

Reflection paper

AR3AH105 Vacant Heritage
Graduation Studio 2021-2022

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Academic position

Relation between graduation project topic, studio topic, master track and master programme

The topic of the graduation project is the transformation of the regional headquarters of the Politie Noord-Holland, also known as the Koudenhorn police station. The aim of the project is to redesign the building to house the city's central library.

The redesign of this police owned building is not a stand-alone occurrence. The formation of the National Police in the Netherlands in 2013 has thoroughly changed its organizational structure and has brought with it a significant real estate challenge. The Dutch Police aims to adapt its accommodation to the changes in organization, structure of services and the ever increasing digitalization of both the internal workflow and their presence in society. In order to achieve these ambitions 700,000 square meters of real estate will be divested and 200,000 square meters of new real estate will be realized. In addition, 30 percent of police real estate is to be redeveloped. Atelier Politie Bouwmeester has been brought into existence to take on these challenges. Regarding the buildings to be developed, the challenge is "to achieve a good relationship between functional, technical, spatial, aesthetic and financial requirements". (Weessies, 2017)

The Vacant Heritage - Police Real Estate graduation studio reflects on the aforementioned redevelopment challenge through research and design, generating redesign proposals for 8 police buildings throughout the Netherlands.

The Architecture track of the MSc Architecture, Urbanism and Building Sciences is stated to draw on the rich architectural culture of the Netherlands. The Koudenhorn police station is certainly part of that rich culture. Built as a deaconess-house, it is part of the history of social housing projects in the Netherlands. The building was later used as a military barracks before being converted to a police station, each change requiring different interventions. As such, it is an embodiment of technical and social changes over time. This ties in well with the aim of the Architecture track for students to learn how to develop innovative building projects that use design as a means to deal with the technical, social and spatial challenges encountered in the built environment. Redesigning the Koudenhorn building has challenged us to deal with all of these aspects.

Practical position

Relation between graduation project and wider social, professional and scientific framework

Every graduation project within the Heritage & Architecture studio draws upon knowledge from the field of architectural practice. This knowledge is combined and applied to the project to create new solutions and strategies to deal with existing challenges. These solutions and strategies directly or indirectly find their way into architectural practice, creating a back-and-forth that progresses the body of knowledge of heritage in architecture as a whole.

The individual research has focussed on the characterization of buildings with a courtyard or central space. Case study research has provided typologies for five spatial aspects; central space, spatial organization, entrances, routing and daylight. These typologies can be used to define buildings with a central space, creating an overview of the spatial configuration of the building. This overview can serve as a starting point and helps to identify focus points for a potential redesign. As more buildings are defined using these typologies, a database begins to grow where the ability to cross-reference with other buildings becomes increasingly easy.

The internal load-bearing structure of the Koudenhorn building was insufficient to house the proposed new library programme. On two specifically chosen locations within the building interventions have been made to create a sufficient load-bearing structure. By condensing the bookshelves into these areas, the new programme can be realized

with limited structural interventions. The remaining floor space is freed up for library programme with a lower floor-load. This does however mean that moving or adding bookshelves to the remaining floorspace is not possible.

The main structural intervention is located in the central area of the northern wing. The interior load-bearing structure is completely removed, apart from the piles which will be integrated into the new ground beam. A new mass timber construction consisting of glue-laminated columns and beams and cross-laminated timber floors is placed. Adding a new structure has allowed for a new spatial configuration with vertical connections between the floors. Two voids are added, the largest of the two spanning three floors and connecting them with a landscape of steps.

The possibilities of mass timber constructions are still being explored and expanded, pushing the limits of spans and wooden building heights. The structural intervention in the Koudenhorn building takes another direction: The use of mass timber constructions in transformation projects. The new structure and the connections to the existing that have been explored here can be applied to other transformation projects, providing a functional and aesthetic solution.

As new media has become our main form of exchanging information, libraries are shifting from places for books to places for people. The statement 'collection to connection' captures this shifting paradigm perfectly. Public libraries are so-called 'third places' where the connection to others that is diminished in other facets of our lives is facilitated. Many libraries are finding themselves lagging behind this development and aspire to transform their buildings. So too in Haarlem, where the library is planning to renovate all its locations. The redesign of the Koudenhorn building in order to house the central library has explored what this new library concept can mean within the confines of an existing building. These findings are relevant for other library renovations and transformations.

Research & Design

Elaboration on research, methods and relation to design

Spatial Building Typology

In collaboration with other students, a study into the spatial aspects of the eight police offices has been conducted. This 'Spatial Building Typology' research thoroughly explores the buildings on four different scale levels, resulting in a clear understanding of their spatial configurations. The buildings were then compared on different spatial aspects, leading to conclusions on the different building typologies. For each of the scale levels of the inner city, building block, building object and building envelope, three aspects have been analysed based on the method of Jallon & Naplitano (2017), in which Haussmann's interventions are analysed. This method is aptly named the 'Haussmann method', and uses a simplistic, black and white reduction drawings to compare spatial implications on all scale level. (Zijlstra et al, 2022) The research is compiled into a book publication, which will be the second part in the Spatial Building Typology series. Besides the analysis and typological comparison, the Spatial Building Typology book contains several other chapters. Firstly, each student has done individual research into a spatial theme that is also related to their redesign. Secondly, the redesign options have been summarized and compared, leading to conclusions on redesign typologies. The book closes with overall conclusions on the research.

The first publication in the Spatial Building Typology series (Zijlstra et al, 2021)

dealt with a single typology: Vroom & Dreesman warehouses. The eight police owned buildings that were the subject this year contain several different typologies. Identifying these typologies was therefore a necessary additional step in the research. This means the sample size of the analysed typologies is lower this year, which means their elaboration is more specific to the case study buildings themselves rather than the general typology.

In relation to the design, the analytical drawings have first and foremost served to create an extensive understanding of the case study buildings and their context. These drawings were later improved upon to create the technical drawings for the redesign proposals.

Individual Research

The goal of the individual research was to create a better understanding of the courtyard building typology and the possibilities for redesign. Through analytical drawings in plan and section, six case study buildings have been analysed on five aspects: central space, spatial organization, entrances, routing and daylight. These aspects have been chosen with the expectation that together they create an encompassing representation of the analysed buildings. The aspects chosen for analysis are all related to space, as the individual research is part of the Spatial Building Typology body of research which is focused on spatial

themes. All aspects have been analysed in relation to the central space of the case study buildings. Some parts of the case study buildings have therefore fallen outside of the scope of the research. If they had been included, other conclusions may have been drawn, and it may have become apparent that the central space is of lesser importance than the analysis seems to depict.

The first aspect is defined as central space rather than courtyard. Instead of focusing solely on courtyard buildings, the scope of the research is widened to include buildings with large central spaces, because they share many characteristics with courtyards. This includes into the research buildings with courtyards that were transformed into atria, but also buildings that were built with an atrium space originally. Although these buildings may not have a courtyard, similar spatial principles apply, the conclusions drawn from analysing these buildings are relevant to creating a better understanding of the courtyard typology.

For the aspect of routing, only the main routes have been drawn. For some case study buildings the main routes were not as easy to identify than for others. The main routes as seen in the analytical drawings are an approximation of the actual situation.

Based on the analysis of the case study buildings, typologies have been defined for each of the five aspects, as displayed

in figure 1. These typologies are simplified representations of different spatial characteristics. In some cases, a case study building may include elements of multiple typologies of the same aspect. For example, a building may have vertical access points in its interior as well as in the central space. However, when the vertical access in the central space is dominant, the building will be defined with the corresponding typology.

Three criteria have been defined for the selection of the case study buildings. Firstly, the buildings have a central space which is significant in size in relation to the overall building and spans multiple floors. The definition of a courtyard as given in the Cambridge dictionary is 'an area of flat ground outside that is partly or completely surrounded by the walls of a building'. Instead of focusing solely on courtyard buildings, the scope of the research is widened to include buildings with large central spaces, because they share many characteristics with courtyards. This includes into the research buildings with courtyards that were transformed into atria, but also buildings that were built with an atrium space originally. Although these buildings may not have a courtyard, similar spatial principles apply and the conclusions drawn from analysing these buildings are relevant to creating a better understanding of the courtyard typology.

Secondly, the buildings are public buildings, preferably libraries. The underlying hypothesis for this criterium is that the central space of a public building is used more intensively than that of a building with a private use. With this came the expectation that the central space of a public building has a stronger connection to the building itself. Analysing a public building would thus yield results that are closely related to the redesign of the Koudenhorn police building. The intended new programme for the Koudenhorn building is a library. It was therefore expected to be beneficial if the programme of a case study is also a library, so the findings of the analysis are more closely related to the design. In the end, one of the chosen case study buildings is a library, three house a library in a part of the building and two are not libraries. All of them are public buildings. In hindsight, the different aspect typologies found during the analysis cannot be attributed to the library programme. However, focussing on library buildings has contributed to the frame of reference of libraries which is essential to the design process. The hypothesis on the difference in intensity of use between central space of public and private buildings remains unconfirmed because only public buildings have been analysed.

The third criterium was for the case study buildings to be located in an urban context. The Koudenhorn building is located in an urban context. Its orientation and the location of its entrances are directly related to the

context. With the expectation that it would lead to the most useful conclusions for the redesign, the case study buildings are also located in an urban area. The analysis of entrances shows the relation between the buildings and its urban context. It can be concluded that this does not relate very closely to the relation between the building and its central space. This means that overall, the entrances on the exterior of the buildings and the entrances to the central space are not as closely related as expected. Therefore, the analysis of buildings that are not set in an urban context may have also yielded relevant results.

The research consists of typological analysis. Generally, a higher the sample size leads to a more precise definition of a typology. The five spatial aspects can be analysed with a relatively low level of detail, which makes it easier to increase the sample size. The sample size of the case study research is six, which has been chosen based on the available time. It is expected that a higher sample size would lead to more precisely defined, and possibly additional aspect typologies.

A practical limitation for the choice of case studies was the availability of the required material. Floor plans and sections as well as photos were required. It turned out that for some buildings that were initially selected as a case study, the required material was not available.

The main question of the individual research is 'How can the courtyard typology be characterized and what redesign opportunities does it provide for the redesign of the Koudenhorn police station in Haarlem?'

The case study research provides answers to the first half of this question. For each spatial aspect, different typologies have been defined which can be used to characterize courtyard buildings, as well as buildings with a central space.

At the start of the research it was expected that the second half of the research question could be answered using the conclusions to the first half of the research question. The characterization of the courtyard typology would lead to the identification of redesign opportunities it provided. It turned out that the defined aspect typologies could only partly be used as input for the redesign. The different spatial configurations are indeed options that can be implemented in the redesign.

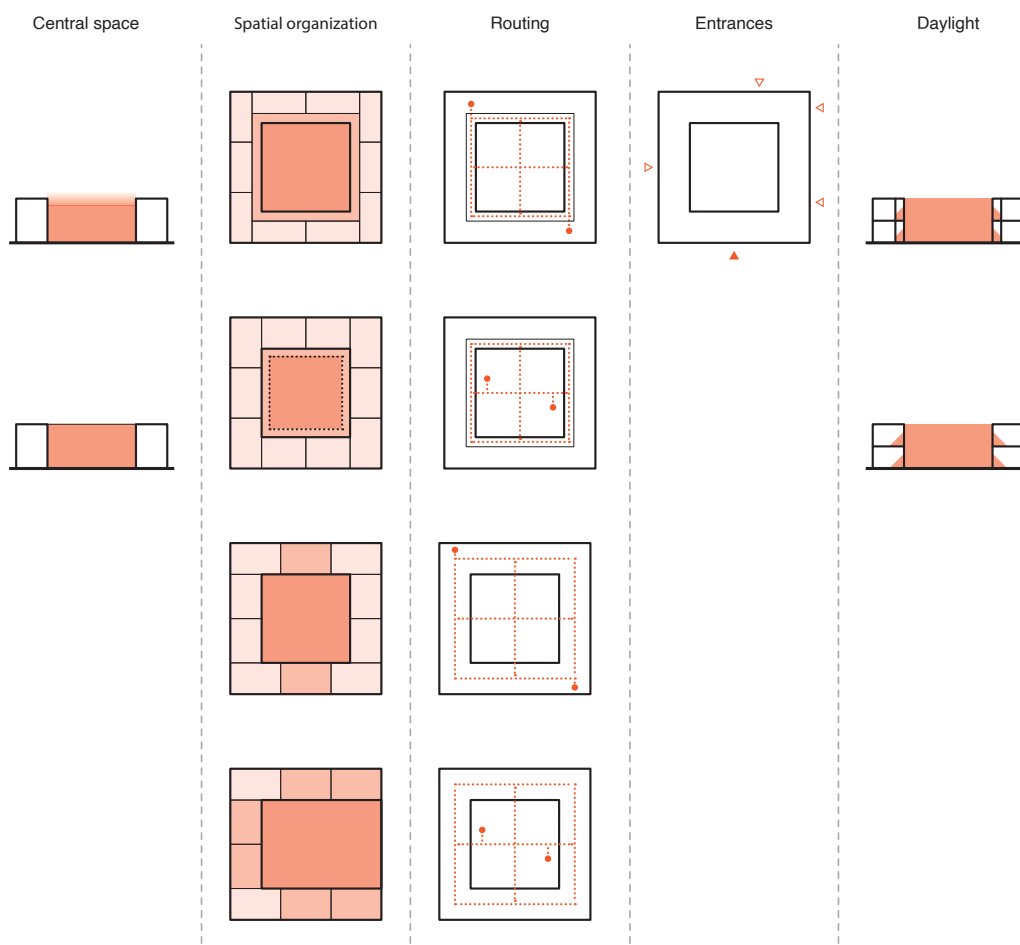


Figure 1: Overview of the aspect typologies (own image)

However, they provide limited information regarding the effect of their implementation. Taking the two central space typologies (open and covered) as an example, a building might have its courtyard transformed into an atrium. It can be concluded that the central space can now be used more often because of the decreased impact of weather conditions. However, this by itself does not clarify anything about an actual increase in use of the central space. Other factors such as the programme have a much larger impact. This is where case studies are useful to provide a real-life example of the aspect typology in combination with programme and other factors. To summarize, the aspect typologies can serve as spatial ideas for a redesign, but they have to be tested in the design where all relevant factors are taken into account.

In the redesign of the Koudenhorn building, several aspect typologies can be recognized. Within the library the spatial configuration of the hall typology is used. The central space is accessible from entrance halls that are adjacent to the programmatic spaces. The flow of traffic happens through the programmatic spaces and the central space. The relation between the programmatic spaces and the central space is reinforced through proximity and the possibility of the programme to bleed into the central space. On the first and second floor, the dwellings make use of the cloister typology. An interior traffic zone is located alongside the central space from which the dwellings

can be accessed. On the ground floor, the spatial organization is a combination of the cloister and hall typology. The traffic zone effectively functions as a transitional space between the programme of the central space and the dwellings. The implemented aspect typologies have clearly resulted from the programme and its spatial needs.

Dilemmas

Ethical issues and dilemmas encountered during research, elaboration of design and potential applications of the results

For every heritage project, the existing is the starting point. The question of what elements of a building to maintain based on certain values is at the core of the approach of heritage in architecture. The existing load-bearing structure of the main building was not sufficient for the new library programme. Instead of completely replacing the interior structure, limited local interventions have been made which allows for the new programme to be realized. Most of the load-bearing structure could therefore be maintained, conserving the embodied energy and saving on new materials.

A similar dilemma surrounded the existing building extension. The floorspace was not needed to house the new programme and the building itself is of little value, but demolition would mean a loss of embodied energy. The solution came from another angle within the design process. The original front entrance along the Koudenhorn road was deemed inadequate for the library, so the choice was made to move the main entrance to the other side of the building where an entrance square would be realized in place of the extension. This means that the original dining hall, which has maintained its original double height, could be used as the new entrance hall. However, this hall is located above ground level, which means the new entrance square needs to cover the height difference. By maintaining the structure of the extension up to the level of the new entrance hall the new entrance square can be realized on the same level,

with a landscape of steps and ramps leading up to it. The extension will be transformed into a parking garage on the ground floor and bicycles in the basement.

Earlier iterations of the redesign of the Koudenhorn building had a partially covered courtyard. The idea behind this was to use the newly created atrium as a central space from which all parts of the library could be accessed. The urge to cover the courtyard was also fed by the individual research. However, this would make the entrance hall obsolete, as the atrium would serve almost the same purpose. Furthermore, the existing building offers so much floorspace already that creating addition space was simply not required. In fact, the dwellings were added to the building in part because it is too big for the library alone.

With accessibility to the library and the courtyard in mind, the initial idea was for the entire ground floor to have a public programme. The library could then be accessed from three sides. This conflicted with the need for vertical access points to the dwellings in the eastern wing of the building. The shafts required for the dwellings would also have to go down through spaces of the public programme. The decision was made to create dwellings on all floors, maintaining the entrance hall as a lobby for the dwellings as well as a publicly accessible entrance to the courtyard. When the library closes, the lobby and courtyard are only accessible to residents.

Bibliographical references

Jallon, B., Napolitano, U., Boutté Franck. (2017). Paris Haussmann: modèle de ville = a model's relevance. Park Books.

Weessies, R. (2017, 31 augustus). Politiebouwmeester gezocht. Architectenweb. Retrieved from <https://architectenweb.nl/nieuws/artikel.aspx?ID=41267>

Zijlstra et al. (2021). Spatial Building Typology: Vacant Heritage: Department Stores V&D's. Heritage & Architecture TU Delft.

Zijlstra et al. (2022). Spatial Building Typology: Vacant Heritage: Police Real Estate Heritage & Architecture TU Delft.

