

Reflection Report

Bas Mulleners

Student no: 41929236

Goudsbloemstraat 122D

1015JT Amsterdam

bt.mulleners@student.tudelft.nl

basmulleners@gmail.com

06 17469663

Student no: 4192923

TU Delft

Architecture, Urbanism and Building Sciences

Chair of dwelling

2018/19

Msc3-Msc4 Dutch Housing Graduation Studio, BETWEEN STANDARD AND IDEALS

Tutoring by:

Research: Ir. Pierijn van der Putt

Architecture: Ir. Theo Kupers

BT: Ir. Ferry Adema

Delegate of the Board of examiners:

dr.ir. F.M. Welle donker

September 2019

PREFACE

This report reflects upon the research conducted in the Dutch Housing graduation studio as part of the education at Delft University of Technology. The studio requested the first aspect, 'the relation between research and design' to be further explored in this report. During the Dutch Housing graduation studio I designed mixed-use towers for expats, to give this growing, although fluid population a place in Amsterdam society. The building tries to give the expat a face by the revelation of their qualities to Amsterdams existing population. To find answers for the building to be designed, I did various forms of research. This reflection report looks back on the various research forms, tools and methods used towards the final design. The report extends upon the relationship between research and design.

CONTENT

Introduction

Aspect 1: The relationship between research and design

Literature Research

Location Research

Precedents/ Case Studies/ References/ Visits

Models

Renderings

Excursion

Courses, lectures and discussions

Documentation

Time management

Conclusion

- Aspect 2: The relationship between the graduation topic, the studio topic, the master track and the master programme

- Aspect 3: Elaboration on the research methods and approach chosen by me in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work

- Aspect 4: Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results

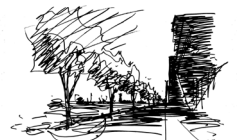
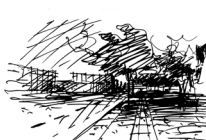
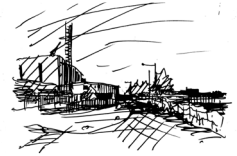
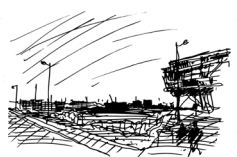
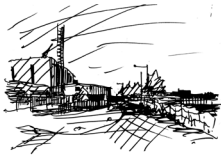
- Aspect 5: Discussing the ethical issues and dilemmas I may have encountered in doing the research, elaborating the design and potential applications of the results in practice

INTRODUCTION

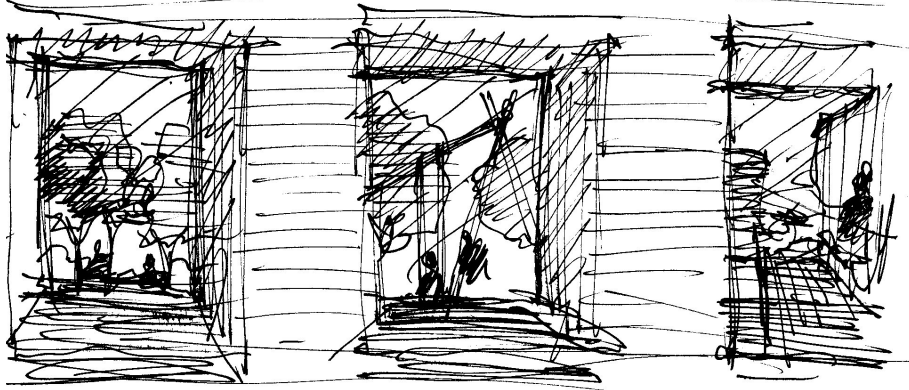
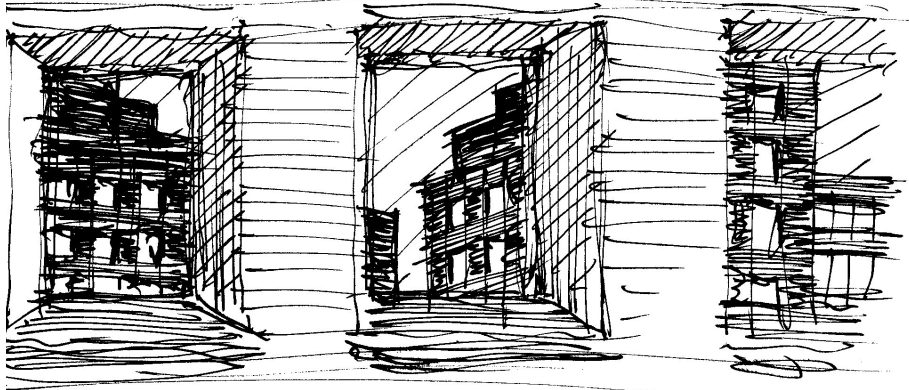
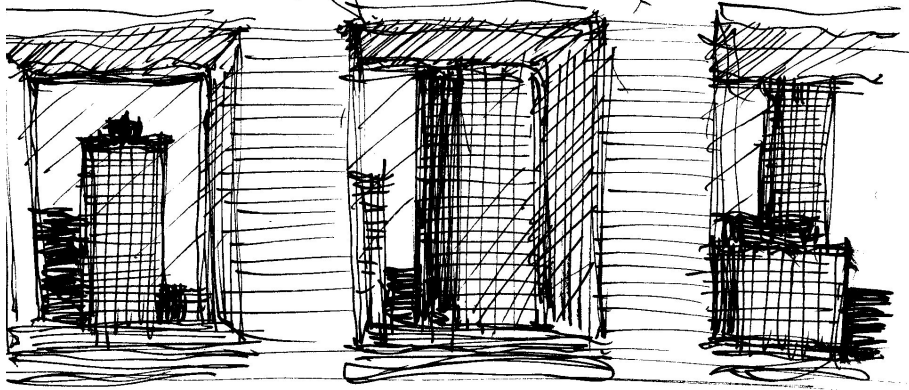
As the underlying process takes place largely in the head of the designer, it is important to find means of displaying what is actually being developed. Furthermore, research is an important aspect of the education at a technical university. In the past, attempts have been made to unravel this process and to divide it into a system of typical activities that together form the design process. A more or less linear order of these activities often leads to a formalized and reproducible step-by-step plan, a design method. I increasingly came to realize that for me this step-by-step plan does not support the chaotic design process as it actually takes place in a positive way, on the contrary: it slows down progress and inhibits spontaneous creativity. I was thus looking for a natural way to control, guide and direct the essentially unpredictable design process. A framework that leaves room for the chaos, thinking and acting of the designer, while at the same time controlling complexity and risks but, above all, a framework that stimulating creativity. This is what I tried to display in this report.

The first chapter will be an expansion on the relationship between research and architectural design and its scientific considerations. In the section that follows, the various research methods that have been applied in the design process will be discussed, what these methods are trying to achieve, and how they are shaped through different collections of images. The topics included are Literature Research, Location Research, Precedents, Models, Renderings, Excursion, Courses and Discussions, Documentation and Time management. The chapter will finish by a concluding reflection on the findings that led to the physical design, and how theoretically improvements could be made.

The following chapters of the report will answer the four remaining questions that are part of the graduation process. These elements look at research in a broader context to education, methodical line of inquiry, wider framework and transferability, and the projects possible ethical issues or dilemmas.



CONCRETE REEF MANUFACT. / 2 brick - corner / winter.



ASPECT 1: The Relationship between Research and Design

As a student, we have had to reflect often on the design process, although mostly in shorter essay forms. These projects were then also of a shorter duration, and so you see that you actually reflect on the design and not really on the process, the development or the research that goes with it. After all, there is no extended time for a design to crystallize out seriously. While in the past we have of course had to investigate our design process and on designs, you cannot really reflect very well on research if you do not have the time to reflect on that. That is different now, because there is time. When I look at the research into the design process, I notice the possibility of taking time in a process gives a lot more weight to the project.

The question concerning where I get the necessary knowledge and inspiration in my work has been a topic of discussion to myself, but to an extent I suppose also to Architecture at TU Delft. There has been strong interrelated form of designing through doing research in the past year. Especially during this period this collaboration started to become more important. To me more important than it had been in the bachelor anyway. Thus, there arose an exchange in this process in which different results more and more had the change and the time to influence each other and so the design and research could come work with each other. The following texts explore the role and significance of research in the architectural design process. Which sources are relevant for the development of new architectural and urban designs, and what role do research and science play in this?

The faculty of architecture represents a part of the Technical University of Delft, and with it the technical scientific education and research of the oldest Technical University in the Netherlands. The Architecture study is about how the world around us is changing and how we can adapt buildings, streets and cities to new insights and the wishes of users. The study focuses on designing that world around you. Anyone studying Architecture is working on technology, theory and design itself. However, creativity also plays a major role. You work alone and together on various design projects and you learn about the interaction between technology, culture and living environment. But, although architecture a technical study, to me in practice, it also incorporates an element that bridge genres. I mean to say that architecture, unlike many technical studies at TU Delft, cannot really be caught by scientific research alone. It also includes social, cultural and aesthetic aspects.

The Faculty of Architecture is an institution for scientific education and research. This means that the teachings are based as much as possible or should be based on the results of scientific research and the faculty also conducts research itself. The engineer is expected to base his or her decisions in professional practice on the results of scientific research wherever possible, and should not only rely on own experiences, intuition and ideals and furthermore work with "trial and error." In addition, engineers are expected to be able to make an inspiring contribution to the development of their field and the scientific research that is required for this.

In design research is always connected to the practice of design. This makes it different to art. Within architecture, students explore new fields and domains by designing, exploring options and alternatives, and trying out models for the future. From the Chair of Architecture and Dwelling Design, the studio philosophy is engaging with a real necessity, a problem in the real world that needs to be solved. This as the basis for the design process set the studio, and our designs in motion. A mix of applying design skills and informing yourself with knowledge of presidential projects, topic debate and theory.

Scientific research is a systematic investigation of scientific theories and hypotheses. It is a careful, verifiable and systematic study of a certain issue according to conventions as they apply within science. The aim can be to discover or to found certain facts or principles. The aim can also be the application of knowledge for practical purposes. That would mean that if one would answer the

same question as the other, the answer should be the same. But in architecture, like many other technical design studies, this will not lead to the same answer in most cases. As there is are topological, cultural and social factors that are in play. This makes it all more complex than a mathematical sum. This to me does not work on its own, especially because of importance of knowledge and practice in those more intangible fields that are fairly important.

The design research thus consists to me really consisted of two components: design and research. Designing can be understood as systematically devising and developing a solution to a problem, and than researching was finding a systematic connection that leads to that solution. I suppose design research as an approach also addressed the limited practical knowledge and relevance of certain topics and thus offered an educational tool for me to approach designs, while obtaining certain information that I did not have yet. This therefore not only had a practical perspective, but also a scientific perspective, because empirically testing interventions in practice helped to form theories and new forms for myself. This technique made it possibility to come up with new solutions for a my personal challenges. In a way I think this is obvious for design practice, but that outside of this awareness to other technical educations has not yet as sufficiently penetrated.

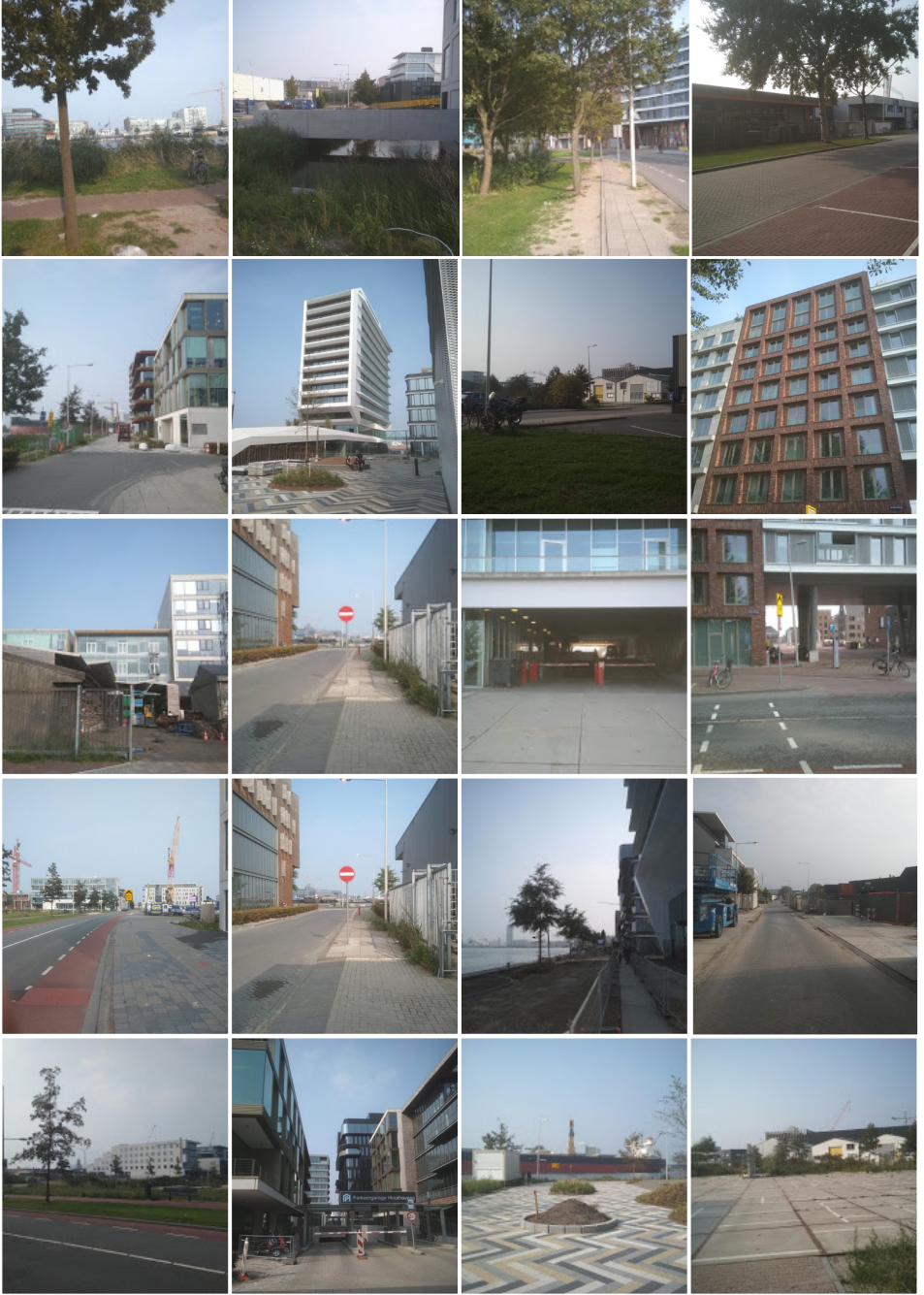
Maybe one should look at the design research that is done in architecture as something that is different from most educations in Delft, and thus it should be treated as such. Nigel Cross describes the "designerly knowledge" that differs from the knowledge that is created in the sciences and the arts, but that touches on both. At the end of the 20th century, the development of the design disciplines became aware of the fact that the design world has its own system of knowledge development. It actually distinguishes itself from comparable systems. There is an own intellectual culture that is based on the experiences in professional design practice, the reflection on it and the debates surrounding it. It basically assumes that one can predict some futures, but others must be designed. So there are no pure solution for problems as they occur in science, but rather a composition of different parts that lead to a new conclusion. That solution itself is not pure, but it absorbs parts that can be substantiated on the basis of factual information. The solution then only becomes part of the scientific whole at that moment, but until then it was not. (Cross, 1999)

Furthermore only certain forms of research work well in design. Namely, improvisations that are led and planned, but in such a way that the power of generating the unexpected and improvisation are not disrupted. In architecture it is self-evident that different disciplines are intertwined, borrowing from each other, using and collaborating. Collaboration is also an important competence in architecture education and within this collaboration there is increasing attention for interdisciplinary work. Sharing and dividing the tasks and information to come up with a bigger collected whole. This design research looked at the meeting of these different disciplines, an interdisciplinary improvisation, which together leads to the development of a design. (Sawyer, 2007)

Within the studio, I explored known fields and domains by designing, exploring options and alternatives, while also trying out new models of working for myself. Through the studio's mix of applying design skills and informing myself with knowledge of presidential projects, topic debate and theory a project is set in motion. This ultimately became the condensation point of all information, represented by diagrams, models and sketch designs. All this gave an imagination of the issue. Not so much a solution as an abstract representation of something that could become a part of the solution. This was the pivot point of the design process. Here all means are used to tell the story behind the design. With this, this research should contribute to the personal development in the education in preparation for the current hybrid professional practice in architecture.

The following chapters look into the different topics that made up the design. I have chosen not to write these elements out in chronological order of my research and design process, but





rather to approach it by examining the different research methods separately. By presenting it in this way, I hope it will enable me to better describe and think about certain research methods and not fall into the trap of using my design process as a guiding theme. As was often the case, this process was not linear from question / idea / concept to final design, but at times I also had to look back, repeat certain steps and sometimes apply a certain way of doing research multiple times. Research was therefore comparable at different moments during my process, but from a different angle or with different intentions in mind. By examining the methods separately, I can hopefully also view and compare these differences.

Literature Research:

The literature research was the start of the course at the moment you start looking for the right thesis topic. By consulting literature, I got a first idea of what topics were possible, what aspects they consist of, what questions play a role and what perspective can be of added value compared to existing literature. What perception do I have of what the city is and what people dwelling and living in the city are? What makes it different from living in the suburbs or village? What makes this collective of living different or even more than a village? This led onto the reading of news sources that reflected living in the Netherlands and Amsterdam. Thus, I could then reflect upon the actualities in the city. How does the social context work and the diversity in the area? What are big changes that an area, city or country are undergoing? Following of the news, newspapers and articles, one starts to recognise topics that are relevant to the location and the city at that point.

When starting the project, I think it is important to be open to all possible outcomes. It is also important to keep an eye on a hunch somewhere. When doing the research, I quickly realized that with a relatively recent question such as 'finding a home for expats', not all sources were truly scientific sources, sometimes even later in figures revealed themselves as truths as people looked to the news and developments in the city started to conduct the research and the statistics. Scientific articles and books have the value of course that they are academically suitable, but the news, newspapers, opinions and articles often say much more about the spirit of the times in which we are working on the subject. So somewhere there must be a middle ground so that you can substantiate something academically with facts and figures, but you can also solve a problem that might not have been answered.

The conception of the literature research began with a conception of what the city is, which was amplified by the latest work of Richard Sennett, 'Building and Dwelling'. This obviously makes for a very broad view and the possibility to go any way you want to. Richard Sennett describes the open city in several books. He argues that the street does not reflect you to people, but the space offers a modest place to occupy. Do not expect that you can build an ideal city or street. The closed community isolates itself from society. Untamed ideals are doomed to fail, or to succeed, which is even worse. Because that means a performing city where everyone must try to become happy in the same way, which is not a way forward. The guiding distinction in the book between the physical city (ville) and the city as a place (cite) where a certain way of living and staying comes about (cité). The interaction between the two determines the unique character of a city. It is up to urban planners to make a good design for a specific cité, and they inevitably have an ideal vision of a beautiful and desirable way of living. The book as a work of reference led to the adaption many other sources that can lead to new thoughts and influences that broaden your image of the city.

Reading different newspapers was also an important source of information that I continued to read throughout the project. The nice thing about reading newspapers is the often continuous development of a topic by a specific newspaper, which often also does not have an

interaction with publicly different insights for opponents of topics. By reading various newspaper subscriptions (NRC, Parool, Volkskrant), that information always seeped in, and through various media platforms of these newspapers such as social media (Facebook and Twitter), the website (NRC.nl, Parool.nl, Volkskrant.nl). Various websites have also contributed to the development of a statistical picture of the research. The exchange of this direct information from newspapers, which is much more about the present tense, often helped to show what became of newspapers through the use of statistics on these topics. Sometimes that information had to be taken from international investigations to give a picture of a question to which no Dutch answer could be found.

Insight into the literature were important to work towards a sharp problem and sub-questions. It can be a challenge but also a chance to really add something of value. In any case, a good literature search requires a critical approach, which is sometimes hard in a creative process. To a certain extent, we as students can only apply knowledge that we are currently acquiring. There is a bit of a crux in developing knowledge and applying it. I always have a little trouble stopping research, because certain insights need to be developed, and the more knowledge you gain, the more capable you can get into the subject. So I actually do a little brainstorming, leaving the questions and answers open. As a result, I always have the habit of moving around with separate parts during the project until a shape is created that runs for me. Like a sort of collage. The problem with this method is that a collage is never actually finished. You can keep shifting forever as the question and the answer remain fluid. This can lead to interesting interpretations of a problem and lead to interesting solutions, but I can understand that this cannot be tested academically. If I look back at it during the process, I might have had to work more on a clear plan in which a concept or set-up could have taken on a clearer interpretation. That might have prevented chaotic situations.

Location Research:

On the first day of the graduation studio we met in Zaandam, in the area in which the big urban expansion of Amsterdam is to take place. There we had an introduction course on the area by both Amsterdam and Zaandam municipalities, and we had a first impression of the area. Visiting gave me a context of place. Context, I think, is essential for us student to start understanding a location and the basis of a design. It was therefore recommended that we first look at the location before we went into the matter, and to take in a first impression. There are still no objective arguments to be found in analysis or research. Just being on the location, and in the city. The first impression is expressed in the form of drawing sketches, photos, sound and film, little doodles and texts. No real conclusions, just a first impression of where one is.

As students we sometimes have the tendency to go to a project only once or twice, and then during the 8a10 weeks that the project lasts no more. That is understandable because you actually don't have the time. Fortunately there was time for that this time. Later location visits also gave impressions of the details. What is unique about this place. As a recurring place the place becomes more dynamic. Visiting the location at different times and seasons gave an impression of how the place lives. Where and when there are people, and what kind of people they are. What struck me something like an industrial area with office buildings, but part of the day lives, and everyone leaves at six hours. Then the area is extinct. In addition, it was a pier-shaped urban development, and that many public places were a bit empty or unused, even during working hours. After all, it is an industrial area. So there was clearly something that needed to be supplemented to make the area a city rather than an industrial area.

Afterward work then started on the basis of more purely objective analyzes of the location and the city. These could also handily be reflected back to the more informal impressions of the location,

blijven'

Hoe kijken nieuwe Amsterdammers naar het leven in de stad? Nieuw-Zeelanders Dylan Sedgwick woont antiekraak in Amsterdam. Maar voor hoe lang nog?

Karina Hof & Floris Vermeulen 16 augustus 2019, 13:43



Video-serie

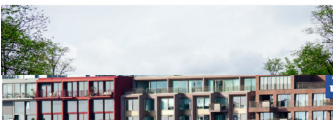
Pionieren: overal in Amsterdam ontstaan nieuwe wijken

In een aantal korte documentaires schetst *Het Parool* de veranderingen in Amsterdam en de consequenties. Dit keer de laatste aflevering: hoe ziet de stad er in 2025 uit?

Michiel Couzy 15 juli 2019, 11:45

gaat haar deuren openen in Amsterdam

4 september 2019 | Thijs Jacobs



Hongkong blijft duurste stad voor expats, Amsterdam valt buiten top 50

26 juni 2019 11:16



Expats krijgen geen hypotheek meer van ABN

Door REDACTIEBT 04 mei 2019, 08:52

Opinie



'Wie zijn onze stadswachters als gezinnen de stad verlaten?'

Paroollezer Mark Verhove reageert in een lezersbrief op het artikel in *Het Parool* van donderdag over de groei van Amsterdam door de komst van expats. 'De gezinnen verlaten de binnenstad en maken plaats voor hoopgeleide expats.'

Business

Brexit is booming business voor bedrijven die expats helpen

Column: Investeren in woningen voor expats?

Door HEBBANK WINTER 09 okt. 2018 16:05:10



Amsterdam bekleet juiste plek op lijst duurste steden voor expats

Onze hoofdstad is, met een stijging van 35 plekken ten opzichte van vorig jaar, enorm gestegen op de lijst van duurste steden voor expats. Amsterdam neemt nu de vijftigste positie in op ranglijst van adviesbureau Mercer, maar blijkt toch verrassend populair.

Door emma jones 26/09/2018 12:11

Serie: Vreemde ogen

Expat: 'Ik moet in Amstelveen net zo hoffelijk zijn als in Japan'

Hoe kijken nieuwe Amsterdammers naar het leven in de stad? Tanako Suzuki ziet hoe in Amstelveen Japanners een gestoken gemeenschap vormen. 'Ik moet hier net zo hoffelijk zijn als in Japan.'

Karina Hof en Floris Vermeulen 23 augustus 2019, 13:55

Fiscaal gewin aantrekkelijk voor expats'

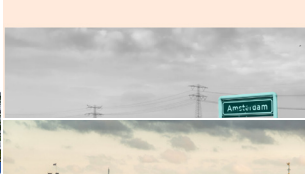


Toch uitstel voor inperking expatregeling

Er komt een overgangsregeling voor de inperking van de 'expat ruling', een belastingvoordeel voor internationals.

Het Parool 15 oktober 2018, 20:45

Fleovland.



NIEUWS

Amsterdam legt de rode loper uit voor expats van Europees Medicijnagentschap uit Londen

Woensdag kreeg het Europees Medicijnagentschap EMA de sleutel van zijn tijdelijke onderkomen in Amsterdam. Het is een eerste stap op de rode loper die Nederland uitloft voor de instelling die wegens de Brexit uit Londen moet vertrekken.

Tjerk Gualthérie van Weezen 9 januari 2019, 22:18

irritante expats in de stad

Mijn achterbuurvrouw in Amsterdam, die een beetje zonderling was en die ik heel graag in mijn achtertuin zag, heeft een aantal maanden geleden haar woning verlaten. Volgens haar moet zij naar Londen vertrekken. 'Ik heb het gevoel dat we moeten stoppen met 'bashen' expats. Laten we ze met open armen verwelkomen in onze mooie stad en de dialoog met ze aangaan.'

Het Parool 26 februari 2019, 13:05



Amsterdam groeit, vooral door immigratie

De grote steden zijn in 2018 allemaal groter geworden, maar Amsterdam groeide het hardst, zo meldt het Centraal Bureau voor de Statistiek (CBS).

Amsterdam stijgt plekje op lijst meest leefbare steden

Amsterdam is een plekje gestegen op de lijst van meest leefbare steden ter wereld. De hoofdstad staat nu op een met Sydney gedeelde elfde plek.

ANP 13 maart 2019, 7:50

Interview

Expat over de werkvloer: 'O, jij bent wel heel direct'

Hoe kijken nieuwe Amsterdammers naar het leven in de stad? Sara Ramezani, uit Iran, heeft ruim tien jaar ervaring op de Nederlandse werkvloer. Het kost haar weinig moeite om op een oeo af te stappen of een opa op zijn nummer te zetten.

Karina Hof en Floris Vermeulen 30 augustus 2019, 9:41

In Amsterdam is stitte de nieuwe luxe

Geluidsoverlast Waar kom je in het huidige Amsterdam nog tot rust? Wie geld heeft zoekt de stitte op dure locaties waar het stadsrumoer even ver weg ligt.

Jonas Kooyman 6 september 2019 | Leestijd 7 minuten

Voor expats is leven en wonen in Amsterdam spotgoedkoop

15 juli 2019 | Consultancy.nl

Terwijl Nederlanders en buitenlandse medewerkers steen en been klagen over de uit de pan rijkende woon- en leefkosten van Amsterdam, blijkt onze hoofdstad internationaal gezien helemaal niet zo duur. In een benchmark van de woon- en leefkosten van 200 steden over de hele wereld, staat Amsterdam op plaats 58. Inwoners van Hong Kong, Tokio, Singapore of Zürich hebben pas echt recht van spreken.

In een aantal korte documentaires schetst *Het Parool* de veranderingen in Amsterdam en de consequenties. Dit keer: de komst van expats.

Michiel Couzy 26 mei 2019, 12:49



toegang tot Amsterdam?'

Rijke expats verdringen Amsterdammers op de woningmarkt, betoogt Erik Flentge. Volgens Reinier van Dantzig valt dat mee: de meeste internationals hebben een laag of gemiddeld inkomen.

Erik Flentge en Reinier van Dantzig 17 januari 2019, 10:00



NVM: woningmarkt stabiliseert, meer woningen te koop

De drooggekookte Amsterdamse woningmarkt lijkt iets te stabiliseren, constateert makelaarscoepel NVM. Duurdere woningen worden weer vaker te koop gezet in plaats van verhuurd.

Ton Damen 10 januari 2019, 10:10

10 oktober 2018, 18:53 uur | Aangepast: 10 oktober 2018, 09:50 uur



'Politiek is gebaat bij grote mond tegen techbedrijven'

Amsterdam segregereert, mede door bedrijven als Uber en Airbnb, ziet politicooloog Janine Harbers. De techbedrijven ruiken dat Brussel multinationals steeds minder in de weg legt.

Janine Harbers 25 mei 2019, 17:00

1850



1950



1990



1900



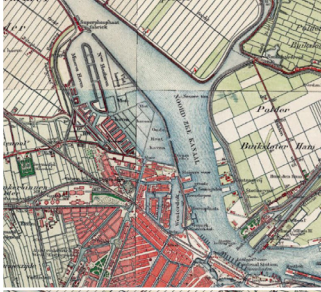
1965



1995



1910



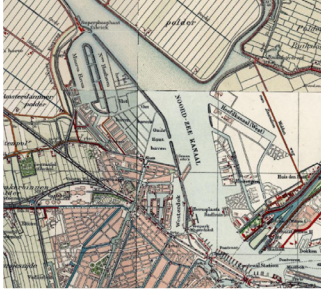
1970



2000



1930



1985



2015



and just what we had seen there. The analysis of the location and the city came forth from the research of different topics that reflect upon the location. Subject like traffic, parking, historical site, green, destination and function plan an important role in creating a clear image of what is the place that one works with, and gives an objective image of fixed elements in the Area. As to a hard core to work with. In context to location research a referential research was made onto another site. The different inventions that concern both sites can reflect in recognisable subjects that can be interchanged, as well as reflect on similarities. One can think of other neighbourhoods in the city or a referential area somewhere else.

I think it was also important in the site survey to understand that there are things that you do not see, but that are important, and that something initially ugly can actually be an essential part of what made a place special. In the case of the location we worked with, it was the old small Amsterdam businesses in barrack-like buildings were scattered throughout the area, and the new creative and technological companies that are present in the area. Although these companies could initially be seen as ugly new industry, they were very important for the existing liveliness of the area, and for Amsterdam and the population of the city the point of contact at which it recognized the city. This has led to the fact that part of these buildings were eventually kept as fragments of the past. In this way the variety of activities was preserved, and the design became a continuation of an area that already has a longer history than is initially visible.

This not only applies to projects in historic city centers, but also to these new, construction sites and former industrial and port areas where original structures are still visible. This context goes much further than the visible location. The design that will eventually be built has the genes of that context. It possesses parts and interpretations of all preconditions that can be collected about the location. It is an interpretation of the culture and history of a place and it assumes an intuitive representation of the spirit of the place. This creates a unique district for each location and a building with its own character that can manifest itself in the atmosphere of the new living environment, in the spaces, in materials and in detail. Every expansion of a city is specific, has a character, history and with that as a foundation a basis to develop as a city. For that you have to leave room for this history and not be destroyed. Building is therefore a reference to tradition, but certainly also a continuation.

Precedents/ Case Studies/ References/ Visits:

Personally I always had a slight aversion to making plan and project analyzes in the past. This had to do with the fact that we always analyzed a project context with its own project and that the conclusions were stand-alone information that had little to do with the development of the project that we were working on at the time. That made it interesting that we could now select projects ourselves that formed a frame of reference for our own buildings to be designed.

Presidents analyses is about the systematic analysis of plans that makes it possible to find similarities between these plan types and within the plans. The purpose of this is to create a generic knowledge that can be applied in daily practice and theory. So it is very important that you find a successful approach and in my case communication was essential. Something that can serve as an example to authorize or justify a subsequent act of the same (Toorn, 2011). With a case study you are usually not only busy developing your own idea, but also translating that case study into others. You will have to talk, think of ways and methods to find information, but also to be able to disseminate it. It was not necessarily about projects that you know and for which you do not yet know what you want to get out of your own project. Various case studies can be carried out as a reference for the development of both the urban and architectural plan. The urban case study could

in this case be identified as a reference project for the development of a new urban expansion in the port area of a city, and the Architectural case study working within a highrise context, how people live together and the community of functions.

The case studies were the starter of the urban design as well as the architectural design in their own respects. On a physical level they formed the building blocks for the first incarnations of the design, and a first understanding of the building typology. Where as a student I don't always have a good understanding of typologies, it has often been useful in the design process to have a reference point that can work as a starting point for what you want and don't want in your design. The conclusion on the case studies gave an impression what worked and didn't work, and through differences between the case studies, patterns started to surface of what would improve upon the design.

The analysed case studies, were based on the composition of towers chosen after the P1 presentation and analysed over the functions and shared amenities that culminated into the residential tower types. The four chosen case studies that were as followed: 860-880 Lakeshore Drive and Marina City in Chicago, as well as Nagakin Capsule Tower in Tokyo and Westkaai 3-4 in Antwerp. All towers were in a composition of two, of which one was further analysed. The towers were then analysed on the topic of circulation, public amenities and composition. The results of the analysis were combined into a circle diagram of building use. In the process of organising and analysing the case studies I crossed through different sets of case studies. I Initially analyzed the main structures in different forms of rising and construction in high rise buildings, in combination with different forms of collective living. Both were understandably main topics in the design process, but I came to the conclusion that there were not many buildings that included both topics, and were built and more than concepts. Also, the buildings became to different in size, form and number to analyse. Therefore, I moved the subject to a collective of highrise buildings that could be analysed upon the subject of shared amenities, circulation. These subject were brought back to the main subject to reflect back upon the subject of numbers, size, etc. to make an understanding of how high and building size will become suitable for collecting people, and being able to reflect back upon the need for buildings in the city of Amsterdam.

In the use of references in the long-term of the project I had formal but also informal forms that came by. Reference projects on websites and social media (as discussed earlier) are constantly coming by, so fortunately coincidences also kept passing. Ideas that you would not come up with directly in context with your own project, and that in the case studies of choice would not occur as quickly. Because nowadays you can enter selective interests on sites such as pinterest, different types of types, visualizations and photos can come along that also help in the development of precedents. These were often more suggestive.

Models:

Initially the making of the model to me was asking the question what the use of the model really was for me. I was initially questioning myself what am i making this model for? Literally "the model", not "the model", "the scale model" or "the architectural model", or is it found in the act of making it? I wrote it down. Of course, what is the difference. A model is not specifically made for architecture, it belongs to the wider domain of a sculpture. Only the architectural model belongs to the architecture, but it is usually an uninhabitable object or just a concept. The model can thus actually be on the border between the model and the architectural model, the habitability is optional. The model provides an insight into the design. By making tangible models, the consequences of design decisions are immediately visible. It is a means of communication that clearly shows what it

Es Eik Haagbeuk Beuk Okermool (Pterocarya) Den Iip Parse beuk



Gestabiliseerd zand

Basalt

Basalt tegels

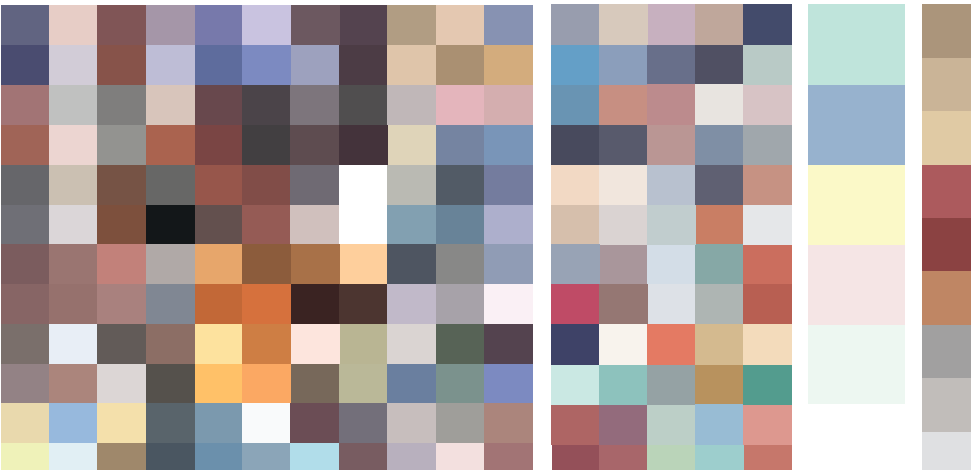
Rotsten



MINERVAHAVEN

HARBOUR

GLASS



is about, in contrast to the two-dimensional drawing. Zooming in and out, making decisions and overseeing the consequences. (Suijs, 2007)

Normally, supposedly I am more of a draftsman, making sketches is much faster and to me clearer to read. So it was important for me somewhere to get a kind of creative drive that I could get started with, but with which I could stay busy all those hours. I really only model in the computer or on paper, and thus the only physical models that I often made were presentation models. That is why it was good for me to first delve into a bit of theoretical modeling. The booklet *Idea as 'Model: Investigations About Architecture'* stated the intuition that a model of a building could be something other than a narrative record of a project or a building. This was in a way the starting point from which I started working with models for this project. That models, like architectural drawings, can have an artistic or conceptual existence of their own, one which can be relatively independent of the project that it represents. If we look upon the making of the model as a conceptual expression the purpose of the experiment can be to clarify a new means of investigating the architecture in a 3-dimensional form. During the modeling in the graduation studio I thus not really searched to assemble models of buildings as presentation material, but rather as a study of a hypothesis, a problem, or an idea of architecture. For the development of the project the making of models was very important.

The first 1:500 / 1000 models that we made as a group for the development of our urban design were initially the result of a simplification of our sketched urban design. A city interpretation inspired by the Amsterdam city block, with the Amsterdam School as its main inspiration, a whole design with unique blocks. These blocks were included in urban design in various sizes and widths. Added to that was accents at various points based on towers.

We initially made a sketch version of the urban plan out of foam was simple expression of form, in which we tried out compositions of the different block. In this variant, it was still possible to scroll with blocks, and to some extent searched for the shape. We used the entire minerva port for the model to be able to test which location would be appropriate for our further design.

The second urban 1:500 model was layered in materials and was therefore a presentation model that gave a representation of our design, with which we also did our P1 presentation. This was interesting enough where it clashed with our common thought about our urban design, and what the model had to do. It was not a sketch model, and in many cases it lacked the imagination of the idea behind urban design as a colorful whole. The basis for the redevelopment of the model in the direction of was the creation of a more varied urban design. To that end, a model had of course already been made, and we wanted to continue with that. This led to the fact that we have seen the existing model as a sketch model in which we started to cut. The blocks are cut into different pieces, creating more variants of typology of the Amsterdam building block. In addition, the buildings are painted in different colors, which should indicate a further inequality between the city blocks. This model was taken to the P2 presentation.

For the building models a new approach was used through the making of sketch models in different materials to further assist the process. The making of the tower model was the result of an effort to put the whole in context, and to visually put the building back into a shape. The materials that were ultimately chosen were cardboard, iron wire, clay and foam. The idea for making the models was that different materials lead to a different treatment of the materials, and therefore a different solution to the problem. In practice it quickly became clear that the different materials might need a different scale, and not all of them were workable for me. As a result, the models became more and more conceptual than architectonic and this was not really the intention to make the models. They became models for public space in the building, stacking of forms and conceptual desert towers a la

yemen, which were difficult to compare. This meant that they led to different conclusions of their own which, in particular, had to be further developed in other models and in other scales. This material study should be repeated there, and the various conclusions can be taken into account for this. The making of these models through differentiation and repetition as a whole did lead to an understanding of shape and material, and what work and what does not. This led to the making of more models in foam as that was a material that was during the designing process easier to adapt and repeat. It worked faster and was easier to do during other tasks.

For making the crown and the public spaces for the towers, foam has been taken as building material. The question I asked was a representation of someone standing on a tower. What is the difference between free space and closedness, both within the building and in relation to the environment of the building. How does space and orientation come from? Based on that, I started to stack shapes, where I also applied the 3D model in the computer to involve the environment of the towers. This led to a number of forms that initially had a place in the building. Later in the process, these forms and spaces were simplified into a number of basic forms that could be better repeated and led to a better whole for the entire building.

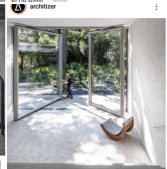
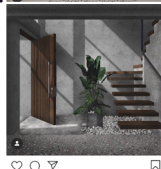
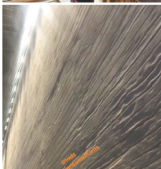
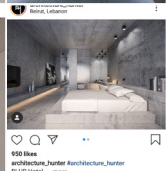
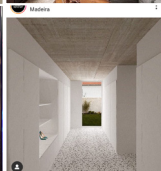
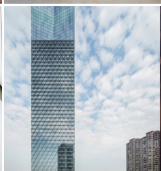
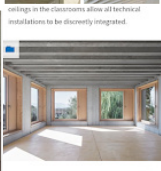
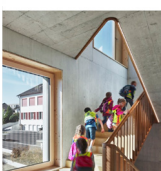
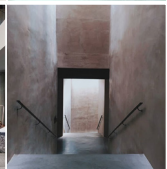
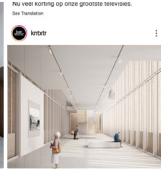
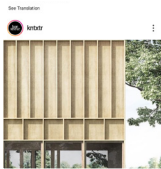
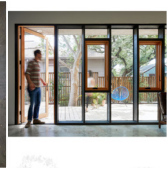
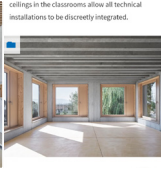
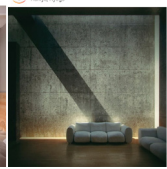
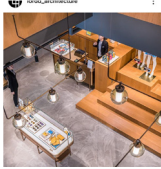
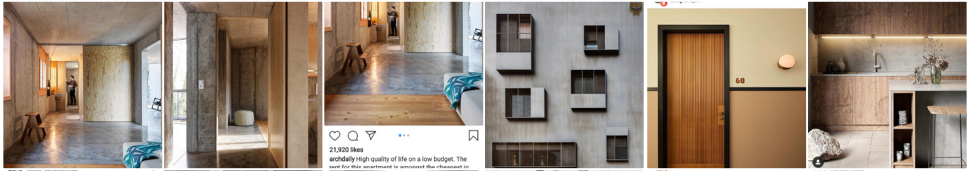
Renderings:

From repeating and practicing you get better and build your confidence. By training a lot, whether it's playing the violin or drawing, you reach a higher level. It actually doesn't matter what drawing method you use. What must be said is the use of time in context, the sign medium is still important. A signature is fast, and in sketch form you can quickly put variants on paper. You do have to make a drawing again if the design changes. With a Cad or sketchup drawing it takes more time, but a lasting result remains alive. Personally, I like to redraw things more often. The repetition brings up the essence of me at a certain point, and if you redraw something, you dare to remove persistent errors, which in a drawing program quickly lead to a lot of time and boring work.

In the making of visual presentations for a project, which architects are responsible for, one must effectively communicate and analyze the organization of a project's material elements. This essential creative process allows those involved to effectively identify and even modify key aspects and components of the building during all phases of its conception. Because of the inherent challenges of material selection and other practical issues, the development of what exactly will be built tends to be relegated to the end of the design process. But a true understanding of minor yet invaluable details is among the most interesting and important aspects of the best architectural projects.

The classical way of drawing, needless to say, is no longer widely applied in architecture, a lot has changed since the emergence of CAD. So what is the purpose of sketching in the design process nowadays. Can a good sketch be more important than a final drawing? This sounds like a contradictory statement because making a technical drawing these days is often the end goal. Nevertheless, I think it is extremely important to be able to make a good sketch. Perhaps this is more important than being able to draw nicely. Still sketches not only help to capture ideas on paper, but they are also an important tool for coming up with new ideas and they are fast. And while a sketch might not be the end goal, it can encapsulate the end goal, or be enclosed as a layer of this end goal. (Goldschmidt, 2014; Tversky & Suwa, 2009).

The computer makes two and three-dimensional modeling possible. Which for the architect means that a building is not just the concatenation of facades in 2D. The environment can be viewed from all angles and heights in three dimensions. It is also a tool to project the building into its environment. In this way images can be generated that indicate how the building looks in its environment. However, architecture is not as static as it seems. Buildings do stand still, the user



public space and the private space that is the family and intermediate scale of a collective space"

Nordic Pavilion Venice Biennale: Mirrored201d at the nordic pa...

SEGLATERE APELNINGEN

ceilings in the classrooms allow all technical installations to be discreetly integrated.

WALL GROUND STAIR

Architectural Digest: This Barcelona Apartment Will Inspire You to Get Creative with Curtains

SEGLATERE APELNINGEN

ceilings in the classrooms allow all technical installations to be discreetly integrated.

WALL GROUND STAIR

Architectural Digest: Windows are just the beginning.

WALL GROUND STAIR

ceilings in the classrooms allow all technical installations to be discreetly integrated.

WALL GROUND STAIR

Architectural Digest: Windows are just the beginning.

WALL GROUND STAIR

ceilings in the classrooms allow all technical installations to be discreetly integrated.

WALL GROUND STAIR

Architectural Digest: Windows are just the beginning.

WALL GROUND STAIR

ceilings in the classrooms allow all technical installations to be discreetly integrated.

Nordic Pavilion Venice Biennale: Mirrored201d at the nordic pa...

SEGLATERE APELNINGEN

WALL GROUND STAIR

SEGLATERE APELNINGEN

WALL GROUND STAIR

SEGLATERE APELNINGEN

WALL GROUND STAIR

SEGLATERE APELNINGEN

WALL GROUND STAIR

SEGLATERE APELNINGEN



moves through it. This motion can be simulated with film and VR. It is a design method that also involves time, the fourth dimension, in the design. Which experience belongs to which movement, what does the user see on which leashes. This method teaches us to experience the design, we always go in and around the design.

In the process of making the urban plan we really only made use of sketches and sketchup. The first setup was made in really rough sketch form that followed the geometries of the existing urban plan and roads. Added upon this were first impressions of the existing and future urban. This was then translated into a 2d map drawn onto paper, CAD and a 3d depiction in sketchup.

Drawing with the computer makes designing accurate to the millimeter possible. Yet I felt with digitization a piece of personality is lost, so I often returned to hand sketches to reflect back upon back thoughts. Hand sketch give back the personal handwriting to the design. No matter how real the 3D animation may seem, atmosphere cannot really be animated. Although a hand sketch has more atmosphere, it is often inaccurate in terms of size. A combination in which the basic shape is generated by a computer and the materials, façade design and the situation are drawn by hand, connects the advantages with each other. A sketch can be referred back in time to question whether the thought behind the atmosphere is maintained in the 3D model and the Autocad drawings.

Excursion:

A widely used research method is field research or field research. Here you go into the field to collect data. Field research is therefore widely used as a research method in the thesis and the design process. Field research can be seen as the opposite of desk research. Where you retrieve research data from existing sources at desk research, you collect it at field research itself. Yet I have been able to use them well in the research and design process because they are an additional factor. An advantage of field research was that you can justify what you did and why. Because you can see something that works somewhere else as confirmation, so that you can say more about the reliability and validity of your design and research. I must admit that it often takes a lot of time to set up and conduct field research. Finding enough respondents that you need for many forms of field research can also cause problems. So it did not really provide academic substantiation, and more phenomena, or unexpected but interesting information.

I Suppose that in our time of computers, we can nowadays take a look anywhere in the world. Nevertheless, if it is also important to visit your design subject, it is also good to approach references in this way. The city is more than space and the built environment, so urban development does not succeed with just a physical design. Especially by opening yourself up to the possibilities, you unexpectedly come across new and different possibilities. In addition, as an architecture student you are practically on a field trip all day and at all times, simply by keeping your eyes open and taking in the world around you. It is the skill to be aware of it. Furthermore, going places shows you what people do. If I want to know what people do on a square the best way to find out is to go to twenty different squares. To expect people do things is just not enough. People are not always as predictable as you think.

Especially the excursion of the studio to Hamburg to see the new Hafencity, among other things. When organizing the studio I was not only concerned with the organization of the excursion. When it comes to architecture in Hamburg, people naturally think of large building projects such as the Elbphilharmonie. But much more happens for architecture. An advantage of field research was that you can justify what you did and why. Because you can see something that works somewhere else as confirmation, so that you can say more about the reliability and validity of your design and

research. I must admit that it often takes a lot of time to set up and conduct field research. Finding enough respondents that you need for many forms of field research can also cause problems. So it did not really provide academic substantiation, and more phenomena, or unexpected but interesting information. Such a vast area as Hafenstadt and the other old and new developments in Hamburg helped to create such a framework.

Courses, lectures and discussions:

There are obviously many different ways of gaining new knowledge. I suppose a form of research that I forgot about initially in the reflection was verbal and interactive research. For example, with our study materials about study skills they learn to search for information through research, and by working together, gain new knowledge and more. Another, very active way to gather knowledge is to discuss. I learned a lot during the studio by discussing and arguing with classmates, teachers and teachers. During the graduation process, various courses, lectures and discussions came from the studio and the study that during the design process, various interesting points of interest and different starting points given the design could develop further.

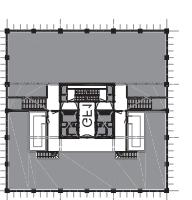
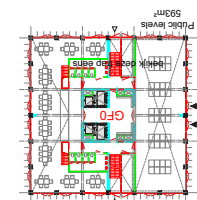
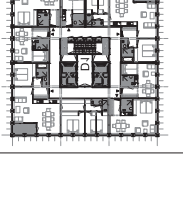
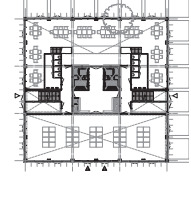
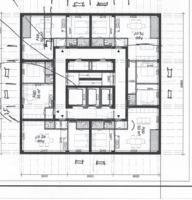
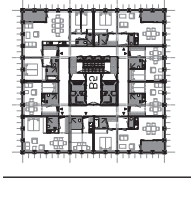
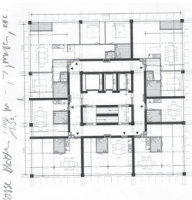
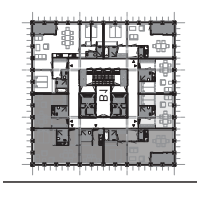
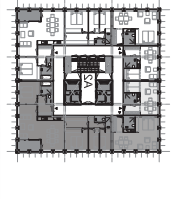
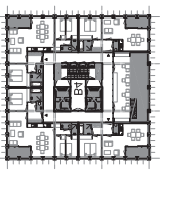
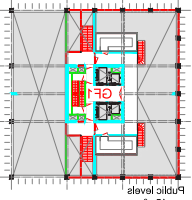
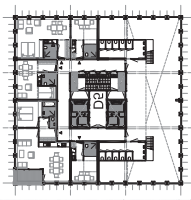
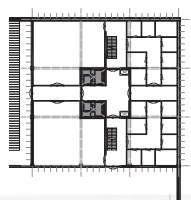
As students, but also with teachers, we have had many discussions among ourselves about developments in our time. Best is only possible when interests become clear, looking for solutions. Because then you understand better why certain solutions are not good. Although studying and watching where and when you want is a fantastic progress, and students have endless possibilities in terms of content on the internet, the dynamics and interaction that you have when attending lectures themselves is a very important added value. Of course knots must be made at a certain moment, but assuming that finishing something makes up for a solution to a thought is not always true. There was a collaborative part in the project, which meant that there had to be discussion.

During the course of the studio, I often went to lectures with people who were involved in various activities in housing construction and its development. And actually that was important when I look back to the studio. You can read as much as you want, but sometimes it is important that you see a real practical implementation.

The lectures by Pakhuis de Zwijger and the academy of architecture were particularly interesting. I think it is good to have a difference of opinion in the development of a project. And you often got a different view of a subject there. The lectures at Pakhuis de Zwijger provided a further view of social, cultural, social and economic questions presented by heads in Amsterdam. I also attended a number of lectures at the university that are more specifically related to housing and architecture. In addition, the academy of architecture in Amsterdam also gave lectures in the evening that focused more specifically on architecture and urban planning in Amsterdam.

Documentation:

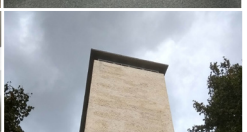
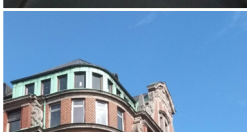
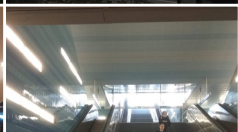
I have documented and described a lot for myself during the design process. In doing so, I sometimes wondered what the goal was for myself, and whether I did not elaborate too much on the subject. After all, it provides a large amount of information that needed to be further and further explored. And I was questioning whether I should have documented more or less? Less! Less! Less! In the design process I also have many side-by-side investigations that focus more on specific design issues that have to do with the design process. In it you see certain elements that sharpen or change the design process and play a role in designing. Are the certain assumptions and statements you made still correct?



Public levels
42m²

Public levels
599m²

DI CAUIMI



For many years, the usefulness of documentation has been the subject of discussion among architects. The enthusiasm to deliver documentation is high or low depending on the different student, and not just because of the emergence of agile - "Working software on Comprehensive documentation". It is a discussion that is being held, not only due to differences in insight, but also due to a lack of insight. For me it was at least so late in the design process to add some nuance.

I think documenting information as we do during our studies is of great importance. I still have all the study books and books I have purchased myself. In addition, I have saved all projects and their documents. In this way I could always refer back to my own development in designing (up to six months ago, haha), and to a certain extent referring to myself if necessary.

Documenting information can, I think, be seen as the foundation of what the design process in architecture can make academic. It is about the divisibility of the information that you have acquired. We can pass on the knowledge to the people who come after us. That is only efficient if there are enough readers. It is our external memory. It is the memory of an organization, rather than the memory of one individual. Documenting is therefore much quicker and easier than reinventing the wheel every time. The question is how much do you want to finish and how much do you want to learn? It also gives you the opportunity to question your own work in a critical way. Documenting is actually required for reasons of compliance or quality control.

Time management

Of Course studying to be an architect is a very interesting and creative direction. It is fascinating, fast-paced work that can be incredibly inspiring and fulfilling. It means having the opportunity to design a unique solution to a unique problem. But it does come with challenges. The main obstacles that I bumped into was time management. There was a lot to do all the time, and managing smaller, menial tasks sometimes prevented me from focus on the parts that I actually enjoy. In this last chapter I wanted to consider the role of time in a project like this. To what extent did time management contribute to the success of an architect? And can creativity actually be planned to that extent? If time management does indeed contribute to the success of architects, it was interesting to find out what the most effective way of working was and why. Subjects that belong to this are, for example, planning project work, planning daily work, keeping an eye on work progress and freeing up time to design.

Time management was mostly process-based, effective and efficient planning and carrying out activities and tasks with the aim of increasing effectiveness, efficiency and productivity. By using time management I thought I would be able to regain control of your work if necessary and time and tasks more effectively. In an attempt to better organize during the graduation period, I actually tried to apply clearer schedules. Which was not really how it worked out, because I don't really work in a linear manner. Although I did make plans during the investigation, it sometimes took longer during the search or takes part in the process. It turned out that this was not always planned in a realistic way, because I tend to just jump in and find out where I will eventually end up, and because of unforeseen circumstances I will be thrown into spit.

By adjusting this to a more realistic level (a longer graduation period), I noticed for the first time what you can achieve with a plan, and time. In the earlier approaches I had all the information in mind, and it helped that there was time to work out different parts. Certainly with a large building, I have the feeling that you have to go into more details and build less on the normal building rules. In contrast to my previous approach, I have therefore taken a lot of time to carefully write out the information, fine-tune it, make changes and then work them out. To carefully frame the research and to devote considerable attention to formulating the results in the future, the hope is that the results will lead to a more satisfactory result.

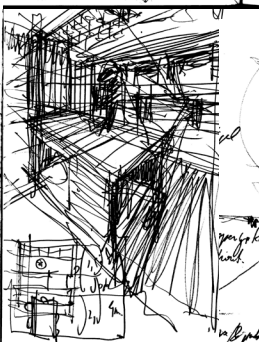
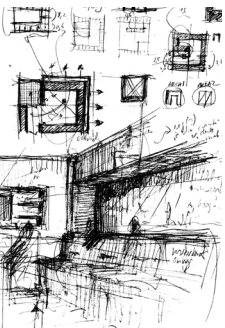
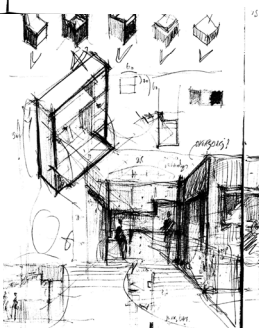
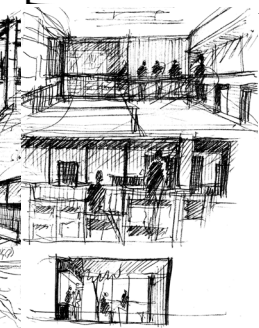
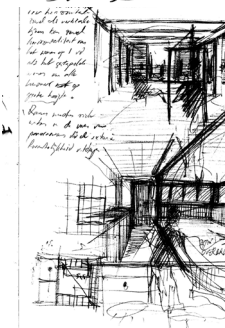
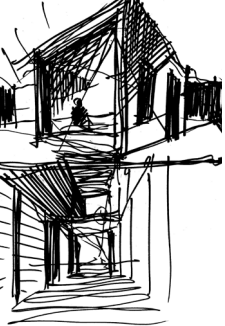
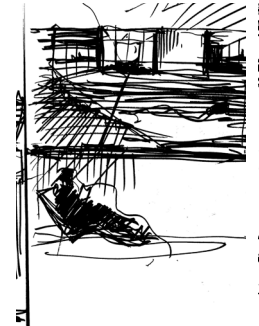
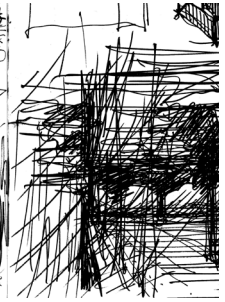
Conclusion

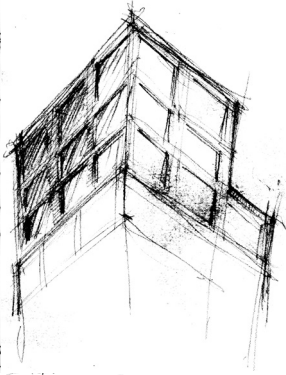
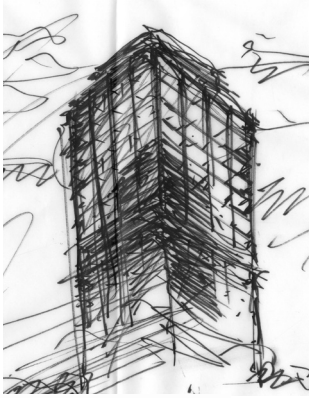
During the graduation project I've come up against research on the design process, and while you have to describe your own design process, it surprised me that the literature available on the specific subject of architectural design and research was quite little. There is a lot to be said about the individual components that make up the design, but the culmination of the whole is often more complicated than just intuition, or a process of stages. The process must also be divided on the level of the different topics, and the way in which you bring those elements together, and how they lead to a new whole.

I thought it was instructive to think about the design process, because in the design process it often happens that I am stuck, you have no inspiration and you don't know how to proceed. To prevent that, it is good to be able to structure the process and to be able to differentiate it. Thinking about the design process and structuring the methods can therefore be seen as a kind of "first aid for design problems". It must be said that designing is of course not routine, and creativity does not benefit. Rather, it is a means of fresh fall, that you can fall back on if it doesn't work.

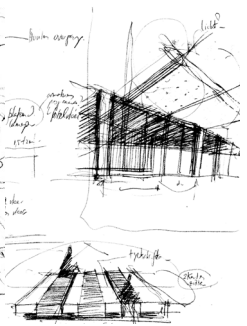
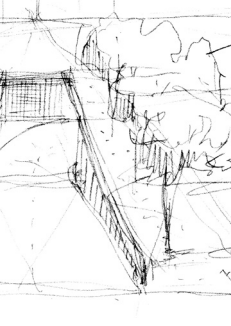
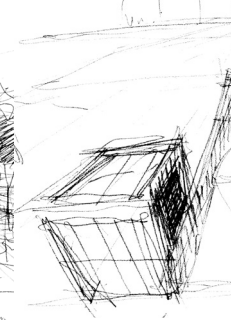
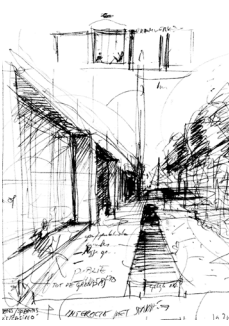
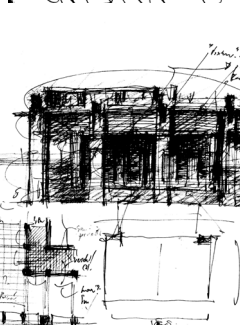
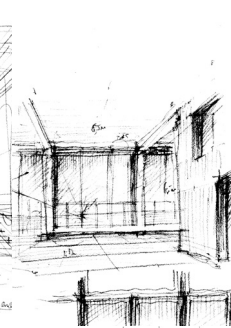
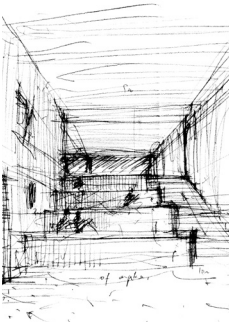
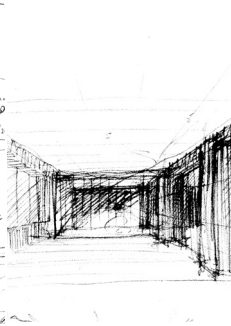
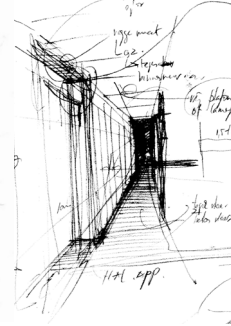
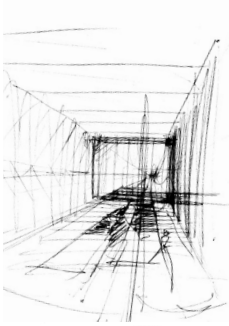
I have noticed in the design process that there are actually constant shifts between elements that have to do with making and thinking about the design. Although the design process runs from coarse to fine and almost always has a phased structure the design process focuses on the creative and technical processes that lead to the emergence of a successful product. In the end, I think that although products can differ greatly from each other, there is a general structure in the way they are created. They can be made as a collective, sharing the different disciplines or through a broader use of disciplines, alone, but you always diversify in the process.

Digging out the design process as done here can therefore still be a practical reference work for myself as a designing student. This research dealt with the design process during graduation. Although each product can therefore be different, the method to arrive at the product is often the same. There is of course no design method, everyone thinks and is different, but the general design scheme from analysis to product can often be applied. By diverging and converging in the different phases, you will hopefully come to the desired solution.





the structure
is not transparent



1/20

REFLECTION ON ASPECTS.

This reflective research has shown the different ways in which research was done during graduation, and which I applied to support my various design decisions. The various components and forms of research have brought the design forward. The final design is a culmination that is included in the final design. It cannot be seen as separate, interwoven, and visual or not.

Aspect 2: The relationship between your graduation (project) topic, the studio topic (if applicable), your master track (A.U,BT,LA,MBE), and your master programme (MSc AUBS).

The subject I chose when graduating follows studying at the faculty and the university as well as finding a personal fascination for the added value of living in the city. The goal of the studio is to find an answer to the question of how people want to live in cities in the future. The subject I have chosen within it deals with the temporary residents in the city. The Chair of Residential Building is concerned with research and education in the field of housing and architectural design. In addition, I have discussed the residential building for the growing fluid city dweller, the expat. It focuses on the architectural aspects of housing in relation to this changing lifestyle that characterizes our daily environment. Topics such as diversity, function mix and high population density, the relationship between sustainability and spatial planning, and the interrelationships between the private sphere of the home and the public spaces of the city are considered important.

Aspect 3: Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.

The housing studio is organized around doing research and subject. It is important for the studio that within the studio, in addition to a relevant question, some innovation and new knowledge are added to the subject they work with. The studio asks the relevant question how we will live in the city in the future, or how we should live in it. It was important for me to tackle that topic, but also to select a topic that meets this requirement, but in a way that interests me the most. I consciously chose to choose a topic that is currently relevant and will contribute to city life in the future.

The first period of the project was set up in a reasonably structured manner around the research part, with the design of urban design and the residential building taking on a smaller role. A number of components have been introduced that create some unity between the various reports. These components provide all studies with a basis with which, when complete, a building can be made after the p2 presentation. It ensures that the focus is more on research than design.

Aspect 4: Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.

The current developments in the project have led to the need to find a solution for a specific target group, the expat, with which the further city could also be improved. Furthermore, the research and the building could be seen as a new perspective on how people should live together in the city. In my opinion, the graduation project can be seen in the context of its time. It fits within the context of other projects in the studio, projects that were made by other students in the past, and projects that are currently being built in the world. The project is based on existing knowledge but must also be seen as a project that is more future-oriented in its continuity. It has not yet been applied in this form.

Seen as continuity in the design of shared mixed-use high-rise buildings, the design can in my opinion be seen as inspiration for vertical access, density and diversity, and the integration of various forms of public access. Therefore it could serve as inspiration for other designs. The spatial planning around the core gathers within itself the entire organization of the building so that the houses around it can formulate free assemblies.

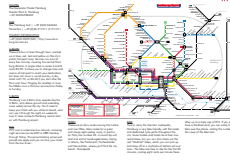




Text describing the climbing structure and its location.



Text describing the portraits and their significance.



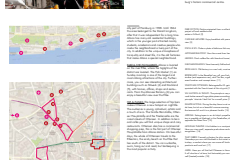
Text describing the map and the highlighted area.



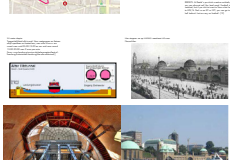
Text describing the clock tower and its history.



Text describing the architectural drawings.



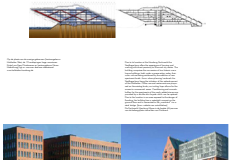
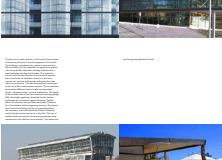
Text describing the map and the highlighted area.



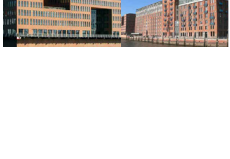
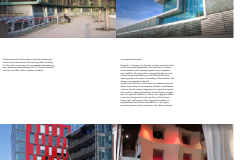
Text describing the building and its design.



Text describing the building and its design.



Text describing the building and its design.



Text describing the building and its design.



Aspect 5: Discuss the ethical issues and dilemmas you may have encountered in (i) doing the research, (ii, if applicable) elaborating the design and (iii) potential applications of the results in practice.

The housing market in many cities is under pressure. The theme of keeping the city accessible is not just about keeping the poor or families in, but also about finding a structural solution for the growing group of various international and single people. At a time when it is precisely these groups that are growing past the existing white families in the city, it is time to put this group away as secondary, but as the focus group for urban development. It is precisely this group that should not be neglected. Certainly if we speak of a realistic compacted view of the future. The city must live and have the opportunity to grow.

Aspect 6: Literature

Akker J. van den (1999). Principles and methods of development research

Cross, N., (1999) Designly ways of knowing

Goldschmith, (G., 2014) Modeling the Role of Sketching in Design Idea Generation

Horn, B., van, Vraag niet van de stad dat hij jou weerspiegelt,

<https://www.gebiedsontwikkeling.nu/artikelen/vraag-niet-van-de-stad-dat-hij-jou-weerspiegelt/>

Hulsman, B., (September 2011) Ornament doet Leven,

<https://www.nrc.nl/nieuws/2011/02/11/ornament-doet-leven-11996090-a1217895>

Suijs, G., (2007) De Maquette, Ghent University,

https://lib.ugent.be/fulltxt/RUG01/001/312/240/RUG01-001312240_2010_0001_AC.pdf

Suwa, M., Tversky, B., (1997) What do architects and students perceive in their design sketches? A protocol analysis.

Wikipedia, (2019)

Toorn, M. van den, Guney, A., (2011) Precedent Analysis in Landscape Architecture; In Search of an analytical framework, Faculty of Architecture Delft University,

