



Urban Architecture MSC 3+4 – 2021

Hannah Namuth 5044618

THESIS BOOKLET

Urban Architecture msc 3+4 – 2021 – Hannah Namuth 5044618

TABLE OF CONTENTS

Chapter overview of the booklet

Page 06 – 09	CHAPTER 1 INTRODUCTION <i>chapter overview of the booklet</i>
Page 10 – 13	CHAPTER 2 METHODOLOGY <i>research methods and literature</i>
Page 14 – 19	CHAPTER 3 THE BRICOLEUR <i>bricolage and robinson crusoe</i>
Page 20 – 27	CHAPTER 4 ESSAY + LETTER <i>reflection on bricolage and my architectural concept</i>
Page 28 – 47	CHAPTER 5 FIELD RESEARCH <i>reflecting on nijmegen and the project location</i>
Page 48 – 67	CHAPTER 6 TOPICS + THEMES <i>field of interest and research topics</i>
Page 68 – 83	CHAPTER 7 URBAN PROPOSAL <i>conceptual ideas for the site</i>
Page 84 – 103	CHAPTER 8 ARCHITECTURAL CONCEPTS <i>ideas and concept for the volume</i>
Page 104 – 111	CHAPTER 9 ANIMAL PERSPECTIVE <i>the mountain from the perspective of the non-human users</i>
Page 112 – 193a	CHAPTER 10 ARCHITECTURAL ELABORATIONS <i>Applied concepts to plans, section, elevations and visualisation</i>
Page 194 – 207	CHAPTER 11 PHYSICAL MODELS <i>model making and form finding</i>
Page 208 – 221	CHAPTER 12 ARCHITECTURAL DETAILS <i>elaborating and detailing of the facade and other details</i>
Page 222 – 235	CHAPTER 13 BUILDING TECHNOLOGY CONCEPTS <i>heating,cooling, rainwater collection and ventilation</i>
Page 236 – 241	CHAPTER 14 REFLECTION <i>reflecting on the studio, the year, topic and my work</i>

INTRODUCTION

chapter overview of the booklet

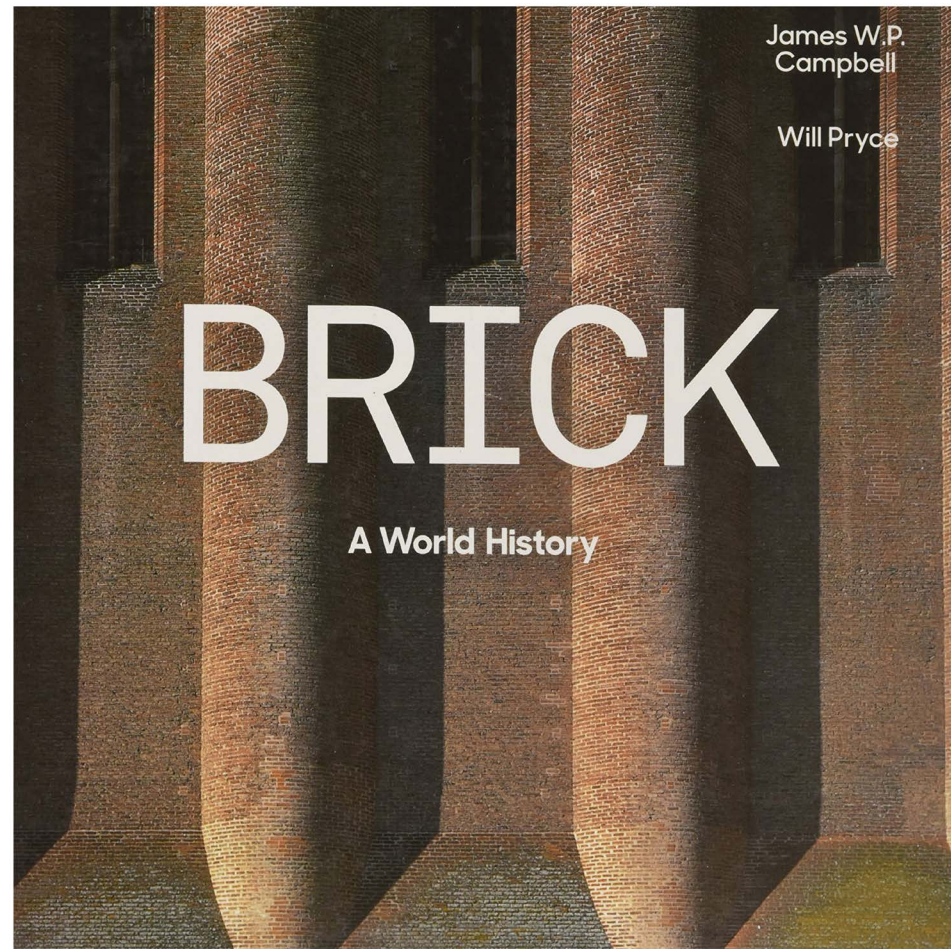
Starting point – Research Questions

Thoroughly researched and designed architecture usually leads to better projects. But what makes a design good? Putting work, thoughts and meaning into each design step and scale, is important and leads to designs, being truly good designs. In this research proposal, I will explain my research, how it is connected and mentioned the content of each part briefly. I will include a more complete version in my booklet after the P2 – since adding all my thoughts and texts would go beyond the scope of the research paper. I have multiple questions that motivate me to research further and I attempt to answer them in the following proposal.

Nijmegen is the oldest city in the Netherlands. Our location is within the demolished city wall and therefore needs to be closely evaluated to not build more architecture that disconnects from its old structure. To properly integrate new architecture in the historic centre of Nijmegen we analysed the existing grids to create a new master plan that would integrate modern architecture in spaces that are closely related to the historic ones. How can modern architecture be integrated into existing city structures that have a long history?

Further, the centre itself is focused on consumerism, which is leaving part of the dedicated shopping areas already empty – how can that be changed into more lively and cultural induced spaces?

The idea of creating porosity on different social layers, not only for humans and public functions but also for animals is something that I am intrigued by. I also immersed myself in the topic of bricks, the most prominent and local material for Nijmegen. Brick is one of the oldest materials which can be dated back to 8.000 BC. With its rich history and each culture adapting brick in size, colour, material and usage for their purpose. Looking into case studies on how modern architects adapted the material, will give further insight into how it could be used in the design. While the design will adapt to its urban context, it is also important to incorporate more urban greenery into it. Using greenery in combination with bricks can further help to realise my goal to not only create well designed spaces for humans but also city-dwelling animals. How can spaces in an urban context be designed for city-dwelling animals so both – humans and animals – can coexist?



*Pecha Kucha images
as inspiration*



METHODOLOGY

research methods and literature

Semester structure

The first two quarters primarily are focused on research and the remaining two on architectural design. I try to connect them more thoroughly, as it is easier and more logically to go forth and back from research to design. Research and architecture need to be connected, but the proportional distribution was changing throughout the year. First, the focus was on research and the architectural part was limited, the long the semester continues the more the research steps back and the architectural design takes over. In the first quarter, P1, the research was very mixed. The historic analysis of Nijmegen was conducted with historic maps, photos and literature. The city was analysed, based on its existing structures with maps to create a better understanding of the traffic and walking routes. Since our group was mostly focused on topography and typology, a lot of the research was created through site visits, that were documented with drawings, photos and videos. In our video, we mostly compared similar spaces to give a better understanding of the city and its unique spots, patterns and structure.

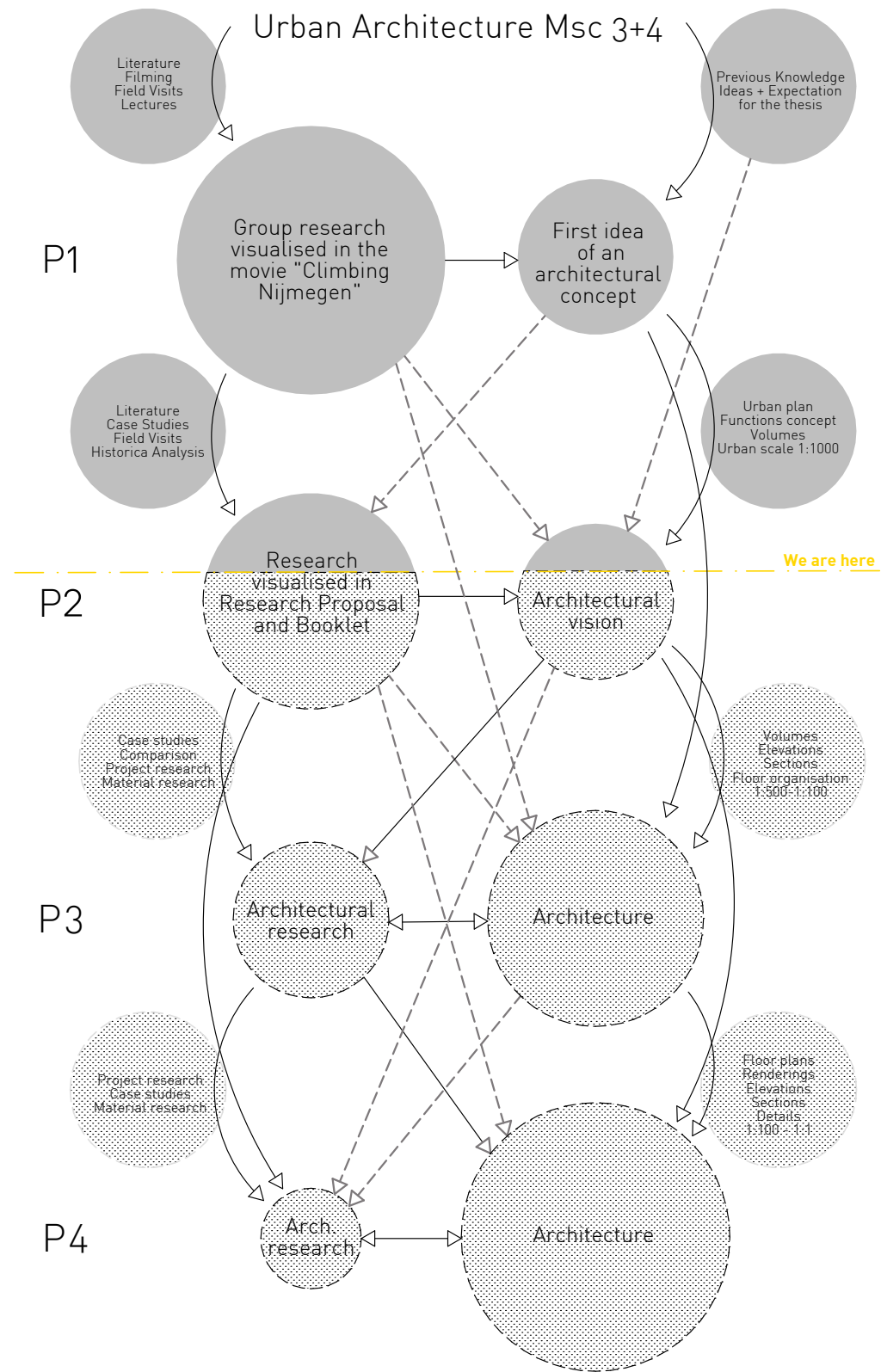
In P2 the historic aspect of the city growth became a more important factor and old maps help to clarify it. A range of case studies about urban spaces around the world and in Nijmegen, that we created, became a base for understanding what type of spaces the city needed. We compared them by size, users, functions and location. Further the book “The Art of Building Cities: City Building According to Its Artistic Fundamentals” by Camillo Sitte became a guideline for the urban proposal since it describes

historic city planning rules that help us adapt to the old centre and this set the guidelines where new buildings should be located. As this city building tied the location together with the rest of the architecture, it is becoming freer in its expression.

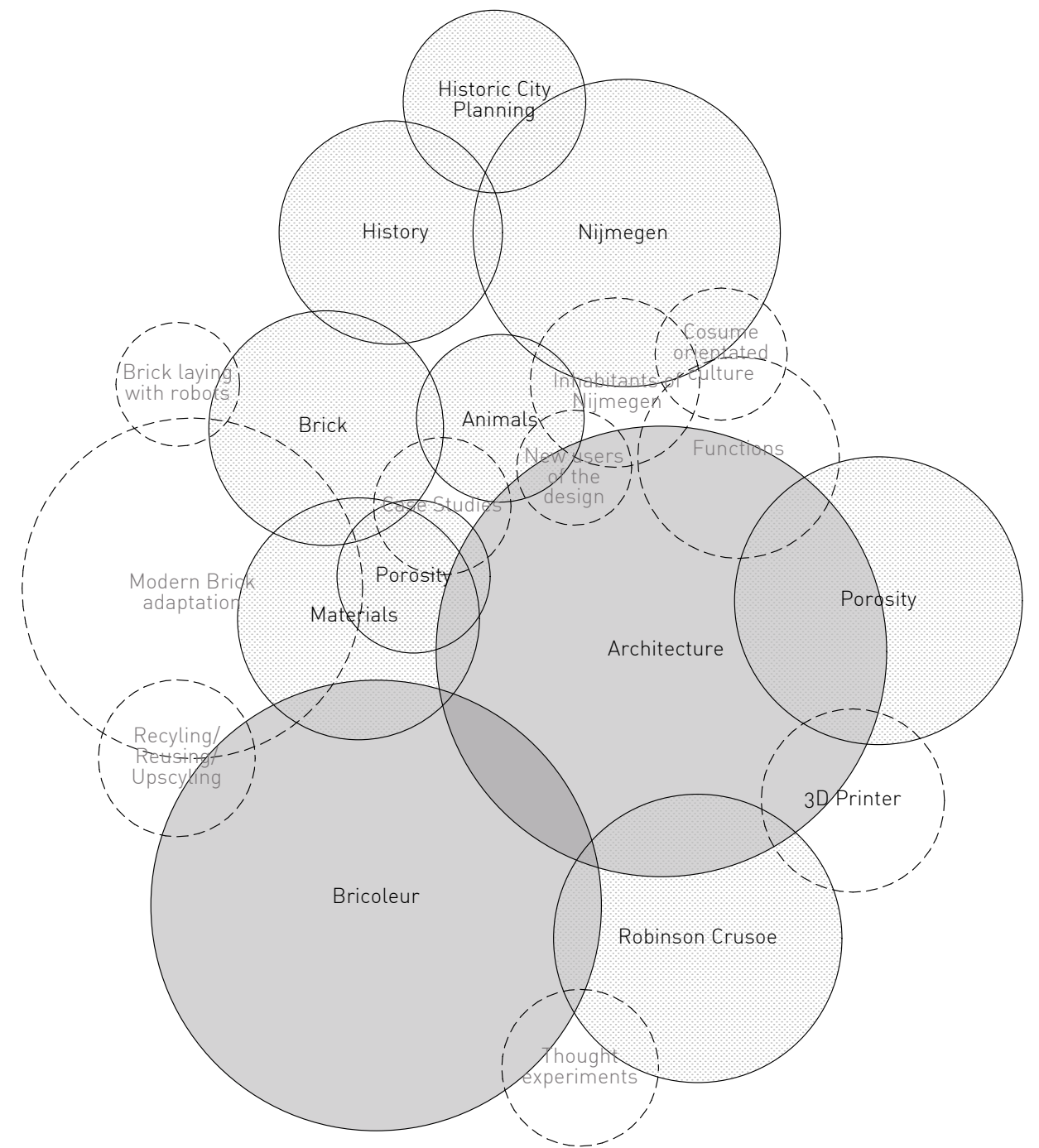
To immerse myself in the topic of bricolage, I read different texts regarding bricolage and architecture as well as “Robinson Crusoe”. To fully grasp the concept of bricolage, I tried to imagine Robinson in different situations – mind experiments so to speak – to see how he would fare in a more modern surrounding and how bricolage could adapt to it.

To deepen my design ideas about modern brick facades, I build and experimented with brick facades. I build some small models and did research on existing projects – I looked into form, texture and construction methods. This knowledge was directly applied to the design process of my master thesis. For the architectural research, it was irreplaceable to find case studies that help me understand how complex buildings with multiple functions can work. Already realised projects were especially helpful as they are fulfilling already existing laws regarding stability, thermal insulation as well as fire safety regulations.

The last step of my project was to finalise and put my concept into a fitting form. Then I worked out the details and looked into building technology to make my mountain as feasible as possible.



Suggested structure at P2



Connections between topics and research parts

THE BRICOLEUR

bricolage and robinson cursoe

The Topic Bricolage – Robinson Crusoe

According to the dictionary, “Bricoleur” (bri-co-leur) is someone who engages in bricolage¹, which is not very helpful until the definition of bricolage is connected to it. Which means to sculpture or construct an object or idea with whatever is available close-by². They describe various sleights of hand, every possible way of doing things.³

Creativity and especially bricolage results from limits, if we would have everything at hand there would be no need for the bricoleur in our society. On the contrary, we as architects can choose our materials from a near endless list of suppliers. What limits do we have in our modern society? Because we don’t lack food, resources, sometimes not even money. How can we use bricolage to think differently and be creative, if we don’t have these restrictions? Irene Scalberts answers this: “The fundamental characteristic of bricolage is that its inventory is made of all kinds of different things and that, even when this inventory is large, it remains limited. The bricoleur uses what is at hand because that is all that he has. His materials bear no relation to his task because they are themselves the result of previous constructions.”⁴ Do we have to limit ourselves to truly be creative and be a bricoleur? Robinson Crusoe’s story is inspiring because he created something from

the basic materials that he found on the island. How can that be directly applied to architects? Because we are in the opposite position, we are not alone on an island, we choose our working connections and materials.

When first trying to understand bricolage, I felt it was more focused on the physical aspect of reusing or recombining. Like the artist Ai Weiwei, who alienated old doors for a piece of art. The bricolage idea is deeply engrained in it after the structure collapsed, the artist surrendered it to the natural process, which he considered as the essence of art. Another artist was Giuseppe Castiglione, who travelled to China and then recreated painting in the Italian painting style. He combines the two cultures that would have never connected in art otherwise. He used his experience, his Italian painting skills, to create something based on Chinese aesthetics. These are my first ideas about bricolage. It is about combining and reinventing materials. But after researching the topic I realised that bricolage is more a way of thinking, valuing my surrounding and take elements – not physically – from it. Thinking as a bricoleur is more of a mind experiment and should not always be seen literally. Rethinking is also a way of reusing. The meaning of bricolage has to be found in the concept of a design.



Robinson Crusoe: various book illustrations taken from google images

There is another thing that I consider essential to become a bricoleur. It is empathy, affinity and sympathy for the sight, the architecture, space and the habitants. To design local, non-generic and meaningful spaces, the architect has to look closely. Not only at the sight, but also at the people, the city and the countries culture. If we, as architects and as humans, spend a lot of time on any object, we develop sympathy and a connection. I believe this is something that should never be underestimated. The sympathy, the understanding we put in design always leads to more intimate, original and local architecture. Bricolage offers the opportunity to closely observe and design for a unique space.

When I first started studying architecture I was very hesitant to use materials in another way, then it was intended. Models were the same materials; nothing was changed and re-purposed. It was not a lack of creativity but a lack of experience. Getting more experience and knowledge about the behaviour of the material, enabled me to use it in very different ways. Bricolage works similarly, first, you need to understand it to then re-purpose it. Using an element for a new purpose requires more skills and knowledge than just using it for its original aspiration. To use a computer takes significantly less knowledge than to repair it. How does that relate to us as architects? I think it means that to create architecture as a bricoleur way takes more knowledge because it requires a deeper understanding of each part, the bricoleur has to know the potentials and the limits of the materials. This can be gained through research and experiments. For me, bricolaged architecture requires more involvement in the project than generic architecture would.

Robinson Crusoe as the Bricoleur

When reading Robinson Crusoe first, his journey and choices seem logical, to use whatever you can and survive. But I realised that this is not true. Robinson did not only barely survive,

he built himself a home, a space to thrive. He very much changed his surrounding but he, as a person, also changed. The spaces he built in the beginning, are means of survival but when he built his "country estate" he uses words for this place that signify comfort, atmosphere instead of necessity.

Robinson Crusoe in the Future

Daniel Dafoe's book plays in the 17th century, that is almost 370 years ago. When reading the book the times does not seem to matter. Wouldn't his experience be the same no matter when? We have modern technology to find people nowadays, one could argue, but no one knew he was missing. Truly uninhabited islands still exist and while it is unlikely to land on one of those, his life on the islands would not be different today. Maybe he would have been stuck on the islands for ten years instead of 28. Which would have had a big impact on his abilities of construction, his knowledge of the material and production would have been significantly less. It took years to cover the basic needs then he was able to focus his mind on other things. Without these 28 years, his story would not have made such a big impact on him as it did.

What I am curious about is, how would his experience change, if he was stranded on the island now? What would nowadays be on a ship that could make his experience better or maybe worse? Without the food rations, he found on the ship, he would have died. Undoubtedly it would have been impossible for him, to find as many weapons and gunpowder on a ship nowadays. How far would he have gone without the means to hunt? Would Robinson have created tarps earlier and therefore been able to capture the wild goats earlier? Would he have had grains to feed them or even keep them in place? His whole field system was surrounded by grown fences, they needed time to grow, just as his knowledge needed time to evolve. Maybe the journey Robinson made needed to be made

in the exact order. One thing led to another, his way was the only way for him to survive on the island. Any changes could have altered and disturbed his change into a bricoleur. And maybe that also applies to my situation. While I can agree on a lot of points of the bricoleur way of working, some aspects I have not made my own yet. To immerse myself in it, I first must go through the process of planning a design as a bricoleur to fully understand what it means. I very much identify on what Irene Scalbert wrote in his text, “The architect as bricoleur”: “He tries to discover new significations and new possibilities. What were the outcome in previous projects becomes means in the next.”⁵ I think the learning process of a creative architect works similarly. What we learn we always take with us to the next projects and continue to build up our knowledge. To get back to Robinson: his experience and working processes very much relates to the architecture profession on many levels, even though his circumferences are very different.

The Future of Bricoleur

Do you need to renounce and abstain from technologies? Or do they enhance the experience of it? How can the idea of the bricoleur be integrated? Is modern technology and bricoleur a contradiction in itself? What would he print? Which product would make his life easier?

What if he was stranded on an island and the ship contained modern technology, let us say a 3d printer or any technological device? First, he needed to be able to create electricity, if he would have known how to produce them then he would have needed to store them. How could he produce stuff once the material runs out, there are ways to use clay and other materials in a 3d printer. His experience would have been altered indefinitely, instead of spending time producing he would have needed all the time to fix and create an environment where the machines can produce themselves. Society changed; we often don’t produce di-

rectly but focus on creating the machine that is building out an object. So instead of rapidly seeing the fruits of your work, by doing each step, Robinson would only gain experience once everything works. He would not see the bowl he wants to print until he has built up electricity, a battery, created material, found a way to program the machine designs the bowl and then print it. Maybe that means he was lucky that he was stranded on an island 370 years ago, because then at least he could have used all the tools he found and directly apply them. In our modern society, we need more knowledge of each object because they tend to be more complicated, but that makes them less user friendly. But let’s assume Robinson managed to overcome all the obstacles the modern technologies put in his way. And let us say he would be able to print anything that he could imagine. What would he have printed first? Would it have been something simple like a bowl or some highly complicated device? What would make his life easier? I can only assume what Robinson would do, but I think he would have probably used the printer for something simple first, remember how long he needed to be able to cook a soup or a stew! I think he would have pretty much built or printed the same thing that he produced 250 years ago. But his basic needs would be the same. So, to conclude, why the means would have changed, the outcome would have not differed as much as it could be anticipated.

Then, in the end, did it matter at what time he landed on the island? Being stranded on that island would put each and everyone in the same situation. We would need to start building up everything we have from nothing. Everything we have and use would come from our direct surrounding. A difficult idea – but the essence of bricolage. This year I have tried to create a project in the spirit of bricolage. Of course, it does not go as far as Robinson had to go. But in my theoretical project, I try to utilize what is at hand. From reusing physical element like bricks, and metal beams to re-use my concept of the mountain for every part of the mountain. If the Netherlands is to me what Robinson’s island

is to him, then I have done what he did – only used what is in my close surrounding.

ESSAY – LETTER

reflection on bricolage and my architectural concept

Letter to Robinson Cruse – Past

Hello Robinson, or should I say Mr Crusoe? That would depend on when you read this letter, I guess. Or in which time. My name is Hannah and i am writing you this letter out of curiosity and to let you know that your story made me think a lot. Ignoring the racism and some of the sexism (do you know what that even is?), your story was part of the graduating project for my master's degree in architecture. You might wonder now how that relates, believe me, I felt the same at first. But you helped me to understand bricolage better, this word probably doesn't mean anything to you. It is used to describe a way of interacting with the surrounding to take what is there and use it, sometimes change its original usage. It came up long after you died, actually a few hundred years later. Can you imagine that far ahead? I don't think I can, I suppose anyone would. We all have our hopes and fantasies for the future, even though the last few generations are probably turning more and more negative. But to get back to the topic, I am writing to you, back in time and back in space. Long after you left the island (yes it will happen) and long after you died. Why do I bring this existential crisis on you, you could

be wondering? Since you are religious now, you could also wonder, why did God let you read these lines from the future? Is this an expression of a certain jungle fever or the slowing creeping madness overcoming you? As long as you continue to read and maybe even answer some of my questions, I will accept whatever seems more logical to you.

Firstly, when I read about your hardships, I was most impressed by the creativity you have seemingly drawn out of nowhere. All the structures you create are described in certain minimalism and pragmatism, but you built and create many things. How do you manage that? I would say I am a fairly creative person myself, but right now due to the corona virus. It's a virus that brought the whole world to a stop. But to explain that I might need to give a bit more information about the future. We are living in a globalised world now, medicine can save and prevent many things that were death sentences the last few hundreds of years. We can fly around the planet in a day. For you, that must sound like a lie or at least a utopia. We are still fighting, people still starve and still have big social issues, in that way

not much changed. We still haven't figured out how to live and let live.

Anyway, now there is a virus keeping us all at home, we realised that globalisation caused the sickness to spread fast and this is the first one that crossed all borders. And I am having a hard time trying to create a boat – my thesis – from that big single tree, in my case the architectural elements, while my tools and creativity seem to be a bit limited. So how did you do it? Was it just the time that made your mind drift and imagine these things? Or was it just you being you? I like to believe that your memories and then combining your knowledge of technology and your observations of nature together sparked your imagination. I want to believe that because in a way that's what I am trying to do. Do I understand you correctly? Or am I just changing your story to accommodate my need to find a relation between it? Or am I trying to find every connection there is, so that I can use it to reason my project? Sometimes, while it is my work, I am trying to figure out what the reason behind the certain decision was. I often chose one side over the other based on a better connection, or other logical reasons. But sometimes I take certain decisions without realising what I did. Did that happen to you too? A kink in a tool that your hands automatically and subconsciously created and only after you realise that it is the spot where your hand has a slightly better grip? I am asking you this because, due to the virus, I have been feeling disconnected from a big source of inspiration – the direct contact with other students and the university building, where most of our discussions took place. And since you were in an even extremier situation I thought you could offer some inspiration. Here I imagine you taking a break, wrinkles show up on your face and you are wondering if the distraction this letter gives you is worth the weirdness of it. A letter from the future – absurd isn't it?

So you decided to read on, on to the next question then! How did you look at the tools you

created? You express your gratitude towards the tools you found on the ship, but do they have worth to you beyond the thing they can do for you? Do you sometimes look at the first piece of pottery and see the beauty in all its crude simplicity? Do you even have time in your busy day to contemplate? Because I really hope you do, maybe only on those rainy storm days where you cannot leave your house-cave-hybrid.

Thinking about your house, did you at some point, think about creating a form that reminds you of home? A piece of home, or rather the illusion of home, a melancholic portray of the place you grew up with. But maybe creating these different abstract spaces helped to ground you in your reality. A big part of your time was spent in the protection of your house, letting it connect to nature. I am trying to do the same. But my place should be a piece of wild nature inside an organised city, instead of a piece of order inside the chaos of nature. I am in a way doing the opposite of what you did – what a weird thing that must be for you. You are stranded and surrounded by nature that can pose a big threat to you and here I am trying to actively create such a space in a city.

This is the other topic that is very important for my project: the connection to nature. You might not understand why I want to bring Flora and Fauna into our cities. In your time you were still trying to control it. Trying to lock nature out of your cities. A lot has changed since then. People enjoy taking walks in the wild. That is how a lot of us spend our free time. I think even a hundred years after your death it wasn't very common to do that. It started with the Romantic era, and was very visible in the art. It was a return to nature, a counter-reaction towards industrialisation. People longed for the wild – freedom from humans and the black soot they exhausted into the air and into the cities. The art was filled with images of nature and moments of beauty. Casper David Friedrich would draw ruins where once cathedrals stood but instead of mourning their loss, the elegance of trees growing in the ruins is

portrayed. On your island, you must have these spots too, where nature itself creates a composition so elegant and perfect that no human could recreate it.

Yes, since your time a lot has changed. But maybe nothing of that makes sense to you. Maybe I should first explain industrialisation. It is mass production, making things more accessible for everyone and let to faster and more efficient productions. It changed our whole society, some things got better some worse. Or rather make the planet a hostile environment for us. The biggest threat resulting from industrialisation is – besides wars – climate change and pollution. It is the worst impact that we are fighting and will probably fight until we destroy this planet. All that started with industrialisation, since then we have exponentially produced more trash and brought more destruction to the whole planet, than in all of humanity's existence combined. It didn't just bring negative things though. It helped many people, made us richer and our lives safer and longer. This gave us the time to research and develop more medicine and technology, I will not even start to describe what a cell phone or the internet is to you.

But, to get back on topic, it also leads to a lot of destruction and suffering, a lot of species have gone extinct. The rainforest you have seen in Brazil and your wild island are probably gone now, we destroy more and more every day. The animals you have seen and hunted, who knows how many have forever disappeared or are hiding in the last human free spaces. But not just in the rainforest animals are disappearing, they disappear here in the industrialised countries too. We got so effective with our industrialised agriculture. We took over everything and by this destroyed what made the land so valuable – diversity.

Animals and plants are disappearing because there is no space for them, and guess where they go to? It is ironic, really! Into our cities! Just like humans they move there – there is more diver-

sity and food than in the countryside, it seems almost unreal. They are the secret inhabitants; we often do not even know they are living beside us. Or maybe we humans also don't care?

But I do care, I want to give them their own space within our cities. The spaces we do not need and spaces that are left undesigned, uncarved for, could be easily used for that. In my project, which must seem like a wild and distorted fantasy, but on the other hand in your time the stories of the hanging garden of Babylon existed, so maybe it could make sense to you. Because you, Robinson Crusoe, have found a way to survive and even live in the wild – with the wild. While it certainly isn't as wild here, we also need to find a way how to coexist. Because in the end, losing the animals will also cause us harm. Bees, for example, seem like a small part of our work but without them, we would all die. Who else would pollinate our plants? In some places in China workers have to pollinate their plants with brushes, because there are not enough bees left – isn't that scary?

To me sometimes it's a crushing thought that we are so close to a tipping point, we are aware of what we are doing to the planet. We are causing damage, but we don't stop. We are selfish and greedy. Our personal feelings, greed and wishes are often reason enough to persuade ourselves that we are not too bad and have the right to do what we do. But is it really? Was that something you witnessed too in your time? Seeing people convince themselves that they are not at fault? Did you not do the same before you save Friday? For a moment you hesitated – your life against his. The times before you choose yours, you saw the cannibals at the beach, you choose to look away the first time.

But after a while you couldn't anymore, you choose to put yourself in danger for Friday, who would later be a friend. I think this is an important moment in your story, suddenly it wasn't just about you and your survival anymore. You built something – a home – and then you

choose to let someone else in. You could have been kinder and see him as an equal and not a servant – but 370 years ago the world was a different place. Nevertheless, you Robinson, made space for someone unexpected. And I want to do the same in my thesis – I make space for someone, something unexpected. I want to show kindness and hospitality in my architecture.

I firmly believe architecture should be made for humans, for the people that use the space. But what I realised in the last year is that humans are not the only users, animals and plants should also be included. If we choose to design spaces differently, the small piece of moss growing in the crack will give the facade a new texture, a new value beyond their use for humans. If we leave holes and punctures in facades, the mice won't bother eating through a piece of plastic to find a protected space in the city. If we just give one or two thoughts to other things than us humans, we could enhance the spaces for every user – dead grass field could be feeding grounds for bees with divers, colourful flowers. Benches could become shelters for small mammals. Of course, this is not always ideal and works out right away. But from each idea, we can learn something. Just like you learned that being able to make a boat is not enough, you also need to be able to move it into the water and be able to steer it around. Just building something nowadays is not enough, we need to look at the interconnections. And what is necessary to make it work. So I decided to create a building with nature inclusive design. To explain it with the metaphor I used most this past year: to build a mountain is not enough, it needs to be inhabited by animals and plants – otherwise the mountain is just a big, lonely, bare piece of rock.

Thank you for reading my letter to you. Writing it inspired me and helped to clarify my thesis. Your story explained bricolage to me and immersed me into the studio. The letter did not help you, I can do nothing for you on your island, but you helped me very much. For that I want to say thank you and good luck on your journey.

Letter Robinson – Future

Dear Robinson,

I decided to send you another letter. This is again addressed to you, Robinson Crusoe, but this time I am not sending you the letter back in time but far into the future. And another Robinson Crusoe will find this and look back at the past and wonder what strange creatures we were, how clueless we were back then. Robinson, you will maybe start to drift off now. Imagining my, now long past, time with all the mess and issues we had. Then you will chuckle and get back to reading this.

Maybe your story will be the same as the original, stranded on an island. But maybe humankind – at last – has taken over every single spot on this, now not so vast anymore, planet. Maybe the thought of having an island for yourself will be the biggest luxury you have ever heard about. The thought of being alone with animals will not frighten you, but rather makes you smile in joy. Who knows?

Maybe 370 years from now on, no animal will have survived mankind. All disappeared as humans took over... but how could you read this letter then? The thing we slowly but surely realise is that humans need animals, nature, the planet. We will perish with them. So instead of turning the world into a single, vast human habitat, maybe we have learned from the mistakes of the past. Hopefully we learned to keep the balance and how to live with animals and nature, how to share this planet. A utopian thought for the present, but maybe for you it is so basic, that me mentioning it to you will make you wonder how weird and maybe even primitive life must have looked in my time. But you probably know that well, we obsessively document even the smallest detail of our lives through social media, photos all stuck in cyberspace for all eternity – I cannot imagine the internet disappearing. But that is the curse of living in the present, the future is hard to imagine.

When the first trains were built people thought they could lose their brains because it was going

so fast (below 30 km/h). They could not imagine a world with airplanes and high speed trains, but it happened. I cannot imagine a world in which we, the human race, have solved the climate issues and live in harmony, but maybe that can happen too?

Maybe me writing to you is a meaningless task – do you even remember what a letter is? Letters could be a long-extinct format, maybe the only way to make the future people understand Robinson Crusoe is to convert it into something more understandable and recent.

Instead of an island you maybe have landed on a different planet – undiscovered or already abandoned again. When you landed you realised that you are far away from everyone and instead of repairing your spaceship you start to realise that the only way to survive is to live as your ancestors did. You piece together things from stories and long-lost tales. Some, you thought, were a joke, but in the end, you manage to build a house, soon that will be home. The rifle and gun powder are now a laser pistol, the house part of your spaceship and not part of the ship that sunk. The foods you still have are vitamins and futuristic food replacements. When all these are used up you learn again what your ancestors knew by heart, which fruits you can eat. How to find those vitamins naturally etc.

And then suddenly my letter, message or even hologram appears. And you start to think about the approach of bricolage – a term you rediscovered and just realised that this was the original name for it. Since that is all out of the way, here are my Questions for you: Do you feel like you are taking a step forwards or backwards by rediscovering old techniques and reusing what you find? I certainly felt I am making a step forward – though maybe it is more like a step sideways. For me, bricolage and architecture are closely connected now, through the work I did and the way I approached my thesis. Instead of limiting myself to an idea, I think the topic freed my thoughts and created an opportunity to look at architecture from a different angle. Much like

you realised when you stranded that sustaining yourself can look very differently – eating freshly grown fruits or using one of the futuristic food replacements. The latter depended on the first, without fruits the synthetic food would have never existed but now you have the choice, and both have their pro and cons. That is how I feel about bricolage, it is an addition to architecture, it makes you look at it differently and learn from it.

While this letter is a bit shorter than the one I sent to your twin in the past – I again have realised many things while writing this.

FIELD RESEARCH

reflecting on nijmegen and the project location



Projectlocation in the Netherlands - Drawing by Fleurkje Ruijs



Project location – the location is in the centre. The three streets Molenstraat, Zieckestraat and Tweede Walstraat create a large triangular form. The only street that is crossing it is the Vlaamse-gas, a street with its origins in the middle ages.

Nijmegen – General Information

Nijmegen is a lively medium-sized city with 170.000 inhabitants. It is the oldest city in the Netherlands, the original settlement was a Roman camp. The city was built next to the Waal which for a long time limited the city's growth towards the north. The city's history leads back to the middle ages and the old structure remains visible until today, even though world war II and multiple new projects changed the original urban structures. Modern city planning and car-friendly traffic routes disrupted the intuitive and sensible city planning that was based on the south-north and east-west axis and the strong topography that is a unique feature in Nijmegen. Nijmegen has an old and historic centre and is continuously growing, but unlike for example Delft, it is missing a centre point. The city centre is a mix of old and modern buildings.

What differentiates Nijmegen from other Dutch cities, is its unique topography and the emerging layers of the city. In a way, this is also reflected in the architecture. More buildings that are organised on different layers can be found here. This creates, for the Netherlands, unique public spaces. The Molenpoort, with parking spaces on top of the mall-passage hybrid, and the Marienburg, a shopping street with two ground floors, are just two examples how the typology was adapted in Nijmegen. This also allows creating a dense and interlinked public structure that focuses on multiple layers.



Nollimap of the inner city of Nijmegen, Light grey areas are public functions such as shopping, the dark grey areas represent private residents - made by group topography and typology.



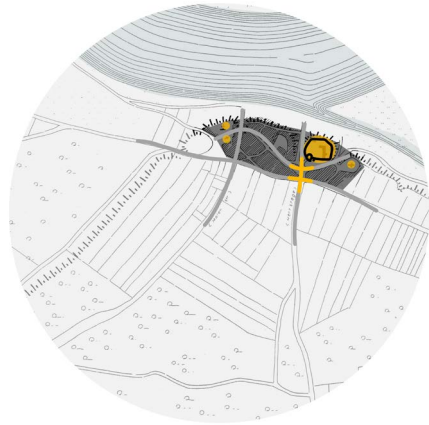
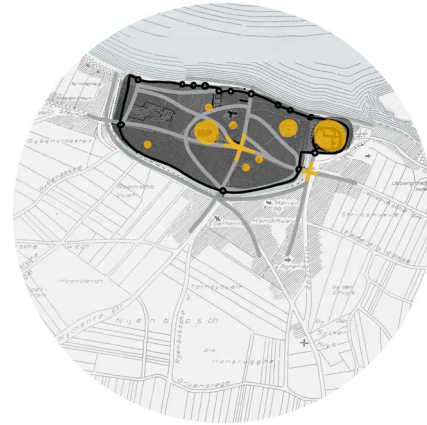
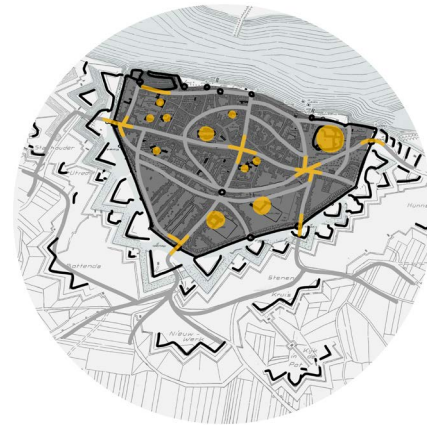
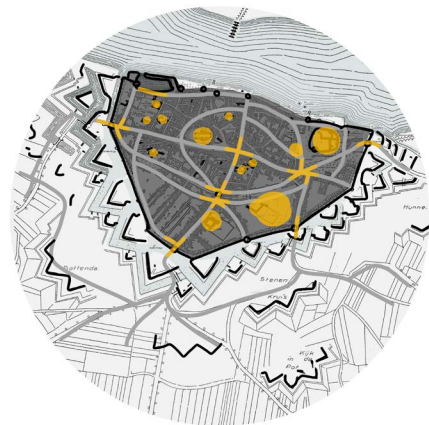
Public spaces around the sight. The dotted lines represent missing connections in the city. Public green areas are very limited. In the more residential parts there are green backyards.



The buildings in the area are all built in the last 130 years. The oldest building is the church in the upper corner. In the war many buildings were damaged and then rebuilt in the 50s.



The most used city block form in Nijmegen have four corners (yellow). Because the city is so old many of the other blocks are shaped like triangles (light blue) or have more than four corners (dark green). These forms are determined by the organic growth Nijmegen went through.

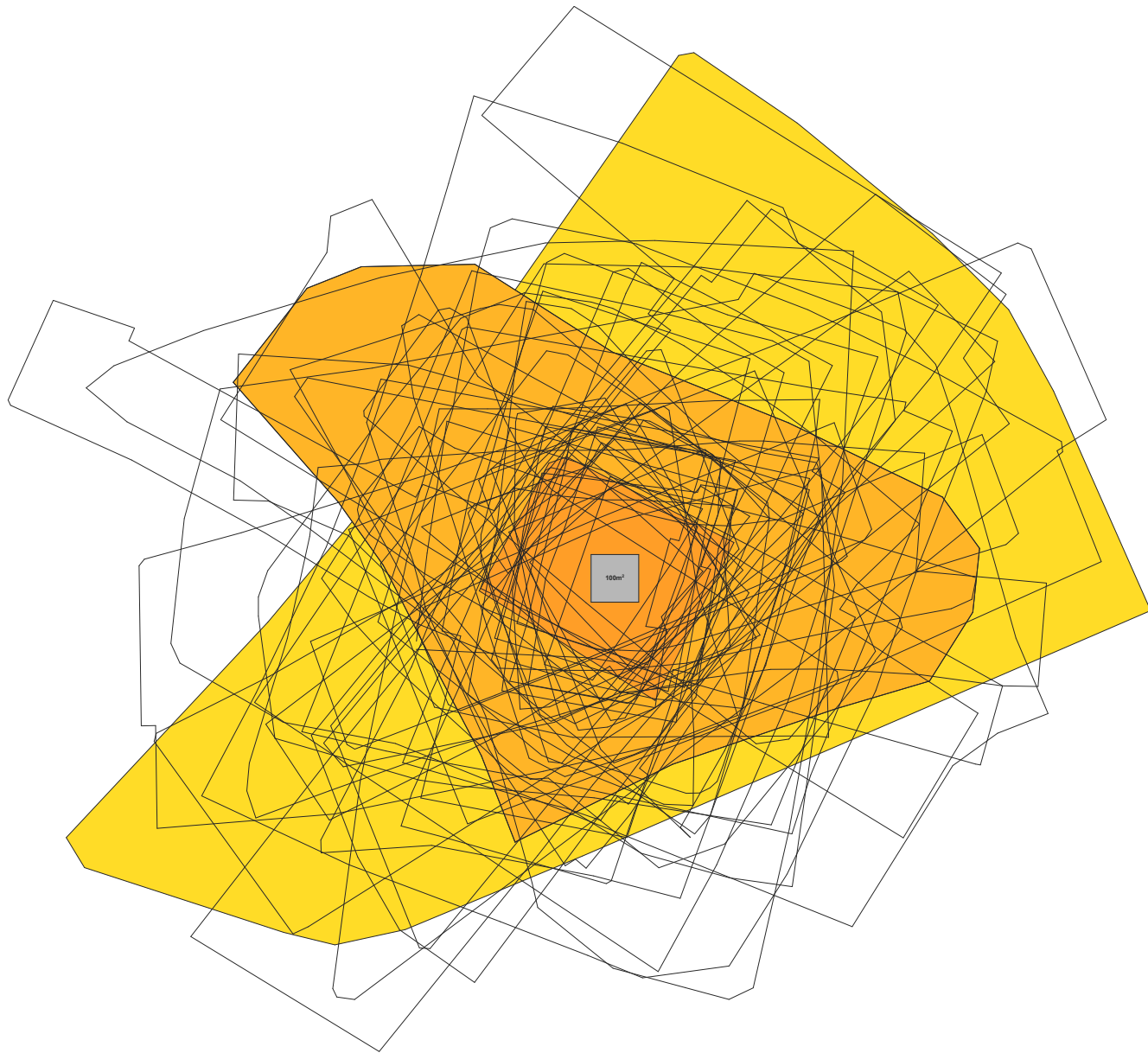
*12th century**13th century**early 15th century**late 15th century**16th century**17th century**18-19th century**20th century**21st century*

History of Nijmegen – City expansions

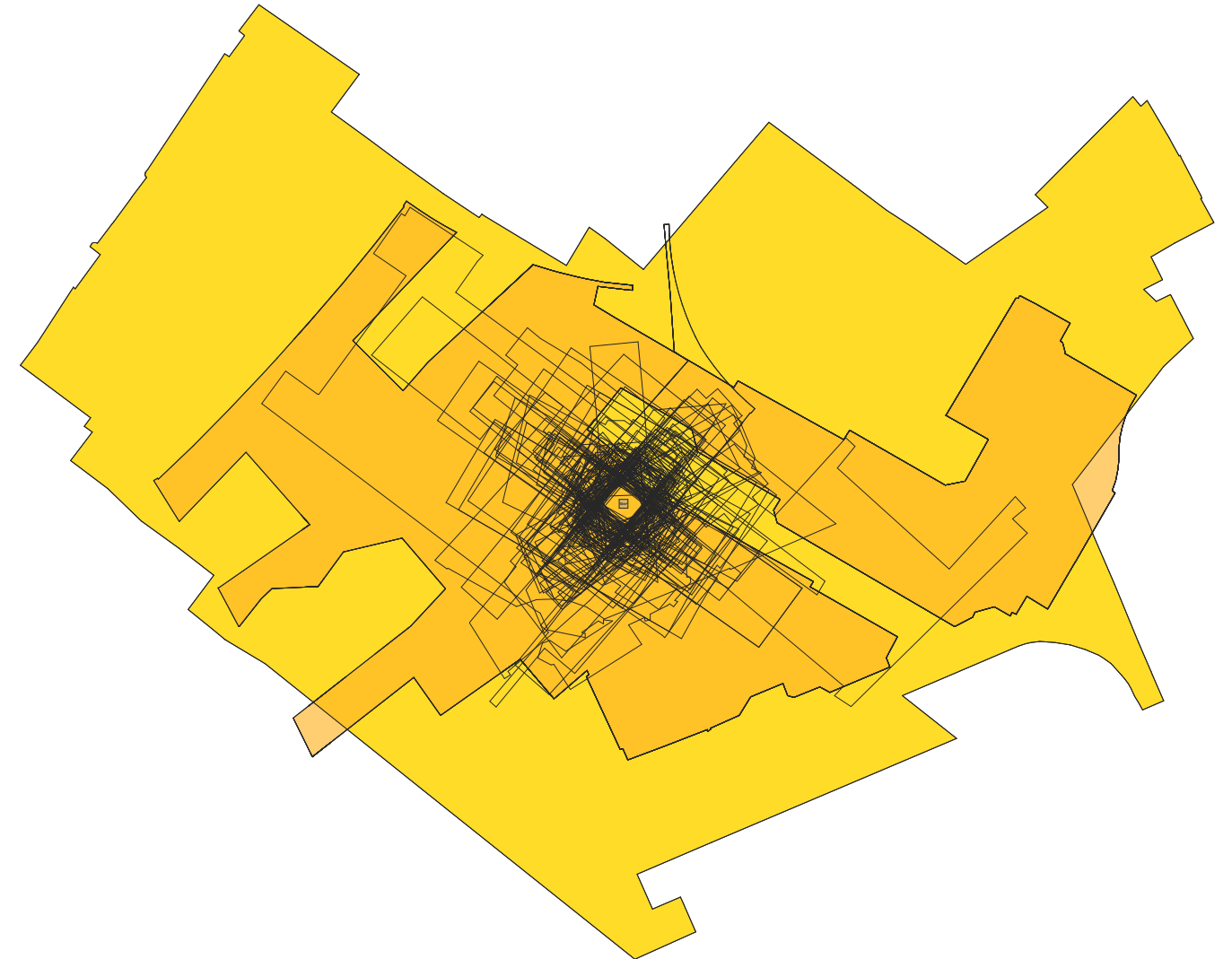
To fully understand the site, its history is also important. It has been part of the last extension of the city wall before the moats were built.

The city's history dated back until the Roman empire, but the first structures that remain until now are from the 12th century, a century later the city was first walled. From the 15th to the 16th century two new walls were built to enclose the growing city. In the 17th century, Nijmegen was turned into a fortress with extensive bodies of water in front of the fortifi-

cation walls. Towards the river, the city always had more gates and connections since it was the main transport route and led to extensive trade and the continued growth of Nijmegen. In 1874 the city wall hence was removed to allow the city to continue growing beyond its wall. World War II led to big destruction in the old centre, but after the war, the city was again filled in with more modern structures, but the old state was not reconstructed. The city underwent rapid growth after the war and nowadays also stretched to the north side of the Waal.



The sight (yellow) compared to other city blocks makes it clear that it is quite huge and unproportional in comparison to the others. Due to the organic growth of the city the orientation of the blocks are very different.



Within the project sight the buildings mostly follow a orientation towards NE + SW or SE + NW. The Molenport Mall (yellow) does not follow this and the sheer size of the building alienates it from the rest of the area.

Urban Compendium –
Urban Group studies of Public spaces in Nijmegen

CHAPTER IV

SPACES IN NIJMEGEN



HET LAYBRINTH



WAALKADE



WAALKADE



PLEIN 1944



HONIGKOMPLEX



HUNTERPARK



MARIENBURG SQUARE (FABERPLEIN)



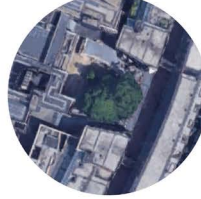
MOLENSTRAAT



KORENMARKT



KELFKENBUS



RAADHUISHOF



KRONENBURGERPARK

Overview of
all spaces in
Nijmegen



KORENMARKT

Nijmegen, Nederlande
51°50'53.6" N 5°51'51.4" E
1200.32 m2

Functions: Residential, Cafe, Coffeshop
Usage: Meeting point, Cafe
Users: Pedestrians, Local Residents, Cyclists, Car
Main time used: 10:00-21:00
Materials: Lots of greenery, Cobblestone, Concrete, Open Surface

The Korenmarkt represents a small calm spot in Nijmegen that is, unlike most public spaces in the inner city, mostly used by residents. There is a small cafe that attracts people to sit down in the space. The greenery especially on sunny days is used to sit down and enjoy the sun.



Spatial Accessibility.



Focus point of the space.



Green Spaces and Pavement.



Nijmegen,
Korenmarkt

CHAPTER IV

SPACES IN NIJMEGEN



STATIONSPLEIN



KAIZERKARELPLEIN



RIVERPARK NIJMEGEN WAAL



WALKHOF PARK



MARIENBURG



ARSENAALPLAATS



GROTE MARKT



KONIGSPLEIN

Overview of
all spaces in
Nijmegen



KONIGSPLEIN

Nijmegen, Nederlande
1°50'43.0" N 5°51'53.7" E
2096.02 m

Functions: Restaurant, Cafe
Usage: Restaurants, Meeting point, Cafe, Seating
Users: Cyclist, Pedestrian
Main time used: 10:00-21:00
Materials: Some Greenery, Trees, Closed Surface

The Koningsplein is right next to one of the big shopping streets. Instead of the very public and open feeling of the surrounding spaces the public space offers cosy cafes and restaurants in a relaxed and cosy atmosphere. It directly connects to the big and open space of the Marienburg.



Spatial Accessibility.



Focus point of the space.



Green Spaces and Pavement.

Nijmegen,
Koningsplein



GROTE MARKT

Nijmegen, Nederlande
51°50'51.1"N 5°51'49.1"E
1792.13 m2

Functions: Restaurant, Cafe, Market hall, Shopping
Usage: Restaurants, Meeting point, Cafe, Seating
Users: Cyclist, Pedestrians, Tourists, Local Residents
Main time used: 10:00-21:00
Materials: No Greenery, Cobblestone, Closed Surface

De Waagh is the most prominent building on the Grote Markt, in front of it multiple cafes and restaurant offer a good view on the passing crowds. The Triangle-shape cuts the public space into two parts, the seating space, calm and laid back, and the walking part where most people enter and leave the space.



Spatial Accessibility. 82 Focus point of the space. Green Spaces and Pavement.



Nijmegen,
Grote Markt



MARIENBURG

Nijmegen, Nederlande
51°50'42.6"N 5°51'58.1"E
4164.72 m2

Functions: Transformed Church, Shopping,
Usage: Meeting point, Cafe
Users: Pedestrians, Tourists, Local Residents; Cyclists
Main time used: 10:00-21:00
Materials: Some greenery, Cobblestone, Closed Surface

The free-standing Church building is in the middle of this big public space. What makes it unique is the two levels, from both the shops at Marienstraat can be reached. Due to its size and missing seats, the upper part is mostly used to cross the space. The lower part is more lively and connects better to the functions close by.



Spatial Accessibility. 86 Focus point of the space. Green Spaces and Pavement.



Nijmegen,
Marienburg



ARSENAALPLAATS

Nijmegen, Nederlands
51°50'41.9"N 5°51'55.9"E
394.97 m2

Functions: Restaurant, Cafe
Usage: Restaurants, Meeting point, Cafe, Seating
Users: Pedestrians, Tourists, Local Residents
Main time used: 10:00-21:00
Materials: Some Greenery, Cobblestone, Closed Surface

The small and narrow Arseenaalplaats creates a protected cozy atmosphere between the Arseenaal building and the Moenenstraat. The space is mostly used by the cafes that instead of facing the Marienstraat can offer a more private and calm atmosphere behind the building.



Spatial Accessibility. 84 Focus point of the space. Green Spaces and Pavement.



Nijmegen,
Arseenaal Plaats



KRONENBURGERPARK

Nijmegen, The Netherlands
51°50'45.3"N 5°51'27.9"E
48.826 m2

Functions: Surrounded by housing
Usage: Walking, running, cycling
Users: Bikes, pedestrians
Main time used: 11:00-14:00
Materials: asphalt paths
Accessibility: A lot of options to access the park, connects well with the city structure.

The park contains still parts of the old city wall and has a pond with a fountain and waterfall. There is a lot of height differences in the park, that makes it very surprising to walk through. The combination with all the old towers, walls and the nature, makes it a lovely place to be.



Spatial Accessibility. 92 Focus point of the space. Green Spaces and Pavement.



Nijmegen,
Kronenburger-
park



RAADHUISSHOF

Nijmegen, The Netherlands
51°50'46.0" N 5°51'58.7" E
914 m2

Functions: Restaurants, shopping, housing, municipality building
Usage: Walking, sitting
Users: Pedestrians, tourists
Main time used: 11.00-18.00
Materials: Natural stone tiles and grind.
Accessibility: A clear connection with the shopping street.

This small square contains one big tree. It is the only thing that survived the second World war. It is a memorial place of the children that died during this war. The space is intimate and has a good atmosphere. The small stairs create a big bench that is used by many people.



Spatial Accessibility.

Focus point of the space.

Green Spaces and Pavement.



Nijmegen,
Raddhuishof

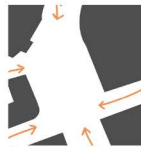


MARIËNBURG SQUARE (FABERPLEIN)

Nijmegen, The Netherlands
51.844206, 5.867083
1680 m2

Year: 2016
Typology: Urban square (restaurants, houses and offices)
Usage: Walking, sitting, eating and driving
Users: Locals and tourists
Main time used: Lunchtime, evenings and weekends
Materials: Bricks, greenery

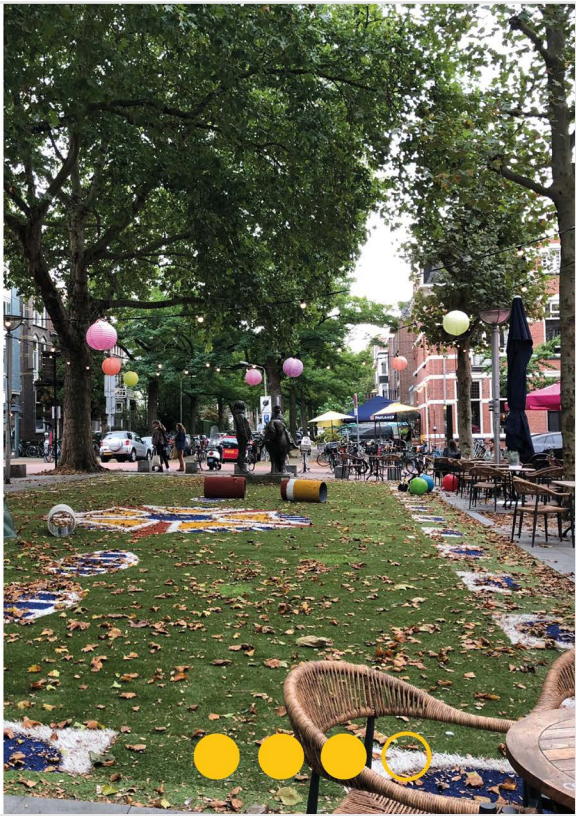
This intimate public space is characterised by its large trees and old buildings. The terrace is positioned at the broad pedestrian path. Between the trees there is a small playground for children. This rather small space is not only enclosed by the buildings, but also by the branches and leaves above. There are a few roads in the space, which are used by cars and bicycles.



Spatial Accessibility.

Focus point of the space.

Green Spaces and Pavement.



Nijmegen,
Farberplein

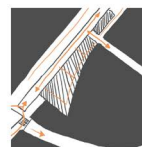


MOLENSTRAAT

Nijmegen, The Netherlands
51°50'37.4" N 5°51'41.7" E
849 m2

Functions: Restaurants, shopping, housing
Usage: Walking, sitting, cycling
Users: Pedestrians, tourists
Main time used: 16.00-02.00
Materials: Red bricks (new)
Accessibility: A clear connection with the shopping street.

This intimate space is a left-over of the old city structure of Nijmegen. In the past the building that is sticking out was detached from the whole block. It still remains of the time there was a city wall and this was one of the main entrances of the city.



Spatial Accessibility.

Focus point of the space.

Green Spaces and Pavement.



Nijmegen,
Molenstraat

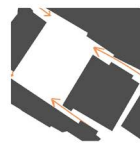


PLEIN 1944

Nijmegen, The Netherlands
51.845891, 5.862844
3044 m2

Year: 2013
Typology: Urban square (restaurants and houses)
Usage: Walking, sitting, eating and driving
Users: Locals and tourists
Main time used: Lunchtime, evenings and weekends
Materials: Bricks, greenery

Due to the mistake bombing this area got destroyed by the allies in 1944. After WWII the square didn't really have a function or purpose. It was temporary used as parking space, than it became a large empty and rather odd space.
The new high-rise in the middle of the old square divides the space into two smaller ones. Underneath the square there is an underground parking. The new development includes commercial and housing functions.



Spatial Accessibility.

Focus point of the space.

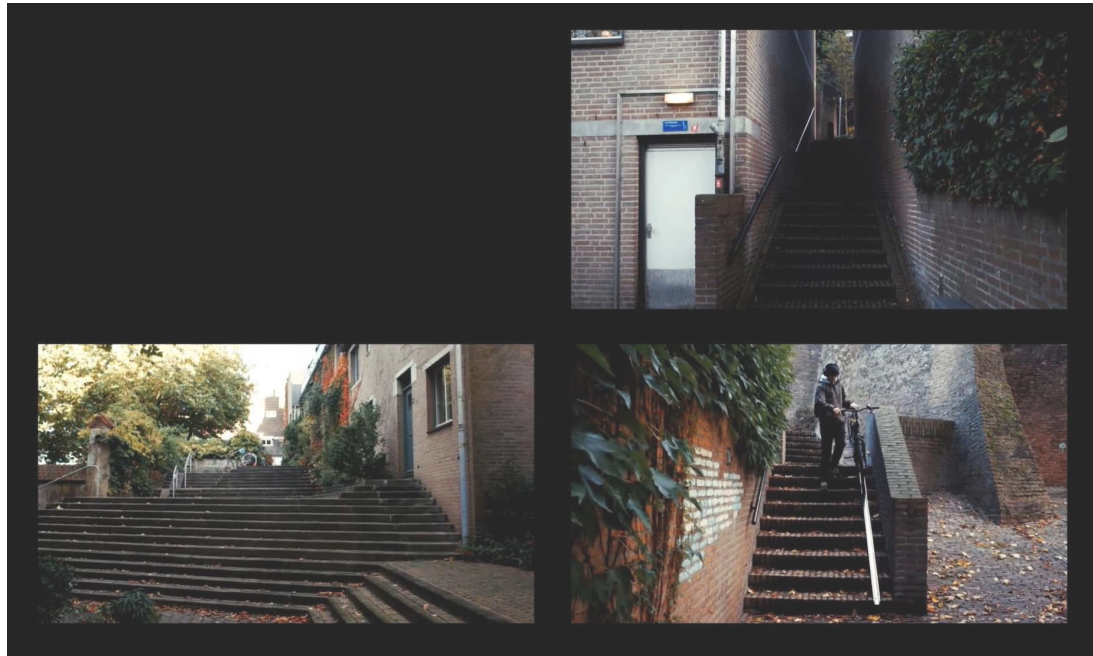
Green Spaces and Pavement.



Nijmegen,
Plein 1944



*P1 Movie,
Typology and
topography, stairs
of Nijmegen,
Zoom In on
spaces*



*P1 Movie,
Typology and
topography, stairs
of Nijmegen*



*P1 Movie,
Typology and
topography, Tex-
ture of Nijmegen*

Group Work Video P1 – Climbing Nijmegen

In the first quarter, P1, we were tasked to create a movie that represents our research findings of the site. We as architects try to understand the city as a whole, with all its connections and functions, but while filming we became part of the city, interacted with it. Instead of just looking at it from above we interacted with it, visited and appreciated its private intimate, sometimes

hidden spaces, that we could not have witnessed otherwise. The movie has given me empathy, affinity and insight into Nijmegen. This is where I start my master thesis, not only as an architect but also as a bricoleur that has a connection to the materials, here spaces, that they utilise.

TOPICS + THEMES

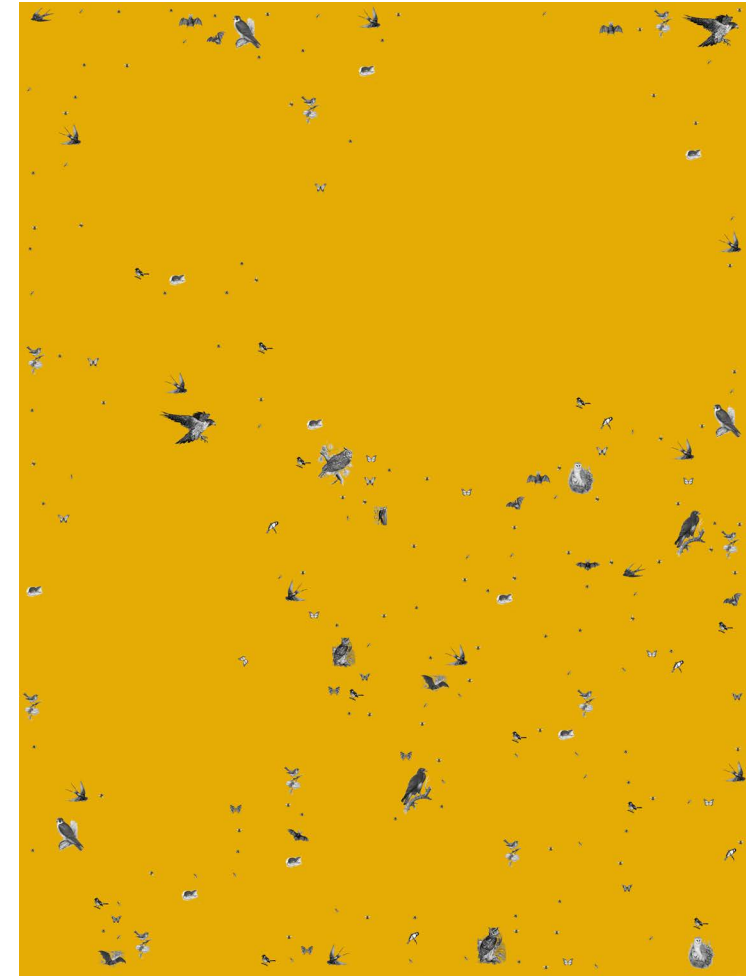
field of interest and research topics



Humans are the main inhabitants of our cities. They create and structure the city.



After the humans have taken their piece of the city, plants are used to fill in the empty spaces. Often without the help of humans.



But what we often ignore are the animals that also take their piece of the city. They dwell in unused spaces, sometimes crossing over into the human habitats.



Cities are spaces of interaction and communication – not just between humans.



no space unused – porosity as concept for nature inclusive city design

Porosity – concept spacial usage

Porosity describes the amount of emptiness inside an object. The more void there is, the more porous it becomes. But porosity can also be used in a very different context.

In an urban context, it can be said that the historic city often is denser than modern ones. Looking at Nijmegen the oldest street, the Vlaamsegras is barely 4 m wide. Old cities often seem very dense and have a low porosity when you look at them in plans. Before the car was invented, our cities were denser because they were measured by humans. How far they would walk, determined how far the city was distributed. Once the cars became the measurement, our

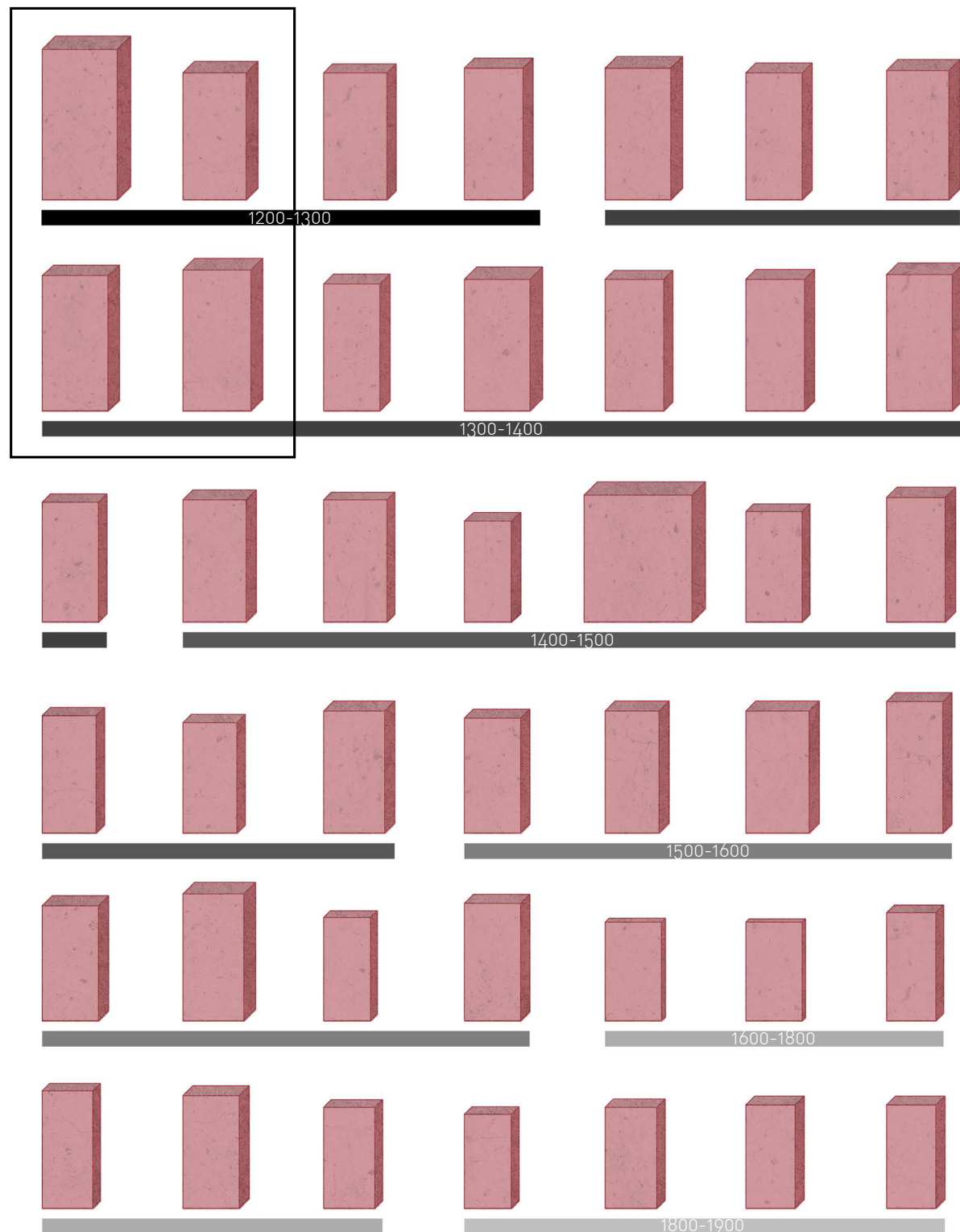
city drastically changed. Streets were widening and there were fewer and fewer crossings. Modern cities sometimes are so porous that there is no homogeneous context.

But porosity does not only exist on an urban scale, buildings themselves are also porous. While we often talk about buildings as massive volumes, they are visibly more empty than filled spaces. The façade creates the illusion of a volume. This porosity is used to indicate its functions, residential usages are more closed while public functions are visibly more porous to invite people in.



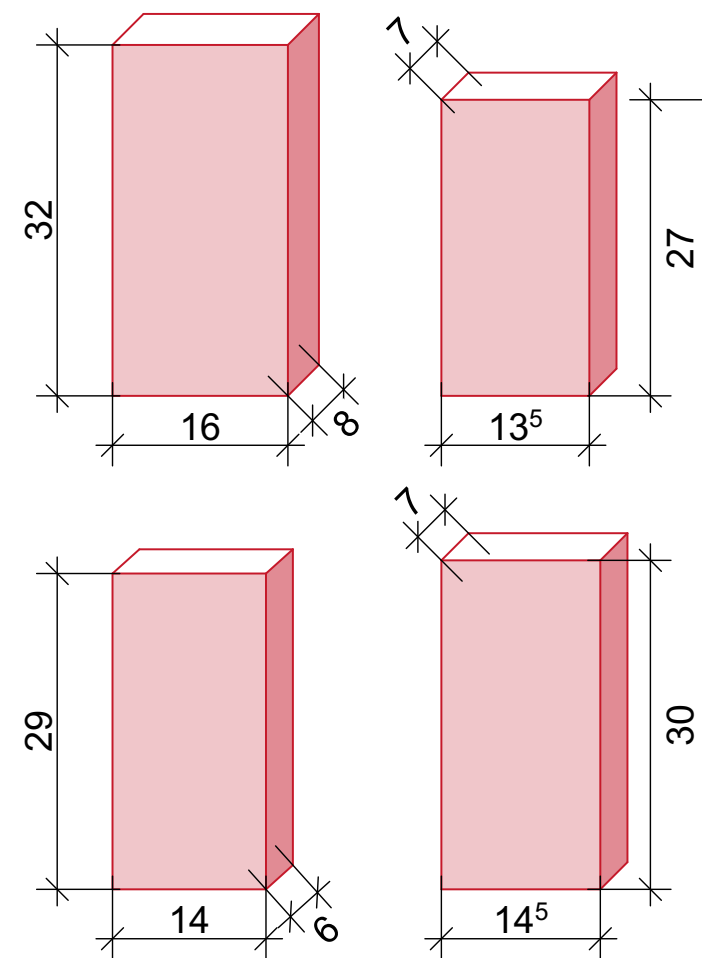
**Brick, the Material of Nijmegen and the
Netherlands –
Colour, Pattern and Textures**

Brick of Nijmegen, Photographs of brick in Nijmegen ordered by colour



1:15 Brick sizes found in Nijmegen between 1200-1900

Brick – What Nijmegen is built off



Zoom in on different brick sizes found in Nijmegen

While it at first does not seem like the closest connection, brick, especially in Nijmegen, is a logical reaction to the topics. Because porosity is a part of my project, I also think that to build contemporary in an urban network, the architecture must react and connect to the existing volumes.

Brick is the most visible material in the city centre, hence making it easy to visually connect to it. Further brick has a long history in the Nijmegen with the river wall that provides the clay that then was processed in the close-by factories.

Further brick is a material that lasts very long and ages nicely. Even when greenery is involved brick still keeps its original view and often becomes even more attractive with age as its texture enhances.



Brick – Modern Adaptations

Bricks have a unique surface and can be used for a multitude of purposes. They are as much means of construction as they are decoration on the facade. With modern technology, the brick can be used in new ways and revive the old tradition. Through computers and robots, complex modern brick structures can be created. But even without the use of machines, new patterns that play with porosity, density and the depth of patterns are constantly produced. Looking further into examples will especially in the later design phase, help me implement a contemporary design into Nijmegen centre. I believe that the dysconnectivity in the centre derives from the choice of not using brick. Further ignoring other similarly strong features in the designs of the

building in the city in the last 50 years. The new design can be contemporary and distinct but should still take the surrounding and materials into account.

“Architecture starts when you carefully put two bricks together. There it begins.”

Ludwig Mies van der Rohe

Different brick texture from various historic brick buildings - images retrieved from google images



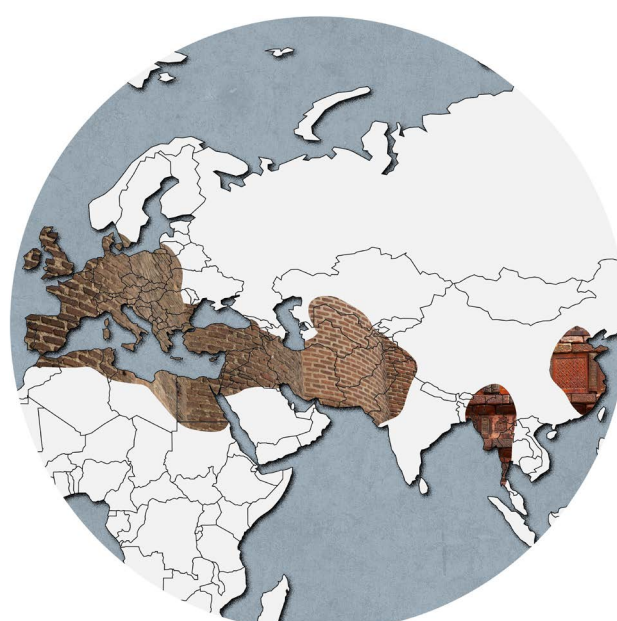
10.000 - 500 BC



500 BC - 1000 AC



1450 - 1650



1000 - 1450

History of Brick – Distribution around the World

In the book the “Brick: A World History” by James W. P. Campbell I read much about the origin of the material. The history of brick goes back 10.000-8.000 BC. To learn about the origin and distribution of it, helped to understand that almost all cultures used one form of a brick. From sun-dried bricks that were made by everyone right on the sight of their building over the more complex, fired version that was made in kilns since around 5000 BC to the modern industrialised version we know nowadays. While the process became more coordinated and structured in its essence, it stayed the same for a long time. Brick is a simple material that shines through its multitude of usages.

The oldest brick structures documented are found in the Neolithic Jericho (now Iran/Syria) they are dated around 8.000 BC. The sun was used to dry them, producing bricks fast but not robust and waterproof, which is why they originated from the countries that have a hot and dry summer. In the next few thousand years, the knowledge spread towards and around the Mediterranean sea. They used Kilns, specially formed ovens that heat the brick much higher than the sun could. This made the material sturdy but also harder to produce and created a new type of industry. The bricks needed to be formed uniformly, with different types of moulds, and dried and fired at the right temperature to



1650 - 1800



1800 - 1900

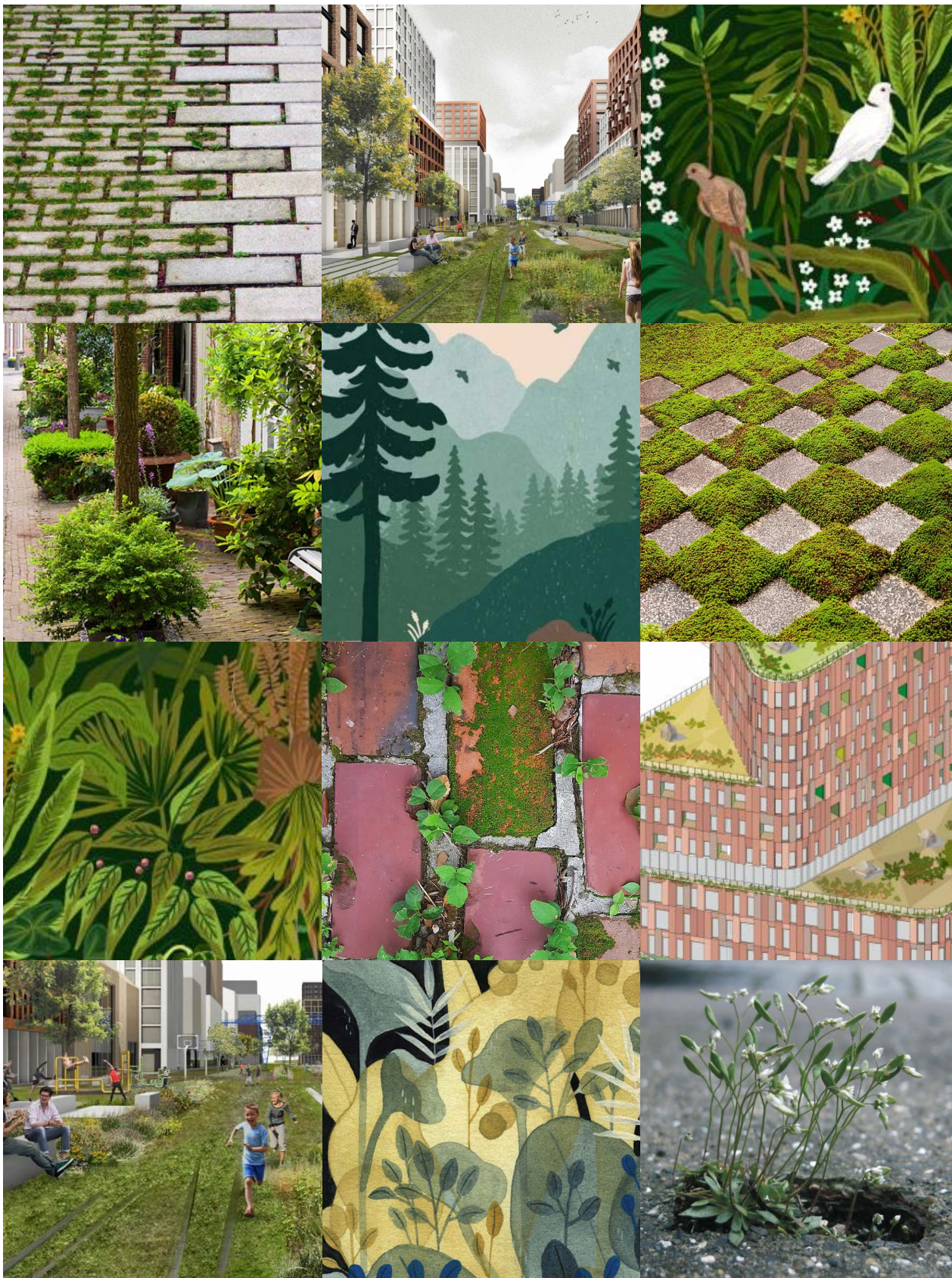


1900 - 1980



1980 - present

ensure a robust and long-lasting material. Both, ancient Greece and the Romans used them, often they were concealed with plaster. At around 500 BC the material had made its way to Asia and was used in china to create tall pagodas. The format and proportions of the Chinese bricks are very different from the ones used in other parts of the world. In Burma and Thailand bricks were used to create vast temple facilities, they use the brick not only as a construction material but also to create detailed ornaments with it. In the 15th-17th century the Russians, similar to the brick developments in Asia, used the material to produce unique buildings and their designs vary greatly. In the 17th to the 19th century, the material was brought to the United States by the early settlers, which was expensive due to the weight and amount that needed to be shipped to construct a single building. The Portuguese also brought bricks to their colonies in South America. Industrialisation made the process cheaper, faster and more precise and since then the material has spread around the world. Many countries have created a unique style and made the flexible material their own.



images retrieved from google images

Nature inclusive design

Porosity can also be found on another scale, flora and fauna use porosity of cities to hide and thrive. Many of our modern cities not only lack greenery and often, even the existing green spaces are not used to its full potential. Since the middle ages, we remove wild nature from our cities, only allowing controlled and strictly organized growth. But nature is adaptable, and so are animals. While many suffer from the lack of food, light pollution and destruction of their natural habits, more and more wild animals live in cities and have adapted to it. While the cities grow, the abundance of species is still reducing, there is not enough habitat. For example, birds prefer their nesting spots on the east, owls lower to the ground and on the north. Bees and other small insects prefer their habitats to be lower on the ground and towards the south, bats like to live on the west and have their nest very high up. In my further research, I would like to integrate more spaces for animals into the city.

While Nijmegen has a lot of parks close to the centre, many inhabitants have expressed their wish for a greener city. They are allowed to remove some bricks from the street and then plant their own flora to green their streets. But this is disorganised and thus not optimally done.

Throughout my research I investigate the species that can be found and thrive in cities and I looked further into which species of plants and animals are depended on each other. It could be useful to create a list for the non-human inhabitants of Nijmegen to choose the right plants for their location. For example, the flowers could help bees find pollen in the city, or certain shrubs should create hiding spots for hedgehogs. These tiny spaces can become a valuable hiding spot for animals and can help to change the cities atmosphere.

A close-up photograph of a bumblebee on a yellow flower. The bee is positioned in the center, facing left, with its head buried in the flower's center. Its body is covered in dark and light yellow fur. The flower has bright yellow petals and a central cluster of stamens. The background is dark and out of focus.

Articles retrieved from google

URBAN PROPOSAL

conceptual ideas for the site

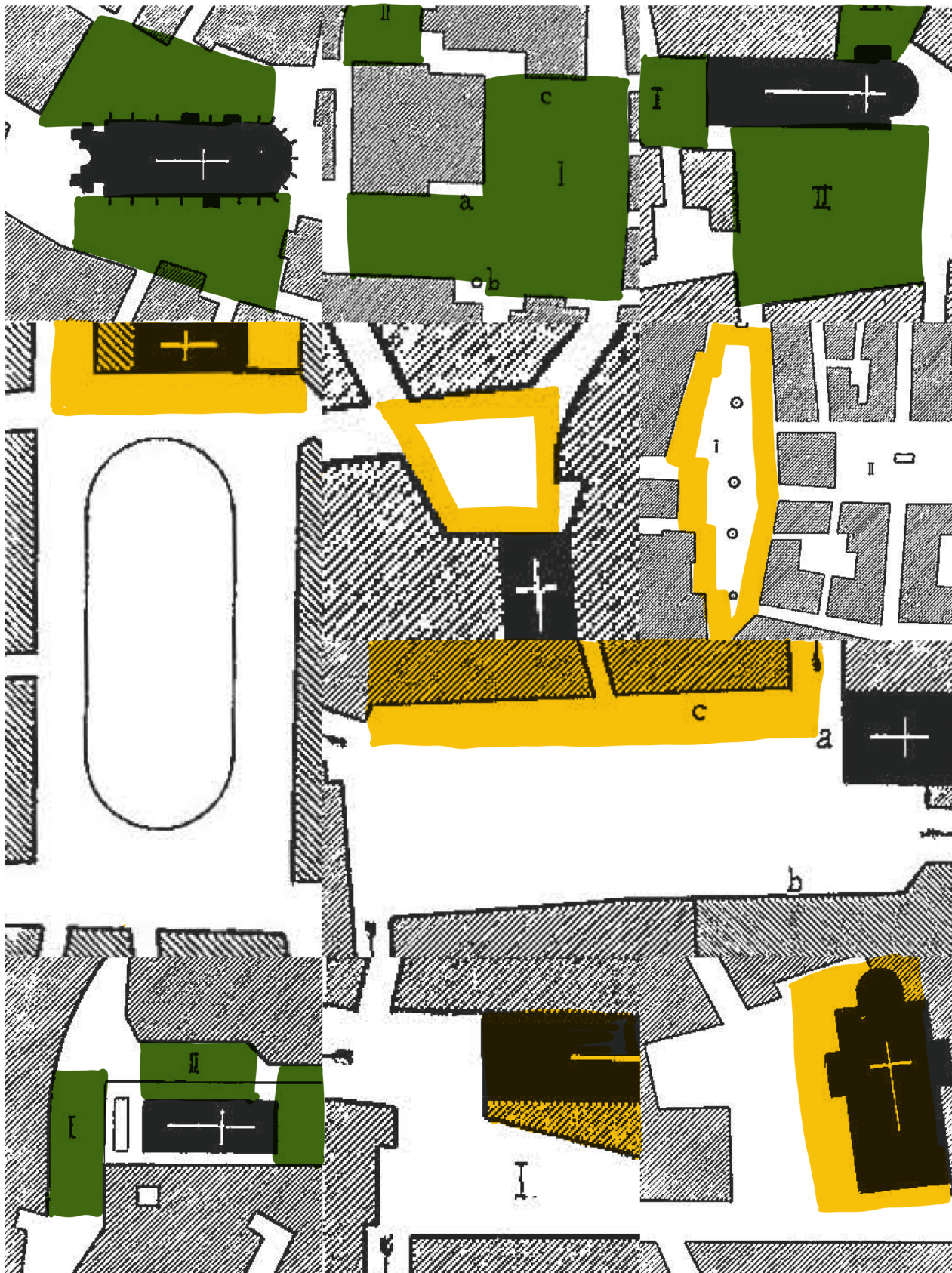


Illustration retrieved from Camillo Sitte: *The Art of Building Cities: City Building According to Its Artistic Fundamental*

Urban Plan Inspiration – Camillo Sitte

How does modern and historic city planning differ? Why does it differ? How can I combine modern architecture with historic city structure to enhance the experience for both? What important lessons can we learn about our historic cities? How do modern fire safety regulations, car traffic and other safety measurement translate back to our historic cities?

To find a good way to articulate our ideas, Paul suggested us the book of Camillo Sitte “The Art of Building Cities: City Building According to Its Artistic Fundamental”. The book helped us fittingly express our idea. Even though we are designing a space for the modern Nijmegen, its city grid and structure comes from the middle age. That is why we closely worked with Camillo sites observations.

1. The orientation of the square is connected to the orientation of the facade in the most important building (horizontally orientated (city hall)) facade lead to wide but short spaces, Vertically orientated facade (Domes, Churches) lead to narrow but longer spaces.
2. The height and size of the prominent building corresponds roughly to its size. Meaning that a vertically orientated church will have a deep but

narrow space in front of it. A wide city hall will have a space that mimics the proportions.

3. Objects, monuments are placed off centre, to create a more fitting composition.
4. The middle and the main connections should be left open.
5. The street axis should not meet at one point, because then on that spot, space loses its clearly defined lines.
6. Public spaces should feel enclosed, one should not be able to look too far into the next streets.
7. Prominent buildings are located on the sides, not in the centre.
8. If the building was originally built into a city block it should not be separated from it (often not all facade were built with the same amount of detail, the more visible facade were often the only ones with expensive material).



Site with interior plan of Molenport



Remaining structure of Molenport



Urban Plan with roof view



New main route through the area. Instead of direct route the new urban plans creates a more organic route through the space.



Each of the two squares is used as a stage for the representative buildings.



Multiple platforms imitate the original topography of the area.



Remaining structure of Molenport



The new public building is the highest point in the area. The high point can be used as a panorama view of the city of Nijmegen.



Urban Plan -
Roof View + Detailed Surrounding



Urban Plan with ground floor plan

Urban Plan -
Ground Floor Mountain + Detailed
Surrounding



Urban Plan with detailed surrounding

Urban Plan – Ground Floor Mountain + Detailed Surrounding

The distinct topography of Nijmegen is very visible on the site as well. There is a height different of around 3,5 meter from the lowest to the highest part of the area. The urban space is separated into different platforms. These platforms represents thresholds and help to structure the area as well as to guide the visitors through it.

The main entrance is on the upper right side, this is where the shopping loop was disconnected before. After that you walk towards the public building that I choose to design for my thesis.

From there you turn around and walk up the stairs to the next platform which presents the church. Through the turn of the urban spaces the church and the public building are visually separated, as you cannot see both of them next to each other. This is done because they should remain two separate entities. Both large build-

ings have their own qualities and should not be weighted against each other. The historic qualities of the church are now free to be viewed, before they were hidden next to the Molenpoort mall.

The next height difference is a street and guides the visitors back to the Molenstraat. The other stair leads to the more residential parts in the lower part of the plan.

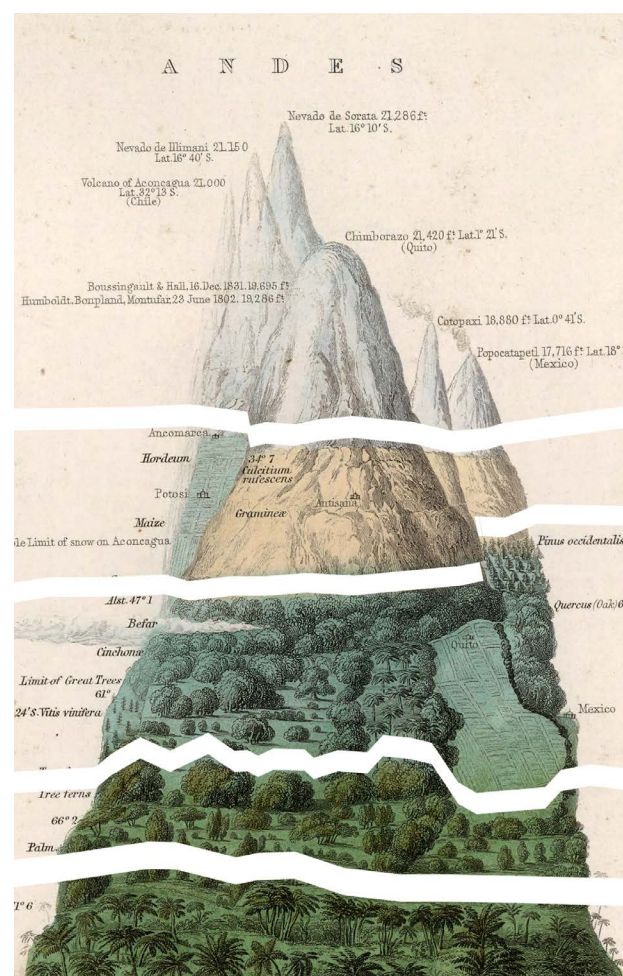
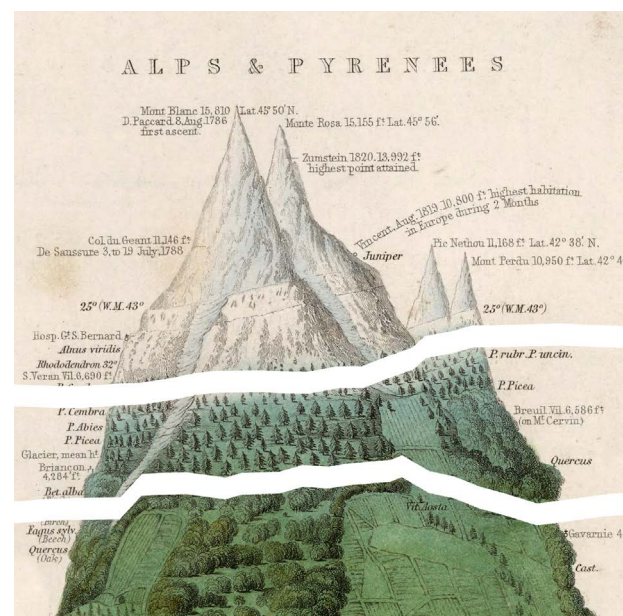
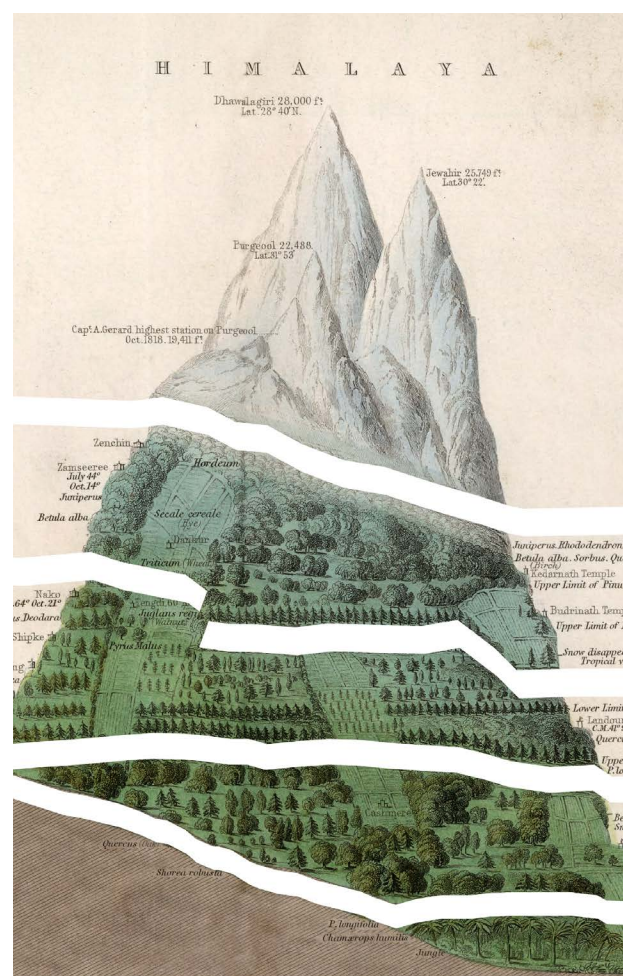
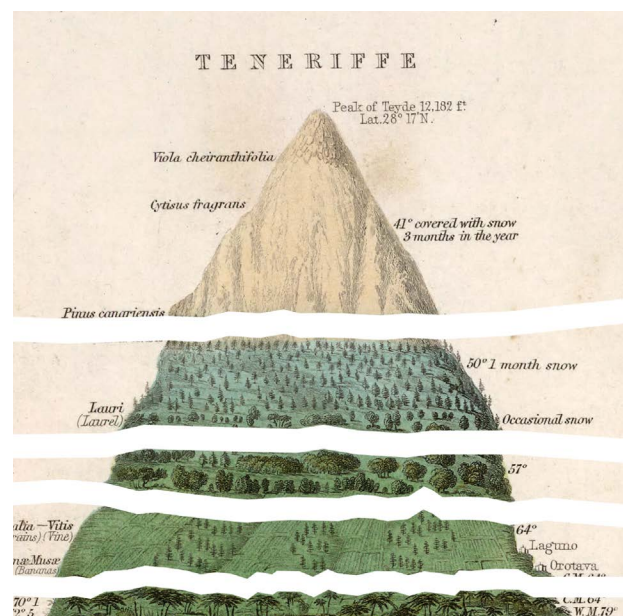
Along this main route public functions are located in such a way that someone walking through the area, can see the stores from further away and thus can choose his route. This is important as the path through the area is not a straight line, but creates an organic path through the area that fits better into the historic centre of Nijmegen.



Axo Whole Area

ARCHITECTURAL CONCEPTS

ideas and concept for the volume



Sketches by Alexander von Humboldt, Retrieved from google images,

Concept Idea

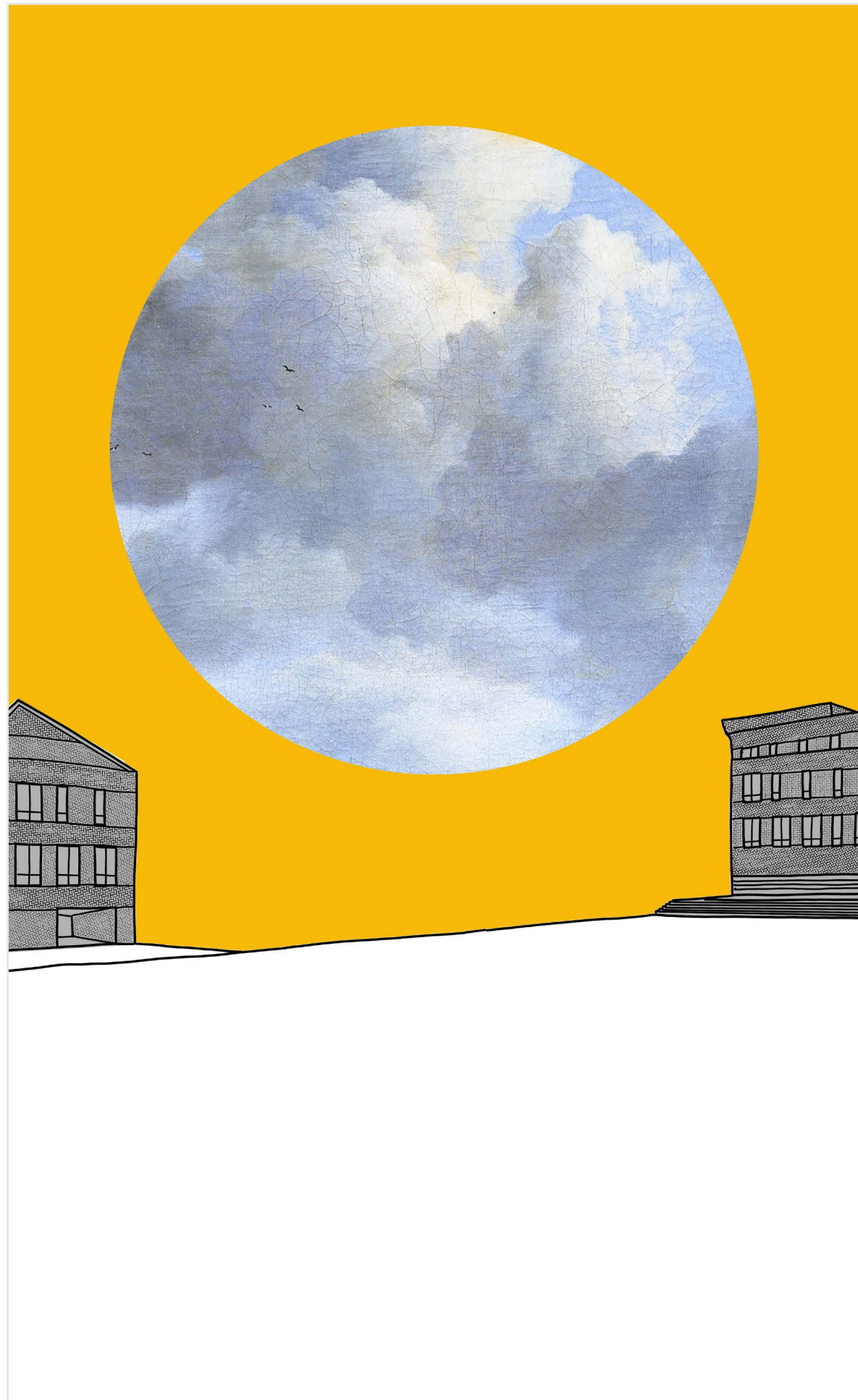
Where do these things lead me? All this research gave me a solid foundation of Nijmegen that was enhanced through literature and site visits. This research was guided through my interests and at the same time helped me find the topics I want to implement. The suggested book “Robinson Crusoe” by Daniel Dafoe helped me to understand the idea of a bricoleur and in combination with various texts, it helped me position myself in it.

From the P1 I have a solid foundation of Nijmegen as we intensively explored the city. Our impressions were captured in our video “Climbing Nijmegen”¹⁰. In the P1.5 the historic research helped me to connect further to the city itself. Our urban plan combines our wish to connect to the existing structure as well as the idea to implement new functions, that change the image of Nijmegen as a consumer-orientated place. It frees the back of the church from the mall and divides the space with height differences in a podium for different spots. When entering the space, the new public function will be the focus point, but after crossing it and going up the stairs, the church becomes the most prominent part of the space. The design connects to the Molenstraat but created a crossing that leads to a more residential area of the urban plan. The visitors will naturally follow the wider, more public street and exit towards the Molenstraat.

The newly created volumes give the impression of a mountain. Like structures that on the outside has the same height as the surrounding buildings, 2-4 floors, and that is significantly higher in its centre where the most publicly available building is located. I want to take this impression of a mountain further and not only emphasise on its rising height but also its layered functions. As an analogy of a mountain, which has different zones that define the flora and fauna – in my design presented as the function and its users – this is dependent on the latitude and altitude – here the floor where it is located on. Alexander Humboldt was the first who discovered this, I also consider him as a bricoleur. He himself was the tool, much like Robinson Crusoe on this island. I adapted his sketches of mountains to emphasize on the layers. I want to create a new public and culture spot that would function as the 8th mountain of Nijmegen.

„Inevitably, the result will be a compromise between the project that he first had in mind and the means available to him.“

Irene Scalbert, *The architect as bricoleur*



Verdute - Layer One

First layer: The site is left empty through the missing connection and the not fully utilised location. While the mall leaves the area empty,

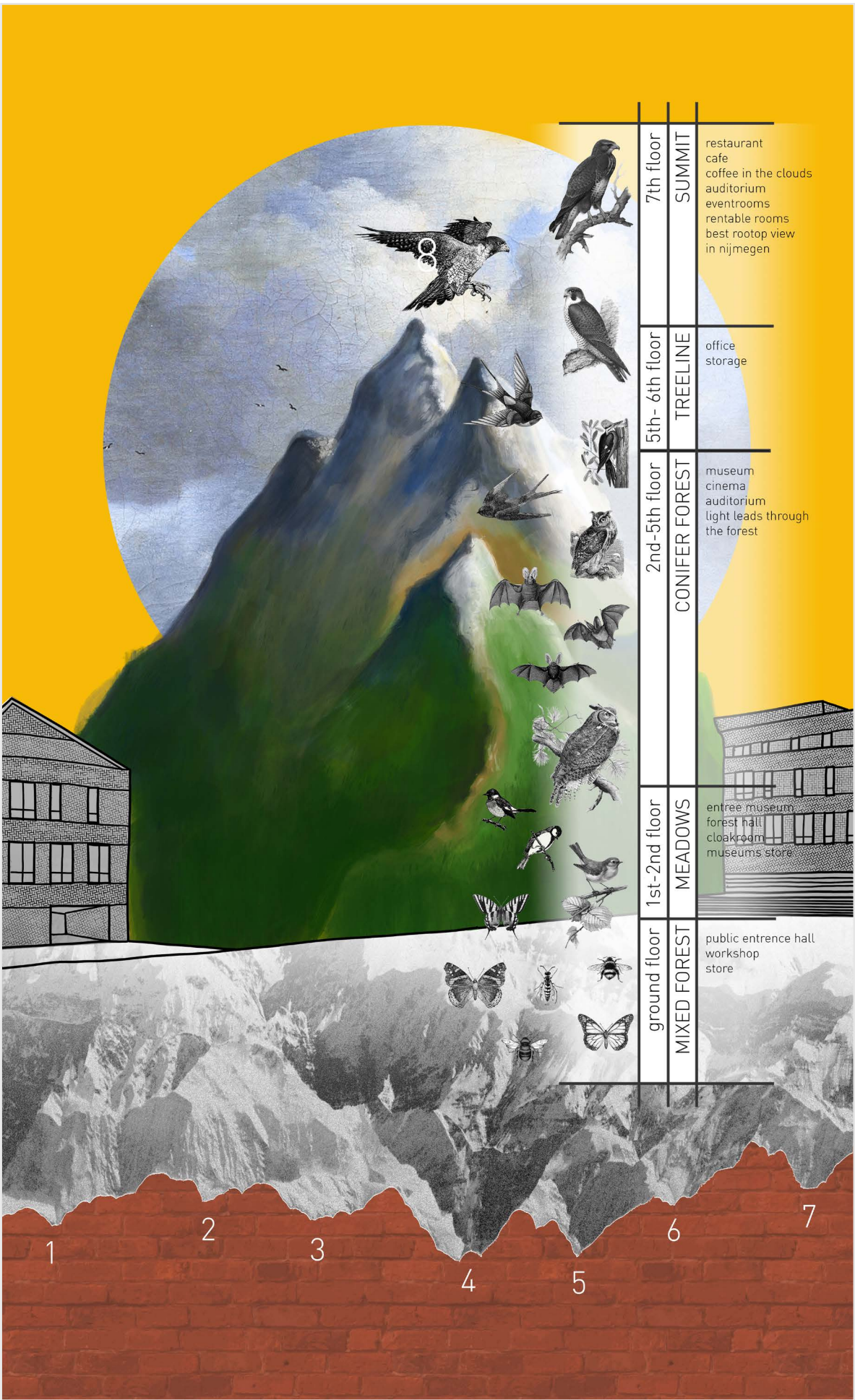
the history, represented through the circle with an old painting of a Dutch sky, is still present.



Verdute - Layer Two

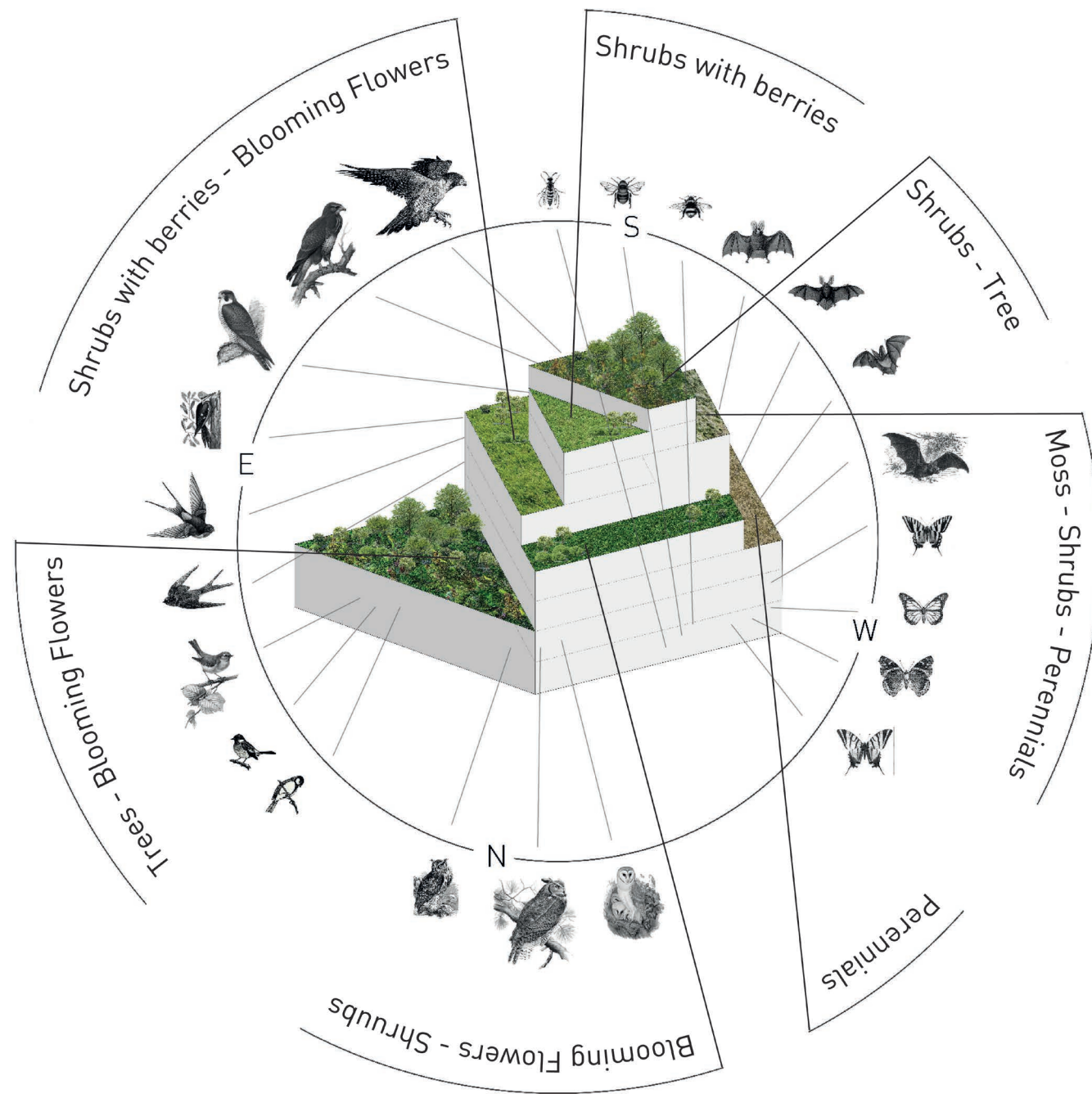
The mountain takes over the empty space and fills it up. It is also an homage to the unique topology of Nijmegen. The 8th Mountain of Nijmegen is both a reminder of the strong

topology and it is also forgiving to the building. Each layer of the mountain represents a different function.



Verdute -
Layer Three

While the interior will host different functions on each layer of the mountain, the facade of the mountain will host different hiding spaces for different animals. Because each animal prefers a different orientation and location, the spaces will be distributed around the building. Insects and smaller birds tend to have nests closer to the ground, while bats and birds prefer higher hiding spots.



Concept – Flora and Fauna

Concept for flora and fauna: between each platform and facade there is a correspondence. The used plants are determined by the animals that nest in the facade. For example bees and other insects are usually found closer to the ground. So the first few floors will have more plants with many flowers. The birds will nest in the higher

spaces and the plants close by, should provide them with shelter and food, so many shrubs with berries are planted there.



Concept – Fauna and Façades

Concept fauna and facades: Animals prefer different nest heights and nesting sizes, the facade on each floor provides openings in different sizes.

The lower floor offers a multitude of small openings for insects, especially bees living in solitude. The upper floors provide less openings, but each one of them is bigger and birds can nest in them.



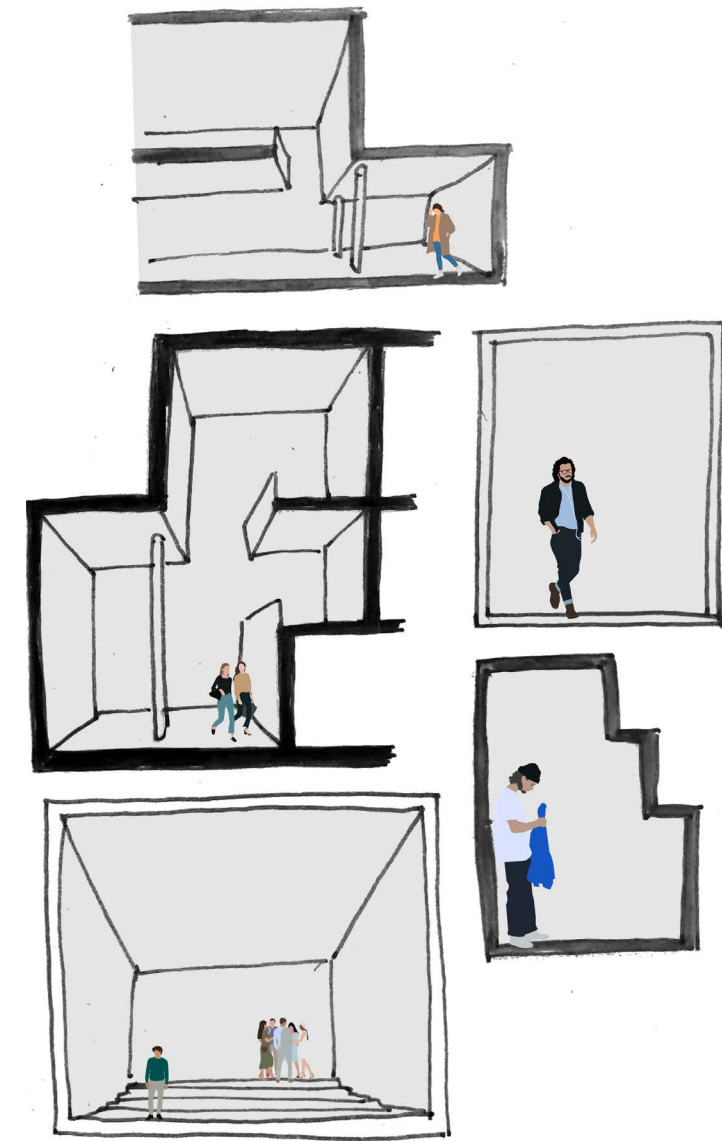
Concept – Flora, Fauna and Humans

While the fauna and flora are a essential part of my concept, the integration of humans, flora and fauna are what is important. We need to learn how to design spaces that can be utilized by all.

The facades, though dedicated to the plants and animals, become an important interaction space. The platforms are publicly accessible and become a new public part of Nijmegen.



Spacial concept for the museum



**Museum Spaces –
Flexibility through diversity**

Just like diversity is an essential part of the facade and platform concept, it is also essential for my museum spaces. Often museum rooms are simplistic spaces that try to step to the background. For a big art museum in a huge city that might be the right way to go, but Nijmegen needs a space where all kind of art pieces can easily fit in together. I created all these different museum spaces that are all different from each other. So the curator and the artists can find the spaces that they like best without having

to change the basic room form and layout. The museum provides spaces for old paintings, in the lower area that are almost completely artificially lit and huge exhibitions walls where modern art pieces can be found. The various connection towards the outside creates spaces for statues and smaller rooms, they can be used for video screening. All these spaces exist separate from each other and can all show different things at the same time.

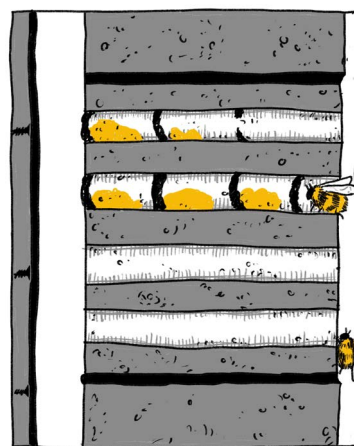
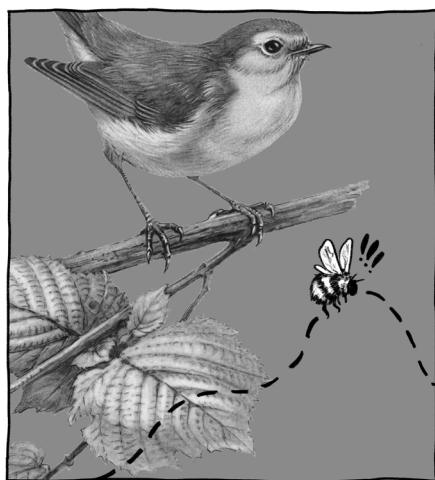
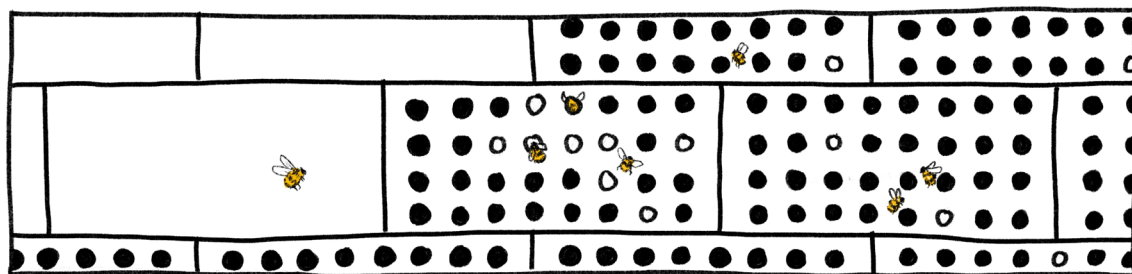


Conceptual Collage, images retrieved from google images

Concept Collage

ANIMAL PERSPECTIVE

the mountain from the perspective of the non-human users



Illustration, the mountain from the perspective of a bee

Life of a Bee – Daily Routine and habits

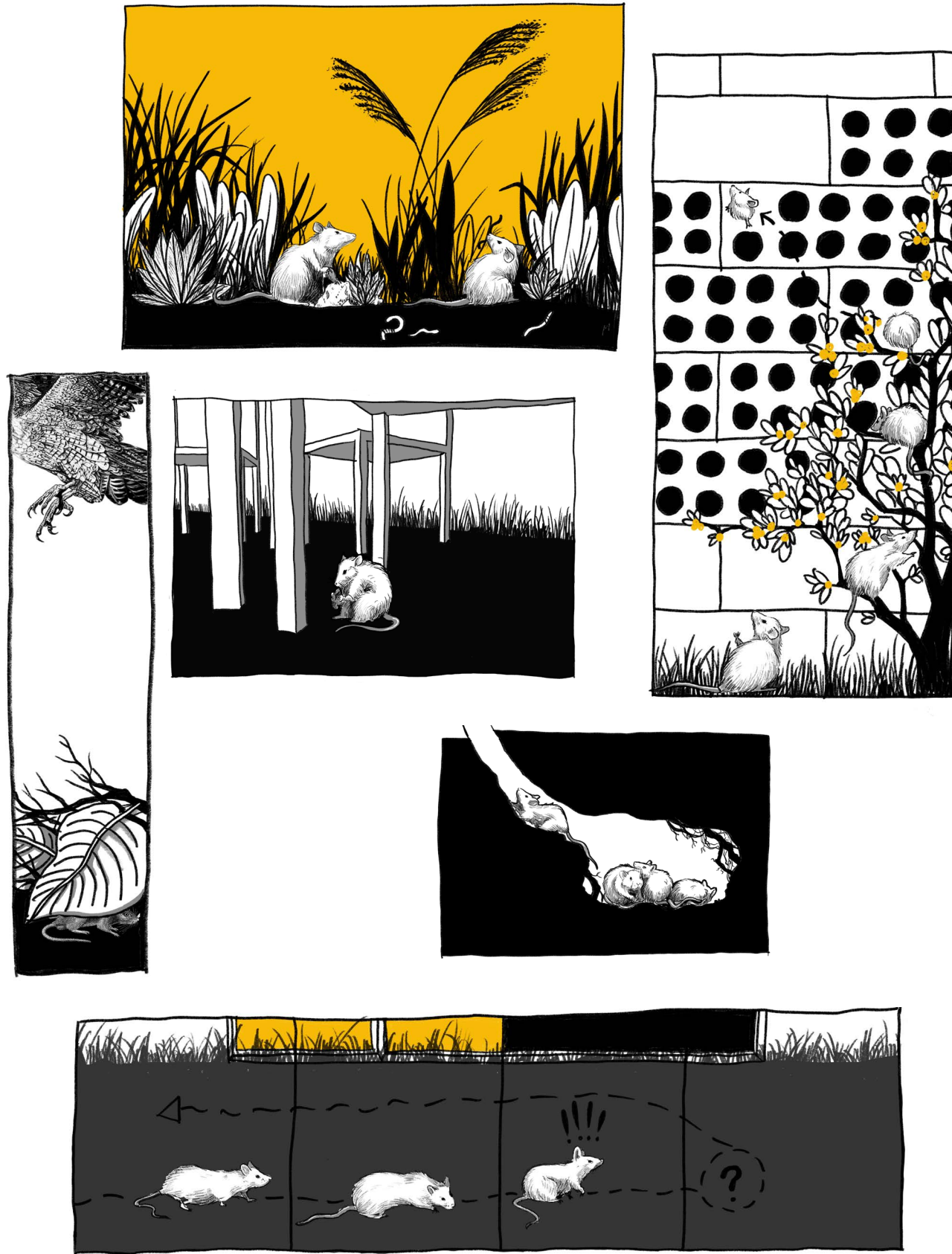
Insects are an important but often disliked part of the environment. The facade from the ground floor to the third floor offers spaces in the facade for them to nest. The small spaces in the facade are the perfect hiding spaces for them, they usually prefer spaces closer to the ground as they are often hunted by other animals.

I focused especially on bees for my proposal as they are essential for the pollination of many plants. Because of the mono-agriculture, they also lose their natural habitats. The different flowers that bloom throughout the year provide them with pollen, if there are too little flowers that only bloom a certain time they lose their food source. There has been research about how many bees nowadays prefer to live in city, due to

the diversity of plants on people's balconies and gardens.

There are many different kinds of bees, many living in solidarity. The platforms close by provide them with various species of flowers. Since living spots and food resources are close by, the facade will naturally be the best place to live for them.

A day in the life of a bee would take place throughout the whole mountain during the day, and maybe even to the green backyards of the neighbourhood. The lush platform provides protection from predators and the different species ensure a pollen source throughout the year.



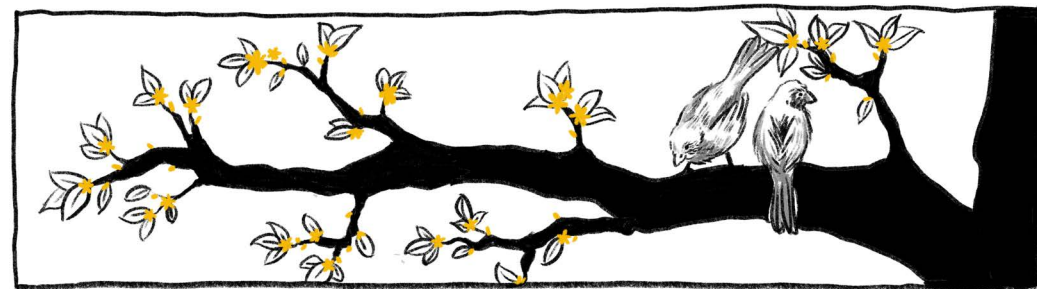
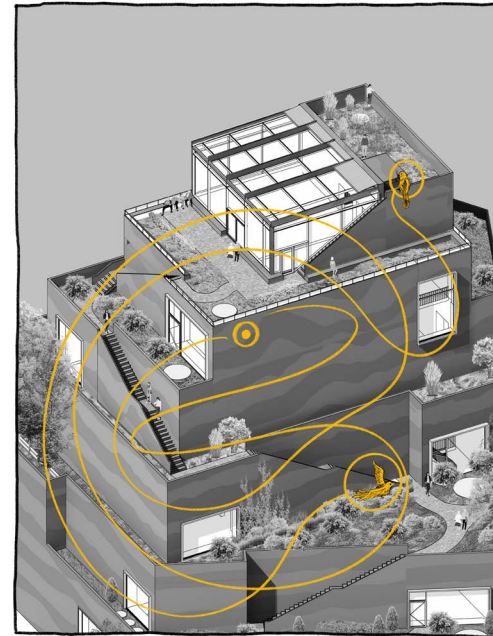
Illustration, the mountain from the perspective of a mouse

Life of a Mouse – Daily Routine and habits

One of the very common inhabitants of our cities are mice. They have adapted to live in the city a long time ago and can be found in almost every country around the globe.

There is a string stigma about mice being dirty animals which is not correct, they are very clean animals when they are living in the right conditions. They usually prefer to be invisible and are mostly active during evening and night. Mice shy away from humans and would be one of the secret inhabitants. They would stay hidden during the day and only come out at night to forage the mountain.

Mice are omnivores and they enjoy crumbs from the restaurant and cafe just as much as berries and insects. Mice are also quiet smart and playful and find a lot of distraction on the facade. To protect the museum there is a metal sheet behind the facade to stop them from getting inside the museum. But since the platform and facade provide them with shelter and food they are less likely to intrude the museum. The dense flora of the platforms provide them with shelter.



Illustration, the mountain from the perspective of a sparrow

Life of a Sparrow – Daily Routine and habits

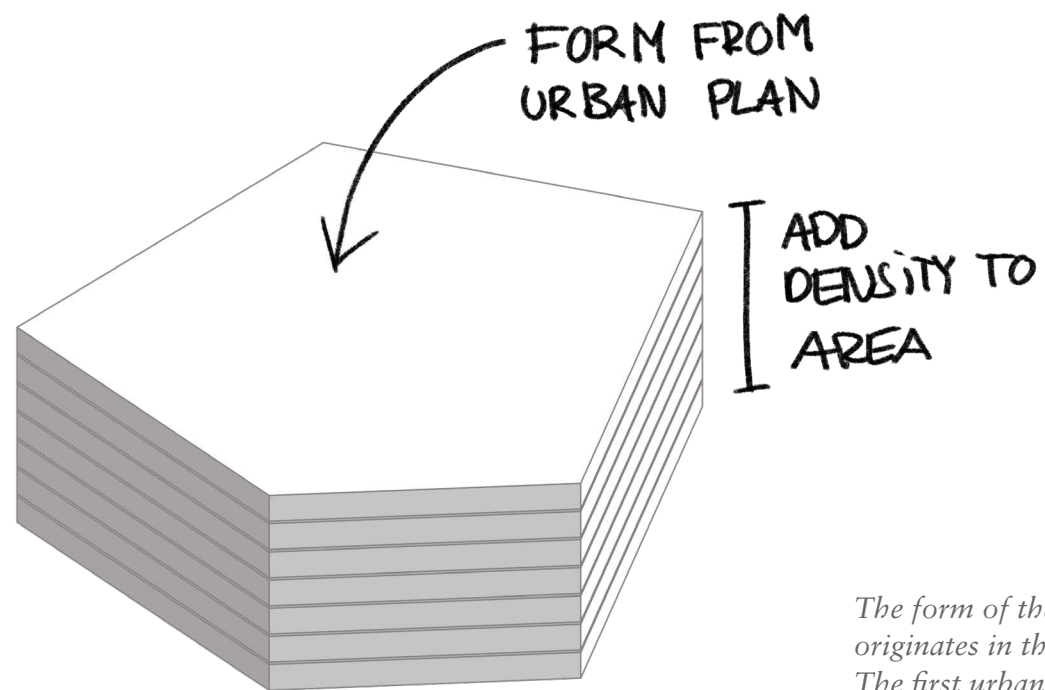
Unlike bees and mice, birds prefer higher nesting spaces so the upper floors provide less but bigger openings. The birds profit from the diversity in plants and insects and even the mice can be an important food source for many species. They help to naturally keep the balance of species in and around the mountain, just like they do in a natural biome.

All platforms are easily available to them and they will probably fly over the whole city too.

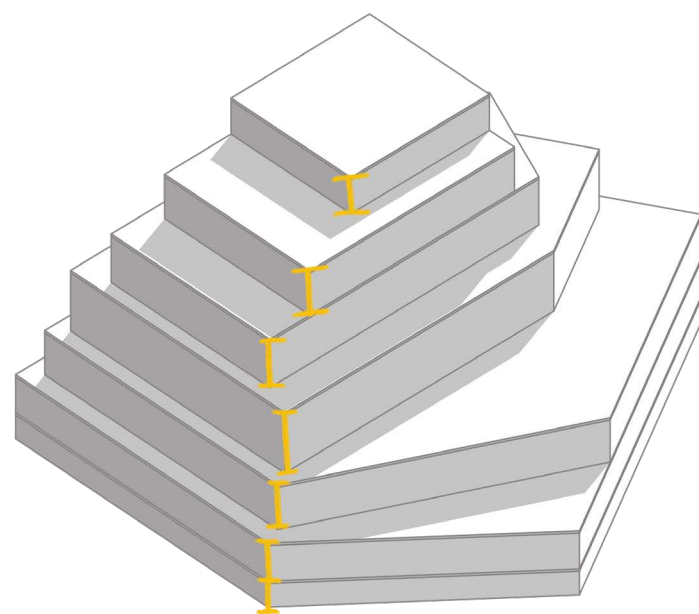
For different species there are different openings in the facade and the depth also varies on different floors.

ARCHITECTURAL ELABORATION

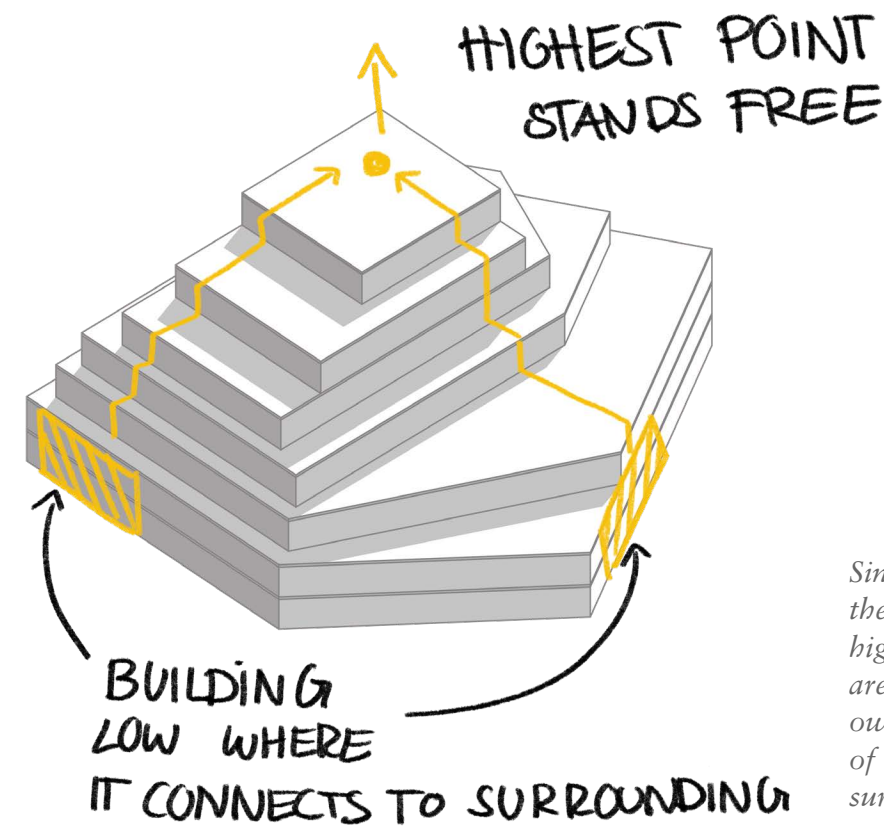
Applied concepts to plans, section, elevations and visualisation



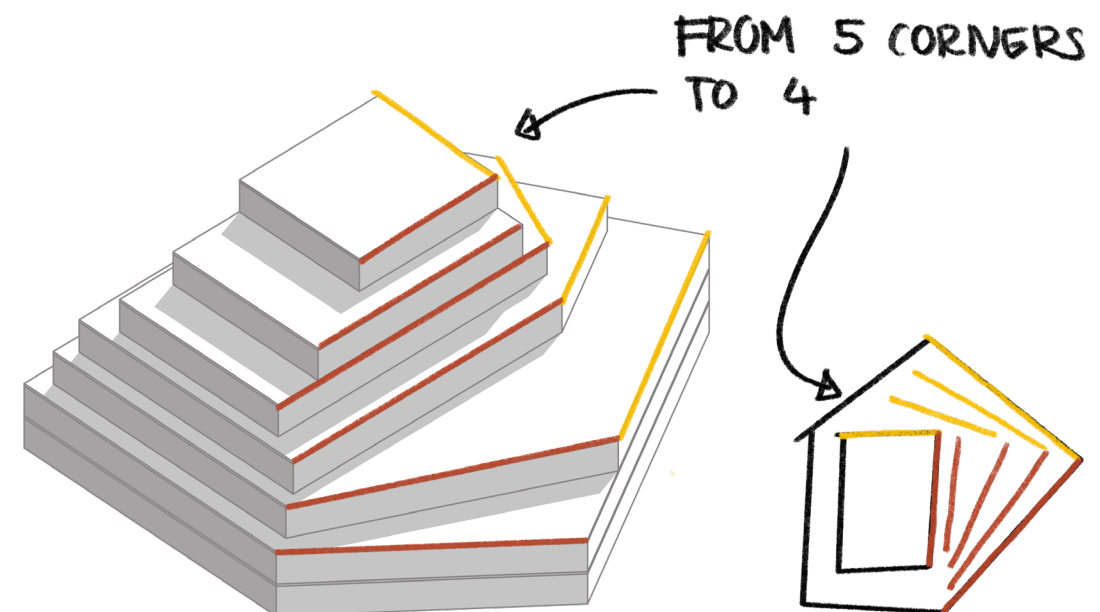
The form of the volumes originates in the urban plan. The first urban plan was created as part of group work.



The mountain metaphor gave me the idea to create floors with very different heights. This also ties in very well with my wish for the different architectural spaces inside the museum.



Since the Mountain is a lot higher than the surrounding buildings I moved the high point towards the west, where there are wide streets. This does not over shadow the area too much. The lowest points of the mountain connect to the rest of the surrounding buildings.

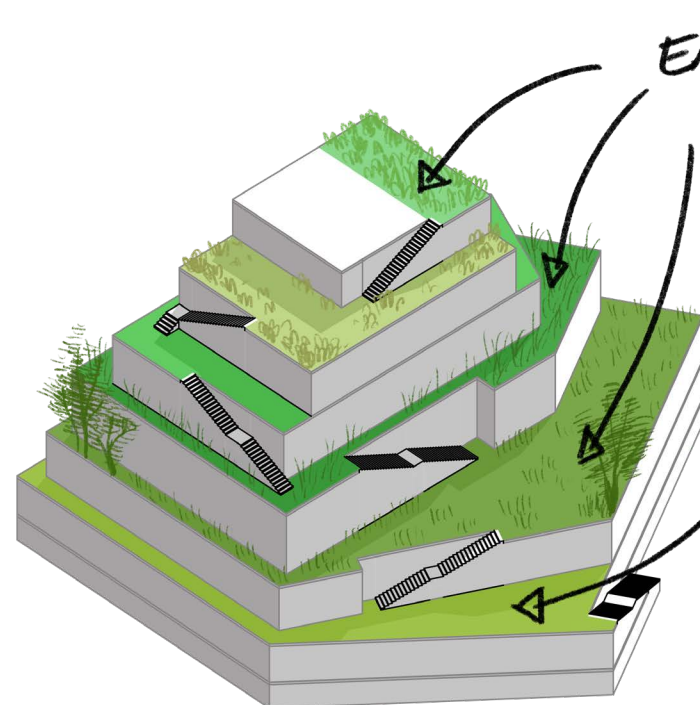


The original form from the urban plan slowly changes into a square form over multiple floors. The form also shows the different angles and directions that are found in the surrounding areas.



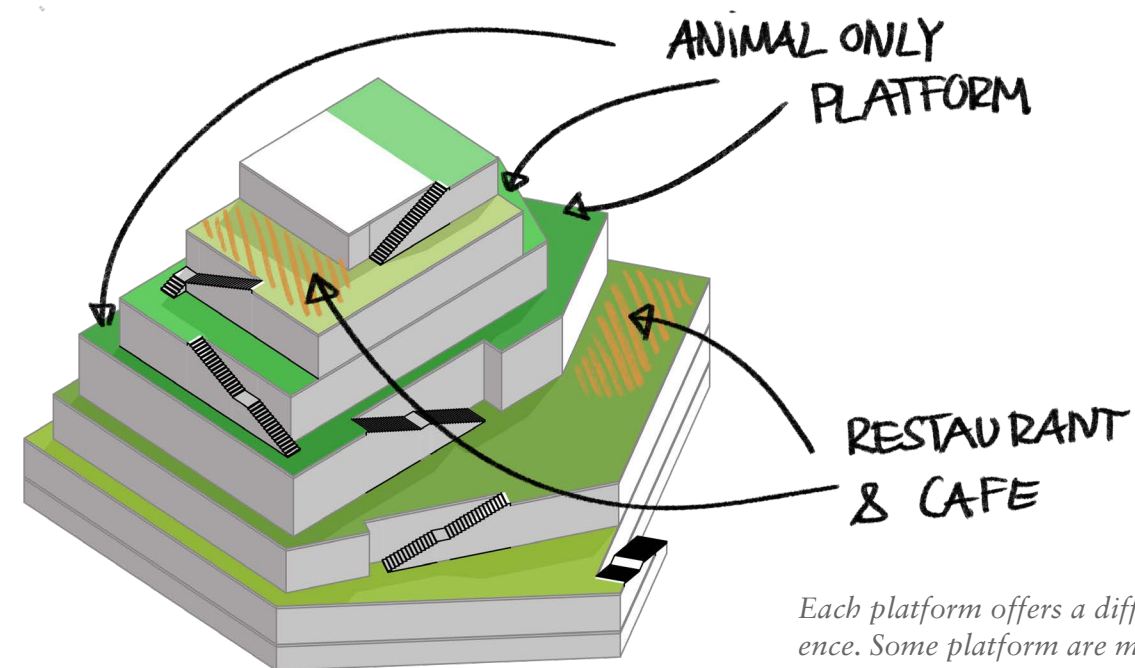
STAIRS LEAD
UP THE
MOUNTAIN
& CONNECT
TO CAFE
&
RESTAURANT

The public platforms are freely accessible from the public space outside the museum entrance. The path up the mountain also connects to the restaurant and café.



EACH PLATFORM
HAS DIFFERENT
PLANTS &
LANDSCAPE
ARCHITECTURE

Each platform offers a variety of different plants. Walking up the different platforms will be a visual experience and each one of them shows different native plants of the Netherlands.



ANIMAL ONLY
PLATFORM

RESTAURANT
& CAFE

Each platform offers a different experience. Some platform are more closed up, while others, for example the cafe and restaurant one, offer wider open areas to sit and relax.

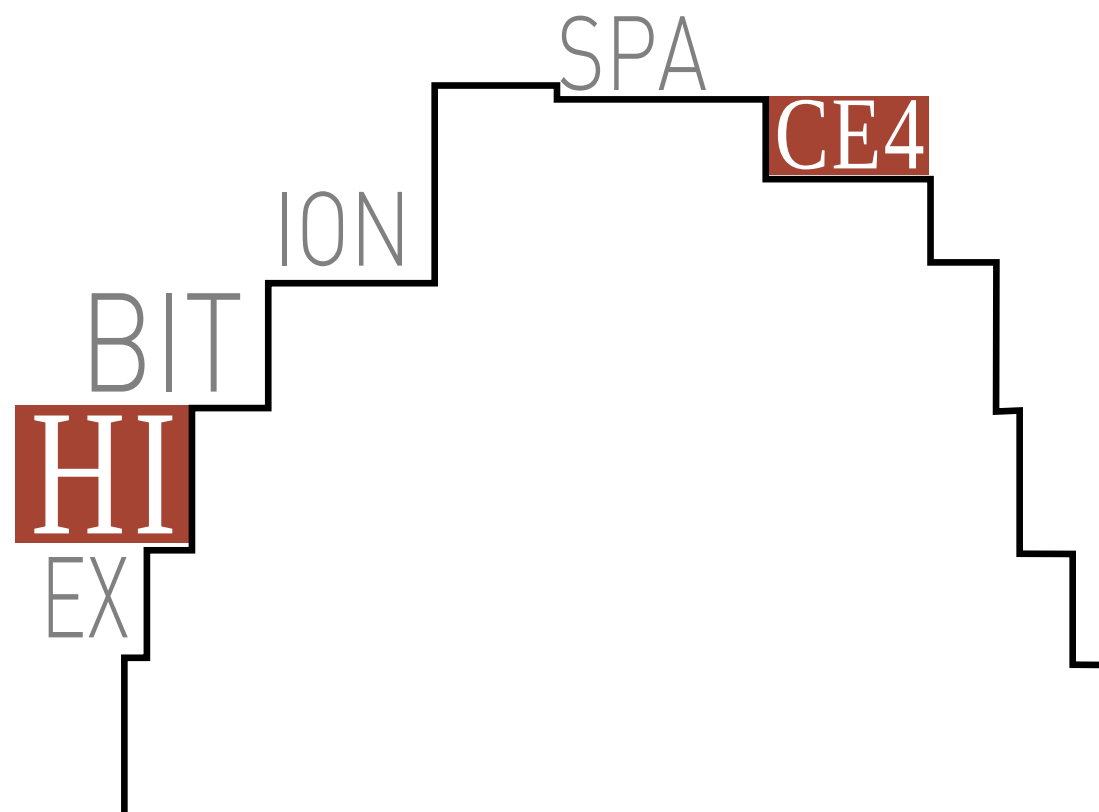


Isometric view on mountain from NNE

**Platform concept –
applied to the Volume**



Conceptual section with functions inside the building



Conceptual section with functions outside the building

Functions and Sizes

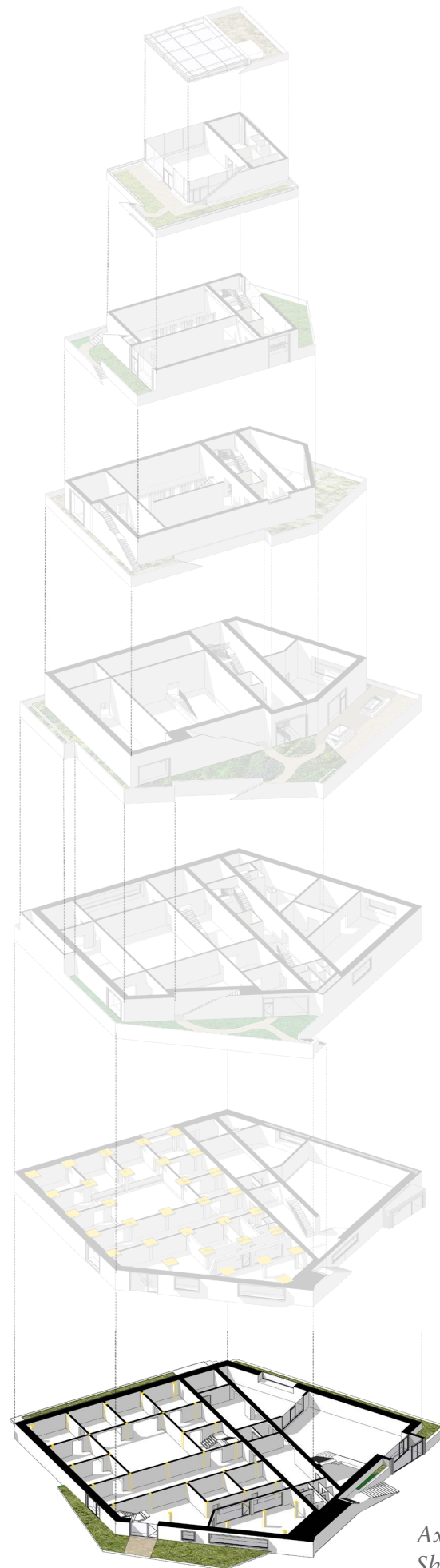
Ground Floor	580 m ² + 140 m ²	Entree, Museum, Workshop, Office, Museums Shop
First Floor	1580 m ² + 000 m ²	Museum, Auditorium
Second Floor	1440 m ² + 130 m ²	Museum
Third Floor	940 m ² + 360 m ²	Museum, Restaurant
Fourth Floor	590 m ² + 270 m ²	Museum
Fifth Floor	380 m ² + 160 m ²	Museum
Sixth Floor	180 m ² + 190 m ²	Cafe
Seventh Floor	000 m ² + 70 m ²	
Whole Building	6690 m ² + 1320 m ²	

The biggest part of the architecture is dedicated to the museum with over 4800 m². The total platform area is 1320 m² large.

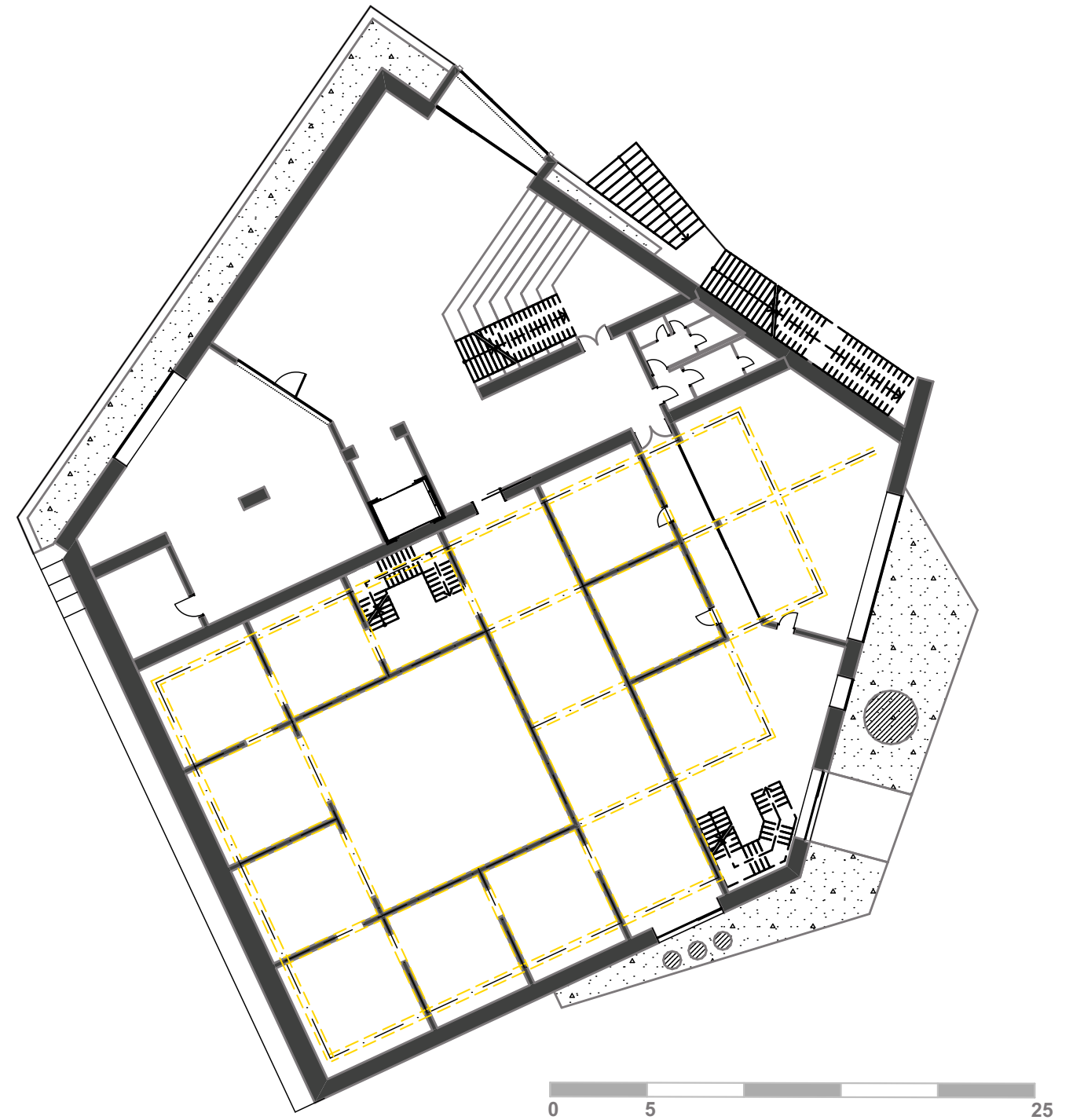
The first three exhibition spaces are found inside the museum and the 4th one is on the facade of the museum and publicly accessible. Artist from Nijmegen could be asked to create sculptures that interact with the nature around it. The space unlike the other museum in the city will

offer public green space, directly inside the city. It is very central and the inhabitants in Nijmegen always expressed their desire for more green in their already beautiful city. My mountain will offer that, nature in the city. It can be part of a afternoon picnic. Or maybe a walk at night with a beer in the cafe and the beautiful unobstructed view on the Dutch sky.

Ground Floor

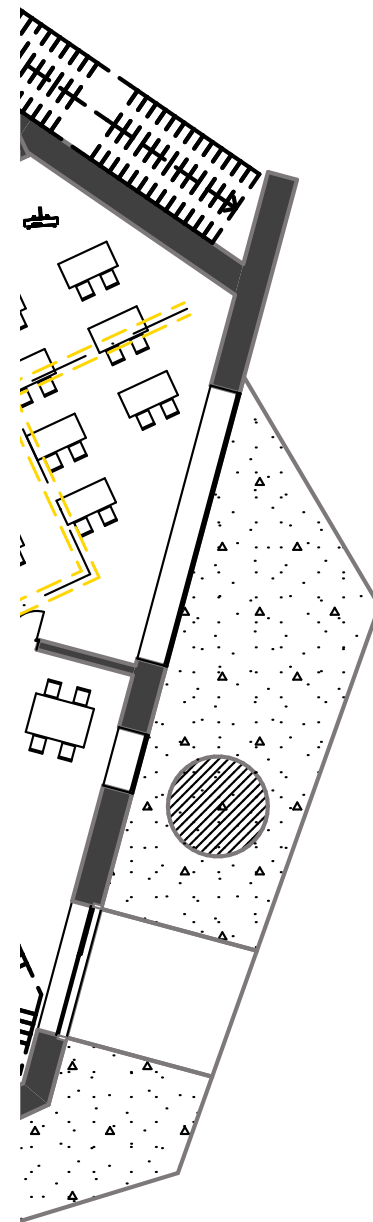
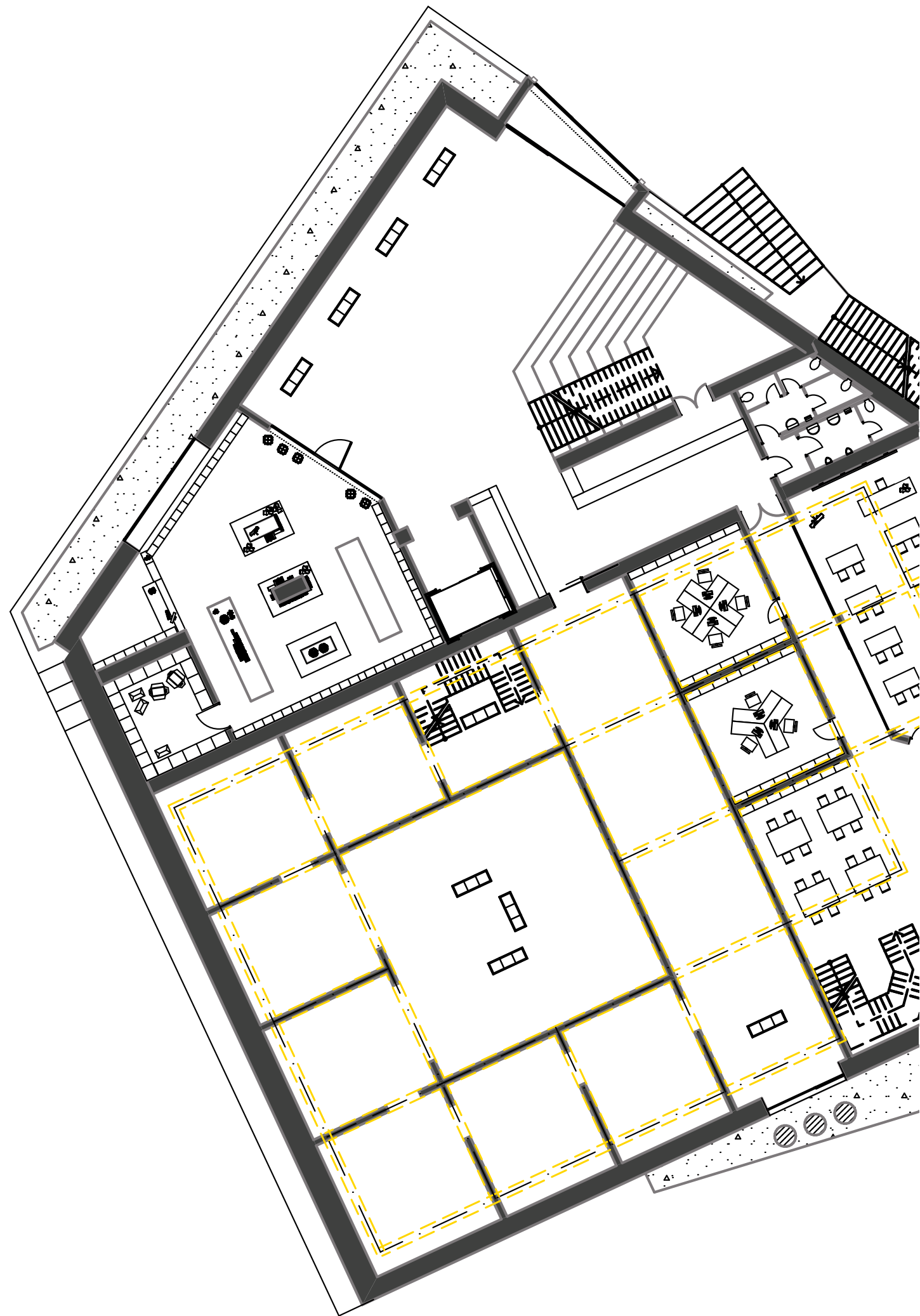


Axo: Ground Floor with Entrée, Shop, Workshop, Exhibition 1a



The entrance to the Museum is on the upper corner, where you enter into the entrée. The spacious entrée offers seating stairs that can also be used to welcome guests for special occasions. On the left side of the entrée the museums shop is located. The area for the tickets is located next to the elevator in the core. The visitors can first enjoy the entrance before heading towards the core to buy a ticket.

Inside the core is also the cloak room with its store below the spacious staircase. This remains hidden until you buy a ticket. From the core the toilets can be reached as well as the area for the workshop and the first exhibition. The workshop includes office spaces and if necessary, can be rented out, if the museum does not utilise it. The workshop is connected to the backyard and can utilise the space as well.

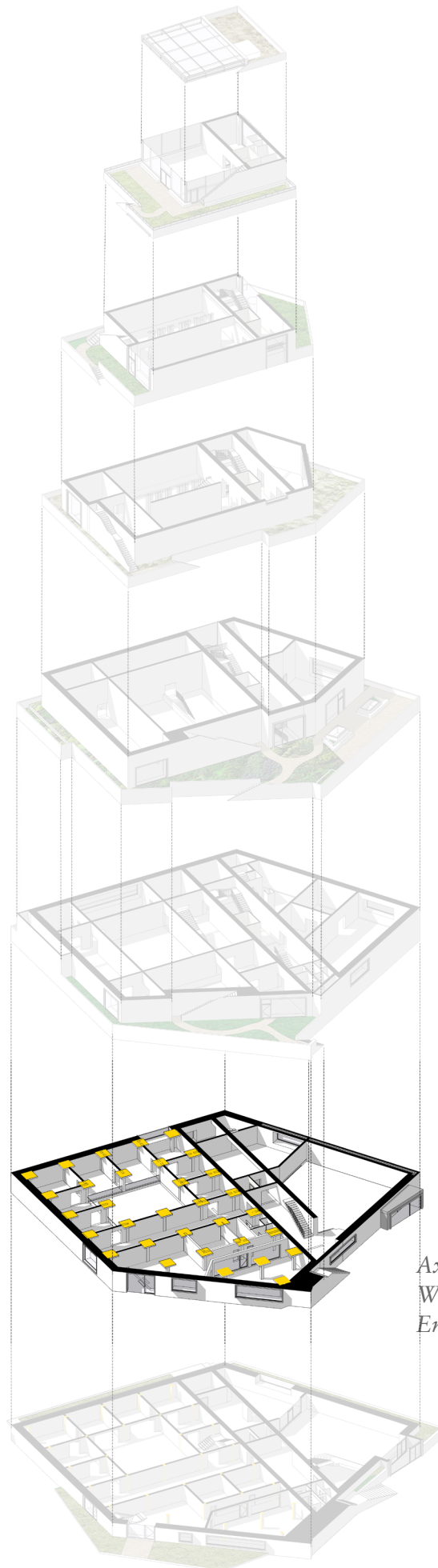


Ground Floor

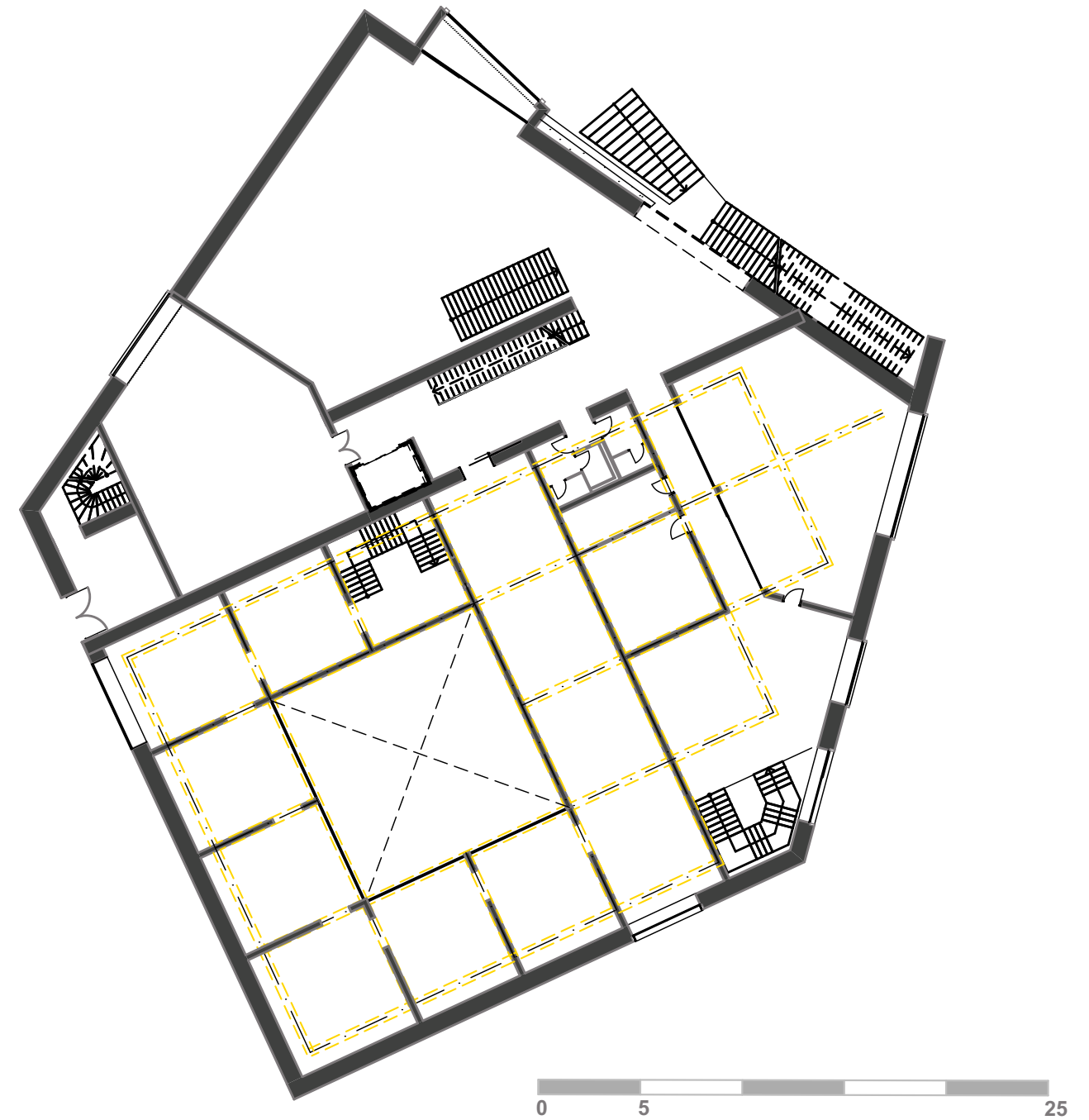
Once inside the museum the carefully positioned window guides the visitor, who reaches the next part always over the core. The way through the museum is easy to find, with the core as the central point. Each distinct exhibition space is internally connected by a staircase. After each exhibition the visitor then has to enter the core to enter the next part. The internal staircase gives the opportunity to skip entire, already visited sections of the museum. The space can also be cut off entirely while a new temporary exhibition is set up.



First Floor



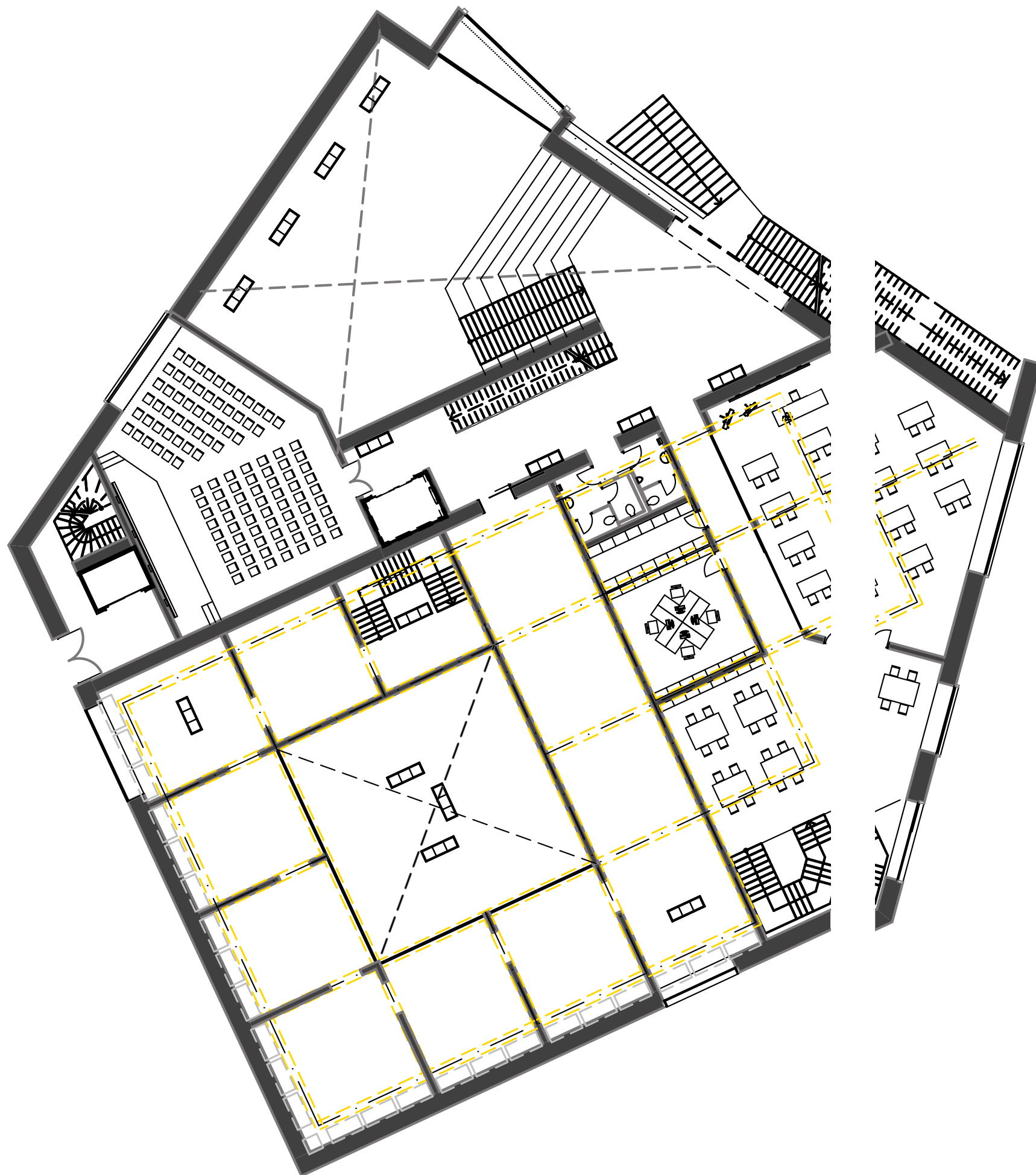
Axo: First Floor with Auditorium, Workshop, Exhibition 1b, Delivery Entrance



Each of the functions are always connected to the core which organises the space and becomes a transition space throughout the whole building.

The auditorium is located on the left end of the core. The whole core is open and can be used to welcome guests or socialise after a presentation. The room slowly pours into the entrance hall.

On the left the delivery entrance is located. From there food can directly be brought into the restaurant. Art pieces or deliveries for the cafe can be brought to the next floor and discreetly delivered to the right floor.



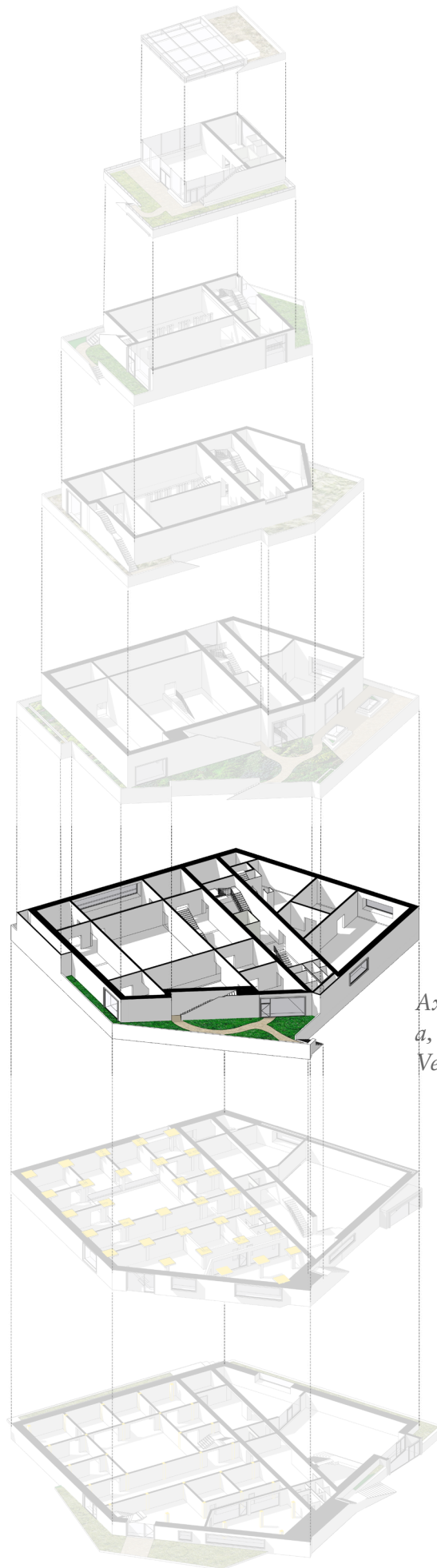
First Floor

The second part of the exhibition space follows a similar concept as the first, light guides the visitor through the different spaces. Through the double height space there is also a connection towards the ground floor. This resembles a view up of down the mountain, where you see the people that are further on the hike: you see where you will be, but you do not see the direct connection.

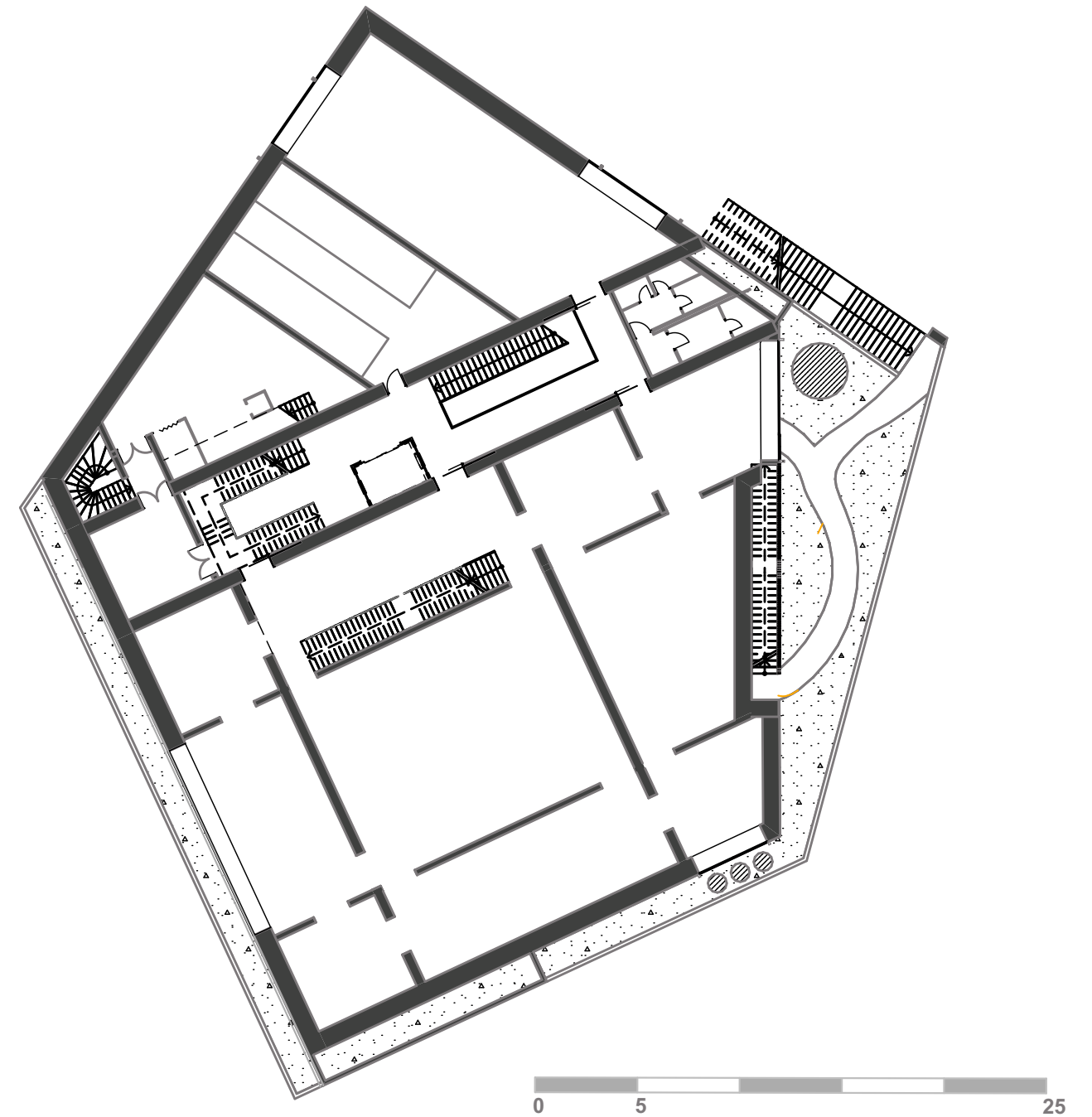
The second floor of the workshop has a direct connection to the core. If the space is rented out, the internal staircase is used to travel through the space.



Second Floor

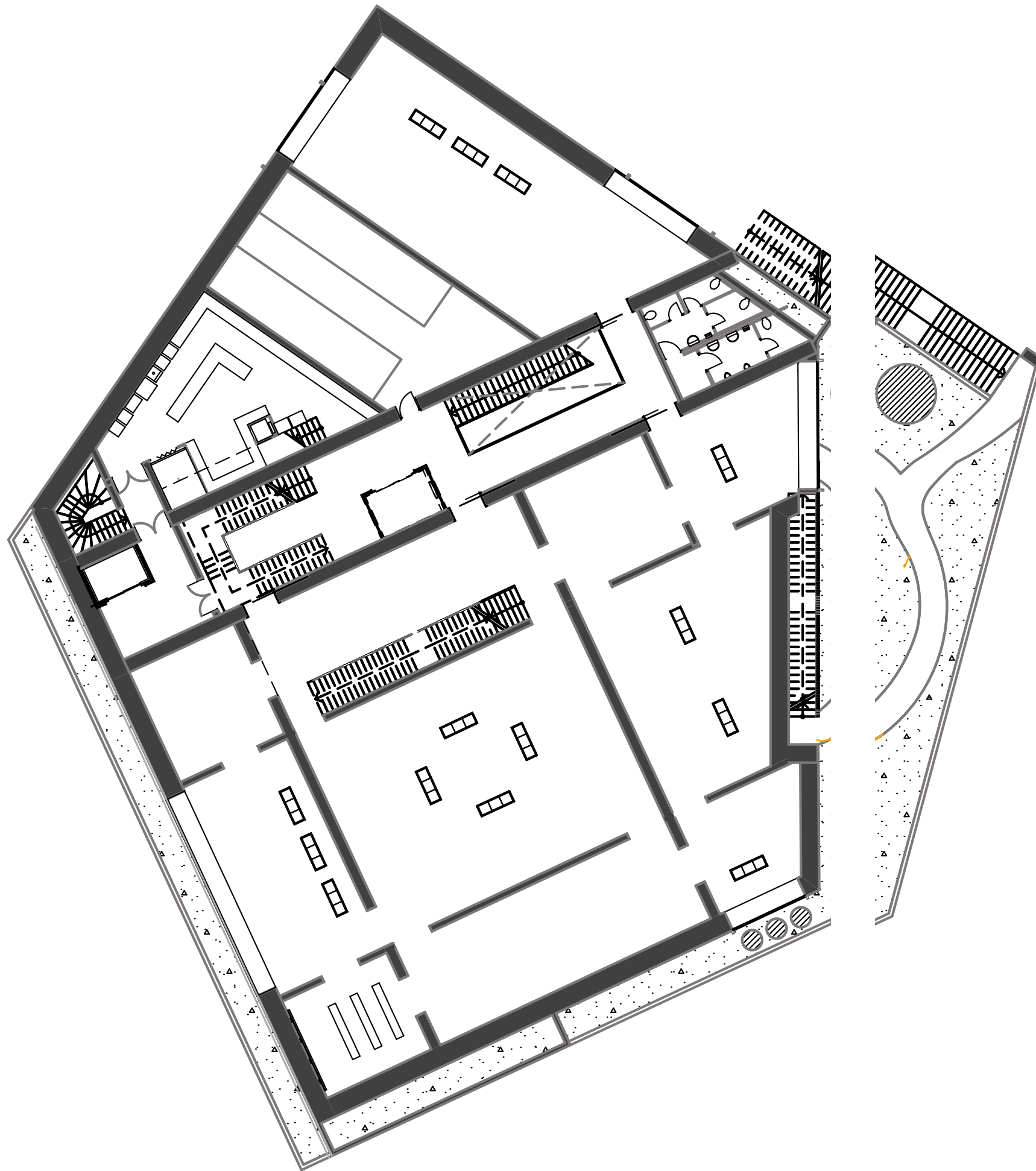


*Axo: Second Floor with Kitchen
a, Workshop, Exhibition 2a,
Ventilation Room*



The main staircase from the second to the third floor is located in the core. The museum visitors exit the first exhibition space then, ascends through the core into the next. The strong brick texture of the core and the clean exhibition spaces create an emphasise on the different spatial experiences my museums offers.

The second exhibition, in contrast to the first, is kept open and free. The visitors have to find their own way through the different spaces. They can even cross over to the fourth exhibition and follow it up on the facade. This difference in the exhibition structure can again be explained with the mountain idea. When hiking



Second Floor

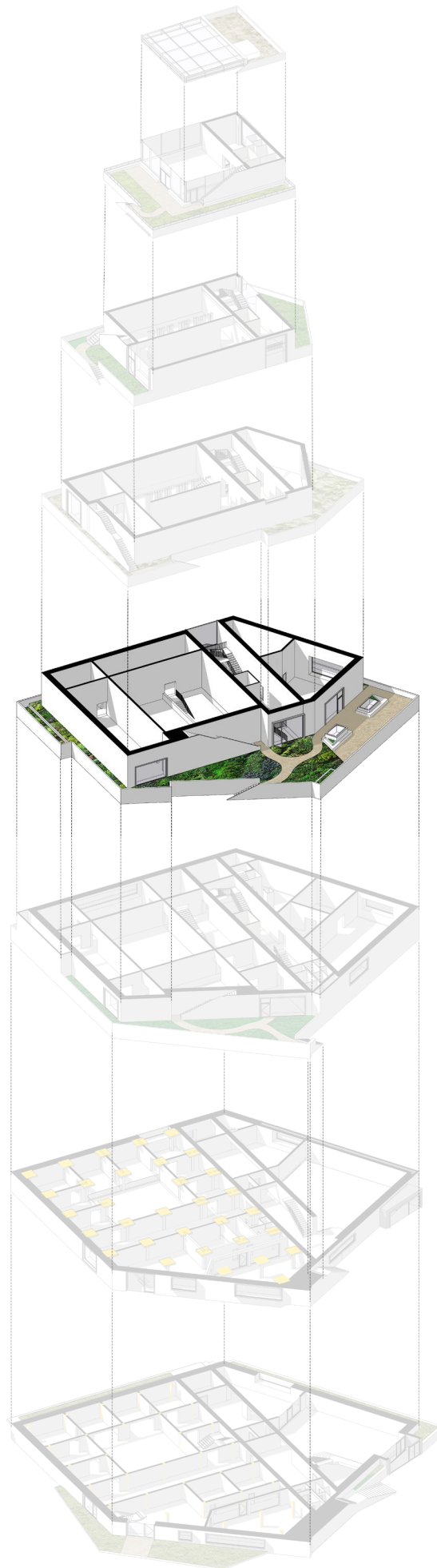
a path, it often does not lead where it is expected or sometimes leads back to a familiar one. To view all the different art pieces a visitor sometimes has to cross a room multiple times to see different art pieces from different angles.

Hidden from the visitors is the ventilation room where two separate units are stored – one in use and one as a backup.

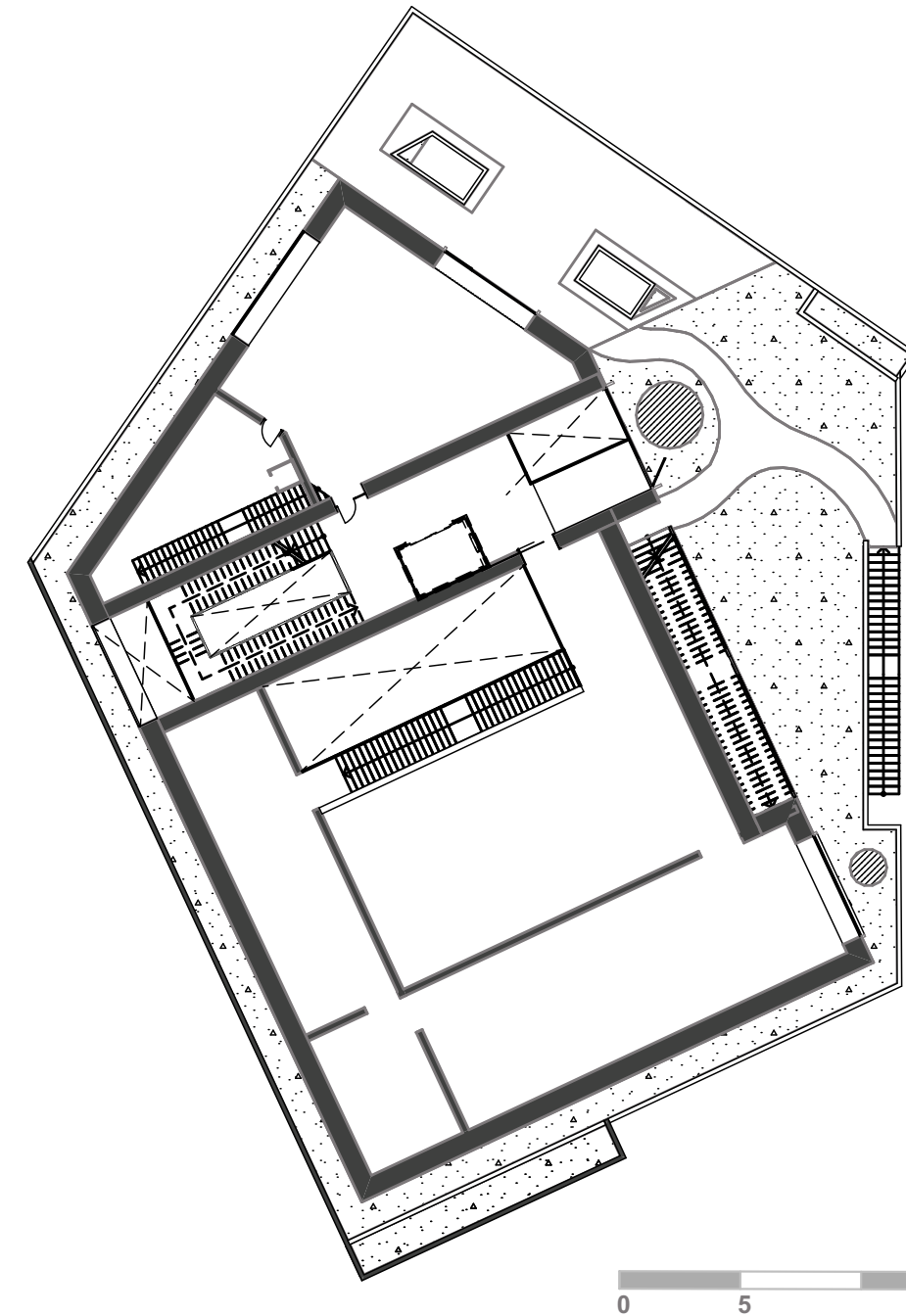
In the upper left corner the kitchen is directly connected to the delivery core and thus hidden from sight.



Third Floor



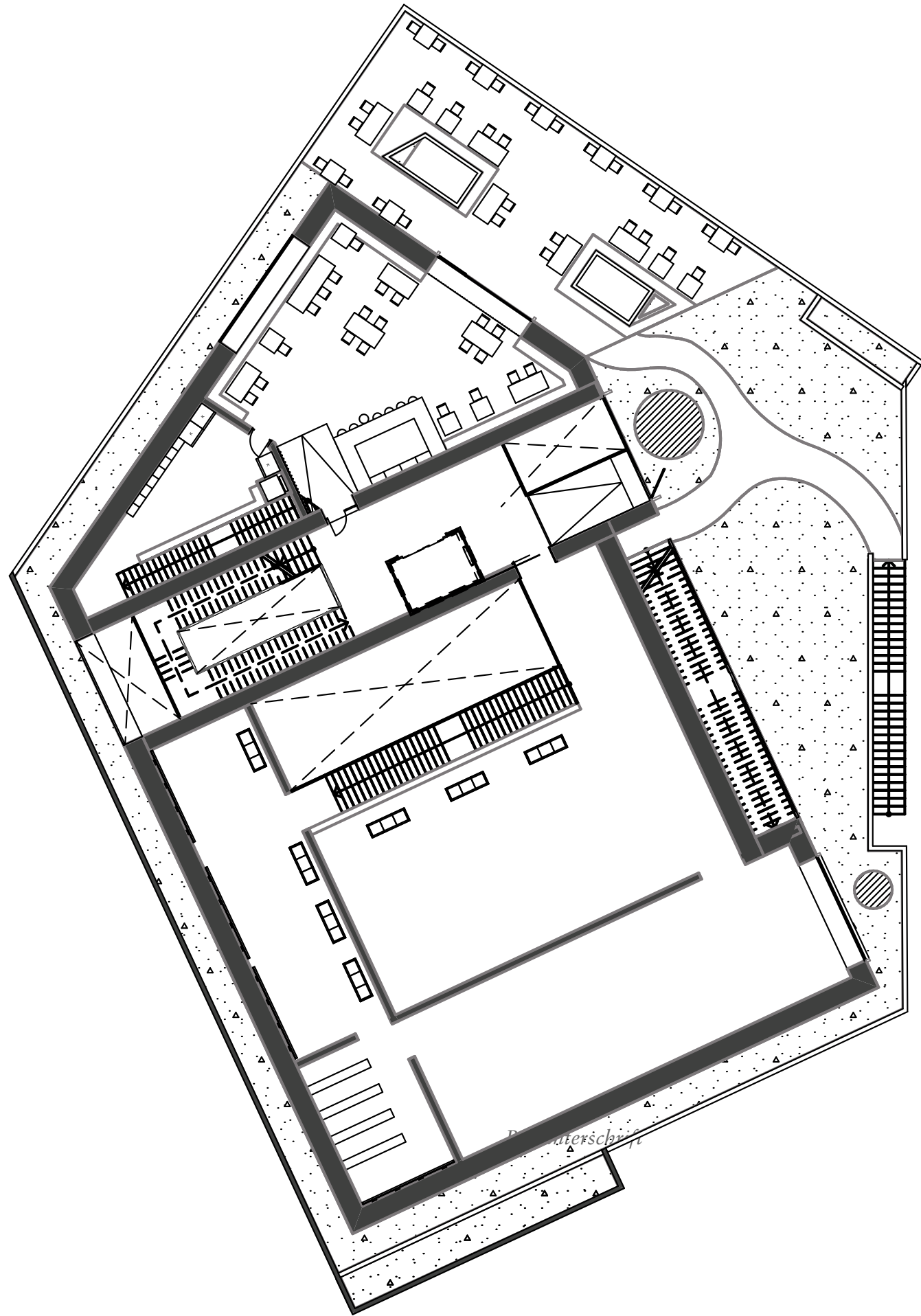
*Axo: Third Floor with
Restaurant, Kitchen b,
Exhibition 2b*



On the third floor the restaurant is located. From the kitchen below the internal staircase connects to the second part of the kitchen. For easier access there is a food elevator to send the food up to the next floor. The main seating of the restaurant is outside. Big skylights for the space below are an essential part of the seating. The outdoor area of the restaurant is clearly

separated by the landscape architecture. Some of the outdoor exhibition spaces are visible from the restaurant space.

Coming up the internal staircase from the exhibition below, puts the visitor in a unique position. On the right he still can look in the big double height space. This is the highest wall



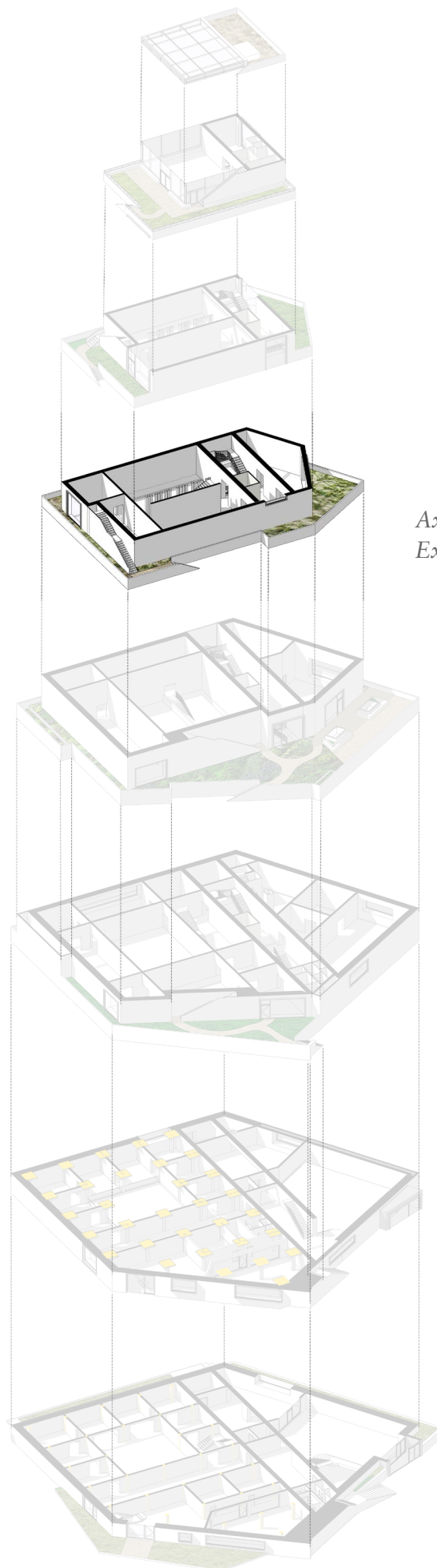
Third Floor

in the museum. A large painting can be viewed from multiple angles while slowly climbing up the staircase. Once the top is reached, the view towards the right is no longer blocked by a wall. The visitor again can take a peak at what lies in front of him, but he cannot enter the space just

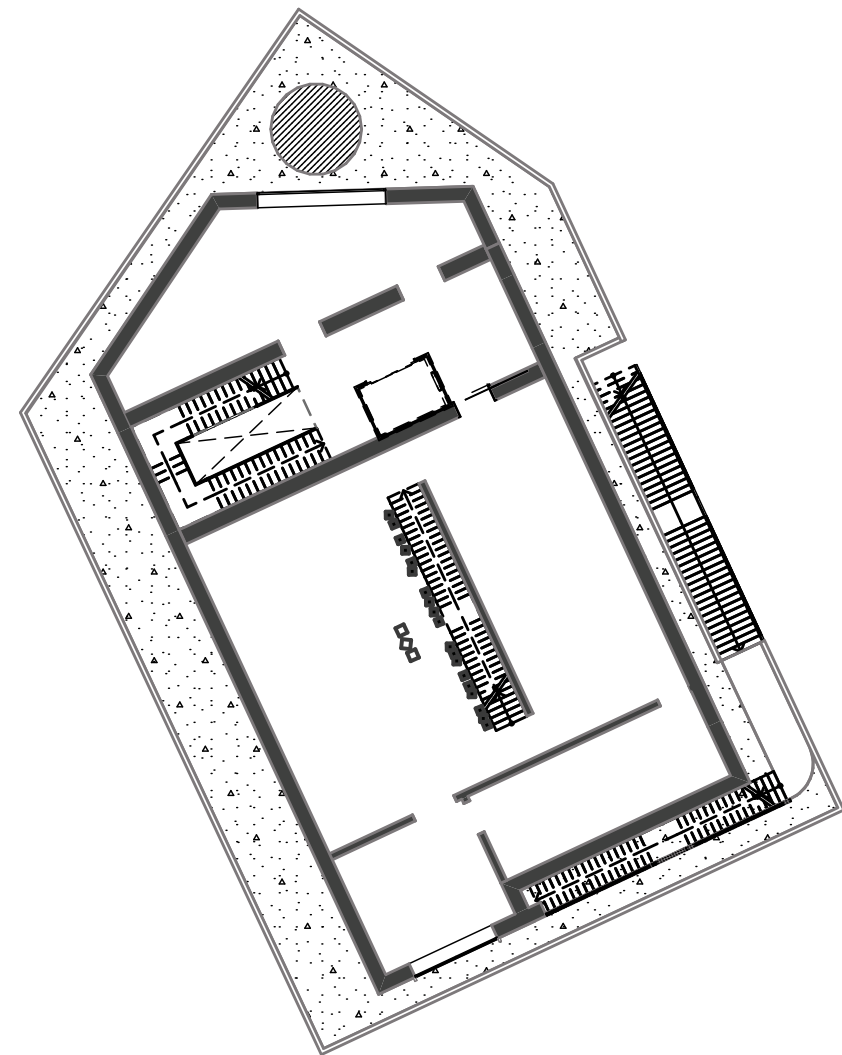
yet. After this multiple rooms with different proportions, follows the final and spacious room before they entered. The double height space and this room merge together since the separation is only 90 cm high.



Fourth Floor

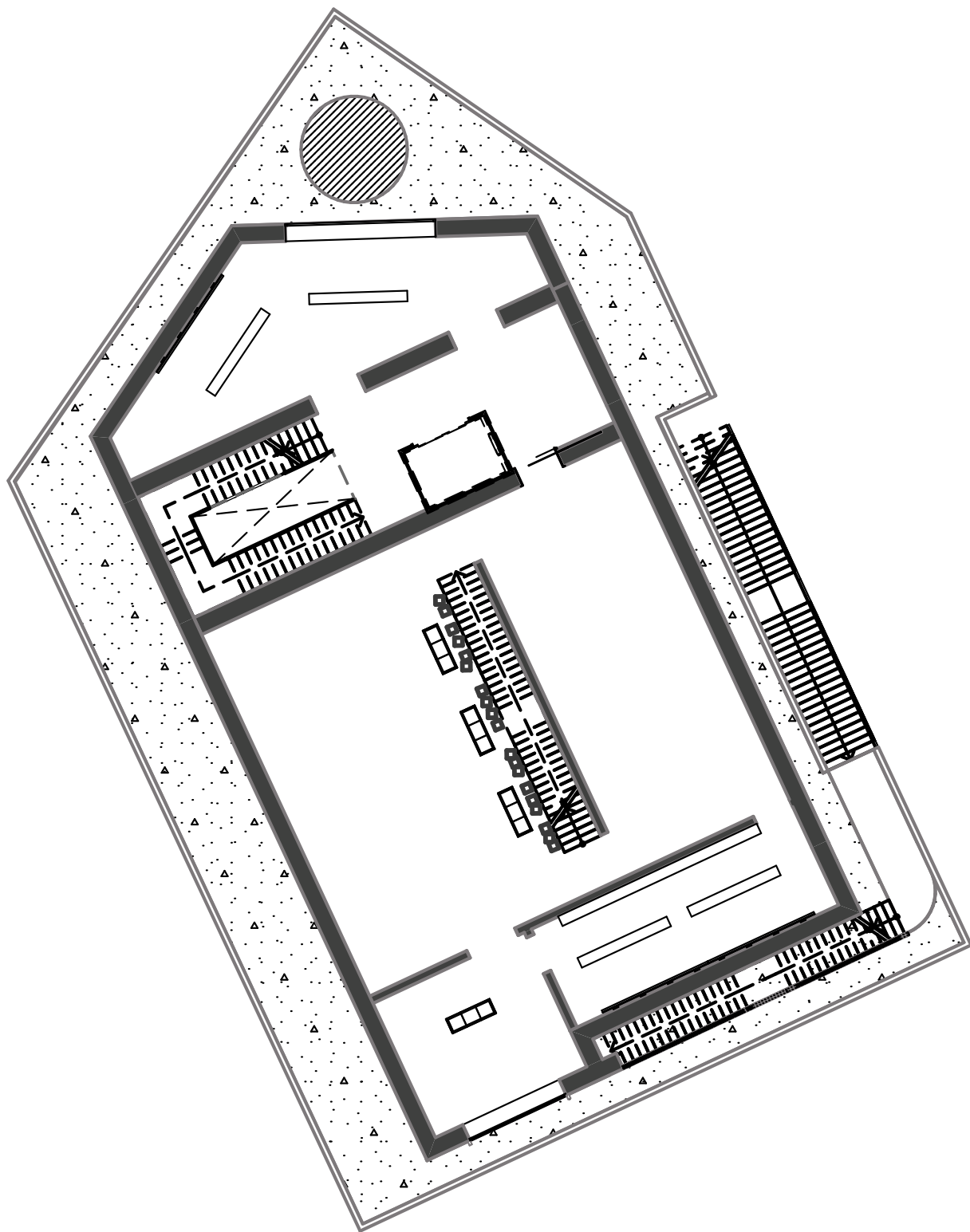


*Axo: Fourth Floor with
Exhibition 3a*



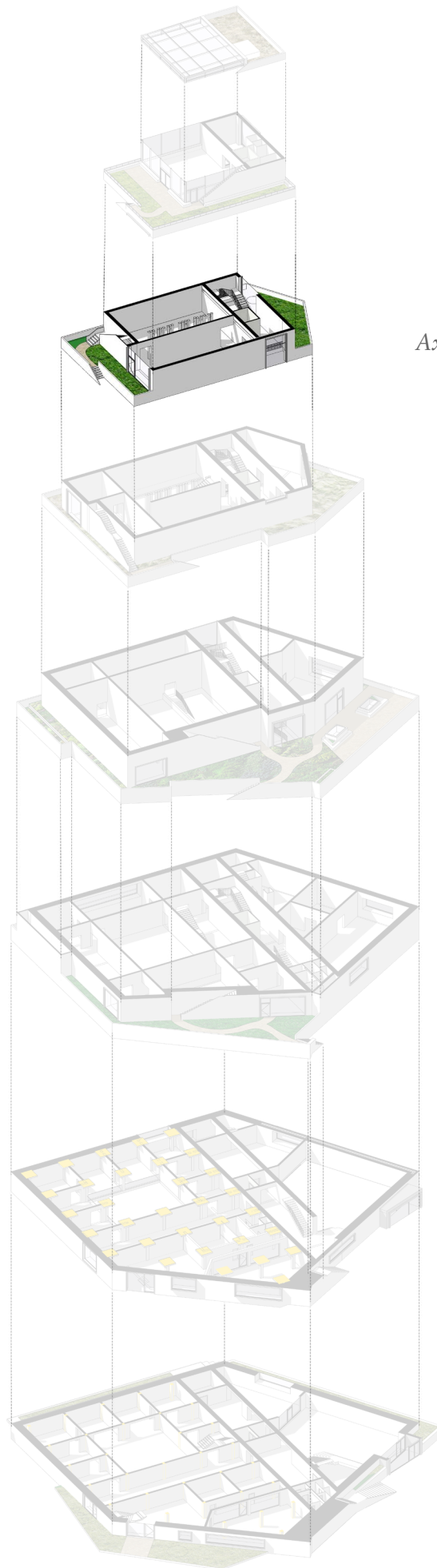
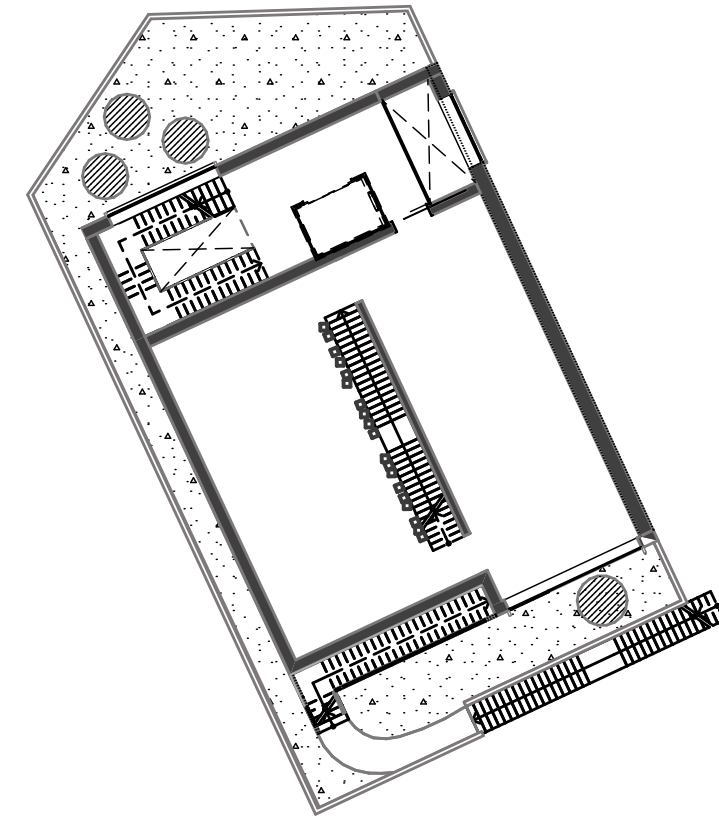
The fourth floor is entirely used by the museum. The visitor has the choice to enter on either side of the core for two different exhibition spaces. The one on the left embraces the connection to the nature with a huge window and a sculpture that is located on the outside. Over time this will be overgrown and create an even more unique space.

The first part of the third exhibition space contains three rooms, these are connected and can be viewed the way the visitors prefer. A unique feature in this space are the columns of the partly demolished Molenport, that freely arranged to one side of the staircase. While ascending the spaces in between, give peaks at the already visited art. They are also a reference to a forest that has to be crossed to finally reach the mountain peak.



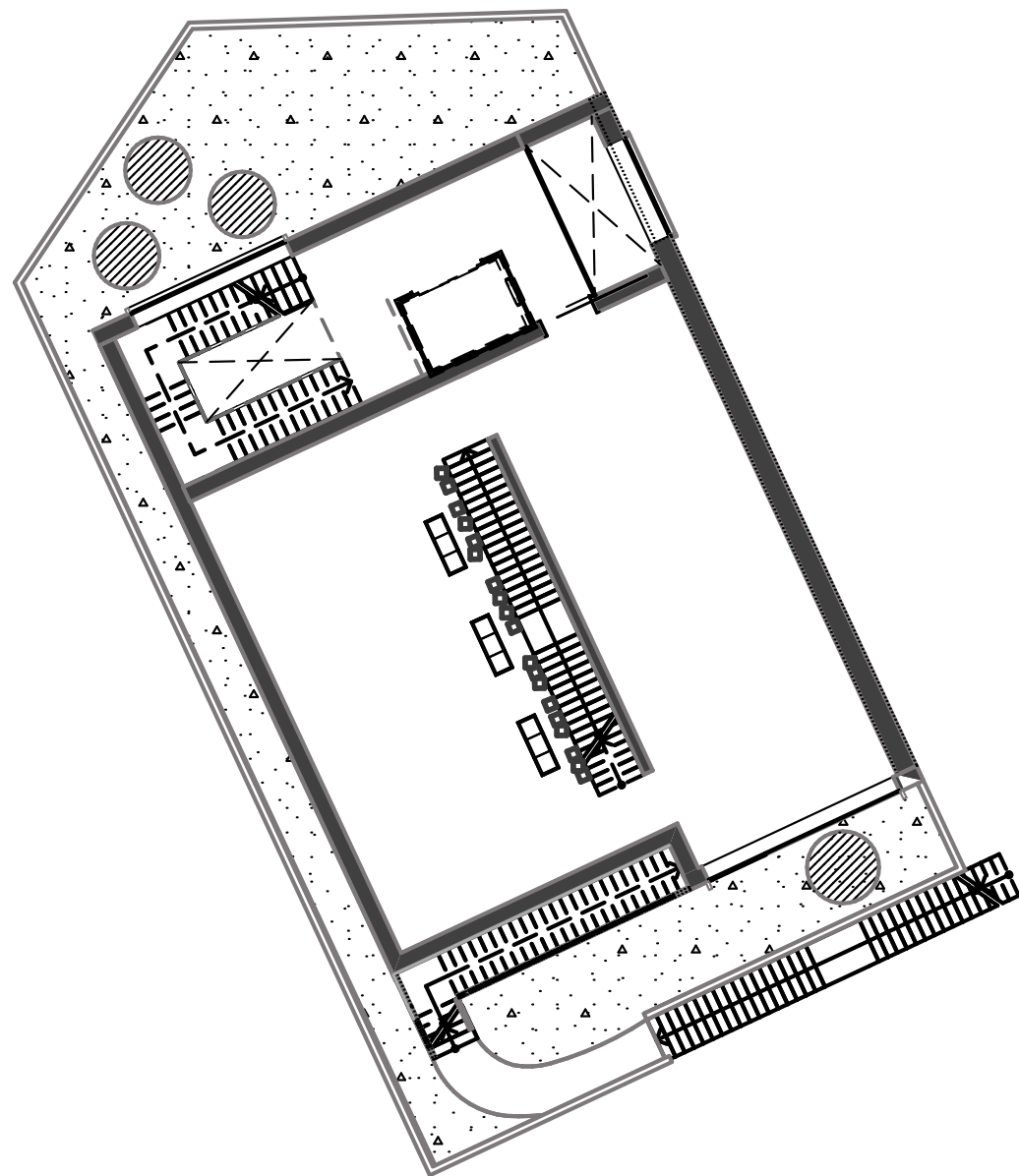
Fourth Floor

Fifth Floor

*Axo: Fifth Floor with Exhibition 3b*

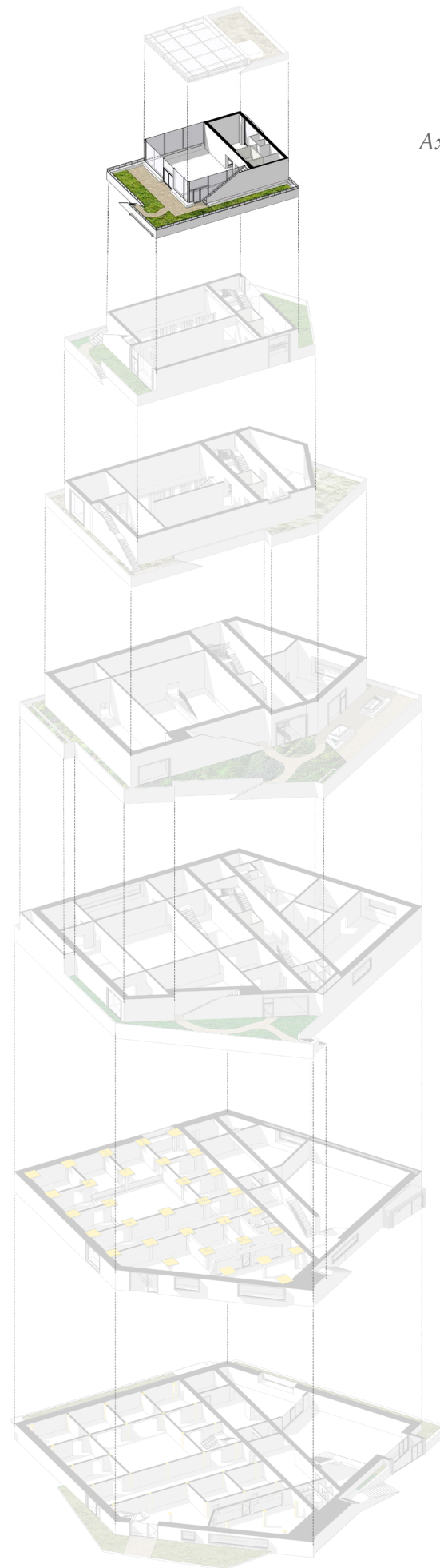
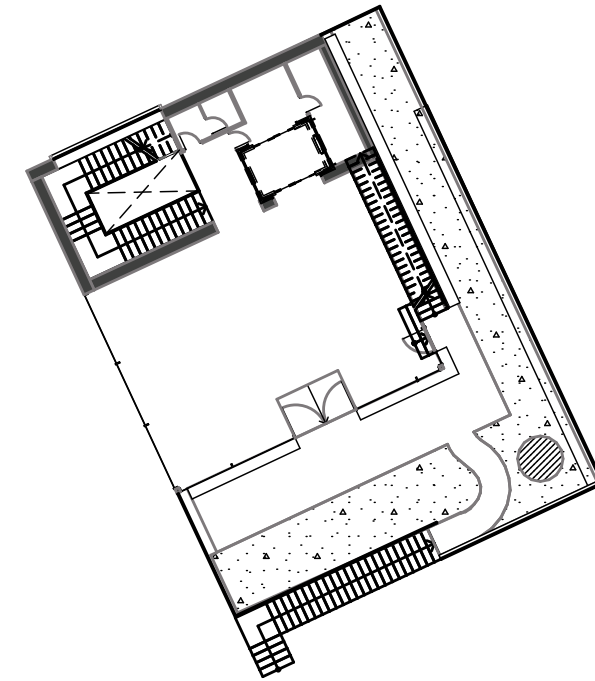
The fifth floor is the last exhibition space in my museum. The two open rooms create a calm atmosphere. The big open window inside the exhibition space as well as the one in the core, give spacious view onto Nijmegen and the Art on the platforms.





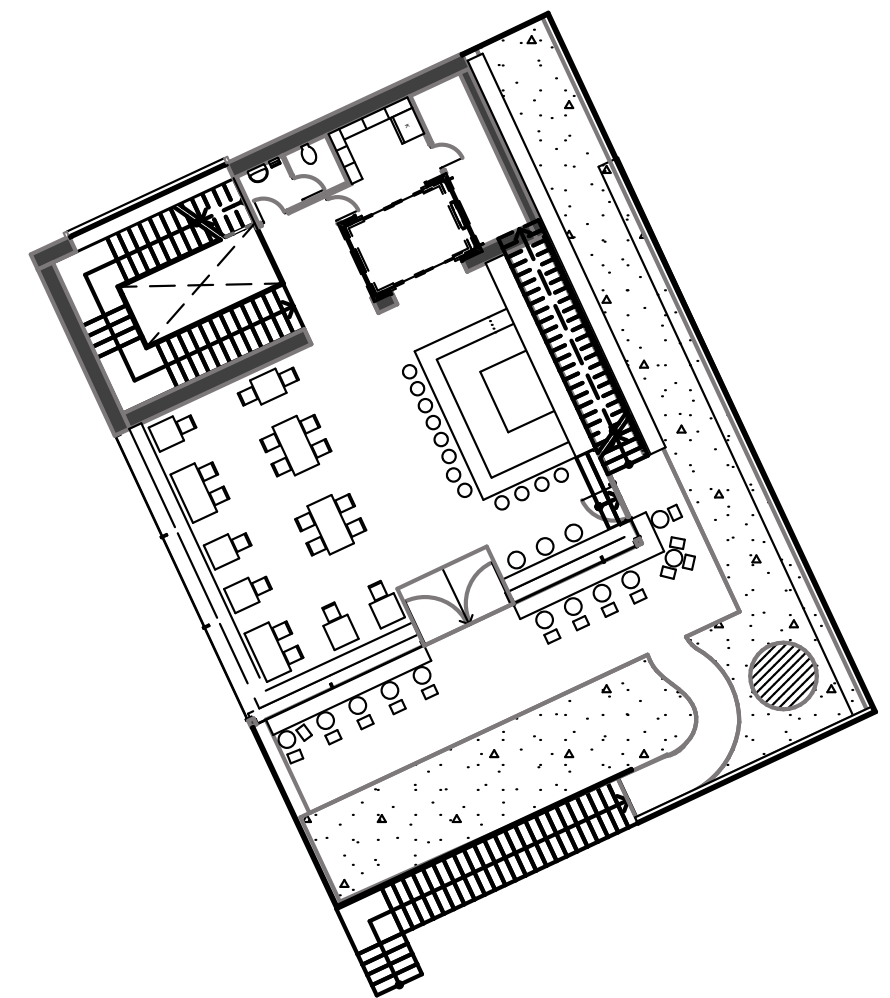
Fifth Floor

Sixth Floor

*Axo: Sixth Floor with Cafe*

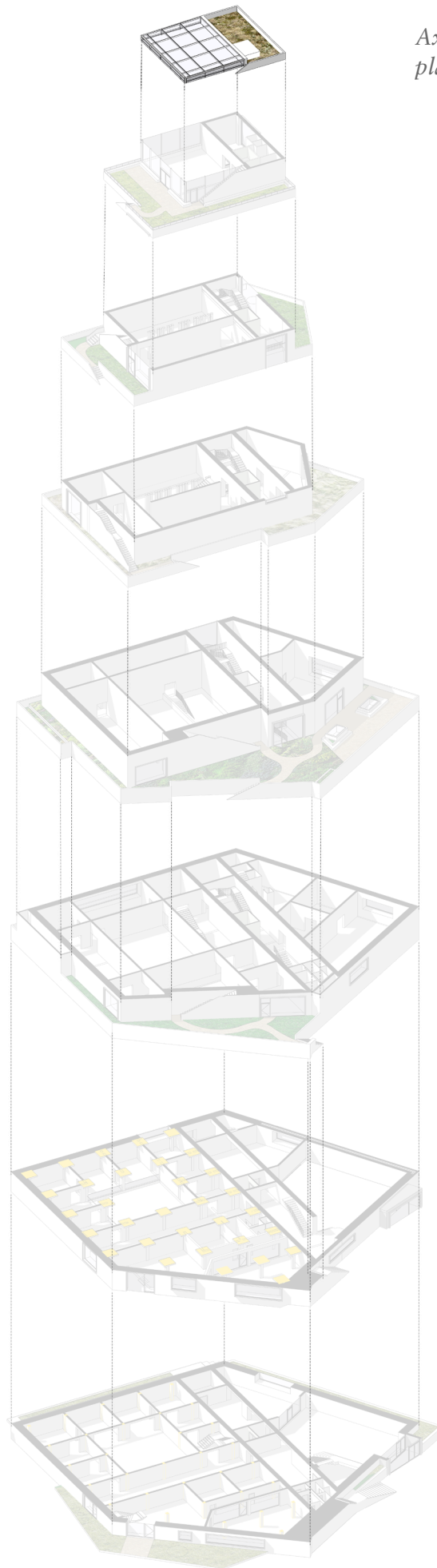
After symbolically reaching the mountain peak the café offers a moment to relax and enjoy the view over the city. The big curtain wall lets the visitor look outside and even see the sky above. The higher up you climb the mountain, the better the views and entering the cafe opens up the view entirely. To have an even better view you can take a seat on the outside and fully take in the city. Just like a real mountain, the museum over-towers the area and the view from up there is unobstructed.



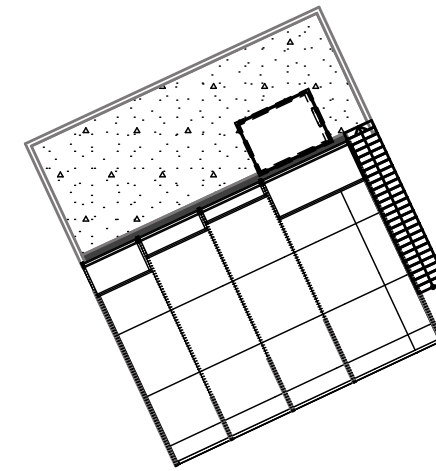


Sixth Floor

Seventh Floor

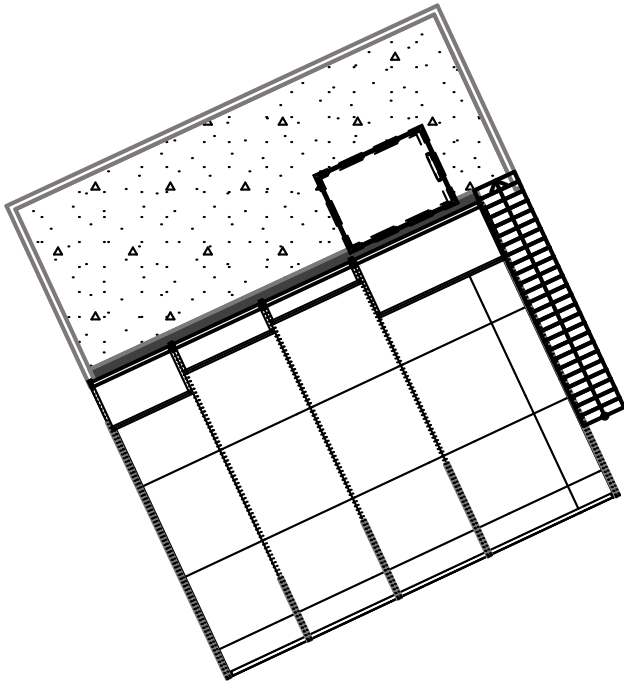


Axo: Seventh Floor with Panorama platform over the whole city

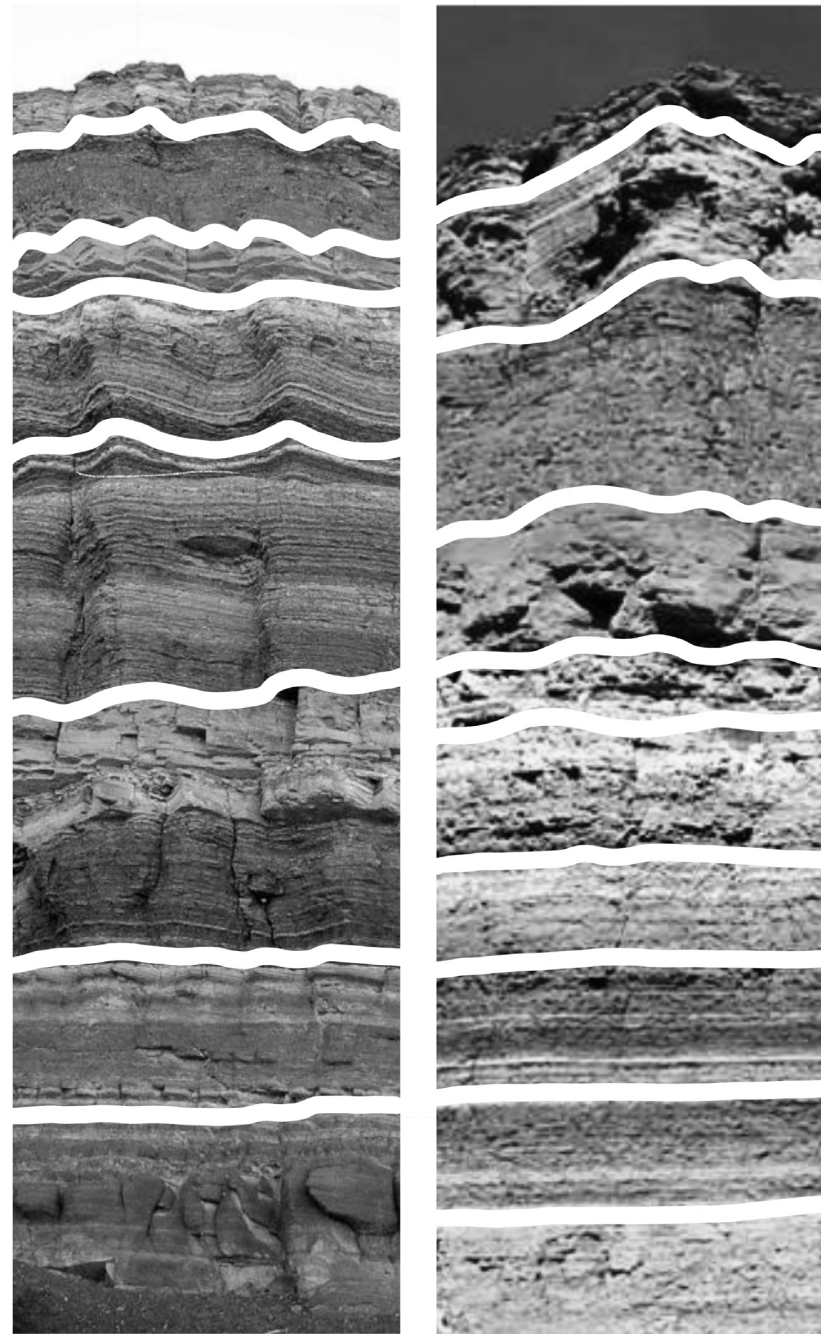
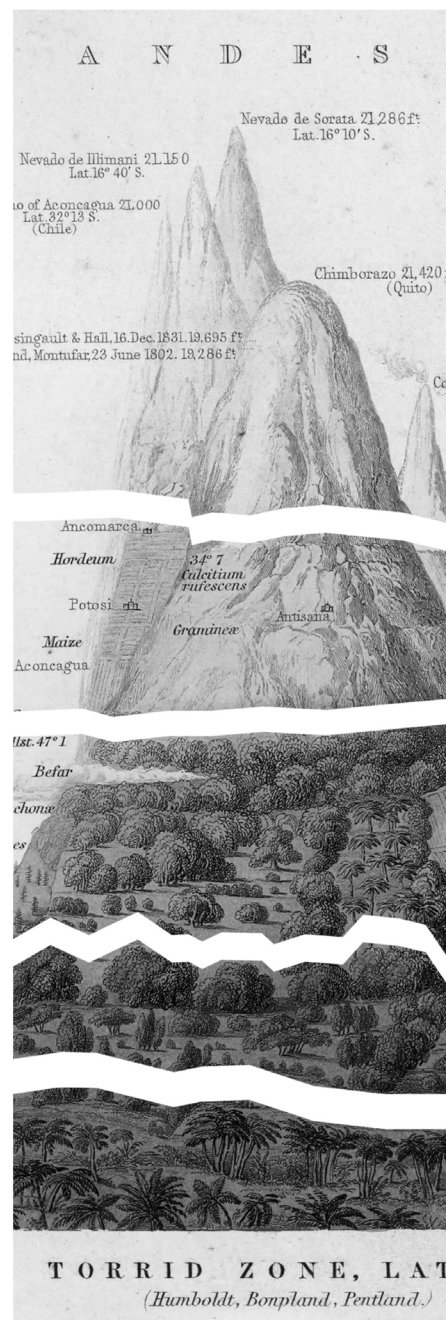


While the view is already open and very spacious from the café to have a full 360° panorama view the visitor can climb up the last staircase and take in Nijmegen and the river Waal. The view is entirely unobstructed and the visitor has at last reached the peak of the mountain.

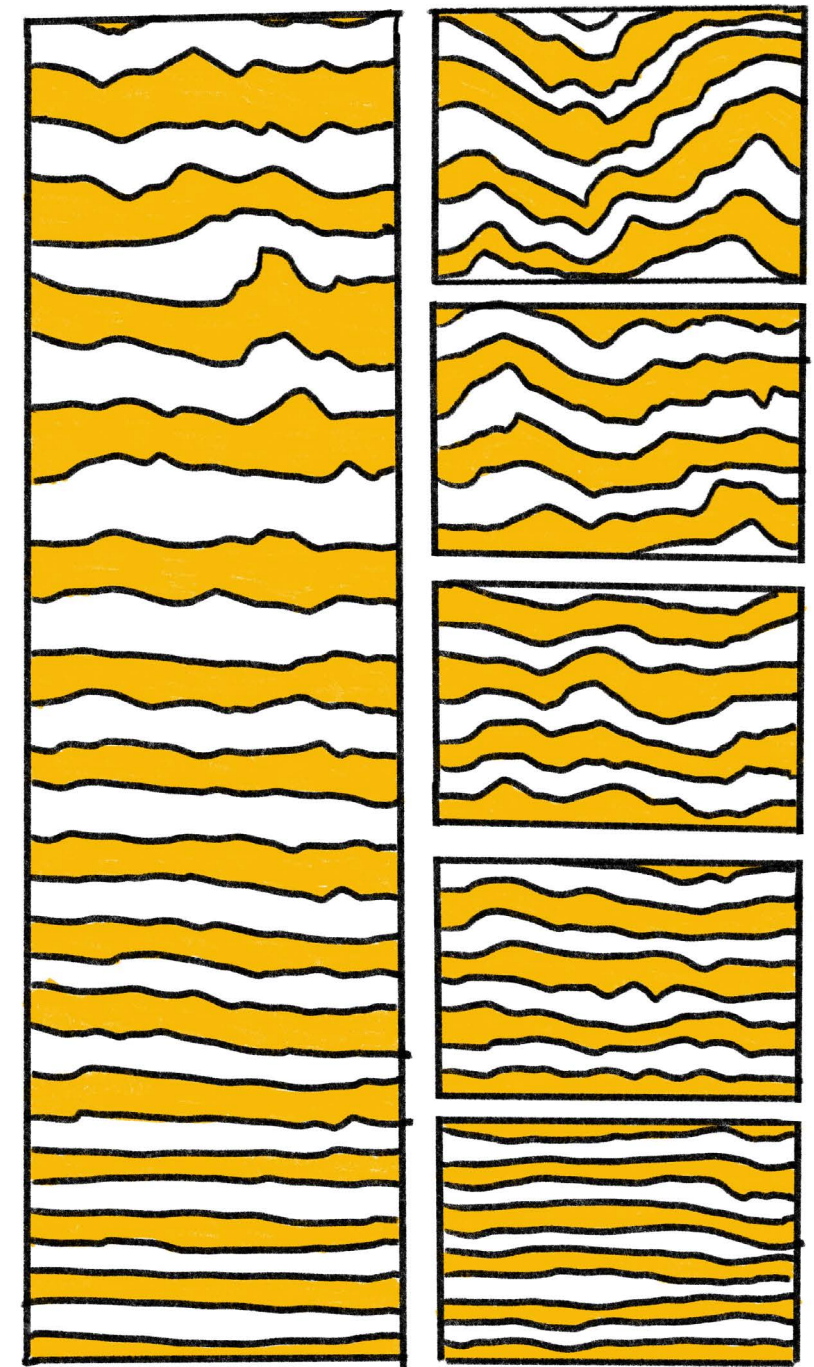




Seventh Floor



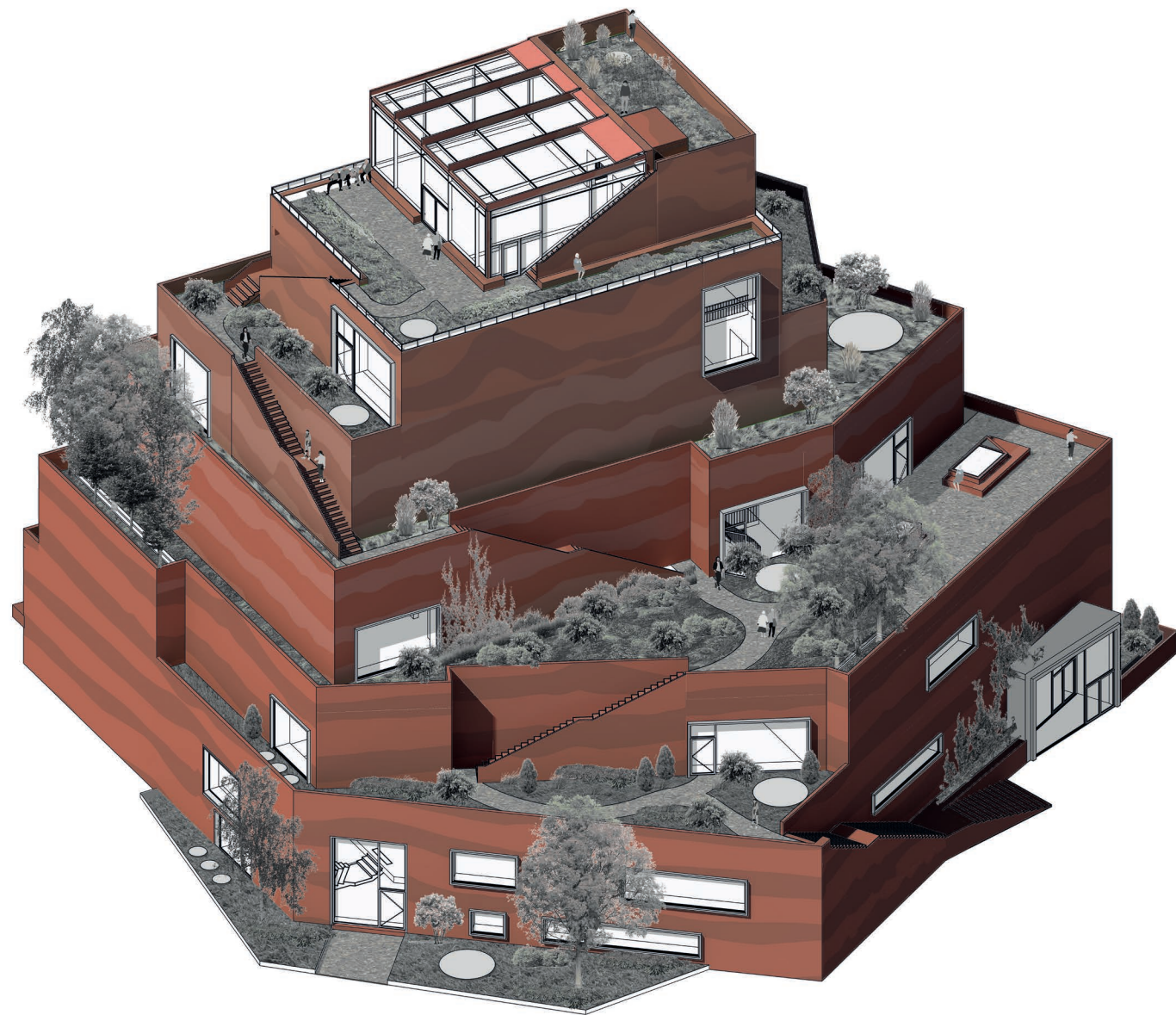
Mountain layers emphasized, Images retrieved from google images



Facade concept

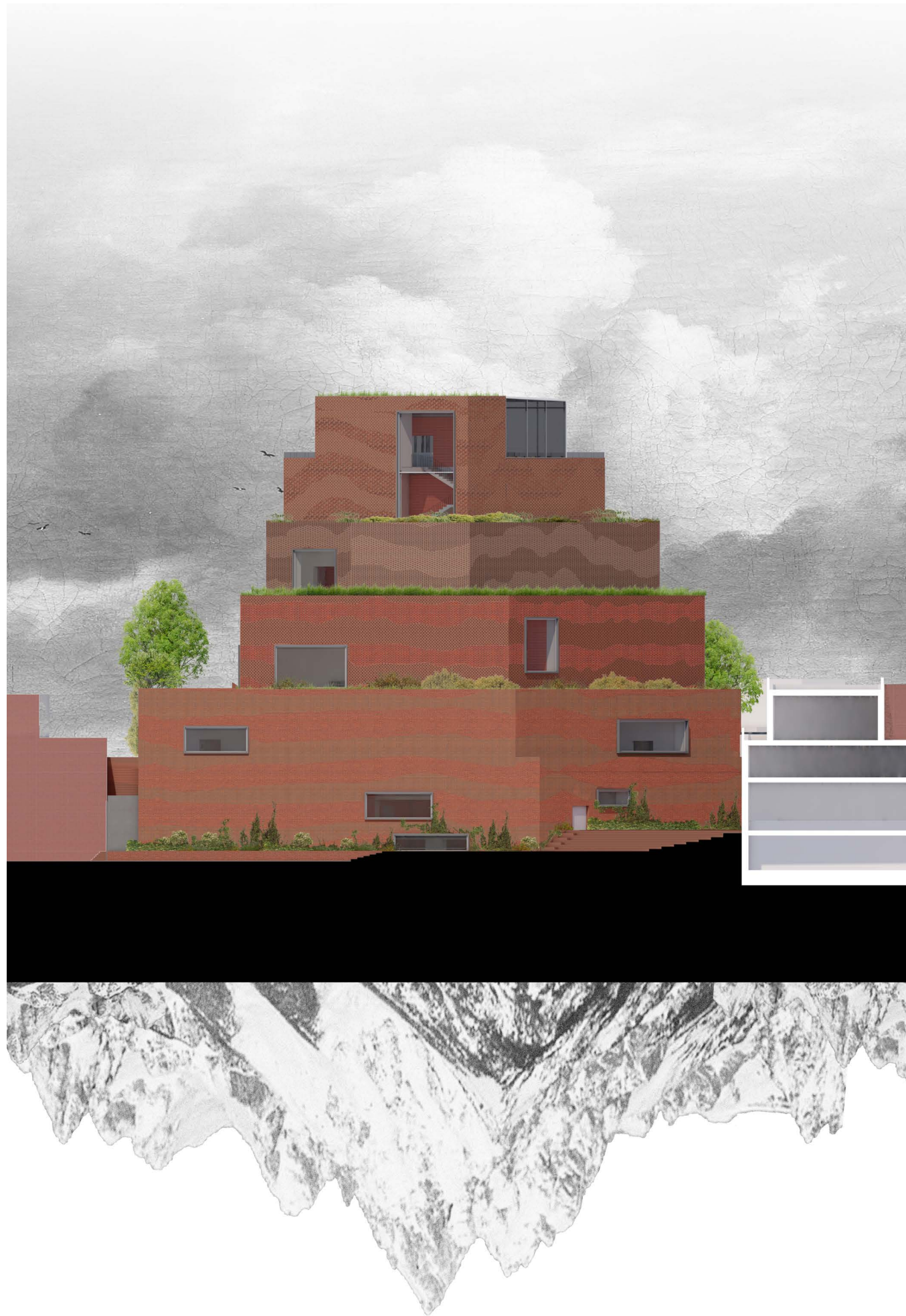
For the facade I used the metaphor of the mountain again. A mountain is created through the different sediment layers. The higher they are pushed up, they become more and more rigid. The first floors still have very similar and parallel lines, while the other lines are wild and

the ones of the highest floor resemble a mountain again. The rigidity of the lines is enhanced through the use of different textures. On the higher floors there are bigger openings and more depth in the facade than on the lower floors, where the facade is still very smooth.



Axometric view on mountain from NNE

**Facade concept –
applied to the Volume**



Facade concept –
applied to the Volume

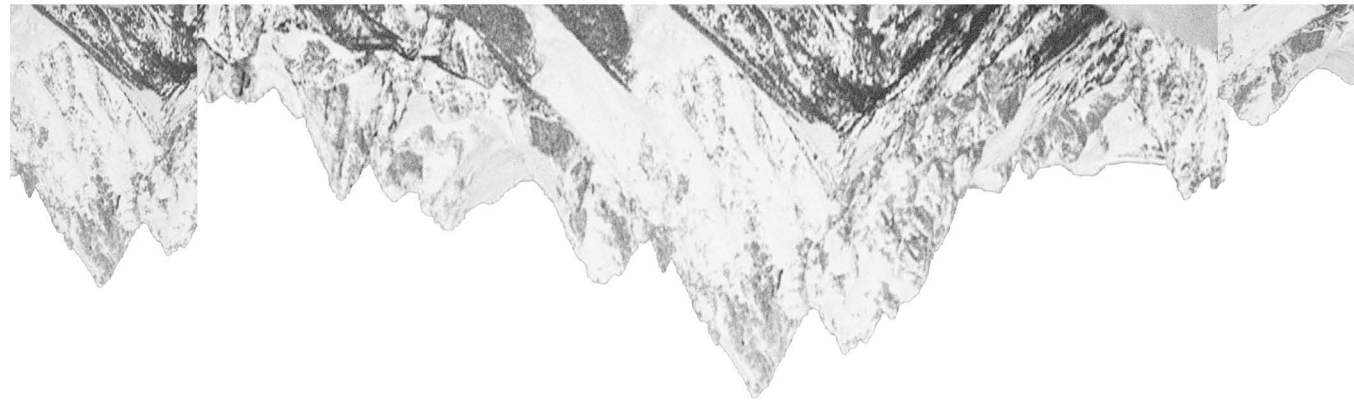


Elevation 1:200, from NNS, section through split backyard

**Facade concept –
applied to the Volume**



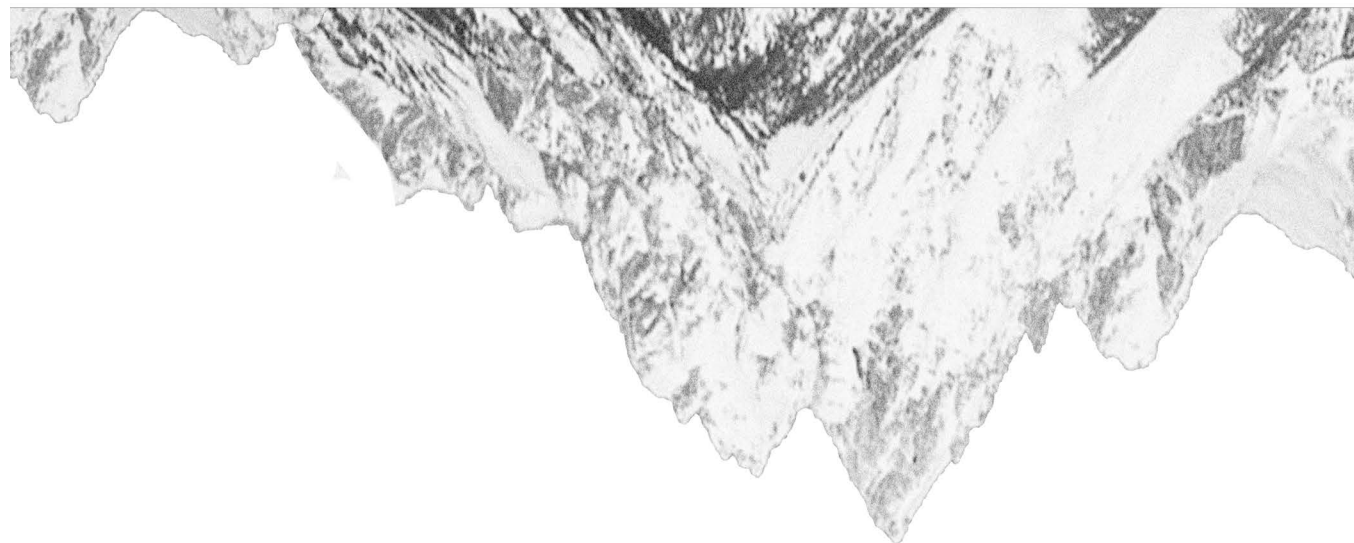
Facade concept –
applied to the Volume



*Elevation 1:200, from NNS, section through split
backyard*



Facade concept –
applied to the Volume

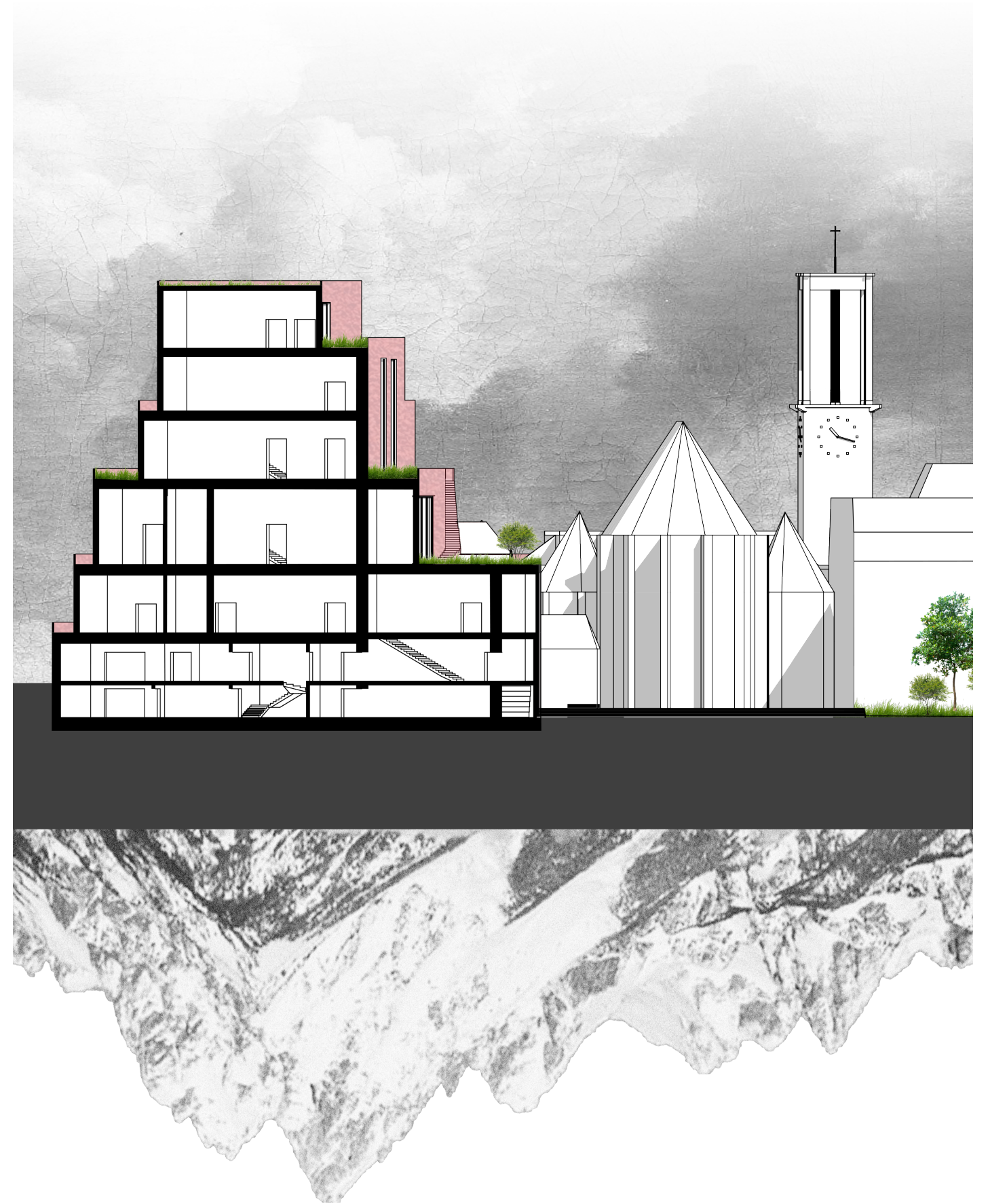


*Elevation 1:200, from SW, section through the double
height spaces inside the museum. Floor four + five show
the reused Molenpoort structure*





Urban section through the whole site; NNW towards church





Axometric view on mountain from NNE

Mountain – Architectural expression with platforms



Skylights for museum –
urban Furniture for Visitors



Start of the Hike – Path through the Valley

Your weekend started the same way it always does. Saturday you slept in and had a big cup of coffee and enjoyed the quiet. You look out of the window, contemplating the week, it was tiring and long. But today you feel good, the sun is out, the day will be spent with your friends. You spend the evening with them cooking and laughing.

The next morning the timer rings, for a second you regret your choice to wake up early on a Sunday. But today you need to wake up earlier. The sun is leaving strips of warmth in the room. It is almost like they are grabbing you to pull you out of your room. You get dressed, drink your coffee and leave without breakfast. You will drink and eat when you are a bit higher up the

mountain. The air outside feels nice, not cold but refreshing. Your mood rises. It takes not long for you to reach your goal, the mountain rises before you, towering over the area. You look up and the sun is making you squint a bit. There are other hikers, they also traded a bit of sleep for the quiet and solitude of an early mountain hike. They are all in groups, laughing in the distance as they start their hike. You choose to come alone this time, usually, you have a friend with you. But today it is about the quiet of the mountain, bringing a bit of distance between you and the busy and lively work week. You breathe in and look up the mountain, envision your goal, the peak that glows in the sun. And then you start your hike with a smile on your face, anticipating the ascend.



View towards the staircase that leads to the 4th exhibition space

This part of the mountain is the most precious to you, each part is special, but this tiny and short space with its crooked trees and almost invisible path always has a special place in your heart. The crooked trees lean over the path and each time you can choose where you will go this time. Sometimes a special view leads you from spot to spot. You admire each view, they change every time you come here. It's exciting each time, the trees seem almost protective of these views sometimes, you first need to cross through the line of trees to get the full and genuine impression. But the trees also frame a certain view and each time you pass the trees it is a new experience. This small part of your hike changes your special feeling. you come from a high reaching place into this protected coven of trees. Sometimes when you leave it and space opens up in front of you, you stop for a second to take it all in.

You have almost reached to peak, your goal. From up here, you have a good view down the

whole mountain. Down there, tiny and teeming are other hikers. You stay here in your spot in the sun and enjoy the wind going through your hair. The sun is warming your skin. This is the calm moment before the final ascend that still lies before you. You can already see far into the land from here. Sometimes you trace your steps back where you came from, you see the path you took to the mountain. The path you will have to follow later this evening. But first, you turn towards the mountain again. The last few stony steps before you stand at the summit cross with the other successful hikers. You can hear people talking from above, they are talking in the view. Eating, drinking. You walk up the final steps, people smile and greet you as you walk towards a free space to sit. You are feeling the light but a bit chilly breeze up here. You drink and eat something small and your view is drifting into the distance. This space is not as quiet as your ascend was, but here it feels right to have the quiet scatter of the other hikers around you. The sun has already passed its highest point and is slowly pointing you towards the descend.



View from the restaurant towards the green platform

Relaxed and switch new strength after that deserved break you get up and start your descend. Sometimes the path crossed the one you took up, even following it for a while. Sometimes though you reach a completely new spot and the view is again keeping you there, keeping you enchanted and surprised. Was this there the last time you were here? It looks familiar but maybe you can just identify with the hidden wildness of the view, you admire it long. The other hikers doesn't seem to see the same exciting energy in it, they look at it but soon pass you and continue hiking down.

You continue your descend. At the green open hillside almost down you see a warm and inviting restaurant. Sometimes you eat there after a day of hiking and enjoying nature. Sitting in nature here is very different from the peak, there are more trees and it's a comforting busyness that surrounds you while you eat and enjoy the warmth of the sinking sun.

After that, you are on your way home, relaxed and sleepy. A full day out in the mountain. Just the thing you needed, a special day in your week.



Window sizes throughout the museums facade

Window concept

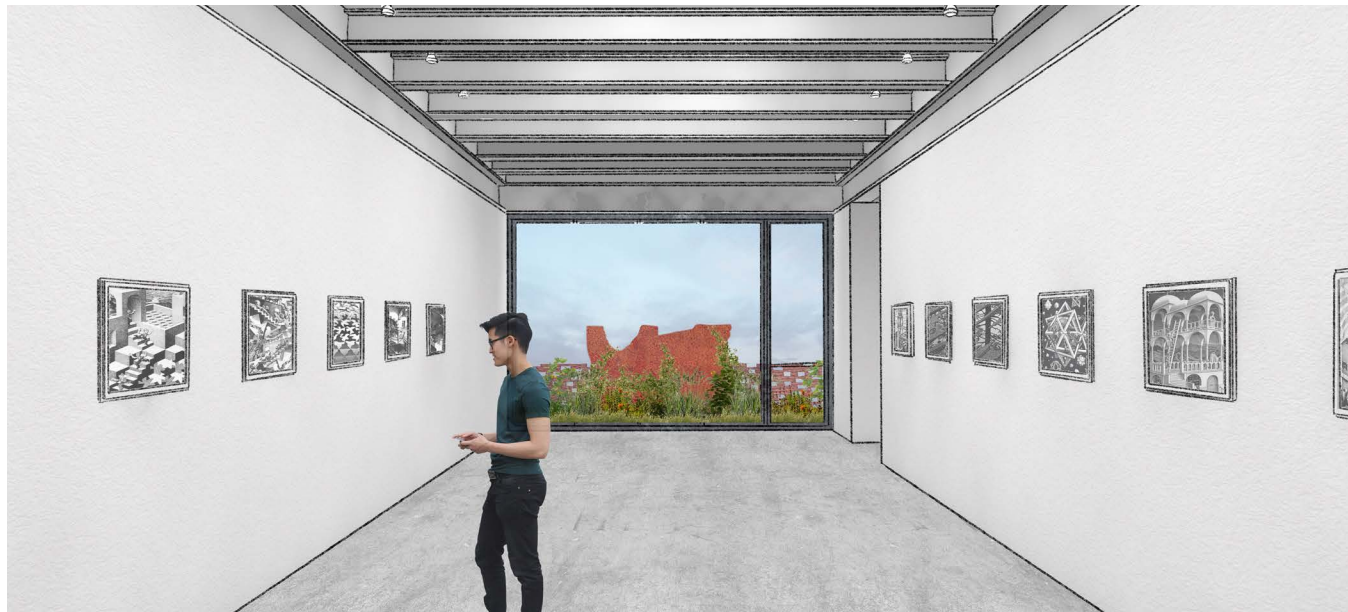
Windows, openings in general, are one of the most important parts of a building. They connect the interior to the city, create and structure a facade. They often reveal the typology of the building behind. In a museum they are often overlooked and the light and connection to the outside is often not given. In my project the windows create spots that become interacting spaces inside the museum. They create unique light situations that enhance the art portrayed, especially for statues. The form and size of the

windows is derived from the mountain idea. The higher you climb a mountain, the better the view. In the lower floors of my mountain the view is very limited and only gives glimpses of the city, like taking a peak at the surrounding through a forest. But if you go higher up the threshold between mountain (museum, inside), surrounding (Nijmegen, outside) disappears.



**Exhibition space 3b –
Changes over time**

*Museum space after opening,
art images retrieved from google
images, art by Una Ursprung*



*Museum space after 1 year,
art images retrieved from google
images, art by MC Escher*



*Museum space after opening,
art images retrieved from google
images, art by Hanne Kircher and
Monika Neusser*



View from the staircase in exhibition two down to the third floor, the double height space is almost

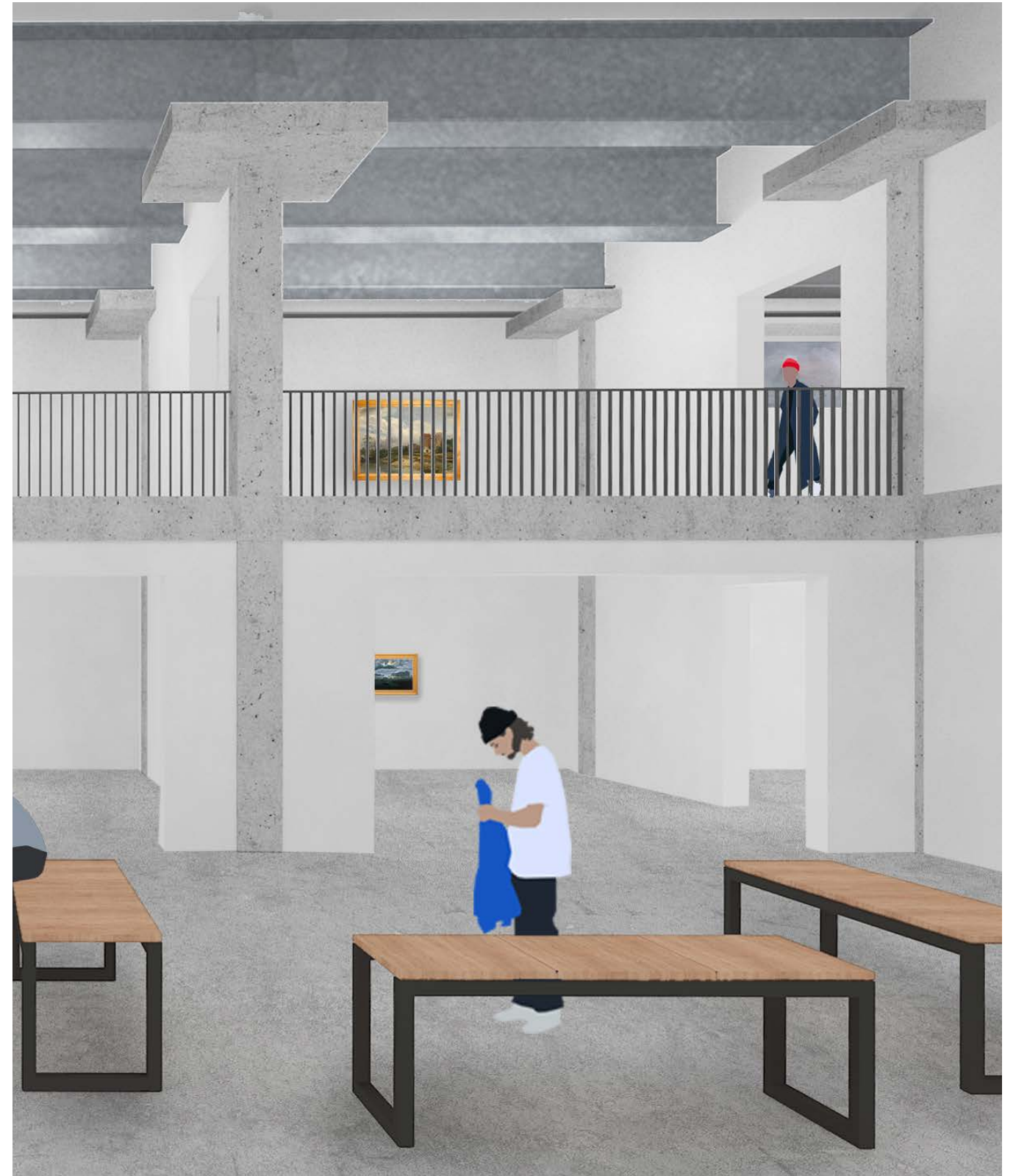
Exhibition space 2 – Interaction and interconnection of museum spaces

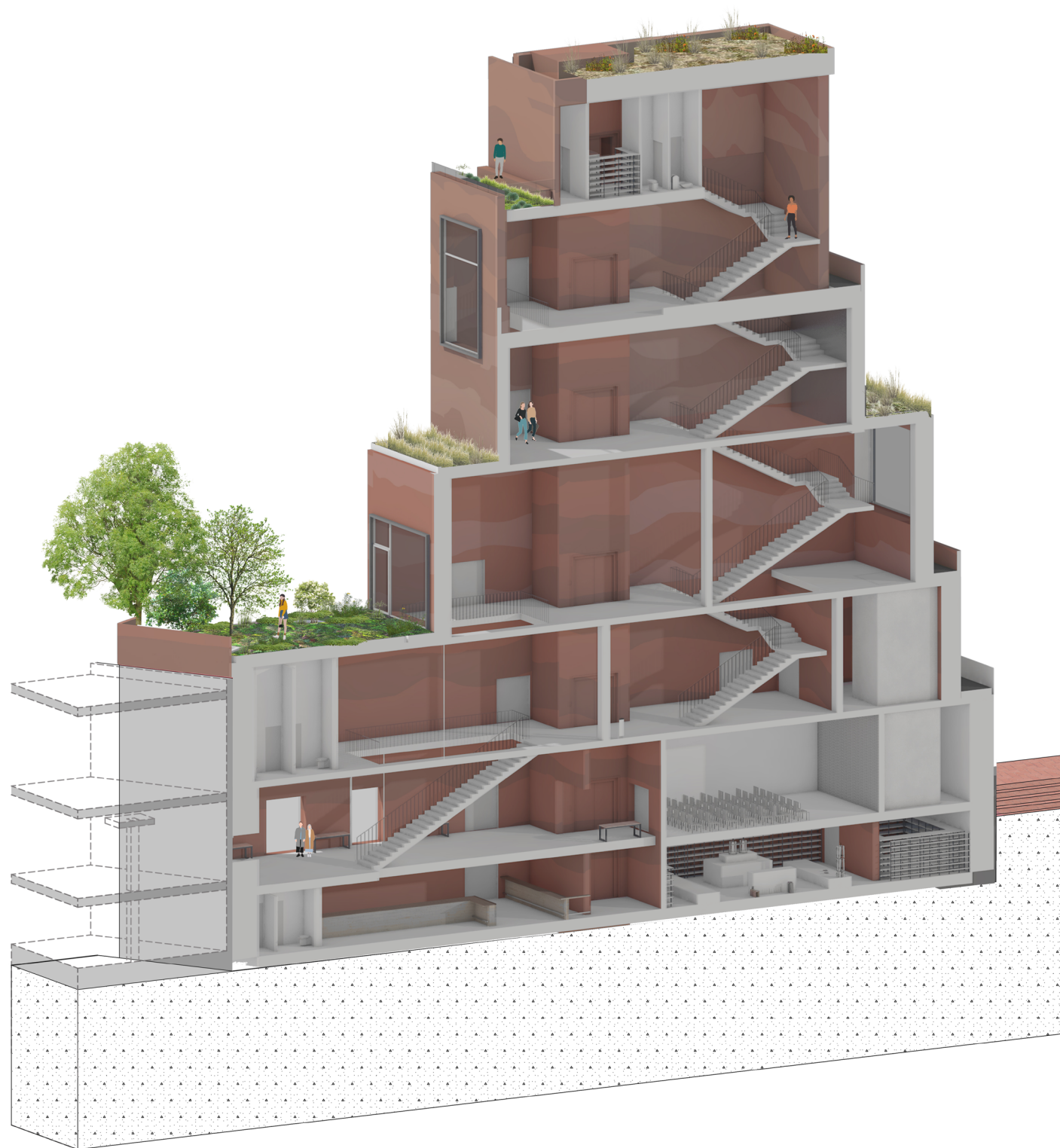




View from the double height space on the ground floor towards the NW

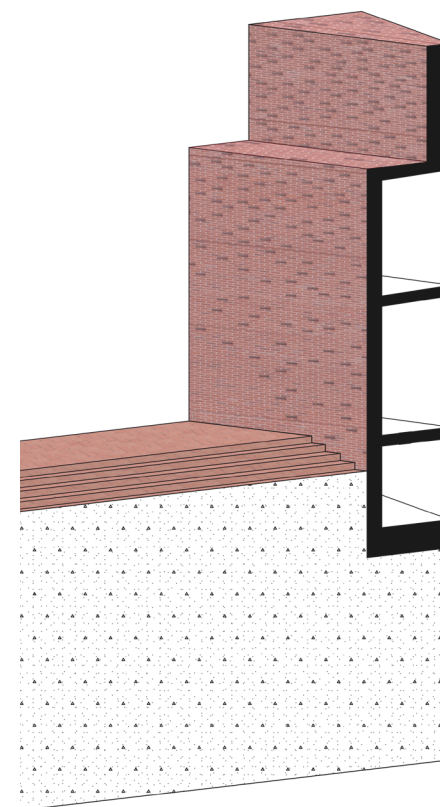
Exhibition space 1 – Museum within the existing structure





Axometric section showing the circulation core of the museum and part of the facades and surroundings

Core – Circulation space and spacial qualities



The circulation core is structuring the building, all functions always connect back to it. To cross from one exhibition space over to the next, the core with its very different visuals and strong brick texture, emphasizes the change in location.

The core, similar to the entrance hall and the platform, is a interaction space and thus all the rooms have the strong brick texture. The difference between outside and inside vanishes the higher up you climb the mountain.

The steel beams of the construction always span back to the core, which also stabilises the building. The core is an essential part for both, the structure and the organisation of the floor plans.



Perspective towards the platform on the third floor from the core

Circulation Core – Between Platform and Museum



Perspective towards the largest window in the core on the 5th floor

Cirulation Core – Between Platform and Museum

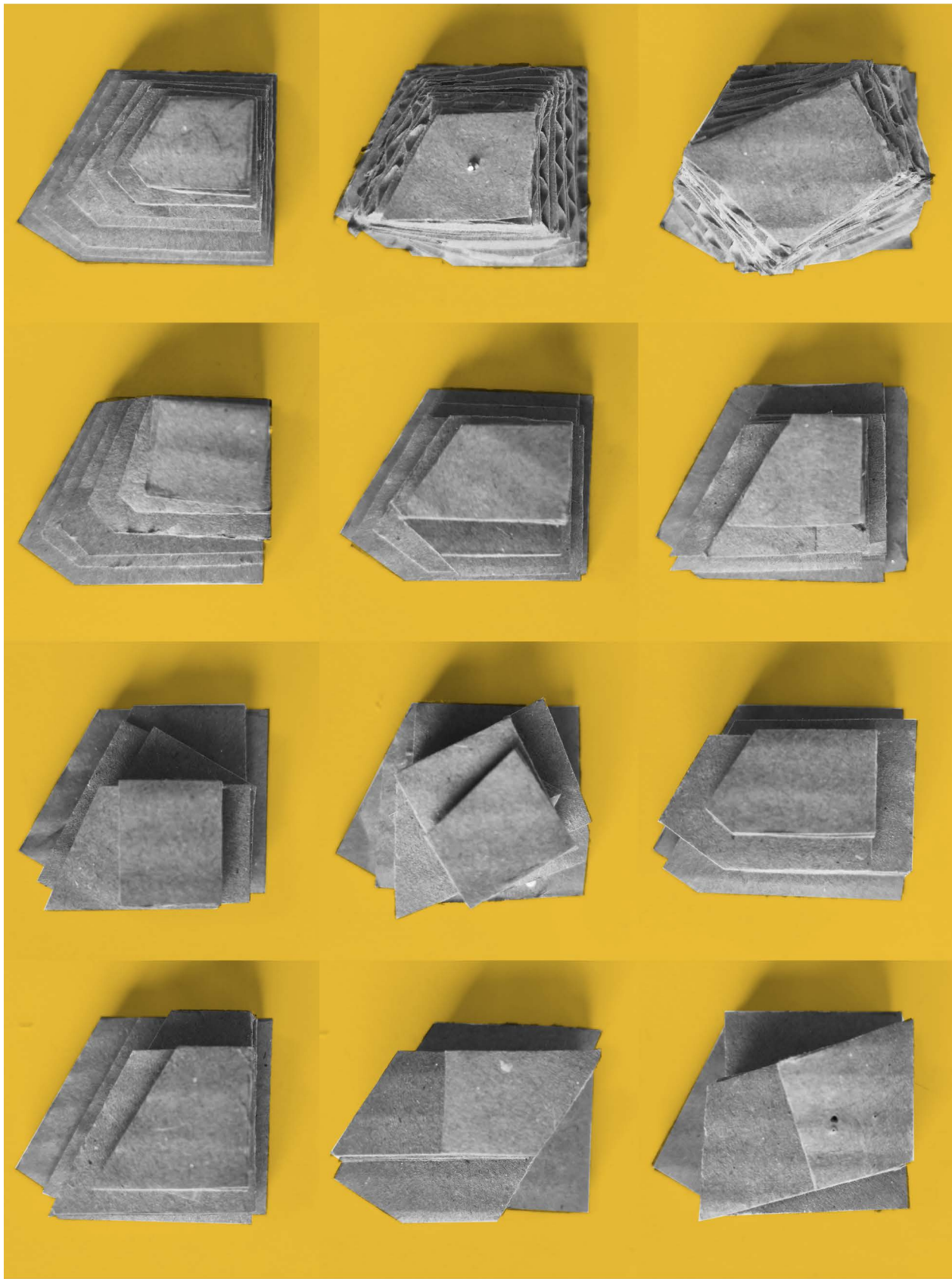


The spacial differences between core and museum creates an experience when visiting the mountain



PHYSICAL MODELS

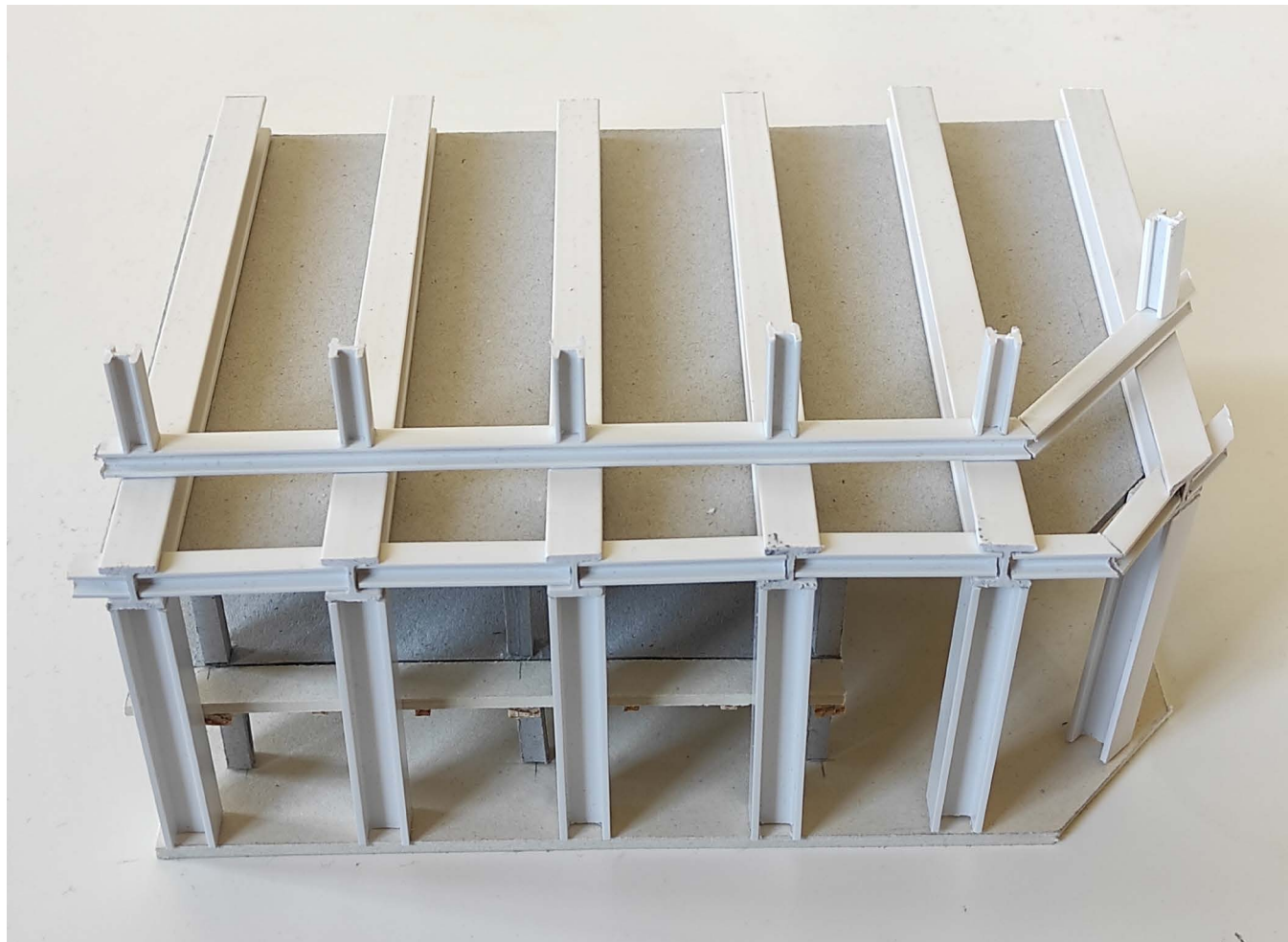
model making and formfinding



1:800 models created for P2



All the 1:1000 model created during the semester



Section construction model 1:100, showing the backside of the mountain towards the split backyard, the model shows partly exhibition space 1 and the workshop are

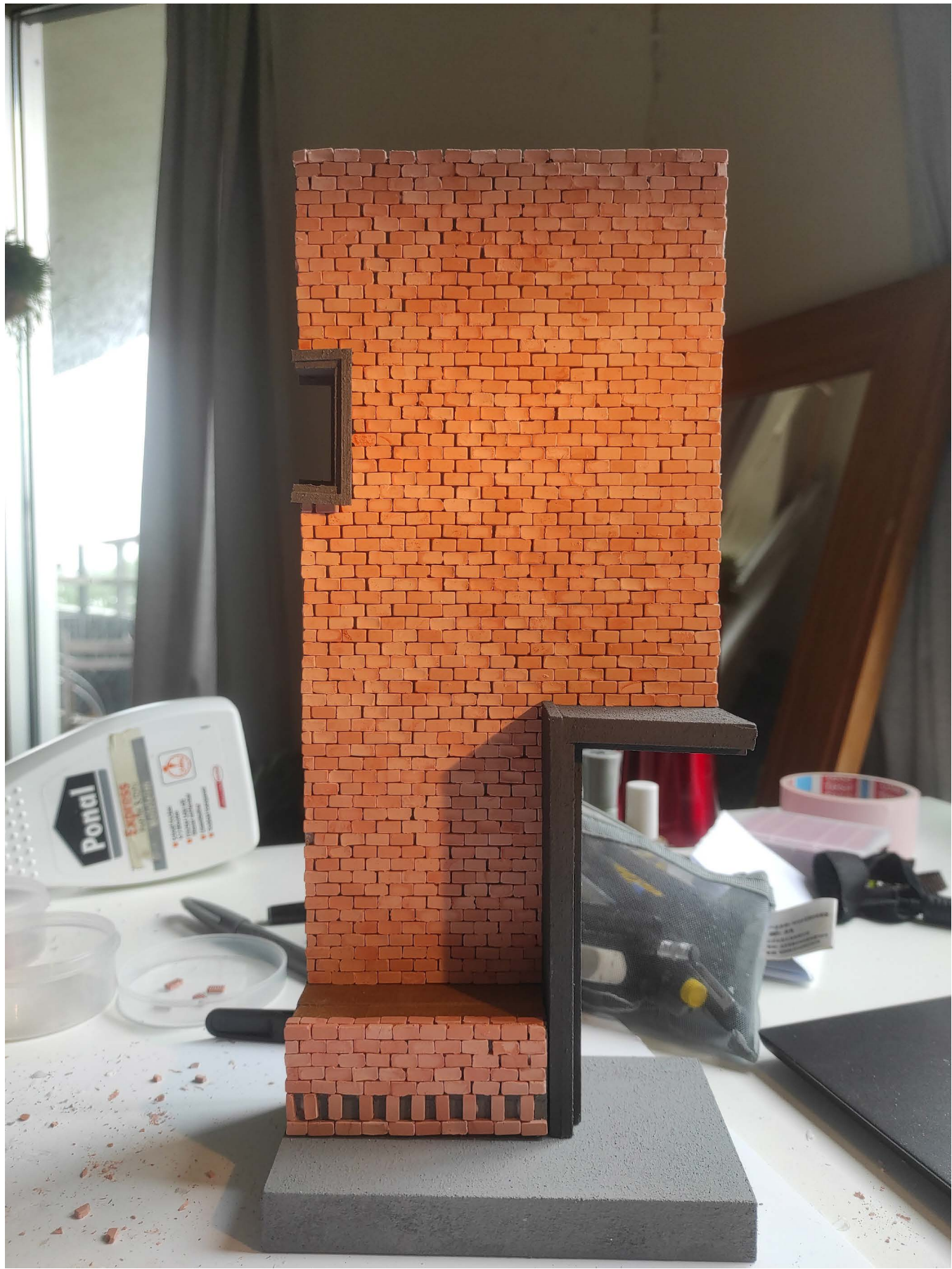


Construction Model

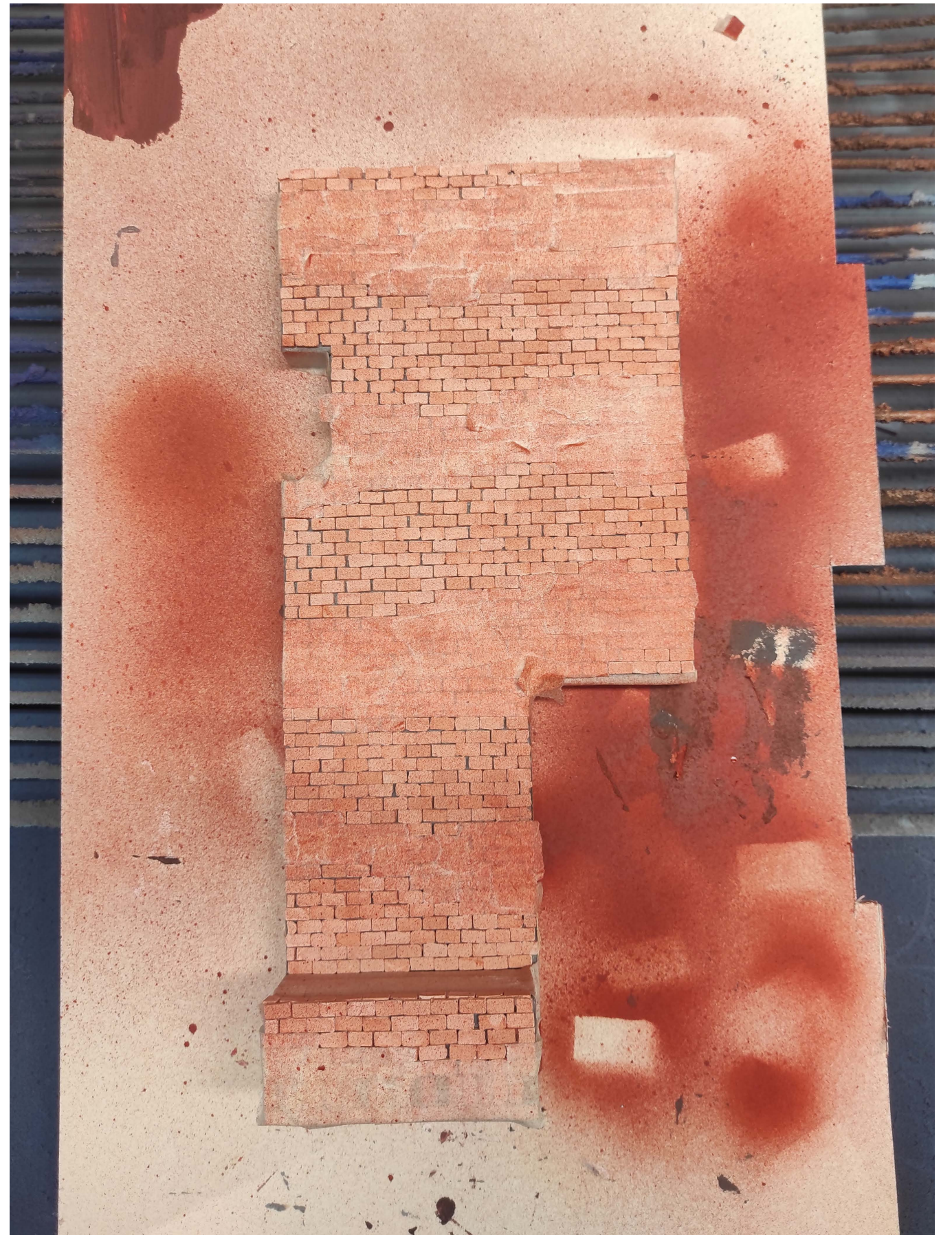
The steel beams in the facade are the main structure. They span from facade to facade and create a table construction. I chose this construction so the interior space stays open as possible. This means, the rooms are determined by the architectural concept and not the construction. Since the facade is largely closed up, the walls are the perfect spot for the construction.

Especially the lower floors have massive steel columns since they carry all the weight from the 40 m building. They are overdimensioned to ensure a solid and safe building.

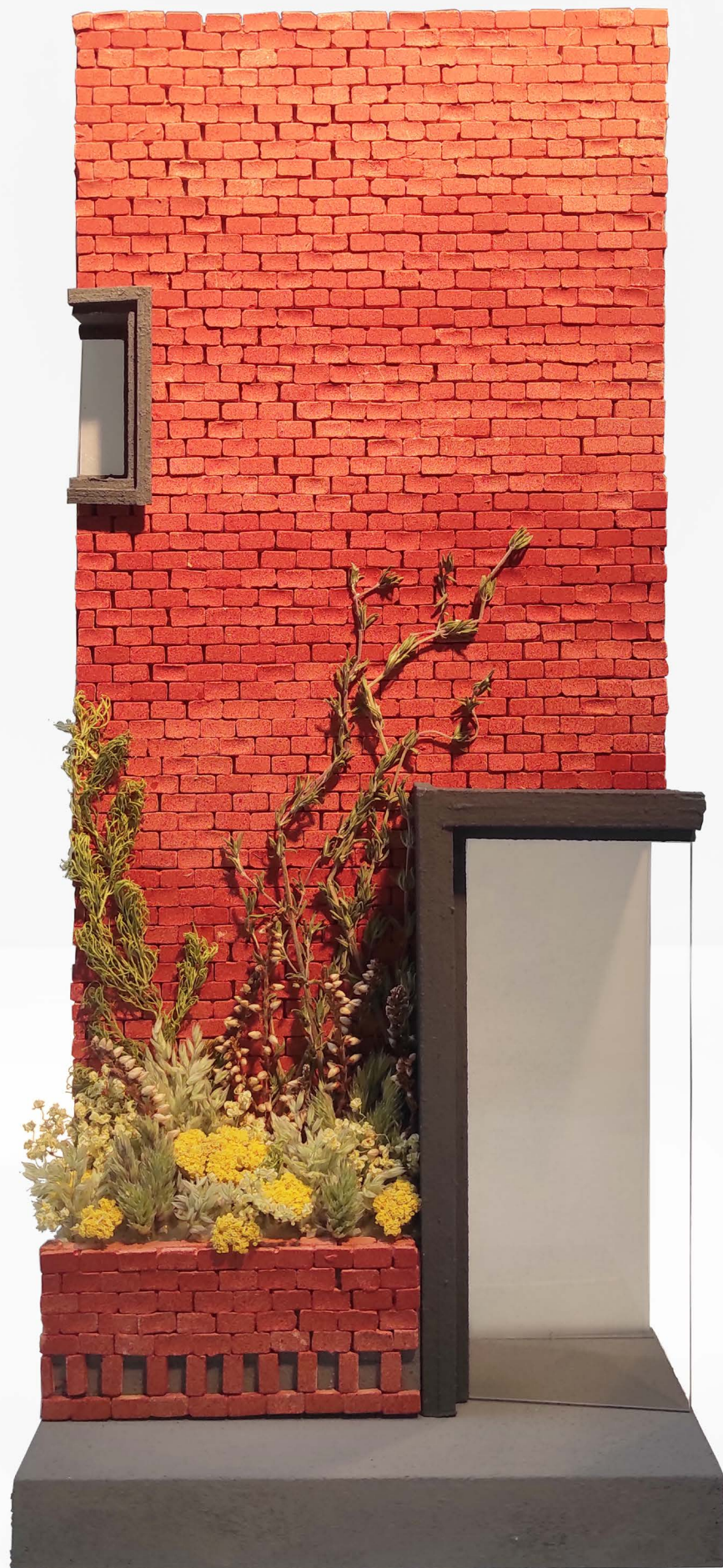
The construction spans over the existing one without touching it. This is because the old constructionist can not carry another 5 large floors.



1:50 facade model, after glueing all the bricks on



1:50 facade model, spraying with parts of the facade taped to mimic the facade texture



1:50 Facade Model of the entrance and the planter next to it

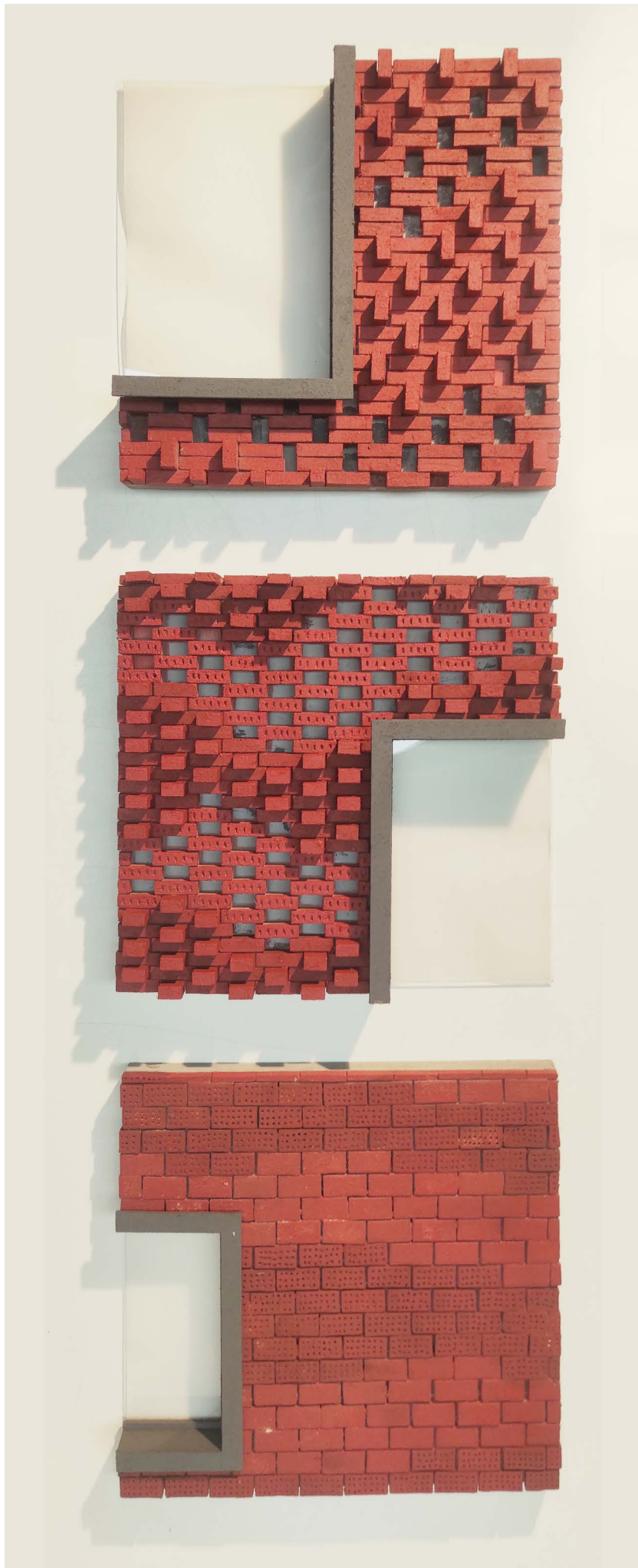
1:50 Facade Entrance – Texture through Brick and Plants



Conceptual 1:10 facade models, building up the facade pattern brick by brick



Conceptual 1:10 facade models before spraying

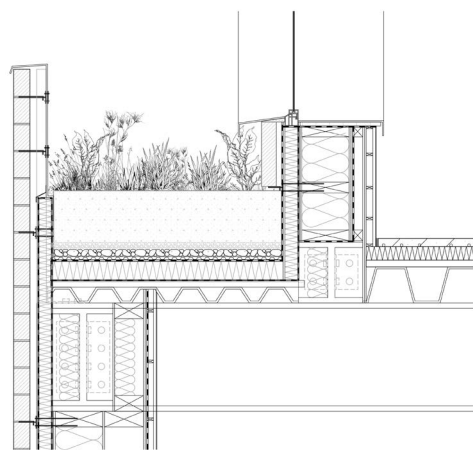
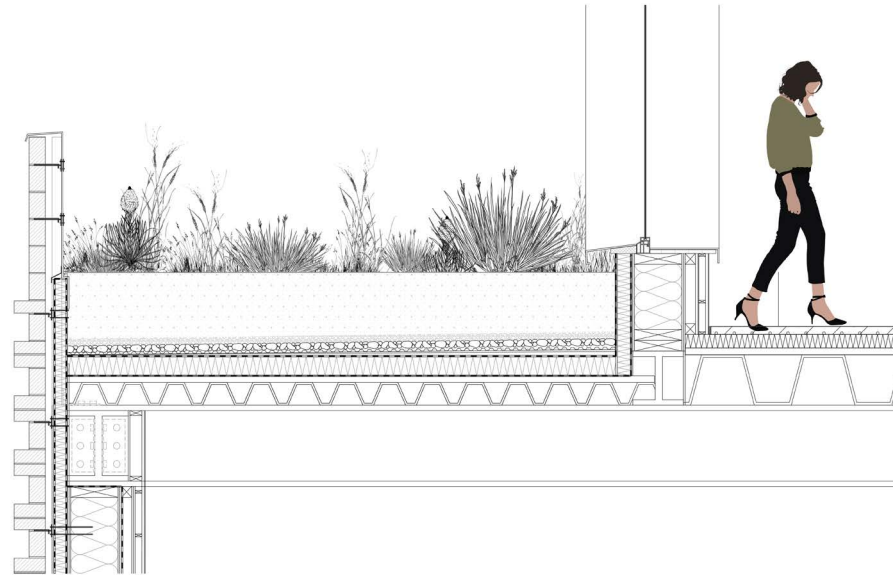


*1:10 Facade model
finished*

**Brick texture – The openings reflect on
the animals**

ARCHITECTURAL DETAILS

elaborating and detailing of the facade and other details



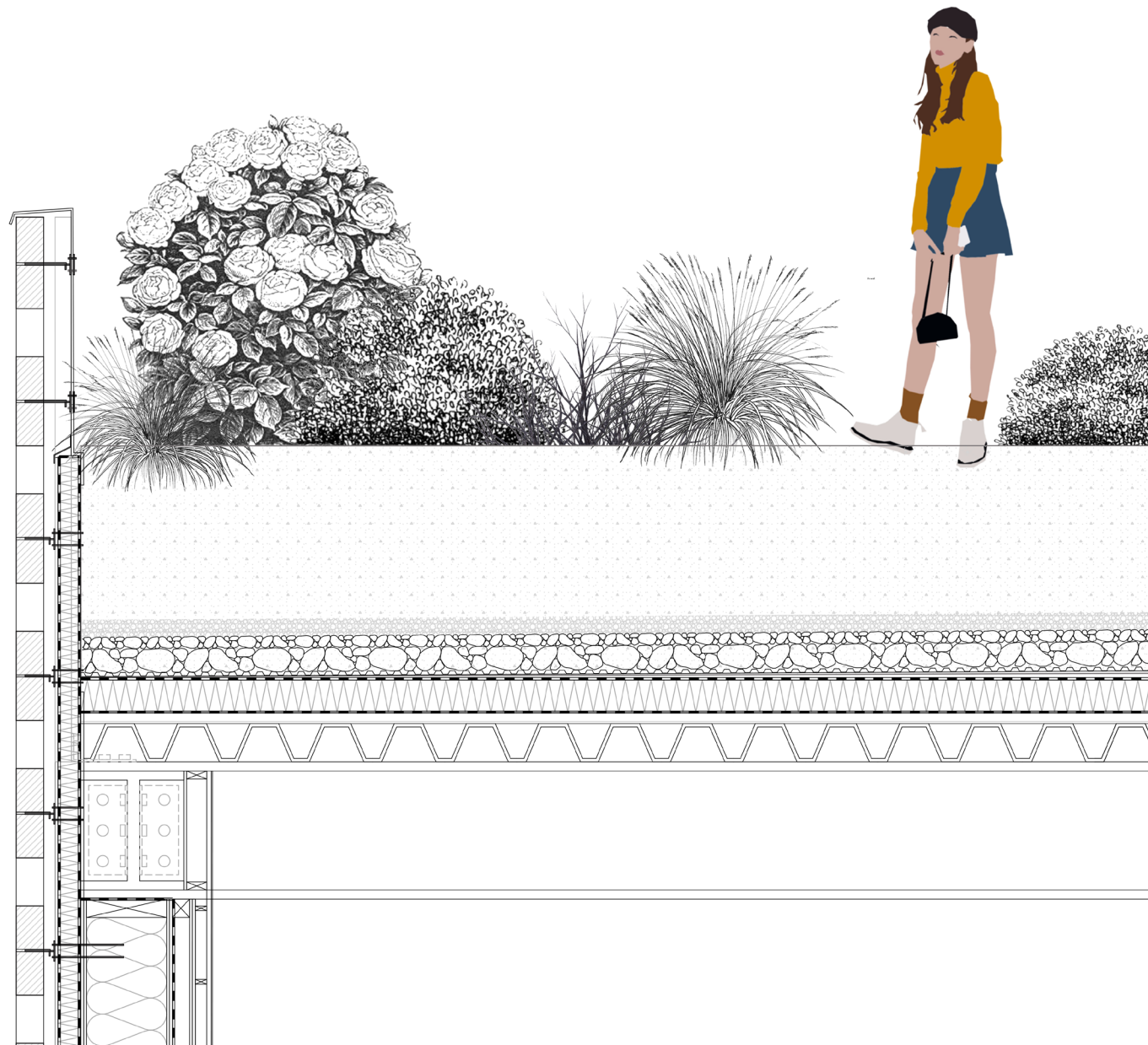
Detail 1:20, different platforms with height differences for different plants

Platform Detailing – Creating the right soil depth

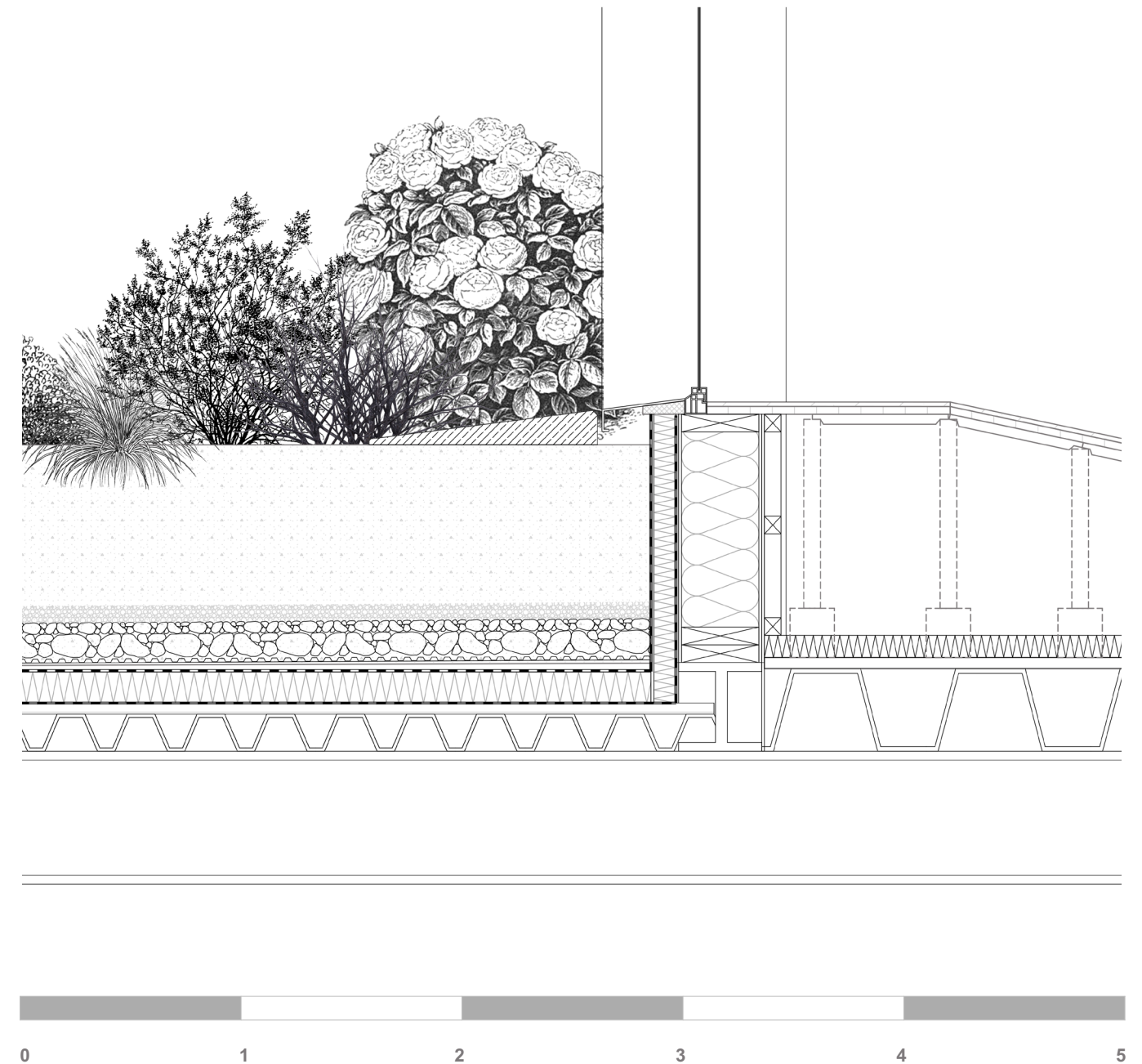
Since different plants need different situations, the platforms have different soil depth and a soil-stone ratio that is best for the plants on the platform. The platform on the third floor has the deepest planter with around a meter. There

many shrubs will be located. The flattest ones are the higher platforms. Due to the winds in the Netherlands, the plants there will be smaller and closer to the ground.

Platform Detailing – Creating the right soil depth



*1:20 Detail of the platform on the third floor
and part of the wheelchair ramp on the inside*





+20,95 m

+13,45 m

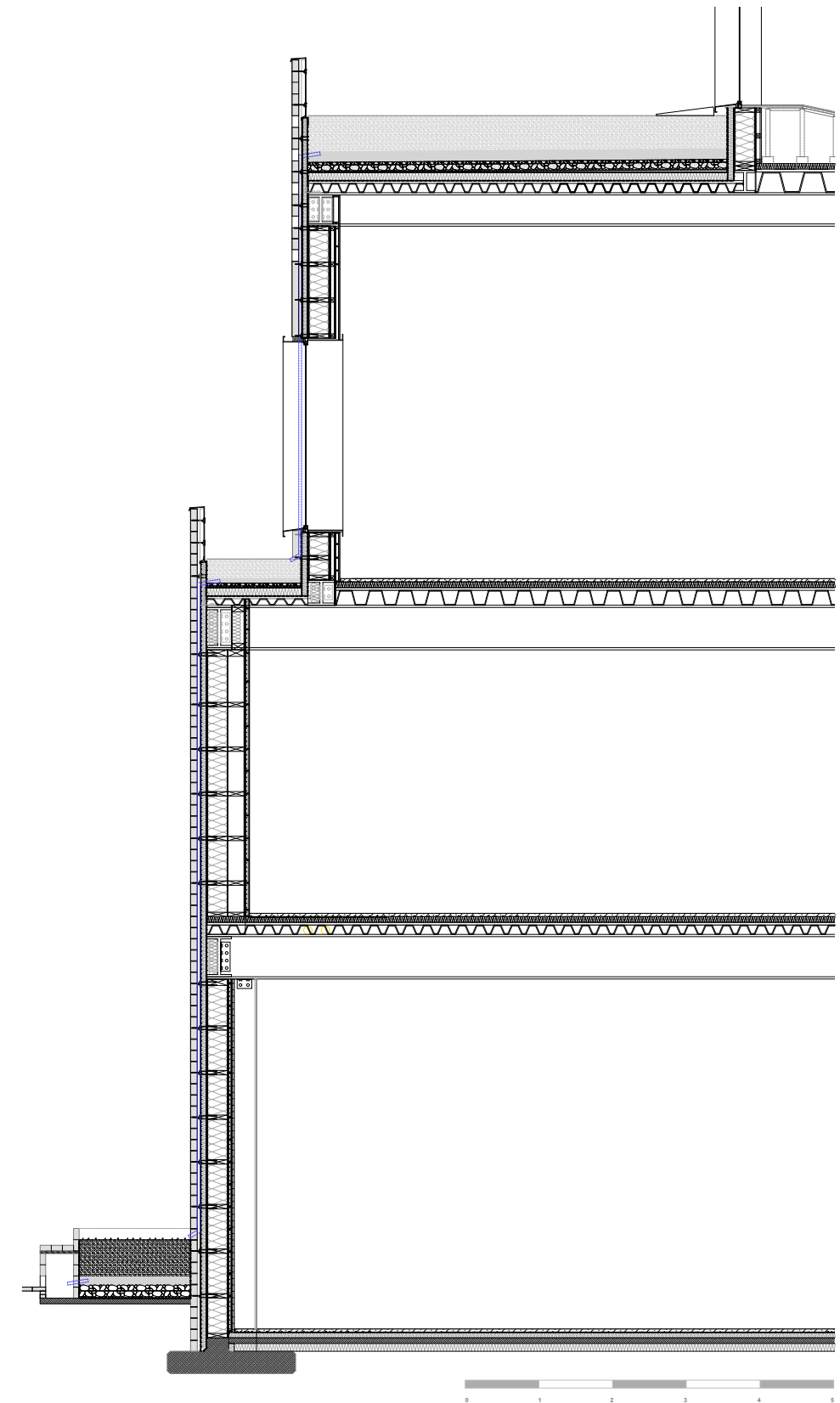
+7,95 m

+3,20 m

+1,55 m

+0,75 m

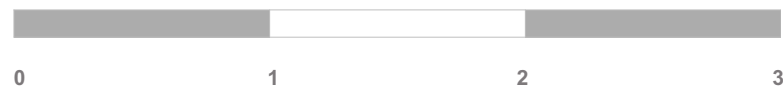
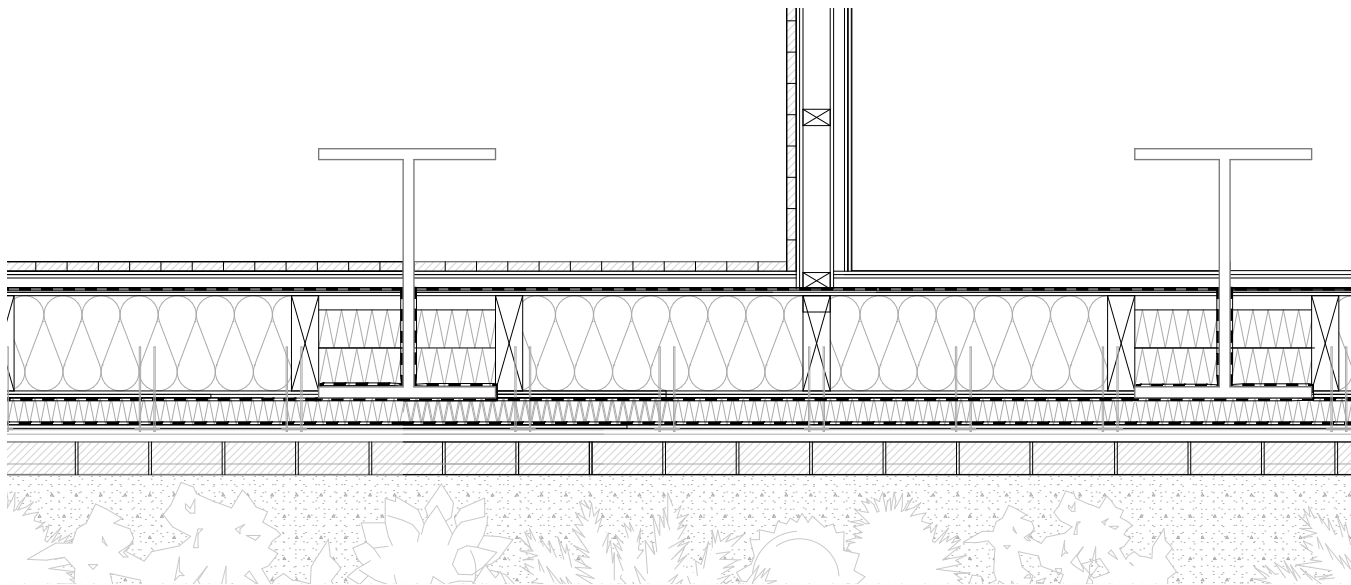
+0,00 m



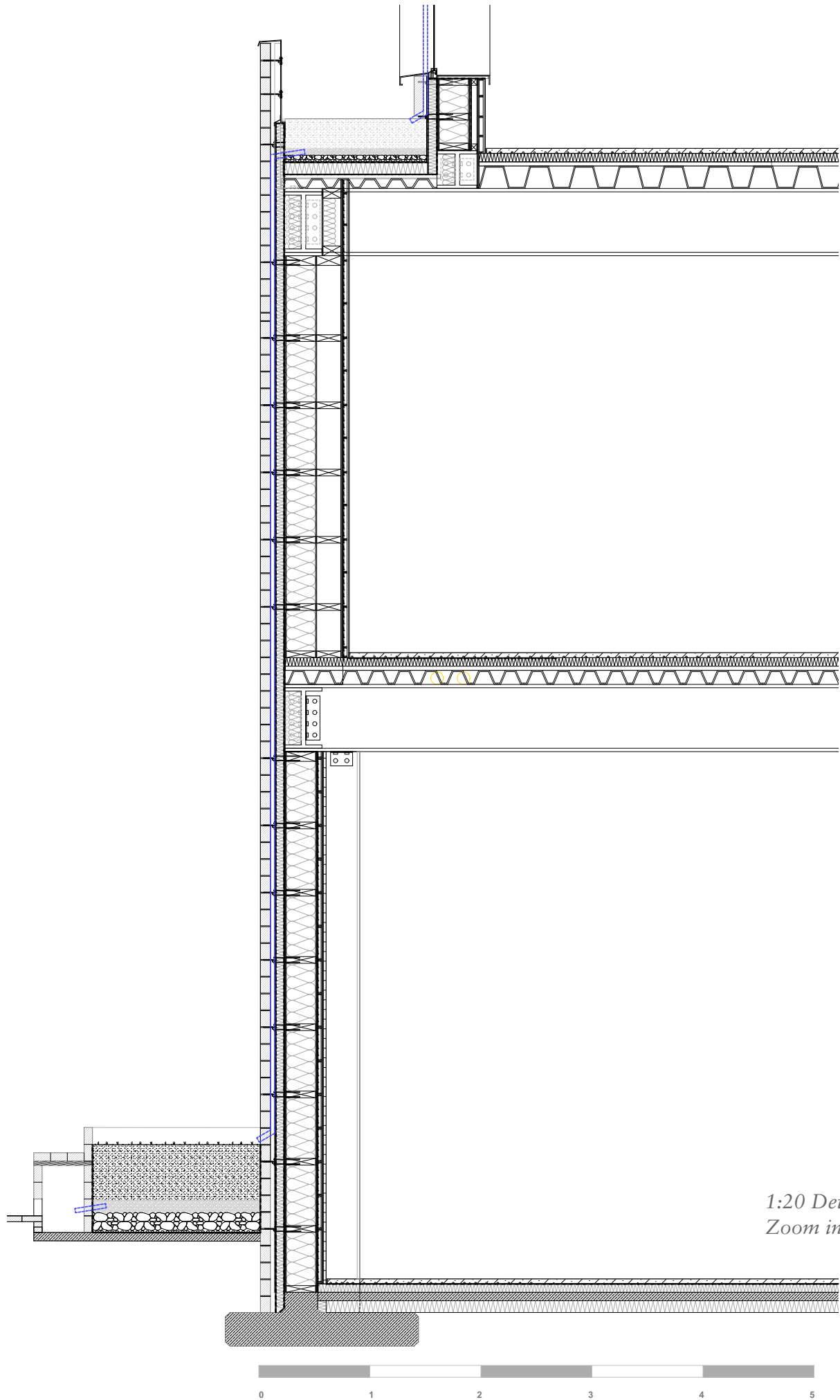
1:20 table projection with elevation, floorplan and section.



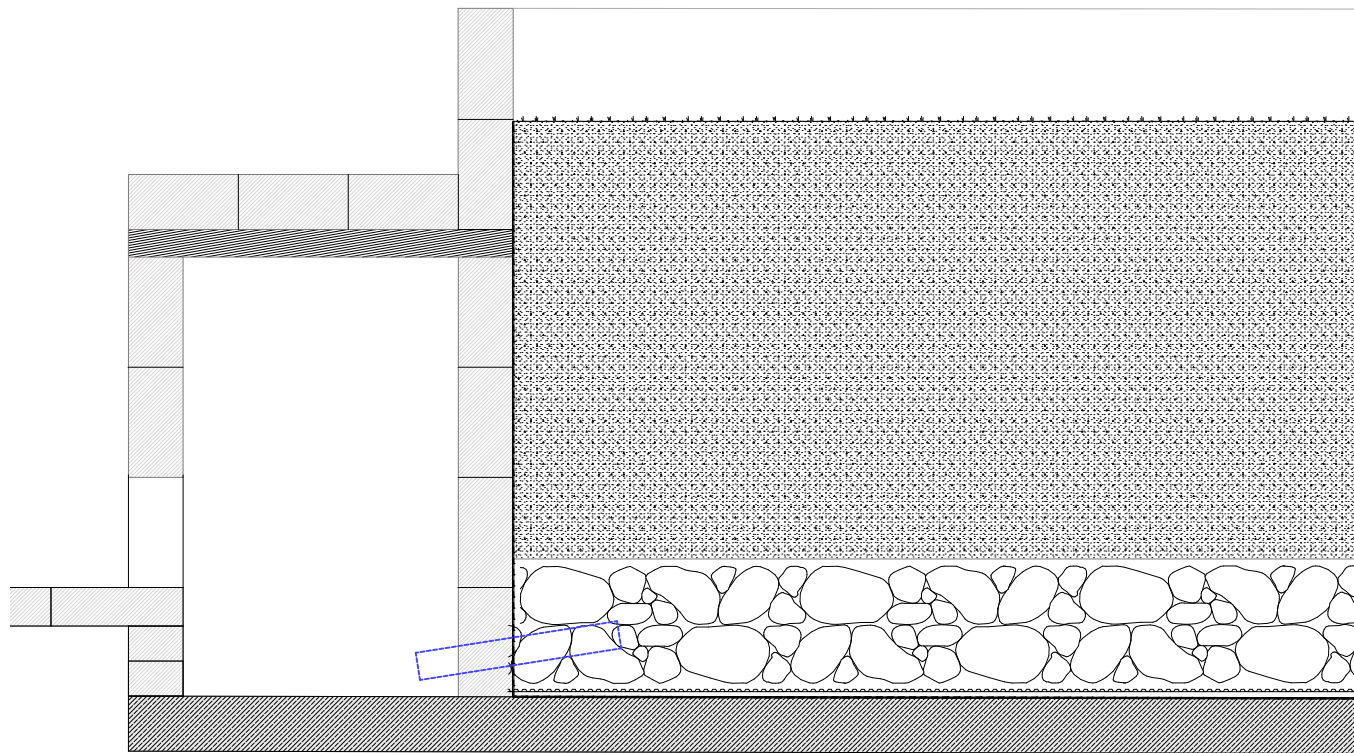
Architectural Detail –
Visibility of Construction inside the
Entrée and Museums shop



1:20 Detail Floorplan Zoom in



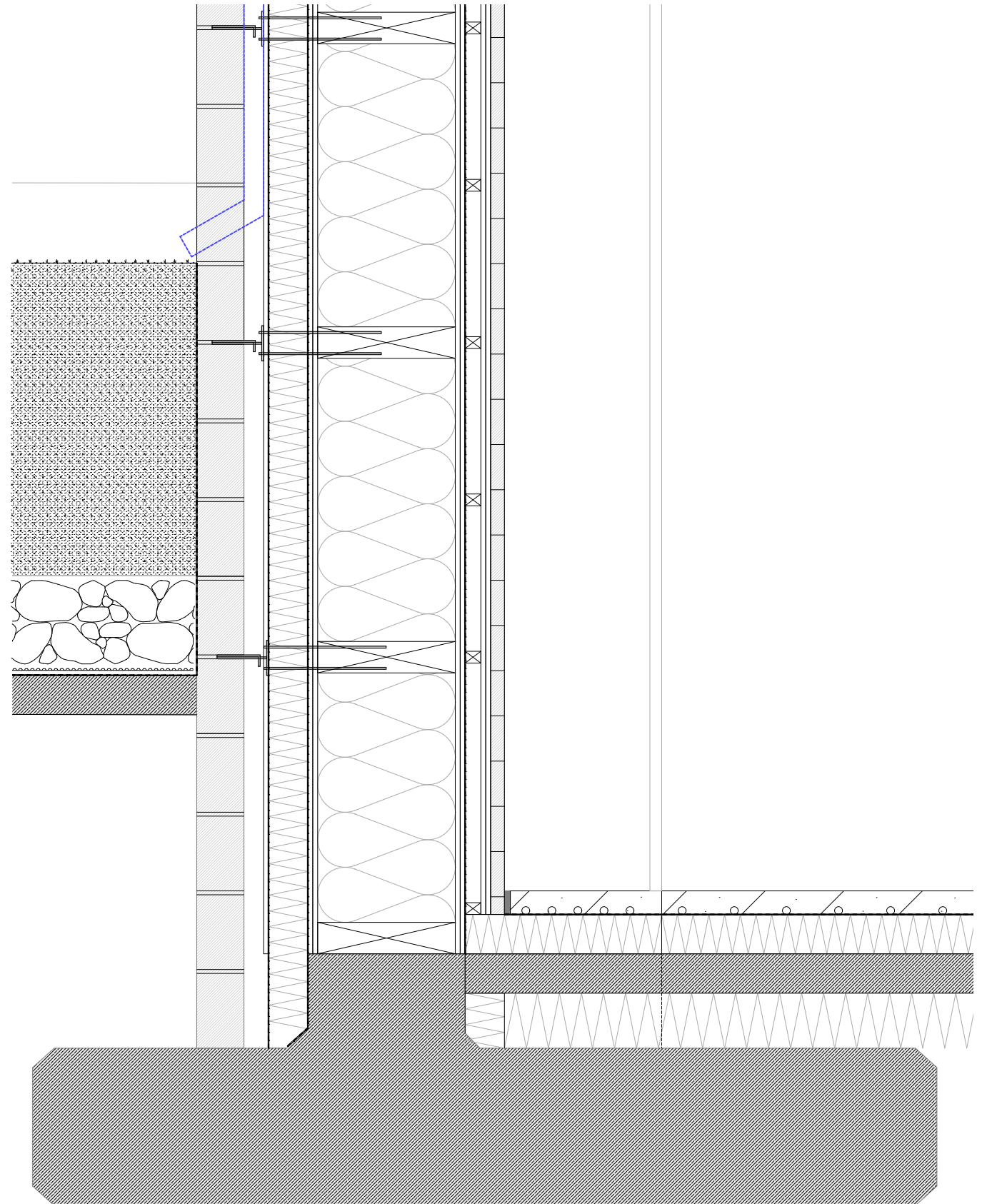
**Architectural Detail –
Double height space Entrée and height
development**



0 0,5 1

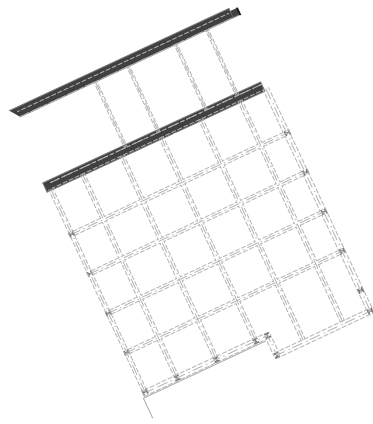
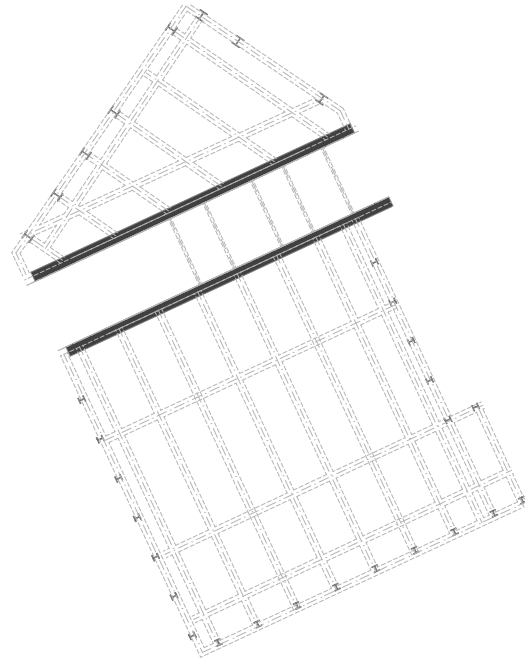
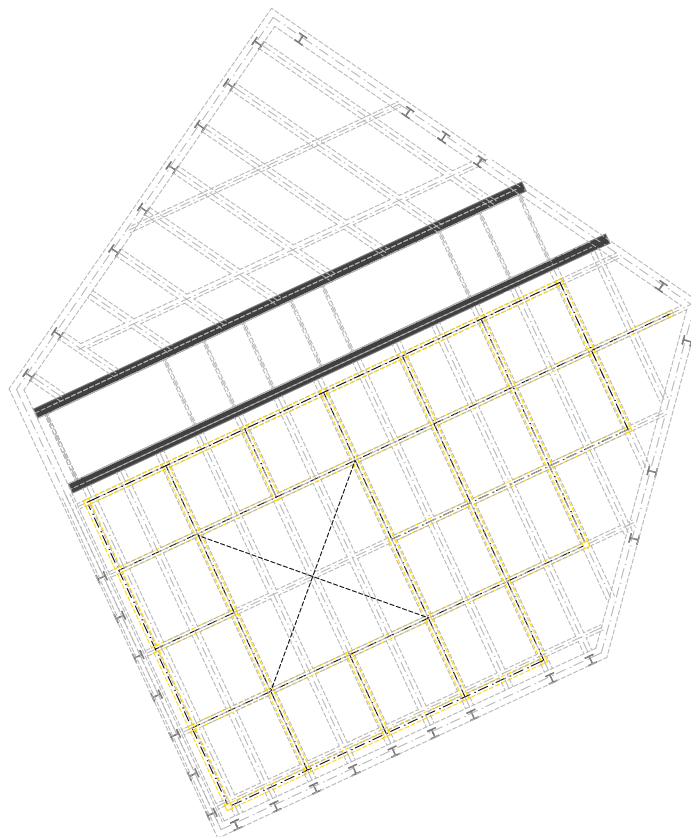
1:5 Detail section through the planter on the ground floor and the entrance hall

Architectural Details – Water Collection and Storage



BUILDING TECHNOLOGY CONCEPT

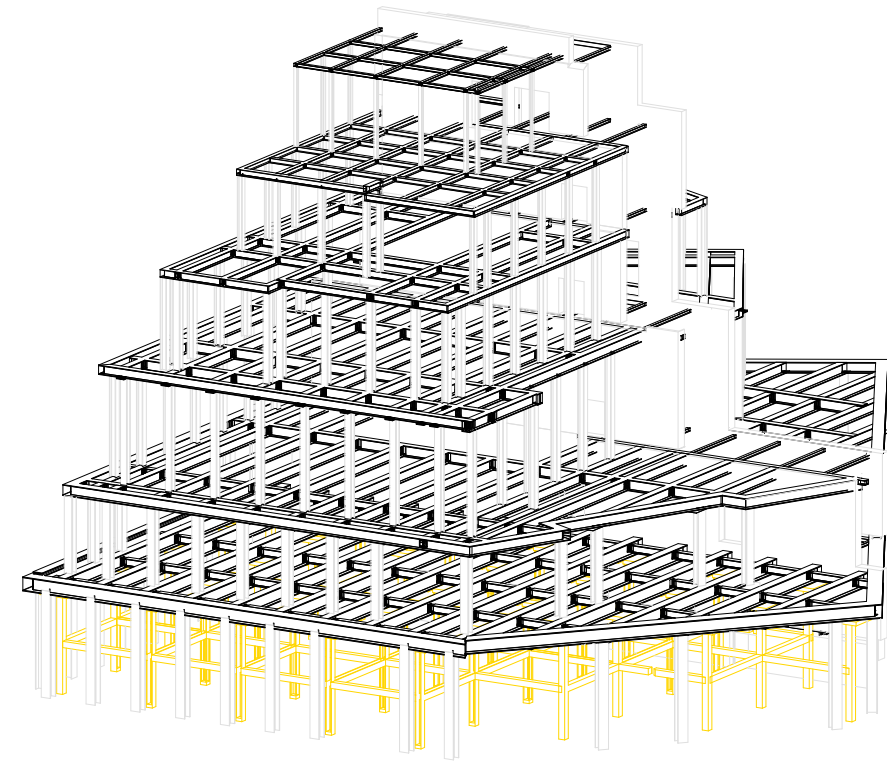
heating, cooling, rainwater collection and ventilation

*Construction 5th Floor**Construction 3rd Floor**Construction 1st Floor,
yellow represents the old
construction*

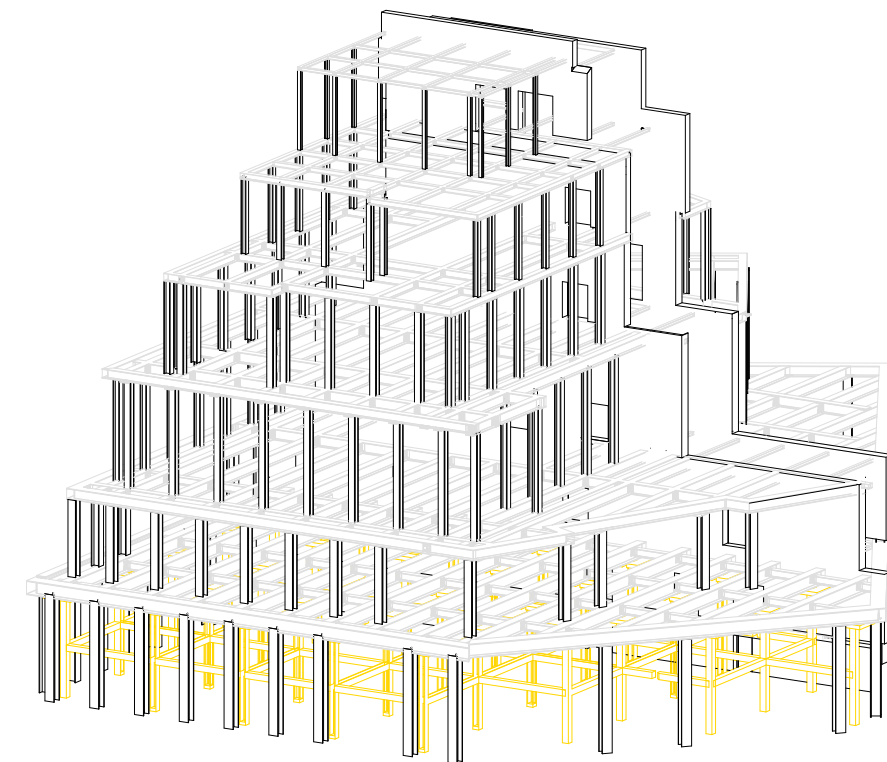
Construction – Floorplans

The core is made from brick while the rest is made from steel beams and columns. The core is always located at the same point throughout the whole building, but it gets smaller the higher up you go. From one side of the core to the other, there is a small steel sub-construction which stabilises each floor and only carries the weight of the floor on top of it. Since there are many openings in the floor of the core, the beams are spread rather sparse.

The steel beams create a table construction that always spans back to the core and incorporates the set backs. It spans entirely over the old construction, which makes it a lot more massive, but also safer since the existing concrete structure is not made of the added weight.



Axo construction entire building, yellow represents the old construction



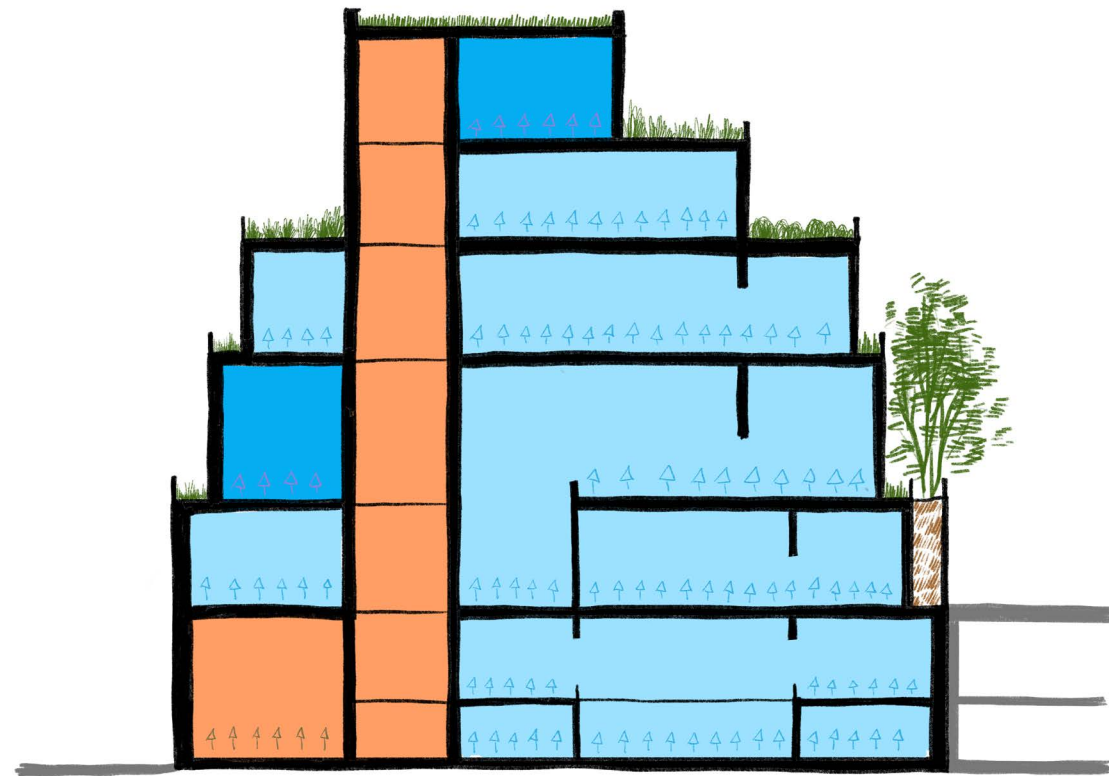
Axo construction entire building, yellow represents the old construction

Construction – Axometric View

Since my building has a lot of setbacks, the structure also reflects on that. This is why I used steel, it is flexible and the construction can be reused afterwards.

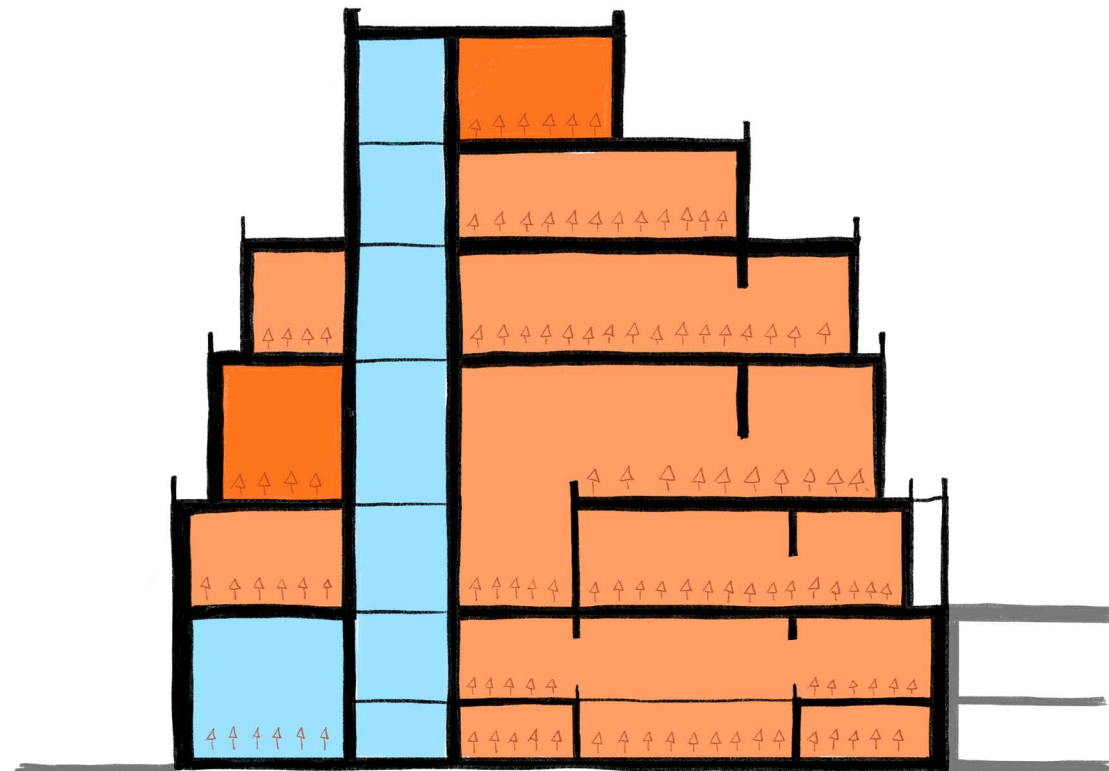
The construction orthogonal to the core is always 3 meters apart, unless there is a unique situation. The construction parallel to the core is arranged so the weight of the setbacks is directed into the beams below. The arrangement of columns follow this grid unless a window is located there.

This construction allowed me to keep the interior space very open. It also gave me a lot of freedom in arranging the windows. Which were influenced by the interior spaces and often it was more like creating a sculpture. So, while the construction is planned to be very stable, I fully used the freedom of this flexibility to design the 8th Mountain of Nijmegen.



Conceptual Section Cooling in Summer

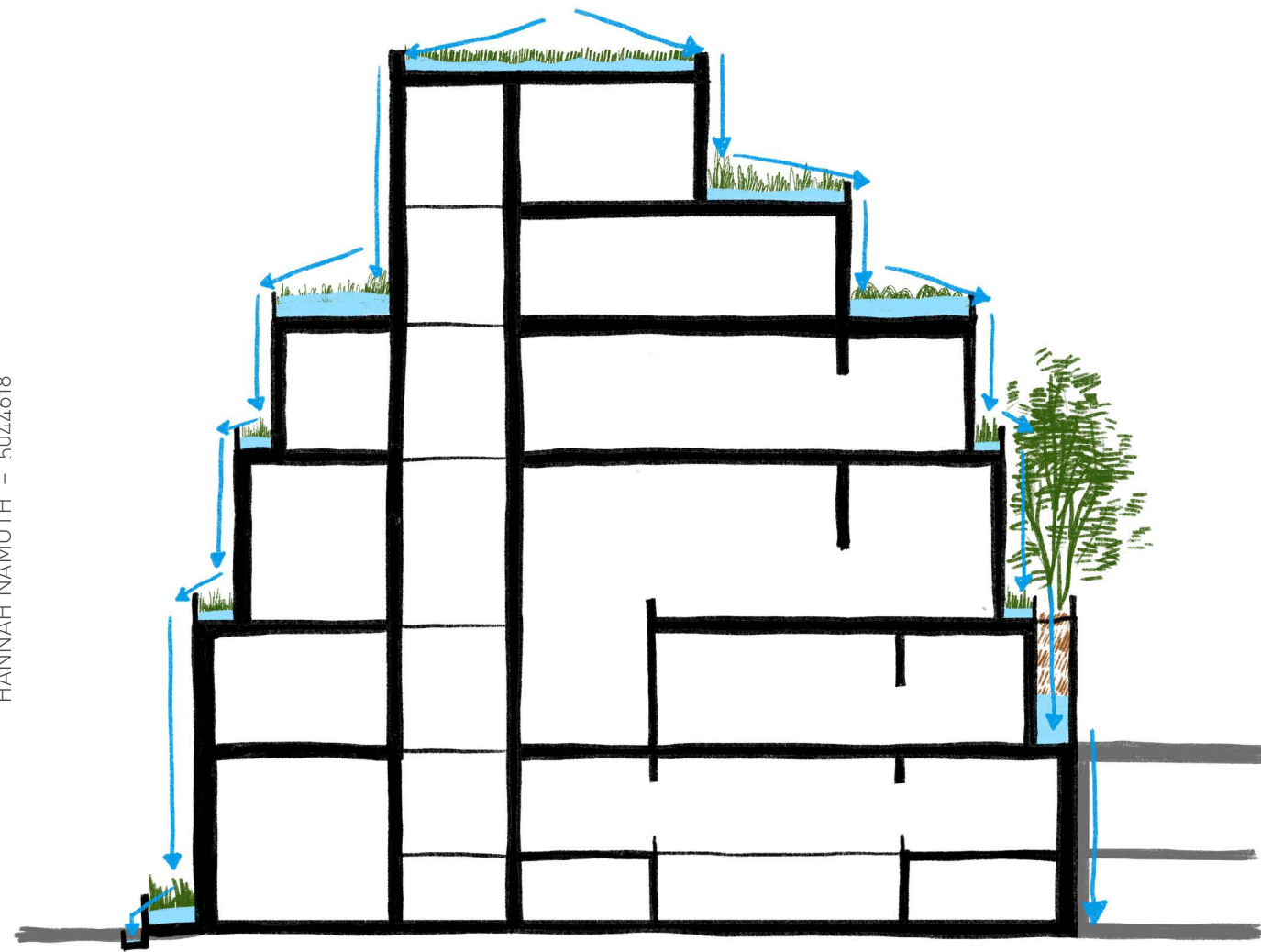
Heating and Cooling – Differentiating between functions



Conceptual Section Heating in Winter

The museum space is kept at a constant temperature throughout the year. The cooling and heating systems are turned off and on depending on need. The restaurant and cafe are spaces need to provide a high thermal comfort. The temperature greatly fluctuate throughout the year to create a comfortable atmosphere for the people that visit and sit down in the spaces.

The core and entrance hall on the other hand are mostly transition spaces and the people do not spend large amount of time in them, so they are not heated and cooled as much as the other spaces. There is always a door to separate the core and the museum spaces, so there is no unnecessary loss of energy.

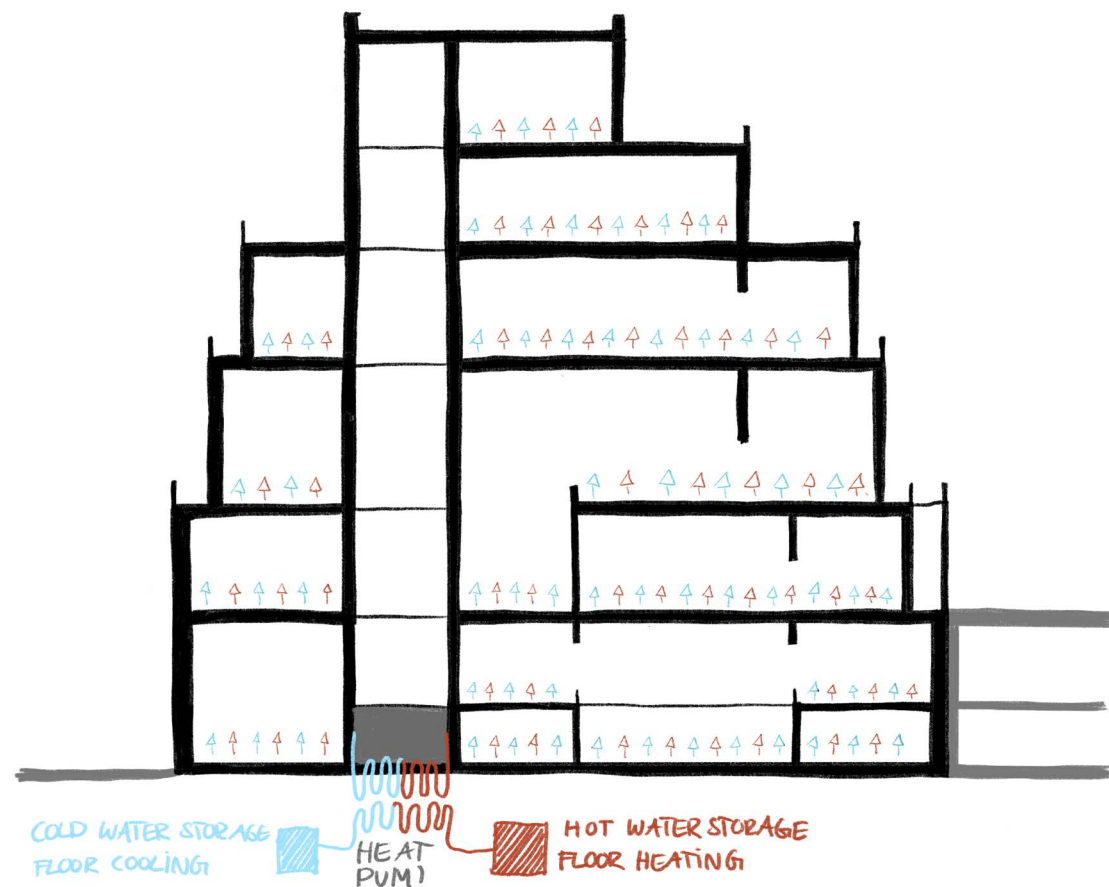


Conceptual Section rainwater collection, storage and distribution

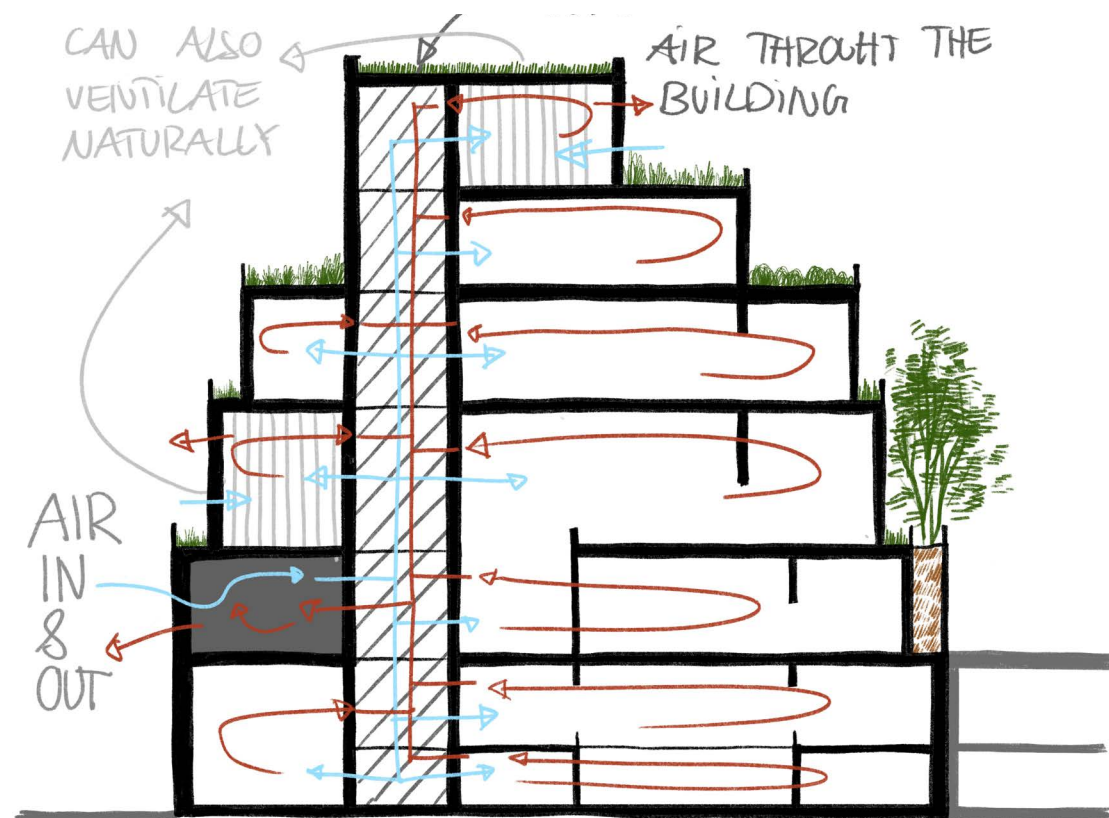
Water Collection

The platforms have three functions when it comes to rainwater collection. They are the receiver of 100% of the collected water. They are the means to its collections as well. They have different depth and can hold various amounts of water. If one of the platforms has reached its full capacity, the water is transported via rain pipes to the next. This is done automatically since the

opening for the pipe is located on the highest point of the water storage. If the water reaches that point it will start flowing down to the next, until it reaches the ground. On the ground there is another large container. If this one is full then the water is directed to the sewers, but this will likely only happen a few times as the platforms have a big capacity.



Conceptual Section rainwater collection, storage and distribution



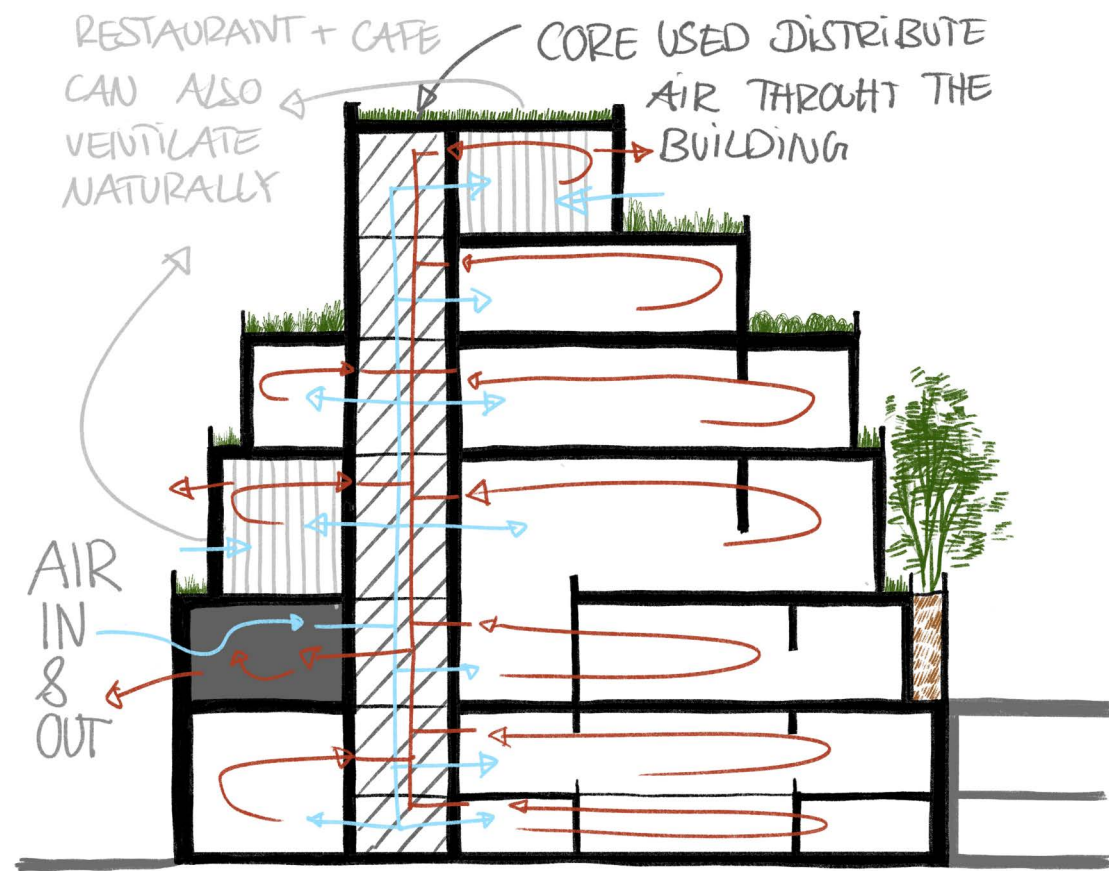
Conceptual Section Air distribution

Building heating and Cooling – Air ventilation

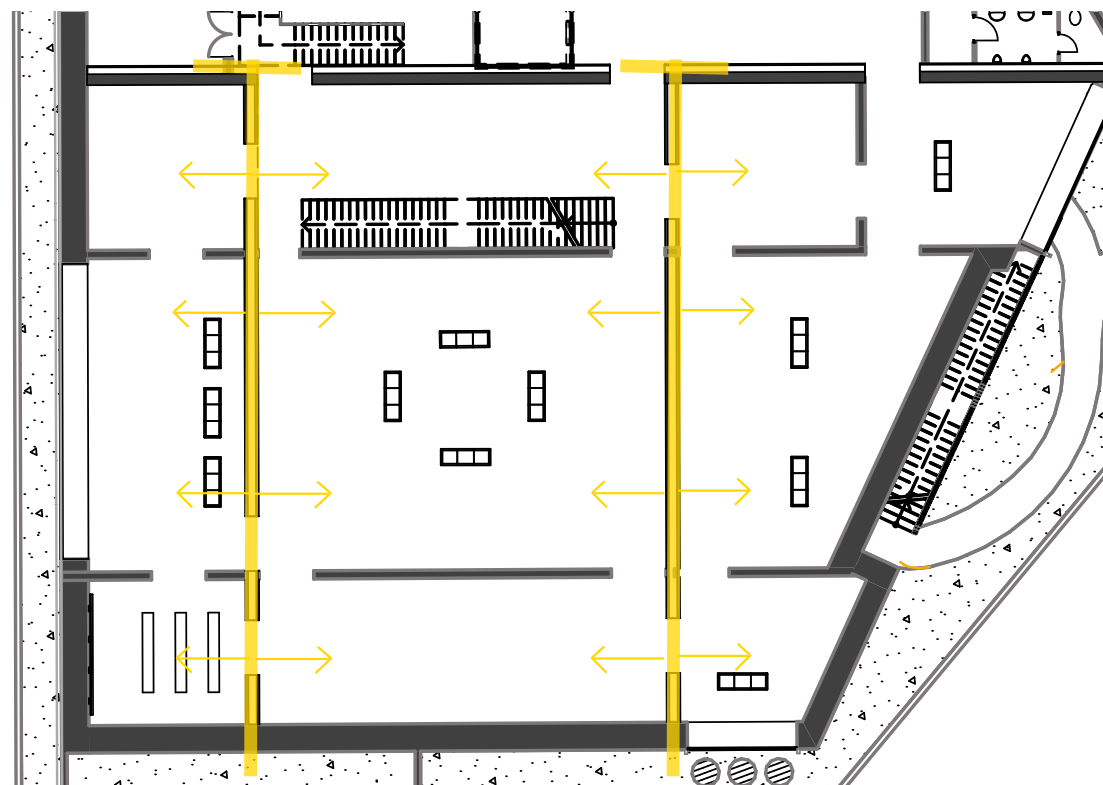
The air ventilation in a museum is very important to keep the art pieces at the right humidity so they do not get destroyed. This is why the ventilation is purely mechanical and the museum spaces are separated with doors from the core and other spaces. on the second floor there is a room with around 90 m² that can hold two air conditioning units. Usually these units are used one by one and can be changed when one if not working properly. The fresh air is then moved through pipes up the core from where it is brought into the museum spaces as well as the café and restaurant.

The old air is brought back to the unit and there will be an energy and temperature exchange before the air is released. This way almost no energy gets lost.

To ensure proper temperatures in the building, the floor is equipped with floor heating and cooling. This can be adjusted depending on the time of the year. A heat pump is used to receive the needed energy.



Air ventilation – Distribution inside the Museum



Floor plan with air pipe location inside the walls.

After the air is brought to the right floor on the mountain the walls are used to distribute them into all the exhibition rooms. I choose this option because in some rooms the height is limited

while the rooms are rather spacious. So instead of reducing the height, the wall thickness is increased to hide the air pipes.

REFLECTION

reflecting on the studio, the year, topic and my work

Reflecting on my project and the studio

I am currently working on finishing my architectural master thesis with the chair of urban architecture. The studio topic is “Bricolage”, which essentially means to design with what we have at hand. But throughout my research and architectural work, I figured that we as architects and planners of a theoretical project, such as this thesis, essentially have everything available. So how do we choose what is at hand? At the P3 Presentation, Jan mentioned “bricolage vs bricologic” and this is essentially what I had a critical look at. While we have everything at hand as planners, as soon as we adapt the concept of bricolage and even “bricologics” to the project, we limit ourselves to create a project and thrive through the limits we set. A strong inspiration for me was the book “Robinson Crusoe” by Daniel Defoe. Robinson is the essence of a bricoleur. But it was the difference between his situation and mine that helped me to position myself in the topic. While he is a solitary bricoleur, I, as the theoretical planner who has many – even everything – at hand, think the “bricologics” is fitting the best.

Looking back at the studio choice, urban architecture has not been my first choice, but now I think it should have been. The environment has been very positive, and each student is giving freedom to fully develop their project. Every one of us created something different with the given brief. I think the studio topic makes it possible to have an added level of meaning instead of limiting the student in any way.

Throughout the first research and creative representation of it (P1 Video), including the shared design of the urban plan and up to p2, I developed the idea of an architectural representation of a mountain. The idea referred to the unique topography of Nijmegen. But it also refers to the concept of creating an urban biome for city-dwelling animals, that have been hiding within unused and undesigned spaces in the city. In my research, I conducted that many animals have better survival chances in the city, due to the mono-agriculture landscape that our countryside has turned into. So, for my thesis

project I wanted to design a building with different levels of porosity where the spaces unused or less frequently used by humans, the facades and exterior spaces, are reserved for a variety of flora and fauna. I also organised the functions of the project based on the idea of the different zones of a mountain, that were first discovered by Alexander von Humboldt. Influenced by the classification of Humboldt, I positioned the museum spaces, the café and the restaurant in the volume. Visiting the museum resembles taking a hike in the mountains. There are four distinct exhibition spaces and the most unique is the 4th one which can be found on the exterior spaces of the mountain and I publicly accessible. It is the threshold between museum and nature, as well as public and semi-public museum space.

In the future, we will face even more challenges to preserve natural environments. Humans have changed the world, but we also need to let other things change with it. If we cannot recreate the natural state, we need to learn how to adapt to it. We need to improve life for all the inhabitants of cities. Animals have been thriving in our urban spaces and we need to embrace that. My project is of course very specific but naturalising cities has been a topic for a while. To look at a project from the needs of animals and plants has shown me how to integrate them. I will be able to put this important knowledge into practice when starting to work as an architect.

The research directly tied into the development and elaboration of my architectural design. In general, my concept helped me to make many decisions on different scale levels. From the position in the urban plan over functions to materiality and the elaboration of the details. It was like a red line that connected everything. Creating a functioning building, that has the sense of a mountain without turning it into a literal representation, has been a challenge. Especially due to the size and the surrounding. The mountain is an object that contrasts the intervention of human city planning. While the architecture will stand out, it should also not become an alienating object that disturbs the rhythm of the

Nijmegen. This balance between standing out and fitting in was difficult to integrate on the urban plan, as well as in the distinction of the architecture. To adapt it more to the city, I used my search of brick to look at the different pattern. My facade is made entirely from bricks and while the pattern, that resembles a mountain is wilder than the surroundings, it does connect to the cityscape of Nijmegen.

The feedback from Paul, Aurelie, Leeke and Jelke helped me to fully embrace and dive into my chosen concept. With all their positive feedback and constructive criticism, every week, the project became better and more coherent. The feedback from students and teachers helped me greatly, by giving me other angles to look back and to question design choices I have made. Especially because we were working from home, the feedback session with students and teachers, became an essential part of my week.

I think the biggest dilemma I faced was that I am not able to fully work out all the parts of the building and not to create a detailed catalogue of animals and their needs. I have picked out some specific animals and focused on them. This is not only the case for the research but also for the architecture. I think this is the most elaborate design I have done in terms of size, the multitude of functions and users (humans, flora, fauna). Due to the limited time I had to prioritize and choose to show my project as complete as possible. But the elaboration is still lacking in some parts and for the last weeks I will fill in as much as possible. This is especially true for the construction since everything remains work in progress. To finish all the details would probably take another year. The overall concept is there but it is not working out in all corners of my, odd-shaped building. This is again something that would solve itself if there was more time.

But looking back at my thesis year, I think I created a balanced and intriguing project that was limited by time, but nevertheless shows my thoughts and ideas for a more flora and fauna inclusive future for our cities. But it also com-

bined my concept of bricolage into the different museum spaces. The architecture of the museum and the platforms really tie in together and thus makes this more than a museum or a few public platforms. Nijmegen is a lively city and this project would embrace the connection the people already have to nature. My project combines many functions into a dense building that, considering the location right at the centre, can become an attraction as well as a calm, unique part of the city.

FOOTNOTES

used resources and references

1. *bricoleur*. (n.d.). Retrieved December 5, 2020, from <https://www.merriam-webster.com/dictionary/bricoleur>
2. *bricolage*. (n.d.). Retrieved December 5, 2020, from <https://www.merriam-webster.com/dictionary/bricolage>
3. Scalbert, I. (2011, September 11). *The architect as Bricoleur*. *Candide - Journal for Architectural Knowledge*, 4, 69–88, P. 71
4. Scalbert, I. (2011, September 11). *The architect as Bricoleur*. *Candide - Journal for Architectural Knowledge*, 4, 69–88, P. 73
5. Scalbert, I. (2011, September 11). *The architect as Bricoleur*. *Candide - Journal for Architectural Knowledge*, 4, 69–88, P. 73
6. Roodenburg, H., & Simon, A. (2004). *History of Nymegen, oldest city in the Netherlands*. Retrieved December 2, 2020, from <https://www.noviomagus.nl/>
7. Peoples Group - Group 3 - UA Msc 3+4. (2020). *A-Z encyclopedia of the 'nijmegenaar'*
8. Stiphout, V. M., Lehner, M., Architects, A. L. L. D. D. S., & Havik, G. (2020). *First Guide to Nature Inclusive Design*. Den haag, The netherlands: nextcity.nl, P. 84
9. Stiphout, V. M., Lehner, M., Architects, A. L. L. D. D. S., & Havik, G. (2020). *First Guide to Nature Inclusive Design*. Den haag, The netherlands: nextcity.nl, P. 85
10. *Climbing Nijmegen*. (2020, November 18). [Video file]. Retrieved from <https://vimeo.com/473338004>



