

Activating the “glass box”



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Adapting 20th Century Heritage
Heritage & Architecture | TU Delft

RESEARCH PLAN



Figure: Witte de Withstraat elevation and the former police station on the right end



Figure: Hartmansstraat elevation and the former police station on the left end

Research Plan

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- 2_Problem statement
- 3_Research Question
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1_Related definitions



Figure: Photo of the building, 1988.

International Style - an architectural style that was developed in the 1920s-30s and was closely related to modernism. It is defined by the Getty Research Institute as “the style of architecture that emerged in Holland, France, and Germany after World War I and spread throughout the world, becoming the dominant architectural style until the 1970s. The style is characterized by an emphasis on volume over mass, the use of lightweight, mass-produced, industrial materials, rejection of all ornament and colour, repetitive modular forms, and the use of flat surfaces, typically alternating with areas of glass.”¹

Authenticity - in the context of the building’s architectural design, the uniqueness of a building, what makes that building distinctive and recognizable among others. A heritage object can be judged authentic based on credible historical sources.

Monument / listed building - a type of building that was explicitly built to commemorate a person or event, or which has become relevant to a social group as a part of their remembrance of historic times or cultural heritage, due to its artistic, historical, political, technical or architectural importance. The monument designation allows the protection from demolition and is a base for the regulation of subsidy for restoring the monument.²

1 - [https://en.wikipedia.org/wiki/International_Style_\(architecture\)](https://en.wikipedia.org/wiki/International_Style_(architecture))

2 - <https://en.wikipedia.org/wiki/Monument>

2_Problem statement



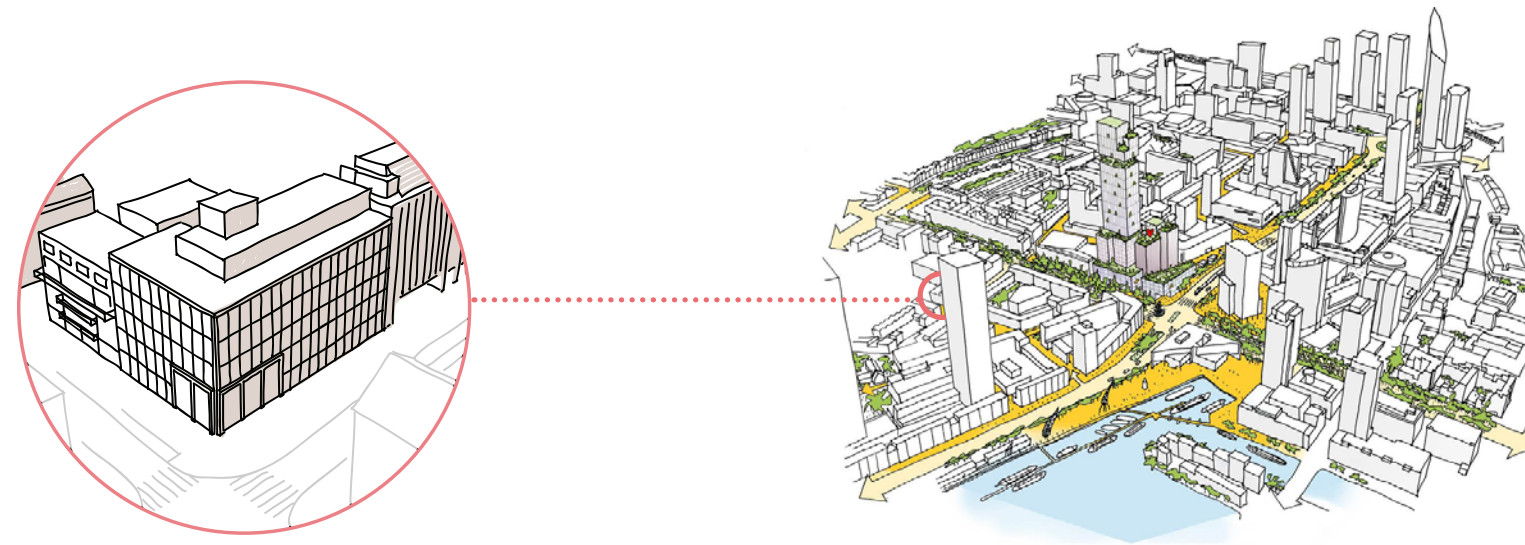
With the growing challenges posed by climate change, the decision to stop suburbanization and inevitably densify big cities seems the most natural and economical¹. As a result, the population of metropolitan areas is already growing rapidly today, and cities, especially in the Netherlands, are facing serious housing shortages. If we want to improve the climate and ensure a quality life for a growing population in the future, metropolitan areas like Rotterdam will have to adapt to various challenges and appear completely different than today.

This adaptation must begin by improving the available building stock.

Existing unused buildings must be adapted to current and future needs. For example, 30% of the real estate owned by the Dutch police needs to be redeveloped. Among the buildings owned by the police are 20th-century buildings (including 50s-60s office buildings). These do not meet modern principles of intelligent energy use and storage, nor do they help to deal with other environmental or social issues of the future. Therefore, my ambition with this research is to find out what are the opportunities and limits for dealing with a non-listed potential heritage building from the 50s-60s and how to make it future-proof in the context of densification in Rotterdam.

1 – Daniel Safarik, *A Country of Cities: A Manifesto for an Urban America*. (New York: Metropolis Books, 2014)

3_Research Question



heritage component

longevity adaptability

How can the **building at Witte de Withstraat 25** contribute to the **future** challenges of the city centre of Rotterdam (in the context of **densification**)?

different problems than now

Main research question:

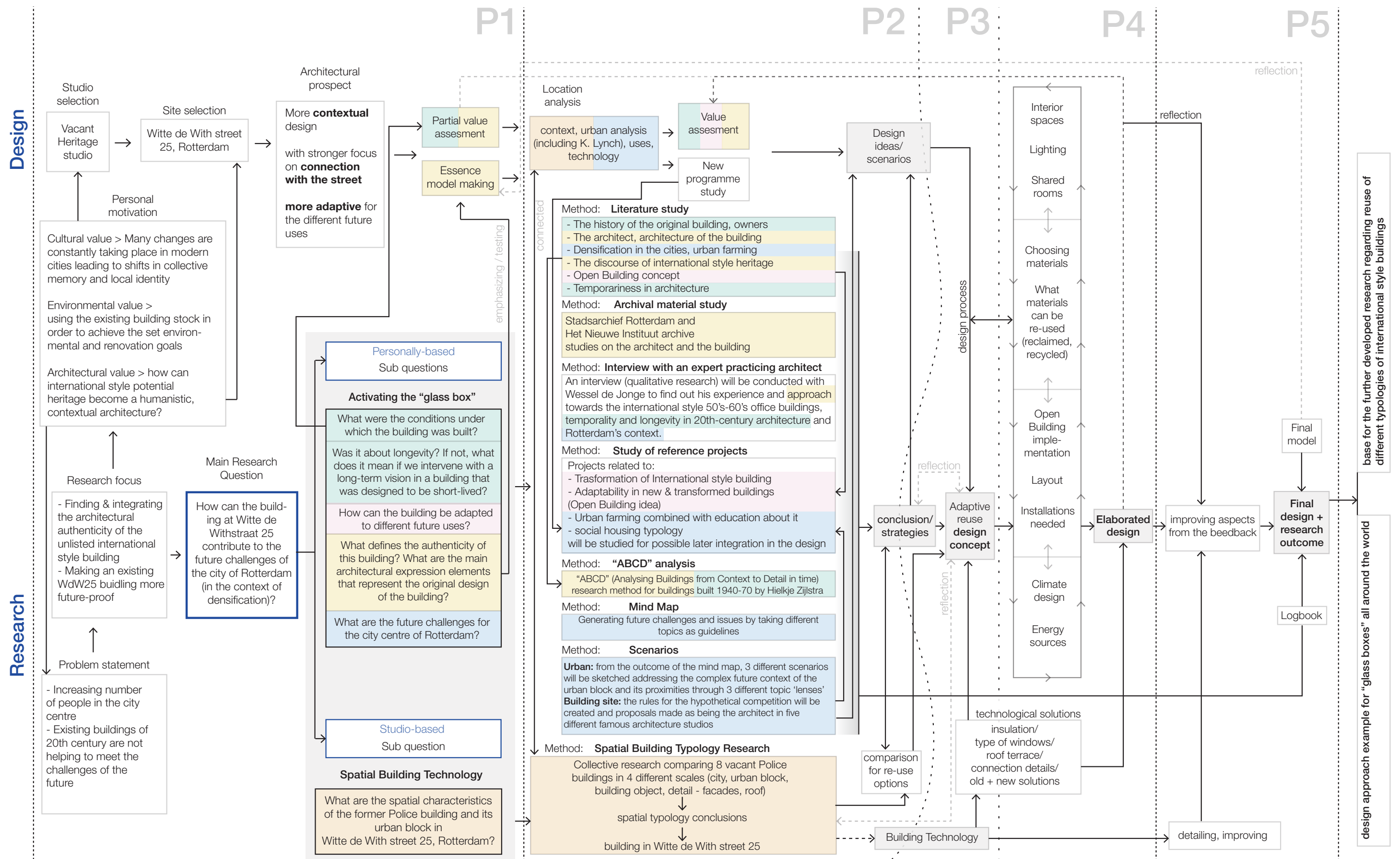
How can the building at Witte de Withstraat 25 contribute to the future challenges of the city centre of Rotterdam (in the context of densification)?

sub-questions:

Using the example of the former police station building in Witte de Withstraat 25, Rotterdam I am asking:

- What were the conditions under which the building was built? Was it about longevity?
- Design: What defines the authenticity of this building? What are the main architectural expression elements that represent the original design of the building? How can it be used in the redesign?
- Design: How can the building be adapted to different future uses?
- What are the future challenges for the city centre of Rotterdam?
- (SBT) What are the spatial characteristics of the former Police station building and its urban block in Witte de With street 25, Rotterdam?

4_Research plan structure diagram



The structure of the process is not linear because research influences design, and sometimes that happens the other way around. In my project, design and research are interwoven like a cloth. Each adds to the other in order to form a whole. Research consists of collective SBT investigation resulting in the second volume of the SBT book series and individual investigations resulting in the design project.

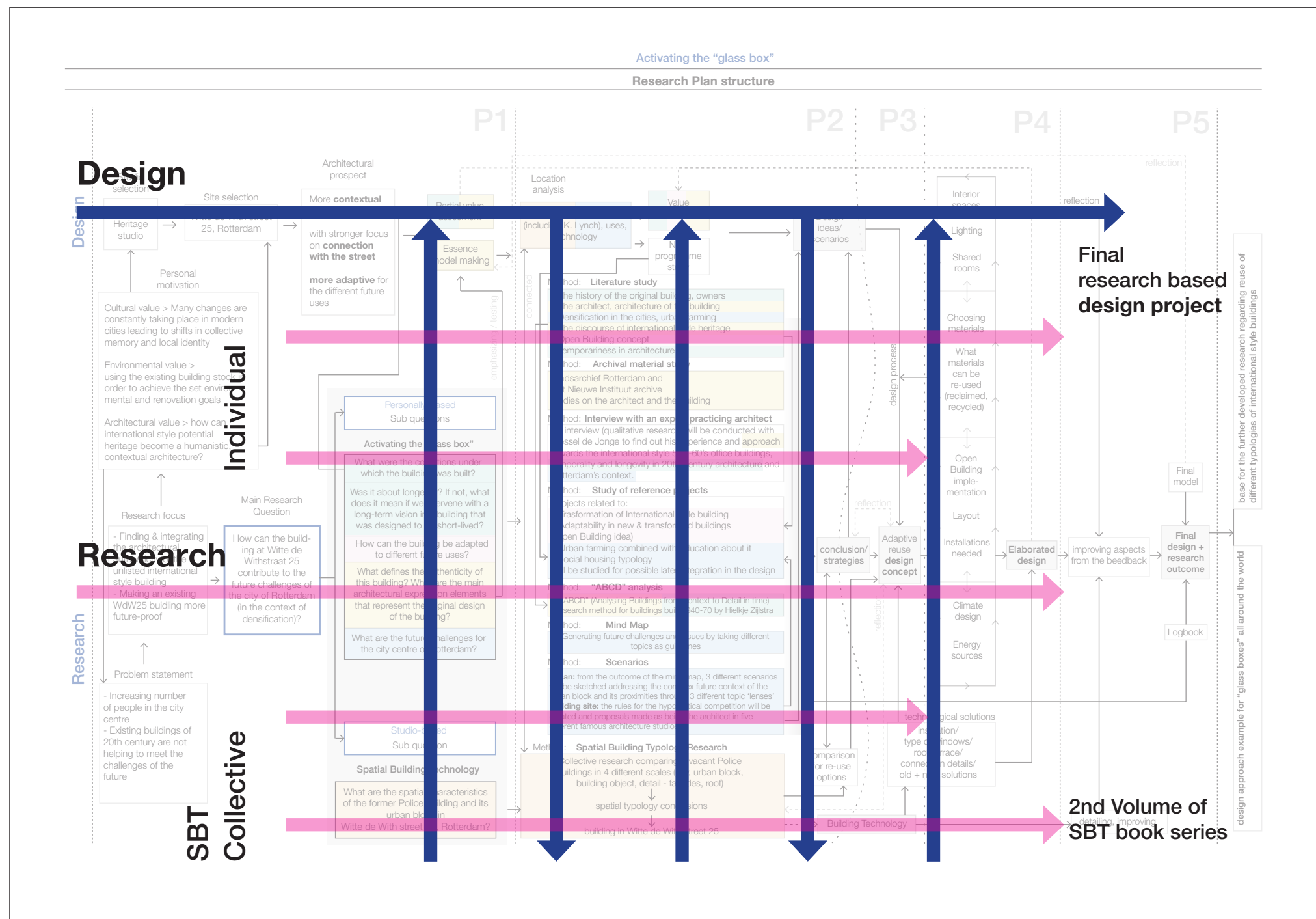


Figure: The connection between Design and Research shown on the research plan structure diagram

5_Methodology

RESEARCH METHODS & APPROACH

The research methodology consists of **collective** - Spatial Building Typology (SBT) (Zijlstra, 2021) and **individual research** with the close involvement of the design medium.

SBT research is initiated by the Vacant Heritage graduation studio and it is a simultaneous process with individual research and design research. By **comparing various spatial aspects on four different scales** (city, urban block, building object, and detail - facades, roof), the eight police buildings were examined and afterwards conclusions drawn. This displayed the chosen case study in the context of a very wide typology of edifices.

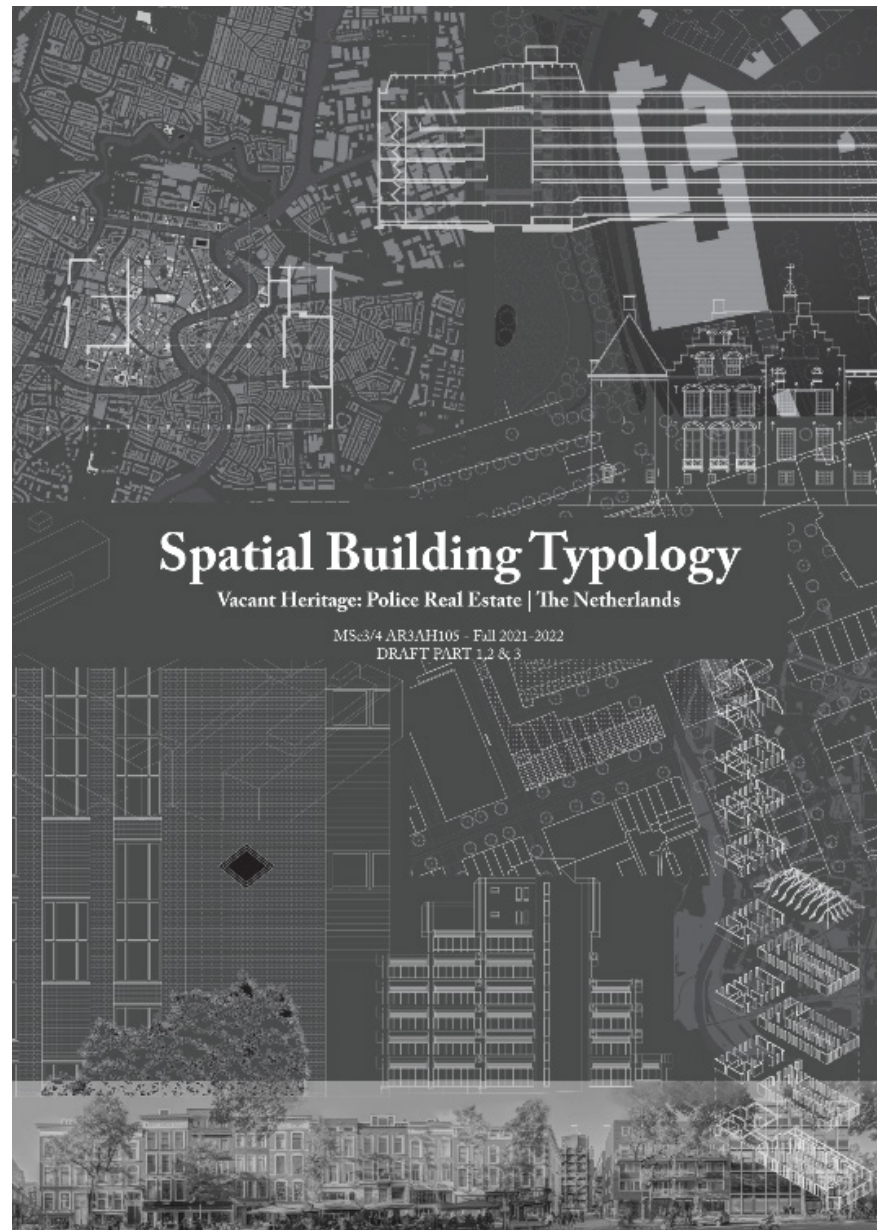


Figure: The cover of SBT collective research book

In favor of individual research, SBT studies defined the spatial characteristics of the former police station building in Witte de Withstraat 25, Rotterdam. The results were compared with the individual research-based case studies for the possible reuse options.

Individual research consists of **7 main methods** (see figure 3) - literature study, archival material study, interview with an expert practicing architect, case study of relevant projects followed by “ABCD” research method (“Analysing buildings from context to detail in time: ABCD research method”, Zijlstra, 2009), and mind mapping followed by creation of the future scenarios for the urban block and the building - that are aiming to answer the individual sub-questions of the research.

The **literature** readings laid the theoretical base on the discourse of international style heritage and its transformation, the Open Building concept and temporariness in architecture (historical research). An **interview** (qualitative research) was conducted with Wessel de Jonge, the co-founder of DOCOMOMO International and a well-known practising architect running his ar-

chitecture company WDJArchitecten with particular expertise in the field of adaptive re-use of 20th-century heritage, to find out his experience and approach towards the international style 50’s-60’s office buildings, temporality and longevity in 20th-century architecture and Rotterdam’s context.

By **visiting Stadsarchief Rotterdam and Het Nieuwe Instituut archives** and reading magazines, newspaper articles and investigating the original drawings, information about the original and previous renovations’, original ideas behind the design, architect’s background was gathered (historical research). **Partial value assessment** (based on Heritage Value Matrix, developed by N.Clarke & M.Kuipers in the book “Designing from Heritage: Strategies for Conservation and Conversion”, (Kuipers & De Jonge, 2017) was done followed by the **essence model** (see figure 2) which helped to define the main architectural characteristics.

After the first research presentation (P1), the location and context analysis of the building were carried out together with a program workshop that defined the suitable function for adaptive-reuse.

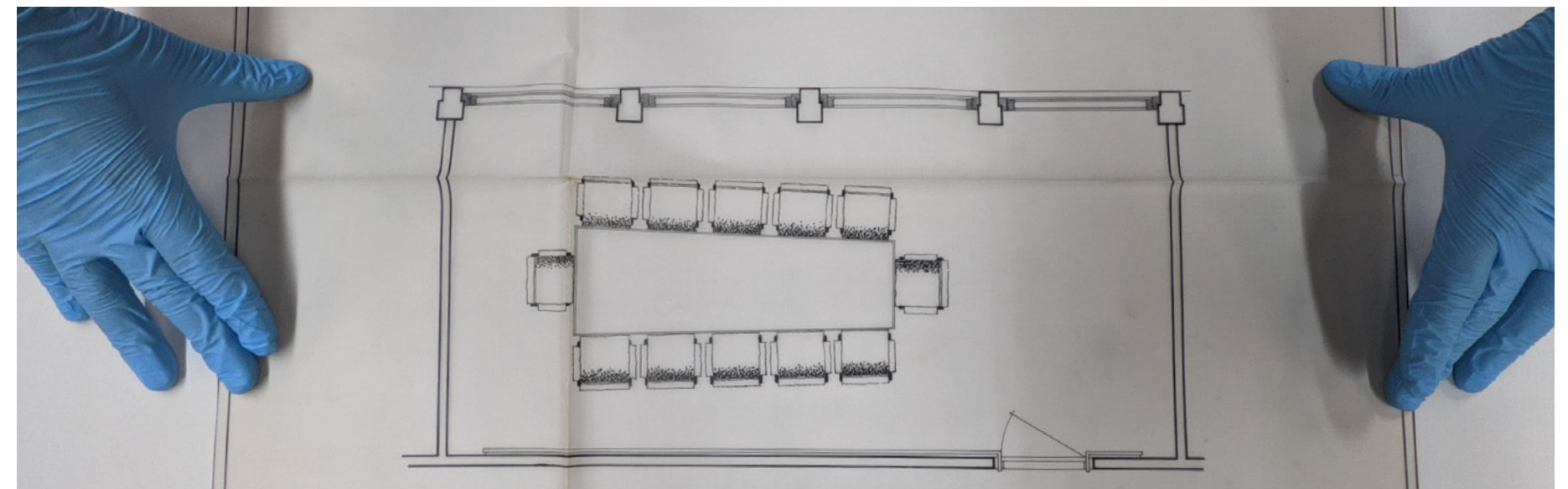


Figure: Original plan of the conference room in Witte de Withstraat 25

5_Methodology



Figure: The essence model with existing and original entrance spaces

In the meantime, **design development** began with envisioning the architectural scenario based on the research questions and creating an **essence model** of the Witte de Withstraat 25, Rotterdam building. **Location analysis** was conducted with the help of SBT, but additional aspects appeared to be handy to know and explore. Because the police buildings in the SBT research were so different in size, architectural style, and location, the research did not reveal the approach for me - the answers I was looking for I mostly found out during individual research. Furthermore, the “ABCD” research method and the Heritage Value Matrix were applied to assess the building’s values.

The aforementioned steps were taken in order to identify the main architectural expression elements that represent the original design of the building.

To determine what the future challenges for Rotterdam’s city centre will be, I have implemented the **mind mapping** method to generate potential issues in future cities by using various topics as guidelines. Based on the outcome of the mind map, **3 different scenarios** were sketched (simulation research), addressing the future context of the urban block and its proximities through 3 selected topic “lenses” – “Green + most accommodated”, “Green + most economically viable”

and “Green + most resilient. These urban scenarios determined the functions and appearance of the Witte de Withstraat 25 building. In addition to this, the rules for the **hypothetical competition** were devised and proposals were made as being the architect in each of the five famous architecture studios (suggested by my design mentor). Trying out different approaches within the set of rules created helped me to better understand the qualities of the site and argue for its further design development.

Additionally, **case study projects** chosen based on the 4 topics were studied in order to understand and use knowledge of these different spheres. Those were: (1) International style office transformation, (2) adaptability over time, (3) urban indoor farming, and (4) a tower built on top of the existing building. Instead of comparing the case studies, the key design solution taken from each project studied was used as a theoretical reference for the redesign of Witte de Withstraat 25.

Hypothetical competition for the site:

results as being an architect in one of the 5 architecture studios

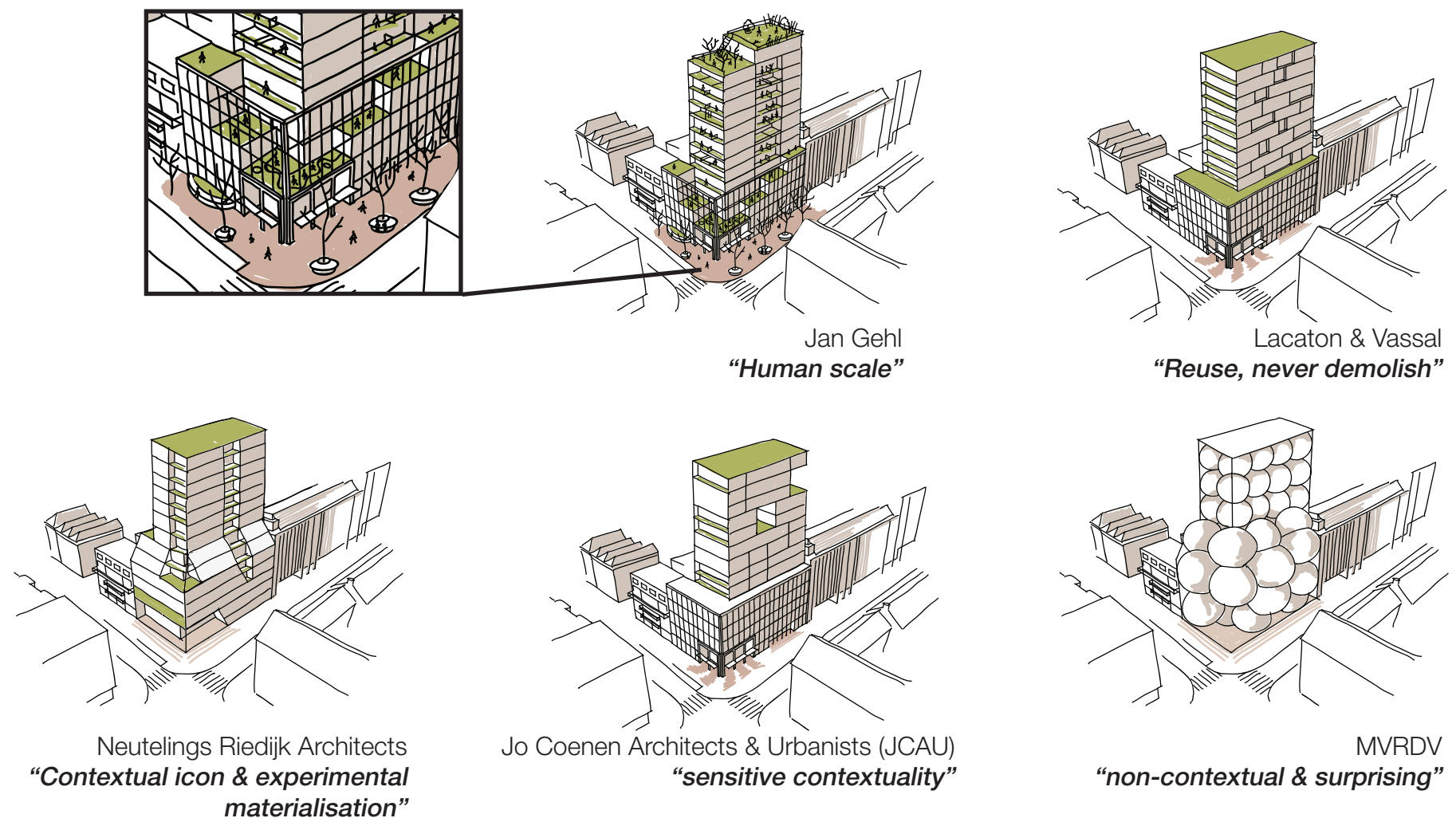


Figure: Design sketches as being an architect in one of the 5 architecture studios

5_Methodology



Figure: Escursion in Amsterdam North visiting the buildings built based on the Open Building principles

The **design scenarios**, in combination with the **new program study** and the findings of historical and qualitative research, resulted in the preliminary adaptive reuse design concept presented in the second presentation (P2).

After that, the design was elaborated by incorporating **building technology research** and delving into the concept creation for the **facades**.

Implementing the Open Building principles in the adaptive reuse project was not an easy task, hence the project's **flexibility limits were tested**. For this reason, four subjects were looked at in more depth: program, storey height & installations, raised floor and the facade, yielding interesting findings.

Further design and technical solutions, together with detailing, resulted in the final adaptive reuse design.

The chosen methodology was adjusted when new research directions or uncertainties emerged.



Figure: Readings on the relevant topics for the project

LIST OF REFERENCES:

- Elefante, C. (2018). Existing Buildings: The Elephant in the Room. Retrieved from: https://www.architectmagazine.com/aia-architect/aiperspective/existing-buildings-the-elephant-in-the-room_0
- Kuipers, M., & De Jonge, W. (2017). Designing from heritage. Delft: TU Delft, p.86-89.
- Mayne, T. (2005). Acceptance Speech. Retrieved from: https://www.pritzkerprize.com/sites/default/files/inline-files/2005_Acceptance_Speech.pdf
- Tillie, N. M. J. D., M. Aarts, M. Marijnissen, L. Stenhuijs, J. Borsboom, E. Rietveld, J. Visschers, & S. Lap. Rotterdam people make the inner city, densification plus greenification=sustainable city. (2012).
- Zijlstra, H. (2021). Spatial Building Typology: Vacant Heritage: Department Stores| V&D's.
- Zijlstra, H. (2009). Analysing buildings from context to detail in time: ABCD research method. los Press.

6 Literature review & key theories

With regard to the research themes and aims, each of the theoretical framework parts consists of literature that is relevant in understanding the theory.

The theory I will rely on is focused on international style but not Police station buildings because the building chosen was not originally designed for the Police station (it was and served the Police as an office building) and has no distinctive police station features apart from a few glazed rooms to shortly hold detainees.

It goes without saying that due to the time limit of the study, not all information may be objective or much detailed, as this also is limited by the selection of literature.

Ideas and conditions behind the International style, functionalism:

- H.F. Mallgrave's view in a book "Modern architectural theory: A historical survey, 1673– 1968" (2009)
- Kenneth Frampton's discourse in the book "Modern Architecture A Critical History" Fifth edition (2020)
- W.J.R. Curtis's view in his book "Modern architecture since 1900" (1996)

Adaptive reuse and preservation of the International/modern style heritage:

- Theodore H.M. Prudon's discourse in the book "Preservation of Modern Architecture" (2008); Written by the president of an organization committed to the docu-

mentation and preservation of modern architecture, this book outlines best practices for undertaking such efforts and addresses the latest technological advances in the field.

- S. Macdonald, K.C. Normandin and B. Kindred's discourse in the book "Conservation of modern architecture" (2015); This book addresses many philosophical and practical issues surrounding the conservation of modern buildings as well as raises the question of indifference and in some cases hostility towards post-war buildings.
- A. Cunningham's discourse in the book "Modern Movement Heritage" (1998); the preface and introduction of the book by R.Maxwell and A.Cunningham set an insightful overview of the Modern Movement, its significance and academic debate. In the second part of the book, related issues in strategies and policies are explained.
- Post 65: The Cultural Heritage Agency (RCE) has conducted exploratory research into heritage in the Netherlands from the period from 1965 to 1990 - the 'Post 65' period. The approach of this exploration was threefold: knowledge development and knowledge sharing, dealing with this heritage in relation to current spatial assignments and broadening support.

Authenticity (articles):

- Schmidt, Freek "Genuine architecture: On authenticity and adaptive reuse." Bulletin KNOB: Koninklijke Nederlandse Oudheidkundige Bond 119, no. 4 (2020).
- Mens, Noor. "Form and Context: On the Role of Authenticity in the Evaluation of Modern Heritage." Bulletin KNOB: Koninklijke Nederlandse Oudheidkundige Bond 119, no. 4 (2020).
- van Thoor, M. T. A. "Authenticity, a credible concept?." Bulletin KNOB: Koninklijke Nederlandse Oudheidkundige Bond 119, no. 4 (2020).

Theory and implementation of the 'Open Building' concept:

- "ZEMCH: Toward the Delivery of Zero Energy Mass Custom Homes" edited by Masa, 2016. Noguchi. - Book about the zero-energy mass custom home (ZEMCH).
- Leibbrandt, E. Amy & Barker, Arthur. OPEN BUILDING FOR RESILIENT CITIES (2018). - This document describes the achieved milestones, the goals and the challenges for Open Building and is composed by The Council on Open Building for the Open Building for Resilient Cities Conference.



Figure: The covers of the readings

6 Literature review & key theories

Temporariness in architecture as a strategy for the building:

- van Boxel, Elma, Kristian Koreman, and ZUS Zones Urbaines Sensibles. City of Permanent Temporality: incomplete & unfinished. Joelho Revista de Cultura Arquitectonica 9, 2018. – This book describes the impressive process of 15 years of work in the urban laboratory that is Rotterdam. Authors propose a radically new way of making a city - this strategy is formed around an urban reality of values, material and people.
- How Buildings Learn: What happens after they're built by Stewart Brand, 1995. - The book proposes that buildings adapt best when constantly refined and reshaped by their occupants and that architects can mature from being artists of space to becoming artists of time.
- Christiaanse, Kees. Textbook: Collected Texts on the Built Environment 1990–2018. nai010 uitgevers, 2018. - Book's chapters that were useful: "Fuck the Programme?" and "Traces of the city as a loft".

Densification in the city centre:

- Safarik, Daniel. A Country of Cities: A Manifesto for an Urban America, 2014. In the book, which focuses on the United States, the author argues that hyperdensity is a solution to a lot of problems. A Country of Cities stands out among other books in offering a clear call for a city-based solution to the nation's most pressing challenges and in presenting a comprehensive policy agenda to meet those challenges.
- Schröpfer, Thomas. Dense+ green: innovative building types for sustainable urban architecture. Birkhäuser, 2015. The author explores innovations in architectural typologies that emerge from the integration of green components, such as sky terraces, green facades, and vertical parks, in high-density buildings.
- Sim, David. Soft city: building density for everyday life. Island Press, 2019. - The book's purpose is to use sustainable humanistic planning and architectural concepts to improve urban residents' quality of life. Covers such topics as accommodating density and diversity in the same spatial area, mobility, climate change etc.
- Gehl, Jan. Life between buildings. Vol. 23. New York: Van Nostrand Reinhold, 1987. - Jan Gehl points out the drawbacks of the functionalistic architecture and city planning that flourished in the period.

Urban farming:

- Despommier, Dickson. The vertical farm: feeding the world in the 21st century. Macmillan, 2010. Despommier explains how the vertical farm will have an incredible impact on changing the face of this planet for future generations, transforming our cities into urban landscapes that will provide fresh food grown and harvested just around the corner.

The theories of Research methodology used in my research:

- ABCD (Analysing Buildings from Context to Detail in time) research method (2009) created by Hielkje Zijlstra assessing if a building meets the needs or can be preserved or reused;
- The Heritage Value Matrix, developed by N. Clarke & M. Kuipers and H. Zijlstra (2016) for classification of relevant heritage values at various scales.

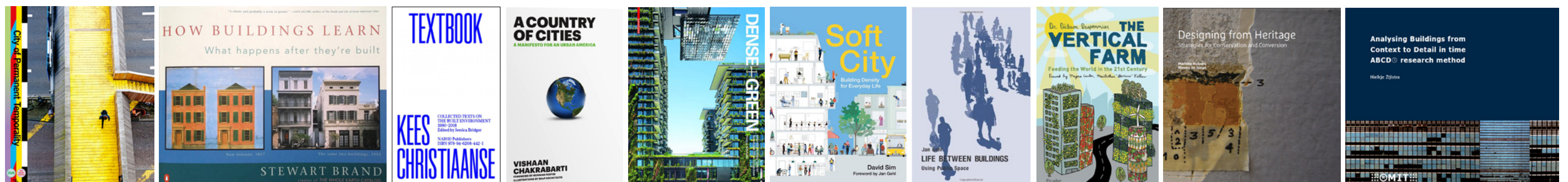


Figure: The covers of the readings

7_Image sources

Cover - Own photo taken in 2021, Rotterdam, The Netherlands.

page 2: The elevation collage made by the author. Own photos were used taken in 2021, Rotterdam, The Netherlands.

page 3: [https://images0.persgroep.net/rcs/H-fcZrkwFQzJsMj5mulKDbwOSfE/diocontent/153695987/_fill/729/899/?ap-
pId=21791a8992982cd8da851550a453bd7f&quality=0.9](https://images0.persgroep.net/rcs/H-fcZrkwFQzJsMj5mulKDbwOSfE/diocontent/153695987/_fill/729/899/?ap-
pId=21791a8992982cd8da851550a453bd7f&quality=0.9)

page 4: The collage made by the author.

The following sources are of the photographs used in the collage.

<https://www.ad.nl/economie/leegstand-kantoren-daalt-maar-blijft-structureel-hoog~afa57f74/>

<https://www.ad.nl/rotterdam/leegstand-kantoren-rotterdam-hoger-dan-in-andere-grote-steden~a79ca0df/>

<https://www.urbanos.nl/portfolio-items/transformatie-leegstaand-kantoor-naar-onderwijs/>

<https://www.urbanos.nl/portfolio-items/transformatie-leegstaand-kantoor-naar-onderwijs/>

<https://www.iamexpat.nl/housing/real-estate-news/antikraak-cheap-rent-exchange-being-live-guardian>

[http://www.vastgoedvergelijker.nl/nieuws/dynamis-positieve-flow-nederlandse-economie-zorgt-nog-niet-voor-extravraag-vier-
kante-meters-kantoor](http://www.vastgoedvergelijker.nl/nieuws/dynamis-positieve-flow-nederlandse-economie-zorgt-nog-niet-voor-extravraag-vier-
kante-meters-kantoor)

<https://indebuurt.nl/utrecht/nieuws/er-komen-woningen-in-dit-kantoorgebouw-aan-de-st-jacobsstraat-in-utrecht~64408/>

<https://en.squat.net/tag/squat-ban/>

page 5: 1) own sketch 2) <https://www.mecanoo.nl/Projects/project/287/Hart-010-Masterplan?d=0&t=0>

page 6: own work

page 7: own work

page 8: 1) <https://books.open.tudelft.nl/home/catalog/book/29> 2) Own photo taken in Het Nieuwe Instituut archives

page 9: 1) Own photo taken in 2021, BK City, Delft, The Netherlands 2) Own drawings

page 10: 1) Own photo taken in November 2021, Amsterdam, The Netherlands 2) Own photo taken in 2021, Rotterdam, The Netherlands

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<https://cdn.shopify.com/s/files/1/1022/3793/products/modernarchitecture-29.jpg?v=1607723026>

[https://i1.wp.com/www.plantlightbook.net/wp-content/uploads/2018/08/modern-architectures-since-1900-004.jpg-
g?fit=800%2C927&ssl=1](https://i1.wp.com/www.plantlightbook.net/wp-content/uploads/2018/08/modern-architectures-since-1900-004.jpg-
g?fit=800%2C927&ssl=1)

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<https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcQZLWMCyVAqZtXbnDPuTqlut5AKw7fP9Tlx5eg90uGgkJL1m2B>

[https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcTVNkxQZusfWj6ea5q_nBph9DaY2krseO1EBtl46v3qblqpUzCOi-
jE_BWsFL90_VYF-J-w&usqp=CAU](https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcTVNkxQZusfWj6ea5q_nBph9DaY2krseO1EBtl46v3qblqpUzCOi-
jE_BWsFL90_VYF-J-w&usqp=CAU)

<https://media.springernature.com/full/springer-static/cover-hires/book/978-3-319-31967-4>

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page 12:

<https://images-na.ssl-images-amazon.com/images/I/81oHkf3K70L.jpg>

https://upload.wikimedia.org/wikipedia/en/9/91/How_Buildings_Learn_%28Stewart_Brand_book%29_cover.jpg

https://images-na.ssl-images-amazon.com/images/I/41xcDPFya0L._SX303_BO1,204,203,200_.jpg

[https://pentagram-production.imgix.net/181cf584-ea67-469e-b2c0-6764c02bbd15/mb_acountryofcities_01.jpg?rect=0%2C
67%2C3000%2C1878&w=880&fit=crop&fm=jpg&q=70&auto=format&h=548](https://pentagram-production.imgix.net/181cf584-ea67-469e-b2c0-6764c02bbd15/mb_acountryofcities_01.jpg?rect=0%2C
67%2C3000%2C1878&w=880&fit=crop&fm=jpg&q=70&auto=format&h=548)

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