PROJECT

IBC

2021-2022

GREEN, THE NEW GOLD

Creating the Fair Bank of Belgium

Project Journal

Interiors Buildings Cities
MSc4 Graduation Project
2021-2022

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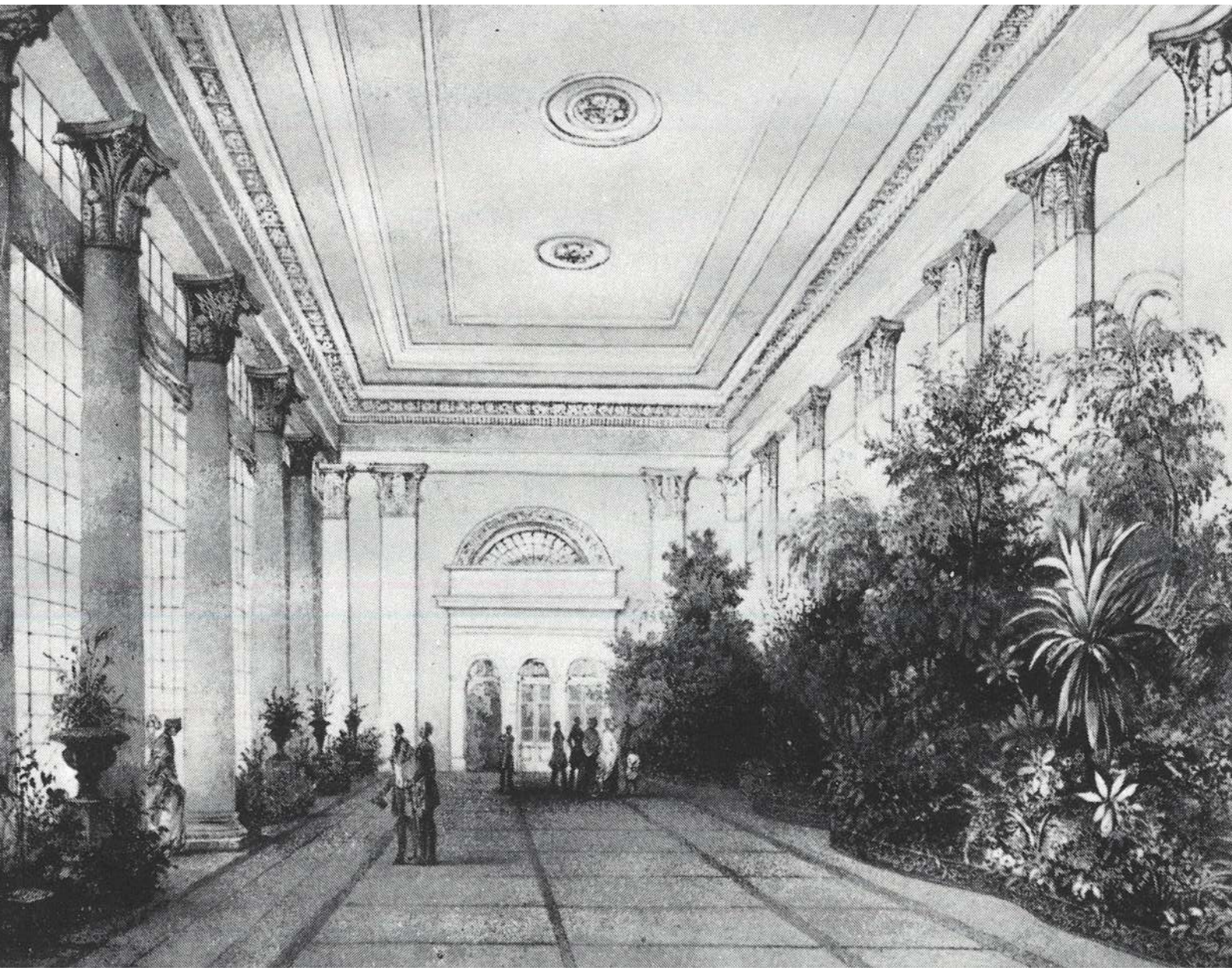
"With a smile the king drew aside the curtain. I was speechless, for I saw an enormous ***garden****, laid out in the Venetian manner, with palms, a lake, bridges, pavilions, and buildings like castles. "Come," said the king, and I followed him fascinated as Dante following Virgil into* ***paradise****.*

Maria de la Paz, description of the *winter garden* of King Ludwig II, 1883



Dear reader,

With this Project Journal you will get acquainted with my project for the Graduation Studio **Interiors Buildings Cities**. This studio revolves around the transformation of the institution of the **National Bank of Belgium**, located in the city of Brussels. Starting with the research of historical and contemporary office buildings and bank buildings, the studio moved to the inquiry of the **Future Bank** as an agent of institutional change.

The co-existence of species, **human and non-human**, within the social and physical context of the Future Bank has been the highlight of my Graduation Project. My Research Plan, written at the start of the year, included the feminist concern of the **environmental destructing system** of the patriarchal corporate world. This female position towards the human accountability in climate change and the carbon footprint of our contemporary economic system has guided my project into a design that accommodates both **people and the natural world.** I have done research into historical and contemporary glasshouses and greenhouses, as well as case studies and precedent studies of contemporary office buildings which incorporate urban agriculture and nature-inclusive design.

The relationship between the office and the natural condition is the returning theme during my graduation process. What is the consequence of the introduction of nature within the **office environment**? How does the introduction of nature drive **institutional change** in the bank and in the collective system of banking and other institutions? And how does **nature** ultimately change the way in which the bank operates in the future? By means of visualizations and passages will these questions be answered.

I hope you will enjoy browsing through this Project Journal for the Graduation Studio Interiors Buildings Cities.

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June 2022
Delft, The Netherlands
Faculty of Architecture and the Built Environment
TU Delft

01

Drawing from 'Houses of Glass: A Nineteenth-century Building Type' by George Kohlmeier

CONTENT

01. INTRODUCTION

THE PRECEDENTS

The National Insurance Building, Sigurd Lewerentz, 1928-1932

The Graduation Studio started with the research on numerous office buildings to gain deeper knowlegde on the **historical and contemporary workplace.** We studied the office floorplate in detail and this inquiry resulted in the recreation of the undermentioned appointed image. Spot the differences.

The National Insurance Building was designed by the architect **Sigurd Lewerentz**. Lewerentz had a very complex mind and was a private person, very much on his own. He did not like to speak about his designs, because he believed a building could speak for itself. He considered the **psychological effects** of architecture on humans, which is rare and often lacking in the work of his architectural contemporaries. Initially, he focused on **Nordic neoclassicism**, which is visible in the spiritual and mythic considerations of **nature and human perception**. In 1930 his line of work changed. He started doing important research in the architectural field of the contemporary avant garde of Le Corbusier, Mies van der Rohe and Walter Gropius. (Dymling & Constant, 1997).

I admire the mindset of his first work. This notion of considoring nature and the human perception inspired me in my own process of designing the transformed bank of the future.

02

03

The interior of the executives office in The National Insurance Building, designed by Sigurd Lewerentz and the simulated interior of the executives office in The National Insurance Building, collective group work.

SAS office building, Niels Torp, 1987-1988

The second precedent we studied was the **SAS Frösundavik Office Building**, designed by Niels Torp.. This building mainly houses the Scandinavian Airlines Headquarters and the SAS Group head office. The idea was to create its own city center; a micro society for the SAS Group. The interior main 'street' connects individual buildings. These buildings are in dialogue with each other through their terraces and balconies. Some are even physically connected by pedestrian bridges. The **internal street** becomes a social space and forms an atrium with **natural lighting** that changes during the day. The meeting spots, stairs, bridges and elevators are constructed in a steel structure and divide the street into different zones. The street is transparent and inviting.

This atrium, the internal street, provides social gathering spaces for all 'inhabitants' of the SAS building. I took this idea of connecting people in a **green environment** illuminated by natural lighting into my own project.

04

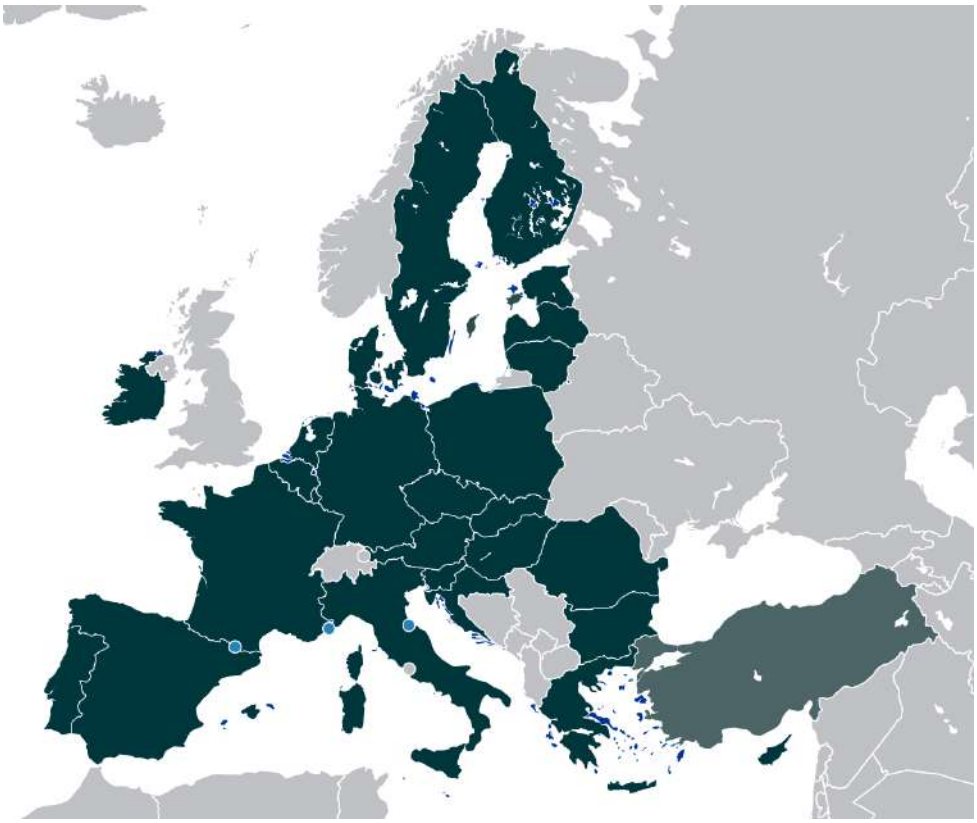
05

SAS office building, Niels Torp, 1987-1988

CONTEXT: BELGIUM AND BRUSSELS

The **City of Brussels** is part of the Brussels-Capital Region and forms the capital of Belgium and the EU. Its population is over 2 million and this number is expected to increase significantly. In the Brussels-Capital region, 70% of the population is of foreign origin. The City of Brussels counts 1**43 different nationalities** and therefore forms a multicultural landscape.

In terms of **climate strategy**, Belgium is not doing the best job. The European Commission has set an international goal of a climate-neutral EU in 2050. All member states, including Belgium, are obliged to create a long-term strategy for this objective. According to the **Climate Change Performance Index 2022** (CCPI), Belgium's climate protection performance has decreased again, as was the case last year. The country this time drops nine ranks and is now **49th** in a list of 60 countries. Belgium's overall climate ambition is still held back by the Flemish government. Therefore, a court rule in Belgium against the federal and regional governments was held this year, because of inadequate responses to the **climate crisis** and for failure to uphold promises.



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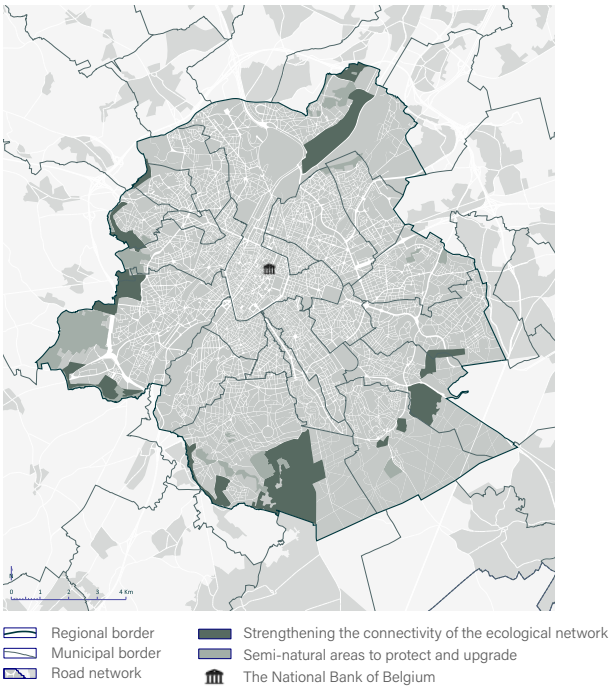
Member states of the European Union, accessed from https://european-union.europa.eu

The local development plan of **Brussels** has not been well received either. The **Regional Development Committee** [Gewestelijke Ontwikkelingscommissie (GOC)] conludes from the **Regional Sustainable Development Plan** [Gewestelijk Plan voor Duurzame Ontwikkeling (GPDO 2018-2040)] that the Brussels Region lacks ambition and vision when it comes to the city of tomorrow. The plan misses out on its objective: to set out a clear and global vision of Brussels.

The GPDO lacks themes such as **climate change, education and culture,** and is limited to infrastructure, housing, and public transport. On top of that, everything has to be 'sustainable', but what the word really means remains rather vague. Justification is not included in the GPDO. As a result, the plan sometimes reads like a real estate catalog of projects. Although the problems are described in detail, it is not clear how exactly the government wants (or can) convert those intentions into something tangible. To conclude; there is room for improvement.



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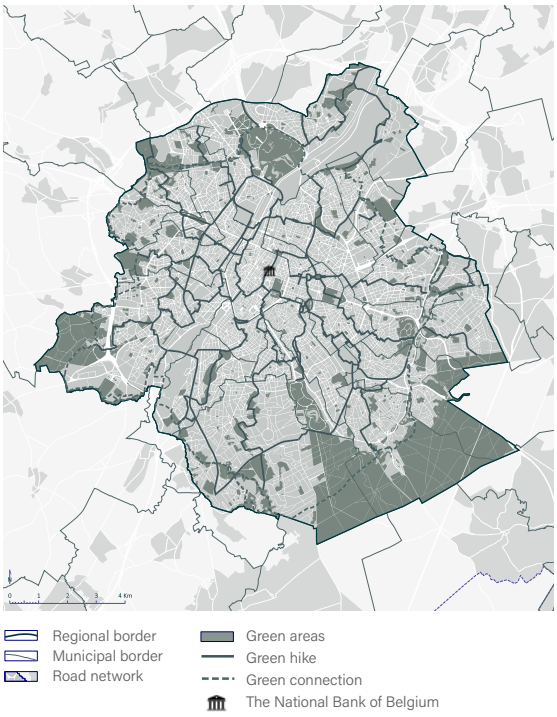
Protecting biodiversity, Gewestelijk Plan Voor Duurzame Ontwikkeling (GPDO 2018), Perspective.brussels.



08

Green network, Gewestelijk Plan Voor Duurzame Ontwikkeling (GPDO 2018), Perspective.brussels.

CONTEXT: SITE VISIT OF THE NBB

09

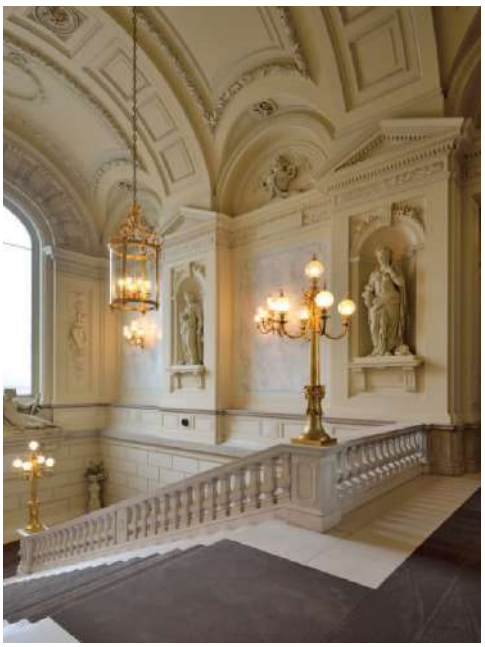
The vaults of the National Bank of Belgium, they are now empty or filled with paperwork.

We arrived at the bank through a tunnel under the street at the old vaults of the bank. This is of course not a typical way of entering the building, but the 200 meter long façade with the 2 meter high fence surrounding it also provokes an overwhelming feeling, like you are not supposed to enter. In the picture you see the old security fences of the vaults. Having said that, there is nothing of value in the vaults anymore, and therefore, they are empty - a space with great potential.

10

Inside the banking hall, National Bank of Belgium.

We had to go through different security areas to get from the vaults to the banking hall. This hall seemed smaller than I had imagined. Having said that, it is a lot of unused space - a great opportunity for nature to inhabit.



11

The palace of the governor, the National Bank of Belgium.

The palace is very impressive. It is strange to realize that most of these rooms are not in use. Half of it is still in renovation. This is the part where the museum used to be, but they stopped this renovation because the museum moved to the other side of the road. The palace is now the back of the building, but used to be the prominent front.

(THE NATIONAL BANK OF BELGIUM)

12

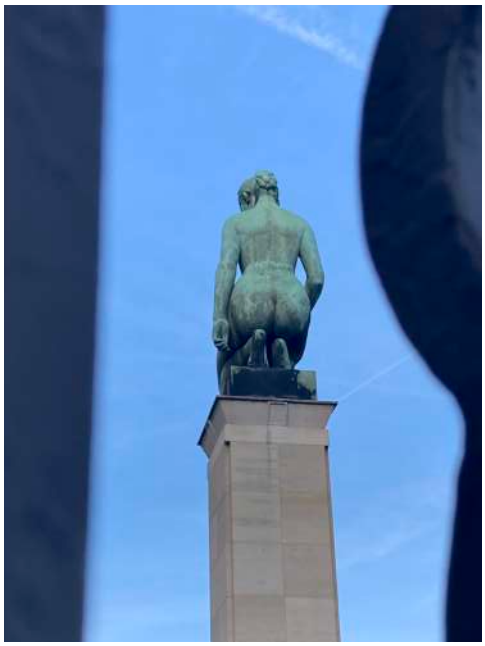
The surroundings of the National Bank of Belgium, with the concrete jungle.

There is a lot of development going on in the area already. There is a new apartment block being built across from the bank. The new Police headquarters will be in the building across from the road. Then on the other corner, there will be new apartments too. Behind that building there is a 'park', that we call the 'concrete jungle'. There is almost no greenery there.

13

"The seated woman", sculpted by Georges Grard, the National Bank of Belgium.

There are two sculptures on either side of the bank of two women resting on square columns. On the south side, a "seated woman", sculpted by Georges Grard, and at the other end a "kneeling girl" who has become the symbol of the National Bank of Belgium, designed by Charles Leplae. With these two monumental statues, which have no symbolic meaning whatsoever, the Bank mainly wanted to emphasize its presence in the Brussels landscape.



14

"The kneeling girl", designed by Charles Leplae, the National Bank of Belgium

Both artists, Grard and Leplae, were particularly attracted to the human body, not only as an art object, but also as an image of life and as a mirror of an "inner reality". The young kneeling girl emphasizes the transience of life, radiates youth, freshness, even fragility, despite its size. The seated woman is the luscious and mature nude that radiates a powerful interiority.

02. THE FUTURE BANK

THE FUTURE BANK

As defined in the studio manual

"The relentless ***extraction of profit*** *has unbalanced the finite resources of the planet to the extent that humanity now faces an* ***existential threat****. As we attempt to address the enormous challenges the future holds, we ask what might be the role of a* ***future central bank****? Built to its boundaries, the introverted nature of the complex reflects the historic need to secure* ***Belgium's financial reserves*** *within its walls. The National Bank has decided to redefine itself physically. In collaboration with the City of Brussels, it has established an architectural competition to decide how to consolidate the workspace of the 1500 members of office and research staff who will continue to work across the site, while the loss of its traditional secure functions has led it to envisage itself as a more* ***open, permeable environment.*** *The main goal is considering what the shifting role of the Bank might be as it transforms from an institution that seeks to uphold the status quo, to one which must become an* ***agent of change*** *if it is to help lead the huge transformations required to successfully* ***decarbonise our economy****."* (from the studio manual).

15

"The National Bank of Belgium" altstadt.brussels. accessed October 7, 2021, https://altstadt.brussels/national-bank-of-belgium

CONTEXT: THE NATIONAL BANK OF BELGIUM

The **bank** as a collective system has been recently scrutinized due to persistent **climate change**. So has the National Bank of Belgium been under attack for **blocking climate integration** at the European Central Bank[1]. ClientEarth has sued The National Bank for **failing to meet environmental requirements** when purchasing bonds[2] and the organisation FairFin has started a petition to stop the National Bank from "**fuelling the climate crisis"**[3]. As Brussels is working towards a **Doughnut Economy Model**, which means to provide for human needs while staying within natures boundaries, the **National Bank of Belgium** investing in climate destructing companies is contradictory.

1. Reclaim Finance, "The National Bank of Belgium (NBB) Must Stop Ignoring Climate," Reclaim Finance, May 12, 2021, https://reclaimfinance.org/site/en/2021/05/12/the-national-bank-of-belgium-nbb-must-stop-ignoring-climate/

2. Climate Change Litigation. "ClientEarth v. Belgian National Bank." Climate Change Litigation. Accessed October 24, 2021. http://climatecasechart.com/climate-change-litigation/non-us-case/clientearth-v-belgian-national-bank/.

3. FairFin. "Petitie Aan De Nationale Bank Van België: Stop De Financiering Van De Klimaatcrisis!" FairFin. Accessed October 24, 2021. https://www.fairfin.be/petitie-aan-de-nationale-bank-van-belgie-stop-de-financiering-van-de-klimaatcrisis.

16, 17, 18

16. "Petitie Aan De Nationale Bank Van België: Stop De Financiering Van De Klimaatcrisis!" FairFin. Accessed May 27, 2022. https://www.fairfin.be/petitie-aan-de-nationale-bank-van-belgie-stop-de-financiering-van-de-klimaatcrisis.

17. Tribune, Vrije. "'ECB Moet Haar Enorme Hefboom Gebruiken Om Geld Richting Een Groene Economie Te Laten Stromen." Knack, May 15, 2021. https://www.knack.be/nieuws/ecb-moet-haar-enorme-hefboom-gebruiken-om-geld-richting-een-groene-economie-te-laten-stromen/.

18. "ClientEarth v. Belgian National Bank - Climate Change Litigation." Accessed May 27, 2022. http://climatecasechart.com/climate-change-litigation/non-us-case/clientearth-v-belgian-national-bank/.

Petitie aan de Nationale Bank van België: Stop de financiering van de klimaatcrisis!

1100 miljard euro. Dat is hoeveel de Europese Centrale Bank (ECB) sinds het begin van de pandemie beschikbaar maakte om de banken overeind te houden. Een groot deel van dat geld vloeit naar steenkool-, olie- en gasbedrijven en andere grote vervuilers. Ook de Nationale Bank, de Belgische tak van de ECB, pompte heel wat van dit geld in fossi
de andere. Door de economis
maken centrale banken de kl

'ECB moet haar enorme hefboom gebruiken om geld richting een groene economie te laten stromen'

12/05/21 om 10:23 Bijgewerkt om 15:24

Vrije Tribune
Hier geven we een forum aan organisaties, columnisten en gastbloggers

'Centrale banken hebben door hun grote rol in onze economie ook een enorme impact op de klimaatcrisis. Daarom woedt binnen de Europese
er het integreren van
Bank lijkt op de rem te
die de Nationale Bank

ClientEarth v. Belgian National Bank

Filing Date: 2021
Reporter Info: 21/38/C
Status: Pending

Case Categories: Suits against corporations, individuals > Corporations > Disclosures
Suits against governments > Human Rights
Jurisdictions: Belgium > Brussels > Court of First Instance
Principal Laws: EU > Treaty on the Functioning of the European Union > Article 11
EU > Charter of Fundamental Rights of the EU

Summary:
On April 13, 2021, ClientEarth filed suit against the Belgian National Bank for failing to meet environmental, climate, and human rights requirements when purchasing bonds from fossil fuel and other greenhouse-gas intensive companies. The Belgian National Bank has participated in the European Central Bank's Corporate Sector Purchase Program (CSPP), in which six national central banks purchase bonds from eligible companies to improve financing conditions by lowering debt costs. ClientEarth alleges that over half of bonds purchased under the CSPP were issued by greenhouse-gas intensive sectors, and that the program therefore exacerbates the climate crisis. ClientEarth alleges that the Belgian National Bank's participation in the CSPP, by not taking into account climate, environment, and human rights impacts, violated Article 11 of the Treaty on the Functioning of the EU and Article 37 of the EU Charter of Fundamental Rights (both concern the obligation to integrate environmental protection into EU policies). As part of its case, ClientEarth seeks a preliminary reference to the European Court of Justice to determine whether the decision to establish the CSPP was lawful.

"I decided we had enough public sculptures of men sitting on horses."

– Agnes Denes, artist.

FEMINISM AND CLIMATE ACTIVISM

My Research Plan, written at the start of the year, included the feminist concern of the **environmental destructing system** of the corporate world. This female position towards the human accountability in climate change and the carbon footprint of our contemporary economic system has led to the creation of ***The Wheatfield Project*** by Hungarian-American artist Agnes Denes. She established two acres of **wheat** on the Battery Park landfill in Manhattan, in New York in 1982. The choice of location provided a strong message as it was placed two blocks away from **Wall Street** and the **World Trade Centre**, and facing the **Statue of Liberty**. It represented both **world hunger** and misplaced priorities, as the power of an emotional connection with the earth and the care which the crops required. The seeds were carefully placed by hand and the soil was maintained for almost four months. The field had produced an impressive amount of **500 kilograms of healthy wheat**. This project reflects precise female care and a feminized responsibility towards our changing environment. Her work and the messages that it sends, has been a great source of inspiration for me.

19

Agnes Denes, "Wheatfield - A Confrontation," Accessed October 31, 2021 from http://www.agnesdenesstudio.com/works7.html.

"Denes's desire to 'dig deep' in the shallow instrumental ground of modern globalization has been an exceptionally strong political and material imaginary for architects, planners and urbanists who are engaging in questions of 'landscape' and 'ecological urbanism'."

- from Peg Rawes, "Architectural ecologies of care." In *Relational Architectural Ecologies: Architecture, Nature and Subjectivity.* London: Routledge, 2013. p. 51.

1. Gail Schwab, "The Ecology, Economy and Politics of the 'One' in Food Culture," in *Relational Architectural Ecologies: Architecture, Nature and Subjectivity* (London: Routledge, 2013), pp. 156-172.

2. Lorraine Code, "'Manufactured uncertainty': Epistemologies of mastery and the ecological imaginary," in *Relational Architectural Ecologies: Architecture, Nature and Subjectivity* (London: Routledge, 2013), pp 73-91.

3. Rachel Jones, "Fear, the sublime and sheltered difference," in *Relational Architectural Ecologies: Architecture, Nature and Subjectivity* (London: Routledge, 2013), pp 91-109.

4. Rosi Braidotti, "Posthuman relational subjectivity and the politics of affirmation," in *Relational Architectural Ecologies: Architecture, Nature and Subjectivity* (London: Routledge, 2013), pp 21-40

MANIFESTO

Our current **financial system** is busy digging its own grave. Literally. For centuries, our economy has exploited the **planet's resources** without considering the consequences of this process. According to professor Gail Schwab from Hofstra College, NY, this economic model will eventually lead to **extreme environmental destruction**[1]. Our system thrives on natural resources and there is something inherently contradictory in ignoring its costs. "What we get from nature is fundamental to our economy, and without these inputs we would in fact produce nothing."[1] Without natural services, there would be **no economy**. But it almost seems like nature's laws don't apply to **market centred capitalists**, who focus on short-term profits and fundamentally ignore ecological costs, even when regulatory measures fly in their faces[2]. Nature's fate has been put under the control of the **capitalist spirit**, because capitalism is an **'Otherness' engine**[3]. Capitalists separate themselves from the natural world and fail to acknowledge human beings' dependency on it. Rosi Briadotti describes 'Otherness' as the highlighted differences from the dominant vision of **'Sameness'**[4]. "These 'differences' provide relations of domination and exclusion: to be **'different from'** came to mean to be **'less than."** The ones who are different have become disposable in our economy. This mindset of universalism and abstract masculinity has caused a dichotomy: the **I** (the universal man) versus the **other** (women, natives, animals, plants, genes and other earth 'others'). Climate issues are human issues to solve, to which neither sex nor any other specificity – race, class, ethnicity – is relevant. We have a collective dependency on and responsibility towards the **natural world**. It is inappropriate to think of nature in terms of pure **economic profit** while the economy is inseparable from this active materiality that reaches far beyond it. The market centred capitalist does not stand above or outside of nature. We should think of new ways of relating to nature and to the earth, for the sake of the survival of our beloved system. As **The National Bank of Belgium** has a pivoting role in shaping the country's finances, the NBB can be an example, a pioneer, a steward in changing to a nature-inclusive institution. Let the National Bank of Belgium be a **guardian of the material forces of nature**.

VALUES-BASED BANKING

One way to save our economic system is to switch to **values-based banking.** Values-based banking has three main focus-points: **people, planet and prosperity.** This means that these banks avoid investments in causes that have possible negative impact in either of these three points. This concept has attracted more attention in the past few years, because of the motivation implemented by the United Nations in their publication of the **Sustainable Development Goals** in 2015.

Based on a corporate report by the NBB ***The Bank and her social responsibility*** [De Bank en haar maatschappelijke verantwoordelijkheid][1] from February 2021 the bank is now working on a new system and a change in management: serving society, being resource-efficient and human-centric, which fits perfectly within the three focus points of values-based banking. In the report, they mention that they want to change the image of the bank and want to be a **green and fair bank**, that takes into account inclusion and diversity and a bigger commitment to stopping climate change. Unfortunately, they use the excuse of 'change takes time' to fully commit to their set goals.

1. National Bank of Belgium, "De Bank en haar maatschappelijke verantwoordelijkheid" Corporate Report, National Bank of Belgium, February 2021

20

The main banking hall through time (1980, 2020, 2060), personal work. As money is now regulated digitally, gold is no longer relevant. Without any gold in the vaults, the vaults provide space to compromise for the bank's past climate destructing investments. This has been my focus point for the Social Plinth exercise.

03. THE SOCIAL PLINTH

As defined in the studio brief: *"The **plinth** itself is a base or **fundament**, platform or ground, both aesthetic and technical. It is a separation of distances, elevating something above its surroundings, showing what's important. The plinth can monumentalise and **express power and authority.**"*

*"The **Social Plinth** could function for representation, physical invitation, or invitation to transform the way in which the institution works and its **role and responsibilities** within society."*

My **Social Plinth** re-grounds the institution of The National Bank of Belgium to represent the **environmental responsibilities** that the bank caries towards society and the awareness that the bank has about its **accountability.**

The **National Bank of Belgium** has been investing in climate destructing companies. The **Social Plinth** proposes to compromise this destruction by creating a space dedicated to increasing **biodiversity**.

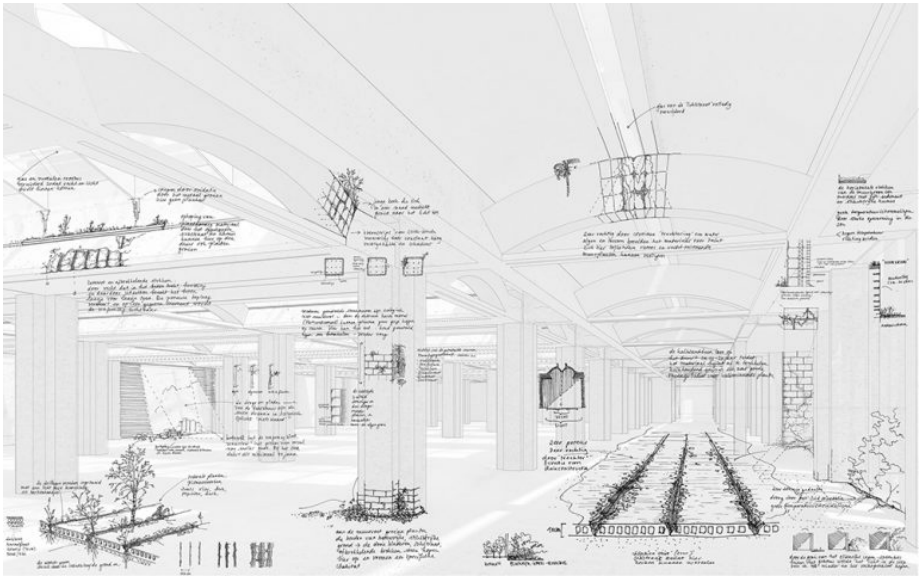
This idea originates from a personal observation of **climate change**. Last summer, Belgium, Germany and The Netherlands encountered severe rainfall which resulted in the **flooding** of multiple rivers in the area. These weather conditions are due to a shifting climate and this makes climate change a local and contextual problem. So what happens if **The National Bank of Belgium** suffers the same fate? The risk of floods is increasing as climate keeps changing. And what happens if we do nothing? The building will start to **decay** and only the strongest parts of the building will persist.

21

Pictures of the floods in Belgium, July 2021, "'Rampzalige toestand' in België door extreme regenval: zes doden", accessed from https://www.rtlnieuws.nl/nieuws/buitenland/artikel/5241923/noodweer-belgie-regen-doden-luik-wateroverlast-overstroomd.

The project proposes a controlled process of decay in three steps, based on the project of Hannah Schubert called '**Second Nature**':

- Take out all the reusable materials such as glass, frames, installations, wiring etc.
- Strategically remove parts of the floor and provide a nutritious soil.
- Sow plants and add a watering system.



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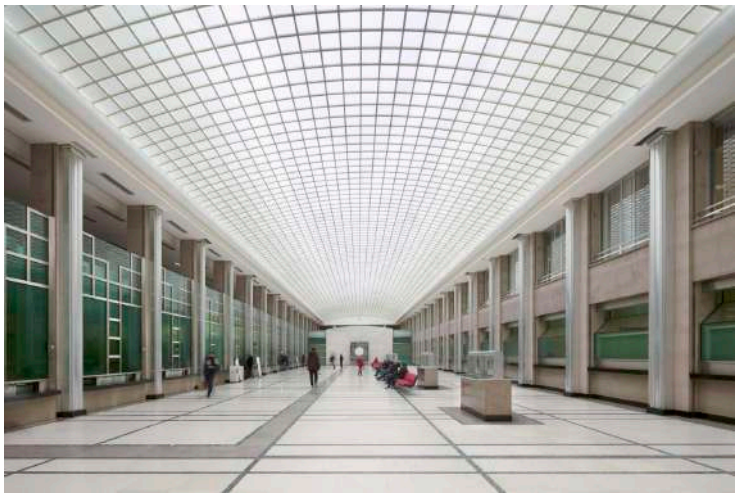
Hannah Schubert, images from ‘Second Nature’, 2014, accessed on October 24, 2021, on https://www.bouwkunst.ahk.nl/lichting/2015/student/hannah-schubert/.



*"What is the context of the **future bank**, how should it operate and what should it **protect**? Which parts of culture, nature or society might it **foster**? How might the Bank listen to, engage or make space for such **agents of change** in order that it might become one itself?"*

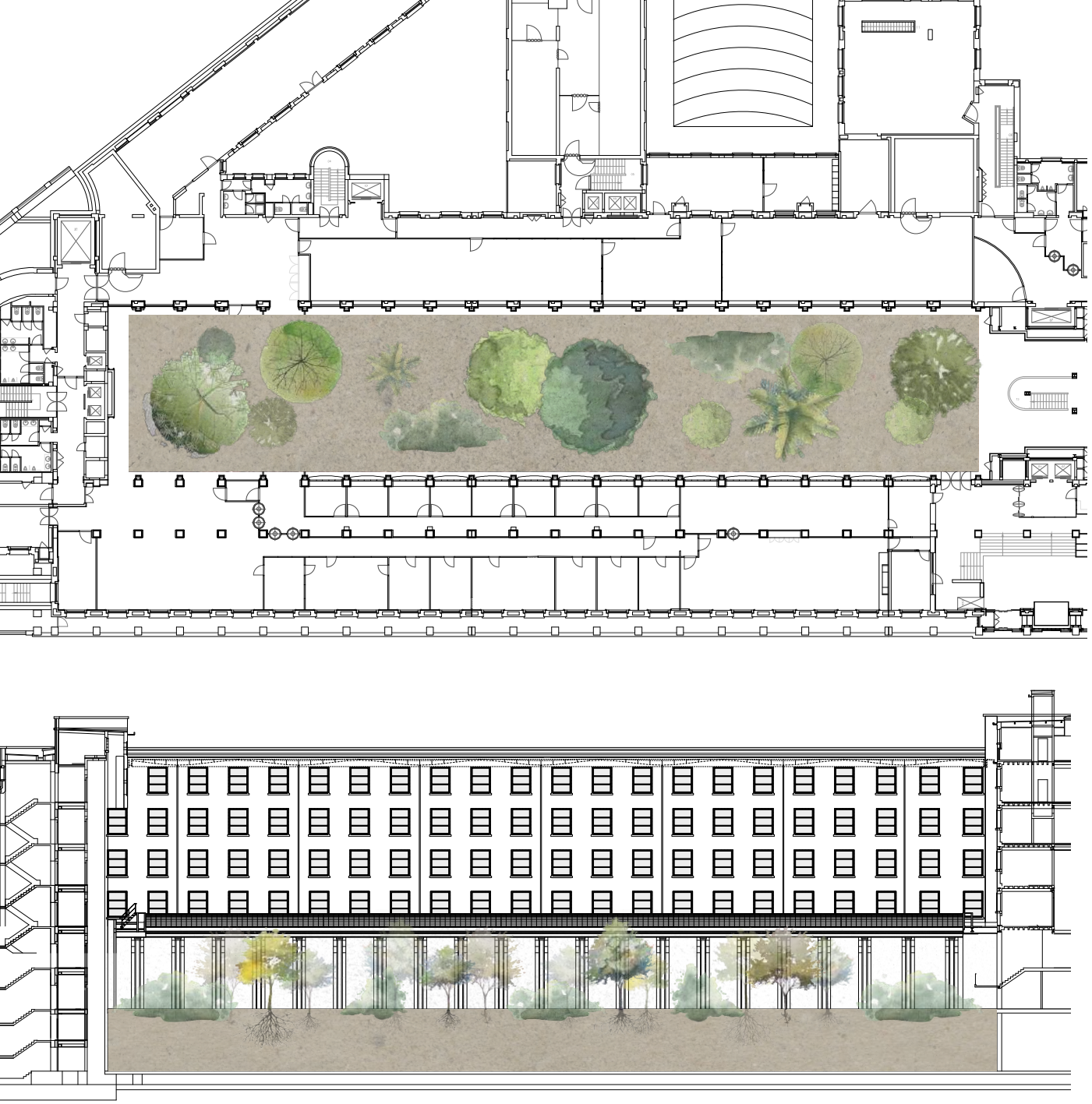
This Social Plinth is a physical habitation and ecological refuge for **flora and fauna**, without accessibility for humans. The project proposes a controlled process of decay and visualizes the **passage of time and growth**, to show the inevitability of collapse.

Ultimately, nature follows its own path; there is no final image. Letting the NBB decay in the heart of the city of Brussels gives a powerful message. As Mark Minkjan states in his Poetry of Decay[1]: *"The city's scars are stimuli for the mind. They raise questions, about memories and imaginations of a **foregone past**, and of **potential futures**."*

1. Minkjan, Mark. "The Poetry of Decay." Failed Architecture, April 12, 2013. https://failedarchitecture.com/the-poetry-of-decay/.

23

Visualizations of the process of the decay of The National Bank of Belgium, personal work.



24

Plan and section of The National Bank of Belgium with in the middle the Social Plinth, personal work.

25

Image of The National Bank of Belgium with in the middle the Social Plinth, personal work.

"Urban and architectural decay appeals to the imagination. While some consider the unfinished or collapsing parts of the city as ugly or disturbing, others feel they make an area more interesting than the picture perfect urban fabric. The city's scars are ***stimuli for the mind****. They raise questions, about memories and imaginations of a foregone past, and of potential futures. They visualise the passage of time and the inevitability of collapse, reminding us of our own transience. Decay is a process rather than a fixed image and* ***provokes thoughts and actions****. It is not in sync with progress, modernisation and determined narratives, which are characteristics of modern Western society."*

- Minkjan, Mark. "The Poetry of Decay." Failed Architecture, April 12, 2013. https://failedarchitecture.com/the-poetry-of-decay/.

"Ruins may be decaying, they are not dead. They are filled with possibilities for ***wondrous adventure****, inspiring visions,* ***quiet moments****, peripatetic playfulness, dystopic preparation and* ***artistic potential****."*

- Garrett, B. L. (2014). Explore everything: Place-hacking the city. Verso.

The soil of the Social Plinth is taken from Belgian river banks, to provide **nutrients** and to widen the rivers. No pesticides or fertilizers (or a minimal amount) will be used. **Fertilizers and pesticides** pollute water resources and aquifers and damage soil fertility; however, monocultures, which are notoriously water parched, soil depleting, and susceptible to insects and diseases, will not yield anything at all without them. Monocultures need them but polycultures don't.

26

The concept model of the Social Plinth, personal work.

27, 28

The final model of the Social Plinth, personal work.

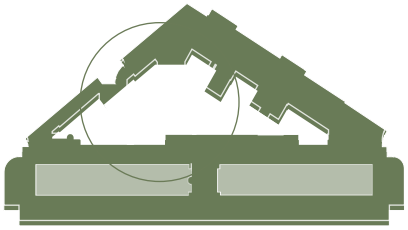
04. THE CONCEPT

Letting the **NBB** decay is, of course, not realistic. Therefore, I came up with a way to implement nature while the bank is still operational and functional, a pleasant work environment, so that the **corporate world and the natural world** can exist simultaneously.

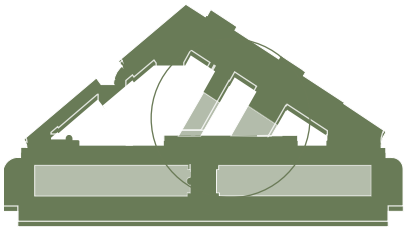
For this intervention, there are three main movements:

1. Creating the new **banking hall**
2. Opening up the courtyard
3. Implementing **exterior greenhouses**

Adding the interior greenhouse



Removing inefficient building blocks



Adding new volumes

29

The three moments, personal work.

OPENING UP THE COURTYARD

The removal of the courtyard building blocks is based on two studies:

1. Competition brief
2. Sun study

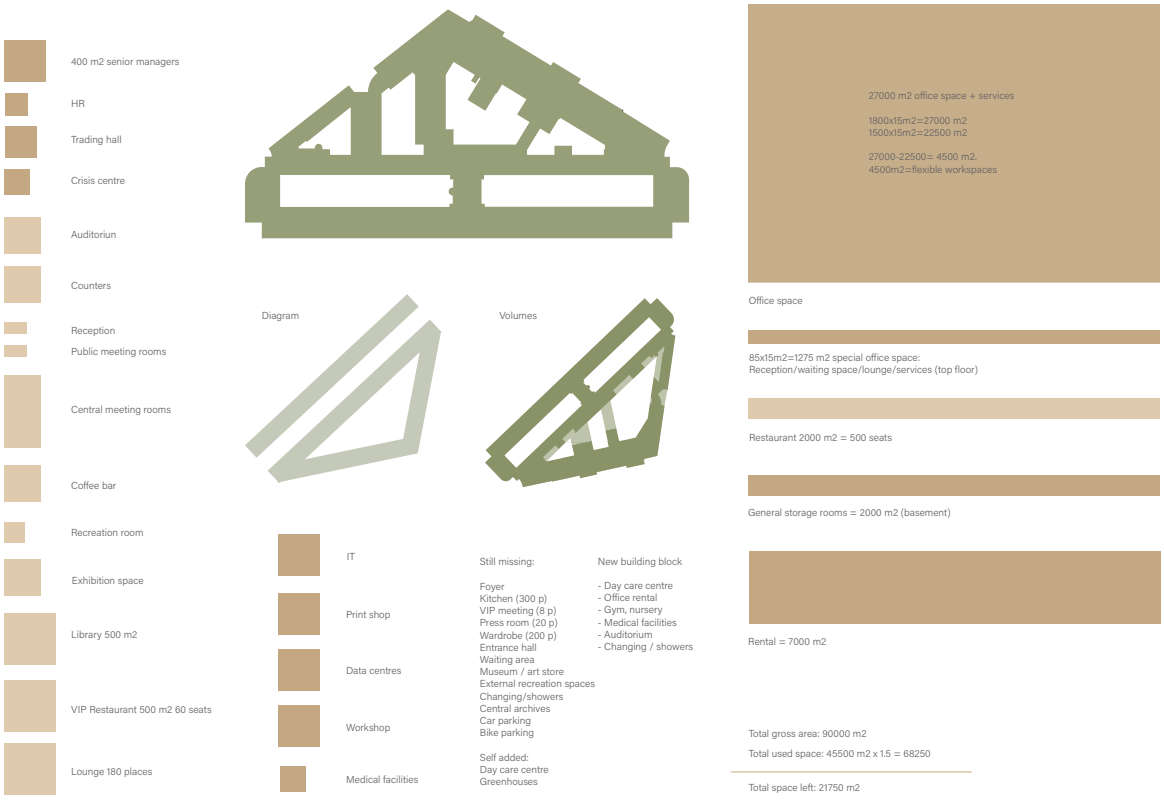
1. Competition brief

For the actual transformation of the bank building, the bank has set out an **architectural competitio**n and with that an extensive **brief.** All of the functions in this brief combined give a total area of 68.000 square meters. We've got 90.000 square meters to our disposal, which gives us 22.000 square meters of **unused space**. What I concluded from this brief and the existing floor plans is that the competition brief did not require the usable amount of floor plate that the volumes in the courtyard provided. On top of that, the floor levels inside these volumes did not match with the rest of the building.

National Bank of Belgium – Summary of programmatic competition brief				
Function	Description	Total area/m2	Breakdown	Floor
Office	Typical	1500 = 22500 1800 = 27000	12 m2 pp 3 m2 coffee/printing/ kitchenette/lockers	1500 workspaces 300 WP flexible All floors
	Senior managers	400	6x30 m2 office 100 m2 board rooms 40 m2 dining room 2x30 m2 meeting room 20 m2 coffee corner	Floor +5
	Central meeting rooms	700	1x 100 persons 2x 50 persons 8x 20 persons 6x 5 persons	
	Trading hall	240		
	Crisis centre	150	15 people	Floor -1
Public	Reception + security	25		Floor 0
	Auditorium	300	250 seats	
	VIP meeting		8 people	Palace
	Wardrobe + lockers + changing rooms		200 people	Floor 0
	Waiting area			Floor 0
	Counters	300		Floor 0
	Museum		Greenhouse	Floor 0
Social	Restaurant	500	150 seats, buffet	Floor 0
	VIP Restaurant		60 seats	Palace
	VIP Kitchen			Palace
	Kitchen			Floor 0
	Lounge		180 spaces	Floor 0
	Coffee bar		30 seats	Floor 0
	Library	500		Floor 01
	Storage rooms	2000		
	Archives			
	IT	400		
	Server rooms	50	10 m2 per floor	All floors
	Data centres	500	100 m2 per floor	All floors
	Delivery zone			
	Print shop	450		Floor 01
	Workshop	450		Floor 01
	Bike parking			
	Rental offices	7000	6000 m2 office 500 m2 nursery	New building block
	Medical facilities	150		

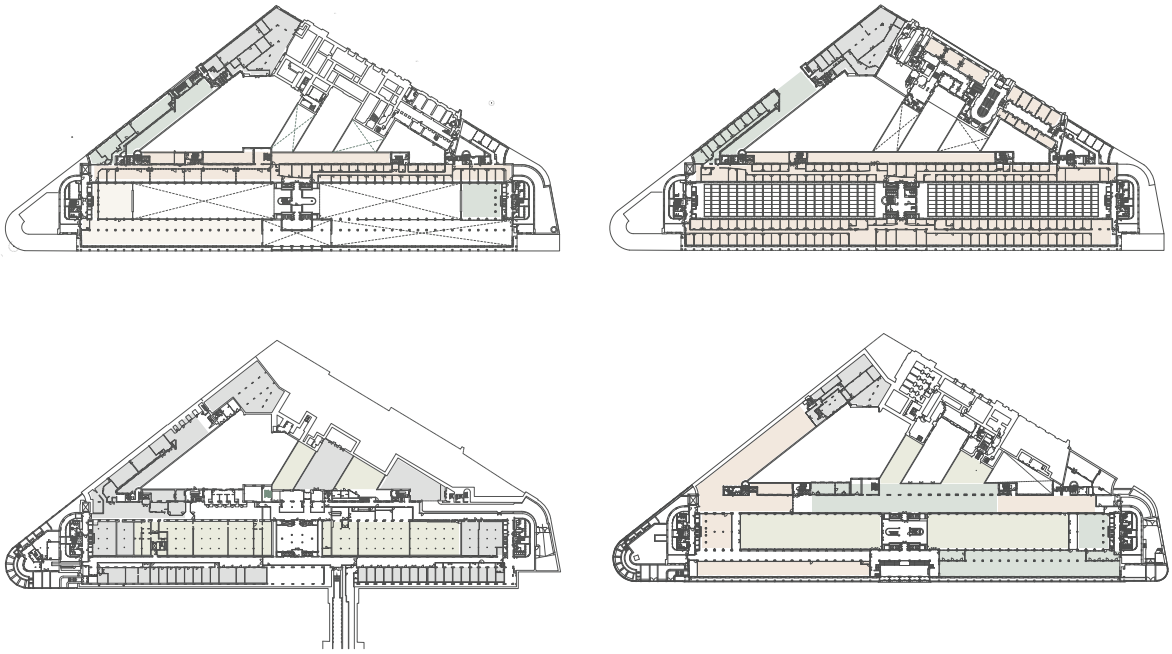
30

Overview of the competition brief, NBB.



31

Amount of square meters of the competition brief, personal work.



32

Volumes incorporated into the floor plans, personal work.

2. Sun study

Due to the existing building blocks in the courtyard, the courtyard and the building blocks behind them don't receive any **direct sunlight**. With the removal of the buliding blocks in the courtyard, the courtyard opens up completely so that nature gets a chance to grow.

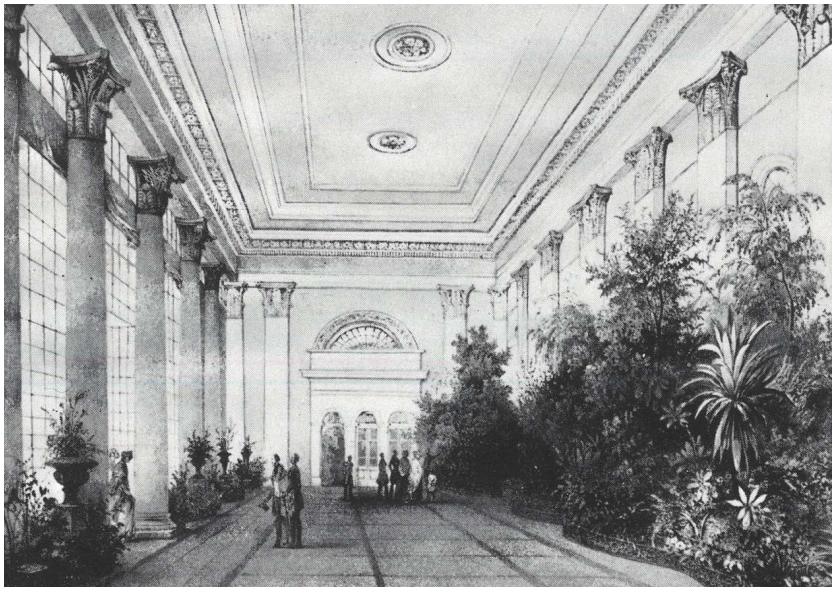
33

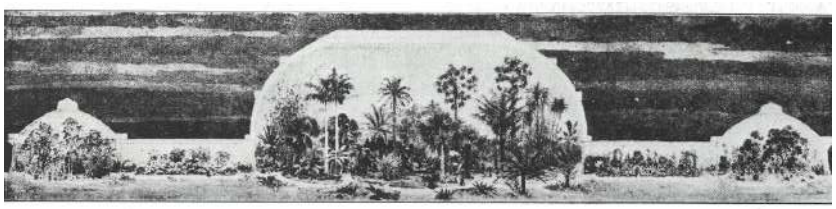
Sun study in 3D model, personal work.

34

Sun study in plan and section, personal work.

IMPLEMENTING EXTERIOR GREENHOUSES





35

Drawings from 'Houses of Glass: A Nineteenth-century Building Type' by George Kohlmeier

During the **industrial revolution,** green became deficient in the city, and people had to go in search for it. In order to preserve the vision of **paradise**, there was a need to conserve nature.

Therefore, **glasshouses** became more and more popular in Europe in the second half of the nineteenth century with the rising of **steel structures.**

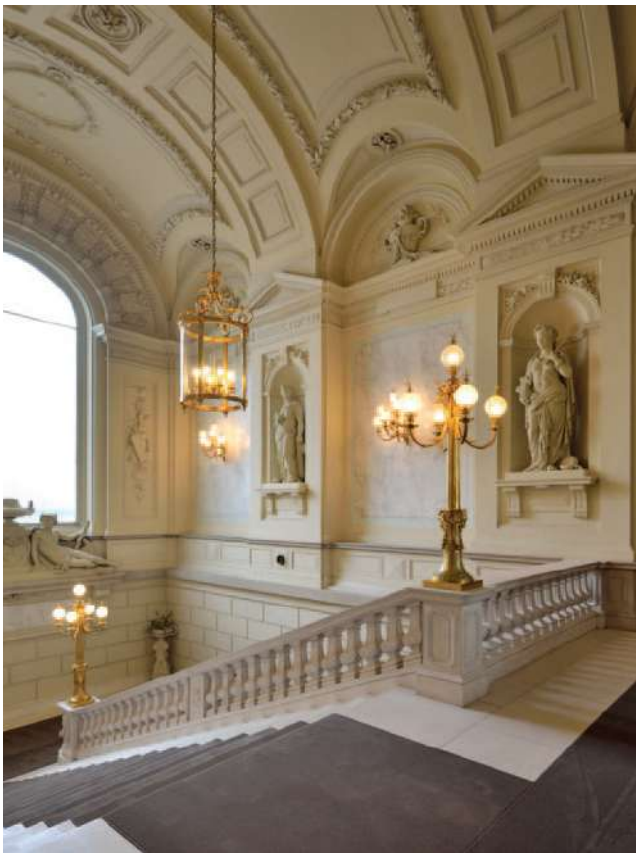
A quote from the book **Houses of Glass** by George Kohlmeier says:

"One suddenly finds oneself in a hot damp climate in the midst of ***towering vegetation****, which the tropical sun helps to project upward like green rockets rising form* ***pregnant soil.****"*

"The existence of the nineteenth century hothouse cannot be explained in terms of material factors alone. Incorporated within it are definite concepts of ***happiness.*** *The glasshouse filled with tropical plants was the dream of a happy unity of nature and man."*

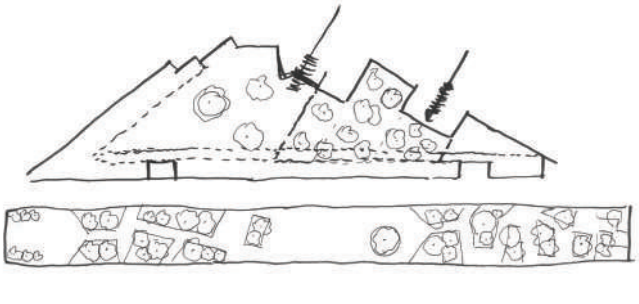
This **reintegration between nature and man** is what I aim to achieve by creating a connection between the banking hall and the governor's palace in the form of two glass houses.

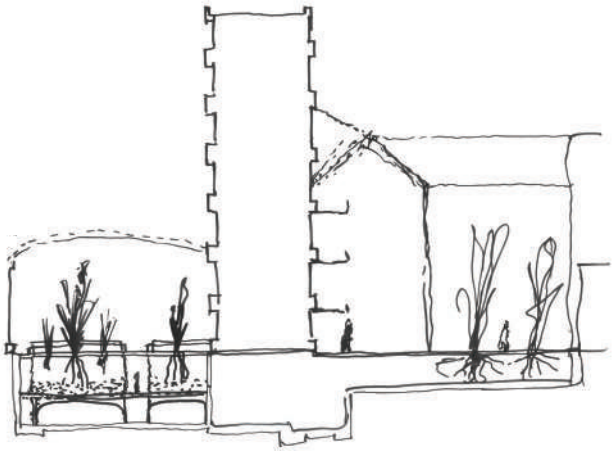
The **Palace** (pictures on the right) is the historic home of the **governor** and was built in the late nineteenth century, during the same period as the rising of the **glasshouse**.



36

Pictures of the Palace, the home of the governor.





37

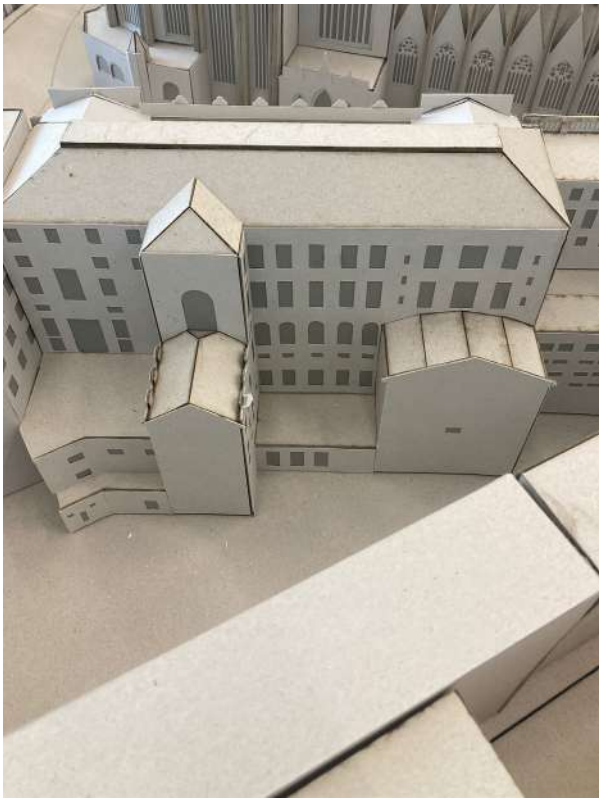
Sketches of the plan and section, personal work.

38

The current courtyard of the NBB

39

The courtyard of the NBB with intervention

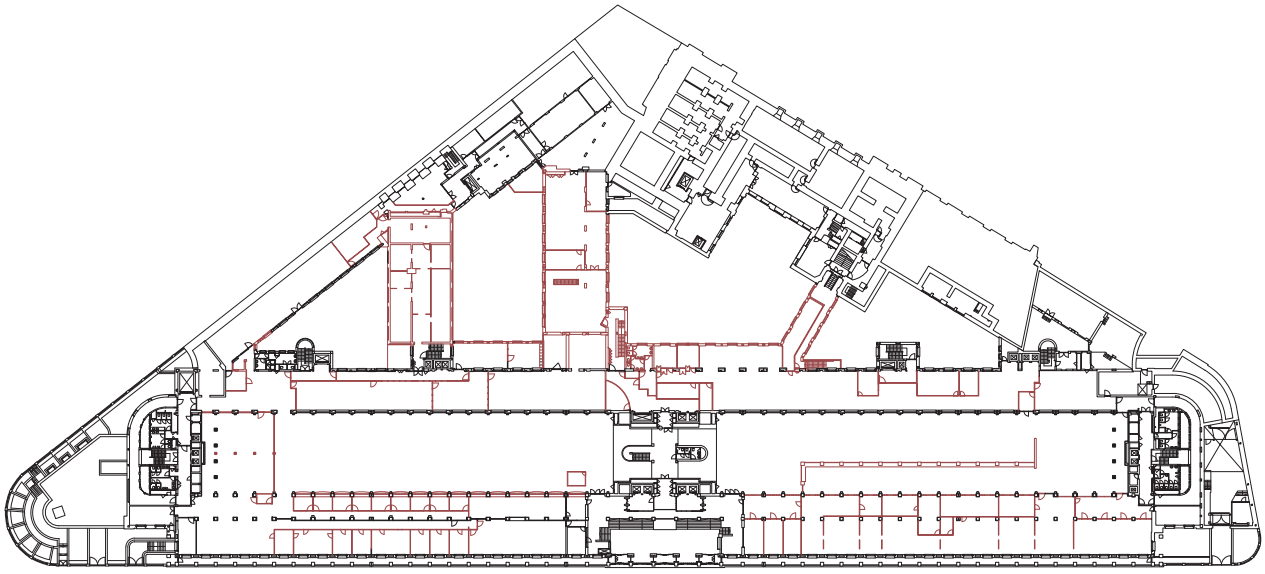


40

1:200 model without intervention, group work

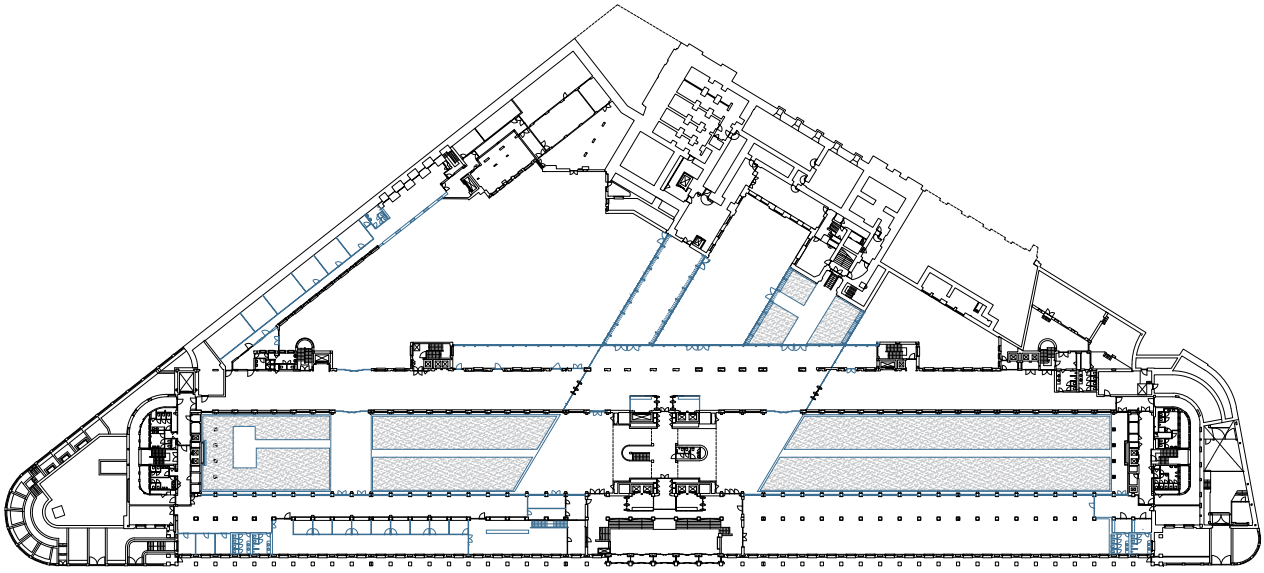
41

1:200 model with intervention, personal work



42

Ground Floor Plan 1:1500 - what I removed from the existing floor plan



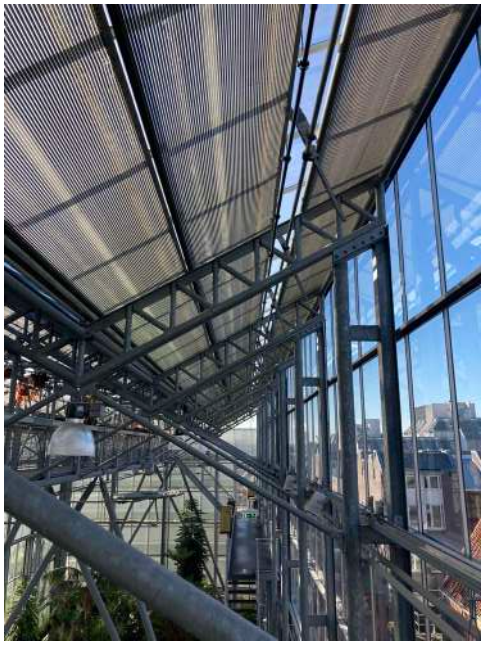
43

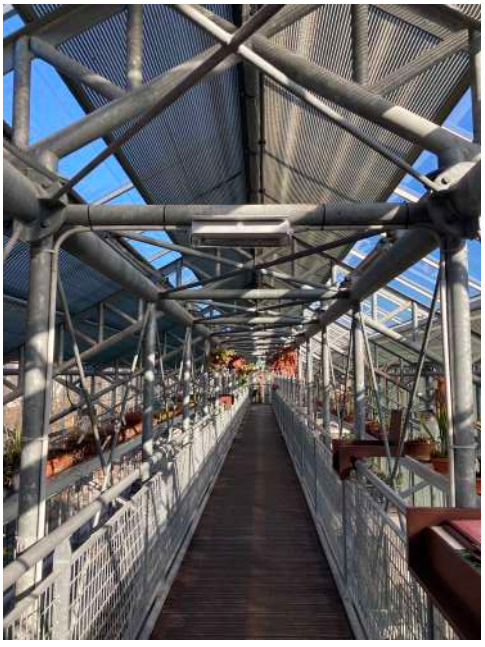
Ground Floor Plan 1:1500 - what I added to the existing floor plan

All these changes result in the following floor plan. The floor plan on the left shows the existing national bank and the floor plan on the right shows the interventions of my design.

THE GREENHOUSE

Visit of the Hortus Botanicus in Leiden





44

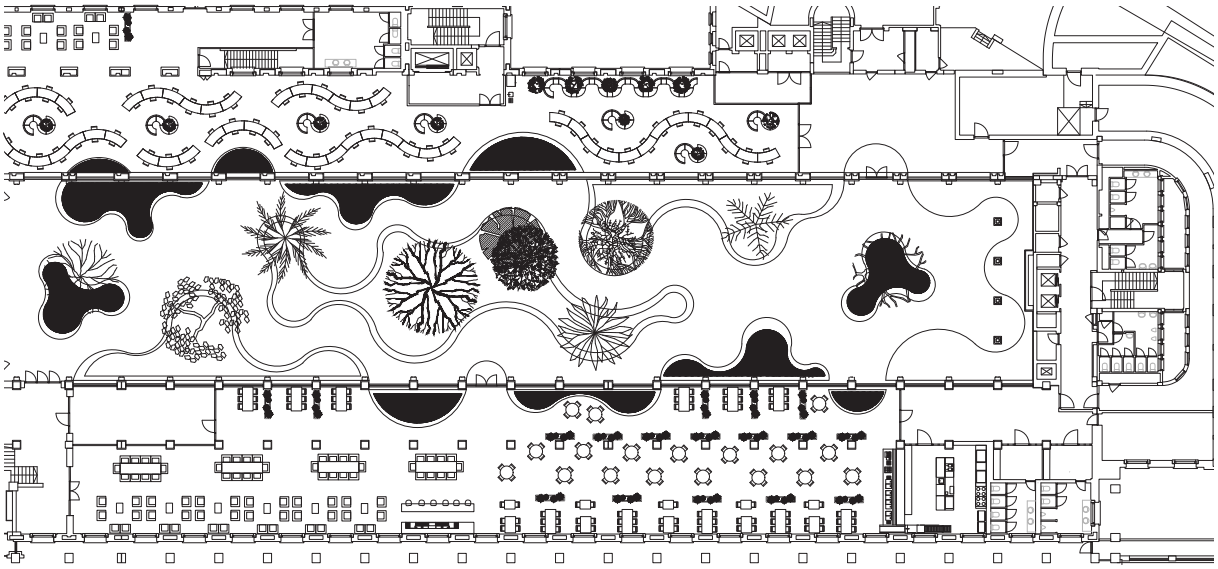
The wintergarden of the Hortus Botanicus Leiden is built in 2019, so this greenhouse is very new. It uses blinds and natural ventilation. There are heating elements when necessary.

45

The old botanical houses of the Hortus Botanicus in Leiden are built in 1937 and renovated in 2012-2013. There used to be a coal bunker underneath the glasshouse. In 1965, coal fires made way for oil-fired heating.

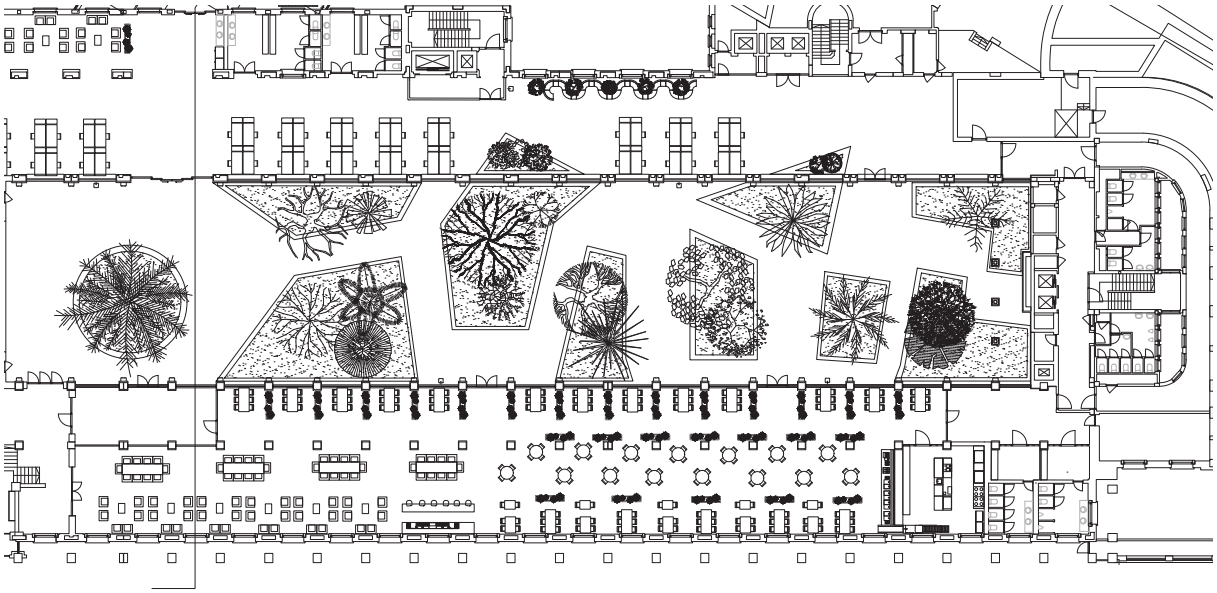
DEVELOPMENT OF THE INTERIOR GREENHOUSE FLOOR PLAN

Neither of these plans have reached the final version of the floor plan.



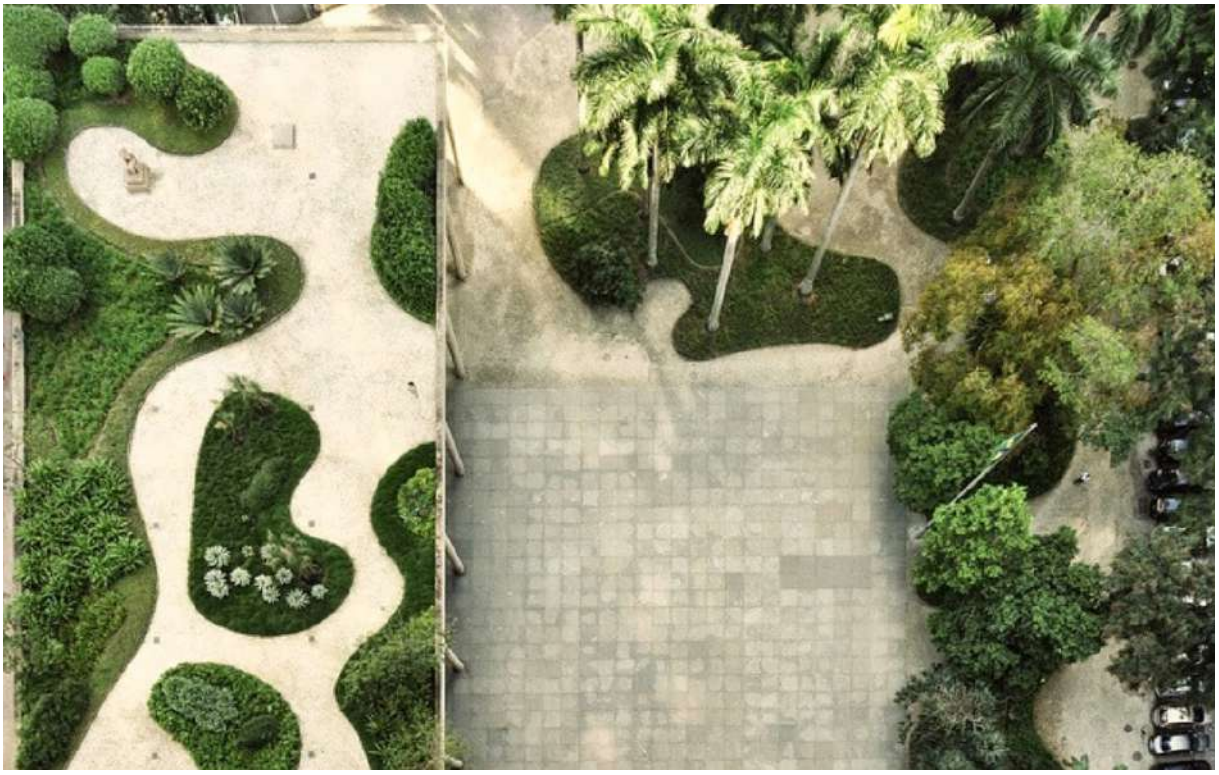
46

Development of the floor plan, based on the designs by Roberto Burle Marx



47

Development of the floor plan, based on the history of the National Bank

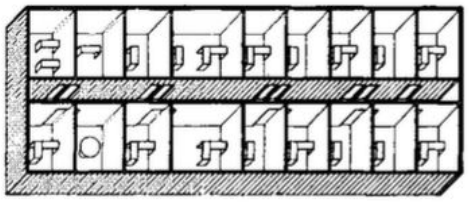


48

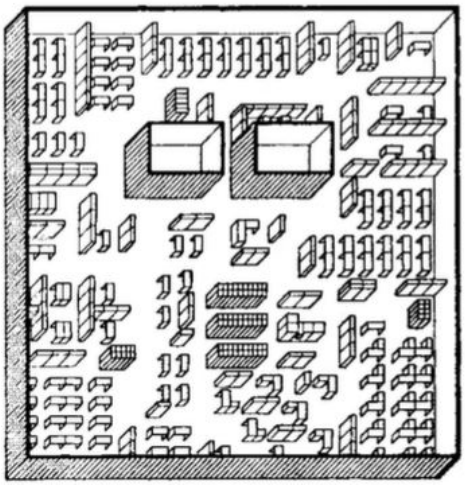
Landscape design by Roberto Burle Marx

49

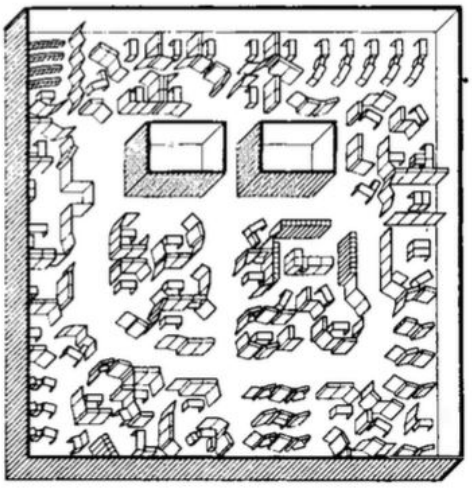
Making of the Belgian National Bank, overlay in time - research by Aneesh Nandi



Cellular



Open plan



Landscaped

DEVELOPMENT OF THE OFFICE FLOOR PLAN

Breaking down the hierachy

The transformation of the National Bank of Belgium requires research into the **office floor plan**: the historical, contemporary and future office floor plan. Francis Duffy's text 'Office buildings and organisational change' describes the development of the office floor plan in three stages; the cellular floor plan, the open floor plan and the landscaped floor plan.

Cellular floor plan
This type of floor plan is a traditional form of spatial arrangement. The plan includes lots of walls and partitions to enclose the spaces and, in this way, creates a **cell-like structure**.

Open floor plan (vs closed door)
In office buildings with an open floor plan, employees work in open areas with less privacy, but better communication opportunities. This enhances work efficiency, but creates bigger (gender) inequalities. *"In the previous century, women's jobs were classified as '**open floor**' and men's jobs as '**closed door**."* (Spain, p. 118). These open floor areas were also known as '**the secretarial pools**' and, according to Daphne Spain, these spatial arrangements removed women *"from observation and decision-making, which happens behind closed doors."* (Spain, p. 119). She mentions the fact that the spatial distance between the open floor and the closed doors withholds the improvement of women's status. Francis Duffy also mentions in his text that privacy was almost entirely abandoned at this point, and that **executives** are sometimes located in the open space too.

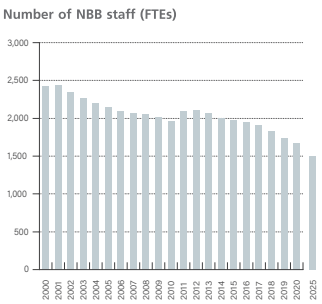
Landscaped floor plan
An attempt to remove all spatial status distinctions resulted in the landscaped floor plan in which partitions and walls are exchanged for an **organic freedom in lay-out**. The office landscape (**burolandschaft**) was meant as a status-free form of organisation with desks randomly placed inside the space and an increase in communication efficiency. This flexible floor plan is still popular in office buildings today. The Covid-19 pandemic has resulted in the rise of the **hybrid office**, wich means flexibility in terms of working at home or in the office. Because of space efficiency, employees will make use of flexible work spaces instead of having their personal desk which will not always be in use.

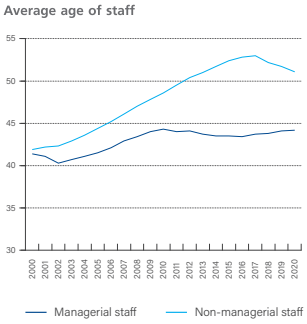
1. Daphne Spain, "Excerpts from 'The Contemporary Workplace" in Gendered Space, 1985.
2. Francis Duffy, "Office buildings and organisational change," in Buildings and Society, ed. Anthony D. King, 1980.

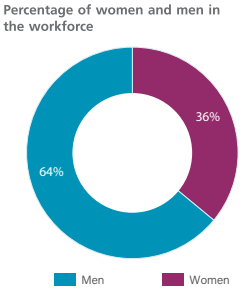
"Cellular, open and landscaped floor plan," from The Changing Workplace lecture by Amy Thomas, 16 September, 2021.

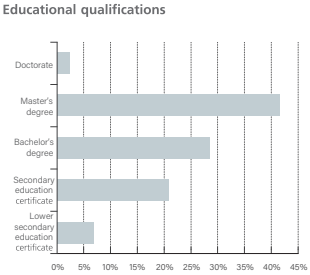
51

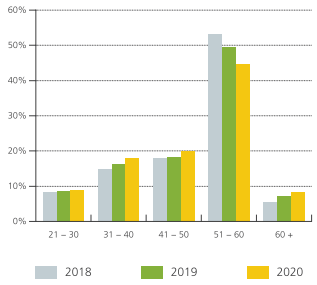
Images of employees of the NBB in 1952, archive National Bank, NBB1.

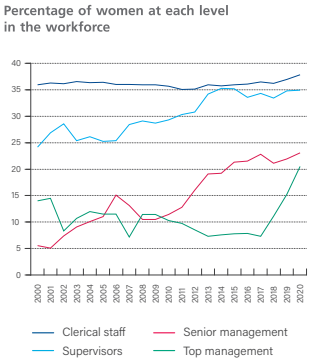












52

Overview of employee information, NBB, corporate report 2021, accessed from https://www.nbb.be/en/articles/report-2021-corporate-report.

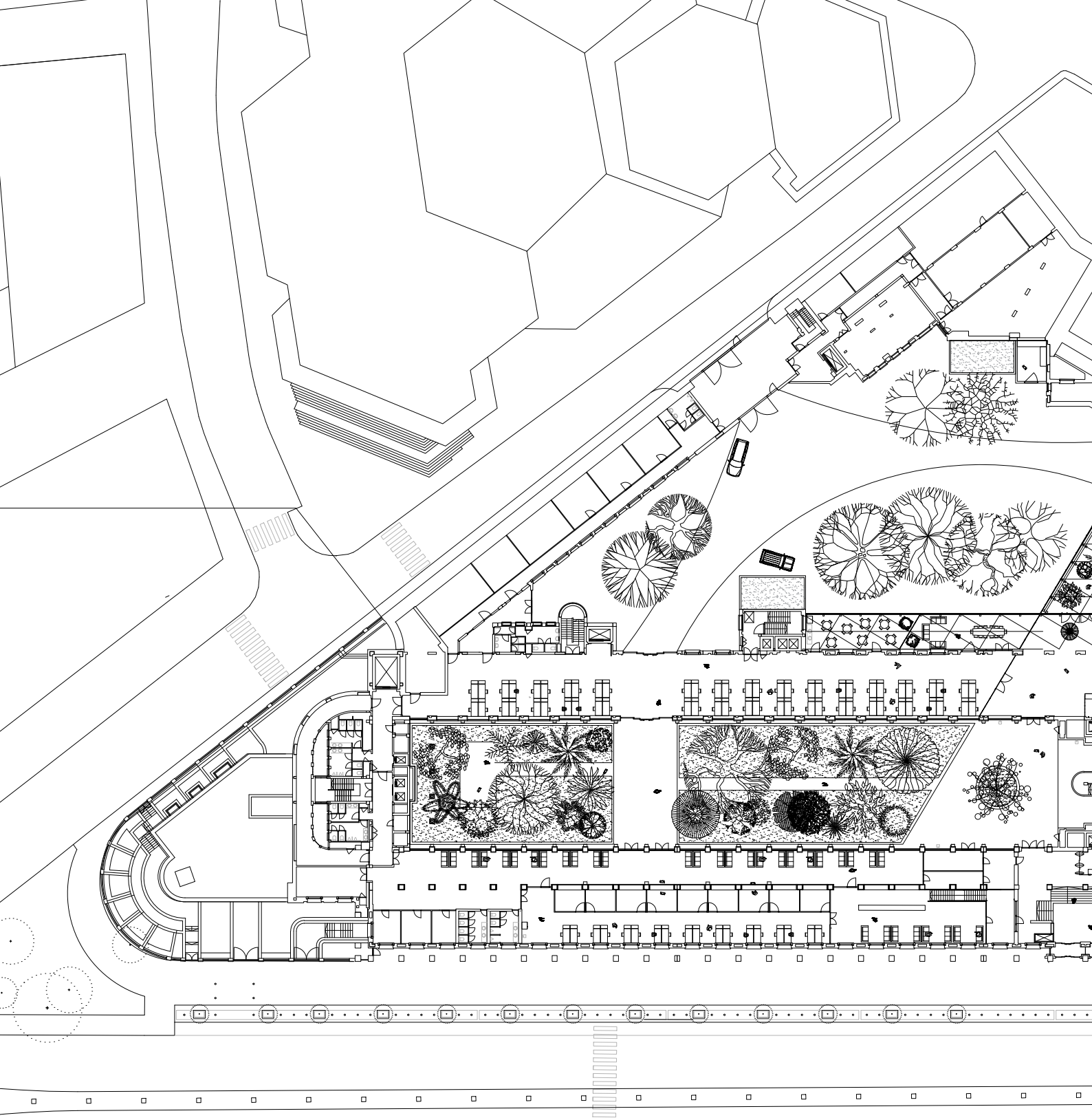
Before using this information for my design, I'm curious about the gender composition of the employee population. In the image above you see that **36%** of employees is female and **64%** is male. You can also see that the highest percentage of women is **clerical staff** and the lowest percentage is **management staff.**

The text 'Missing Subjects: Gender, Power, and Sexuality in Merchant Banking' by Linda McDowell is about **gendered power relations** in merchant banking and **sex segregation** in the labour market. An interesting question that she raises is how jobs become gendered in the first place. Historically, jobs are not gender-neutral; they are created as appropriate for either men or women (p. 233). Women mostly work(ed) in sectors such as **sociability, caring and servicing.** The historic domestic labour of women is a major source of occupational segregation. Women occupy only a small part of senior positions in financial services (p. 239). **Management** plays a central role in the construction of gendered segregation in the workplace (p. 237). This is due to the fact that masculinity influences organisational processes, marginalises women and thus contributes to the maintenance of gender segregation in organization (p. 235).

Creating spaces in which **physical labour, servicing and caring** is done by everyone brakes down the **hierarchy** of the space. This is important, because the governor has no higher status in the **greenhouse** than the cleaners or administrative workers of the bank. In the greenhouses, every living species has the **same status.**

1. McDowell, Linda, and Gillian Court. "Missing Subjects: Gender, Power, and Sexuality in Merchant Banking." Economic Geography 70, no. 3 (1994): 229–51. https://doi.org/10.2307/143992.

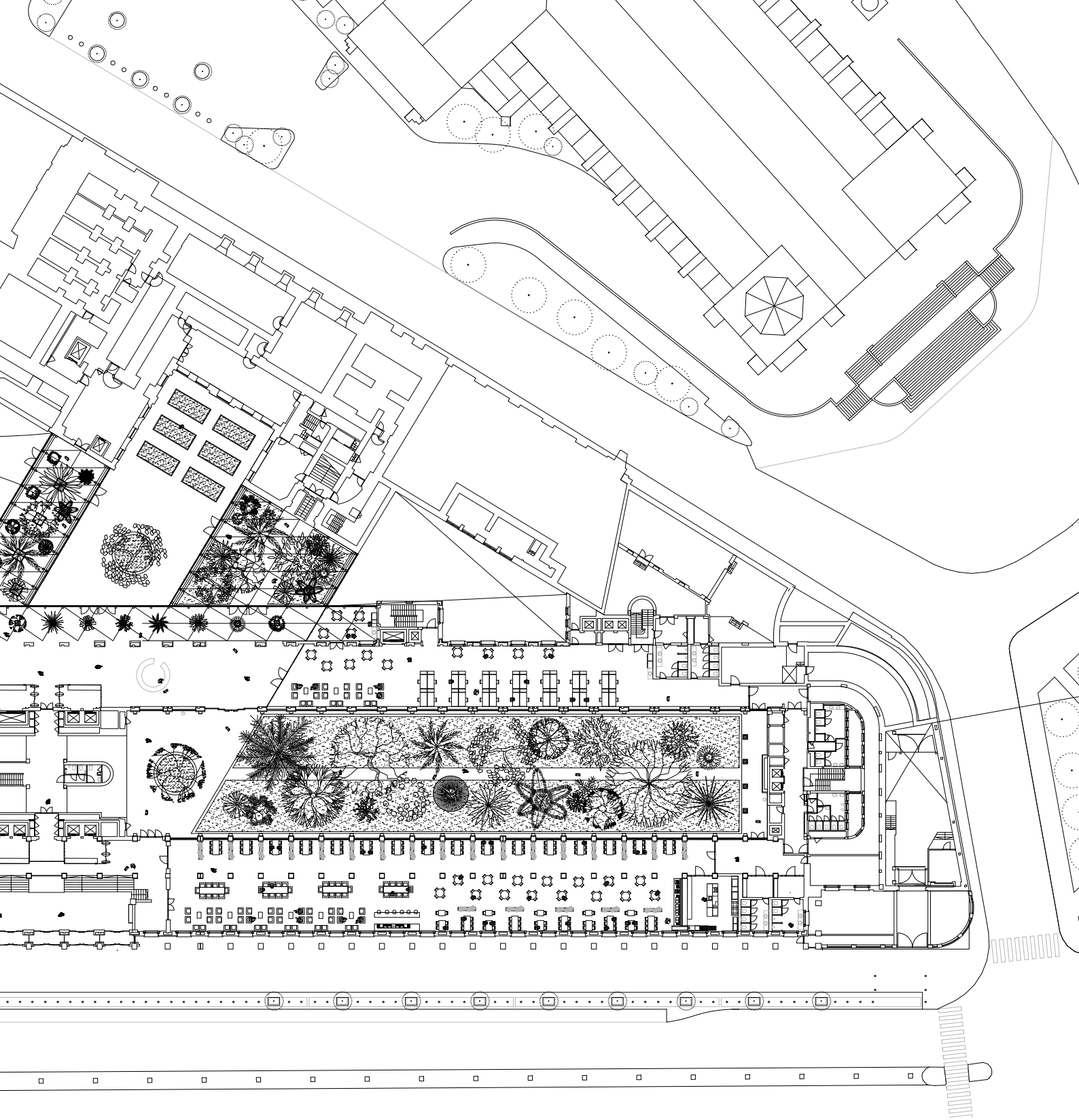
05. THE DESIGN



53

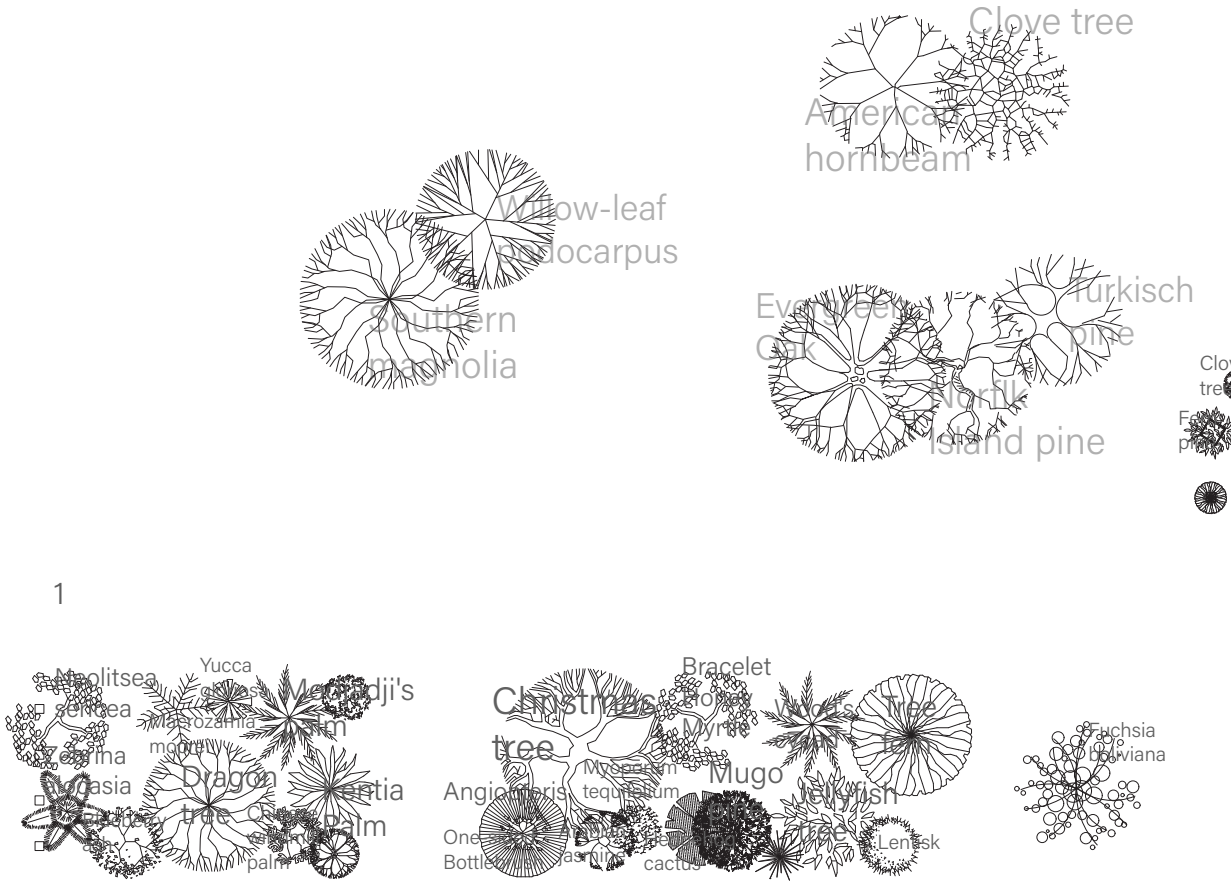
The Ground Floor Plan 1:750

N

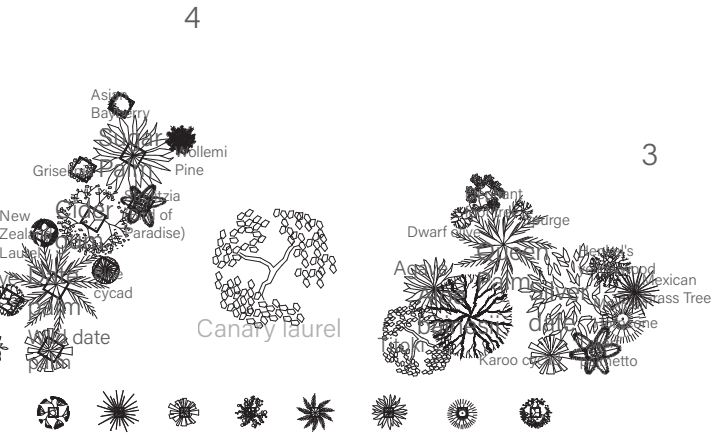


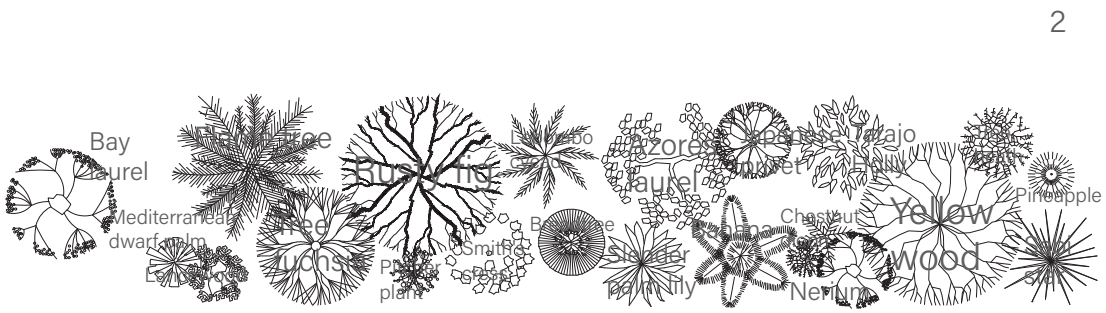
The final design consists of 4 **greenhouse spaces, flexible office spaces, a cafeteria and counter spaces**. The public and the employees both enter through the main entrance where there is a reception to buy tickets for the greenhouses. The public can then freely move through all the **greenhouses, the counter area and the cafeteria.** There are multiple security checkpoints where employees have access to the rest of the building which are 4 floor levels with office spaces.

The choice of natural species in the greenhouses is based on two representatives: on the one hand they show the different **nationalities** of the population of the people of Brussels, and on the other hand they represent **Belgium's colonial times** during which the bank fulfilled the role of regulating the country's finances.



1/2.
Cactaceae Echinocactus grussoni
Asparagaceae Cordyline stricta
Asparagaceae Dracaena draco
Onagraceae Fuchsia boliviana
Arecaceae Howea forsteriana
Myrtaceae Calothamnus quadrifidus
Asparagaceae Yucca gloriosa
Zamiaceae Encephalartos transvenosus
Myrtaceae Pohutukawa
Malvaceae Brachychiton acerifolius
Dicksoniaceae Dicksonia antarctica
Arecaceae Trachycarpus fortunei
Zamiaceae Macrozamia moorei
Encephalartos woodii
Zamiaceae Encephalartos senticosus
Zamiaceae Encephalartos altensteinii
Zamiaceae Dioon edule
Erica arborea
Nepenthes truncata
Medusagyne oppositifolia
Lepidium heterophyllum
Pinaceae Pinus mugo
Podocarpaceae Podocarpus neriifolius
Myrtaceae Melaleuca armillaris
Aquifoliaceae Ilex latifolia
Myoporaceae Myoporum tequifolium
Araliaceae Pseudopanax crassifolius
Moraceae Ficus rubiginosa
Lauraceae Laurus azorica
Lauraceae Laurus nobilis
Elaeocarpaceae Elaeocarpus obovatus
Anacardiaceae Pistacia lentiscus
Arecaceae Chamaerops humilis
Stilbaceae Halleria lucida
Lauraceae Neolitsea sericea
Fabaceae Dalbergia obovata
Apocynaceae Nerium oleander
Oleaceae Ligustrum japonicum
Oleaceae Jasminum sambac
Araceae Alocasia zebrina
Araceae Caladium bicolor
Musaceae Musa spec
Marattiaceae Angiopteris angustifolia
Bromeliaceae Ananas comosus
Apocynaceae Adenium coetaneum





54

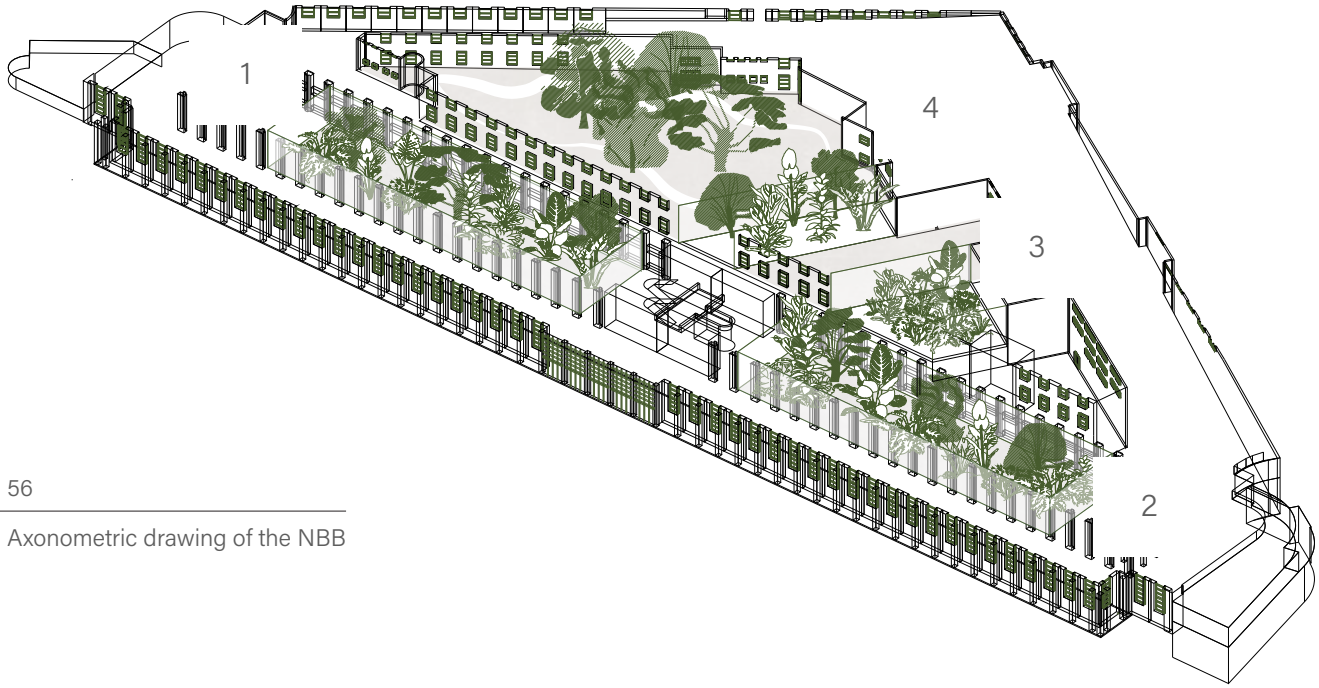
The Ground Floor Plan with plants only

N

3.
Zamiaceae Ceratozamia mexicana
Podocarpus henkelii
Asparagaceae Beaucarnea recurvata
Agavaceae Nolina longifolia
Asparagaceae Agave winteriana
Arecaceae Syagrus romanzoffiana
Zamiaceae Encephalartos lehmannii
Asphodelaceae Aloe bainesii
Euphorbiaceae Euphorbia coerulscens
Sapindaceae Alectryon excelsus
Oleaceae Olea europaea
Arecaceae Sabal minor
Arecaceae Phoenix sylvestris

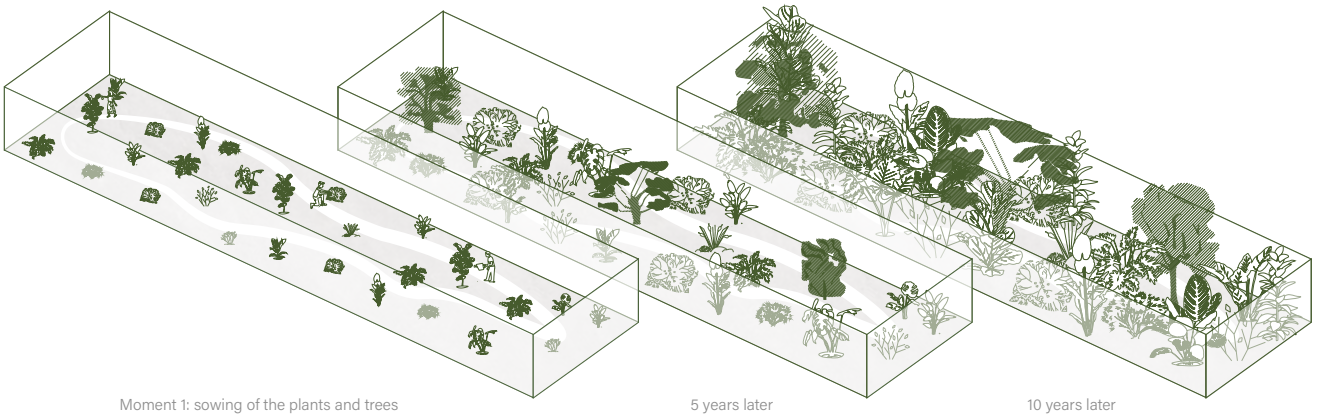
4.
Zamiaceae Encephalartos horridus
Podocarpaceae Podocarpus macrophyllus
Arecaceae Phoenix reclinata
Corynocarpaceae Corynocarpus laevigatus
Araucariaceae Wollemia nobilis
Podocarpaceae Nageia nagi
Griseliniaceae ruscifolia
Myrtaceae Eucalyptus gunnii
Arecaceae Phoenix dactylifera
Arecaceae Arenga pinnata
Musaceae Strelitzia alba
Anacardiaceae Pistacia terebinthus
Myrtaceae Eugenia rubricaulis

Name	Common name	Origin	Specificities
Cactaceae Echinocactus grussoni	Hedgehog cactus	Mexico	It has recently experienced a significant decline. It can reach more than one meter in diameter. It requires loose soils with good drainage, slightly shaded at first and then high solar radiation. In summer it is watered twice a week, in winter once a month. the rest of the year every 12-15 days.
Asparagaceae Cordyline stricta	Slender Palm Lily	Subtropical Australia	This species can grow in sun or shade, and in shallow or deep soils and will stay between 2-5 m. Leaves are long and thin, 30 to 50 cm long. Width is small (0,5 m).
Asparagaceae Dracaena draco	Dragon tree	Canary Islands, Morocco	The plant is virtually no longer found in a wild state. It is a slow-growing plant, which takes ten years to reach a height of 1 m, but grows up to 12 m. Trunk is 5 m and top can be very wide.
Onagraceae Fuchsia boliviana	Fuchsia boliviana	Ecuador, Peru, Bolivia, Argentina	This species will stay between 4-6 m and stays green. Half shadow, cool, subtropical climate. It needs protection from direct sunlight. Perfect for the interior greenhouse! It has large drooping corymbs up to 20 cm.
Arecaceae Howea forsteriana	Kentia palm	Australia, New Zealand	Palm is popular for growing indoors, requiring little light. It is slow growing, but will eventually reach heights of 6 to 18 metres. If used indoors, make sure to mist the fronds three times a week with rainwater to raise the humidity levels and keep the fronds looking green and healthy. Eventually growing to 6 m wide.
Myrtaceae Calothamnus quadrifidus	One-sided Bottlebrush	SW Australia	Grows to a height of 5 metres. Some subspecies are rare and near threatened. Occurs in a wide range of habitats and growing in a range of soils. Attracts birds and honey bees. Bush of 3 m wide.
Asparagaceae Yucca gloriosa	Yucca gloriosa	North America	Can grow to a height of 2,5 m. The plant has average water requirements, and little maintenance is needed other than the removal of dead leaves when the shrub nears its ultimate height. The plant is very hardy, without leaf damage at −20 °C (−4 °F), and can handle occasional snow and freezing temperatures. Width is 2 m.
Zamiaceae Encephalartos transvenosus	Modjadji's palm	South Africa	The tree grows up to twelve metres tall. This is crowned by nearly straight, shiny, spiny pinnate leaves up to two and a half metres long. Width can be 5 m.
Myrtaceae Pohutukawa	Christmas tree	New Zealand	It is a tree up to 20 m high with a broad crown and curved, red twigs. Minimum temperature: 5 degrees Celsius. In New Zealand, pōhutukawa are under threat from browsing by the introduced common brushtail possum which strips the tree of its leaves. Pōhutukawa have been introduced to other countries with mild-to-warm climates. Width = length.
Malvaceae Brachychiton acerifolius	Flame tree	Australia	It may reach 30 to 35 m, but is usually shorter in cultivation. It is famous for the bright red bell-shaped flowers that often cover the whole tree when it is leafless. Width = length. can be very wide.
Dicksoniaceae Dicksonia antarctica	Tree fern	Australia, Tasmania	Up to 15 meters high fern lives in high humidity. The fully grown leaves are 2 to 4 meters long and originate at the top of the trunk. Can be 8 m wide.
Arecaceae Trachycarpus fortunei	Chinese windmill palm	China, Japan, Myanmar, India	This genus can withstand cold and are the hardiest trunking palms. This palm can become 10–13 metres high. This species is also hardy in limited areas in Flanders and the Netherlands. Width = 4 m.
Zamiaceae Macrozamia moorei	Macrozamia moorei	Australia, NSW	Near threatened! Species grows to 7 meters. Summer climate diurnal range 21-35°C, winter 6-23°C. Are some of the oldest plants still living on the planet that trace their origins back to the ancient flora of the early Mesozoic era more than 170 million years ago. Width can be 5 m.
Encephalartos woodii	Wood's cycad	South Africa	Endangered species! It is palm tree like, and can reach a height of 6 metres. The annual rainfall at the site ranges between 750–1,000 millimetres (30–39 in), and the climate has hot summers and mild winters. These plants are currently distributed in various botanical institutions around the world. Width is 3m.
Zamiaceae Encephalartos senticosus	Lebombo cycad	Mozambique, South Africa	It has a trunk that is up to 4 m. They are commonly cultivated as ornamentals. Width = length.
Zamiaceae Encephalartos altensteinii	Breadtree	South Africa	This cycad grows up to seven meters tall. Width can be 6m.
Zamiaceae Dioon edule	Chestnut dioon	Mexico	Endangered species! Cycads are among the oldest seed plants and even pre-date the dinosaurs. They have developed a selective advantage for growing in harsh climates including vigorous tap roots for anchorage and water conduction. Widhth = length. Can be 2 m tall.
Erica arborea	Tree heath	Bulgaria, Spain	Small tree with a typical height in the wild of some 7 m, but more typically 1–4 m in gardens. It is also cultivated as an ornamental. Width = length.
Nepenthes truncata	Pitcher Plant	Philippines	Endangered species! Is characterised by its heart-shaped (truncate) leaves and very large pitchers, which can reach up to 40 cm in height.
Medusagyne oppositifolia	Jellyfish tree	Island of Mahé	Endangered species! They are small trees which can reach up to 15 m. This plant exhibits many adaptations to dry climate. Width = 0.5 x length.
Lepidium heterophyllum	Smith's cress	UK, Denmark, France, Germany	They can grow between 10–90 cm tall. It has been used in experiments growing in soils high in copper content, to determine if the plant could be used to help clean contaminated soils.
Pinaceae Pinus mugo	Mugo pine	Romania, Poland	Plant grows to 3–6 m tall. Pinus mugo is widely cultivated as an ornamental plant, for use as a small tree or shrub, planted in gardens and in larger pots and planters. Width = 2 x length.
Podocarpaceae Podocarpus neriifolius	Yellowwood	India, Himalaya, China, Myanmar, Thailand	It grows 10–15m tall, though very occasionally taller, in tropical and subtropical wet closed forests. Podocarpus species are evergreen woody plants. Width = length.
Myrtaceae Melaleuca armillaris	Bracelet Honey Myrtle	Australia	It's a small weeping tree growing to 8 m. It has cylinder of fruits on the branches. It is hardy and will grow in most soils and aspects. Width = length.
Aquifoliaceae Ilex latifolia	Tarajo Holly	Japan, China	It is a small to medium-sized evergreen tree growing to 10–20 m tall with a trunk up to 60 cm diameter. It is cultivated as an ornamental tree in parks and temple gardens. Width = 0.5 x length.
Myoporaceae Myoporum tequifolium	Myoporum tequifolium	Australia	Myoporum tenuifolium is an erect shrub usually growing to a height of 1–2 m. It can be distinguished by its very thin leaves and its glabrous flowers. Width = length
Araliaceae Pseudopanax crassifolius	Lancewood	New Zealand	The juvenile form, which lasts for between 15 and 20 years, is very easily recognized. The leaves are stiff and leathery with a prominent central rib, about 1 cm wide and up to 1 m long with irregular teeth, all growing downwards from a central stem. Width = max 2 m.
Moraceae Ficus rubiginosa	Rusty fig	Australia	F. rubiginosa matures into a tree 30 m high (although it rarely exceeds 10 m) and nearly as wide with a yellow-brown buttressed trunk. It is used as a shade tree in parks and public spaces, and when potted is well-suited for use as an indoor plant or in bonsai. Ficus rubiginosa was first cultivated in the United Kingdom in 1789, where it is grown in glasshouses. The soils it grows on are often well-drained and low in nutrients. They are derived from sandstone, quartzite, and basalt. Width = length
Lauraceae Laurus azorica	Azores laurel	Canary Islands, Madeira, Azoren	The Azores laurel is a small dioecious tree, growing up to 15 m in height. Width = length.
Lauraceae Laurus nobilis	Bay laurel	Italy, Spain, Morocco	The laurel is an evergreen shrub or small tree, variable in size and sometimes reaching 7–18 m tall. Loves a humid climate. Width = 0.5 x length.
Elaeocarpaceae Elaeocarpus obovatus	Blueberry ash	Australia	Elaeocarpus obovatus is sometimes a small tree 3–10 m tall, and sometimes a tall tree growing to a height of 45 m with buttress roots at the base of a trunk that is up to 150 cm in diameter. Hard quandong is a tall tree in subtropical rainforest and a small to medium-sized tree in drier rainforest. Width = 0.5 x length.
Anacardiaceae Pistacia lentiscus	Lentisk	Mediterranean, Morocco, Italy, Greece	Small tree of the genus Pistacia, growing up to 4 m tall. It resists mild to heavy frosts but prefers milder winters and grows on all types of soils. Width = length.
Arecaceae Chamaerops humilis	Mediterranean dwarf palm	Mediterranean	The stems grow slowly and often tightly together, eventually reaching 2–5 m tall with a trunk diameter of 20–25 cm. It is a very slow-growing plant. Each leaf is up to 1.5 m long. It is one of the most cold-hardy palms and is used in landscaping in temperate climates. Width = 3m.
Stilbaceae Halleria lucida	Tree fuchsia	Tropical and South Africa	It is increasingly grown as an ornamental tree in African gardens. It is often multi-stemmed and can eventually reach a height of over 15m. In a shady habitat (like deep forest) Halleria lucida grows tall and slender; while it forms a smaller shrub-like tree if grown in the open. Width = length.
Lauraceae Neolitsea sericea	Neolitsea sericea	East-Asia	It is a medium-size tree, growing up to 10 m tall. Its leaves are evergreen, and distinctly whitened on the back. It produces yellow flowers in the fall, and its fruit is a red berry. Width = length.
Fabaceae Dalbergia obovata	Climbing flat bean	East-Africa	Dalbergia obovata is a canopy climber that grows up to 30 m tall in the wild or a small tree up to 6 m tall. As a legume these plants fix nitrogen in the soil for other plants to use. Hanging plant.
Apocynaceae Nerium oleander	Nerium	Mediterranean till West China	Nerium grows to 2–6 m tall. The flowers grow in clusters at the end of each branch; they are white, pink to red. The plant is tolerant of poor soils, intense heat, salt spray, and sustained drought – although it will flower and grow more vigorously with regular water.
Oleaceae Ligustrum japonicum	Japanese privet	Japan, Korea	L. japonicum is an evergreen shrub or small tree growing to 2–5 m tall. It is occasionally grown as an ornamental plant in Europe and North America. Width = length.
Oleaceae Jasminum sambac	Arabian jasmine	India, Burundi	Jasminum sambac is a small shrub or vine growing up to 0.5 to 3 m in height. It is widely cultivated for its attractive and sweetly fragrant flowers. It prefers humid tropical climates.
Araceae Alocasia zebrina	Zebrina alocasia	Philippines	Alocasia zebrina grows to around 1.8 m tall. It is commonly grown as an ornamental plant worldwide. Width = length.
Araceae Caladium bicolor	Heart of Jesus	America	The wild plants grow to 40–90 cm tall, with leaves mostly 15–45 cm long and broad. They preferred a moderate shady place with indirect sunlight, high humidity, and a well-structured watering schedule. Most varieties prefer partial to full shade, although sun-resistant varieties are now in cultivation. Width = length.
Musaceae Musa spec	Banana	Sumatra	Banana plants represent some of the largest herbaceous plants existing in the present, with some reaching up to 9 metres in height. Width = 0,5 x length.
Marattiaceae Angiopteris angustifolia	Angiopteris	Madagascar, Asia, Pacific	The fronds are deltoid, pinnate, 5–8 metres long, with spreading leaflets. Width = length
Bromeliaceae Ananas comosus	Pineapple	South America	The pineapple is a herbaceous perennial, which grows to 1.0 to 1.5 m tall. When creating its fruit, it usually produces up to 200 flowers.
Apocynaceae Adenium coetaneum	Sabi star	Tropical Africa	It can grow to 1–3 m in height. The flowers tend to red and pink, often with a whitish blush outward of the throat.
Zamiaceae Encephalartos horridus	Blue Cycad	South Africa	Endangered species! This dioecious bush is up to 1m high. On site usually receiving between 25 and 60cm rainfall per year. Here they are subjected to temperatures of up to 40°C. They can also tolerate mild frost. Seeds from these plants should be planted in full sunlight in well-drained soil. Width = length.
Podocarpaceae Podocarpus macrophyllus	Fern pine	Japan, China	Its resistance to termites and water and reaches 20 m (keep in pot). This species can be trained as a bonsai: Watering must be regular, bonsai soil is almost always a loose, fast-draining mix of components. When young it could be used as a container plant. Width varies, can be 5 m.
Arecaceae Phoenix reclinata	Wild date palm	South Africa	Palm producing multiple stems from 3 to 15 m in height and 40 cm in width. The leaf crown grows to 10 m wide and 7.5 to 10 m tall containing up to 100 leaves. When young it could be used as a container plant. The wild date will tolerate light frost, but will need protection from frost for the first few seasons. The wild date is best planted in full sun but does grow in light shade.



56

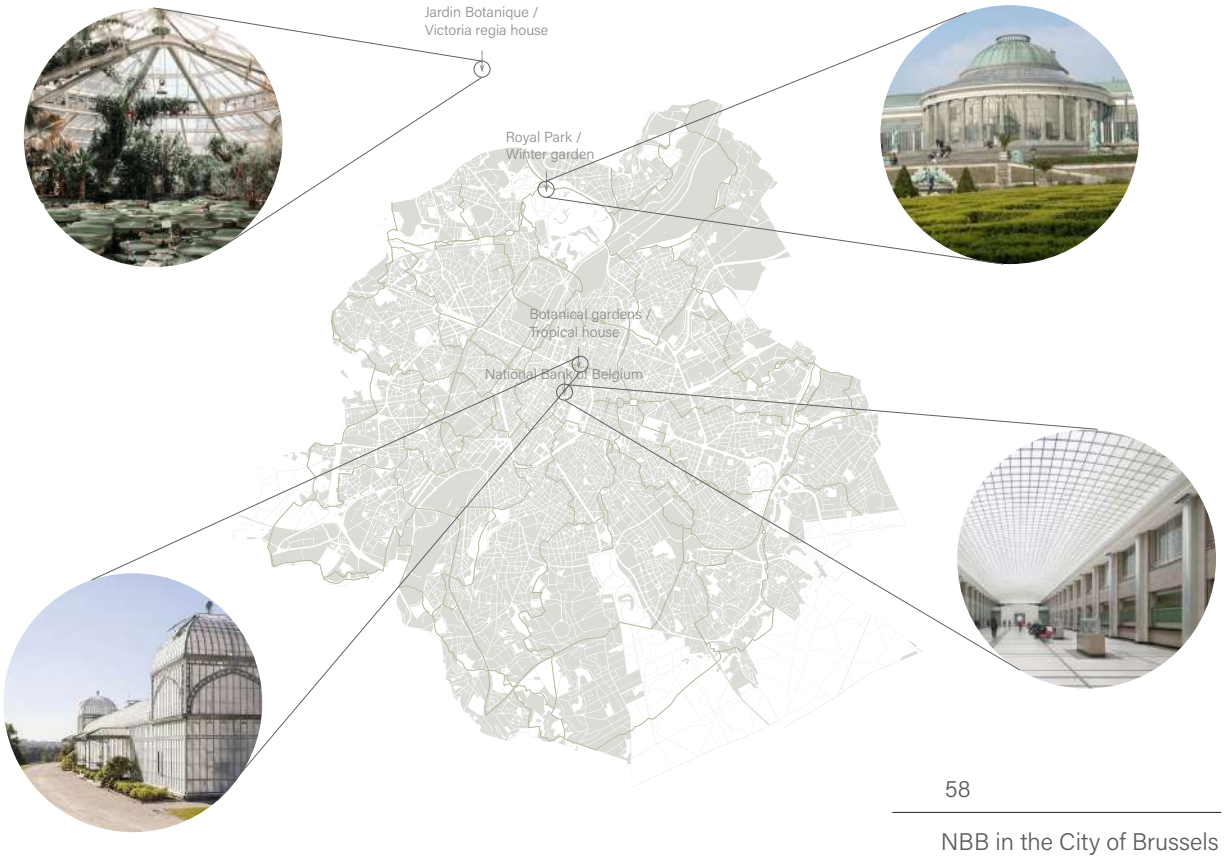
Axonometric drawing of the NBB



57

The greenhouses in time

Currently, the museum of the bank is centred around money. With the new vision of the bank, the museum seems ready for an update as well. The greenhouses function as the new museum, in which the **diversity of the population of Brussels** is represented. The greenhouses stand for nurturing and caring for endangered species from different countries all over the world, to in this way create a **community of care of 143 different nationalities.**



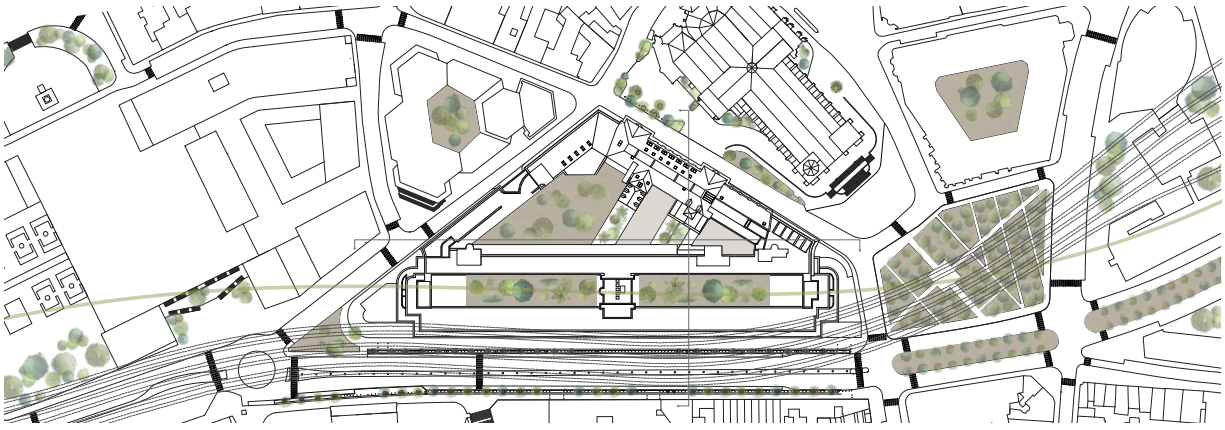
58

NBB in the City of Brussels

Together with other Botanical gardens and Tropical houses in the city of Brussels the bank will now be part of a **bank of knowledge** on how to provide care for the natural world, a bank of seeds of engendered species and a bank of plants in general. It is not an exchange of money, but an exchange of **stored carbon.**

59

Ecological network in the City of Brussels



In this way, the bank becomes part of a wider **ecological network** that exists in the city of Brussels. This network used to be interrupted by the railway under the ground. Above the railway, nature does not get a chance to grow. The **urban role** of the bank is now to fill this gap to complete the network.

60

Linedrawing of the interior greenhouse

61

Image of the interior greenhouse

62

Linedrawing of the exterior greenhouse

Experience

The employees can walk through these greenhouses on their way to their office. When doing so, they will experience a **warm humid climate** and walk along **towering vegetation.** The theme of **care** flows through all the greenhouses, therefore through the whole building. The bank originally is a place of thinking/working/debating, but now a new activity is introduced inside the bank. Employees can remove themselves from their computers and get their hands in the soil. It is a **natural rhythm:** there are moments of blossom and working hard, and there are moments of turning off and relaxing. You can take your gloves and your working shoes and plant some trees or go weeding. T**he care that the employees give to the plants, the plants give in return.** Because the plants have the ability to filter the air, which results in a healthier environment. The climate inside the exterior greenhouse has a **high temperature** due to direct sunlight. This direct sunlight can also be blocked by **moveable blinds** if necessary. The plants that thrive with a lot of direct sunlight are planted in these two greenhouses.

63

Image of the exterior greenhouse

Materiality

The intervention in the courtyard contrasts with the existing architecture in terms of materiality. The **load bearing construction** of these greenhouses is made out of **wood**, since wood contains a lot of stored carbon. On top of that, the amount of used **glass** results in a contrasting image with its surroundings. But the most important material are the **plants**, which provide shadow and a healthy air flow.

64

Image of the 1:200 model

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Image of the 1:200 model

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Photo of the 1:200 model

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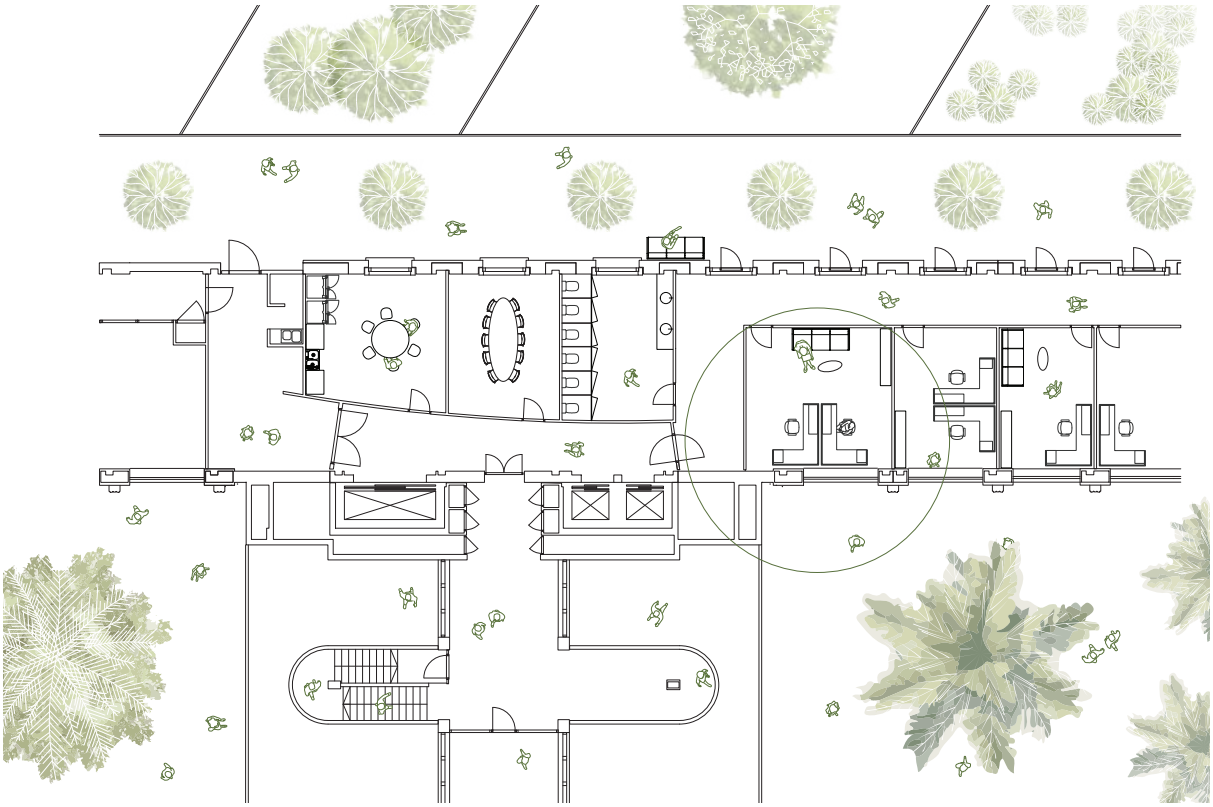
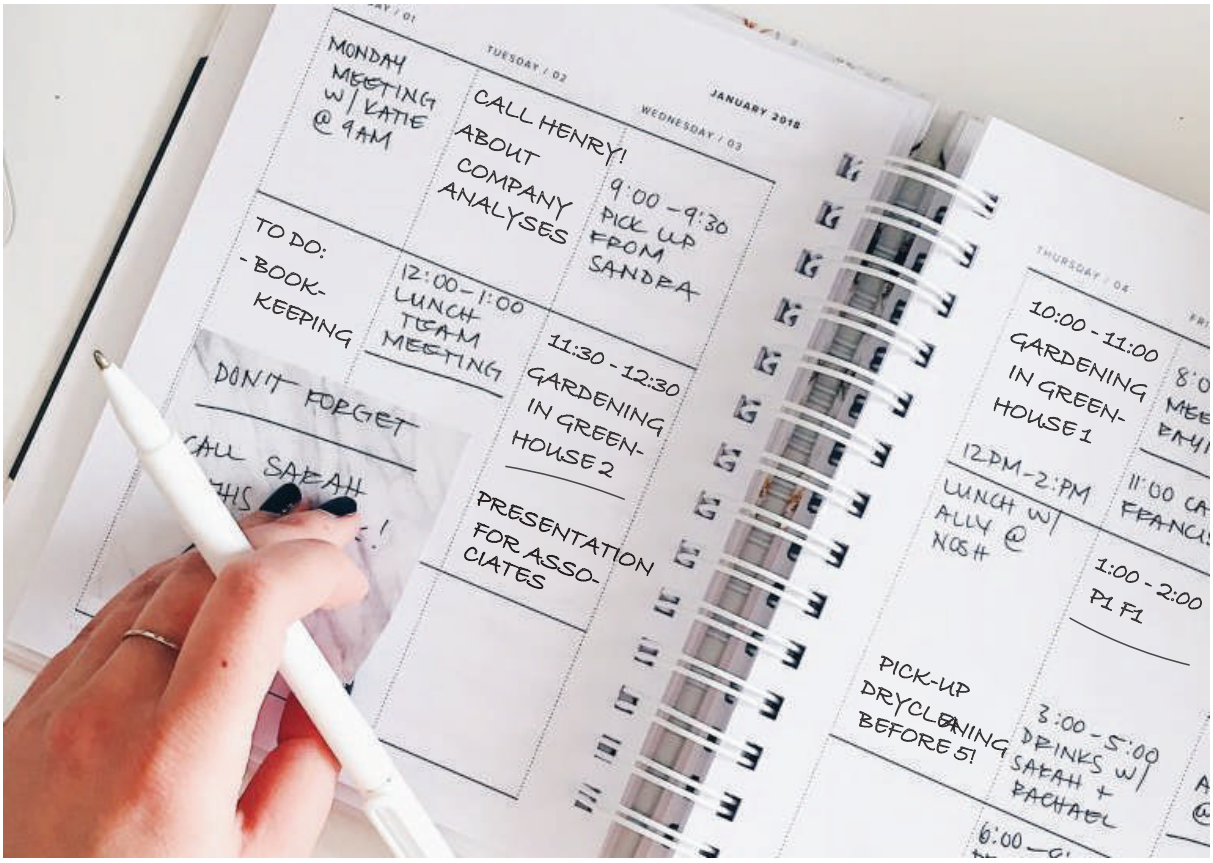
Photo of the 1:200 model



68

First floor plan 1:300



69

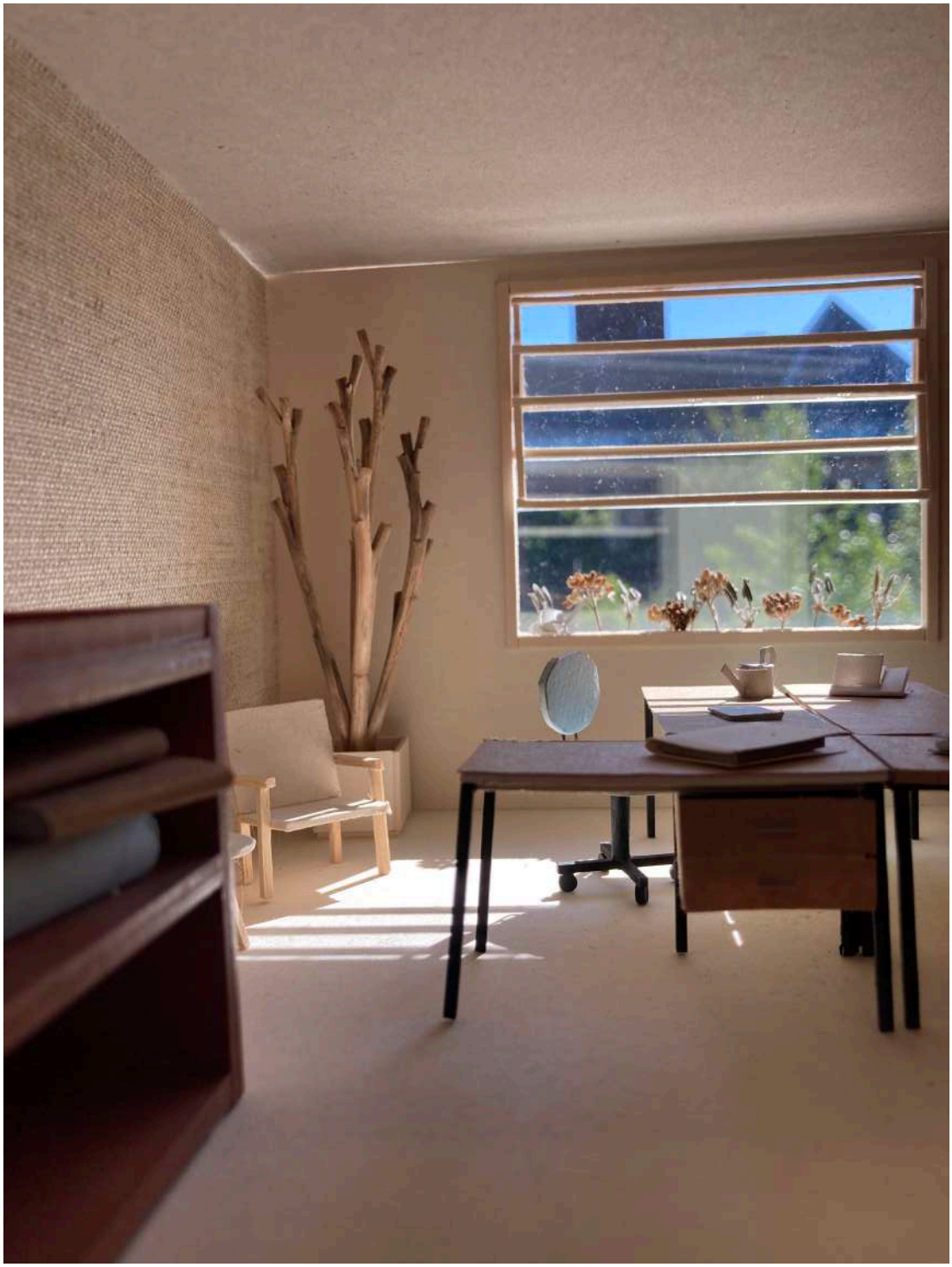
Schedule of a bank employee

70

Image of the 1:25 office model

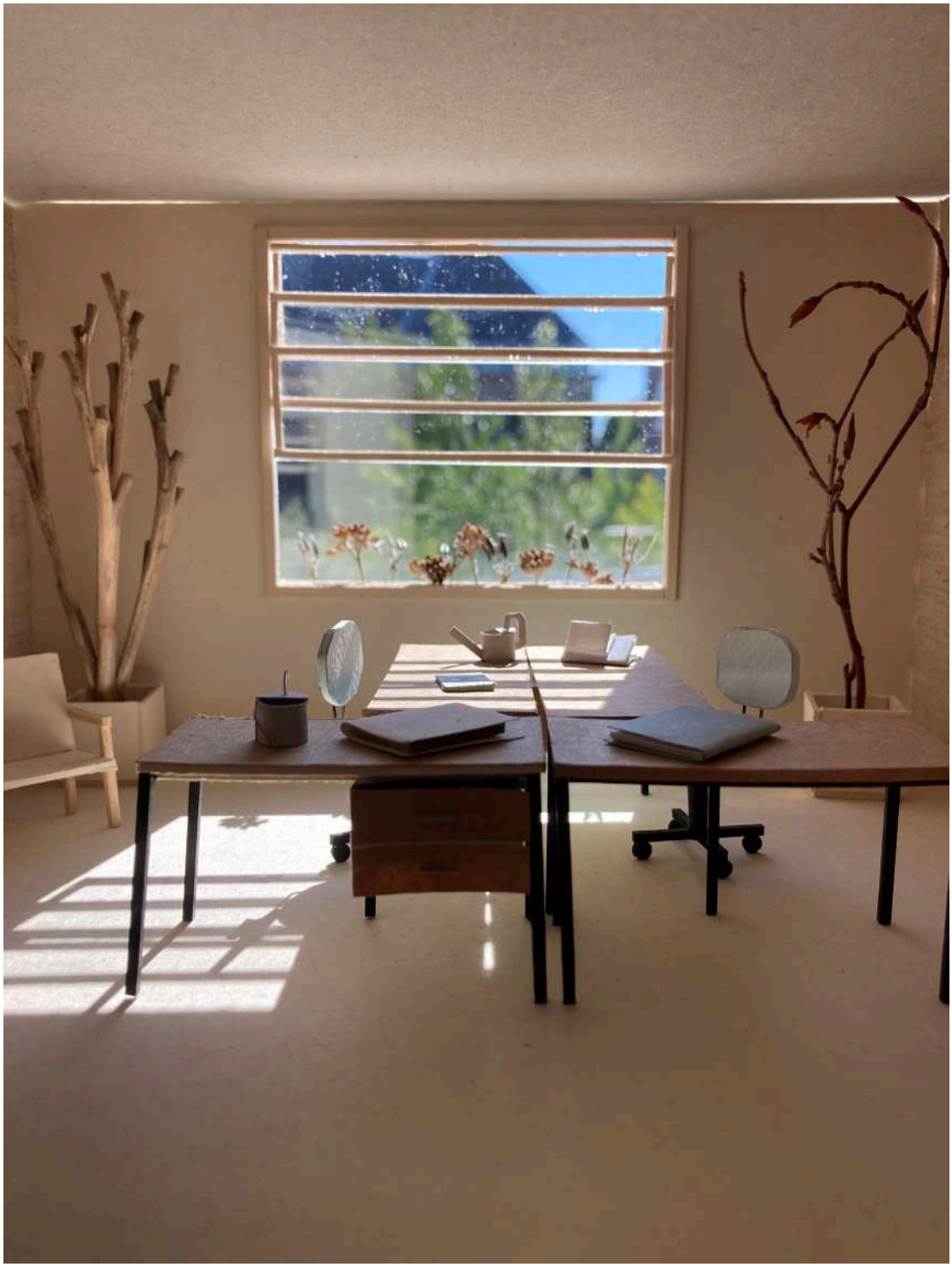
71

Image of the office



72

Photo of the 1:25 office model

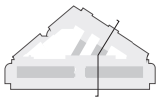


73

Photo of the 1:25 office model

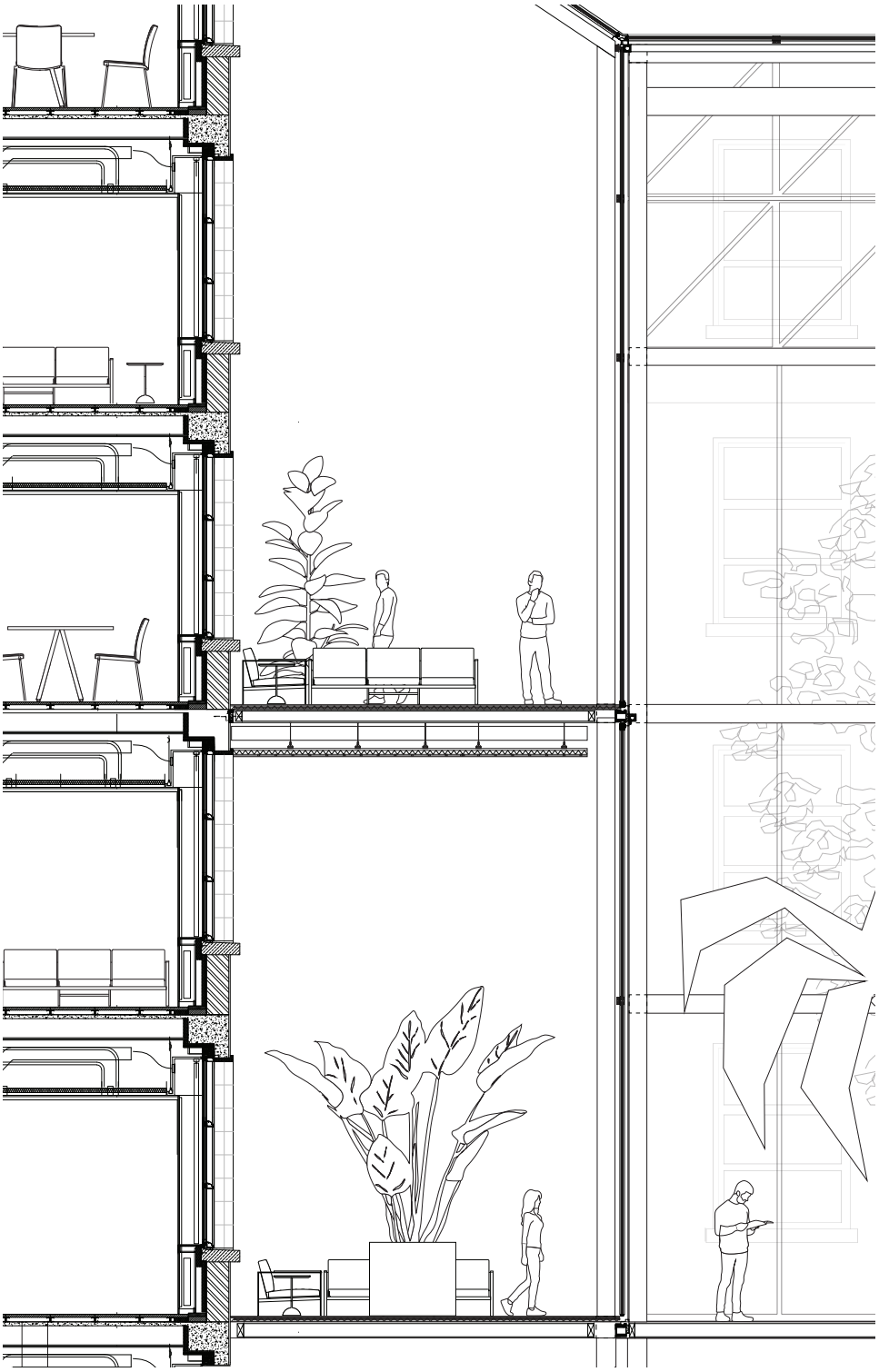
74

Section 1:300



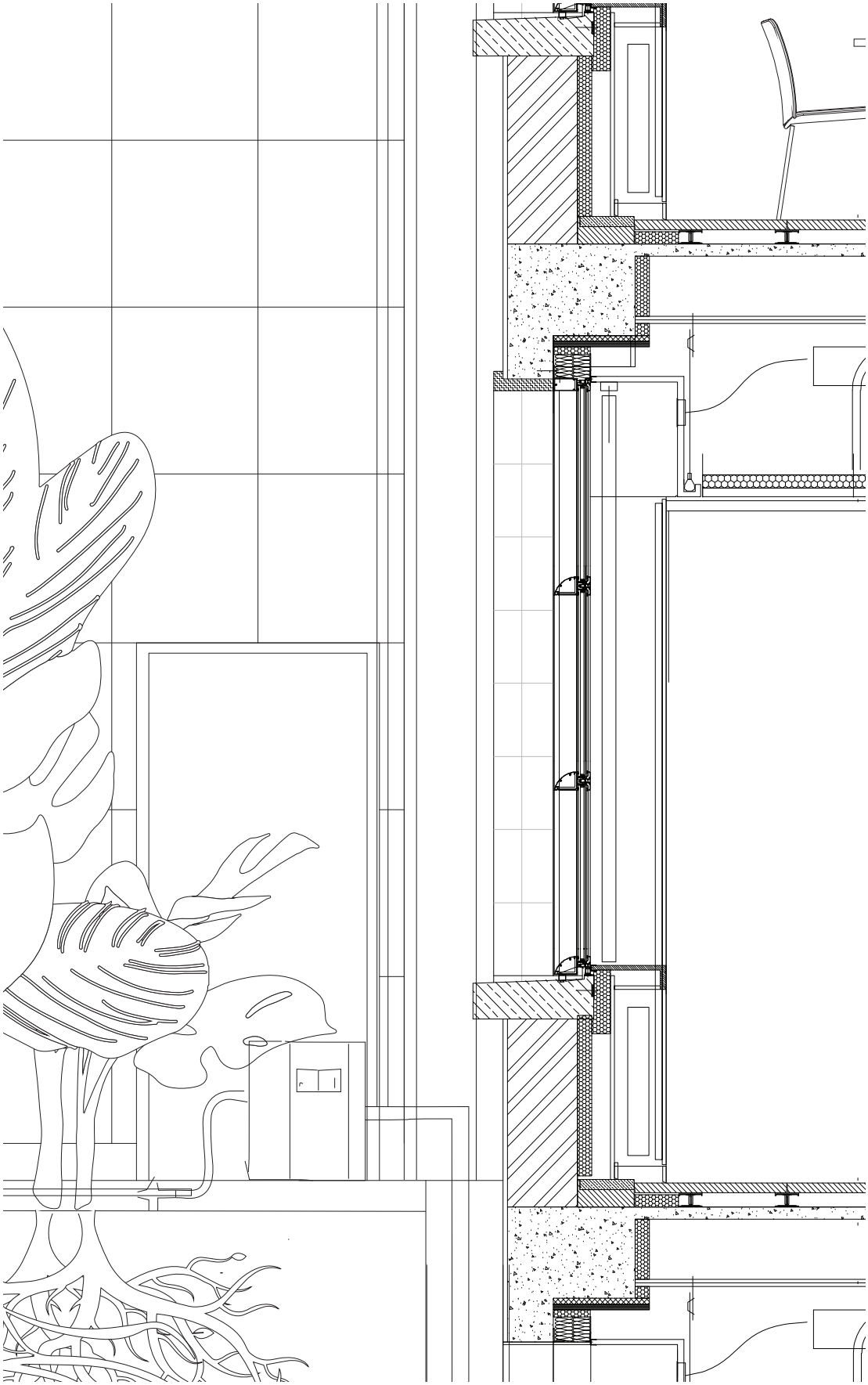
75

Fragment interior greenhouse 1:100



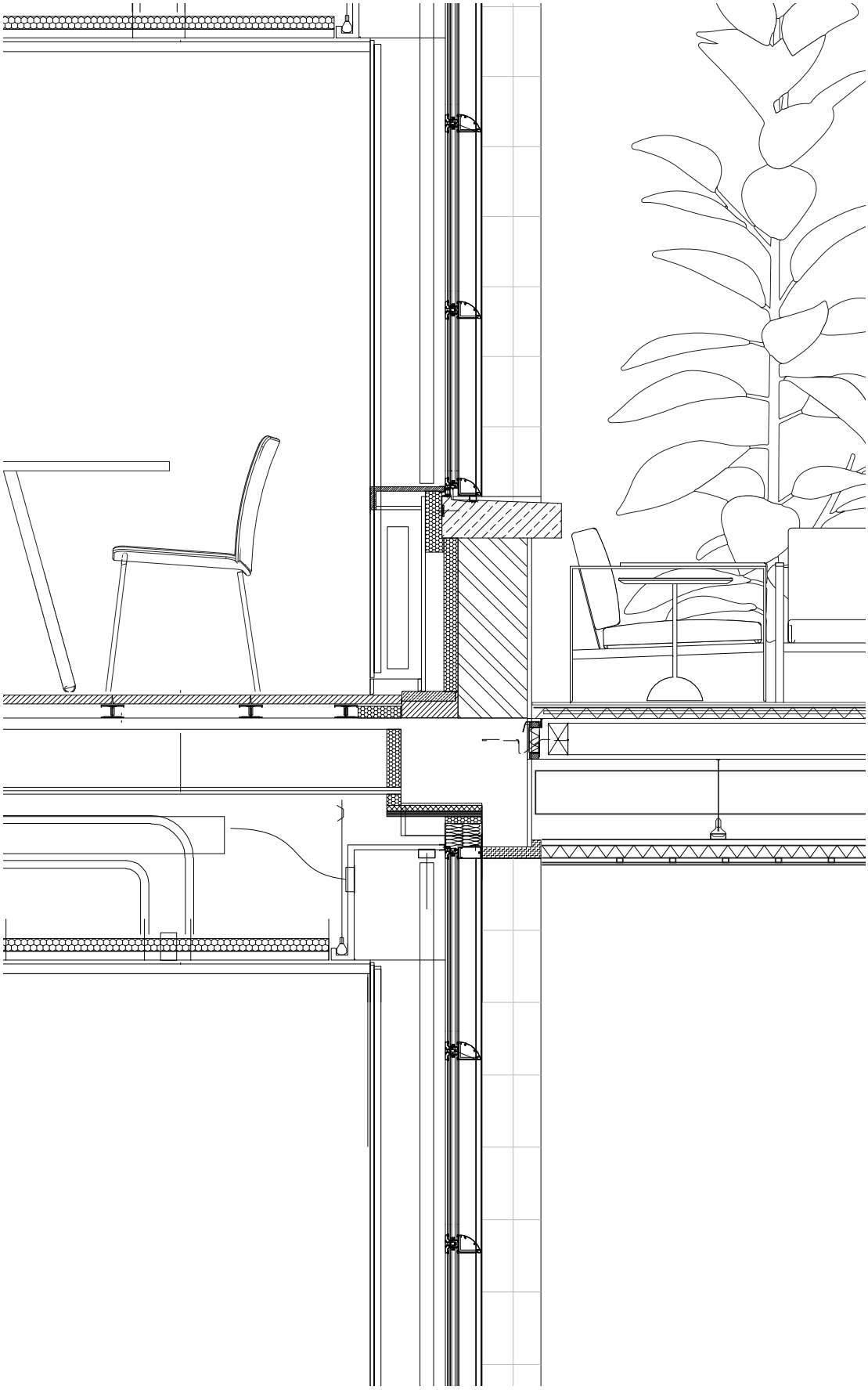
76

Fragment exterior greenhouse 1:100



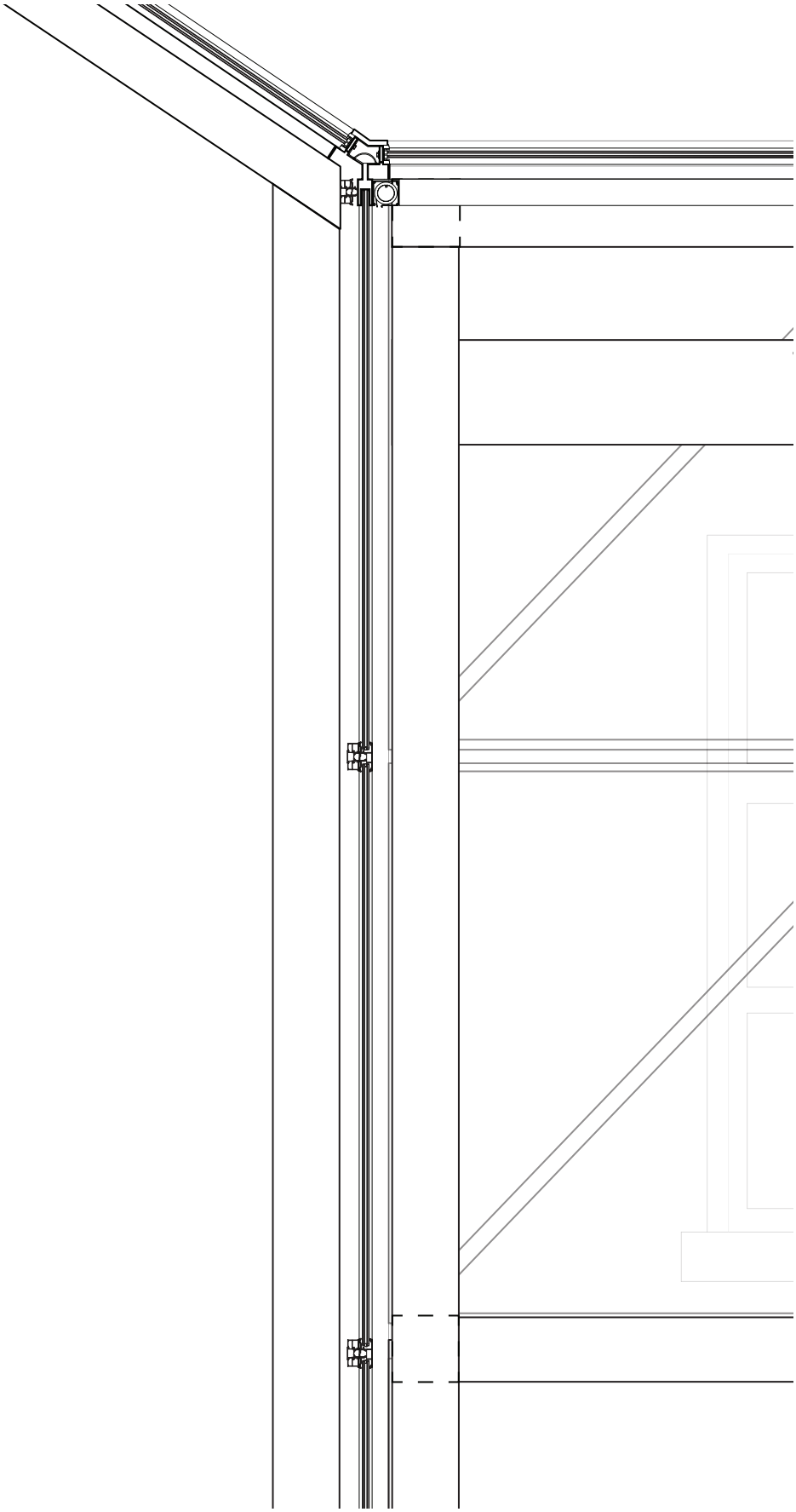
77

Fragment of existing window frame in interior greenhouse 1:25



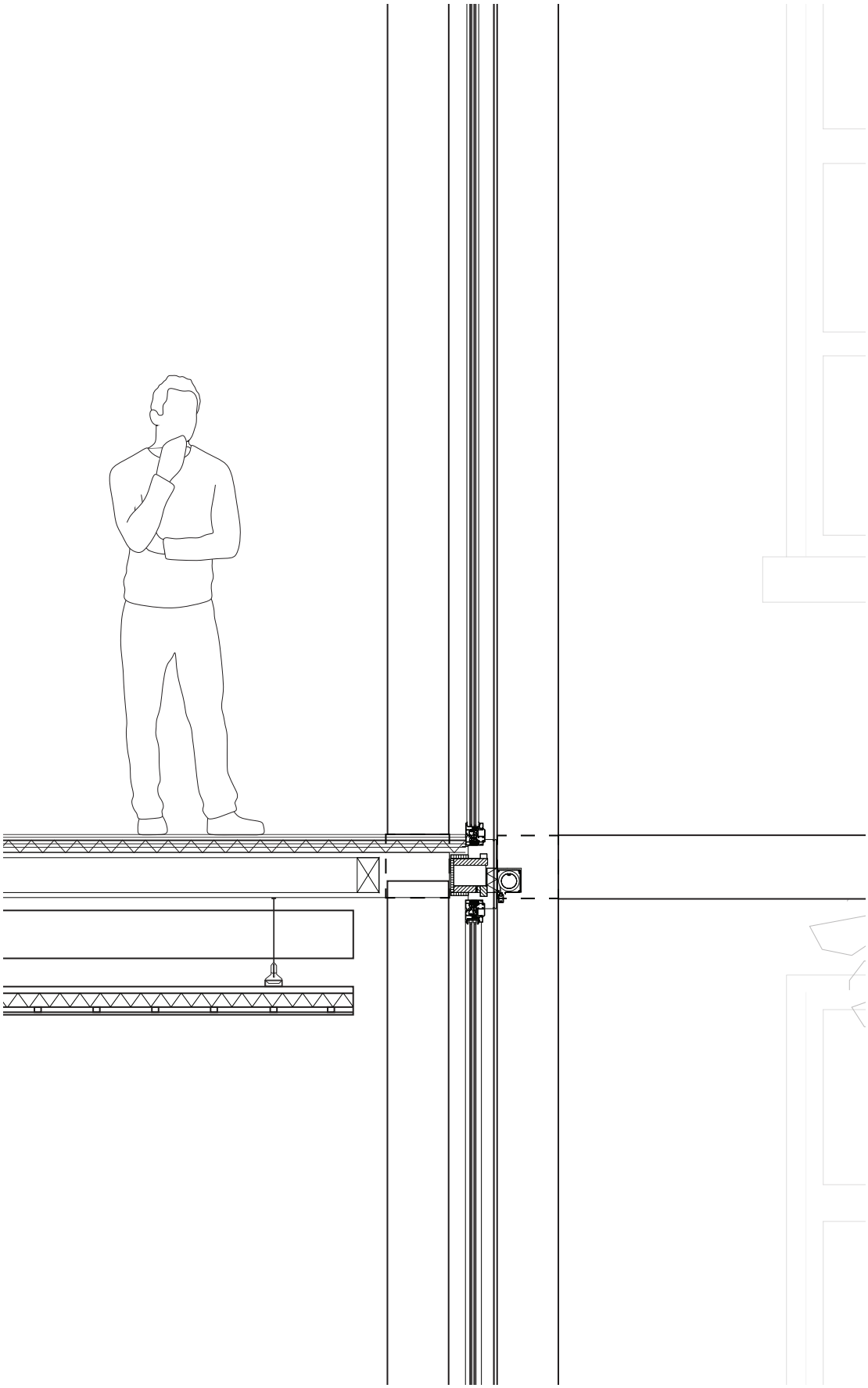
78

Fragment of existing window to new construction exterior greenhouse 1:25



79

Fragment of top window frame exterior greenhouse 1:25

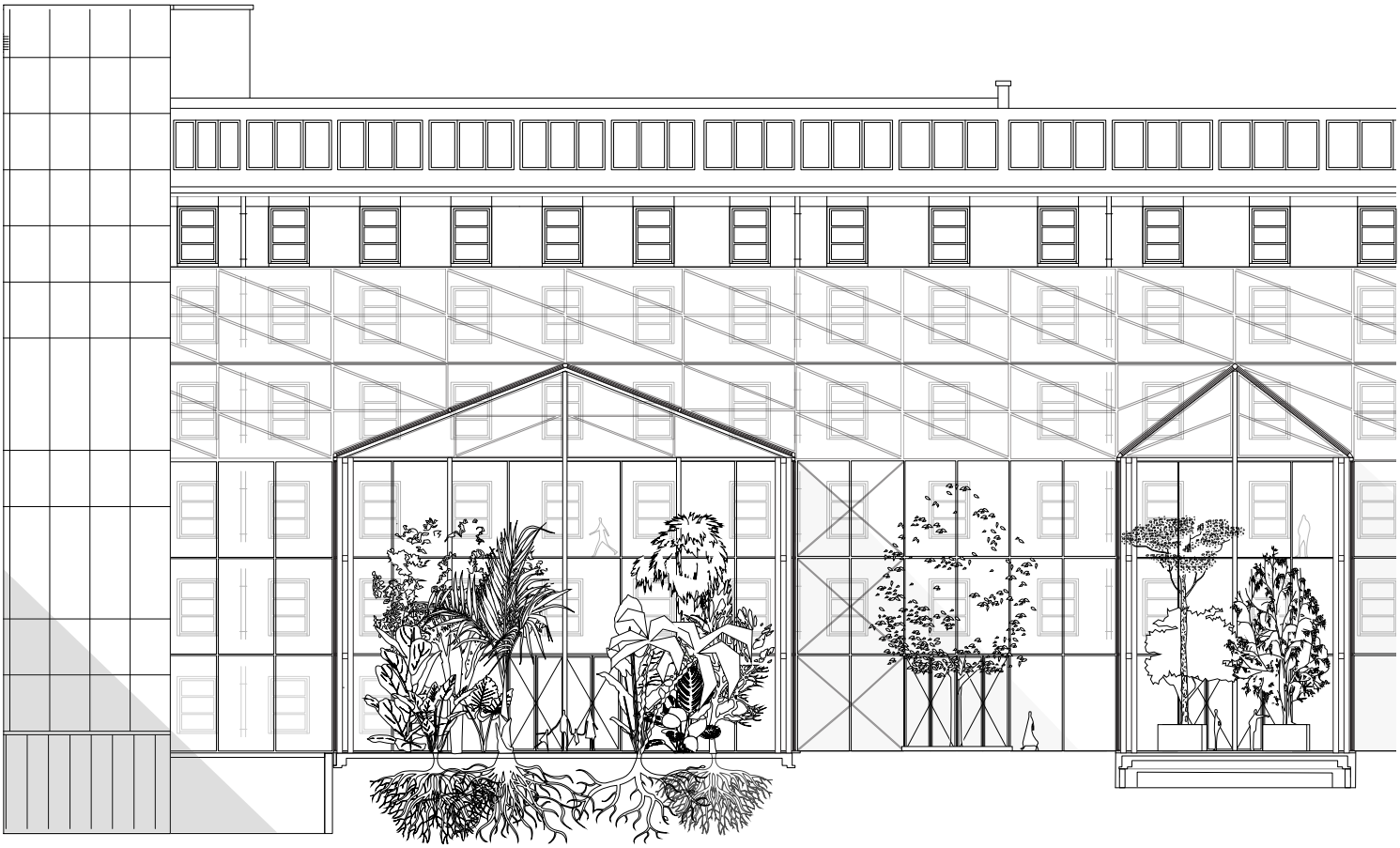


80

Fragment of floor to window frame exterior greenhouse 1:25

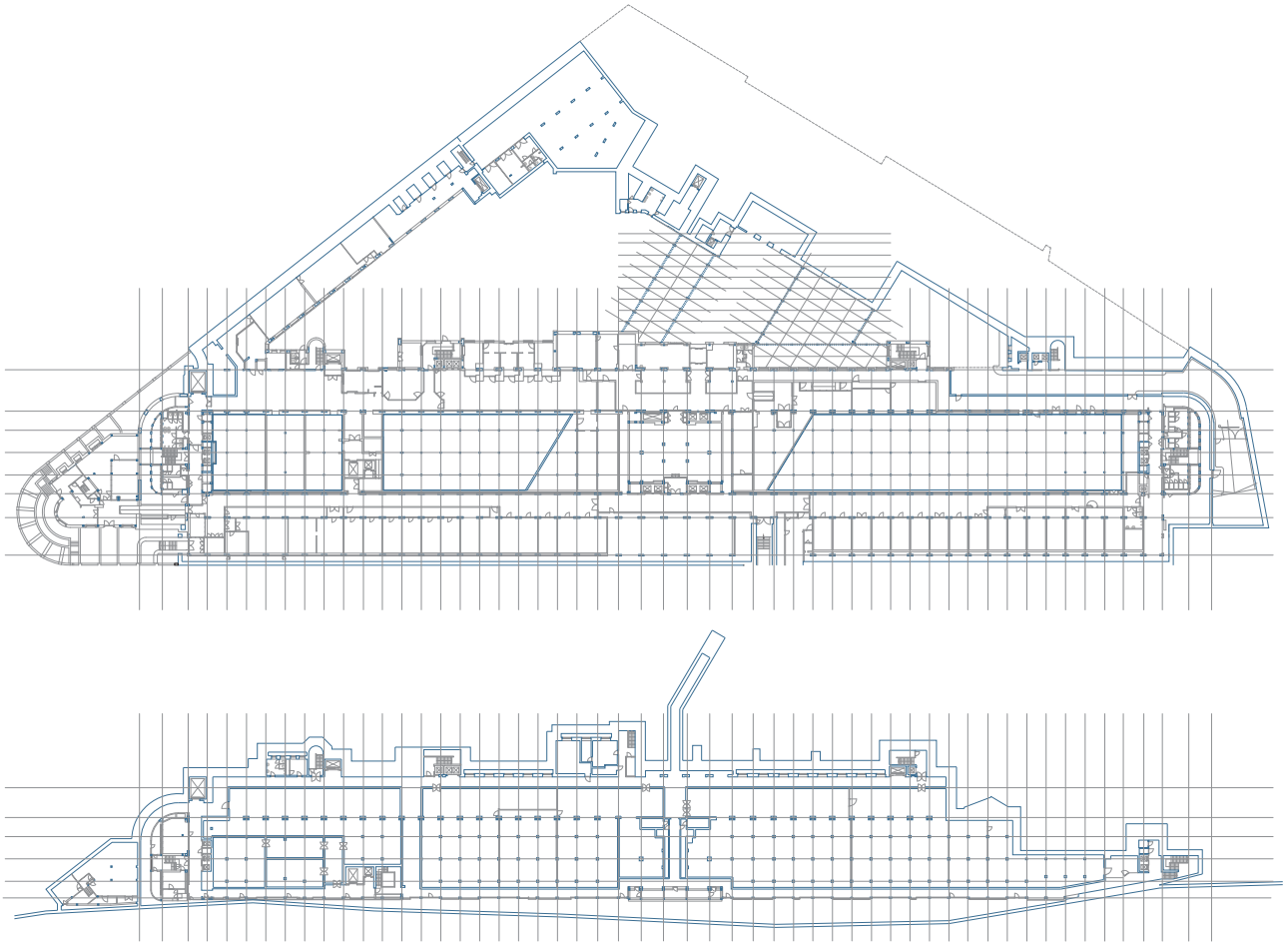
81

Section 1:300



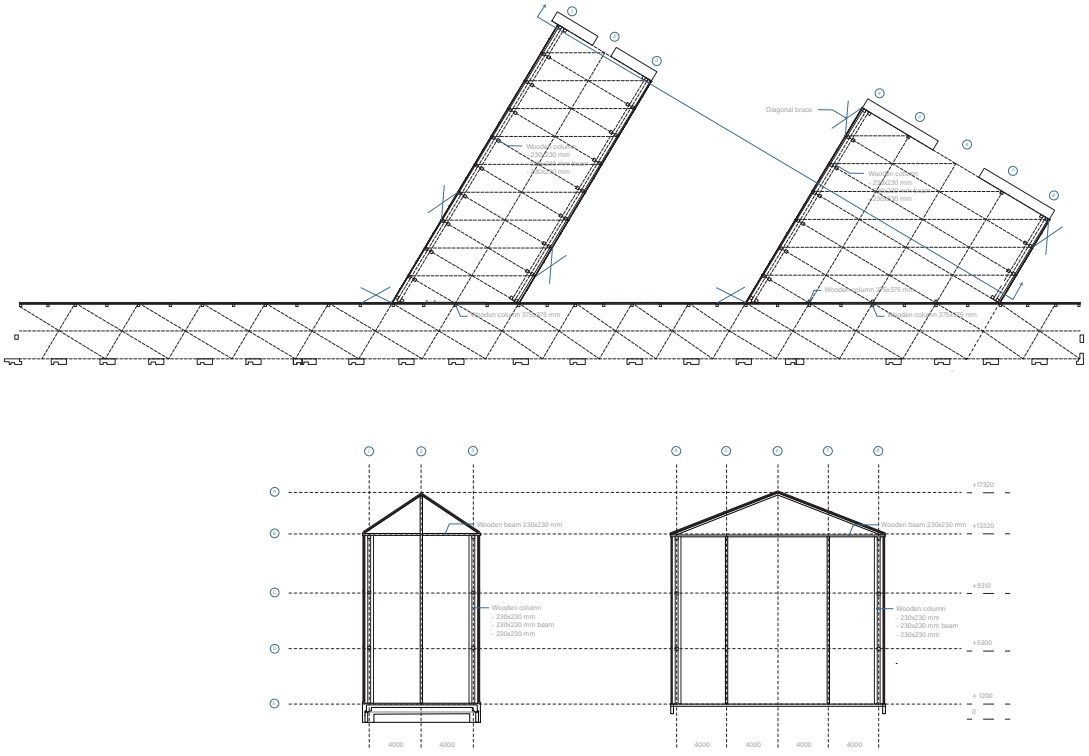
82

Section 1:300



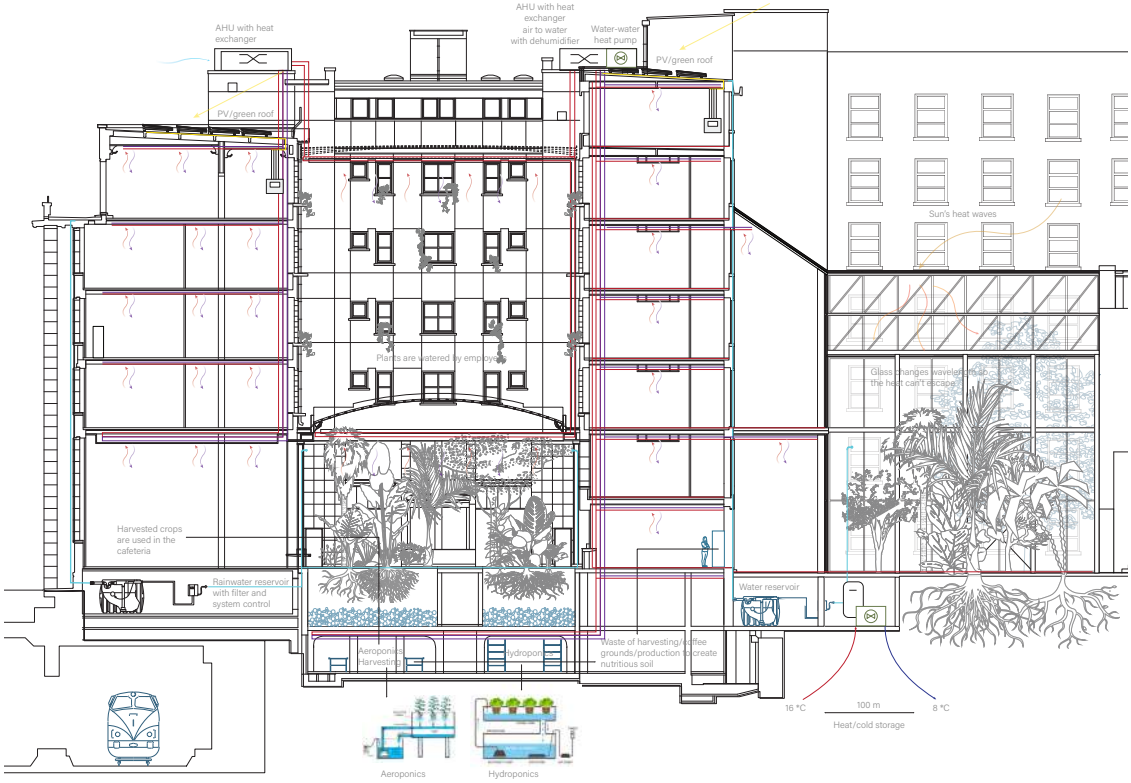
83

Load bearing structure 1:1500. Not only does the intervention contrast in terms of materiality, but also in terms of structure. The triangular structure is based on the two directions of the greenhouse. This floor plan on the left shows the repetition of the new language and its specific geometrical relationship to the existing architecture.



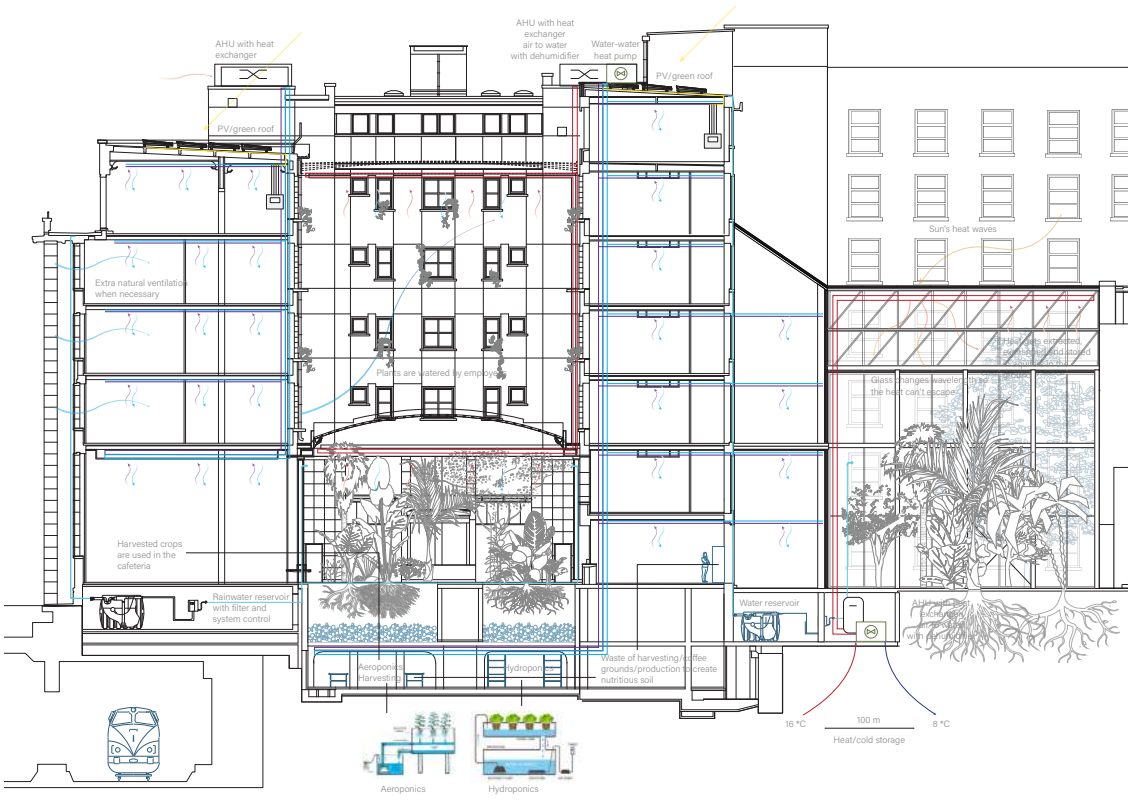
84

Load bearing structure 1:600



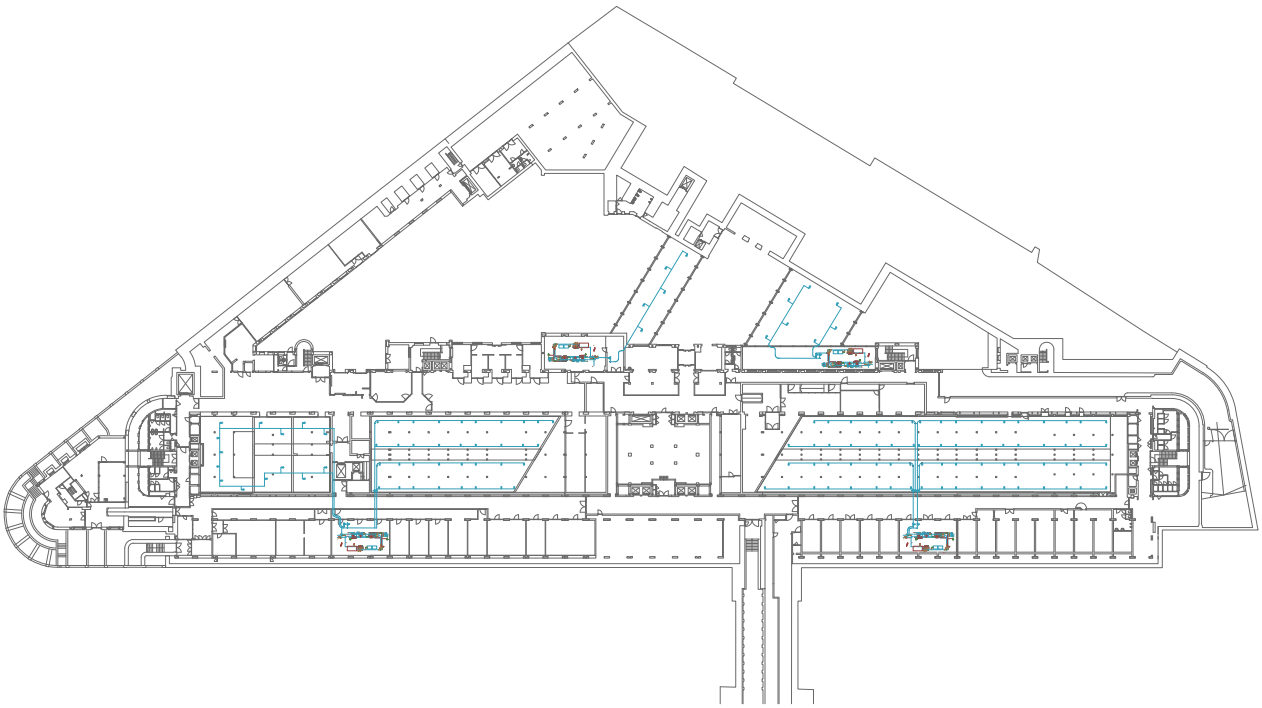
85

Climate diagram - winter situation, 1:400



86

Climate diagram - summer situation, 1:400



87

Basement Floor Plan 1:1500

The greenhouses in the main banking hall provide a climate with **high humidity, high temperature,** but **defused sunlight**. This is where plants grow that need partial shaded or full shaded environments, so no direct sunlight. When this defused light comes through the glass roofs, it is converted into **infrared energy**, or heat, and absorbed by the plants, soil, and ground. This heat can't easily escape out of the greenhouse's glass roofs, so the trapped heat warms the air inside the greenhouse. Because a greenhouse is relatively air-tight, the warmer air stays inside, raising the entire building's temperature, even in winter. The hot air in the top of the greenhouses is collected and a **heat exchanger** exchanges the heat from air to water. A **water-water heat pump** then transfers the heat to the designated areas in the building.

In summer the excessive amount of heat can be stored in **aquafers** in the ground. There can also be an extra **natural air flow** if necessary. Subterranean farming using **hydroponic** and **aeroponic** technologies is happening in the basement. The products of these two greenhouses will go to the kitchen of the bank. What is also happening in the basement is the **collection of rainwater**. A roof surface of 8000 square meters translates into 5,2 million litres of rainwater per year that falls on the roof. This amount of water requires a tank of 260 cubic meters that is located in the basement. A watering system creates an even distribution of water to the greenhouses (see floor plan).

Jardin Botanique de Banque Nationale de Belgique

Botanical Garden of the National Bank of Belgium

PUBLIC EVENTS IN OCTOBER 2037

SATURDAY 2 12.00-15.00	**WHAT'S IN THE SOIL?** WORKSHOP FOR KIDS	TICKETS AVAILABLE
SUNDAY 3 14.00-18.00	PHOTOGRAPHY WORKSHOP **SAM ABELL**	TICKETS AVAILABLE
THURSDAY 7 20.00 - 22.30	AN INTIMATE PERFORMANCE WITH **DAVID COHEN** (CELLIST)	TICKETS AVAILABLE
9 & 10 10.00-16.00	WEEKEND OF THE **OPEN HOUSE**	OPEN EVENT
MONDAY 11 20.30 - 22.30	UNE PERFORMANCE INTIME AVEC **COEUR DE PIRATE**	TICKETS AVAILABLE
SUNDAY 17 14.00-16.00	PAINTING LIKE **MARIANNE NORTH:** A WORKSHOP BY **LUC TUYMANS**	TICKETS AVAILABLE
SATURDAY 23 14.00-16.00	WEEKEND OF SCIENCE: **FREEK VONK** 'EVOLUTION'	OPEN LECTURE
SUNDAY 24 14.00-16.00	WEEKEND OF SCIENCE: **BIOLOGISTS FROM KBIN** 'THE LARGEST INSECTS IN THE WORLD'	OPEN LECTURE
TUESDAY 26 21.00-23.00	AN IMPORTANT MESSAGE FROM THE **GOVERNOR ELKE VAN DEN BRANDT**	OPEN EVENT

The National Bank of Belgium
De Berlaimontlaan 14
1000 Brussel

www.nbb.be/tickets
tickets@nbb.be
+32 2 221 21 11

88

Public events inside the botanical gardens of the NBB where they will teach you about the importance of **carbon capturing, soil improving** and what you yourself can do to **stop our climate from changing**.

89

Root system 1:10. Of course the greenhouses will not immediately look like these images. There will be an **intermediate phase** after planting the seeds in which the plants will grow bigger and bigger. It's a collective effort of the bank and its employees to help these greenhouses succeed and to **provide the care that the flora require.**