



# ATELIER TRANSYLVANIA

an ethical fashion production  
through architecture

AAHM01: Degree Project in Architecture

Author: Andreas Gårdendal - Master Thesis, 2016-2017

Examiner: Tomas Tägil, Tutors: Christer Malmström & John Ross

LTH School of Architecture, Sweden

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2016 - 2017  
Final Presentation and Hand-in 2017.02

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The author of this work has launched a Swedish brand producing fine quality leather goods and acquired an atelier operating in the heart of Transylvania, Romania, with the manufacturing of leather goods since 1991. The production house now needs a new building in Cluj in order to grow and meet the new work ethics.

As a response to the collapse of a sewing factory building in Bangladesh 2013, killing 1100 people, the so called fashion revolution emerged, where consumers, brands and producers strive for an ethical and sustainable fashion production. How can I through architecture implement these core beliefs of an ethical production into the design of the new factory building?

In the analysis of factories I found that factories tend to focus solely on the production needs rather than the human needs in contrary to most architecture. Factories use to be closed enclaves with little connection to the outside world, creating mystery for the outsiders and a cage-like feeling for its workers, with lack of natural daylight. In order to be flexible and cost effective they use to comprise a single large volume with no attention to acoustics which further results in noisy and unhealthy environments.

Through analysing the common factory issues, combined with the company needs and interviews I came forth with a program. I then found a suitable industrial context in an area with similar factories on a central site to get as much exposure as possible as I want the building to spread the vision of an ethical production. The building landed on the site without interfering with the pre existing paths going around it through adapting to the grid of the site. By using wood as the facade material, from the pre existing birch trees on the site, the building further blends in to the context, while

letting the woods visual softness together with the organic shaped plan be an allegory to leather which is soft but still structured.

In order to give the best logistics between the production, the visitors and the employees I divided the program into three floors. A ground floor with an exhibition area in order to present our products for the clients and visitors, a single in/out-put of goods and keep the large and noisy machines on this floor. The second floor is entirely dedicated to production in order to elevate the views and has a round going production adapted to the shape of the building in order for the finished products to get back to the one elevator out of efficiency purpose. To show our core belief for the well-being of our employees I have dedicated an entire floor to recreational purpose such as a canteen with free catering, panoramic views over the surroundings, relaxing units and access to a terrace surrounding the building with a circumference of 120 meters, perfect for walks during breaks to ease ones mind and to give back the nature under the foot print of the building.

An atrium functions as the core of the building and connects the three floors through a central spiral staircase that like a serpentine encloses the space. The atrium lets plenty of daylight through and creates a logical spacial experience and connection between the floors. The birch wood is consistent on the inside as well.

As the key goal was to get as much natural light as possible and panoramic views I have designed a load bearing steel structure out of pillar and beams with large spans. The panoramic views connect to the surrounding landscape for the employees to enjoy and to better communicate with the by-passers by letting them glance parts of our production

to get rid of the mystery concerning factories. To block the direct sunlight from reaching the leather I have designed an interlocking waffle effect facade with enough depth to keep the sun rays away during the work hours.

Through architecture I have now shaped a better working environment by plenty of natural light, ventilation, recreational space, visual connection to the surroundings while even enhancing production logistics. I have now enforced the fashion revolution through the means of architecture and manage to spread the vision further by our exposure to the surrounding factories and visiting brand representatives. They will all get to know the cause we are fighting for and challenge them to fulfil the same mission - that the people should be the center of attention even in production and the products will get even better as a result. I have well managed to fulfil and surpass the needs of the client into a building that completely redefines the meaning of a factory.

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# INTRODUCTION

# BACKGROUND & ASSIGNMENT

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The author of this work has launched a Swedish brand producing sustainable fine quality leather goods and acquired an atelier operating in the heart of Transylvania, Romania, with the manufacturing of leather goods since 1991. The production house now needs a new building in Cluj in order to grow and meet the new work ethics. The production is part off the ongoing fashion revolution where social conditions for the workers are the centre of attention.

After five years of architecture studies in Sweden, this thesis will now take this task of designing the new factory building for Atelier Transylvania, the name of my acquired company in Cluj, Transylvania, Romania. As a response to the collapse of a sewing factory building in Bangladesh 2013, killing 1100 people, the so called fashion revolution emerged, where consumers, brands and producers strive for an ethical and sustainable fashion production. How can I through architecture implement these core

beliefs of an ethical production into the design of the new factory building?

Romania is one of the largest manufacturer of fashion in Europe, mainly due to its cheap labour, but largely because of its tradition and existing knowledge in crafts and production. When people think of a brand, they think of their products being made by the brand, but this has never been the case for the brand names people typically know of and the working conditions are far away from what the brands stand for. The fashion production industry is plagued by very high competition and thus soaringly decreasing production prices, meaning the conditions for its employees have become one of the worst. But our brand and its very own production will through this thesis analyse how architecture could be part of implementing the new work ethics through design and be part of the fashion revolution.

# RESEARCH QUESTIONS

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How can I through architecture support the vision of an ethical fashion production, where the employee is in focus?

How far could I question the norm of a typical factory? Could I integrate the comfort of an office and raise the status of factory workers by doing so? How to solve its production needs

while still focusing on the employees. Can I focus solely on the employees and solve the production needs as a result?

How can I spread, promote and advertise this vision through the building? Could the location of the site help?

# PURPOSE

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The purpose of this thesis work is to show my ability to find and analyse a problem or need, create a method to solve it through architecture and show the process into an architecturally sound leather goods factory building, where theories and design emerge.

The second purpose is to solve the clients company needs of its future expansion (production, employee and company culture related) into a proposal for their new factory. A factory with some energy sustainable aspects and activate the area around the site through small means.

Further I want to create a socially responsible production through architecture. I want to show how architecture can create a better environment for the employees and help fulfil, adapt and create a healthy company culture.

I also want to find means of how to make the factory building into a brand icon, to further spread its vision. I want factories to break the norm of the typical factory and remove the underlying mystery around production while raising the status of factory workers.

I will also give some brief insight into the technical process behind making leather goods in order for the readers to fully understand the logistics of the final proposal.

The last but not least purpose is to give an insight into the issue of fashion production, an industry which we are all part of whether we want it or not.

# METHOD

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During this thesis work I have been living in Cluj, Romania half of the time in order to be able to visit the site frequently and half of the time in Sweden in proximity to the school, my teachers and colleagues for critique and support.

In my exploration on this topic of factory buildings I have not referred to any particular book, quote or theory but from my experience as an architect, factory owner and production consultant in the fashion production field.

I started my design from the needs of the client and held an interview with some of the employees of the company to further understand and extract their needs. The process should take into account general economic aspects and lean towards the cheaper alternative should there be any choices (but will not include any numbers).

I have made a general analysis of factories in order to find and define problems which I will

then try to solve in the program of the client.

I have focused more on design than on theories, but end up in a balance between the two. I have not gone into the construction details, but am using general construction techniques and measurements.

I have sketched my process throughout this book in InDesign and structured the work as the process proceeds. I have made many hand drawn sketches for myself but made the digital volumetric sketches in Rhino and then imported all of the work in to ArchiCAD from which I have extracted the drawings and renders. I have made final retouches on the drawings using Illustrator and Photoshop on the illustrations.

At the end of this thesis work I presented the work orally together with a projected slide, in conjunction to wall mounted prints and with physical bags for a better understanding and hands on experience of this thesis.

# LIMITATIONS

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The history of manufacture is as old as mankind and ever since the industrial revolution the manufacture changed more and more into fabrication of goods. It would be very interesting to look into how factories have evolved since the industrial revolution and the company culture around production, but that would give a too large volume for the intent of this architectural thesis.

I will focus strictly on the problem at hand by strictly starting from the need of the company and interviews with the employees, combined with my experience from visiting various production facilities the last two years and integrate them with my education as an architect. The experience from my site visits will merely be put forward as a general view on factories and their problems.

I will though focus on the production logistics of leather goods factories, site improvements in walk-ability, design and safety. Incorporate means of design to solve employee care

of various degrees and look into how I can implement sustainability into the architecture by using site specific materials and energy solutions.

By the nature I will also have to solve the construction aspects of the building to some degree, but not as to go into calculations of energy values or construction formulas, but use general rules of dimensioning.

I could choose to make a restoration project and use many of the decayed and unused industrial structures that could be found in the city where the company is operating. This would save some energy and active a dead space, instead of taking a new one. But reviving these structures imply many rules and come with great risks of construction aspects as well as environmental issues of poisoning in the ground and alike, leaving us with the best option for complete freedom to adapt to the company needs, namely to make a completely new factory building from the ground up.

# DISPOSITION

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This thesis work is divided into four parts to best present my process. In the first part, "Client & Factories" I will present the client and their company needs. I will conduct an interview to get further insight into the company. Then I will present my analysis of factories and the process of the leather goods production for you to better understand the logistics behind the needs. Out of the company needs, interview and factory analysis I will present the program.

The second part, "Site & Context" will be a brief presentation of Romania, its culture, recent history, climate and nature to then zoom in to the city of Cluj-Napoca in the heart of Transylvania. I will be in search for a site and then show some contextual aspects around it.

Having found our site I will go on to the third part, "The Proposal" where I will start off to make some site modifications and ground the new factory building into its context. I will present the basis of the concept and go over to construction and plan related issues to show how I have managed to materialize the program into an architectural design. I will also give a complete tour step by step through the different floors and production logistics.

In the end I conduct my thoughts about the final result and the process through a discussion and reflection.

The thesis work was orally presented in February 2017 together with a projected slide and in conjunction to wall mounted prints.



# THE CLIENT & FACTORIES



# ATELIER TRANSYLVANIA

## leather goods factory

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Atelier Transylvania has been manufacturing leather goods in the city of Cluj-Napoca, Romania, since 1991, having its 25:th birthday by the time this text is written. It has changed a lot during the years as a company and should have been closed down the summer of 2015. But at that time I was in works with my Swedish hand bag label with a focus on sustainability and was looking for a production with great social conditions for its employees, in contrast to the vast majority of the fashion production in Europe. What couldn't be better than to develop our very own production house and start to manufacture for other brands looking for the same conditions as well. At the time of acquisition the once factory was just an atelier, like in the days when it started but in order to survive we now have to grow in numbers to become efficient and thus competitive. To do so we need a new premise into which we could grow. Through this thesis I will analyse the company needs in order to be able to design and present the vision of the new factory.

In order to keep a familiar atmosphere even when expanding I have found that an optimal production vs. social benefit lies between 50 and 100 employees in a single factory unit.

I therefore want to plan for a building that is somehow flexible, but would be optimal for a work force of 100 employees, the perfect size in which to keep a friendly factory business.

To comply with the company vision of complete care and responsibility of the entire manufacture chain I would like to find means of how to keep the Swedish brand spirit, company culture and work ethics, through architecture. How could I physically build these values into design and how could they in turn get expressed through the design? I would like the new factory to radiate and be an icon and example of our good company culture both on the inside and the outside as to raise thoughts about what a factory could be and the care one ought to give ones employees. By this we could be part of the fashion revolution not only through our company culture but through our factory design as well and make people visually conscious about the ongoing problems just by asking questions about our very own building. The building in itself will raise the topic and thus awareness of the ongoing poor conditions within fashion production in large. In short we want a brand building that shows our values. The thinking of taking care of one's employees to

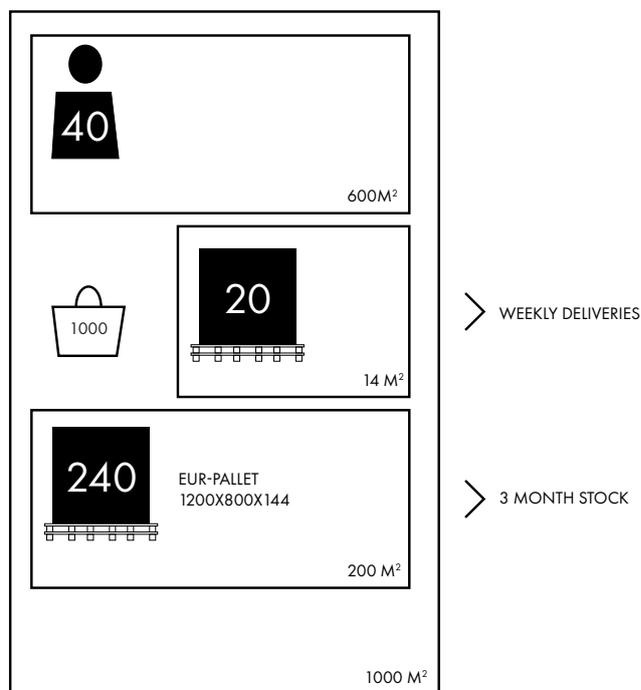
this extent is non-existent in factory leaderships of today in Romania, and the world in general. But the awareness of these issues are on the rise amongst fashion consumers and as such we will be the fore-runners in this change.

As a brand and factory we have the responsibility to implement our social core values in the physical world through architecture and design. To show the power of architecture and the way it affects our life, being it present or omitted. As such I would like our building to stand next to a trafficked intersection, as to get maximum impact through visibility. I want the company to compete with other factories in the city and with their clients and visitors by standing on an exposed area. It should be a one-of-a-kind building that raises thoughts and questions the conventional design. If we are being unique we could also gain trust more easily and thus attract the best employees to our company.

Apart from the visual aspects we need to gain an efficient and competitive production through a smart internal logistic and the well-being of our employees. We want to keep a maximum production capacity, without becoming a "sweat shop". I believe that we could take care of our employees by designing small relaxing spots with couches, coffee machines and fruit, in the periphery to the production floor. These should be designed into their own perceived spatial zone which could be created through a raised podium and lowered ceiling height with an overhang. By giving these spots a natural material such as wood, I can create a space that feels warm, personal, cosy and silent, and by perforating the wood a silent acoustic sound-scape could be made and thus create a cosy new world in which the employees could recharge during the regulatory breaks.

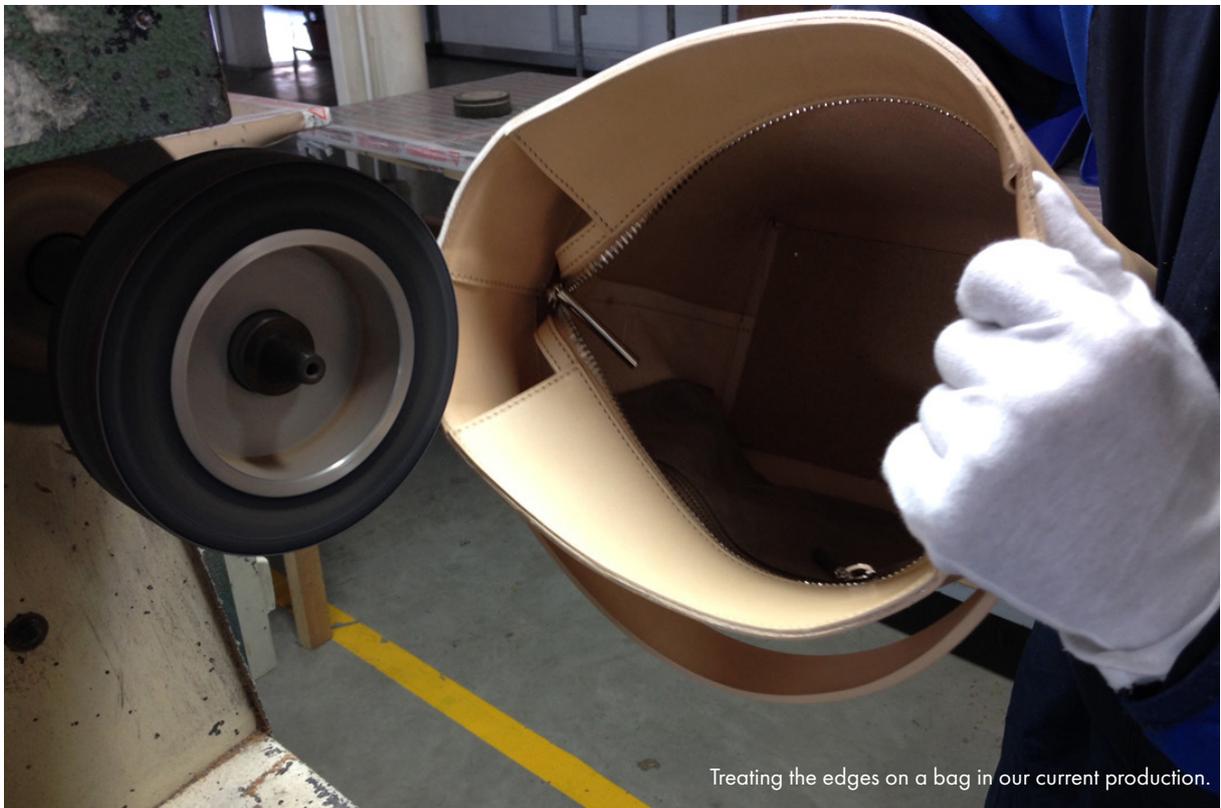
I want the design to be down-to-earth in materiality and minimalistic as our Swedish heritage and where the details come forth as the design, just like in the many bags we make for our Swedish sister brand. I want a notion in the materiality that points to the softness, but yet structure of the leather we use.

Our data and calculations say that we will produce about 2000 - 2500 bags/pieces a week with a work force of 100 people, which means we will have deliveries every Friday afternoon.





Making of our bags from the current production



Treating the edges on a bag in our current production.



Skiving the edges of the leather in our current production.



Heat embossing the logo on a bag in our current production.

# INTERVIEWS

In order to understand the various needs of the workers I have decided to conduct interviews with four employees and myself in the position of visiting Creative Director. As the atelier should meet our very own production needs what wouldn't be better than to interview our very own team of their preferences and liking?

## **Viorica - Master Artisan**

Viorica is the on floor responsible Master Artisan, the person checking around and making sure the quality is met, helping out where is needed and making sure everyone is on par with the daily quota of production. Being the person to run around quite a lot and talking to so many people one gets easily physically tired, why she would really like to have a silent and private resting room with a bed or laid back couch, to withdraw from production and take some short breaks when needed. She does also want to have plenty of natural daylight as it is the healthiest source of light. She would also like to be able to easily overlook the production.

## **Melinda - Seamstress**

Sews mainly and mounts. Being part of the production line with the main task of sewing one gets easily stuck in a static and bent posture way too many hours a day. In order to remedy this health risk Melinda would like to have a nice green and accessible private outdoor space for the employees. Where fresh air could be enjoyed and sheltered tables where the lunch could be served during summer time. She would also like to be able to see plenty of nature and greenery through the windows. As she lives in a nearby village she is being picked

up by car and would like to be able to sit and wait outside of the factory entrance, but still in a sheltered place.

## **Sorin - CEO**

Having a spacious representative office with couches for the clients. Preferably with a lounge with possibilities for a comfortable small talk with clients before getting in on the hard talk. Clean white simple spaces, no clutter, airy and height to ceiling. Preferably glass walls when needed for transparency. A nice dining area is also a must.

## **Adi - Production Assistant/Pattern Maker**

Having a small but efficient work shop with all the needed machinery from the production floor, for research and samples when designing my self. These could be brought in to the production as backup if a machine should get serious issues. A well lit office with natural light and access to a garden, sometimes I feel entrained and need a wind protected outdoor space with a table to continue my work.

## **Andreas - Owner & CD (the author)**

As the Creative Director of a brand I work close to Adi when visiting the factory to test or develop new bag models (as do other CD:s when visiting). I would then like a large room where we could cut patterns and print them on the printer, or be next to the CNC cutter and make some fast mock-ups of our sketches. As a gift to our team I would like a massage room and free catering for everyone as to save time. There should also be relaxing spots with fruits and toilets in connection to the production floor.



The following photos are very representative of a leather goods factory. Usually no windows to the outer world, a single large volume with no sectioning, poor ventilation, fluorescent light strips which are not good for the eyes.

Quality Control & Finishing - Taiwan



Pre-Production, Cutting Machines - Bangladesh



Mounting of bags - Bangladesh

# ANALYSIS OF FACTORIES

A factory is the definition of a building that houses facilities for the manufacture of goods.

From 2015 I have had the opportunity to visit some major factories in the fashion production of Romania and Sweden, ranging from small ateliers to factories working for both the largest and the most luxurious European brands. Thus I have been able to explore their function from a production perspective as well as from a workers perspective. Nevertheless I have decided to conceal photographs and names of any of the factories from within my network and will instead give a general picture of how they use to work, their key ingredients and show some royalty free photos that represent the typical leather goods factory.

I have come to conclude that the principle of leather goods factories is the same around the world. At first glance, factories appear to be one of the most elemental construction tasks. A floor, a roof, a load bearing structure, some walls and the factory is seemingly done. A simple enclosed volume. Unfortunately this is often the case, but it can be so much more. To make a good factory is complex, trying to solve various production and logistic problems are a main feat, making the assembly line as smooth as possible, while maintaining the human and "soft" needs in mind. But the complete freedom is what makes factories so interesting. They often tend to overwhelm by their scale and despite being seemingly simple and singular they are often convoluted and hard to grasp. Dealing with the freedom of space often makes them lack qualities and detailing as budgets are often short and prefabricated elements

tend to be the best solution for large structures, which in turn affects even the smallest details of the design negatively.

During my visits I have come to note that factories usually tend to be closed enclaves, often impersonal, not being able to see in, nor out of them. They are often surrounded by fencing and guards. In order to be flexible and cost efficient they often comprise a single large volume. But flexibility comes at a cost, often it tends to focus solely on the machinery and production at hand, instead of on the people making the goods. As such factories have come to be depicted as mysterious entities, and often are, in order to hide the poor working conditions in the industrial environment. The different sections or entities of factories are often well linked together in a clear hierarchy and the production logistics is often working well. But as written, they use to lack one aspect, the employees are neglected.

## SOCIAL CLIMATE

A great deal of ones well being at work comes from socializing. In production one use to work an hour and a half between breaks but as people often sit in pairs and are part of the same production line, communication comes naturally and should be encouraged. I noticed that the social climate largely depended on the managerial team and their social demands. But apart from the leaders own character I noticed that the placement and layout of the various machinery within the operations themselves affected the climate greatly if it could generate conversations or not. If the distance between workers is short that tend to lead to talk, but



Part of a modern and large leather goods factory in Europe. Plenty of natural light from sides and ceiling, high quality LED lighting, panoramic views to outside.



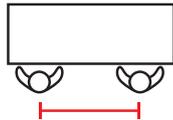
Mounting of wallets - Bangladesh



Sewing the lining in preparation for mounting - China

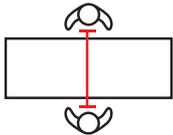


Distance

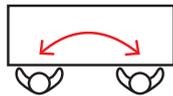


close = more talk

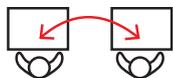
Position



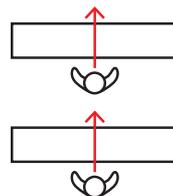
facing = socialize



close = more talk



close = more talk



backside = no talking

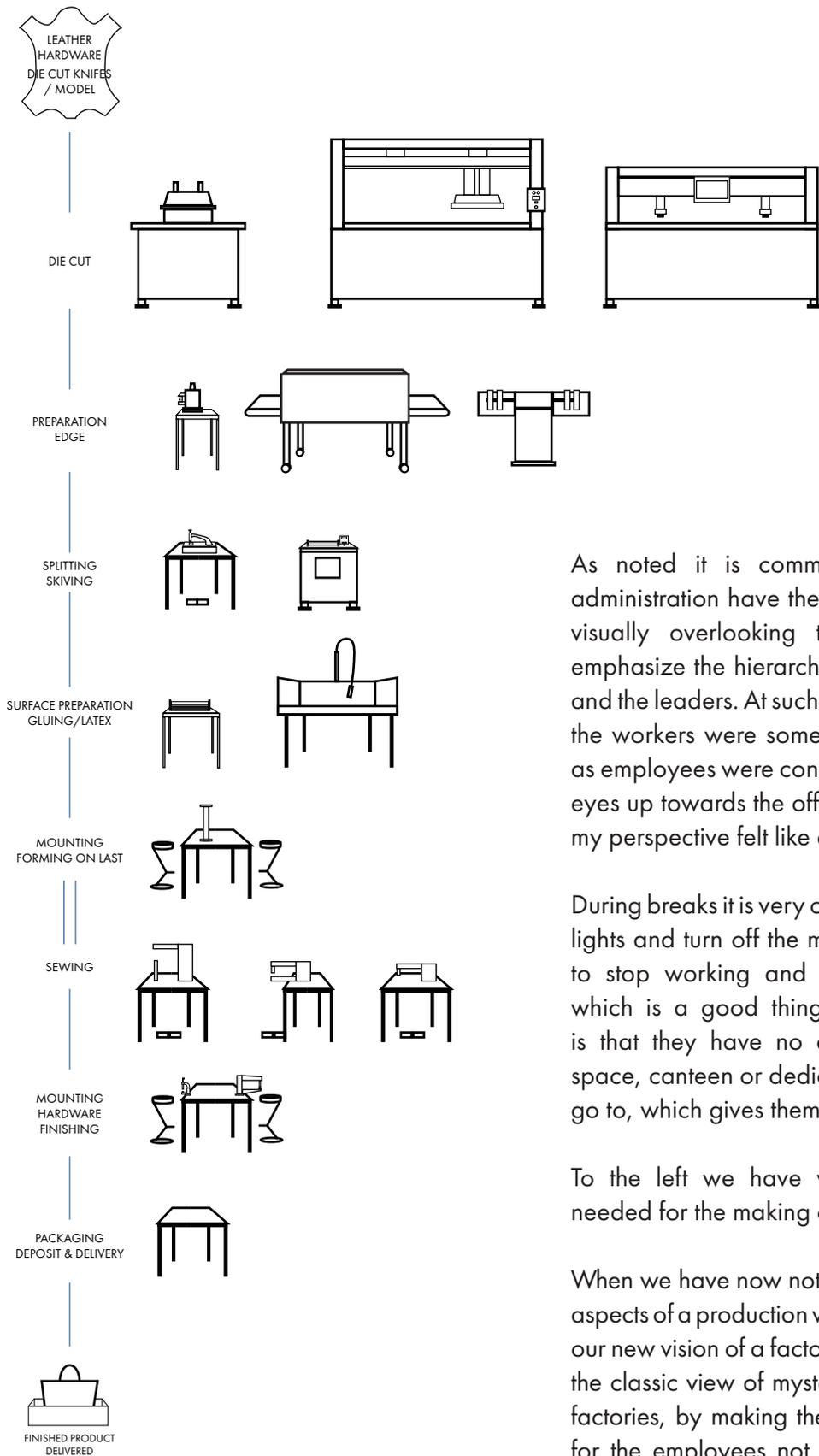
they had to stay in front of another in pairs, or work shoulder to shoulder. If they were placed in rows one in front of the other, everyone facing the production direction, they could just see each others backs which by the nature prohibited conversations. The distance between the workers did also affect conversation, the farther away the conversations got more impersonal and even disappear, while the closer the more personal conversations.

## COMMON CHARACTERISTICS

1. A single large open space without any acoustic measures (good for production, but not necessary, and makes noisy and tiresome environments)
2. Poor to no compartmentalization (further enhances noise, visually distracting walls or logistic prohibiting when implemented)
3. Poor to no ventilation (far too cold during winter, far too hot during summer)
4. High ceiling (3-5 meters)
5. Lots of light strips, in Europe it is common with LED-lamps suitable for production
6. Straight lines of tables or machinery for an easy production logic
7. Little to no natural light (no visual connection to the surrounding, not good as people need to see nature for their well being)
8. Lack of outdoor space (people are trapped in a cage for 8 hours)
9. Physically hierarchical separation between production and administration or hawk eye positioning of the managerial office to overview production (creates tensions between production workers and leaders)
10. Lack of social or relaxing space for breaks
11. Lack of dining areas (people never have proper meals or breaks)
12. Poor toilet facilities (often the workers have to bring paper rolls, towels & soap themselves)

# PRODUCTION LOGISTICS





As noted it is common that the boss or administration have their office physically and visually overlooking the production which emphasize the hierarchy between the workers and the leaders. At such places I had the feeling the workers were sometimes feeling watched, as employees were constantly casting sporadic eyes up towards the office cubicle, which from my perspective felt like a stress for them.

During breaks it is very common to switch off the lights and turn off the machinery for everyone to stop working and take common breaks, which is a good thing. The problem though is that they have no dedicated recreational space, canteen or dedicated outdoor space to go to, which gives them inefficient breaks.

To the left we have visualized the process needed for the making of the company's bags.

When we have now noted the common lacking aspects of a production we need to target them in our new vision of a factory. We want to redefine the classic view of mysterious and inaccessible factories, by making them humane and caring for the employees not just for the production.

# THE PROGRAM

From the company needs, interviews and analysis of factories we can now form the program that will be the basis of an architecturally sound, functional, visible and competitive factory.

On the right side I have diagrammatically placed the functions needed in the program and below I have listed some of the values that will be the basis of the new building:

## CONCEPT

- The concept should have a unique design, raise awareness through being on an exposed and trafficked site and an example for others.
- Focus on the workers, give them value
- In order to dismantle hierarchies, we won't have a specially dedicated office for the Production Manager or Master Artisan, nor should there be a dedicated office for the CEO, everyone in the administration should be at the same level. When having separate offices working all alone, productivity tends to go down and inclusion is prohibited, making grounds for separation and inefficient hierarchies.
- Down to earth site-specific materials and minimalistic Scandinavian Design
- Economically possible solutions

## SITE

- It needs to connect to the outside by physically adapt to the site.
- Parking lot for employees. Bike stands. Outside entrance shelter while waiting for pickup. Accessible loading bay for delivery trucks.
- Surrounded by greenery

## PRODUCTION

- Efficient Production Floor, scalable, flexible
- Production layout designed to promote good communications, less shouting, less noise.
- Separated cutting unit (to lower noise, but in an efficient way, as not to lose communication between the preparation and main production)
- Low noise (through designed acoustics)
- Plenty of natural light
- No direct sun-light into production

## GENERAL

- Gradient between the lobby, entrance and outside
- Being able to see out from the windows and greenery for the well being.
- Well isolated building with proper ventilation to stand the climate.
- Exhibition hall with samples of their previous work for visitors, passing people and clients (does also function as a remembrance for the workers of their work as something valuable, not just the production line and volumes, but as something valuable to stay).
- Visually see its function. Let visitors in at times in our foyer exhibition, let them approach the windows and at least see in from distance the products we make, to make sense and get rid of this mysterious concept.

Food Court (100 ppl)

Relaxation/Recreational area

Relaxing Room  
Nurse Room

## Recreational Part

Green Outdoor Area

Production Floor (1500 sqm)  
(compartmentalized acoustically)

Administrative Office  
Private Office

Meeting Room (2 pc)

Printer Room & Photo Studio

Design Studio Room

## Production Part

Locker room men  
(30 ppl)

Locker room women (80 ppl)

Foyer/Lobby with Exhibition hall

Stock tools

Stock weekly

Stock long term (3 months production)

## Peripheral Part



# THE SITE & CONTEXT



# ROMANIA TRANSYLVANIA CLUJ

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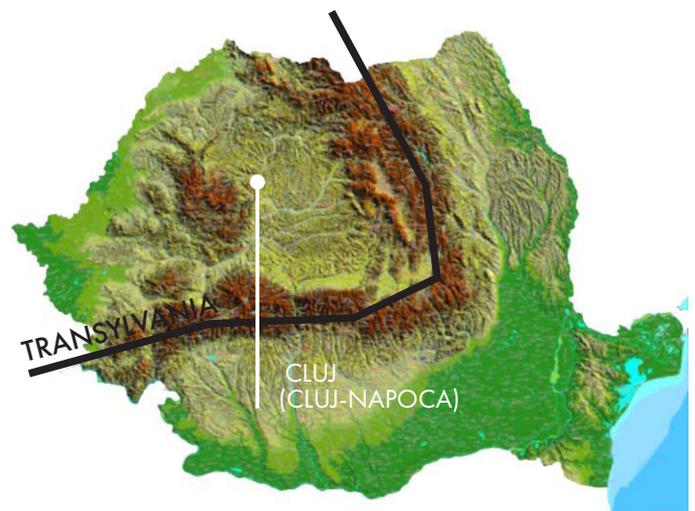
Romania, a country with everything from sea and deltas to valleys and mountains, with acres of fertile soil and a plethora of flower species and the most conserved wildlife animals of Europe. The Carpathian Alps goes like a bow through the country, with mountains ranging up to 2500 meters who surrounds the region of Transylvania, with its ancient history and culture. The country still has a great population living in the rural areas and villages where many are still active in agriculture and the raising of cattle.

Wood have long been used in its traditional architecture, to form high churches to traditional roof tiles out of wood instead of ceramics, to the wide spread wood arches in front every rural home. Because of woods significance I will use it as the key ingredient in the new factory building in order to honour the local tradition and the easy access to wood as a building material. But let us zoom in to Cluj in the heart of Transylvania, where the company has its present location.

## CLUJ

Despite the paradigm shift of the latest century, Cluj has always been a city of commerce and culture and have as such been attractive to many kings, and was between 1860-1920 under the rule of the Austro-Hungarian empire

who invested in and developed the city even further. Today Cluj has become the city of IT and production. With a cheap and skilful work force, Cluj has come to be the home of one of the largest global corporations. The IT-sector is predominant but it has all sorts of research and renowned Universities with full educations in English or French and has thus come to be the home of many students from France, Germany, the Middle East and even to Northern nationalities. Alongside the intellectual industries the city has an old history in the production for the packaging and furniture industry. But above all the city is known for its bag and shoe factories, where the heart of production is in the Clujana area, located in the centre of the industrial line which stretches through the northern part of the city from east to west.





CENTRAL TRAIN STATION

RAILWAY

INDUSTRIAL LINE

NATIONAL FOOTBALL ARENA

THE OLD TOWN

SHOPPING MALL



THE SITE

INTERNATIONAL  
AIRPORT

SHOPPING MALL



Clujana was once the largest shoe factory in Europe with 11 000 employees, producing shoes for Europe, Canada and Russia (so large that they even started to tan their own hides close by). But before the entrance in EU they got financial problems and today only a fraction has remained with a work force of 400 people. Many production industries faced the same fate and today 30% of the once prosperous industries have been left to decay, leaving large areas with huge development opportunities for the coming years and the rapid ongoing expansion and densification of the city.

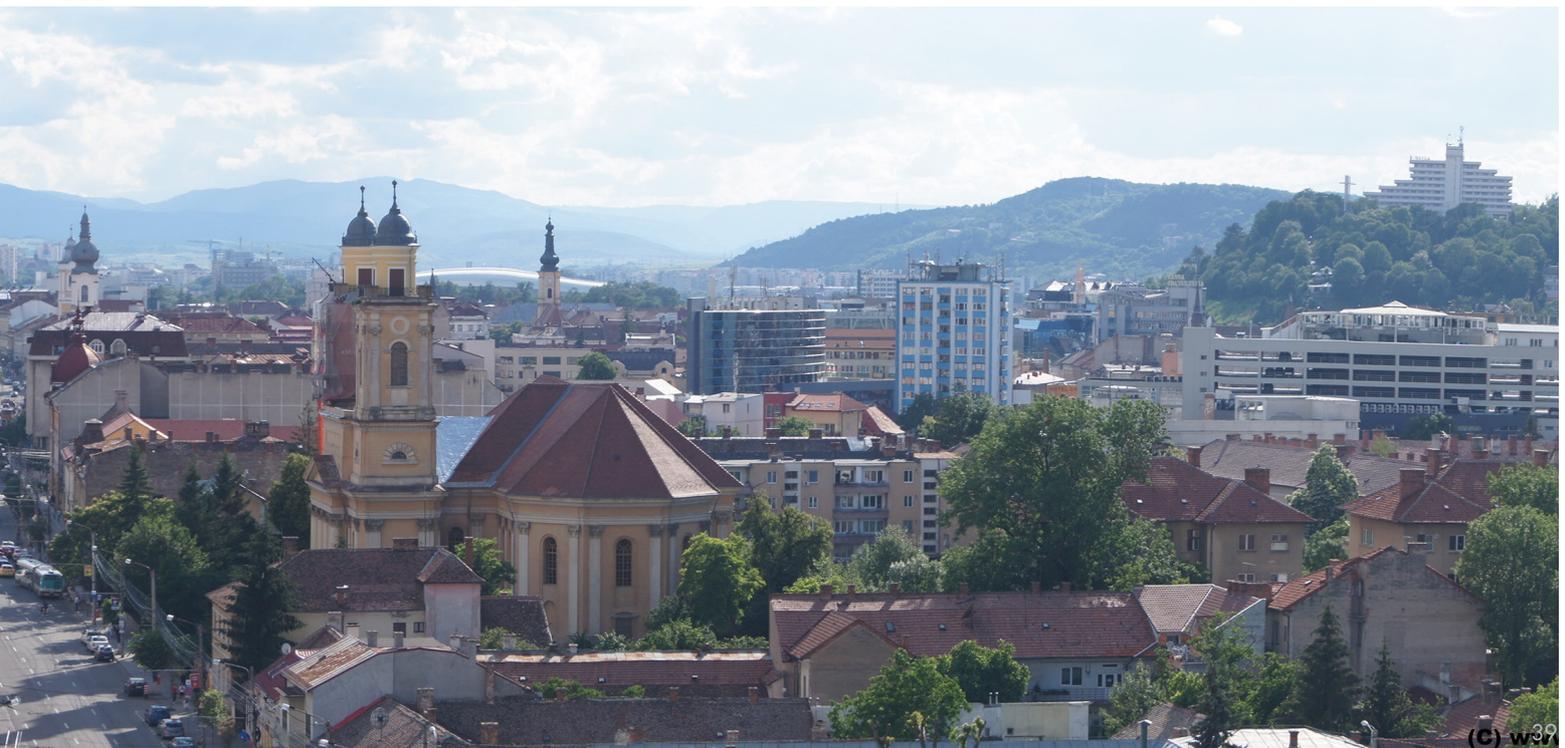
### THE CLUJANA AREA

One such area that will undergo a large transformation is what have come to be named the "Clujana" area. What wouldn't be better for our factory than to be part of the renewal of that area, which do also house the majority of the handbag and shoe factories that are still left in the city. The area has a premium location

in the center of the industrial line. The river of "Somes" is passing by on its north and west side and the the national railway cuts the area off towards the villa area in the south. The train traffic is low and the trains passes at a very low speed in order to not disturb the residents on the south side. The area has a medium frequented hospital and a roundabout in the center of the area coordinating all of the traffic with up to ten thousand passing vehicles a day. On its east side is the former mega complex of Clujana, surrounded by the "Tannery Road".

### THE SITE

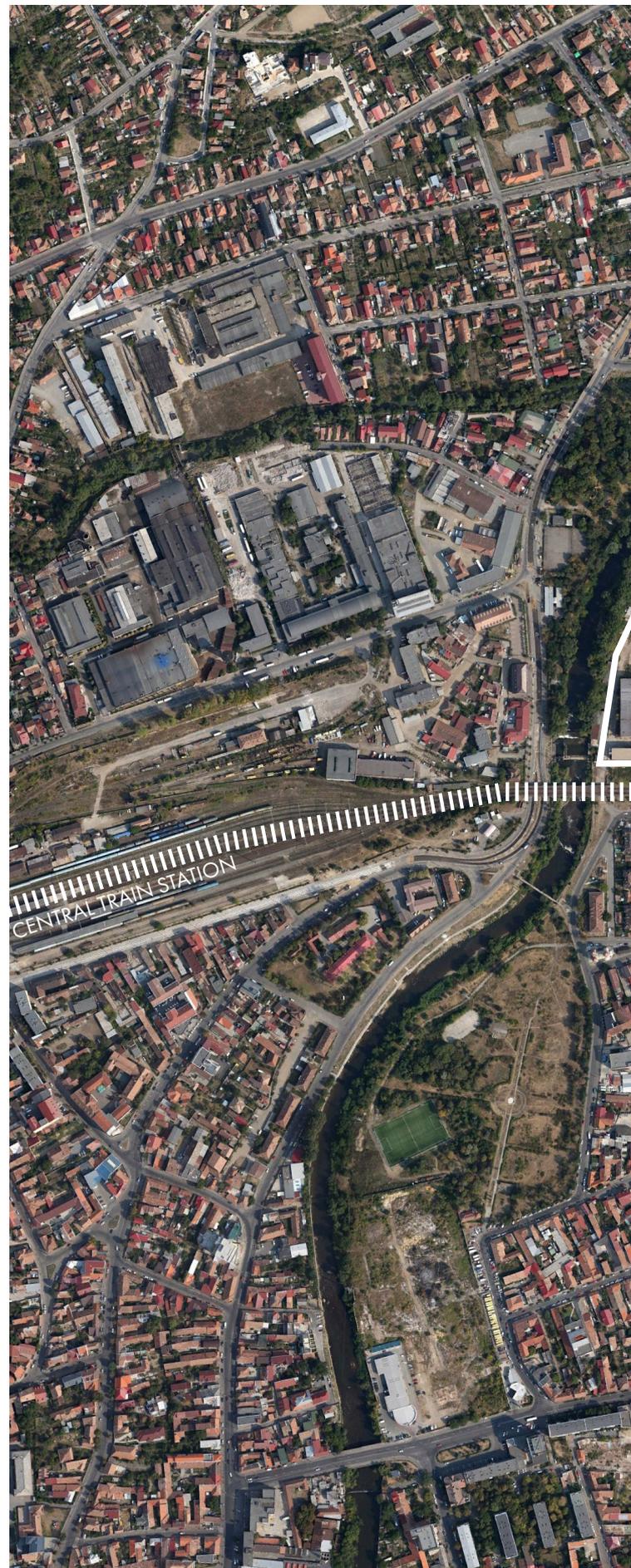
As I wanted our own factory building to be well seen as a statement I was in search for an exposed site with lots of round-going traffic, a site with more than one facade facing the trafficked road, preferably a site which people could go around from all sides. It should still be in the industrial part of the area to accept heavy traffic, but not larger than big vans or small trucks. In my search I found a perfect



site in conjunction to the round about, on its north east side, the building can have perfect exposure from every one visiting the area or just passing by to the north part of the city. The site houses a small parking lot and a grove of trees. It has a somewhat triangular shape and would be perfect in size to fit our program. The Tannery Road is crossing by on the south east and many people use to traverse the site on its northeast side. It is well placed near to the bus and taxi station so that our employees could access the site and arrive as easy as possible. The employees should always be first in mind upon finding a location as it has to be as accessible as possible from every direction of the city, which this site is.

Thanks to the exposure our factory could be of competition both for other company owners to challenge them to rethink their concept and company culture and will also draw a lot of attention that could potentially give us an overtake when looking for new employees. Our position naturally give us a free ad stand through the perfect location for leather craft workers. The factory will also be easy to find for brand representatives that come to visit our premise.

The west side of the area house the decayed industries, some of them have new, smaller factories. Most of this area will get re-planned in the years to come and it has huge potentials being so close to the river and the bus/taxi station. I could have found an old building to up-cycle and adapt for the factory, but being on this location the factory will not get affected by the upcoming changes of a mix use area and thus it will be able to stand any transformation that could happen, without worrying not to fit in. As such this site is safe and suitable.







GUARDED INDUSTRY AREA

NATIONAL RAILWAY

< CITY CENTER



The location I have chosen is a real premium location for industries. It is surrounded by the river and a peninsula, having a hospital close by and a roundabout coordinating all of the traffic in the area, lots of exposure, about ten thousands of views every day. The national rail road dividing the area towards the villa area in the south, but all the trains pass in a very slow tempo and the traffic is quite low. On its east side lies the former mega complex of Clujana, once the largest shoe factory in Europe with its 11 000 employees, so large that they even started to tan their own hides close by.



View from South of the current situation on the site



View towards north east

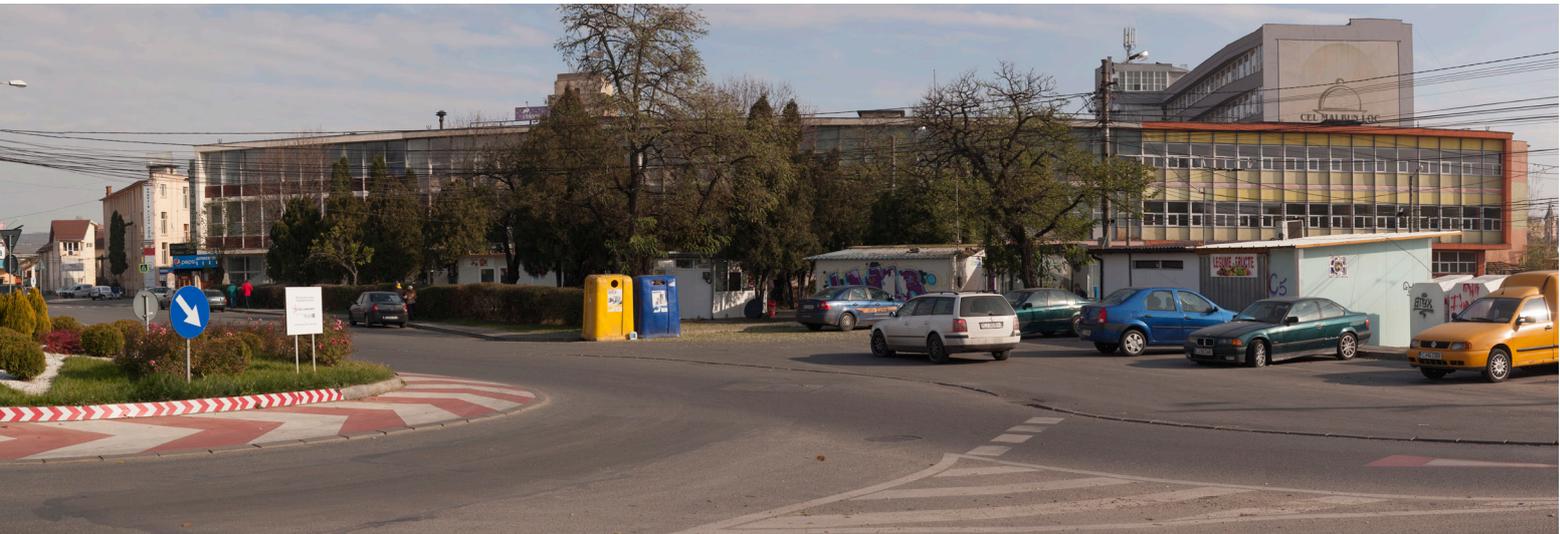


View towards east





View from South of the current situation on the site. Merely a dead parking lot.



View from east 45





None of the three buildings/functions are in use.



View from the site towards west.



Empty shells from the surroundings of what once used to be active and producing entities.





# THE PROPOSAL



# THE SITE & SURROUNDING

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## THE SITE & SURROUNDING

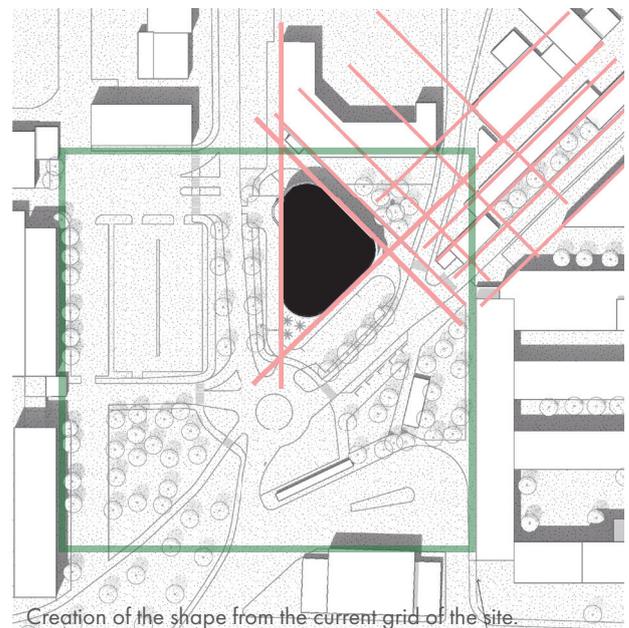
One of our key aspects in the program was to adapt the building to the site by letting it blend into the surrounding. In order to do so I wanted to find clues from the surrounding buildings as of how to define the perimeters of the factory. Upon analysing the site I found a pre existing 45 degree positioning relative to the south and upon prolonging the lines from the neighbouring buildings they could define a triangular boundary, with a longer side (its base and backside) towards the west. In order to soften the edges and be able to use the insides I rounded the three edges with a radius of 10 meter to hone the soft and organic touch of the pre existing grove of trees. As you will only see one corner upon approaching the site from the south (the main arrival path for most people) the building will hide behind the southern rounded corner making the building volume look less prominent, making the relatively large volume blend in to the site. The rounded corners are also an allegory to the use of leather, which by nature is impossible to fold with rectangular edges, leather will always let go into a rounded form, just as the building design proposes, but will still keep its structure, as the vertical straight façades does.

The site lies within a squared rectangle 160 by 160 meters large filled with greenery. As the new factory has a footprint that covers the pre existing grove of trees on our site I felt the need

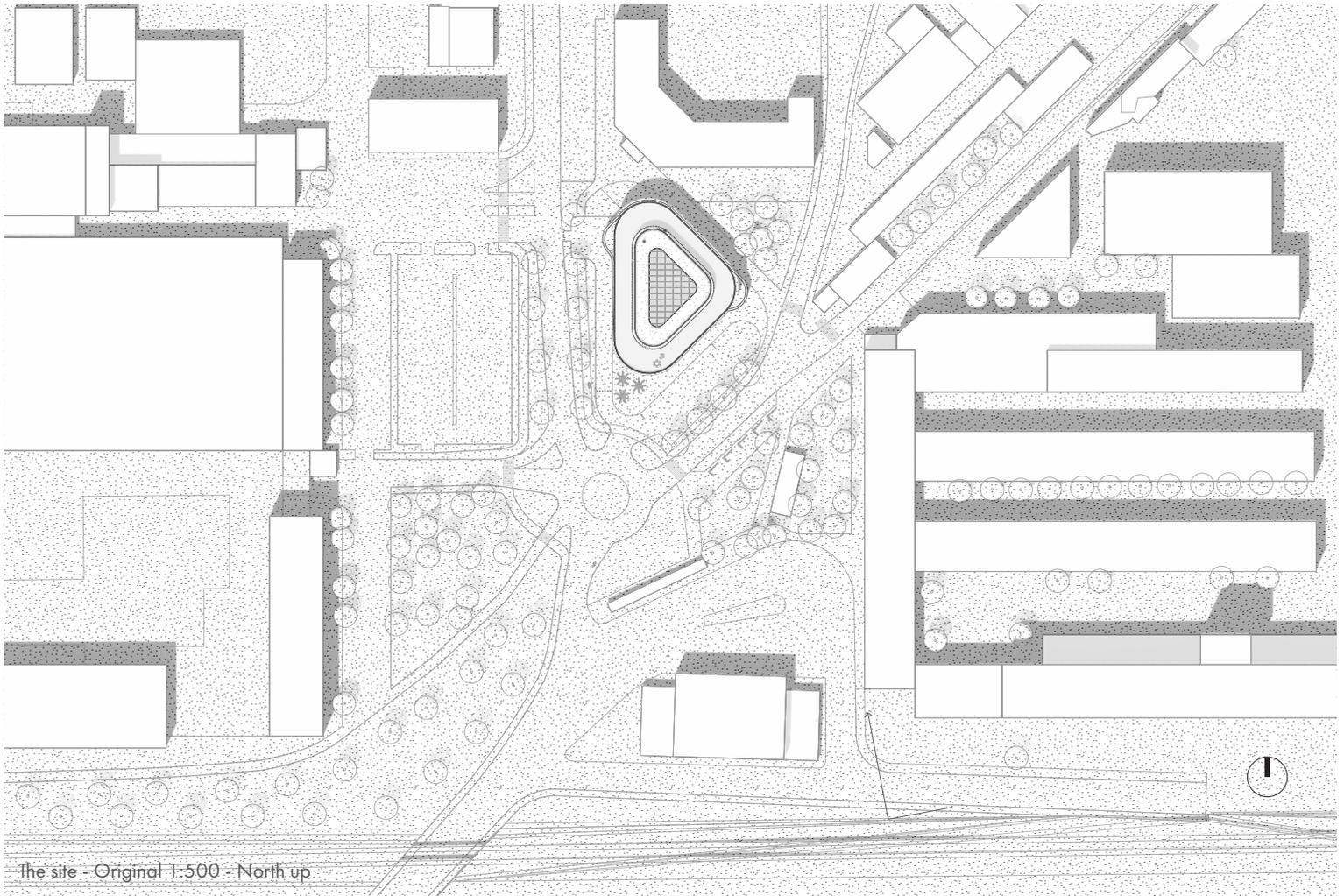
to give back by using the same material as the trees but on our building. Therefore our new building has a facade of European birch an element that will be part of the interior as well. The wooden facade does also blend better in to the green rectangle and will be perceived as a soft material, just like the trees. On the ground floor towards the west and north I decided to use concrete in order to protect the stock and machineries from potential burglary and serve as a contrasting material against the wood and glass facade while protecting from the by passing public path to the north and north east.

## IMPROVED SURROUNDING & ACCESS

The surrounding has very poor walkability and pedestrian safety and is also completely dead else than the transport line it serves. In order



Creation of the shape from the current grid of the site.



54 This side is seen upon arrival from south, making the building look smaller

to improve the walk-ability I have planned for new bicycle lanes and both new and widened pedestrian lanes on the west side of the south-north going main street and around our site. I have also planned for a new crossing to our site on the east exit of the roundabout to increase pedestrian safety further.

In terms of vehicles I have looked over all the radius's of the roads and as I have now taken the pre existing parking lot on the site for the factory I have planned for a new one on the west side of the main street. To block access to our delivery driveway and private parking I have put electronic poles that neatly hinder unauthorized traffic. I have shrunken the roads going from the roundabout to the north east to a more appropriate width for the area and placed side parking along its length.

In order to activate our site the foundation wall

on our building is a massive seating that goes all around the building, making it possible for by-passers to sit on and hide in the shade during the hot summer months or to just take a rest. I have also integrated bike stands on the site as well as on the new widened pedestrians roads. I have planted trees along the streets in order to compensate for the ones taken away for the factory. I have also risen the curbstones on the roads around our site to increase safety for pedestrians and hinder the cars from parking on the pedestrian roads, a well too common problem in Romania. Having lit the pedestrian roads safety is now increased around the factory at night time and reduce the risk of burglary on the factory.

#### MATERIALS

As mentioned earlier I will use site specific materials that will blend in to the green square. On the site European Birch could be found,



View from the back, overlooking the loading platform.

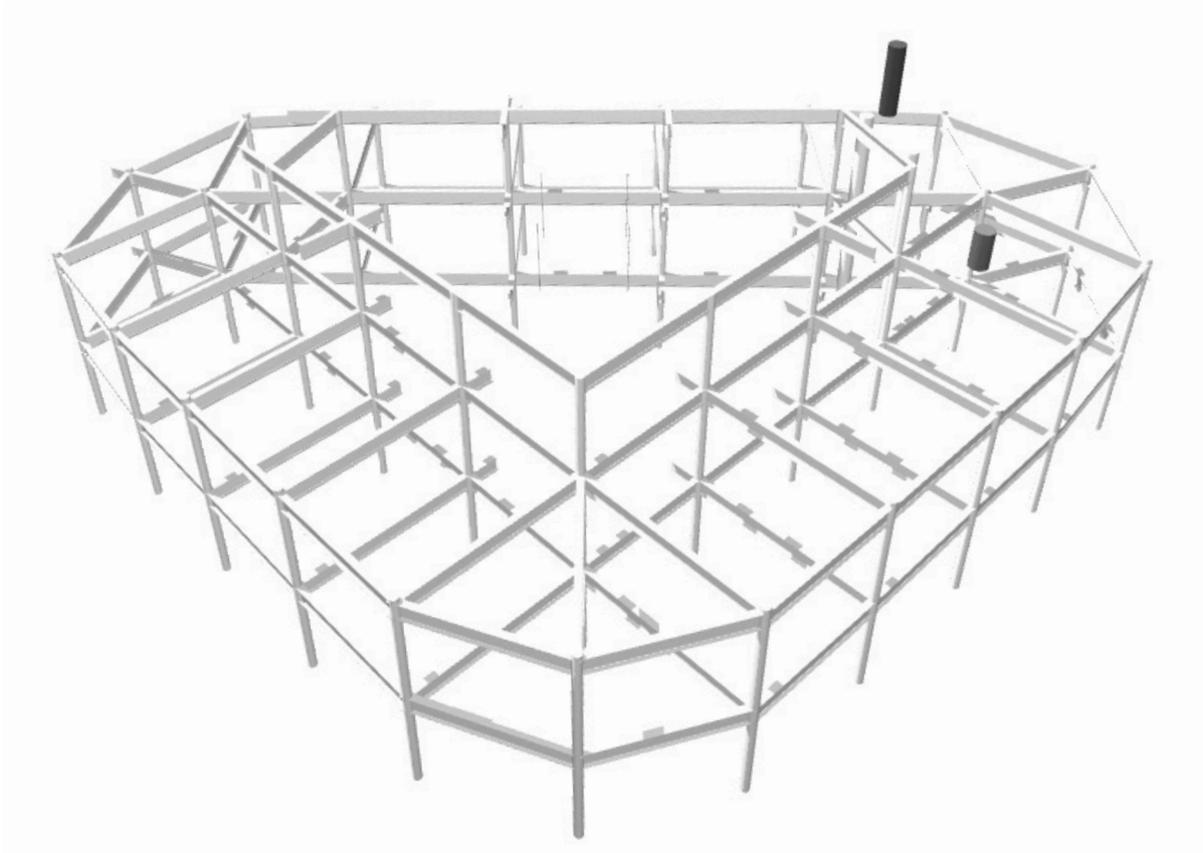


56 View from east. The entrance is drawn back for protection from weather and wind.





View from north. The thick concrete base makes good protection from burglars.



The load bearing structure is flexible and resists earthquakes.

a specie normally found on the foot hills of the mountains and perfect to use both on the exterior as well as the interior of the building. The wood is also a representation of the softness of leather, while the concrete is an allegory to the structure of leather. These are the two prominent materials used to keep the overall design simple and clean, the Scandinavian way.

#### LOAD BEARING STRUCTURE

As I want to have a flexible interior a core structure is needed upon which to build. It does also need to be slightly flexible in itself in order to withstand potential earthquakes. A cheap and sturdy solution is to have a steel frame construction out of beams and pillars, with a moulded concrete slab on each floor. By having a combined slab of 900 mm, electric, plumbing and ventilation installations could be easily drawn on the inside. The triangular structure locks all degrees of freedom movement which raise the construction safety further. Thanks to this structure one can enjoy panoramic views throughout each floor and thus connect better to the outside and let the by-passers have a glimpse of our production, in contrast to the ordinary enclosed factory.

Upon making the structure we will automatically get a core in the middle which will have a useful purpose as an atrium in order to let light through to the large inside volume.

#### BUILDING EXTERIOR DESIGN

The roundness of the building is as mentioned earlier an allegory to the softness and pliability of leather. The round organic form is an element seen through out the entire building plan.

As there is now all around panoramic views and an atrium plenty of natural daylight will get through, but unfortunately direct sunlight as

well. As I found out from the interviews leather need be protected from direct sunlight and will therefore need some sort of permeable membrane on the façades and the atrium roof. To make a facade that does not cover the glass I designed a waffle structure of interlocking wood lamellas with a depth of 600 mm which blocks direct sunlight from entering the building at various sun angles during the seasons.

By rendering with physical sun I have come to analyse that the depth of the external lamellas and the width of the building makes little sun to enter directly on to the production at table height. Still, sun can enter in the late afternoon why I have designed automatic curtains on the inside of the windows to go down when the sun is reaching too far into the building. Overheating caused by direct sunlight will still not be an issue as the sun is relatively low at those late afternoon hours.

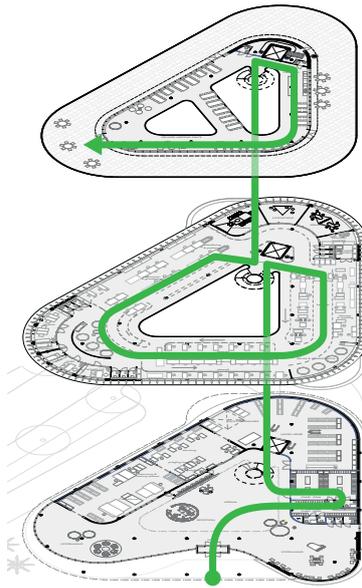
The same interlocking waffle grid is also found on the structure of the glass roof on top of the atrium (could be seen on page 82) to block the harsh sunlight from entering during noon.

The rounded forms creates harmony and better resembles the organic forms in nature, and thus gives a more natural and down to earth building and design language. The exterior design and materials will not have any issues regarding the seasonal variations in climate.

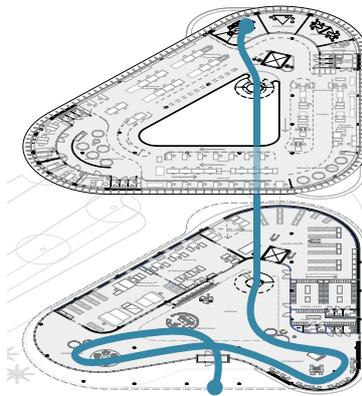
#### ENERGY

The roof of the second floor is covered with sedum and water collectors underneath to be used as flush water in the toilets. As the sedum does not require direct sunlight in order to thrive I have mounted tilted solar panels on top of the sedum and mounted glass that functions as solar panels on top of the atrium.

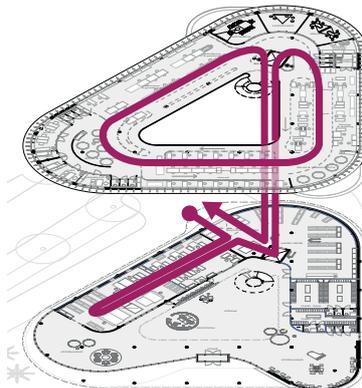




Employee path



Visitor path



Production flow

The materials and ventilation need to adapt to the extreme temperature changes between the seasons. It could range from snowy winters with minus 20 degrees Celsius, to summer months with a heat above 30 degrees Celsius and a medium humidity, with weekly peaks of up to 40 degrees Celsius, making a span of 60 degrees Celsius, which needs to be taken care of by the building and our two ventilation systems.

## CONCEPT OF THE PLAN

In order to fit the program on the site I had to place it vertically onto three floors and a basement. Our goal of the layout is to optimize the flow of the production, employees, visitors and clients. By dividing the program into the following floors I have come to achieve the most functional, unobtrusive and effective plan layout.

### 1. Ground Floor (Lobby, Exhibition & Dispatch)

- Consists of the exhibition hall combined with the lobby in the entrance hall.
- Input-output through one single dispatch hub.
- Preparation Room (Cutting, Glueing, Stamping machines)
- Locker rooms

### 2. First Floor (Production)

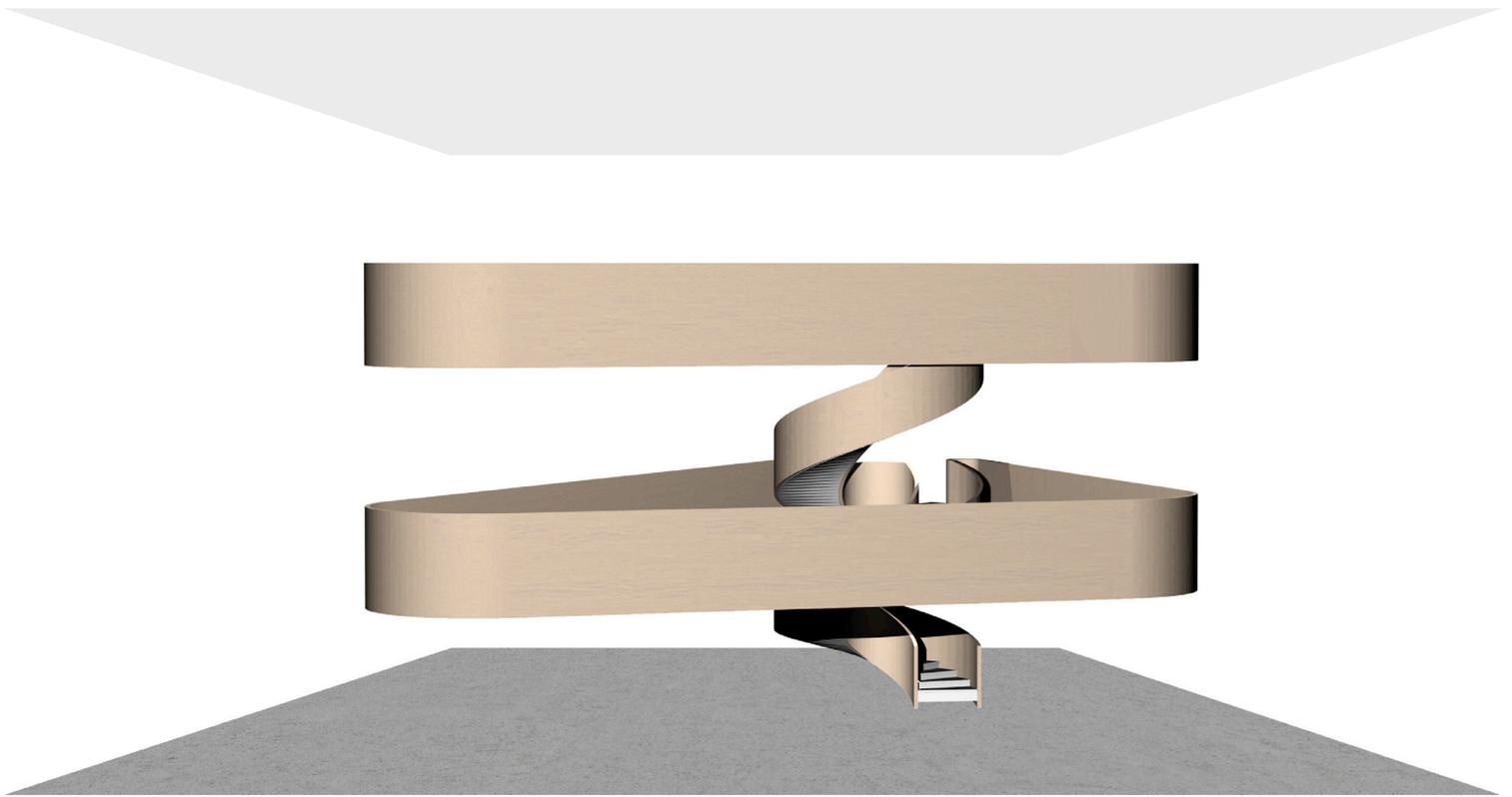
- The main production floor
- Offices & Meeting Rooms
- Relaxation spots and rooms

### 3. Second Floor (Canteen & Recreation)

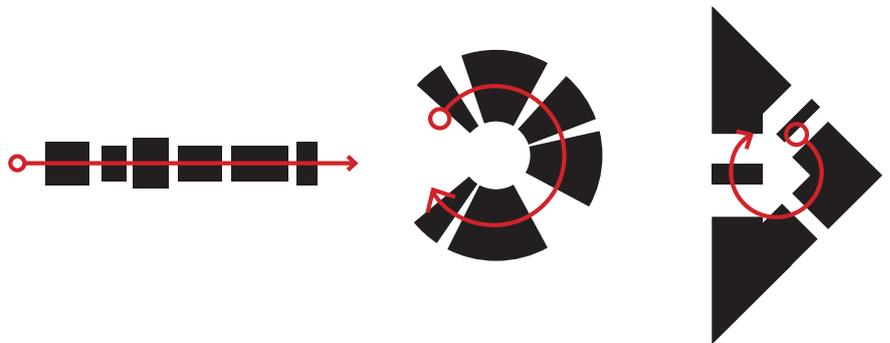
- Canteen
- Recreational floor
- Terrace, 120 m circumference
- Ventilation room

### 0. Basement (Long and short term stock)

- The value of our company lies in the finished products, why these have to be kept as safe as possible, namely in our basement floor.



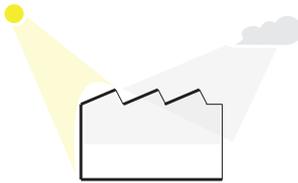
Here I have illustrated how the balustrade and staircase are built into one single piece, soaring like a ribbon through the floors, connecting them together into a single harmony. The two materials, concrete and wood are the foundation of the project.



From leather, through the production line and in to a bag. The typically linear production line is bent around the core, forming it into a triangle following the limitations of the building, into a more interesting and efficient layout that ties together the input with the output.



Inland Climate, drastic yearly variations, but not large variations during a 24h period. The average is 3 months above 30°C, 6 months above 5°C and 3 months below 0°C.



Only light intake from north, and some from east/west. No direct sun light can reach any part of the interior. Only indirect sun light while retaining rich natural light intake.

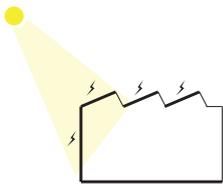
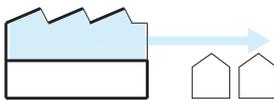


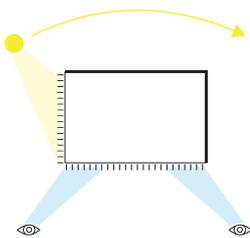
Photo voltaic walls and sun roof for water heating towards south.



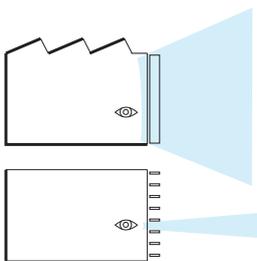
Production floor on second level to prevent insight.



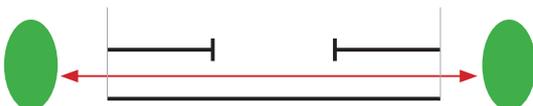
Production floor or second level to retain maximum light intake and maximizing views.



Lamellas to prevent from direct insight and to prevent from direct sun light from E/W.



Vertical lamellas give maximum sky-view and therefore light intake. It also allows to see the street level, while taking away distractions from full panoramic views.



Openness without distraction

## - Ventilation room

Separating the canteen and the relaxation parts together with the outdoor area into a terrace makes the second floor completely private and logically separated from visitors.

Raising the production floor one floor above ground level does also help to protect from views, but still get maximum light intake and give people a hint of the production

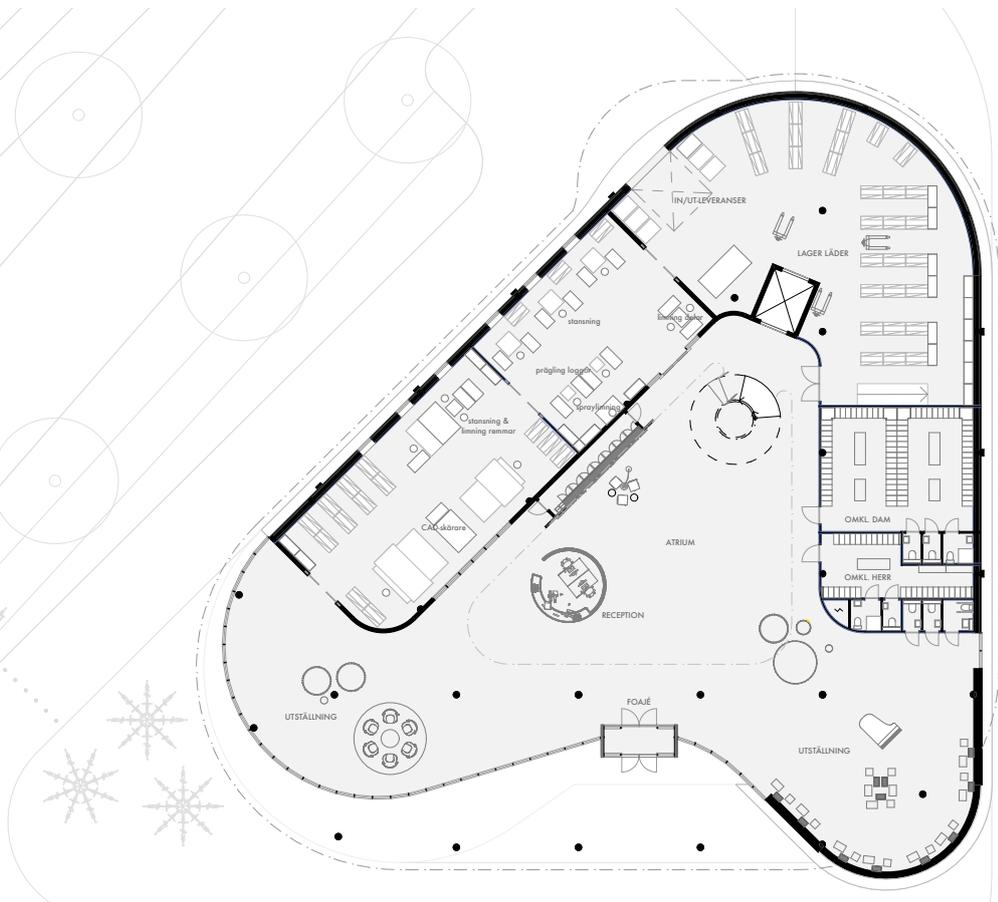
Thanks to the load bearing structure I get a flexible layout, that one of a warehouse, but with the comfort and intimacy of an office.

## THE CORE AND ATRIUM

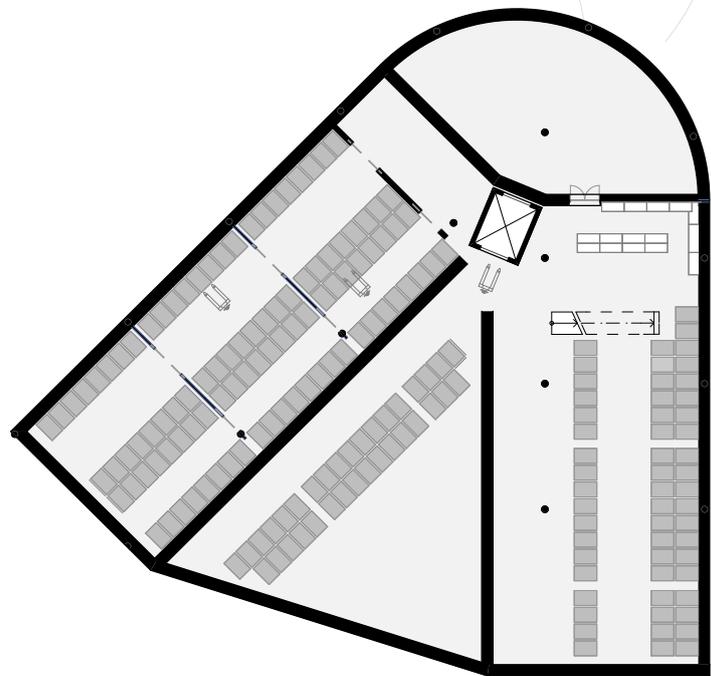
The core creates a visual connection through all the floors, giving a logic spacial experience that ties together the floors and further simplifies the building. By having glass roof on top of the core I make it into an atrium and get light that is able to penetrate the building right through to the ground floor and the lobby.

To define the core I have designed a serpentine balustrade out of wood that encircles the atrium space. A circular staircase is attached to the balustrade in one single piece forming a ribbon that connects the floors and soars through the building. Here we can further see the roundness, softness and impression of pliability inspired by the organic features of leather. The round forms and soft materials are key features of both the interior and exterior of the building.

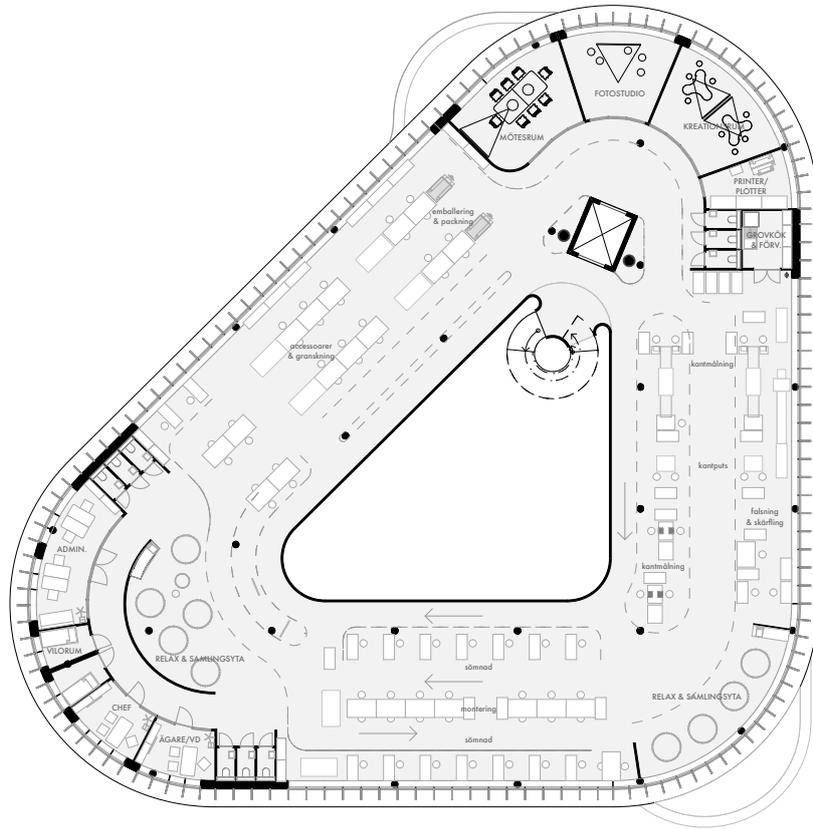
The open plan together with the atrium connects all of the floors into an easy and logic spacial experience which emphasize the restful simplicity that I am looking for. The perceived space is also greatly increased as one is constantly spatially aware of the voluminous core, the three levels and the panoramic views to the surroundings largely increasing the perceived space, making the outside part of the inside through the visual connection.



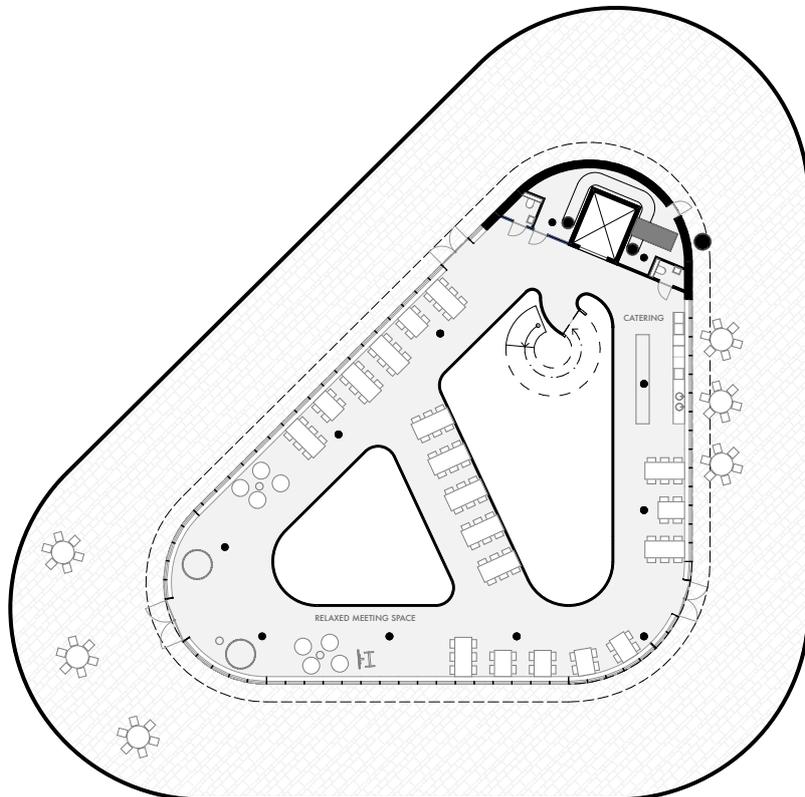
Ground Floor  
(Org. 1:100)



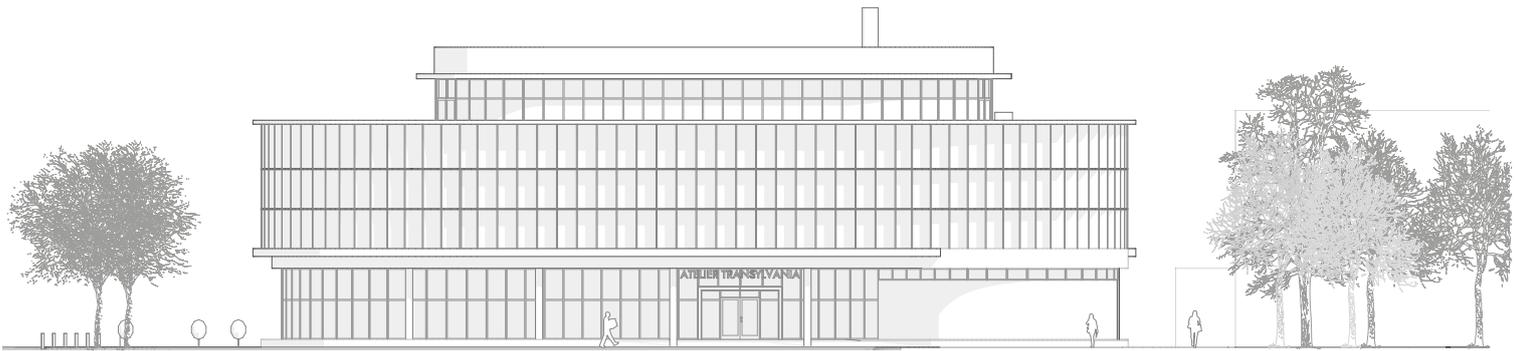
Stock - Underground  
(Org. 1:100)



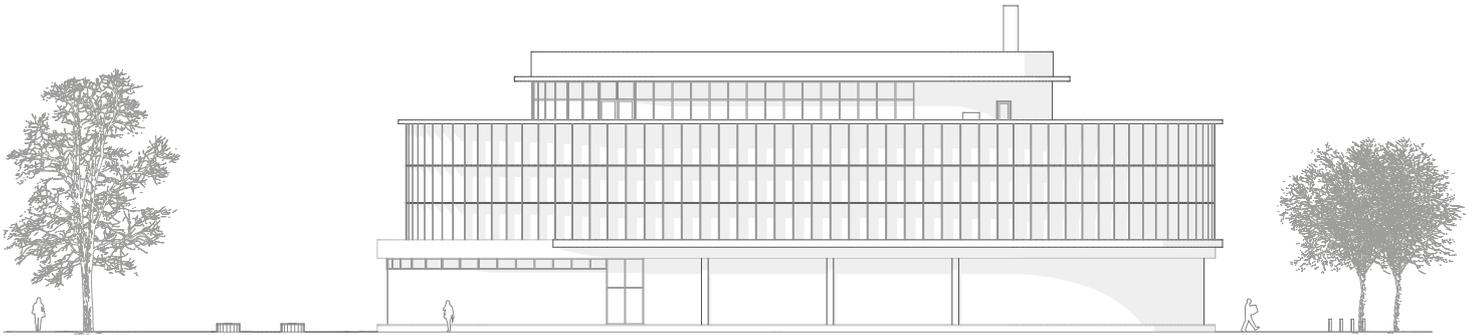
1st Floor - Production Floor  
(Org. 1:100)



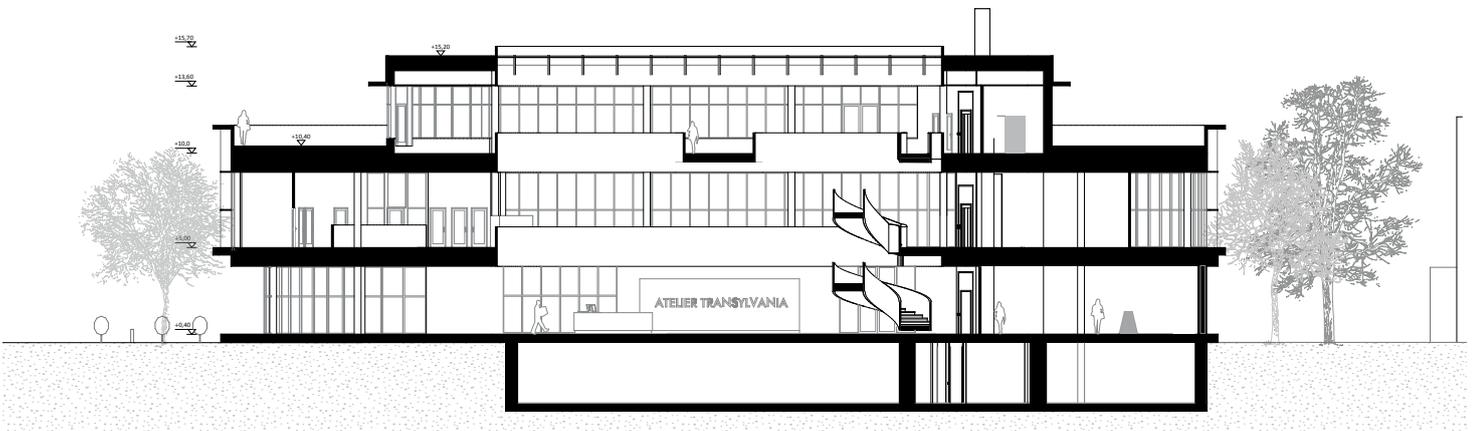
2nd Floor - Canteen & Terrace  
(Org. 1:100)



Elevation S/E  
(Org. 1:100)

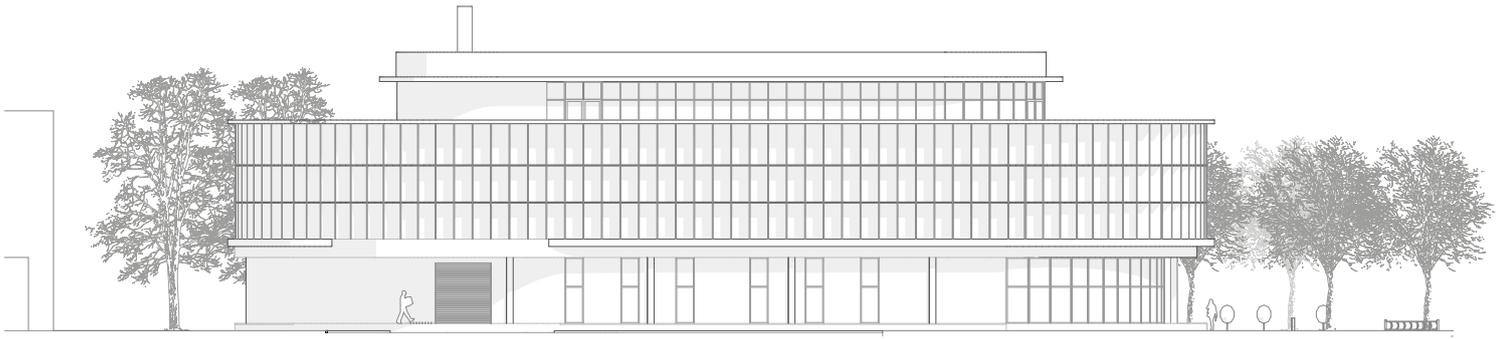


Elevation N/E  
(Org. 1:100)

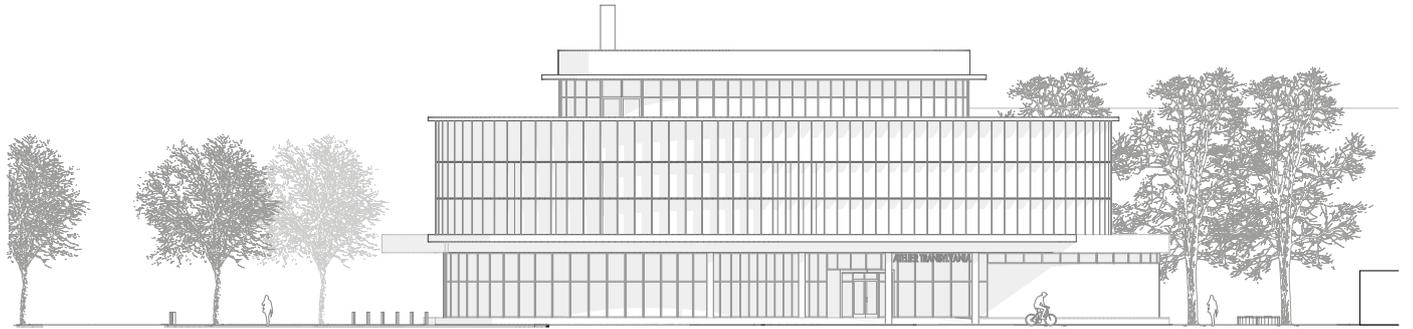


Section E-W  
(Org. 1:100)

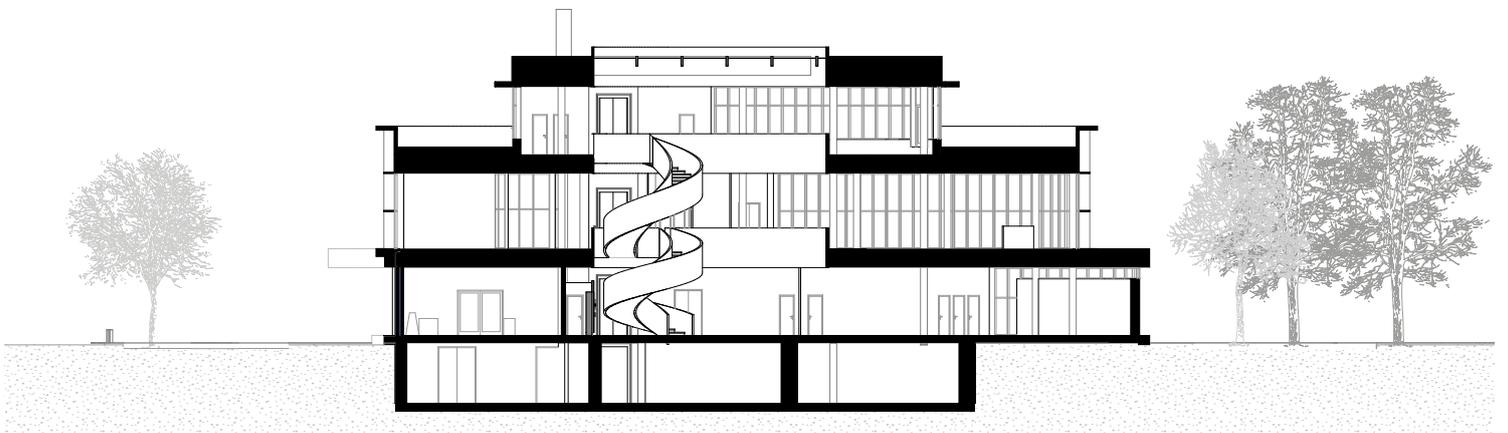




Elevation W  
(Org. 1:100)



Elevation S  
(Org. 1:100)



Section S-N  
(Org. 1:100)



68 The birch wood on the balustrades and staircase gives a warm and soft light, enhancing the harmony of the spacial experience.





Panoramic views overlooking the surroundings, letting views in, blocking the sun out.



70 Production floor (compartmentalized acoustically)

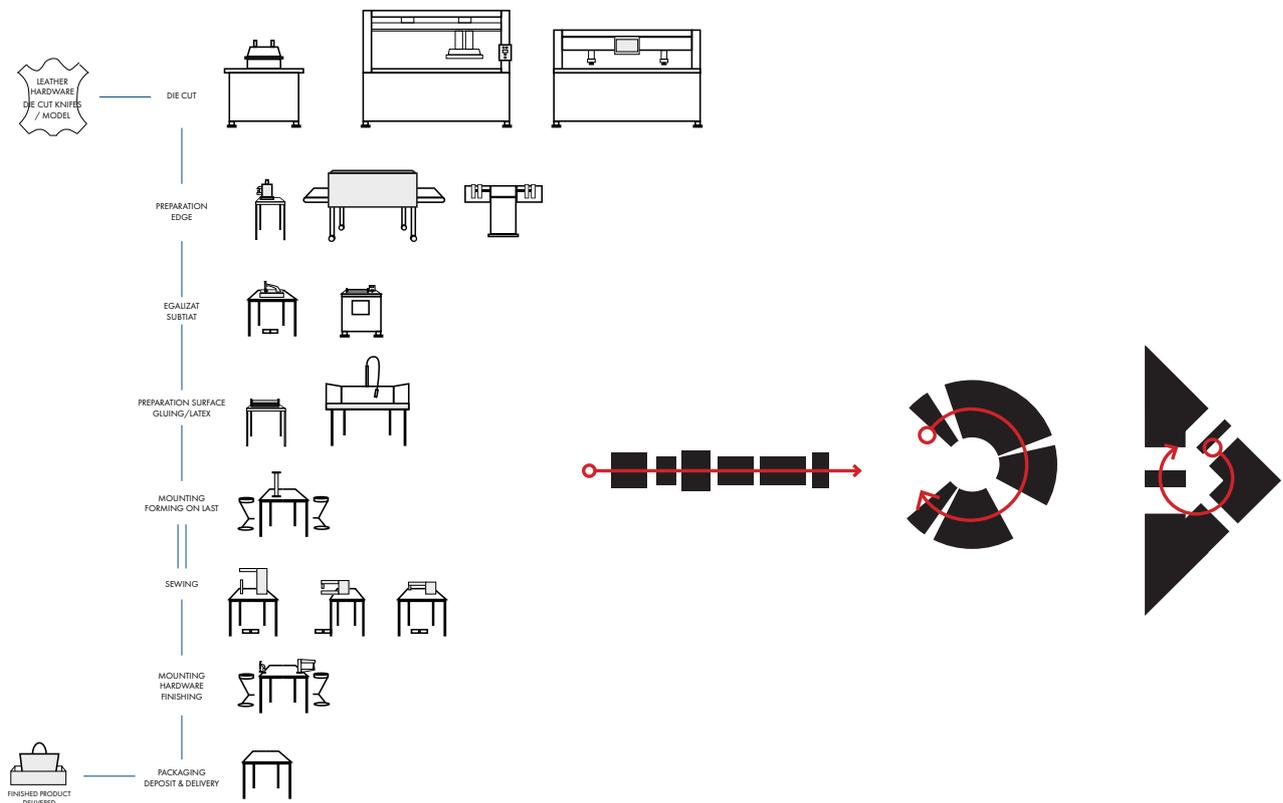
# PRODUCTION PROCESS

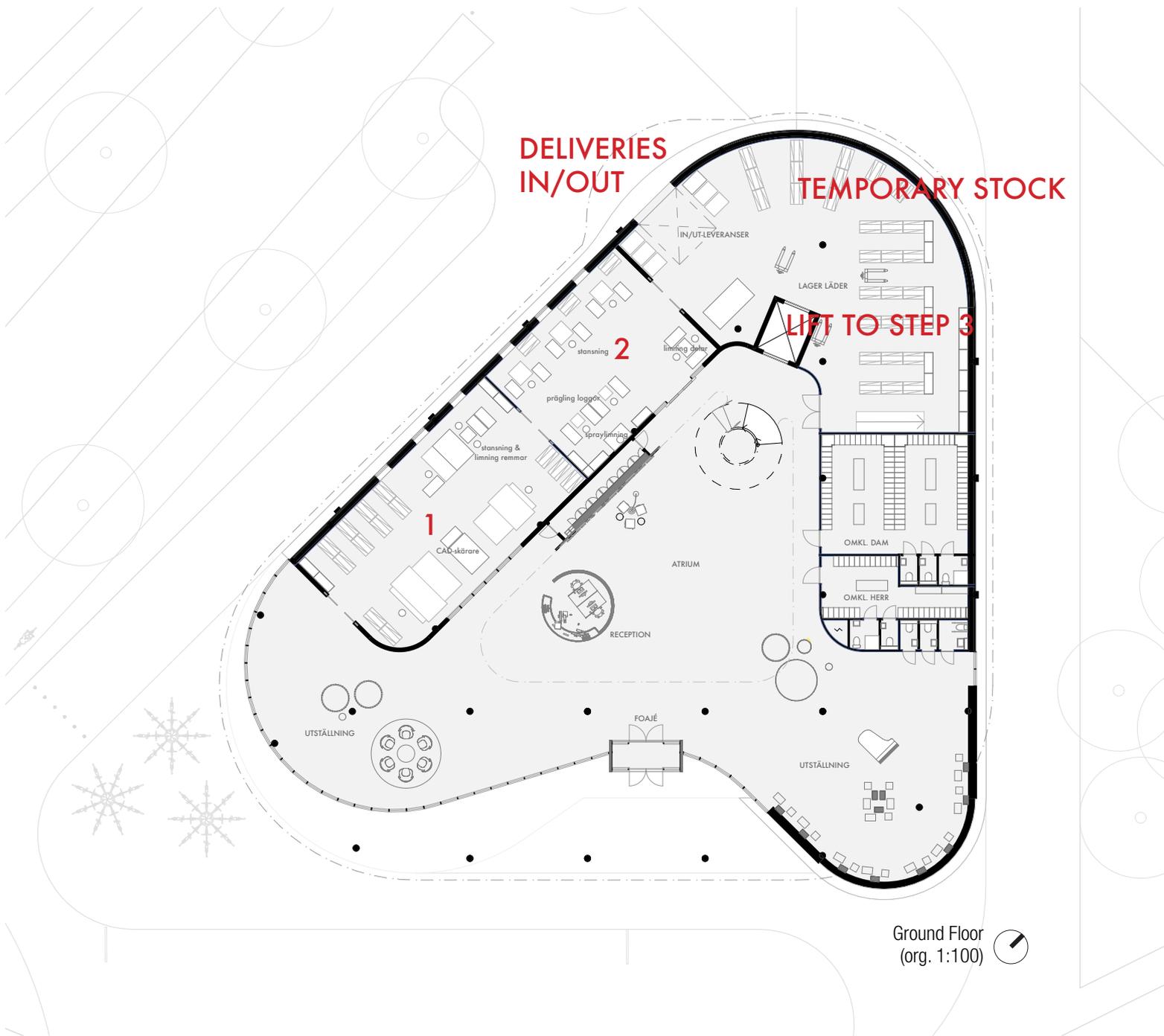
The typically linear production line is bent around the core, forming it into a triangle following the limitations of the building, into a more interesting and efficient layout that ties together the input and output. I have now designed an optimal and time efficient layout for moving between all parts of the production.

Thanks to the load bearing structure one can enjoy panoramic views all around, a 360 degrees panoramic view on the production floor. But the openness could take away the cosines of sectioned units while giving too much noise. In order to prohibit this I can make acoustic zones that can create a spacial experience, without the use of walls or glass

walls. To lower the noise on the open production floor I work with compartmentalization through acoustic zoning, by lowering the ceiling height above each station with absorbing panels out of lamellas so that their depth absorbs the noise further. Only where needed I have use glass walls, like into the offices and meeting rooms, to never limit the visibility and transparency.

The cutting and stamping machines used in the preparation process emits a lot of noise. By separating them form the main floor we can reduce the noise while still keeping an open floor. They are also very large which would force us to have an unnecessary large lift, just to put them inside of the building. These issues





are solved by putting them on the ground floor, next to the input despatch hub. The ground floor does also absorb the vibrations better to prohibit wear and tear of the construction and is still in close conjunction to the main production floor, through the central lift.

The production layout is thus designed to promote good communications, less shouting,

less noise. Each of the employee now has 38 sqm. of total space and 15 sqm. considering only the production floor, which is still a good standard. Following will now the process of the making of leather goods.

- Preparation part: step 1-5
- Mounting and sewing: step 6-7
- Finishing: step 8-9

Before the product is packed and kept in stock.

## 1 CUTTING

In order not to interfere with their noise, and for it to be near the stock intake, as well as for the machines are so large that they can not raise the floor, it is unnecessary. Press Machine - Swing Arm Cutting Press. Hydraulic Traveling Head Cutting Machine.



## 2 GLUEING & STAMPING

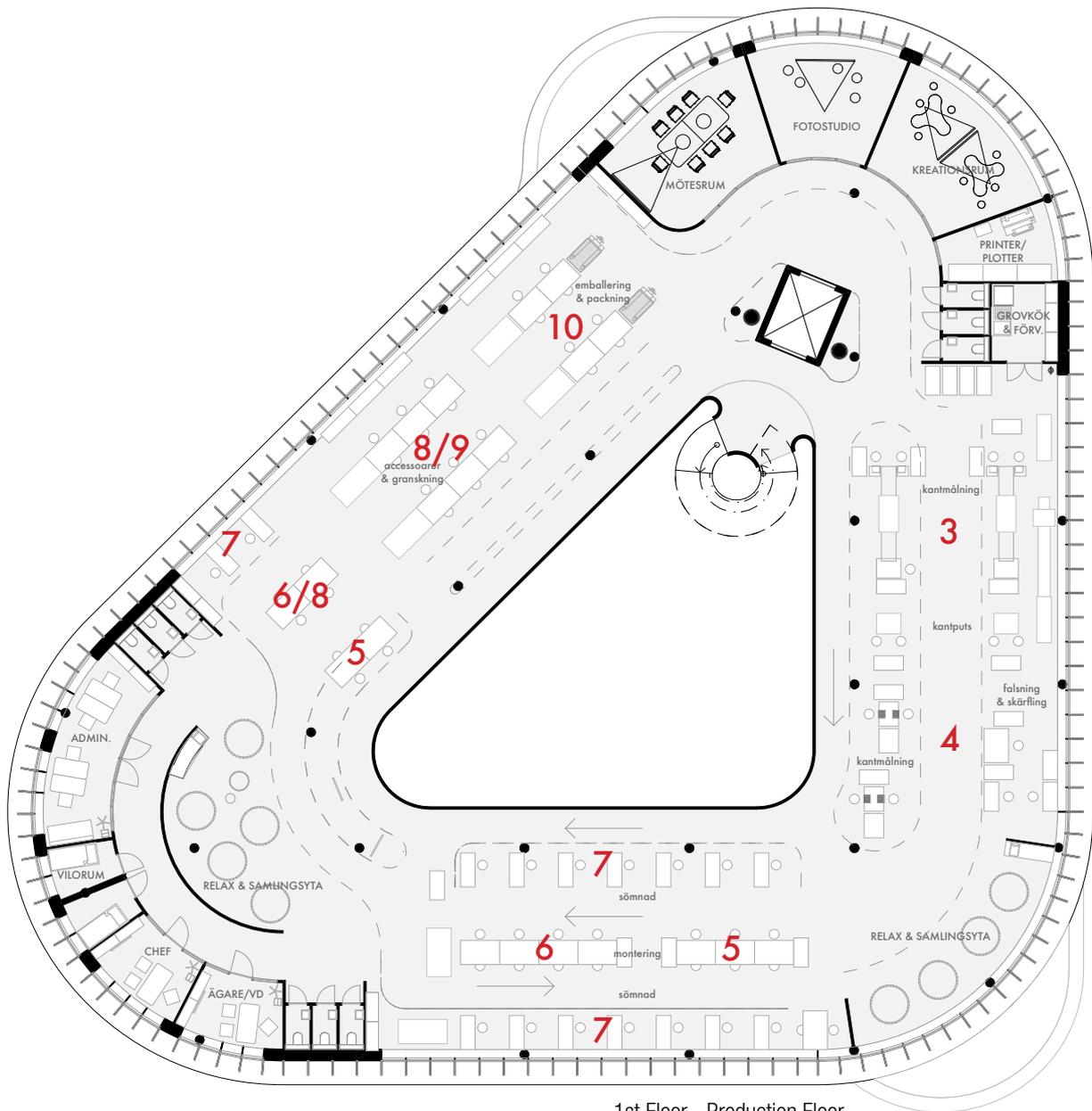
The rough preparation is done together with punching, first punches to the net section, then glued it together with another part, and then they punched again, with a gross-town iron. The gluing therefore takes place in connection with punching, so that to reduce the transport and keep any glue fumes in a small and closed space, on the ground floor. Here you can also emboss logos or attach logos to small special stamps on pieces, before they are sent up to the production level.



## 3 EDGE PAINT & BRUSHING

When the rough finish is ready to be parts up to the edge of painted and polished edge, this is the final stage of preparation for none, after which some bits sent directly to step 6.





1st Floor - Production Floor  
(org. 1:100)

#### 4 SPLITTING & SKIVING

It thins to pieces in a folding machine in order to get them to the desired thickness, and skive them the edges to 1 cm or required in the pages of the leather flesh side (reverse side). The pieces are now forwarded to the assembly.



## 5 PREPARATION ACCESSORIES

Some customers deliver the zippers undone on a roll, then they must first be cut to length and pull foot peak must be pressed on, pulling the foot must be threaded. Links to any chain must be cut, or deflected. Other preparations and adjustments may need to be done in parallel with the leather progression.



## 6 MOUNTING / ASSEMBLING

Most models require some form of assembly and edge gluing. Where you might even put on accessories, such as the feet, keys, locks, handles that can not be turned on after the parts sewn.



## 7 SEWING

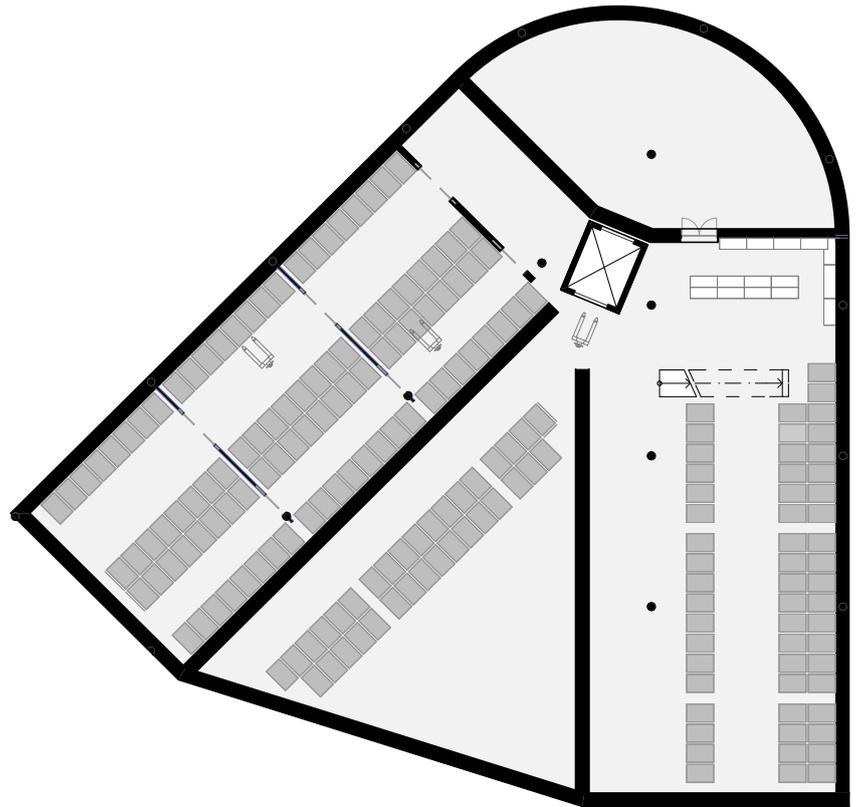
The assembled the pieces sewn new together, after which they are sent to the next part of the installation. This process can go back and forth several times between the assembly and the accessory-turning on, so these next to each other, often in something like a zig-zagg process.



## 8 FINISHING

In this step, you can bag need to be painted edge and edge sharpened once again, why it is sent back to step 3 of the process. In our case, I have chosen to have an additional edge machine, though later in the process. To avoid back and forth run.





Stock - Underground  
(org. 1:100)

## 9 EXAMINATION / CONTROL

If examined the bags, you cut the glue and burning wires. Errors fixable addressed, else they are sent with a notice. Common errors corrected already in the process why a small percentile to the screened out. Here polish it up bag leather and accessories and dress up the needed parts.



## 10 PACKING & STORAGE

If needed we pack them in plastic bags, or dust-bags and put tissue paper or air bags of plastic on the inside of the bag to keep its shape. Then they are packed into the boxes on pallets. The box is labeled on the outside and taken down to the cellar stock. The layer consists of different sections depending on how long the box should be stored in the factory before delivery to the customer.



## STOCK

The stock consists of different sections depending on how long the box should be stored in the factory, how long the box will need to wait for delivery. The day before delivery so be a part or the whole part of the order up to the ground floor to be prepared in case the shipper would show up at the first hour of the next following day.

To avoid the greatest possible risk of damage in the store, so it is placed so that no sewage pipe extending down into the storage space, in addition there is no power connected to the main electric grid, but the lights in the store come from an internal electrical system exclusively for the store, which is run a battery, which in turn is connected to the solar cells on the roof. In this way, you avoid external problems with excessive voltage, or power grid would fall. It will be like an extra Conrad against possible scenarios.

The main reason to place the finite stock in the cellar is to get maximum protected against burglary, fire, vandalism and natural disasters. The camp is fully waterproof, no sewage pipes inside, no electric wiring NON extra insulated, and a pump that can pump out all the water of such a thing should ever arise internally. There is a sprinkler system that acts locally, ie it can detect with a smoke / gas detectors and infrared cameras exactly where a fire occurs and then put it out before it spreads, and put it out locally with foam and water that not all sprinklers will go ahead and then soak the whole stock. In addition, as is everything in the enclaves sections to protect another.

The warehouse is compartmentalized with automatic sliding doors that is completely concealed in the fire and breaking reinforced

walls to be able to lock some sections with different privileges, and extra protection in case of theft and fire. The workshop's value is largely in the finished layer so this must be protected above all else.

## INNOVATIONS

I have designed lamps on the floor on which the workers can push a button so the Production Manager can see exactly where he is needed visually, now when we have the open plan. He does also have an iPhone app which is synced to the different stations in real time and also internal phones as to be able to call the person in need when he has time and prioritize different levels of urgency and thus not having to run forth and through the different stations.

Likewise I have designed three types of trolleys (one for leather hides, one for bags and cut out pieces, and one for finalized bags that could be hung on racks) where bags and cut out pieces can easily be put when needed for slightly longer transportation between stations. It is so often I see workers running around with their hands full of pieces almost falling out of their hands.

For the movement and transport of pieces and finished bags in the factory, I have chosen to tailor three different transport rack and from these elements I have chosen to shape the turning radius and walkways.

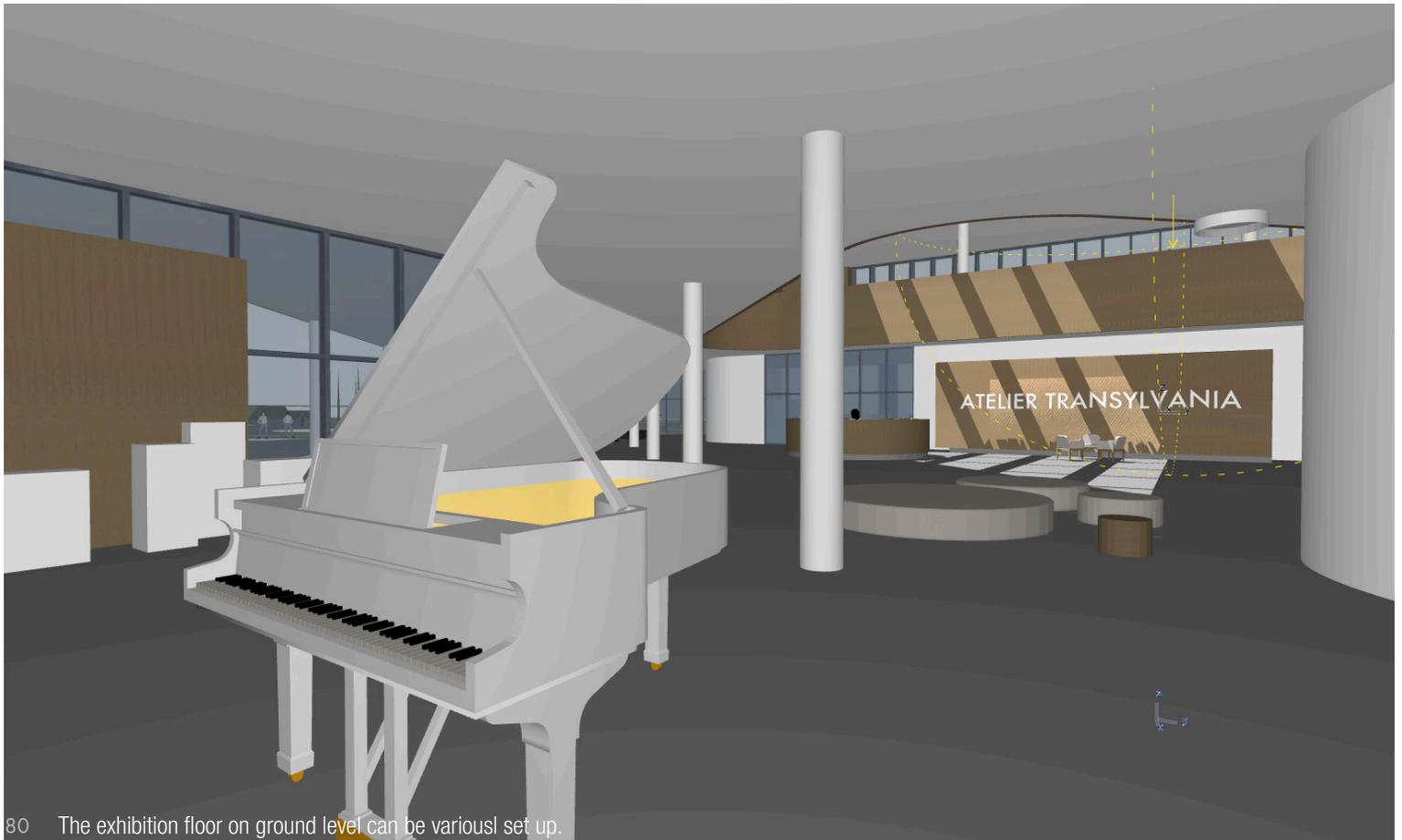


78 The birch wood on the balustrades and staircase gives a warm and soft light, enhancing the harmony of the spacial experience.





The lobby and reception with its all through rounded forms.



80 The exhibition floor on ground level can be variously set up.

# GUIDED TOUR AND EXPLANATION

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## ENTRANCE

The entrance of a building is key for its impression upon entering. To make a gradient between the inside and the outside I have pushed the main entrance door five meters inside of the building and thus create a shelter under the ceiling. This curved glass facade gives an embracing welcoming while the direct sun light does not reach the exhibition floor, protecting the leather goods. The entrance space does also protect from weather and wind while waiting for being picked up after work. The emphasized entrance gives an easy logic as where to enter the building.

A revolving door would have been a good thing, but wouldn't be able to let larger objects inside as it would then need to be way too large. To preserve the function of saving heat but be able to enter with large objects I designed two normal swung doors that could be opened automatically through an RFID-tag reader in front of the entrance. By having two levels of doors the safety gets increased and it saves some heat. Having two sections of doors and having to wait for them to open gives a calm feeling of preparation upon entering the building, a cleansing, a sacral experience, a change of mood.

## EXHIBITION HALL & LOBBY

After having entered the building one is welcomed into the exhibition hall with the lobby and the receptionist some meters ahead, inside the atrium. On the left side of the wall behind one sees part of the preparation production process, as to give a glimpse, a taster of

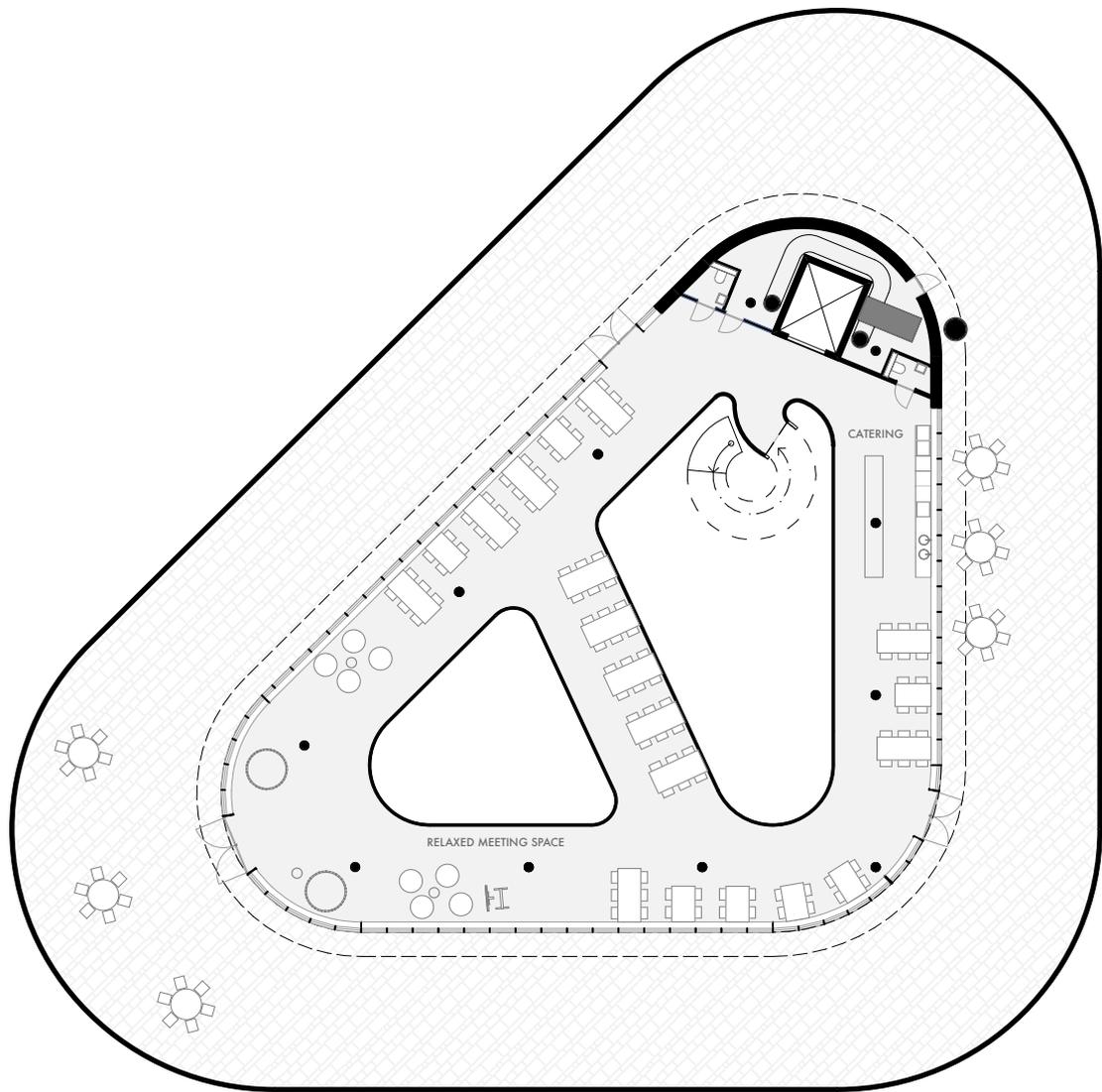
what is to come, but still having it separated. The open space gives freedom to all sorts of installations and partitioning that could create paths specifically for a particular exhibition. The "spinal chord" consists of the preparation production, the loading dock towards the backside for deliveries, room for a temporary stock and a men's and women's locker room for the employees. I have also grouped the private toilets inside of the locker room with the public toilets facing the exhibition hall for visitors.

One should never have the toilet doors pointing directly towards an open space, but always cover the doors up with a anteroom or screens as to shape a gradient of a semi private zone before accessing the common zone. These transitions within a building are key and how one through design could shape logic connections and understandings of which door leads to what function. I have now succeeded in shaping a logic entrance, logic loading dock for couriers, logic finding toilets and distinguishing from the locker rooms for example. Simply put a self explanatory plan.

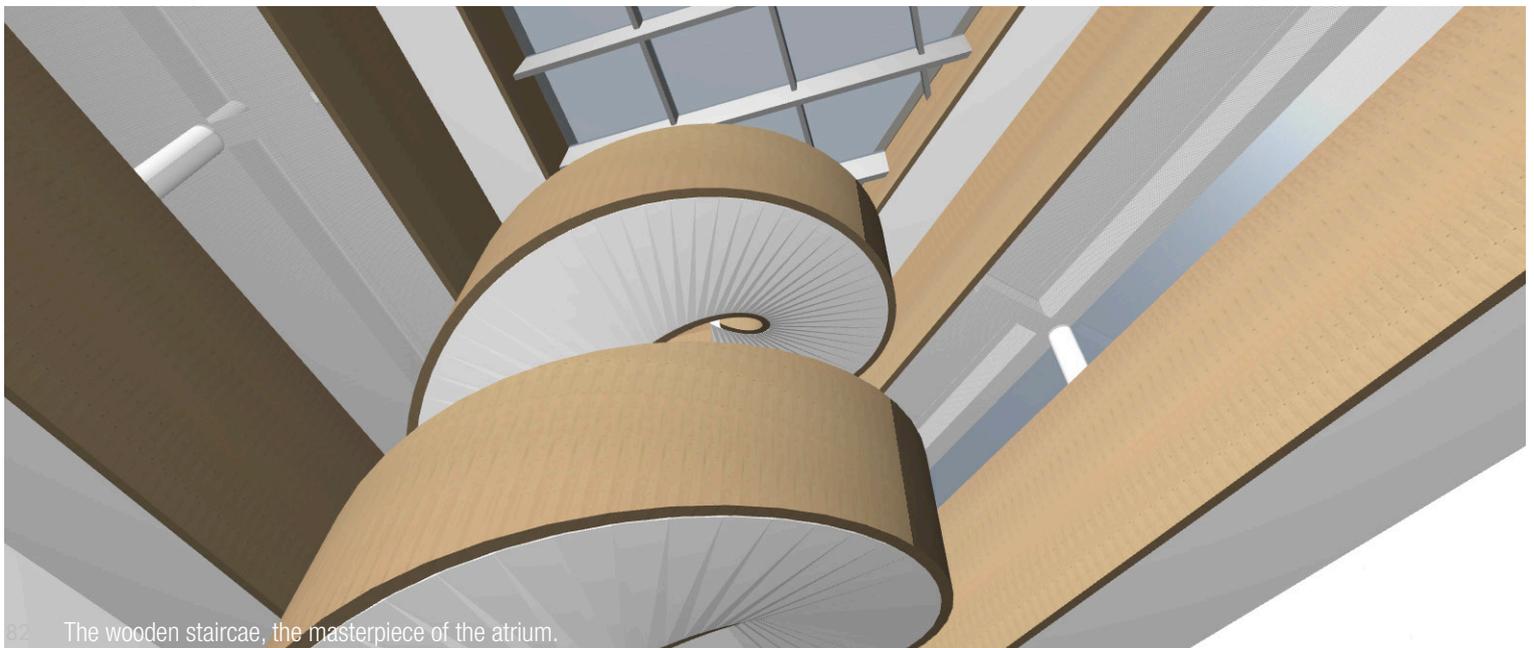
The CEO wanted cosy zones with sofas on the exhibition floor to start the discussions with clients from a comfortable place before taking the hard numbers in the meeting rooms above.

## 1st FLOOR - PRODUCTION FLOOR

The fact that the production floor is elevated one story above ground let us have complete panoramic views without being too watched by the bypassing public as they will not be able to see right through the production floor.



2nd Floor - Canteen & Terrace  
(org. 1:100)



The wooden staircae, the masterpiece of the atrium.

But through the interior one is still able to enjoy a full panoramic view with maximum daylight and visibility towards the outside and will thus at all times feel connected to our immediate surrounding and enhance the harmony thanks to the surrounding nature. Still there is now a connection between the by passers and the production, a not too intimate one, but sufficient to have taken away the underlying mystery and complete enclosed space that use to mark a conventional factory. This does further create an activation of the site and makes it safer.

In most part I have put the machines shoulder to shoulder as to allow people to talk, which I noticed was a good quality from other factories. On the assembly line they sit shoulder to shoulder and in front of each other on tables. During breaks the light will turn off but will still remain on over the relaxation ("fika") areas for people to go there and have a break with beverage and fruit, overlooking the surroundings.

I have placed the machinery optimal for the production flow and for natural light intake from the side as well as to allow socialization and maximum views for a greater spatial experience. There are also curtains on each window that goes down automatically should it be needed.

Placing some offices, relaxation rooms, nurse rooms and rest rooms towards the south prohibits the direct sunlight from entering the production floor. All the administration is conducted from two offices and there is no private booth for the CEO as that would create unnecessary hierarchy. On the north corner I have put two meeting rooms, utility room, media room, creative production room and a photo studio, all of functions which take great advantage of the soft light from north.

The open plan makes it perfect for any layout situation for any need of production that will ever occur, flexible, variable, opportunities.

BUT it is shuttered, more open to protect from noise, and lets through an abundance of natural indirect light, no need for unnatural LED:s with flickering.

## HIERARCHY, FUNCTION, LEVELS

When all the production and administrative work is conducted on the same floor, it creates a more familiar atmosphere, while making the workers work more responsibly without feeling hawk eyed by their leaders. The leaders does also have physical and visible direct access to the production and vice versa and will not prohibit communication as does the division of floors. Visual contact gives a shorter perceived distance enhancing interaction.

## 2ND FLOOR - RECREATIONAL SPACE

During lunchtime the client invite its employees on free catering in the food court on the second level. This floor is entirely dedicated to relaxation as to show the company vision and holistic care of its employees. The food is served from the bar table for everyone to take for themselves and can be transformed into a more private but relaxed meeting or bar table for those times one feel to celebrate with a client or for after work with the administration.

The bridge serves as a spectacular feature and gives safety as one could reach between the east and west sides on a shorter distance. The bridge has beams in its slab and is also hung from the beams in the glass roof.

On this floor one could enjoy panoramic views over the industrial area and see beyond to the surrounding valleys and mountains in the far distance. The employees could also enjoy taking some laps on the terrace, with a circumference of 120 meters, or just enjoy the sun or shadow while having a meal in the fresh air. There are also some relaxation spots, toilets and a ventilation room.



84 The canteen with the surrounding terrace and the open atrium space. The wooden balustrade and staircase connects the three floors like a serpentine.





# ENDNOTES

# DISCUSSION & REFLECTION

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Have I managed to make an ethical fashion production through architecture? To some extent I did succeed. I have well managed to implement and fit the necessary parts of the program. I have also managed to solve the most common problems of factories, such as activating the site, letting views in and taking away the mystery. While also designing for the employees in the center of attention, for them to make better goods in turn.

Through the load bearing structure I have managed to design a flexible layout and to get 360 degree panoramic views combined with an atrium for maximum natural light intake. The interlocking waffle facade hinders the direct sunlight from entering, while still preserving the natural light. The wood together with the rounded forms on the interior and the exterior does further give harmony to the building and a coherent connection to the green rectangle of the area. This activates the site in a better way while making it safer for both pedestrians and vehicles. Our employees now have the best experience and through dedicating an entire floor for recreation I further show our exceptional care for our employees. By having an efficient circulating production and separating the noisy machines to lower noise but without losing efficiency, the products might even get better now, despite the main focus on employees, but none of them have eliminated the other.

I have managed to adapt the boundaries of the building to land well on the site and get one with the surroundings, without intruding on the pre existing paths. Thanks to a clear hierarchy of the buildings front and back side I have managed to design a logic entrance, logic finding the

delivery hub on the backside of the building, simply put a self explanatory plan. The canteen and "fika" hubs will work as a well needed feature from the Swedish part of the company.

Through the site placement they do even get the best exposure and promotion of their vision and will be a competition for other factory owners or visiting brands. The client will now have easy to find and to keep its employees. The exterior waffle design does also break up the facade better, not making it look empty, but neither too large.

I have taken economy vice decisions, such as having only one lift and staircase, by optimizing the plan as for them to be enough. Surely it might be a fire safety risk, but I have put folding ladders in the south and north parts of the building working as alternative escape way. The economy of the project is well met considering the financial possibilities of the company and will safely be paid off in 20 years at a work capacity of 80%.

The layout gives an openness but without being a single large simple volume which use to be the case. This gives the benefits of a warehouse, but the comfort and personality of an office.

My final design has well fulfilled the purpose of meeting the clients needs and succeeding them by solving factory related issues and integrating the high social values and standards. It takes complete care of both products and employees. I have managed to redefine the concept of a typical factory. Removing the mystery and make it a brand building, an icon to honour the millions of people working within the fashion production.

## SITE & CONTEXT

I could have chosen to refurbish and up-cycle an old building in the same industry area, but as argued before it would be very hard to adapt to the needs and would be prone to a change of the urban plan, while having potential of chemicals and unsafe surrounding buildings.

## PLAN

The simple and logic plan eliminates the negative hierarchies between administration and production. I do not have any corner in the plan, else in the locker rooms where they serve a purpose of storage optimization. The openness gives harmony to the place and it is a relief for the employees to enter the factory in the morning, in contrast to the ordinary cubicles one use to live in. The atrium gives a sacral experience upon entering and the walk up the staircase lets ones view to sweep through the building. By letting every one in through the same entrance and walk the same path through the building the company can now show that it values the workers as much as the clients. I can show how a third of the building is dedicated to the recreational part such as canteen, outdoor space and relaxation, a proof of our company culture without words, but through design.

## PRODUCTION

The optimal solution would have been to have the preparation process of the production on the main production floor, but on this site I did not have room for that as the administrative functions needed to be on the same hierarchical level as the main production. I still don't consider the distance to be an issue as the preparation process lends over its work in batches and seldom has to go the reverse direction.

## ACOUSTICS

The hung lamellas in the roof help save the acoustics but indeed the atrium might add to the noise and even some heat and ventilation related issues. When it comes to ventilation there are two enclosed systems, one for the rooms and one for the atrium and the open floors.

I have managed to make acoustic compartmentalization through zones, while still preserving the open space without noise, at least in theory. An alternative would be to shield the core through mounting wood panels on the balustrade with glass in between. Thus the client can adapt the notice cancellation as needed, the building is permissive to change.

## MATERIALS

The wood which is prominent on bot the outside and inside of the building gives a soft, warm and welcoming atmosphere, key for the comfort of the employees and is at the same time the traditional way of building. The smooth forms on the facade, plan, atrium and staircase further bring an harmony on the inside, and blends well with the organic and soft structure and materiality of leather.



# SOURCES

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## LITERATURE USED FOR INSPIRATION

- Chris van Uffelen - Factory Design (2008)
- Jürgen Adam - Industrial Buildings (Design Manuals) (2004)
- Peter Nyhuis et.al. - Handbook Factory Planning and Design (2015)

## IMAGE REFERENCES

Photos, Illustrations, Diagrams, Renderings or drawings where nothing else is stated are the intellectual property of the author. Satellite Maps and Flight Photos are taken from Google Earth.

All the photos of bags and details are taken from and used with permission by the Gårdendal brand "www.gardendal.se" and used on the frontpage, p. 18, p.21, p.22

Photographs of Factories

P.24 & p.26 - <http://lfmeab.org/>

P.28 - Photos of machinery taken from Omac SRL, Italy: "<http://www.omacsrl.com/products>"

P.34 - Personal photo

P.38-39 - Photo over Cluj from [www.robintel.ro](http://www.robintel.ro)

P.62 - Photo of leather hides taken from Tärnsjö. Used with permission.

P.70-74 - Photos of machinery taken from Omac SRL, Italy: "<http://www.omacsrl.com/products>"

P.71 - Photo of the CNC cutting machine taken from Comelz SRL, Italy: "<http://www.comelz.com/en/products-taglio-pelle-sintetici/>"

P.87 - Photo used to illustrate the lamellas used in our ceiling on the production floor. Taken from a friend and used with permission.

# THANKS

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To my family for all their love and support.  
Sorin, the brothers and Viorica for the understanding.  
Andreea, Davide, Dan & their crews for the professional expertise.  
Jesper and the brothers for keeping my feet on the ground.  
Tomas, Christer and John for helping me through.  
Claudia and Roxana for keeping the books.

Rusu, for saving me in the first place.  
You all know who you are.

# ATELIER TRANSYLVANIA

an ethical fashion production through architecture

Master thesis in Architecture, AAHM01  
LTH School of Architecture, Lund University, Sweden

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2016 - 2017  
Final Presentation and Hand-in 2017.02

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