

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: Track of Architecture

Personal information	
Name	Annemiek Willemijn Maria Braunius
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Studio		
Name / Theme	Adapting 20 th Century Heritage: Vacant Police Estate	
Main mentor	Lidy Meijers	Design Mentor
Second mentor	Frank Koopman	Building Technology Mentor
Third Mentor	Hielkje Zijlstra	Research Mentor
Argumentation of choice of the studio	<p>Growing up watching the news every day, it soon became clear to me that our generation needs to change the way we live. We live in an environment where it is normality to buy or make something new once it is broken and we forgot how to give a new purpose to things. When at the same time, climate change has become more present every year and we have been using more materials than are available on this planet (Global Footprint Network, 2021). We need to adjust to the time we are living in, and that is why we as architects need to focus on the existing building stock and find a second life for them. Transforming vacant heritage because of a sustainability point of view is precisely the reason why I have chosen for this graduation studio.</p>	

Global Footprint Network. (2021). Earth Overshoot Day. Overshootday. Retrieved 26 Oct. 2021, from <http://www.overshootday.org/>

Graduation project	
Title of the graduation project	Permanent space // changeable use <i>Adaptability without future architectural interventions</i>
Goal	
Location:	Koudenhorn 2, Haarlem
The posed problem,	Problem Statement in text below
research questions and	Research Question in text below
design assignment in which these result.	Design Assignment in text below
<p>The design challenge of the graduation studio focuses on vacant police estate in the Netherlands. Because of the formation of the National Dutch Police in 2013 and the digitalization of their work, a lot of the police buildings become obsolete or do not fit within the requirements needed. That is why approximately 700.000 square meters of real estate will be divested (Politie Bouwmeester, 2021). For this graduations studio specifically, a redesign proposal for the police office Koudenhorn in Haarlem will be made. The Koudenhorn building, originally designed as a Diaconiehuis, was built in 1771 and changed in use over time. Two centuries later, in 1971 a new volume was added on the side when the whole ensemble was used by the police (Noord Hollands Archief, 2020). The total gross floor area of these two building volumes is 16.500 m².</p>	

To make these two different buildings more sustainable for the future, it would be interesting to design an architecture that is resilient in accommodating change in use over time, to create adaptable spaces.



North facade of the Koudenhorn (own image).



Floorplan Koudenhorn police office (Spatial Building Typology collective research, 2021).

Designing a building for the future means giving definitive form to something for an unpredictable amount of time. Taking this into account, adaptability is one of the keywords coming to mind when facing the unpredictable. Many studies into flexibility focus on the changeable, movable elements and the variations in floorplans. Architecture that takes the changeable as a departure point when designing are for example the Rietveld-Schröderhuis, the Nakagin Capsule Tower and Le Corbusier's five points of architecture. Besides, there is also architecture that proceeds from the permanent space like the examples written down in the book *Frame and generic space* by Leupen (2006), or the open building concept principles developed by John Habraken. Within these designs, the permanent more durable components of the building, like the structure, functions as a frame in which the user can change its infill over time. Designing from the permanent, in which the people that are using the building need to be more flexible instead of designing a flexible building will be the starting point for this research.

The next question will be how this principle could be adapted to the existing building stock since the above-mentioned concepts are only used for designing new buildings. When looking at an existing building, one could always dissect the same layers as described in the concept of shearing layers by Brand (1995). In which the site, structure and skin of a building have a long lifespan, whereas services, space and stuff need to be more adaptable. To me it seems logical that stuff and services often change throughout the years, to be compliant with the global pressure to modernise. But why is the space within a building to exist for only 10 years? Would it not be possible to take the existing space as a starting point when redesigning, to change the way we use the building, that the people using the building need to be more flexible? How much and how often do we want to change a building, if the requirements of users change so fast, that it perhaps cannot be used anymore within a few years? Would it not be better to prevent future architectural interventions, by redesigning an existing building in such a way that it can be variously used and interpreted over time.

Using the permanent as a starting point could create a different approach on redesigning vacant heritage. One could say that the task given to architects is to design buildings that are constantly subject to change. Buildings change over time, their requirements change, the way people use the buildings change. But as Leupen (2006)

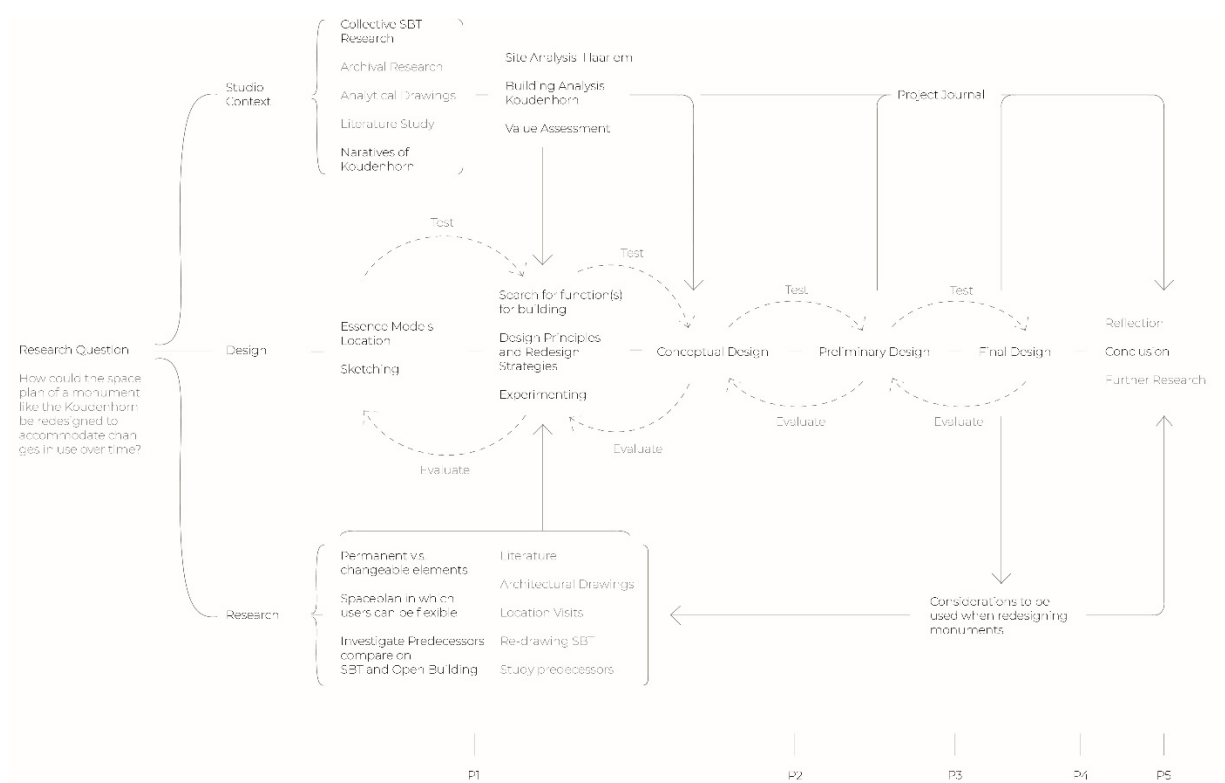
describes, the changeable could also occur within the permanent. A strict program will eventually lose its relevance over time and therefore is the use of a building never definitive, it will always be organic and changeable. Thus, the following research question is formulated:

How could the space plan of a monument like the Koudenhorn be redesigned to accommodate changes in use over time?

A way of designing buildings in which architectural interventions are not needed when a new use is required, is not a new concept. Research and designs have been made in this field, however it has never intentionally be used when redesigning vacant heritage, therefore researching into these principles and figuring out how they can be used when redesigning a space plan is relevant and interesting.

Process

Method description



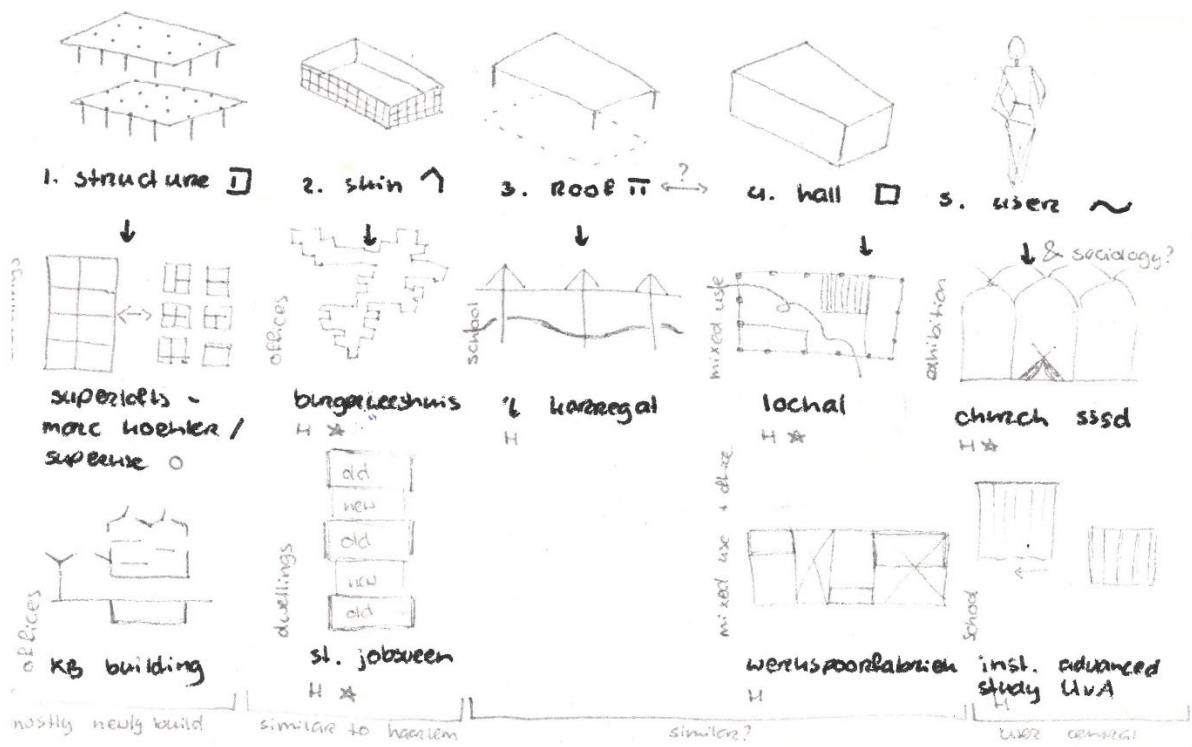
Research Diagram for the vacant heritage graduation studio (own image).

This graduation studio started with researching into the permanent elements of a building as a starting point for the redesign. To be able to define which permanent elements define a building and how they could influence the redesign process, literature research into the elements that define the space plan will be done to answer the sub-question: *Which elements of a building are permanent and which elements offer room for change?* For this literature research, the books *How Buildings Learn: What Happens After They're Built* (Brand, 1995), *Frame and generic space* (Leupen, 2006), *Architecture, form, space & order* (Ching, 1979) and *Designing from Heritage: Strategies for Conservation and Conversion* (Kuipers & Jonge, 2017) will be used.

The same literature is utilized to formulate an answer to the sub-question: *Which basis needs to be provided in a space plan for users to be able to be flexible?* For this question, it is also interesting and relevant to research into the open building concept principles developed by John Habraken (2003), a way of designing buildings in which architectural interventions are not needed when a new use is required.

Besides literature research, case studies are investigated to be able to answer the sub-question: *How could the open building principles be used when redesigning vacant heritage?* We often learn best from our predecessors, within redesigned heritage those buildings show that it is possible to keep vacant heritage 'alive'. To create a frame of reference, research into transformation projects will be done, in which there was a specific focus on the space plan when redesigning the original building. The case studies selected for this part of the research are mainly transformed within the permanent components of a building like the structure, skin or roof and do have characteristics that resemble open building principles. The case studies differ in their way of redesigning the space plan, something that is interesting to compare for this research.

individual research:
 case studies → monuments? * → different programs → different open building principles → heritage? H or herbestand



Find specific design solutions for habraken that can have different functions over time → create scenarios?

Different case studies for the research (own drawing).

Reading into literature and investigating the case studies gave some initial ideas for the design process, however, the main focus of this graduation studio will be research by design. Answers to the research question can only be formulated by implementing

the outcome of the sub-questions in the floorplans of the Koudenhorn building and figuring out what suits best. Therefore there are no definitive answers yet to the research and design question. There will be a lot of challenges and limitations for redesigning the space plan of the Koudenhorn to accommodate changes in use over time, which will be investigated up until P4.

Within the studio of Vacant Heritage there are two directions of focus for research. Spatial Building Typology (SBT) as Basis for Re-design and the role of materiality in the perception of heritage values. SBT was chosen, because it is a collective research that focuses on the spatial aspects instead of the function of a specific typology. Something that aligned perfectly with my interest in designing an architecture that can accommodate change over time. "Focussing on the research into similarities and differences in the spatial characteristics of a collection of buildings, which were originally realized for one specific function (group), yields a series of spatial properties that can give direction to the possibilities for redesign" (Heritage & Design TU Delft, 2021, p.9). The conclusions of this research will also help formulating the answers to my research question on a larger scale for the redevelopment of vacant police estate.

Brand, S. (1995). *How Buildings Learn: What Happens After They're Built*. New York: Viking.

Ching, F. D. K. (1979). *Architecture, form, space & order*. New York: Van Nostrand Reinhold.

Habraken, N. J. (2003). Open building as a condition for industrial construction. In *20th International Symposium on Automation and Robotics in Construction*, Eindhoven, the Netherlands (pp. 37-42).

Heritage & Design TU Delft. (2021). *Heritage & Architecture – Studio: Vacant Heritage*. Retrieved 28 Nov. 2021, from <https://brightspace.tudelft.nl/d2l/le/content/398787/Home>

Kuipers, M., & Jonge, D. W. (2017). *Designing from Heritage: Strategies for Conservation and Conversion*. TU Delft.

Leupen, B. (2006). *Frame and generic space*. Rotterdam: 010 Publishers.

Noord Hollands Archief. (2020). *Het diaconiehuis aan de Koudenhorn*. Retrieved 11 Oct. 2021, from <https://noord-hollandsarchief.nl/bronnen/archieven?mivast=236&mizig=210&miadt=236&miaet=1&micode=1340&minr=1189241&miview=inv2&milang=nl>

Politie Bouwmeester (2021). *Dutch National Police*. [Powerpoint slides]. Retrieved 10 Oct. 2021, from <https://brightspace.tudelft.nl/d2l/home/398787>.

Sebregts, L. (2021). *Meer slagkracht dankzij de Politiebouwmeester*. *De Architect*. Retrieved 29 Nov. 2021, from https://www.dearchitect.nl/architectuur/artikel/2021/10/meer-slagkracht-dankzij-de-politiebouwmeester-101267141?utm_source=Vakmedianet_red&utm_medium=email&utm_campaign=20211029-dearchitect-std&tid=TIDP5473711X74FB999650C14270AE90091612A83246YI4&utm_content=

Spatial Building Typology collective research. (2021). *Ground Floor Plan Koudenhorn Haarlem*. [Drawing]. Municipal Archive, Haarlem.

Literature and general practical preference

This research will use existing literature as a framework in order to be able to answer the research question. It starts from getting an understanding of the different elements of a building, taking the different layers of Brand into account (1995). The different layers in a building can be divided in structure, site and skin which have a long lifespan and services, space plans and stuff with a relatively young lifespan. In which the underlying question will be whether these lifespans are correct or outdated.

These layers are then used in the book Frame and generic space by Leupen (2006) to explain which layers are the permanent, the more durable components of a building and the layers in which change can take place. He also adds access as a layer, since it influences the way a permanent structure can be used. Leupen describes the frame of the buildings as the permanent components, within which change can take place. The generic space is the frame in which change can occur. The principles written down in this book will be used together with the open building concepts (Habraken, 2003) to get a clear understanding of designing a space plan in which the user can be flexible.

The combination of literature will form the main theoretical framework for this graduation studio. The intended outcome is to provide a series of considerations to be used when redesigning the space plan of a monument to be able to accommodate changes in use over time. The research will provide a framework that will be tested and reflected on during the design process. But at the same time it will be a process of research by design, where the outcomes of the design process will be implemented in the conclusions for the research.

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

Designing from the permanent, in which the people that are using the building need to be more adaptable instead of designing a flexible building is the starting point for this graduation project. This will be tested in the studio topic of an architectural redesign for vacant heritage, more specifically the vacant police estate of the Koudenhorn in Haarlem.

Besides the Spatial Building Typology research will be published in the 2nd volume of the SBT research series. The same structure as the first volume (Zijlstra, 2021) will be used in which collective research into the vacant police estates as well as each individual research will be explained.

In a greater context the redesign for this building will be related to the sustainable development goals to build in a resilient (9) and sustainable (11) way and to be responsible with the consumption and production of materials (12). This also relates to the goals of the Delft University of Technology.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

We live in an environment where it has become a normality once buildings become functionally, technically and economically obsolete that no one wants to take care of them anymore. Only old and valuable buildings are always 'accepted' to be preserved, but since this is often around 1% of the building stock from a country, it only makes sense to start having a look at preserving all vacant heritage, especially since 75% of the existing building stock is from the 20th century.

Transforming vacant heritage because of a sustainability point of view is precisely the reason I have chosen this graduation studio. Specifically focussing on designing an architecture that is resilient in accommodating change in use over time, redesigning a building in which the user needs to become more flexible. On the scale of the vacant heritage graduation studio, the Koudenhorn in Haarlem, which consists of two buildings from different eras, will be redesigned with the principles from the outcome of this design. On a larger scale, a series of considerations could be provided to be used when redesigning vacant heritage.

A way of designing buildings in which architectural interventions are not needed when a new use is required, is not a new concept. Research and designs have been made in this field, however it has never intentionally be used when redesigning vacant heritage, therefore researching into these principles and figuring out how they can be used when redesigning space plan is relevant.

The answers from this research could provide new insights into the principles architects are using when transforming vacant heritage. It should provide a series of considerations to be used when redesigning vacant heritage. However, there should also be room for chance, since the outcome of this research will change as well over time.

Brand, S. (1995). *How Buildings Learn: What Happens After They're Built*. New York: Viking.

Ching, F. D. K. (1979). *Architecture, form, space & order*. New York: Van Nostrand Reinhold.

Habraken, N. J. (2003). Open building as a condition for industrial construction. In *20th International Symposium on Automation and Robotics in Construction*, Eindhoven, the Netherlands (pp. 37-42).

Zijlstra, H., ea. (2021). *Spatial Building Typology - Vacant Heritage: Department Stores | V&D's*. Delft: BK-BOOKS.