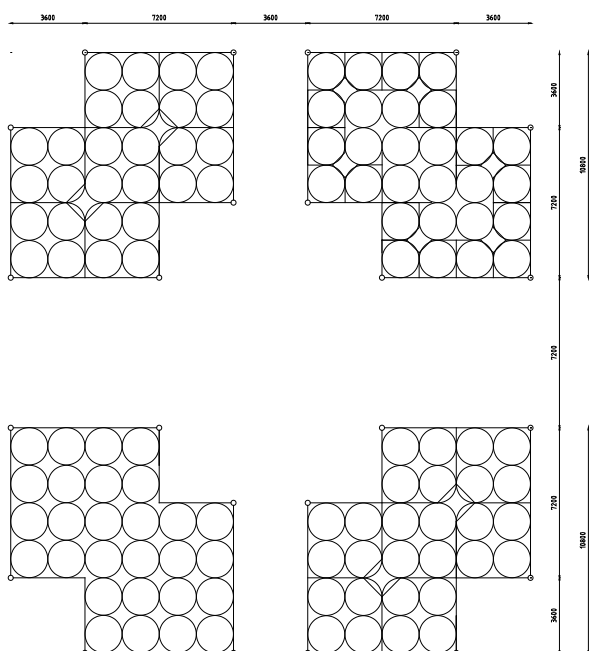
$4 \times 1.8 = 7.20$



Joop van Stigt designed the university buildings from the human size. The spaces are built up of using this dimension and is repeated on different scales. This is a similar concept as music rhythm. The basic 7.2 m x 7.2 m module with light entering each room from two façades to ensure there is always light and a view. Each room at least would contain the area of four people. Within each room various space layouts are possible.



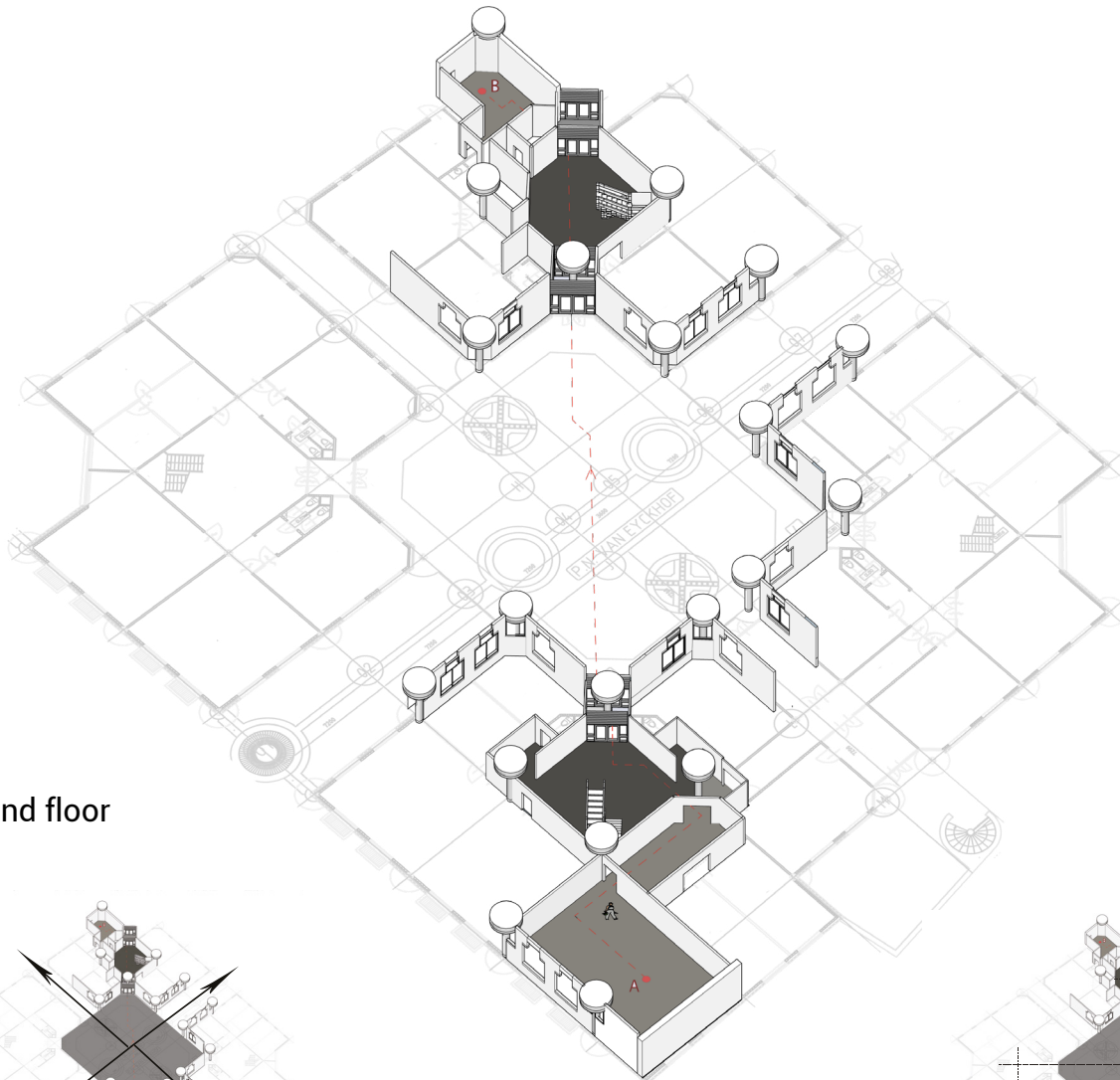
He created the spaces with minimize of the residual space. He was efficient to use of the space.



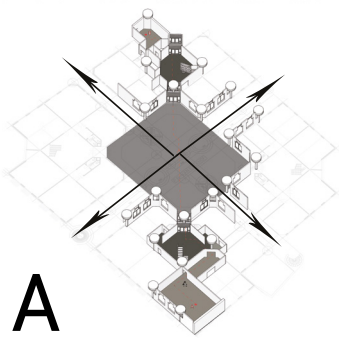
Building blocks

Courtyard: 21.6 m X 18 m

COMPOSING. / Repetition and connections

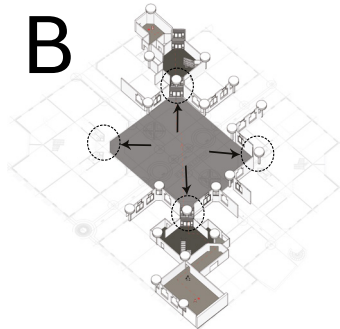


Ground floor

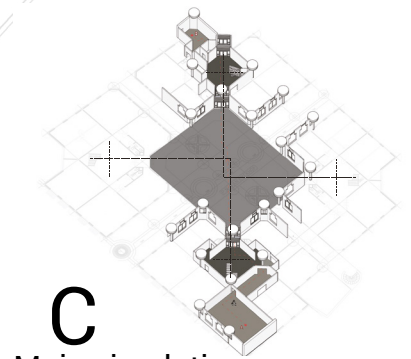


A
Courtyard

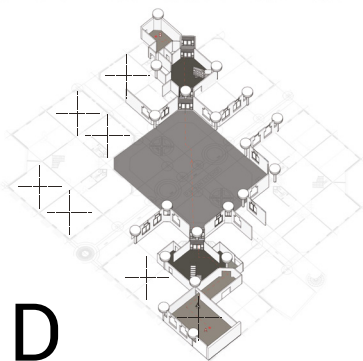
Entrance hall



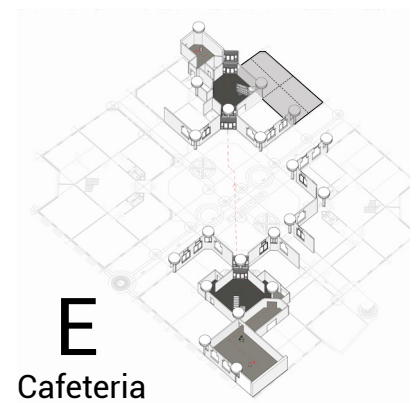
B



C
Main circulation area



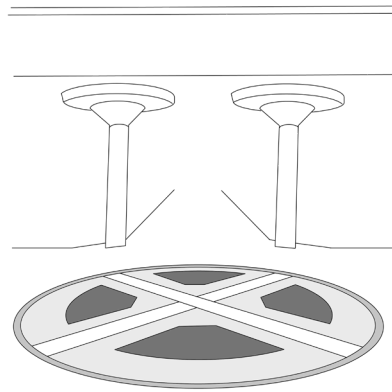
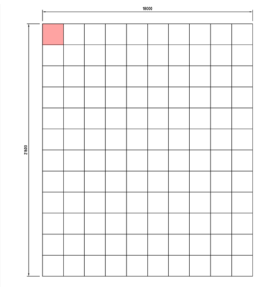
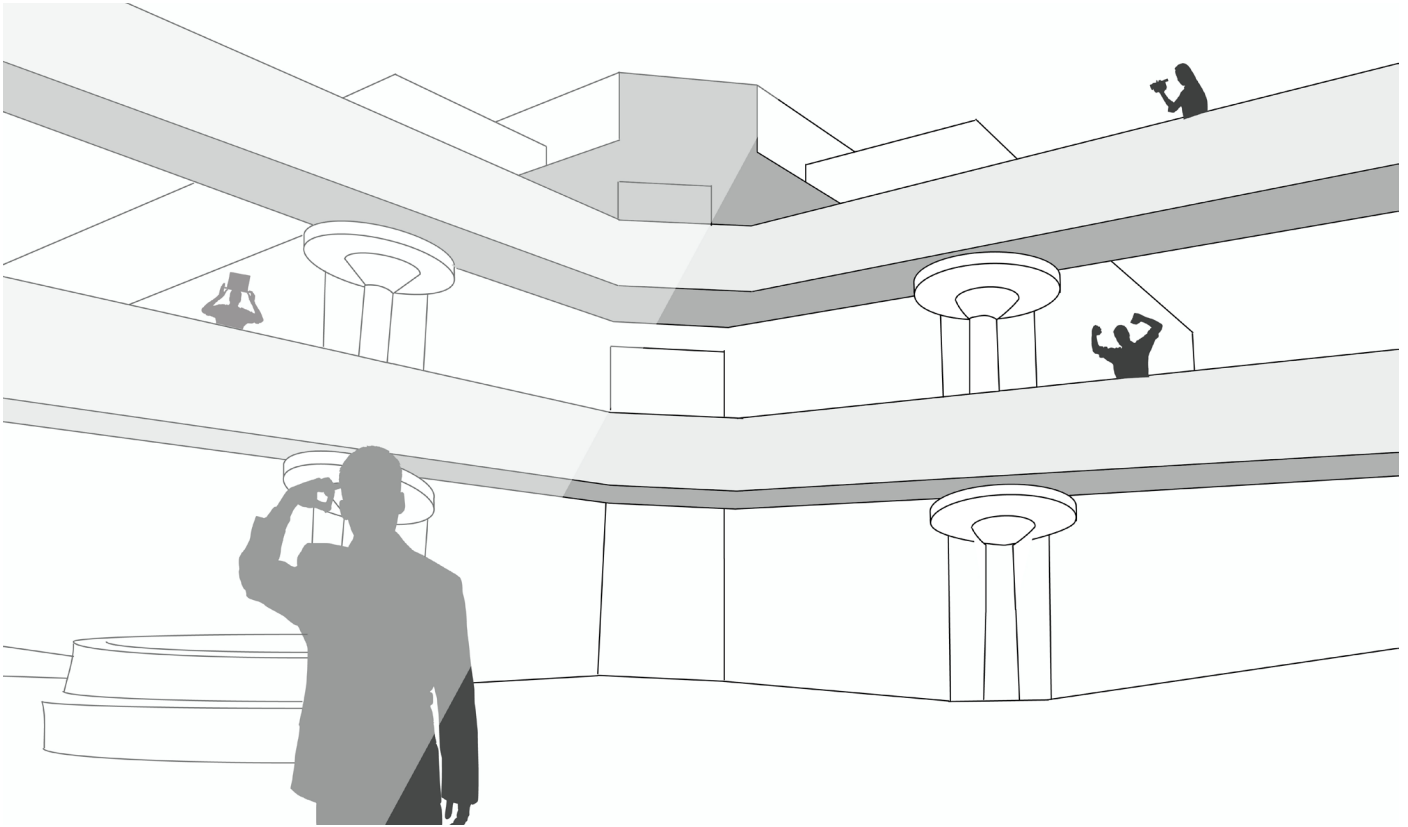
D
Lecture rooms



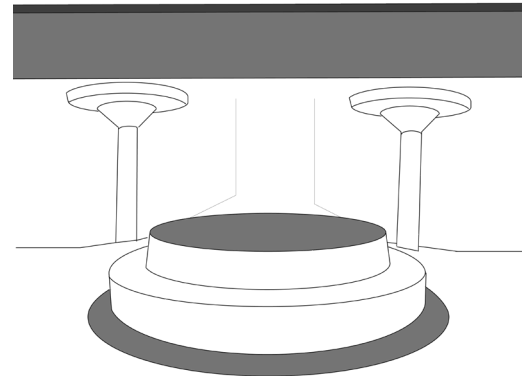
E
Cafeteria

A

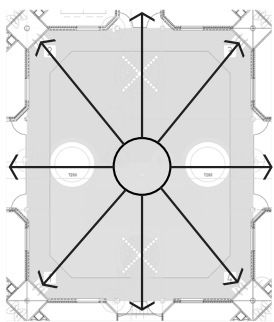
Courtyard / 370 m²



Glas elements floor



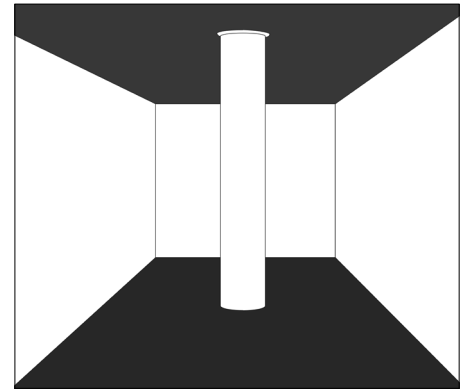
Wooden planter



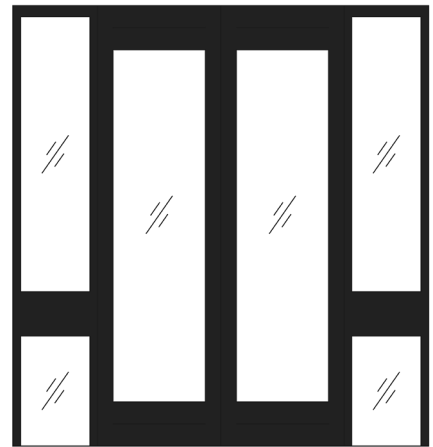
Connections

A courtyard is an open space with 4 entrances with an area of 370 m². It is connected to the south, north, east and west in each entrance. And in front of the entrances objects as planters are situated on the ground. These objects blocks the route or give a circular pad to the people that go inside. In similar manner, there are 2 circular form with brick pattern and a plus form made of glass. The courtyard allows the interaction of the people of the different levels. Due to the existence of the two layers of massive wood galleries, the brick façade and the concrete columns makes you feel that you are in a closed area.

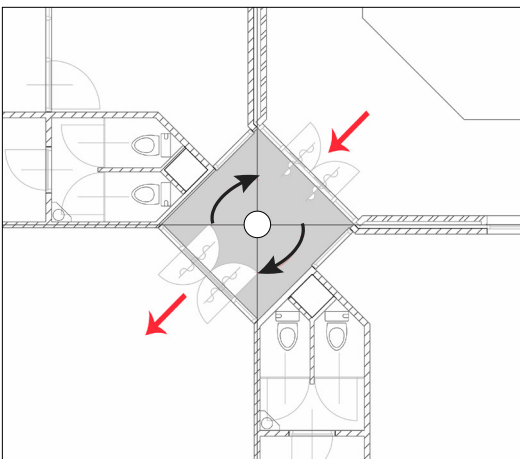
B Entrance hall / 5.5 m²



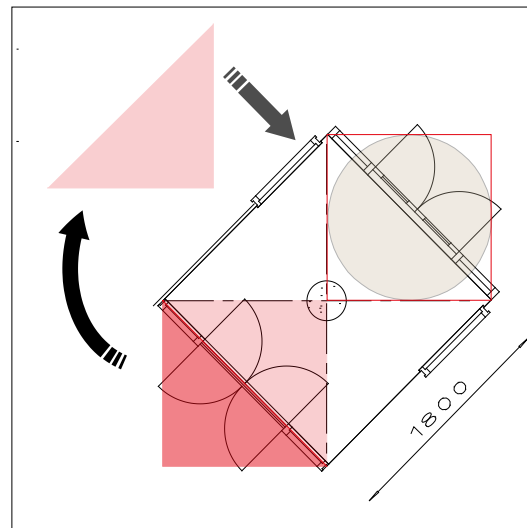
Column in space



Aluminum door, 2x

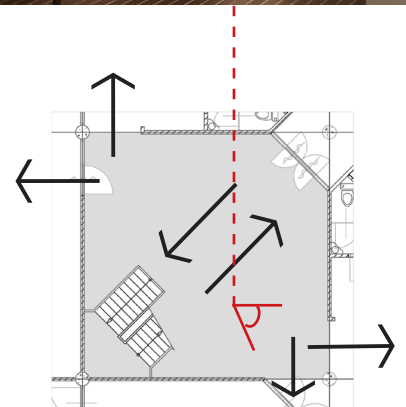
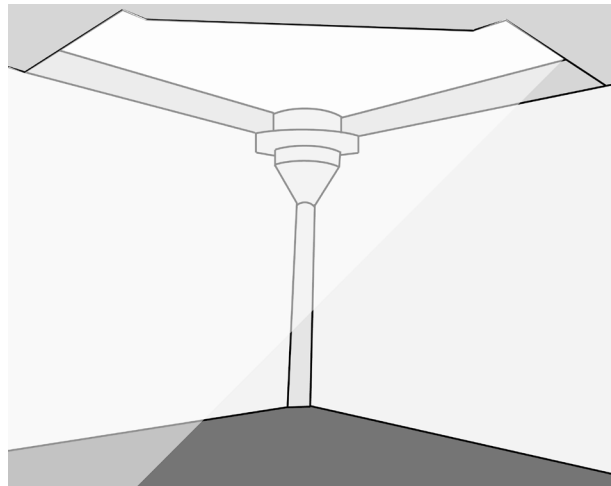
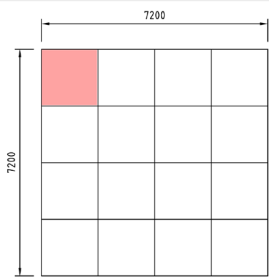
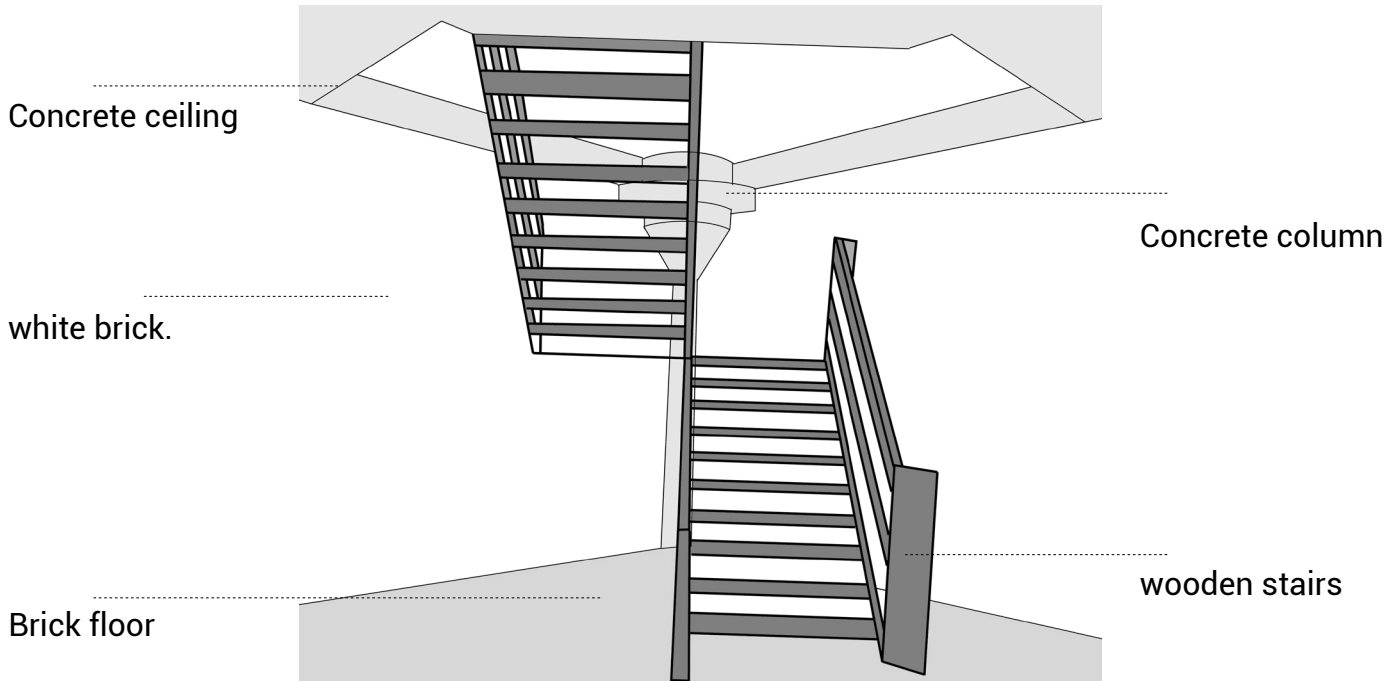


Routing



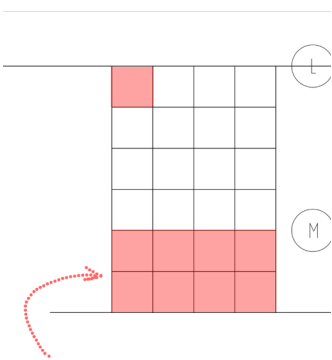
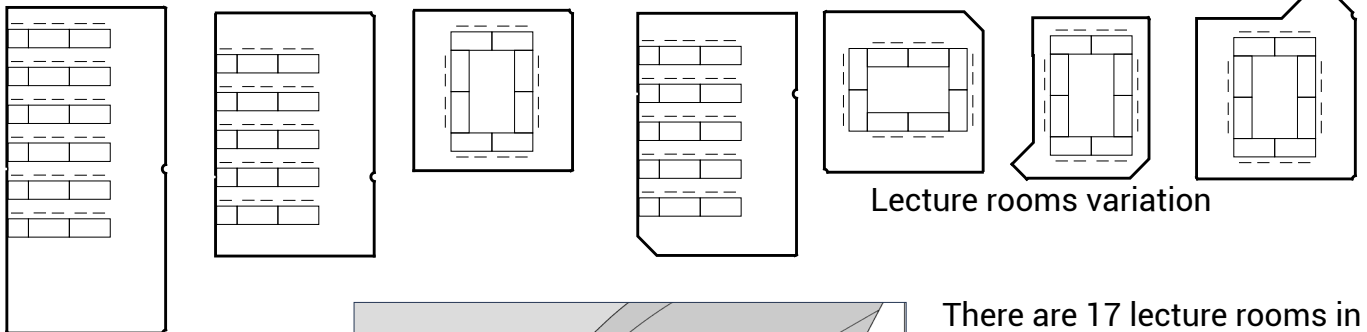
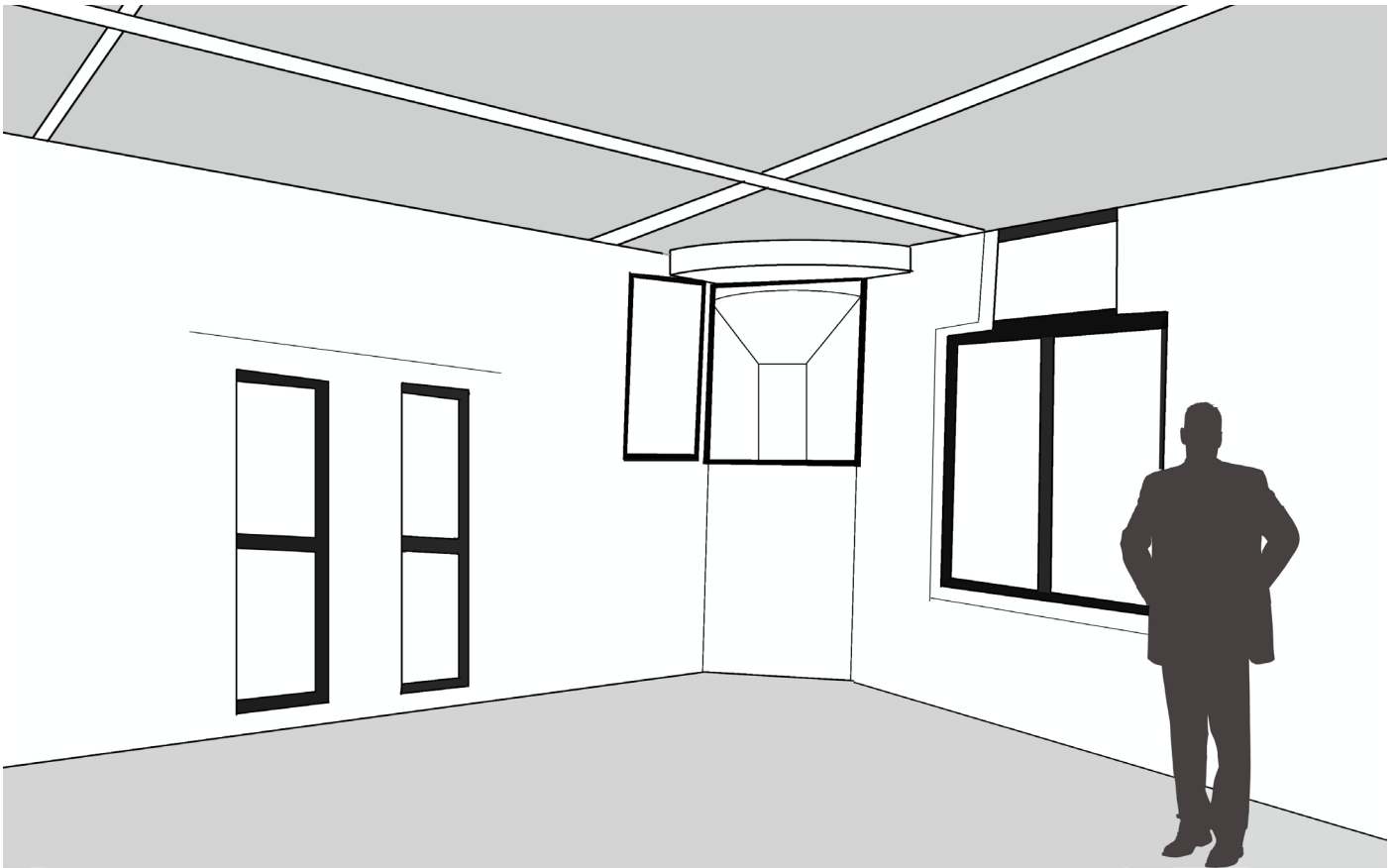
The entrance hall is quite small area with 5,5 m². It has 2 openings situated in front of each other. The frame door opening is made of aluminum framing and glass. Because of the structural grid, there is a column in exactly in the middle of the space. The latter does not give the opportunity of come inside with a wheel chair. The architect found a good solution for the connexion between the column with the roof and ceiling creating smart details.

C Main circulation area / 5.5 m²

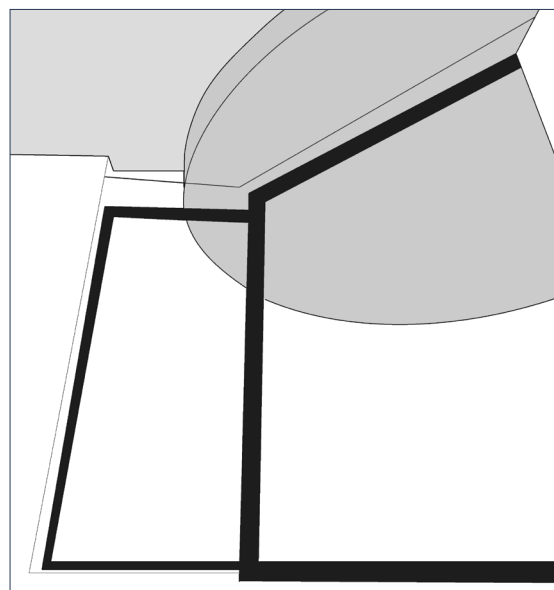


After passing the entrance there is the main circulation area. It connects to the spaces around, as: toilets, offices and lecture rooms. Also, with the use of the wooden staircase there is access to the first floor. The floor material in this area is dark brown brick with a zig zag pattern. And in contrast the walls are made of white brick. Between the two walls connected in the corner there is a concrete column.

D Lecture rooms/ 74m²



Additional space

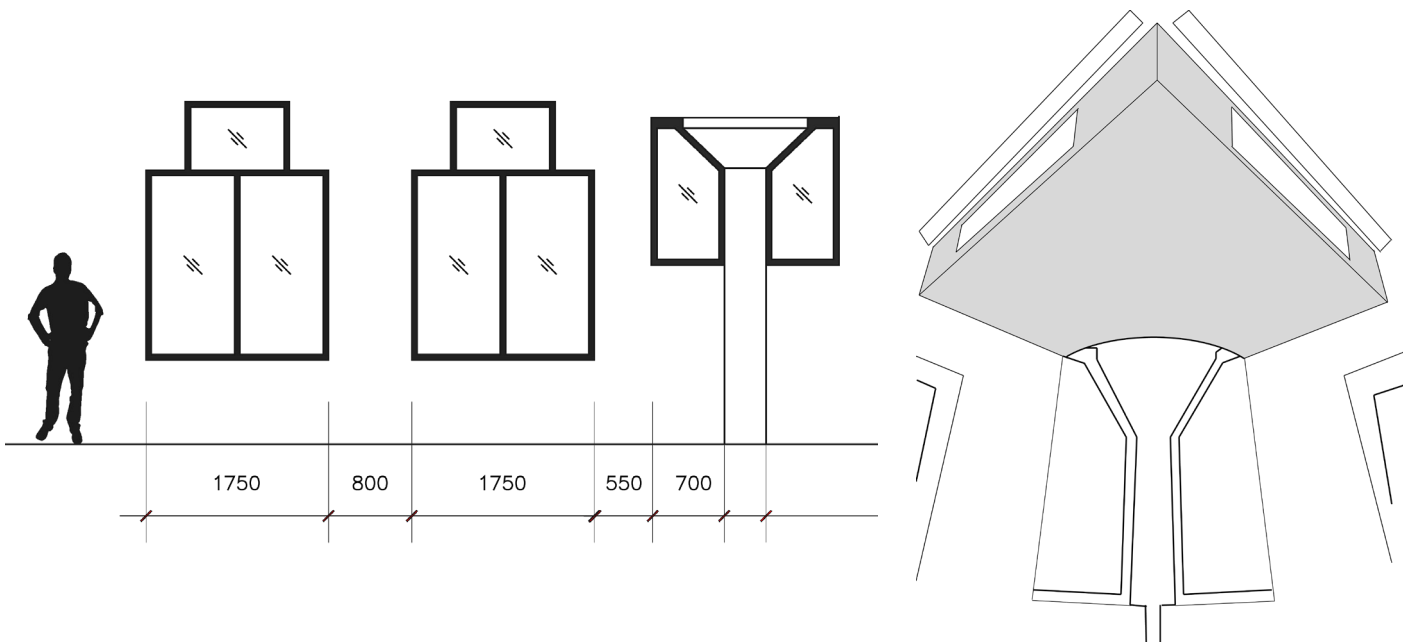
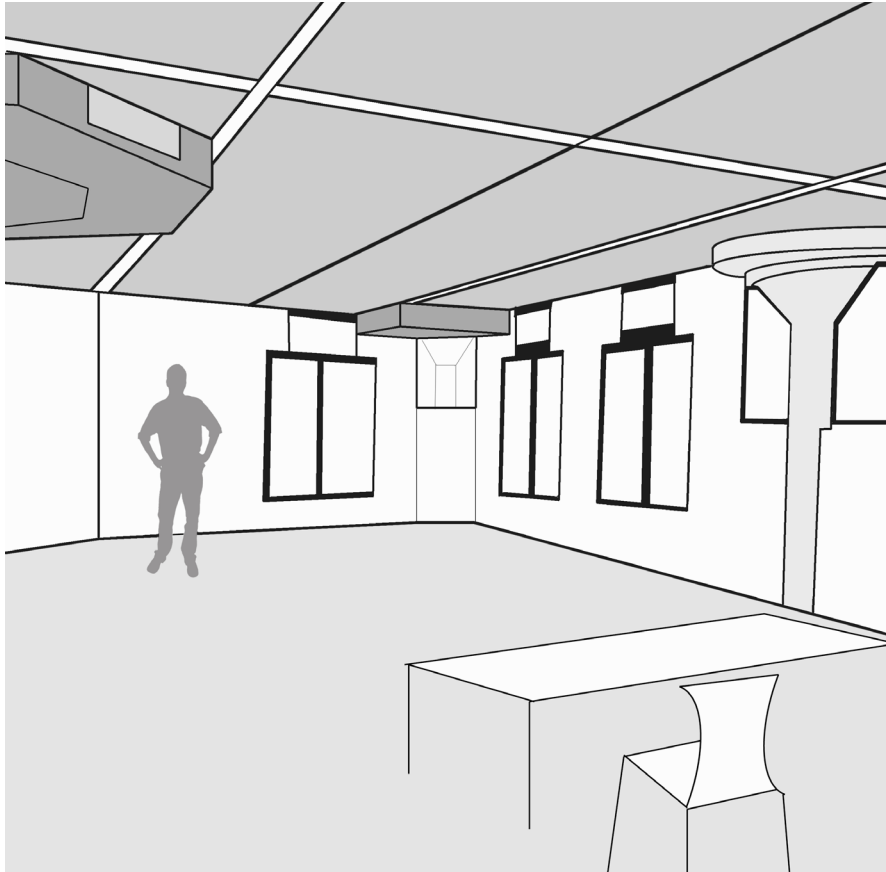


Window frame detail

There are 17 lecture rooms in the ground floor with different measurements. There is variation in the composition and experience of spaces. Due to the structural grid, there is an existing column behind the corner window. And part of the column is inside of the room. Furthermore, there is a special detail for the connexion between the column and the window frame. The window frame and the curtain rail are fixed to the column.

E

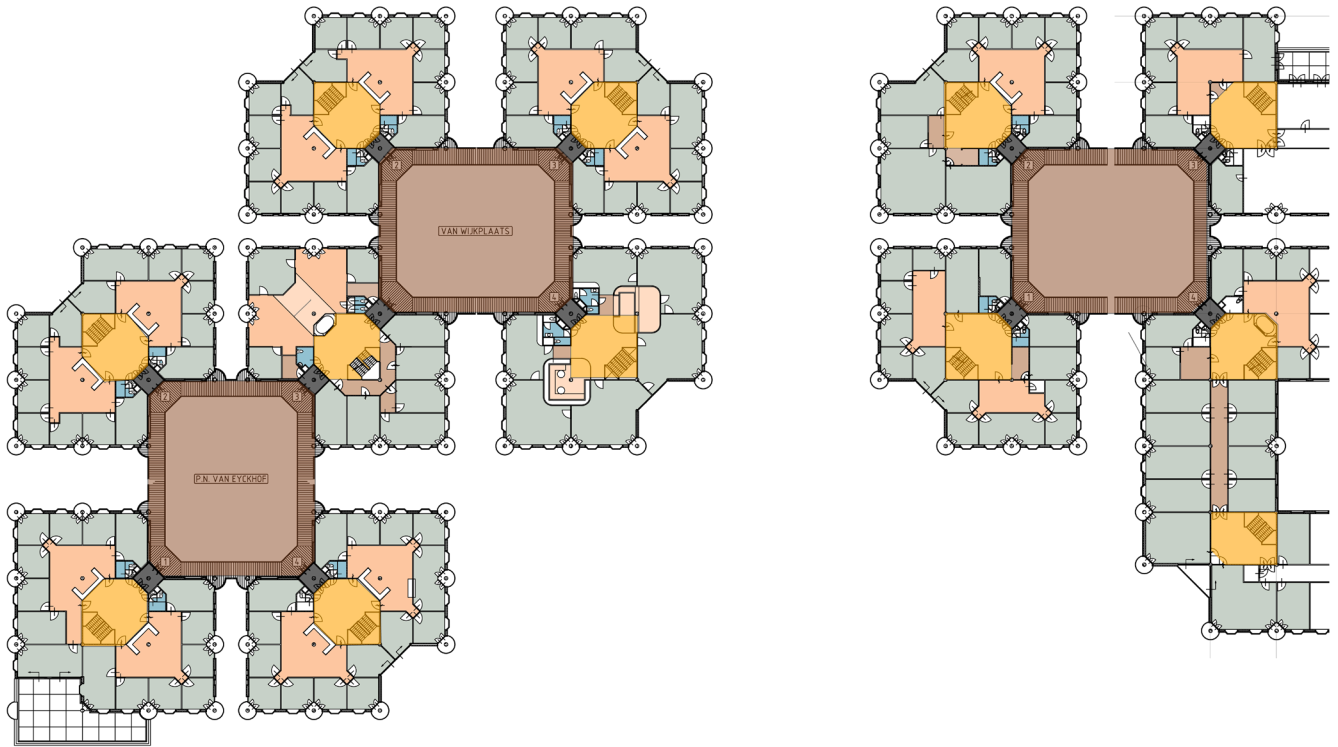
Cafeteria / 97 m²



Ventilation system

There are two unique cafeterias. In other words, there is no repetition. In the cafeteria there is enough light. However, the height of the space is small. Due to the height of the space in the corner of this space the ventilation system was created. Another special detail is the existing of a column inside the wall, half of the column is inside and the other half is outside. It is located between two fixed similar window frames.

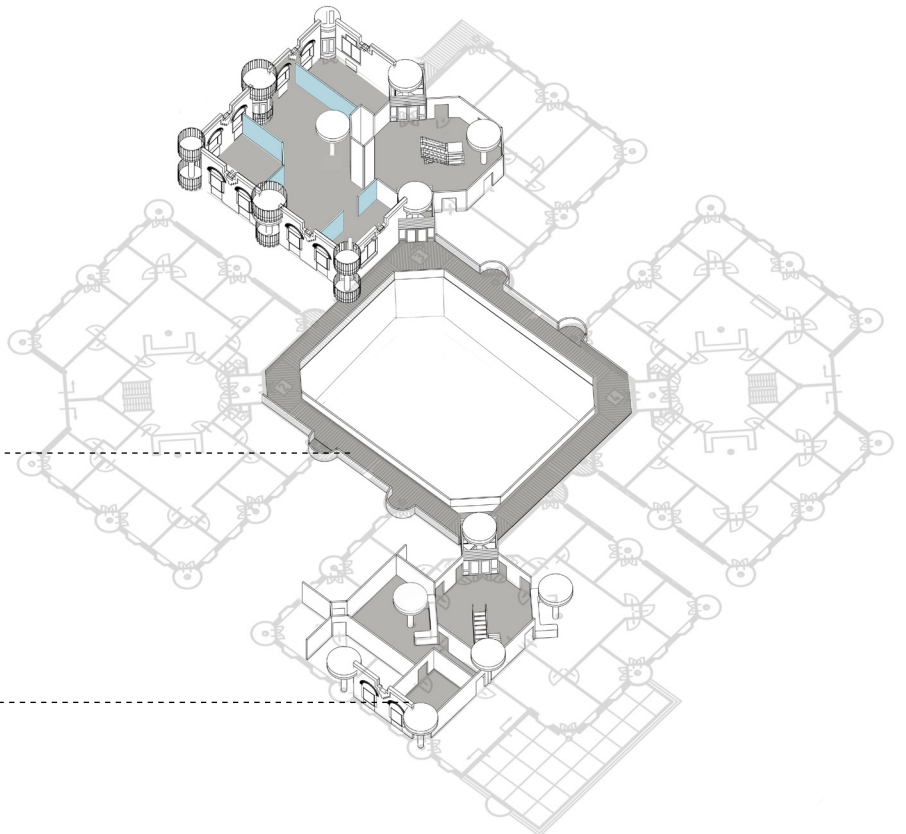
COMPOSING. / Repetition of spaces in the first floor



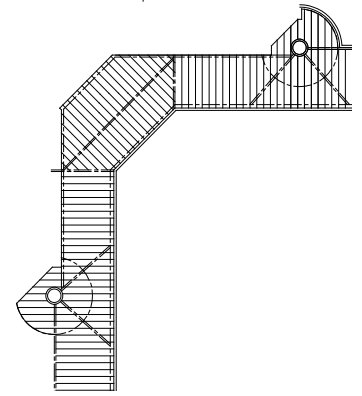
- Gallery
- Entrance hall
- Circulation area
- Main circulation area
- Office spaces
- Secondary circulation area
- Toilet

F

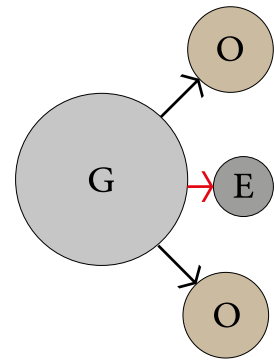
G



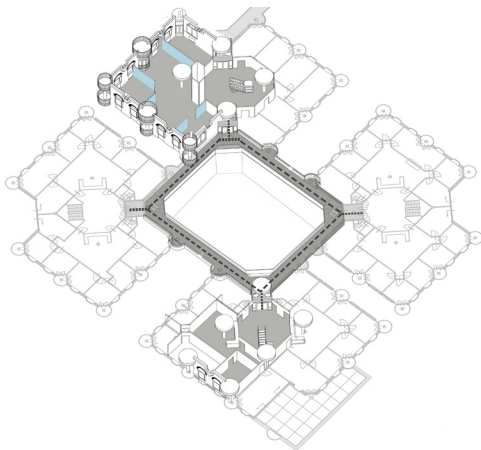
F Gallery



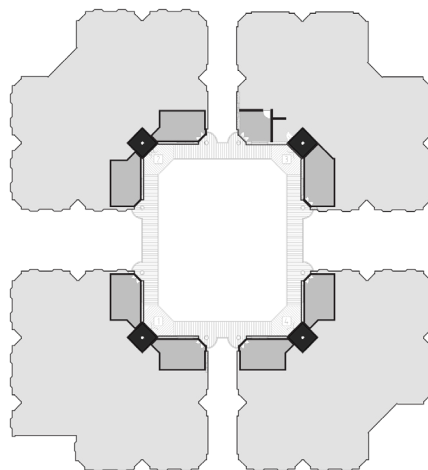
Wood and steel struction



Indirect connection

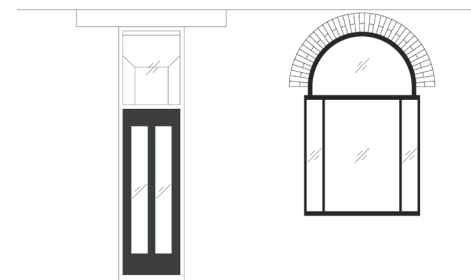
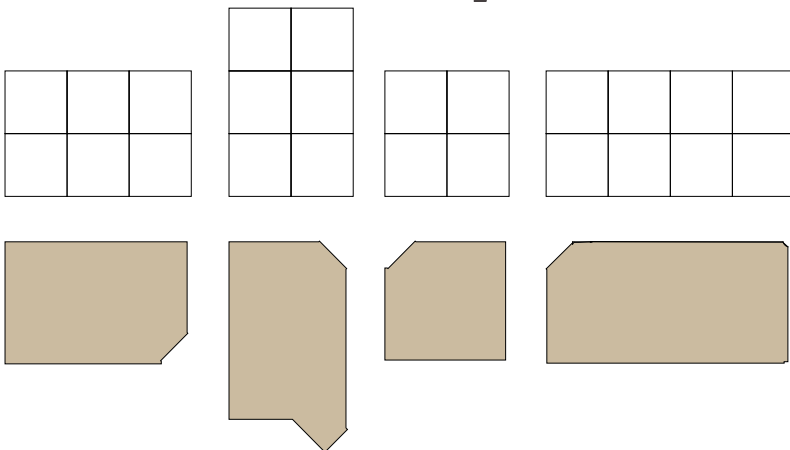


connections



The Gallery in the first floor is connected to the entrances and it has an indirect connection to the offices through windows. As mention before, there is interaction between the people in the gallery and the people in the courtyard and in the second level. The Gallery has wooden and steel structure framing.

G Offices



Office variation

There is variation of measurements in the offices. In the first floor, offices are situated around the main circulation area. From the circulation area is possible to see the framing ceiling, this is through windows located on the top part of the walls. Thanks to the amount of ceiling framing the size of the room is recognizable. In the figure above you will see one of the smallest offices of the first floor, this one has access to a balcony.

Conclusion

Joop van Stigt designed the buildings from the human size. The spaces are built up of using this dimension and is repeated on different scales such as music rhythm. There is different kind of repetition of the spaces in the complex such as repetition of entrance hall but confusion was created in the people who enter the building. Repetition of column elements has bad consequences as well in some spaces, such as in the middle of the entrance hall and also behind a window frame. On the other hand, repetition of circulation area and other spaces around gives more quality to the whole complex. Use of the ceiling frame with a defined measurement and repetition of it gives space quality. The repetition of the elements such as planter in the courtyard give quality because of the routing. In general he created all the spaces with minimize of the residual space and was efficient to use of the space.

Ventilation system

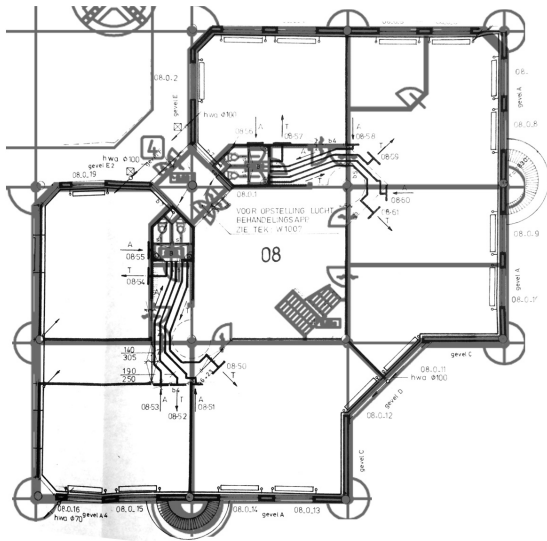


fig. g. Overview ventilation system in building block

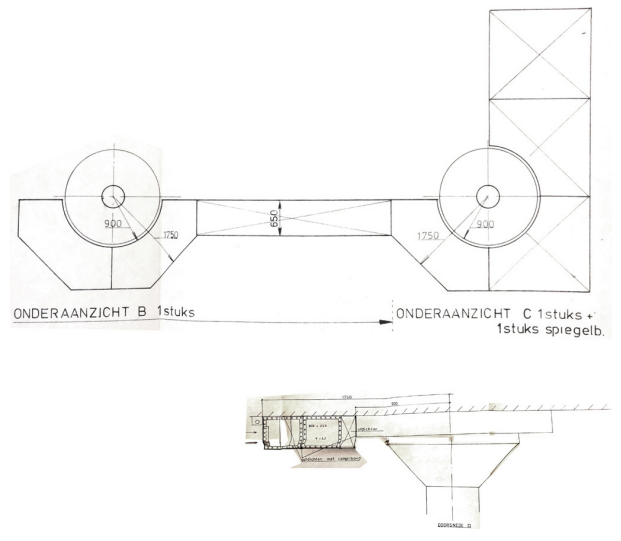


fig. h. Ventilation shaft

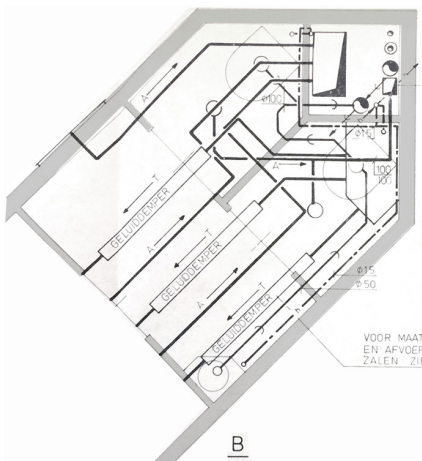


fig. i. Overview ventilation system in toilet block

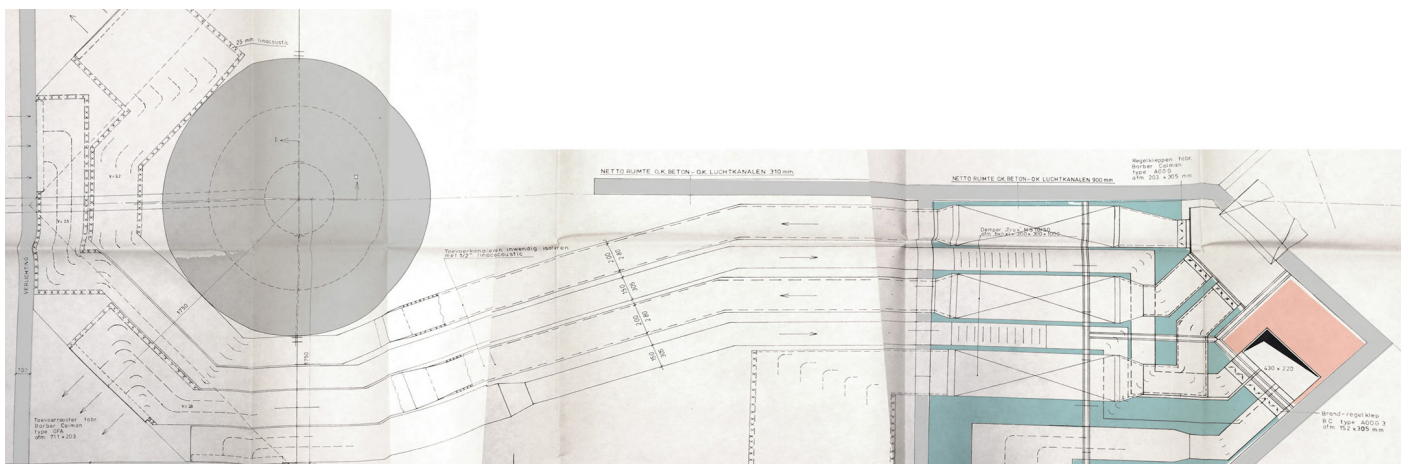
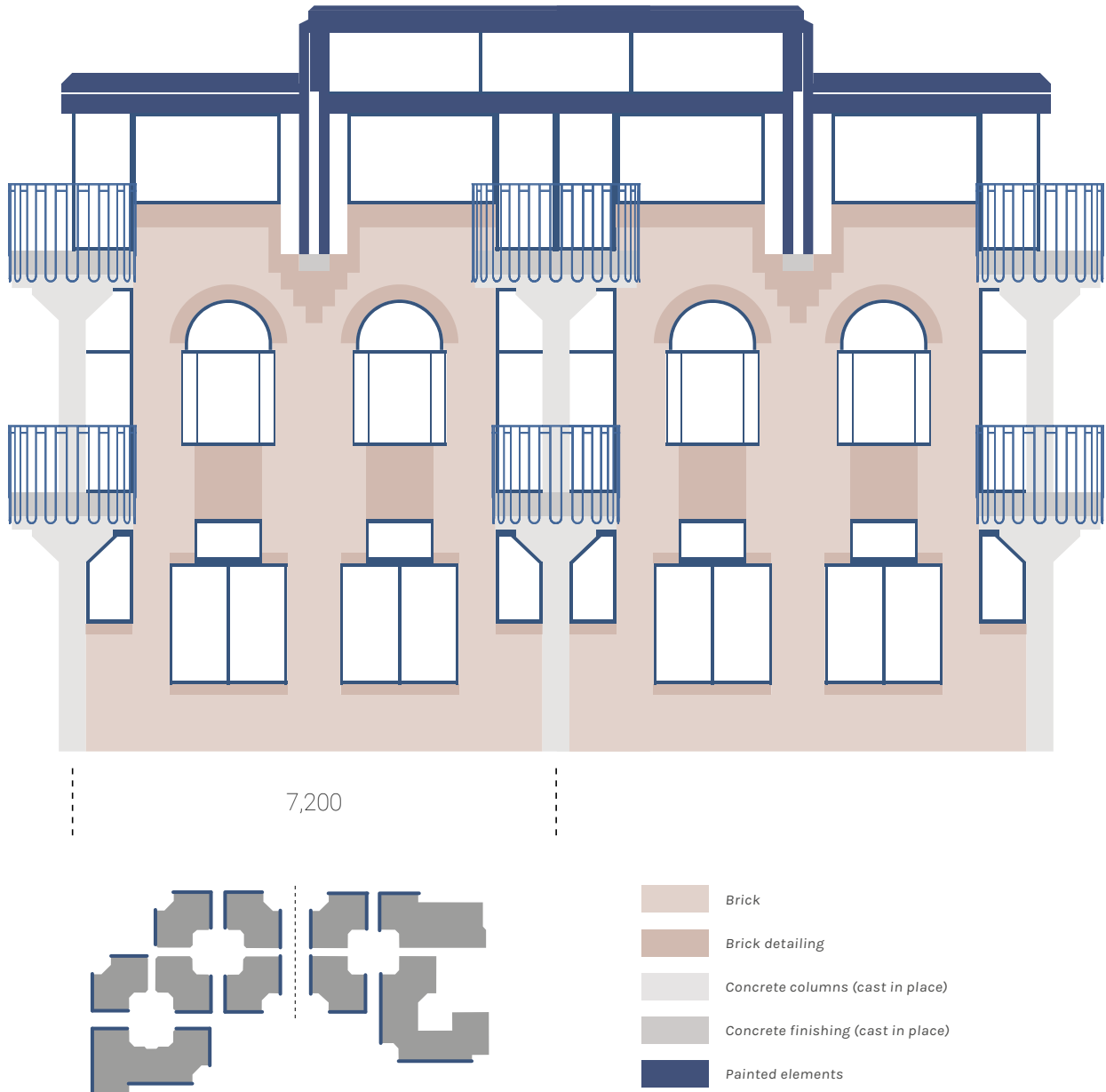


fig. j. Ventilation distribution

Elements



Extravert facades

The outer facades of the building are quite expressive and differentiate enormously from Van Stigt's earlier work. Their form language refers to the traditional housing in the surrounding area.

It consists of repeated compositions of brickwork that do not interconnect and are separated by the vertical structure of concrete columns. This separation makes that the individual brick facades within the 7,2 meter grid can be repeated even in a later expansion without having to

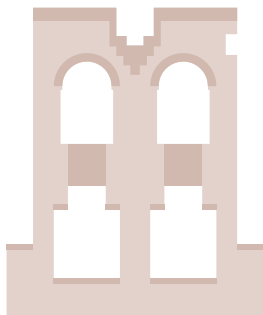
connect new bricks to existing brickwork. This flexibility is of course greatly in line with the structuralist concept of the building and shows the immersive thought Van Stigt put in his work.



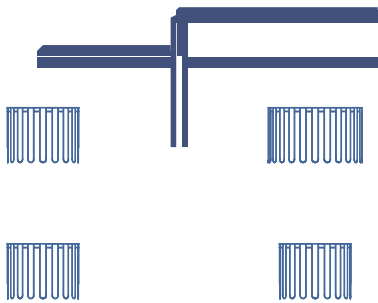
Concrete columns, floors, and column foot



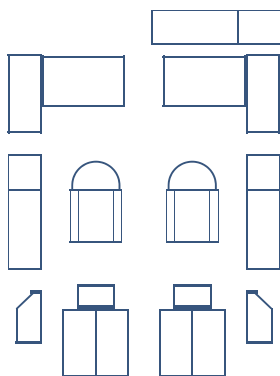
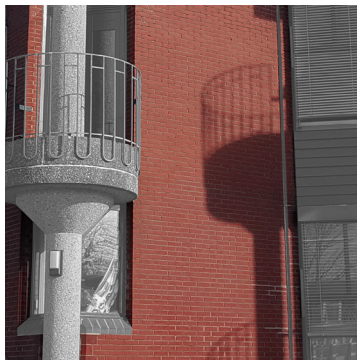
Material examples



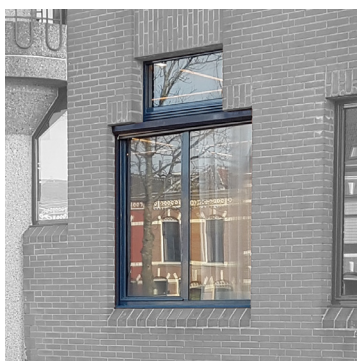
Brickwork

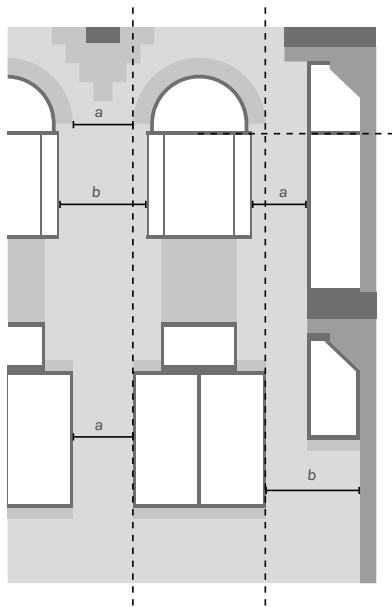


Wooden roof elements, metal fences



Metal window frames





Van Stigt creates a few references in the overall composition of the facade, but the strongest incentive for measurements is the size of the brickwork

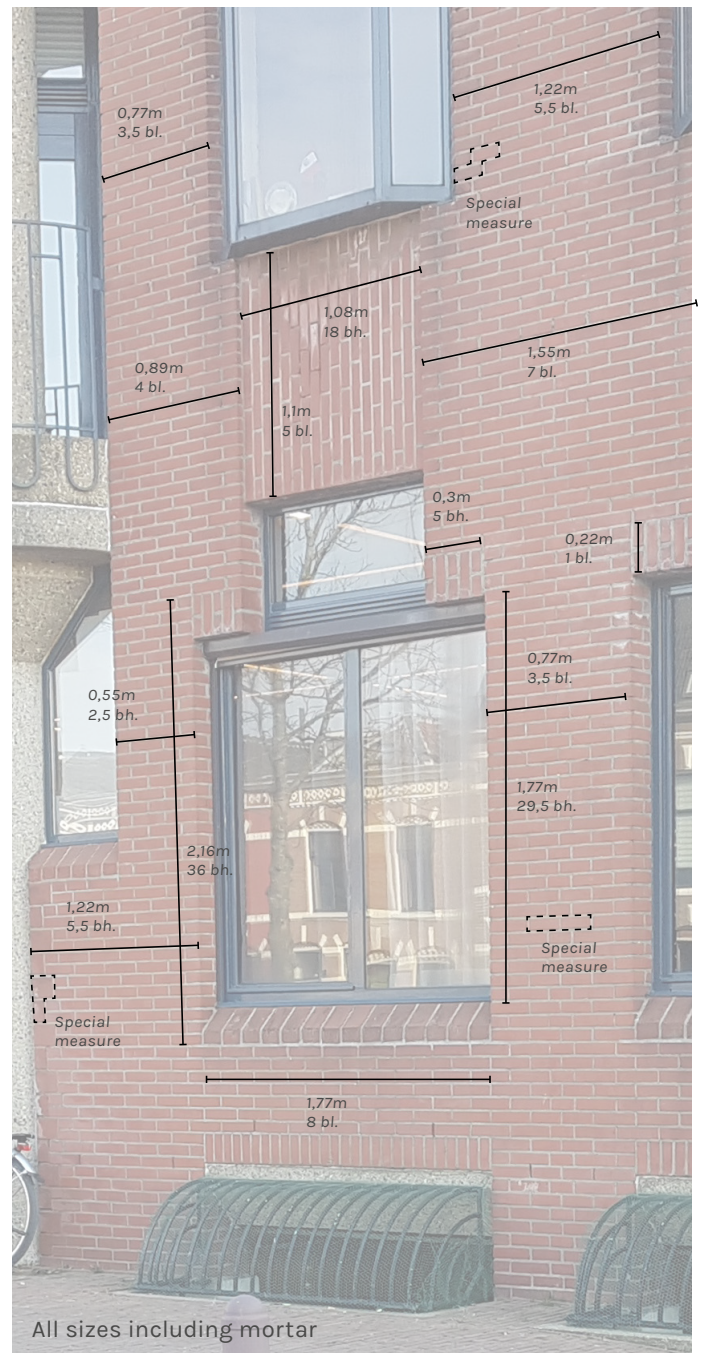
Measurements and meaning

The brickwork of the facade is a lot more complex than it shows at first sight. Every measurement in the window frames, detailing, and connection to structural elements is designed around the measurements of the brick, and the overall composition of the facade seems to be designed on the basis of this brick size as well.

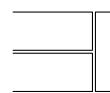
Many details around the window frames are constructed in soldier course bricks. These could be seen as an aesthetic but analysing the exact layout it shows that often these bricks form precise patchworks to accommodate for a facade that uses both a rigid brick size and quite expressive and complex windows. By using a soldier course the design allows for an inbetween size which can make that the windows fit within the brickwork and can be exactly square or have additional parts to them.

As well it might seem rather odd at first that the ground floor- and first floor windows do not have similar widths as this seems contrary to the precise designwork of Van Stigt. Yet this differentiation is again a derivative from the brick measures. The mason arch on top of the rounded window on the first floor is made out of bricks layed in length and these form an arch width the exact width of the ground floor windows (see picture above - measurement a), making the whole composition work.

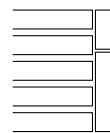
This makes that the facade can be seen in a different way than pure patches of either flat or soldier course brickwork. In composition it consists of vertical parts, in layed flat bricks without interruption, that express the classical structure of the facade. Inbetween are the brick patches and solutions that support the infill of windows and the connection to the concrete column grid.



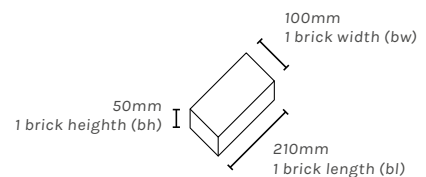
All sizes including mortar



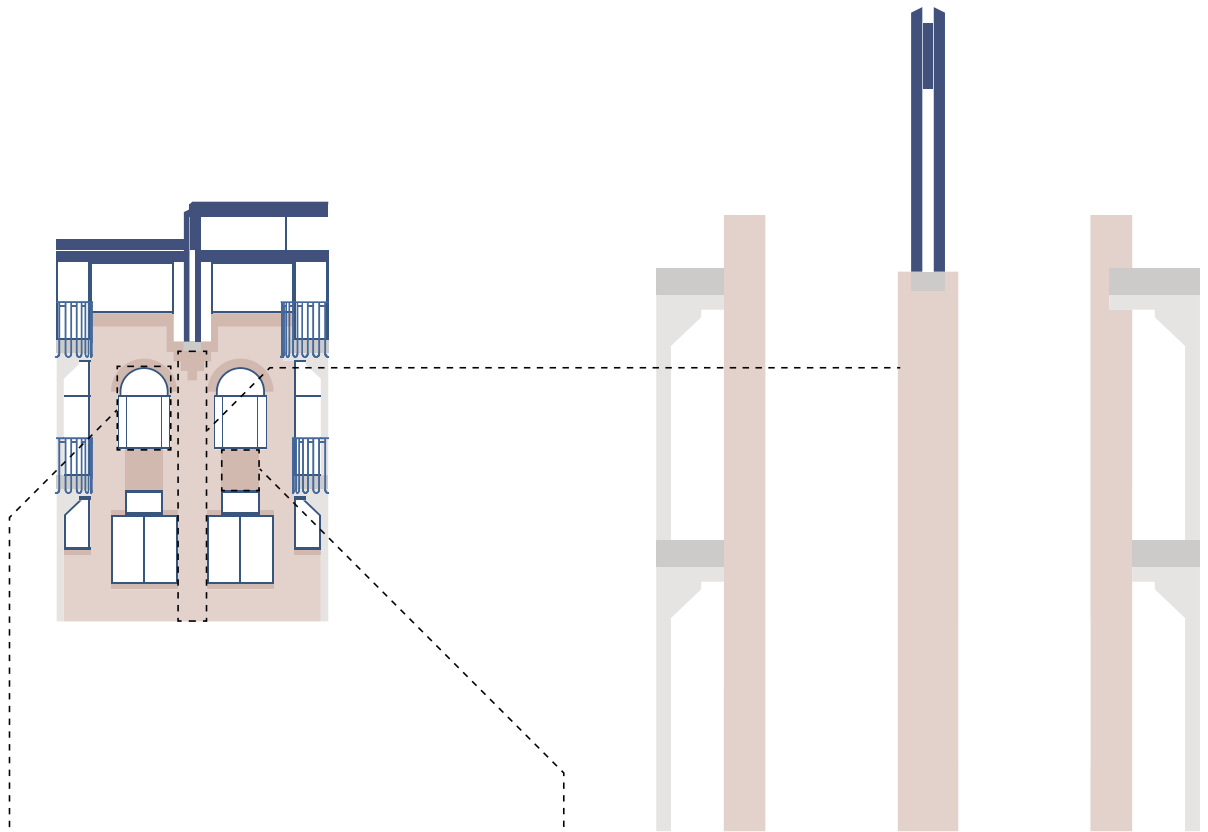
Including mortar 2 broad heads equal 1 length



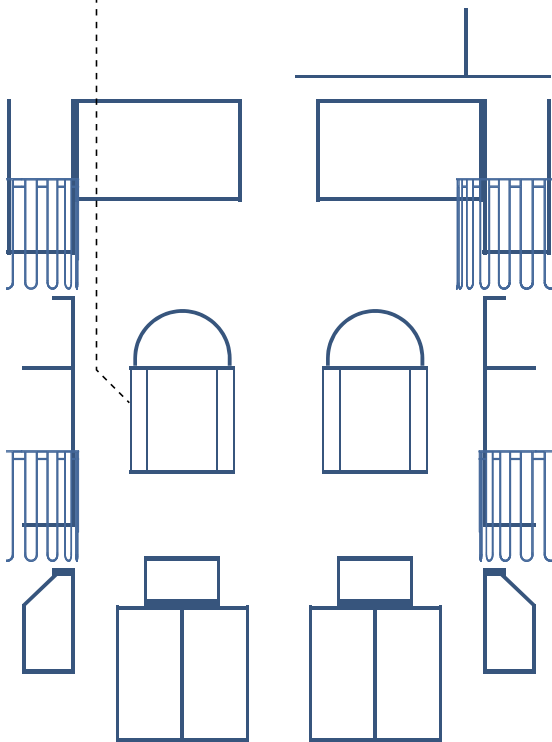
Including mortar 5 flat heads equal 1,5 lengths



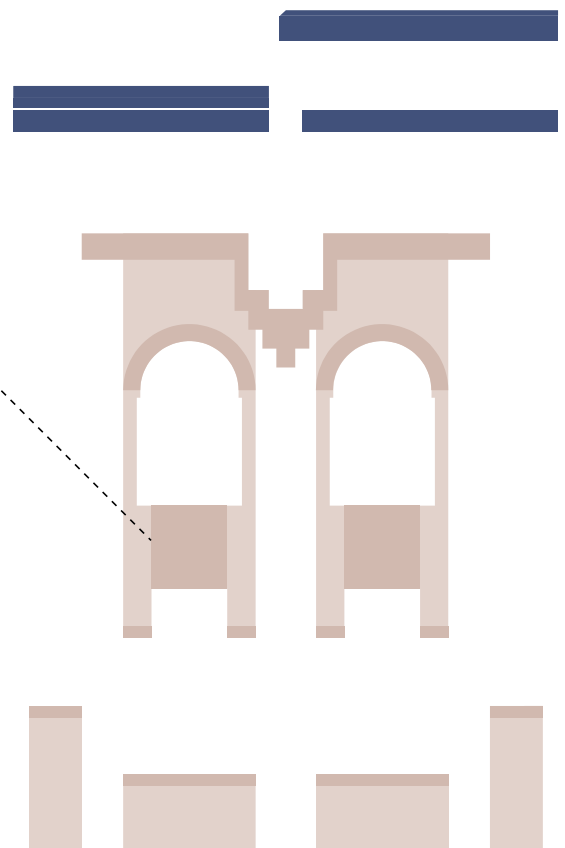
Mortar adds a 10mm layer on top and inbetween



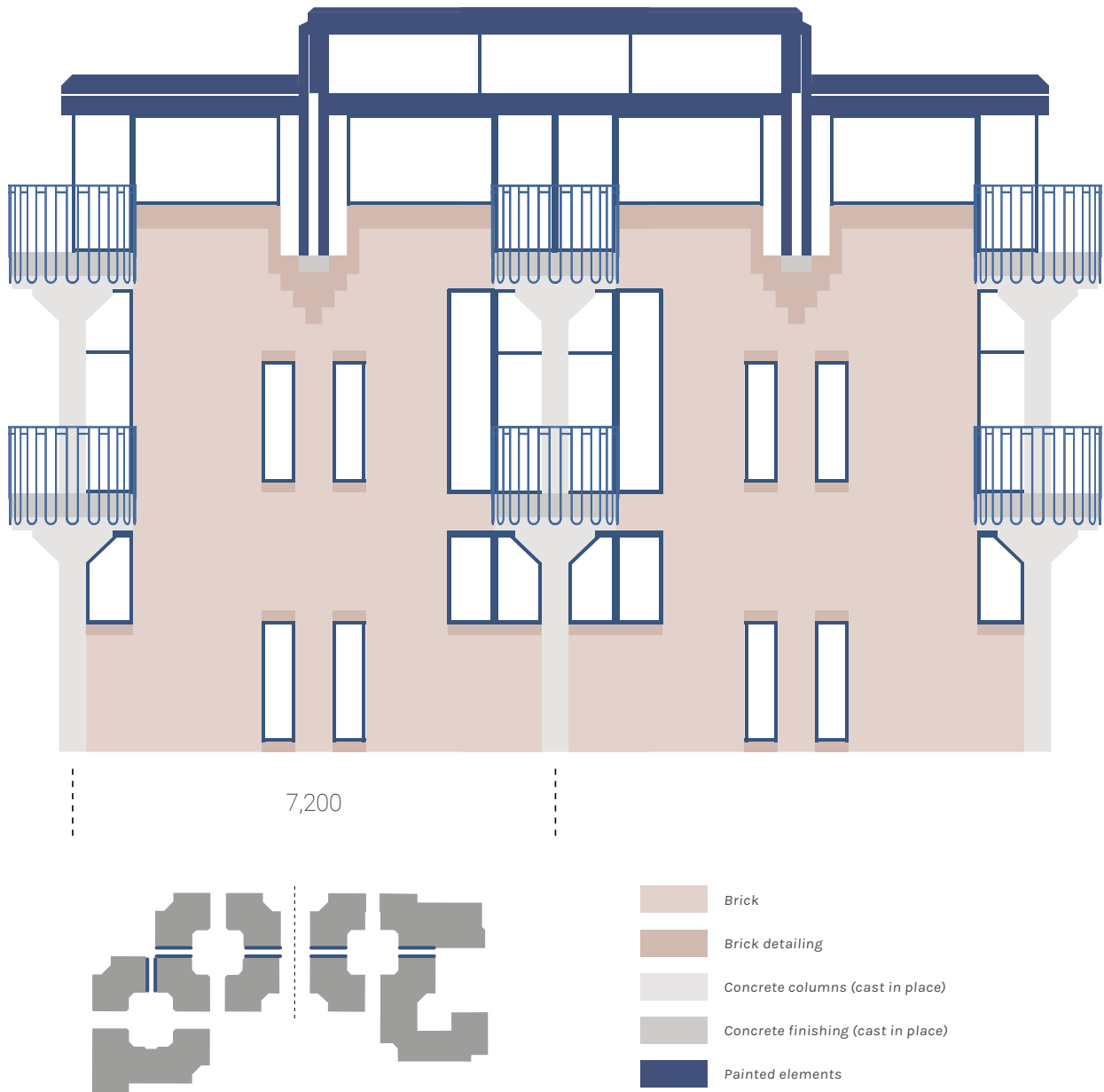
Vertical expression



Coloured accents



Expression of roof, detailing, and window shape



Introvert facades

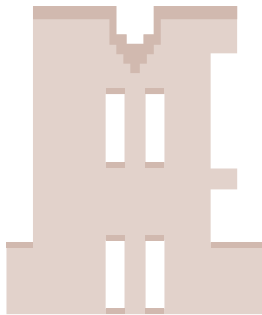
The facades on the small inner corridors between the building blocks are more concealed and closed-off to each other, though open up around the middle columns. Notably the wooden roof facades are repeating as copies on all sides of the building, independant from the facade of the bottom part.



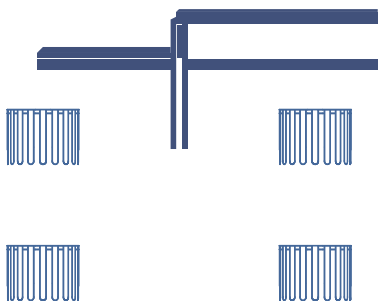
Concrete columns, floors, and column foot



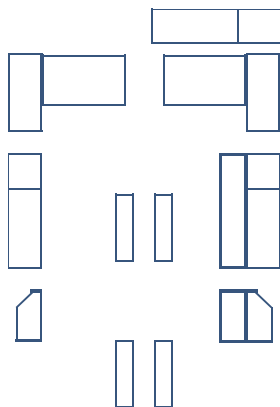
Material examples



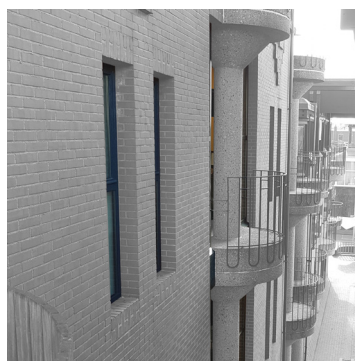
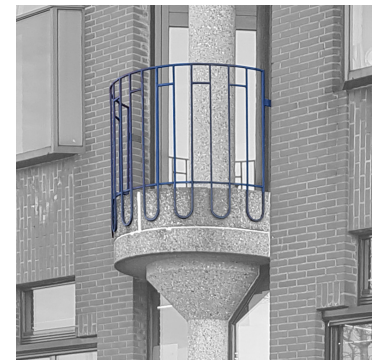
Brickwork



Wooden roof elements, metal fences

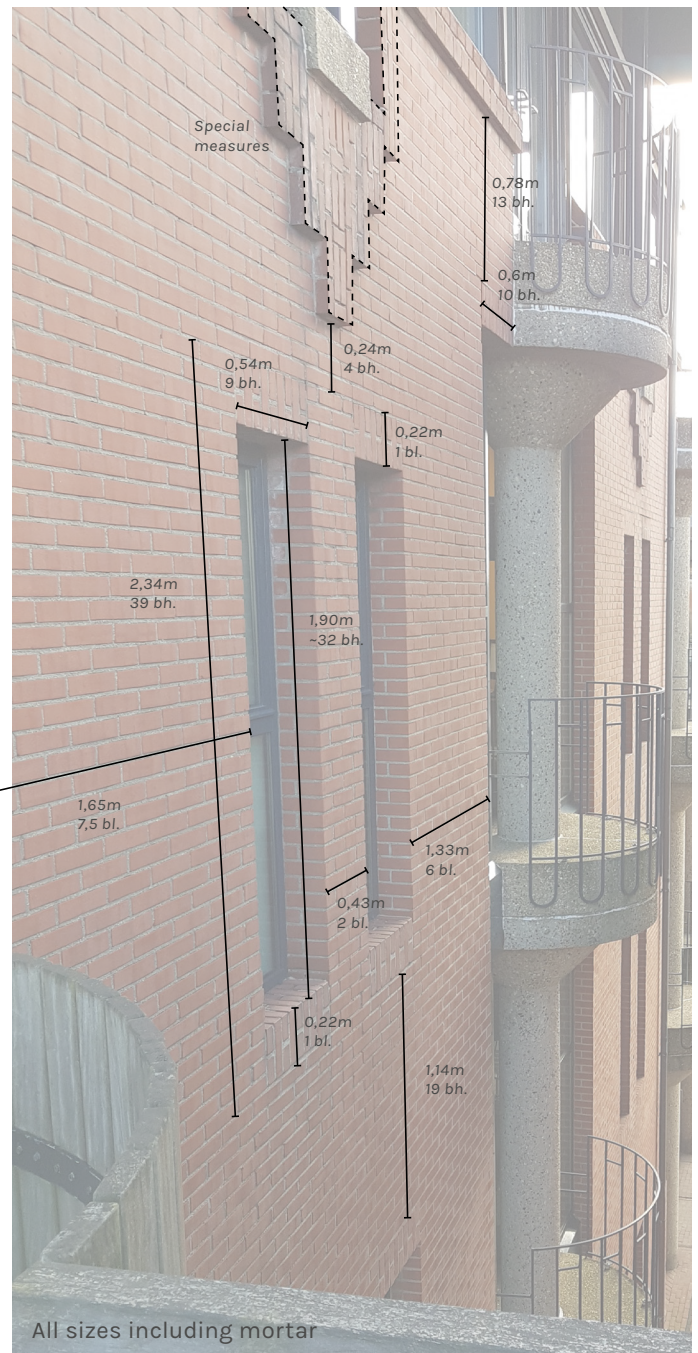


Metal window frames

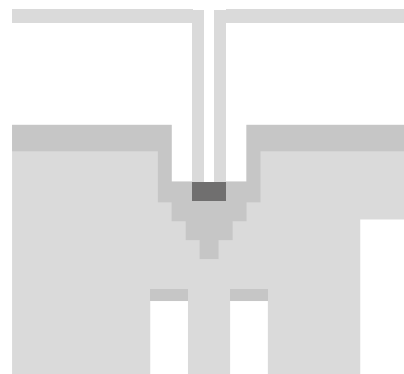
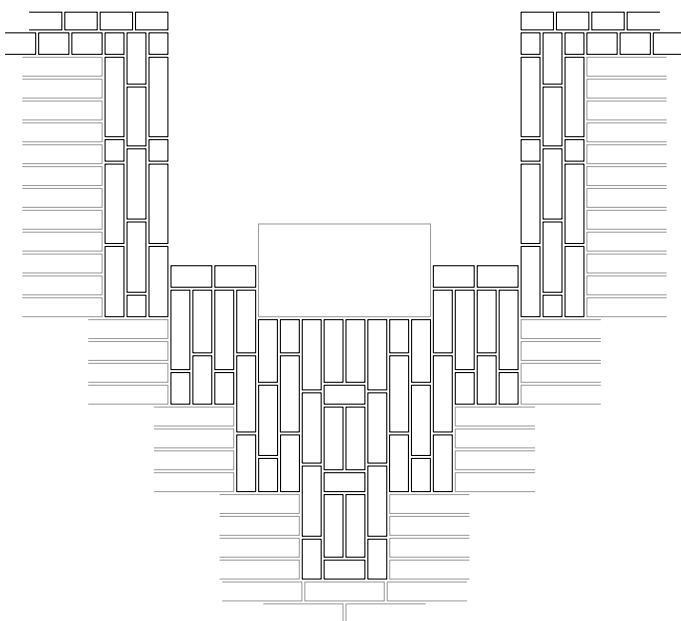


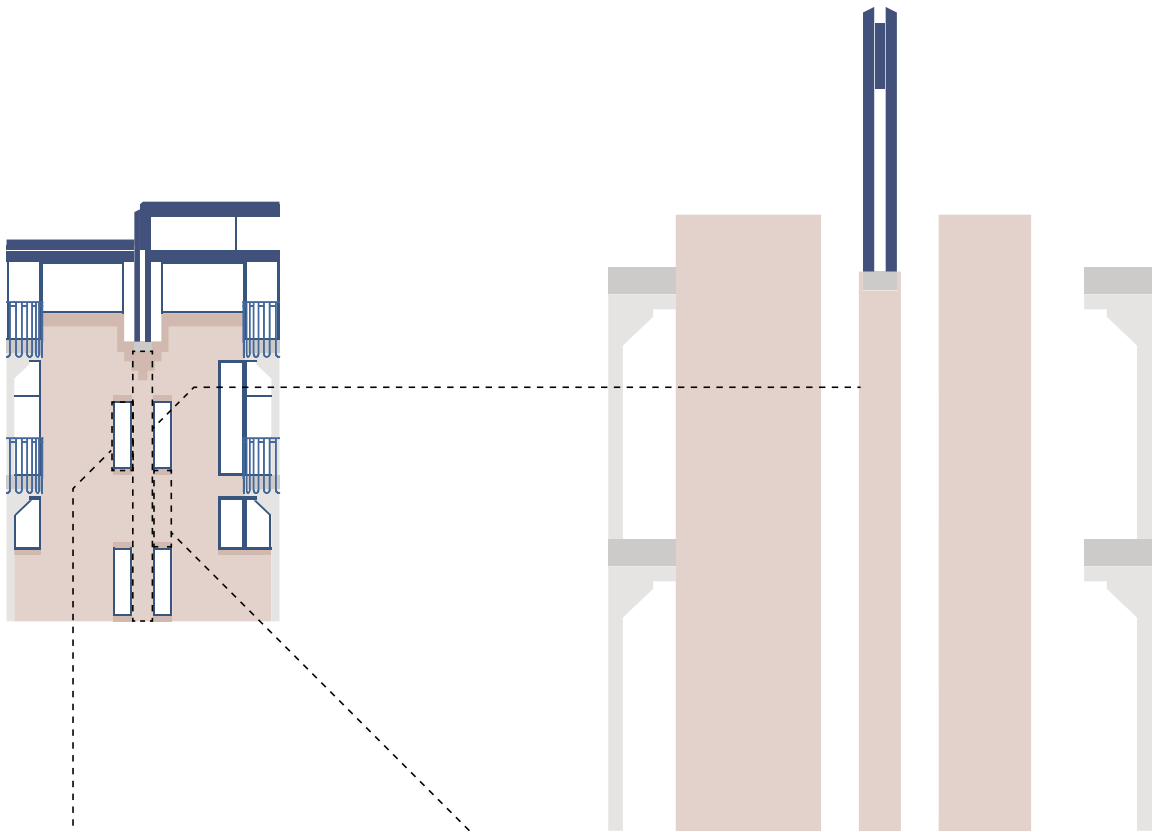
Measurements and meaning

The compositional separation in vertical expression and infill patches is also strongly visible in the allyway facades. Here the soldier course bricks above and under the narrow windows allow for windows with a 1,90 meter height. A critique on the meticulous brickwork design might be the construction of the roof column supports in the top of the facade (see picture bottom left). To allow it to be a stepped design that fits within the regular brickwork it is made up almost entirely of bricks with non-standard lengths in order to fit them in the design.

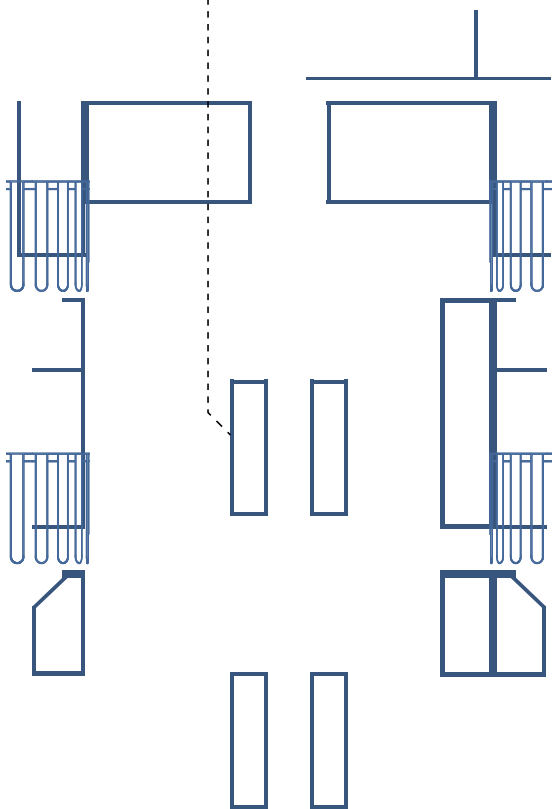


Detail brickwork 1:20

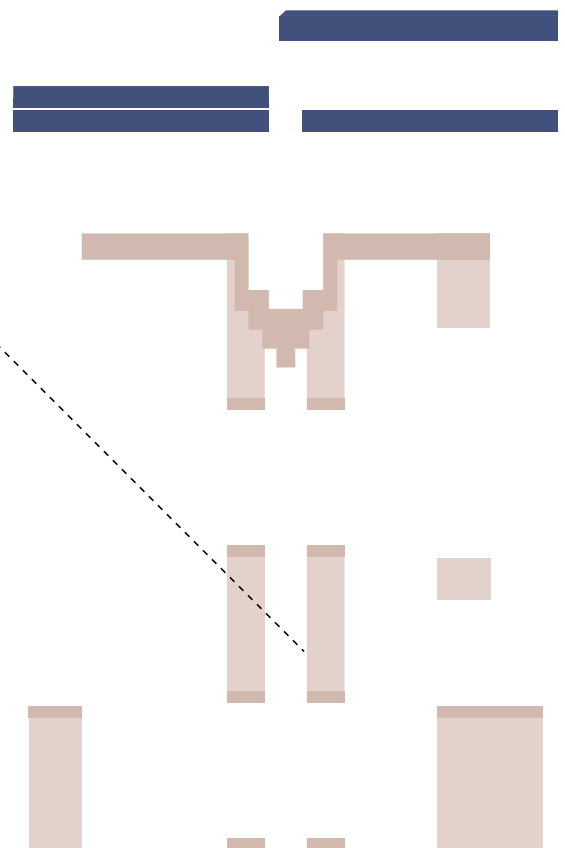




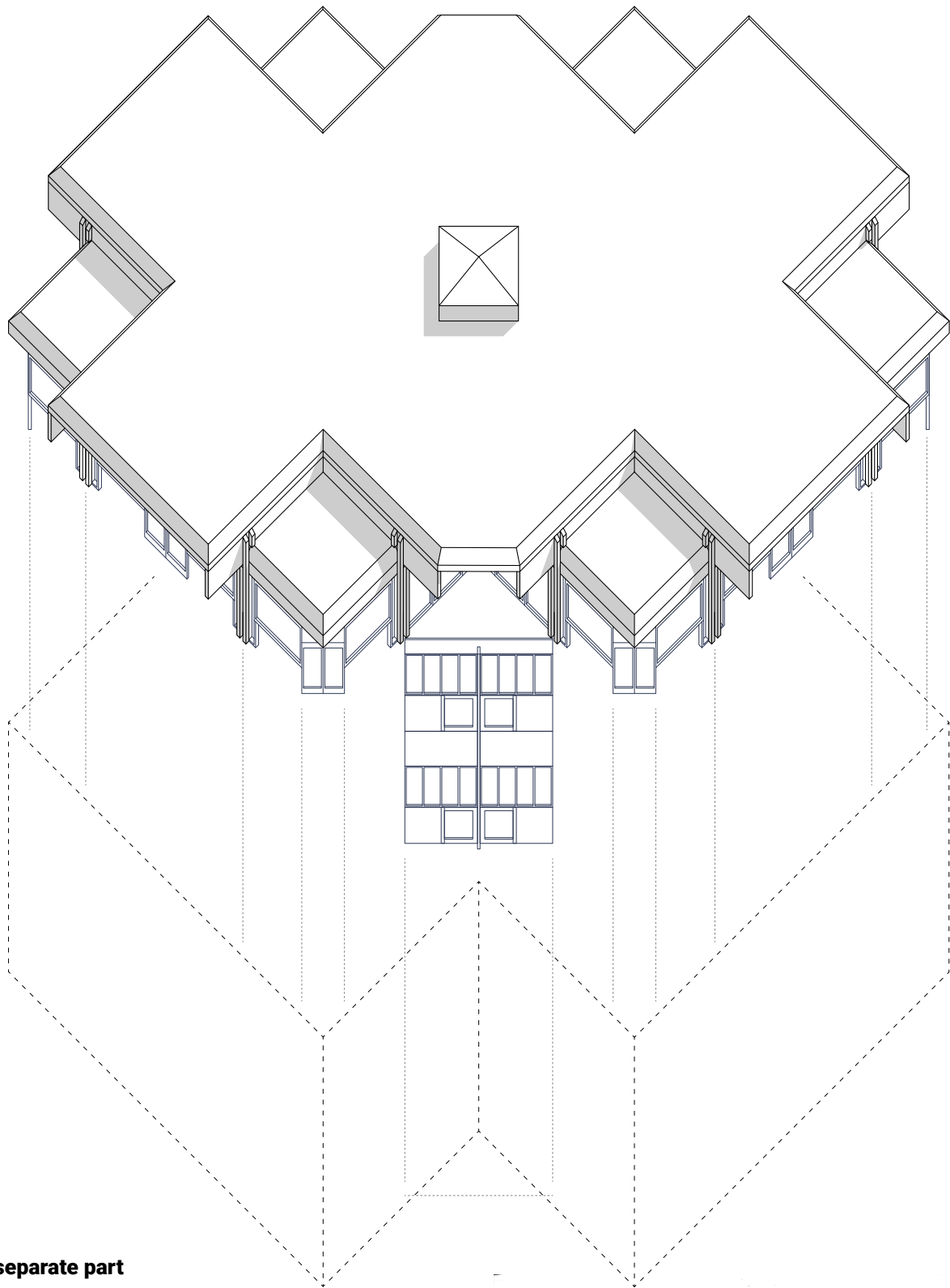
Vertical expression



Coloured accents



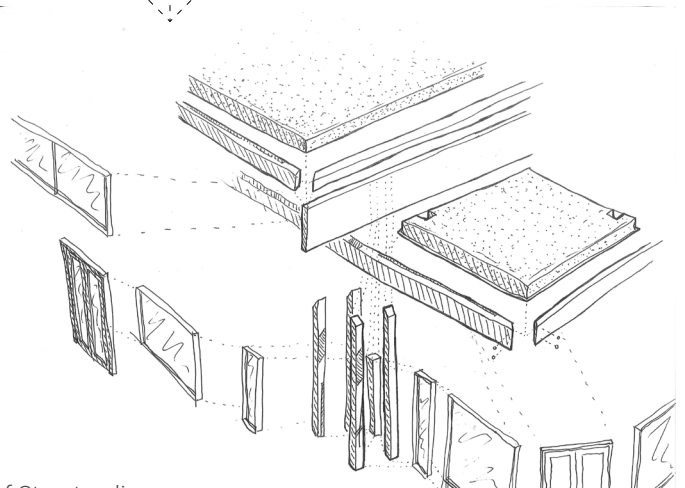
Expression of roof, detailing, and window shape



Roof as separate part

ROOF. / POSITION IN COMPOSITION

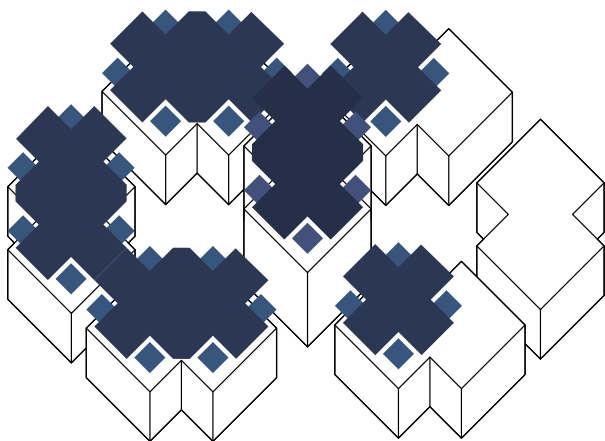
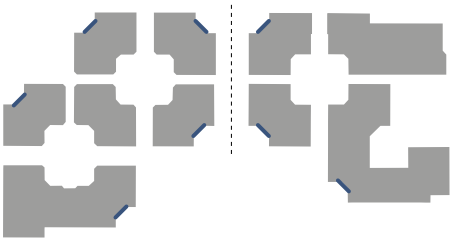
The roof of the building is one of the most expressive elements present in the building. It separates itself from the heavier brick bottom part and in the structural composition of the building blocks twists the otherwise simple layout of two conjoined cubes. The construction is also the most typically recognisable as Joop van Stigt's work, as it is constructed in the exact same way as the Stadhuis Ter Aar roof. It is a display of solid craftsmanship.



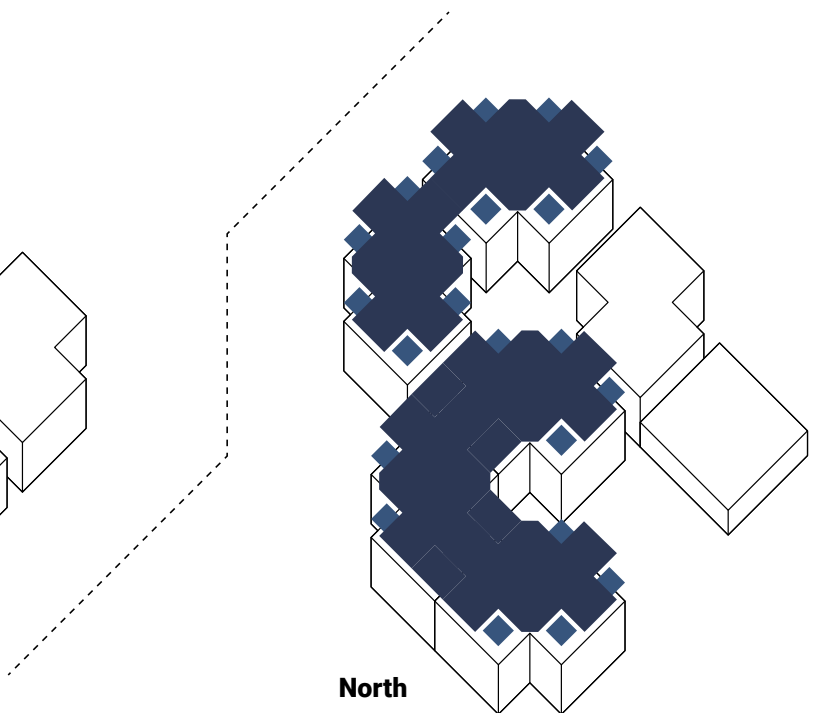


Blue upper part connected to sky, red bottom part connected to ground

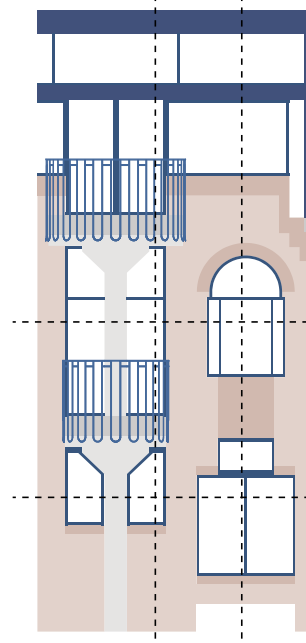
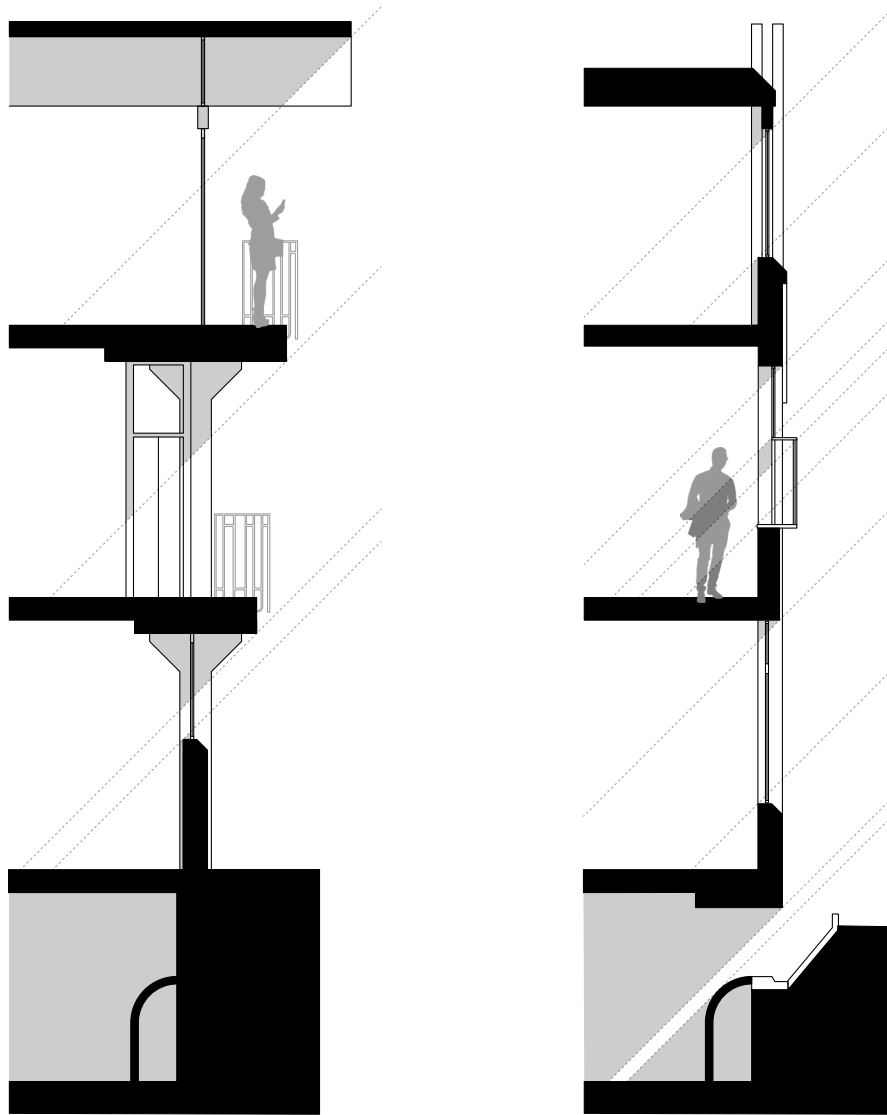
The blue colour of the painted wood, together with the hard and dark reflecting glass, seems to form a transition between the heavy brick bottom of the building and the blue of the sky. Although this might seem far fetched, the strong difference in form language, materialization and openness of the two parts sets a strong separation between up and down, light and heavy, blue and red, modernistically glazed and traditionally provided with bay windows and brick arches.



South



North



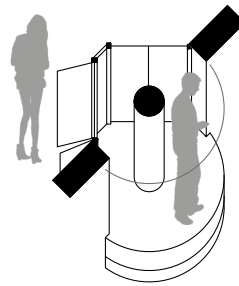
FACADE. / SHADING

The differentiation in windows and openings in the facades create many ways light enters the building. By connecting several of these openings to the columns these gain an additional role as sun shading, in line with the extruding roof slabs that cover the wide open glass facades of the top floor. In a few places there are also small openings through the ground floor that provide daylight into the parking garage.

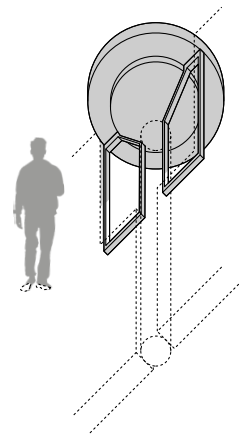
FACADE. / THREE-DIMENSIONALITY

The use of bay windows and inwardly moved doors creates an interesting three-dimensional meandering in the facade above ground floor, in contrast to the flatness of the ground floor facade. This makes for different experiences and interactions.

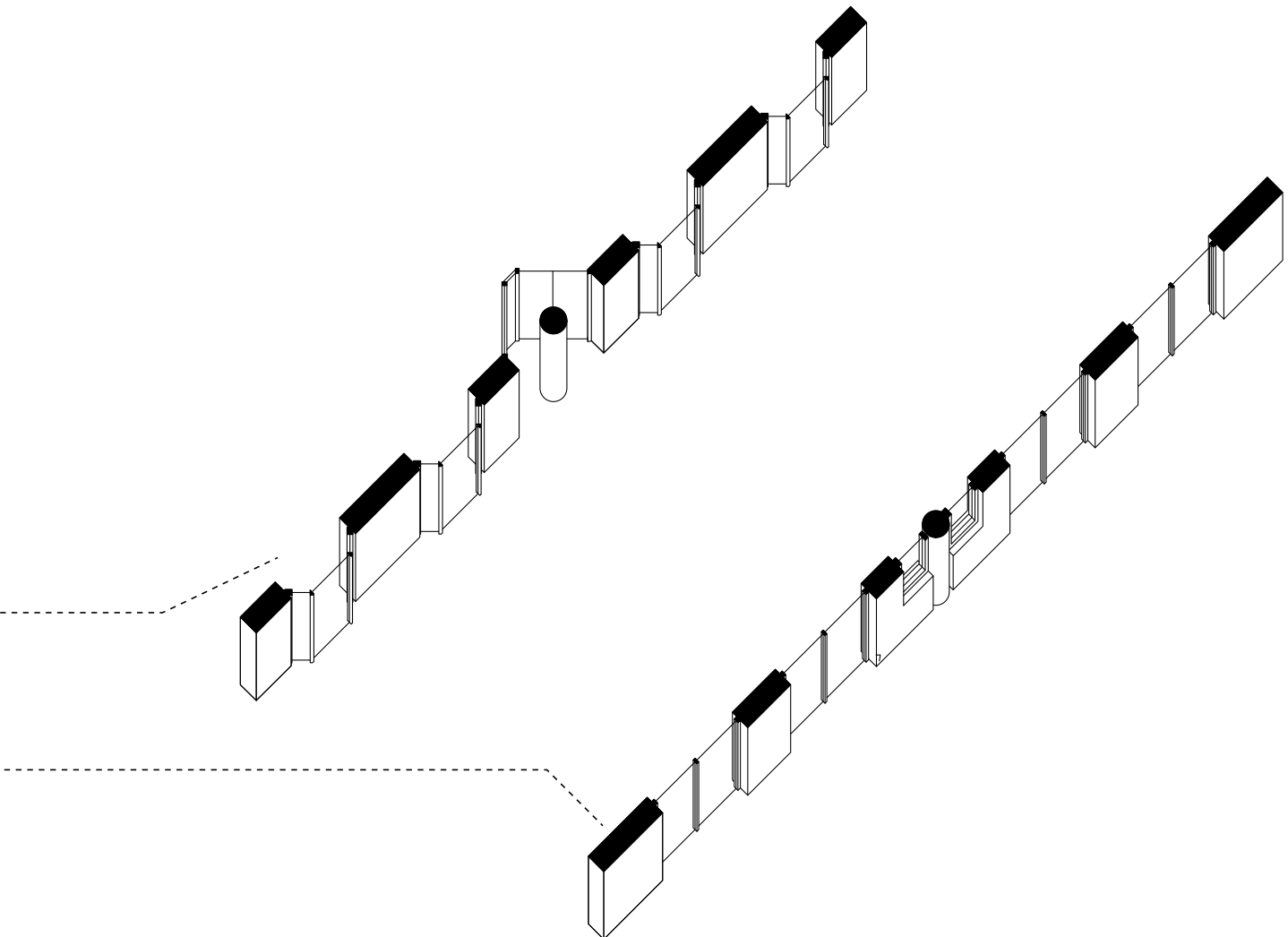
As well the connection of the columns with this depth in the facade makes them more than solely constructional elements. The doors and railings clearly show a design as a balcony, yet these are rather small and hard to use. It is likely that, as mentioned earlier, the use of openings around the columns gives them a multifunctionality as shading. In this line the inward position of the upper floor glass doors is a logical move as in this way there is the least amount of direct daylight entering inside. This makes the column tops more French balconies than anything else. Also this idea is enforced by the extra width given to top floor column tops where no column blocks the balcony and the facade is shaped flat, giving the slab an actual functionality as place to stay. It is likely the lower floor balconies are more important for social interaction.

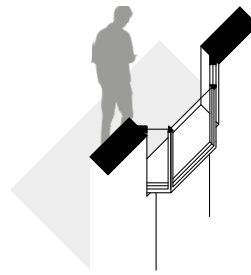
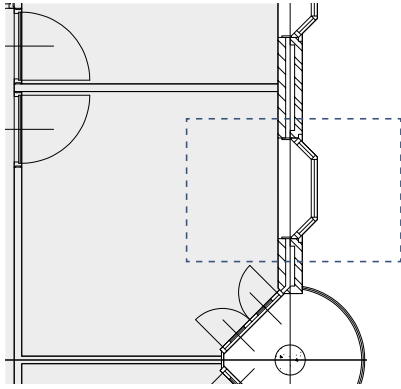


Column top as balcony

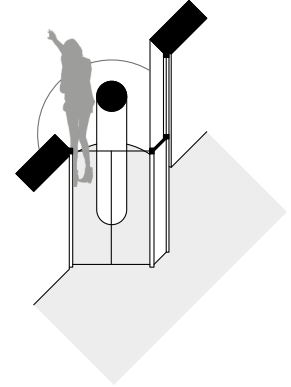
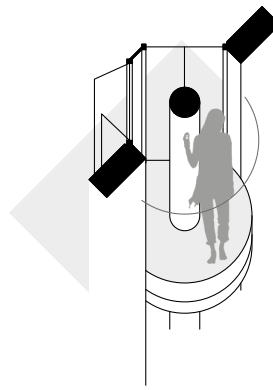
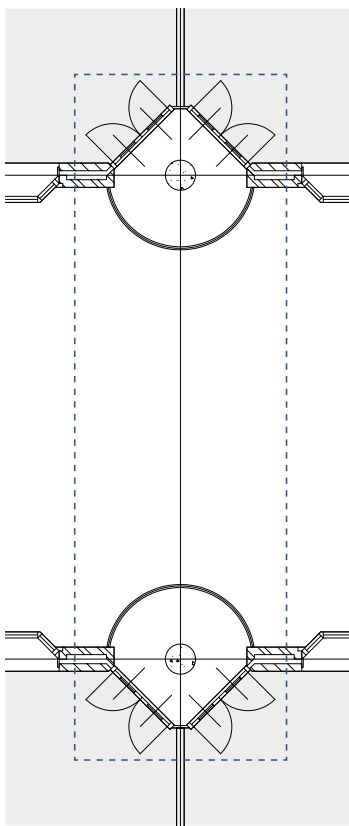


Column top as shading





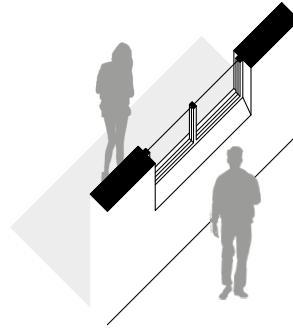
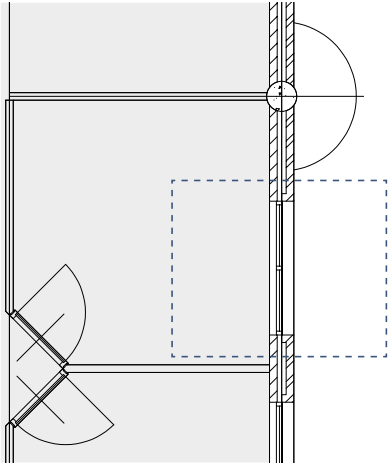
+1/2 view on outside



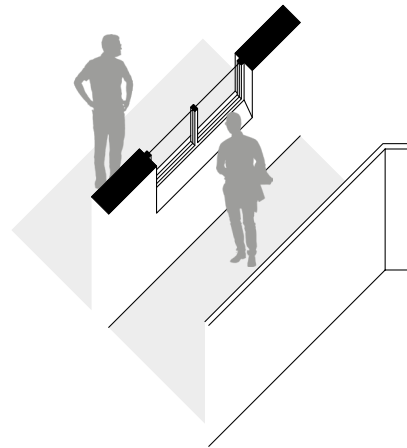
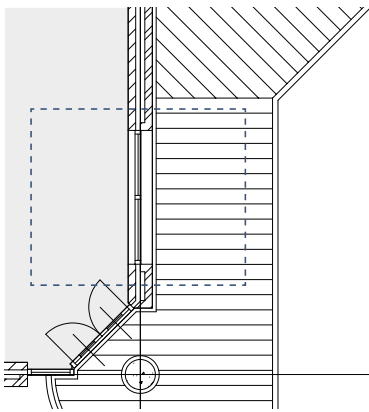
+1/2 street balconies

FACADE. / SOCIAL INTERACTION

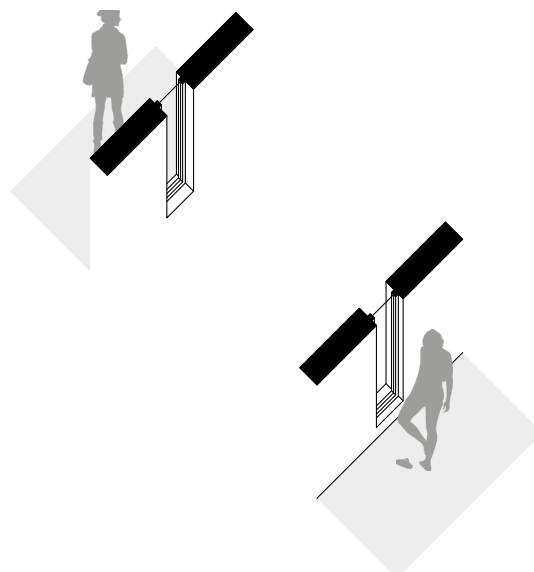
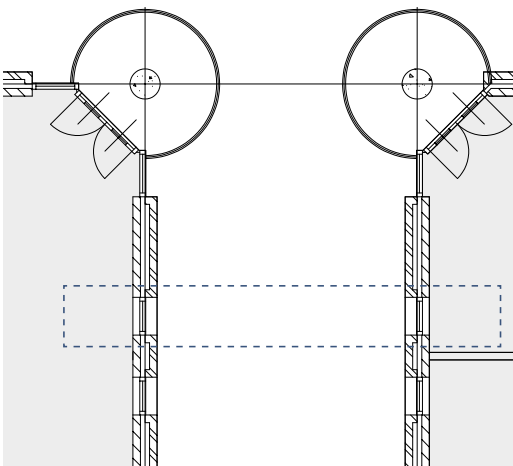
The three-dimensionality of the facade and differentiation between flat, inward, and outward windows and openings establishes different social interactions over the levels of the building. These differ between places where people inside and outside are on the same height, where equality is created through a flat separating surface, and places where the connection is obstructed by either distance or height difference.



+0 equality on same level



+1/2 passage as street



+1/2 close distance as equality

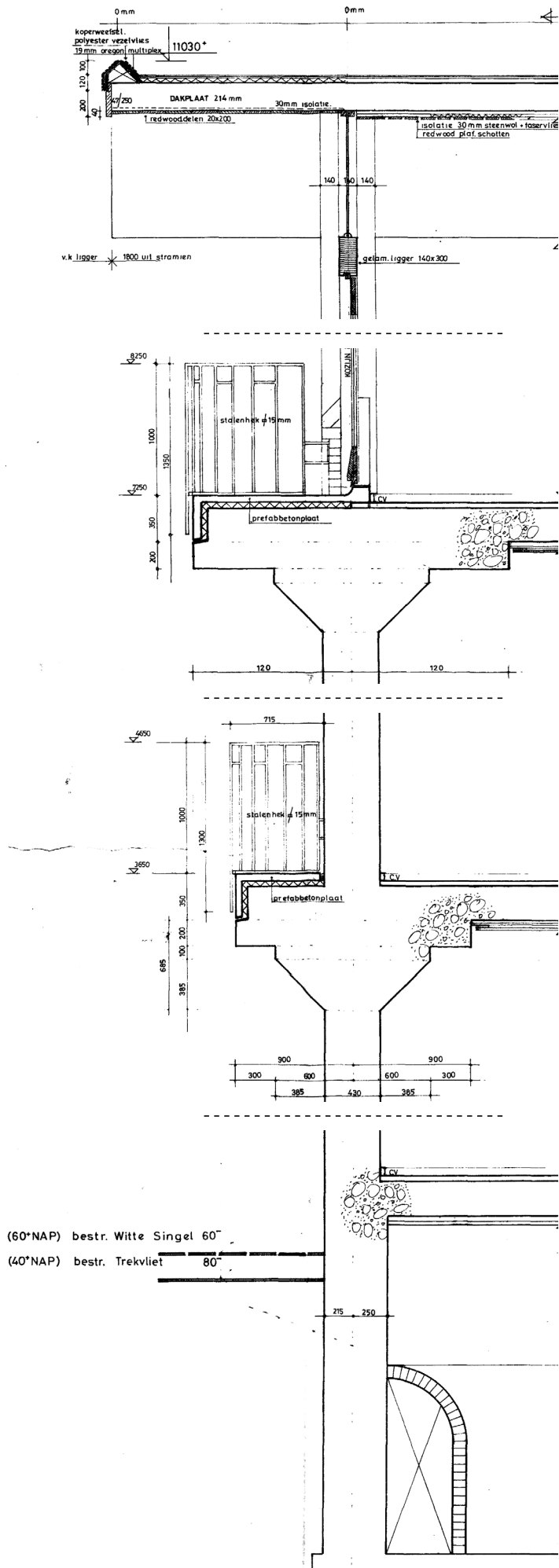


fig. a. Columns section 1:50

fig. b. Column connection without balcony 1:50

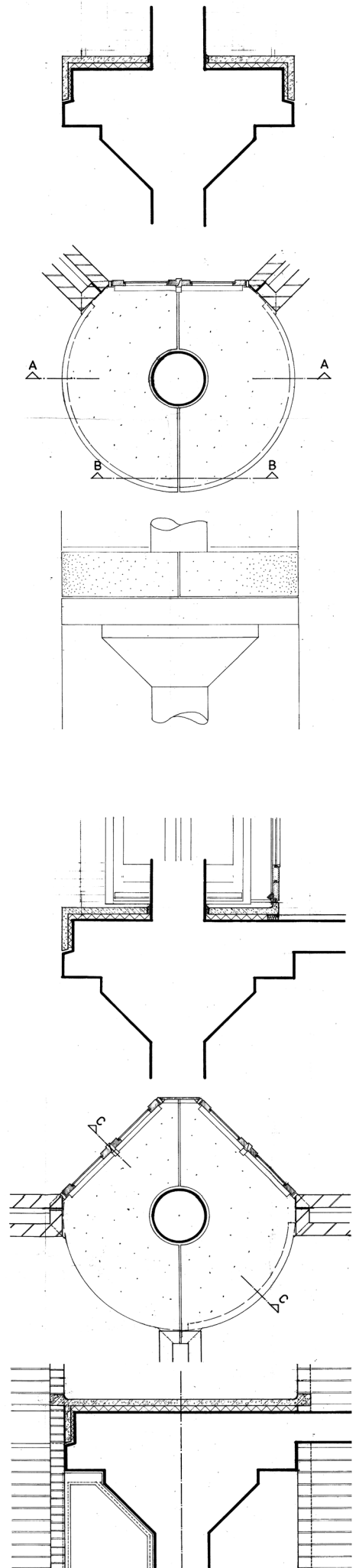


fig. c. Column connection with balcony 1:50

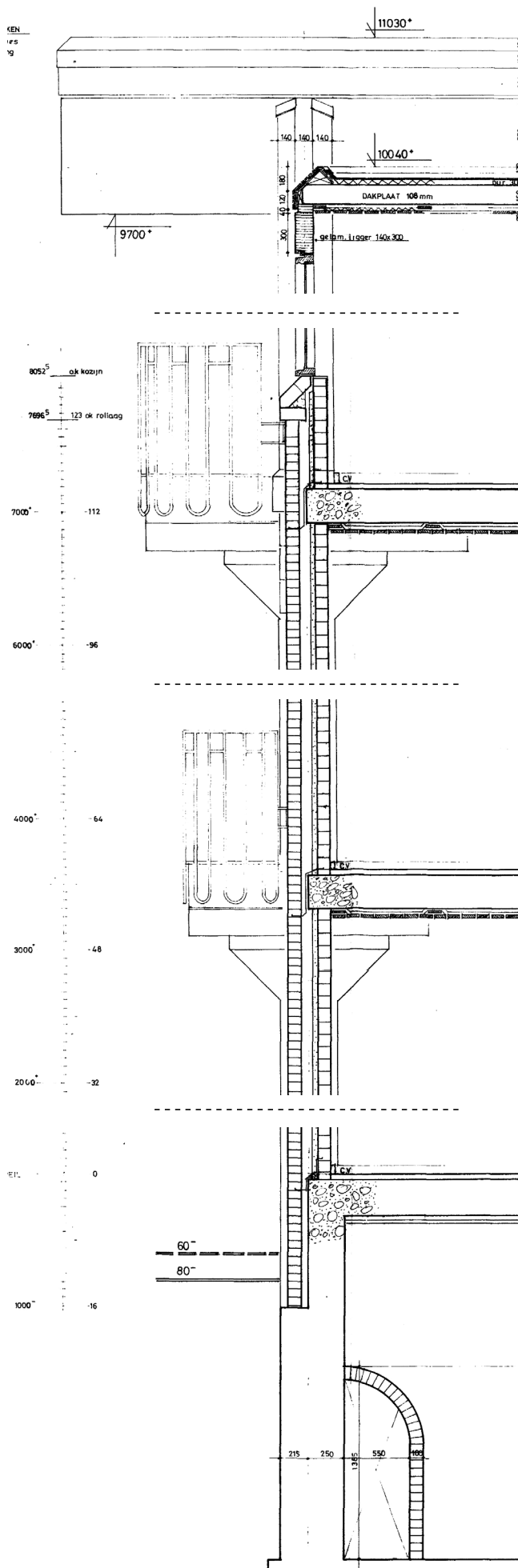


fig. d. Columns section 1:50

fig. d,g: Drawings by Joop van Stigt, New Institute Archive

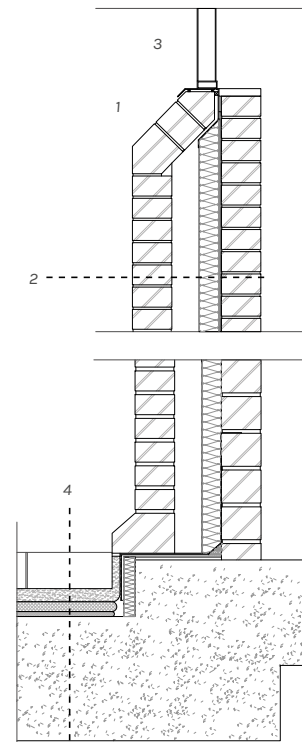


fig. e. Detail Brickwork 1:50

1. Dedicated brick cap
Concrete Bricks 205x105x87mm
2. Damp Proof Membrane
Insulation 52mm
Cavity 72mm
Red Bricks
3. Glazing
4. Red Brick floor finish
30mm Screed
Concrete Slab
25mm high-grade bitumen mortar
15mm low-grade bitumen mortar
Damp Proof Membrane
Concrete Slab

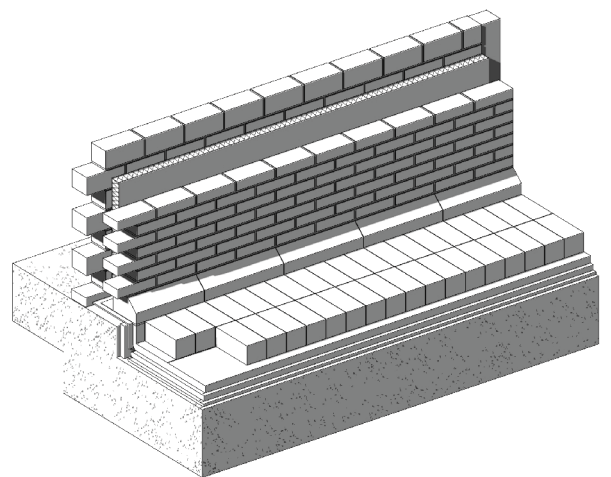


fig. f

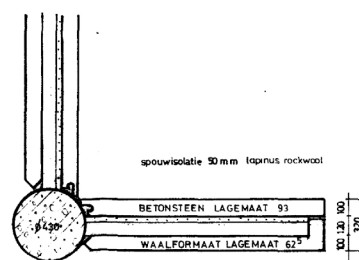


fig. g. Corner connection columns and brickwork 1:50

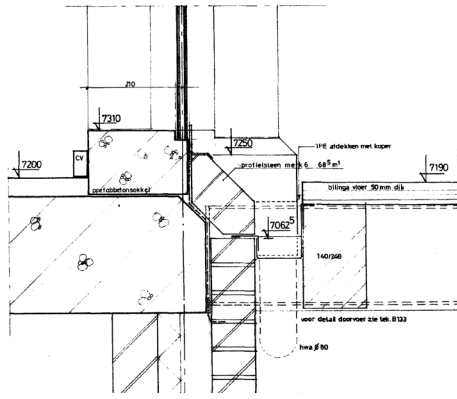


fig. h. Conection gallery 1:20

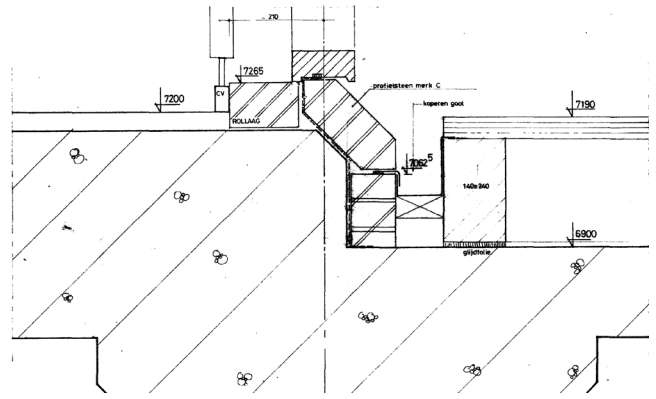


fig. i. Conection gallery 1:20

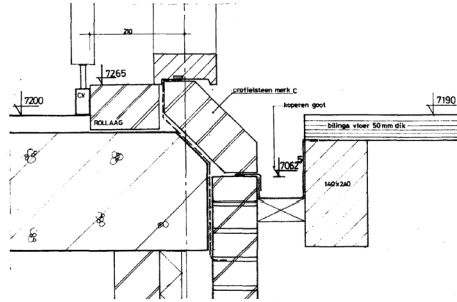


fig. j. Conection gallery 1:20

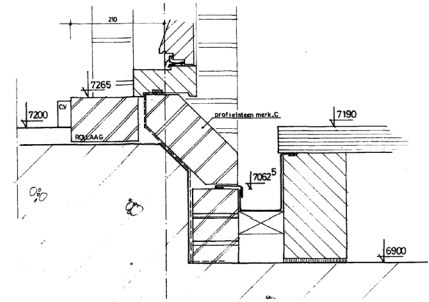


fig. k. Conection gallery 1:20

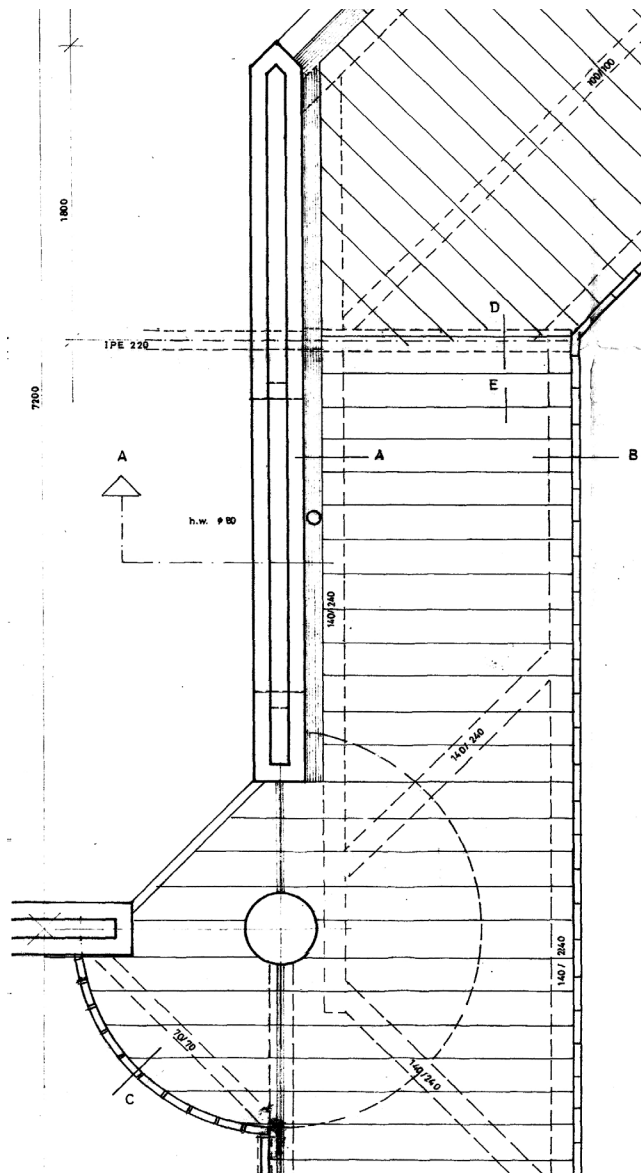


fig. l. Gallery 1:50

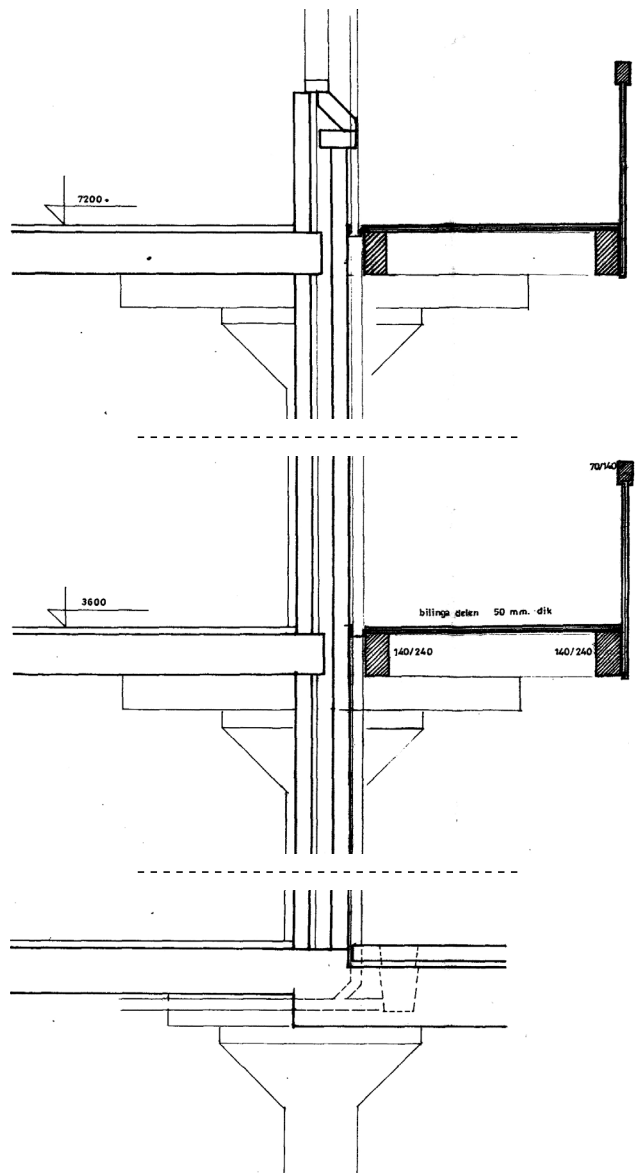


fig. m. Section gallery 1:50

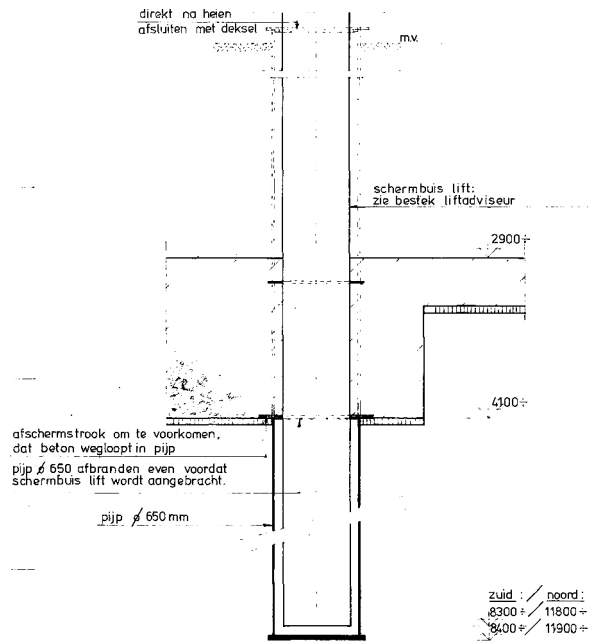


fig. n. Foundation pole

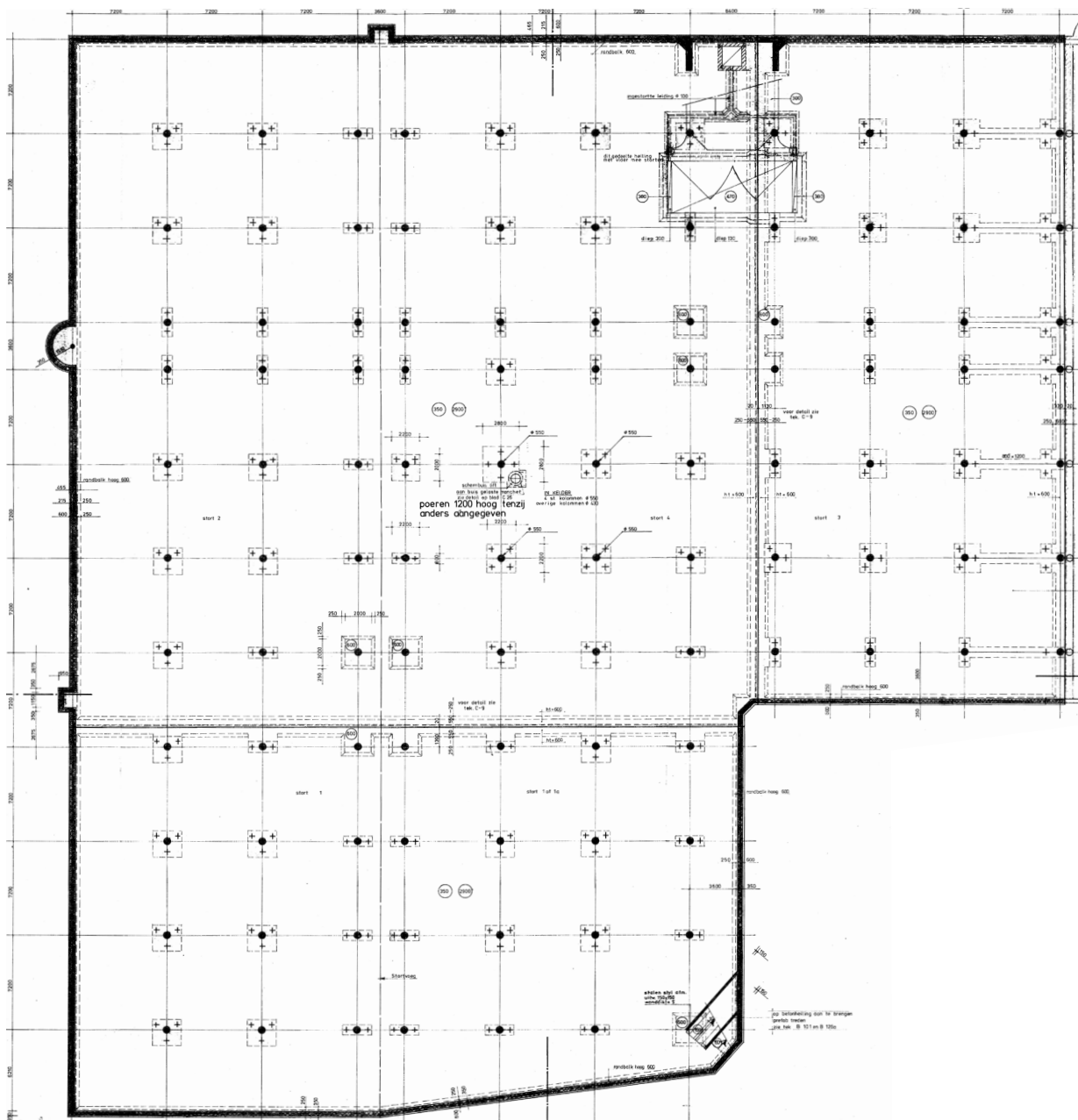


fig. o. Overview foundation poles

Conclusion

Joop van Stigt shows in his work an understanding of the complexity of craftsmanship when working with both modern and traditional materials in a building that incorporates structuralist ideas and concepts as well as traditionalist expressions.

The way Van Stigt treats his facades and gives meaning to them is remarkable in comparison to other structuralist architects who often use simple concrete solutions or, like Hertzberger, do not actually care about what the outside looks like. Eventhough this is the only structuralist building in which Joop van Stigt does create an immersive facade, and though he does not seem to regard it as one of his better works, it is a show of his experience in building sites.

The strange traditionalist brick facade, the remarkable Van Stigt roofs, the mushroom columns, they may all add up to a facade that seems like a mess of incoherency. Yet within the concept of making it bears an to some degree an appreciable craftsmanship. Yet it has to be noted that the way Van Stigt constructs his facades can easily be criticized as he does contradict his own precision and brick puzzling with many patchworks and rather inelegant solutions with differently sized bricks to solve small compositional discrepancies. In all it might even be argued that the facade shows a disbalance within its composition, allthough this is close to subjective speculation.



Value assessment

Intro

The Cultural value matrix is setup through categories described by Riegl(1928) and Brand(1995). This method of evaluation helps identify the most culturally significant features of the building which are to be taken into consideration when redeveloping or assessing the building its value in general. The main source of information used to assess the building history is the cultural historic research and analysis of the Witte Singel Doelen Complex Leiden by SteenhuisMeurs bv(2015).

Historic value

The historical significance of the Faculty of Humanities building starts with the context. The plot has been just outside the city of Leiden since the expansion of 1386. This is also when the Witte Singel canal was dug. This plot, on which the building by van Stigt stands, has thus been less defined throughout history. Along the wall inside of the city, room was made for the practice of archery. And since 1581 the University of Leiden started to slowly occupy this west side of the city.

Along the canal, outside of the city where the current building by van Stigt is situated was a double tree lane to entertain the civilians. These were trees that in time of need could be cut to use for tools and weapons. The west side of the Witte Singel canal was mainly a place for recreation. And a place where vegetable gardens and bleachers were situated.

At the East side of the Witte Singel canal the Doelenterrein was created in 1808. Which was a military training ground. Of which Arsenaal is left.

Art value

The art value, or expert value, discerns whether there is craftsmanship or building tradition involved, or whether architectural trends can be ascribed to the design of the building. The Faculty of Humanities building by van Stigt is built in a systematic way with repeated elements and units or stamps. This generic approach is a characteristic of the structuralism movement in architecture. The monolith concrete structure comprised of the round columns with mushroom heads and

Obligations



1. the idea of single 'houses' or units that together make up an entire faculty is crucial to the way the building is experienced should be handled respectfully because if it is damaged it may damage the coherency of the whole building.



2. The outer streets and courtyards make up a system that is crucial for the initial accessibility and give the feeling of walking in a city. This is an important quality that needs to be respected.



3. Sightlines from the courtyards to the outside are an important connection to the city.

the floors creates the dominant character that is experienced throughout the building. This enables users to reinterpret the structure and to restructure or reposition the inside space.

Looking at the space plan, the rooms are above all designed to accommodate different use. The rooms have not been greatly differentiated. They merely differ in size. Van Eyck according to Marinke Steenhuis was primarily a functionalist architect, and we agree that van Stigt has really tried to leave as little unusable space as possible.

The Faculty of Humanities building by van Stigt is built with close attention towards detail. This shows in the way he structured and tailored his brickwork, and in how he made the facade openings.

Rarity value

There are certain features in the building that do not occur anywhere else and are therefore unique or special to the building. The window frames that have a diagonal cut to be able to fit the round concrete columns are an example of this. They are objects that were created out of a very particular necessity.

The shelf closets that are incorporated into the window frame that separates the meeting spaces are another unique object like that.

Use value

The use value of the building is closely linked with the economic value. The rooms are designed square to allow as much variation in use as possible. Dimensions of the human size have been taken into account. And the height of the floors (3,3 m) allows lots of possibilities for redevelopment. The structure of the building is primarily an open structure with round columns connecting the floors. This allows for great freedom to change the inner setup of division walls. The interior walls are not load bearing so they are easy to change and even replace.

The installations of the building are still in use but are not meeting the current standards. Wiring of the building is mostly worked into the concrete ceiling which is problematic if that needs to be altered to fit a new system. The toilets themselves work well and can be reused but the toilet rooms do not meet the standards of use.



4. The unique windows and furniture in the interior are characteristic for the design of the building. So care should be taken in repurposing them when displacing.



5. The facades create a uniformity throughout the exterior of the building, and the precision and the craftsmanship show through the facades. So intervention needs to be done carefully and minimally.

Opportunities



E.

1. The green structure that used to exist along the Witte Singel in the past can be reintroduced. Reviving a past quality that is already announced to happen in the redevelopment plans of Leiden (project: Singelpark).

Energy wise the facades lose too much heat to the outside, because of the column structure. Lastly, the facades can be seen as single units themselves and are demountable. Allowing flexibility.

Newness value

During the buildings its lifetime a few things noticeably changed. The wooden gallery railings around the courtyards were supplemented with slogans and numbers (1 to 4) to create a differentiation between the different building volumes. This differentiation has a pragmatic quality.

The entrance to the basement from the site on the west side of the building has been closed. Because of complaints about water annoyance.

Then there is one newly furnished floor in the middle building volume.

Aesthetic value

The character of Leiden its inner city, with the canals and row houses, together with the iconic old structures give a great sense of variation and historical significance that belongs to a historic Dutch inner city that used to be a fortress.

The site of the Faculty of Humanities building by van Stigt, with the courtyards and connecting streets gives the feeling of being inside of a city but at the same time of being inside of a maze.

The repetition of the facades together with the round columns and the protruding roof planes make for a very striking appearance.

The monolithic structure of the round concrete columns and the floors creates a dominant character throughout the building.

The tailored furniture, only that which is original, and the staircases seem to have been carefully tailored to the building. And together with the wooden top floor ceiling creates a certain relation and appearance that is appealing.

2. The problem of light deficiency on the ground floor can be solved by introducing a new lighting strategy.

3. A new addition to the building could provide a certain differentiation to the building that also improves the wayfinding.

4. The wooden roof structure is demountable allowing different construction to replace it.

5. The university asks for a single entry spot, this results in a restructuring of the circulation, and also gives opportunity to improve the clarity of access.

6. The buildings are designed to be able to support another one-and-a-half storey. Giving room for vertical expansion.

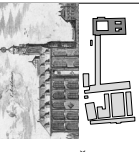

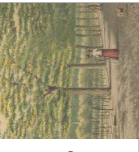










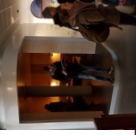



7. The entire floor plan can be opened and restructured.

8. Connecting to the cold&heat source that is planned for the university campus

9. Improving the climate installations/climate strategy using the water of the Witte Singel canal and the more constant temperature of the basement.

Dilemmas

1. One dilemma is how to approach the climate of the building without destroying the character of the building.

	HISTORICAL VALUE	ART VALUE	RARITY VALUE	USE VALUE	NEW-NESS VALUE	AESTHETIC VALUE
SURROUNDINGS / CONTEXT	<p>The west of Leiden has been occupied by the water since the 13th century. It was assigned to a water meadow.</p> <p>In 1808 the De Leze complex was built at the East of the canal, a military ensemble that was destroyed during his reign.</p> 					<p>The character of the inner city of Leiden, with its courtyards, together with the old iconic structures give a great sense of variation and a sense of place. The chance that belongs to a historic Dutch inner city, is considered to be a fortress.</p> 
SITE	<p>The west side of the Witte was built for recreation, vegetable gardens and bleachers. The building was designed by van Stigt, through the Stigglepark project.</p> 				<p>The wooden gallery of the courtyards were supplemented with concrete structures (1) to create different relation between the different building and the wayfinding.</p> 	<p>The site of the Faculty of Architecture was designed by van Stigt, with the courtyards and concrete structures gives the feeling of being inside of a city but at the same time of being inside of a matrix.</p> 
SKIN (EXTERIOR)	<p>The construction of the facade through repeated elements and units in a grid-like pattern. The approach closely linked to the structuralism movement. The concrete structures were close colleagues of van Stigt. And he wrote in Forum, a magazine that he founded for the artist.</p> 			<p>Everywhere the facades lose too much heat to the outside, because of the concrete. The only best leads of possibilities to adjust.</p> 		<p>The repetition of the facade elements along with the round columns and concrete planes make for a very striking appearance. Also due to the contrast between material, color and shape.</p> 
STRUCTURE	<p>The monolith concrete structure composed of the room heads and post-tensioned reinforced concrete. The concrete structure is a monolith concrete structure that runs through the entire building that supports all. Building with concrete is a feature of structuralism.</p> 			<p>The primary concrete structure allows for an open plan with only the columns connecting the floors.</p> 		<p>The monolith structure of the round concrete columns and concrete planes creates a dominant character throughout the building.</p> 
SPACE PLAN	<p>The floor plan is as simple as possible. This way, the space is as flexible as possible. It was something that van Stigt was known for throughout his career and efficiency.</p> 					
SURFACES (INTERIOR)				<p>The rooms are square to allow as much variation in use as possible. The height of the floor (3.5 m) allows for possibilities for redevelopment.</p> 	<p>The newly furnished floor in the middle block between van Dyck and van Stigt has tried to create a more intimate space.</p> 	
SERVICES				<p>Installations in the building are still in use and meet the current standards. Wiring is mostly worked into the ceiling.</p> 		
STUFF			<p>The sleek objects that are incorporated into the window frame that separates the reading second floor are smoother or unique object like that.</p> 			<p>The finished furniture, only that which is original, and the staircases seem to have been added to the building. Together with the wooden top and the concrete, the relation and appearance that is appealing.</p> 

Highly valued
Positively valued
Indifferent

Structuralism
Joop van Stigt
Faculty of Humanities

An analysis

Jeroen Moerman