PRODUCTIVE CAMPUS

Future-proofing Vienna's economy through productive education

Studio 'Vienna Made'

Britt Van Gulck

KU LEUVEN

FACULTY OF
ENGINEERING SCIENCE

Productive Campus

Future-proofing Vienna's economy through productive education

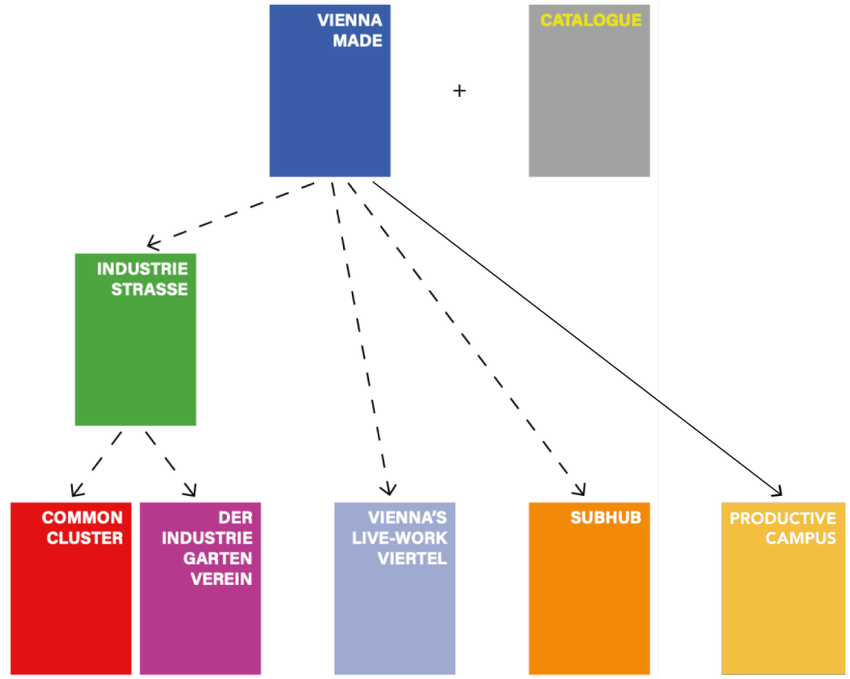
Britt Van Gulck

Thesis submitted for the degree of
Master of Science in Engineering: Architecture

Supervisor
Ward Verbakel

Co-supervisor
Julia Reisinger

Academic year 2024 – 2025



[Figure 1]

THANK YOU

I would like to thank everyone invested in this thesis. I would especially like to thank Ward Verbakel, my promotor, for pushing me in my research and sharing his own valuable knowledge on the topic. Thank you, Julia Reisinger for the warm welcome and support during my field trip in Vienna.

Additionally, I would like to thank the assessors for taking the time and interest to read this thesis.

Finally, I would especially like to express my gratitude to my family and friends for motivating me and encouraging me with their supportive and kind notes during the year.

This thesis is a continuation to the work done by four graduation students in the studio 'Vienna Made' of the KU Leuven Master of Architectural Engineering during the academic year 2023-2024 which had resulted in seven booklets altogether. The collective research booklet 'Vienna Made' presents a general introduction on the topic of the productive city discussion in Vienna and has served as a starting point for developing my individual research questions and subsequent design proposal. The booklet is to be considered as additional background in understanding the themes further discussed in this thesis.



Abstract

Productive Campus is a pilot project reimagining the relationship between vocational education and urban production by exploring a hybrid infrastructure that enables them to coexist, and benefits both the employees and students in building a resilient, local, and circular economy.

In a time where many cities struggle with issues such as congestion, affordability, inadequate infrastructure, and unemployment, Vienna repeatedly tops the ranking of the most livable cities in Europe. Due to rapid demographic expansion, infrastructural demands, and evolving economic systems, the search for sustainable development strategies of the post-industrial city has been dominating political discourse on urban transformation over the last decades.

However, a different voice is heard, one that advocates for a re-appreciation of productive economies as a driver for sustainable urban development. Production has become an indispensable component of an innovative, sustainable urban economy due to the increasing interrelationships with knowledge, research and development, and services. These productive industries are essential for instigating economic growth, creating jobs for a wide range of workers, and stimulating infrastructure development. Additionally, their high contribution to Vienna's value creation and collaboration with businesses, communities and governments can further facilitate urban development by addressing specific challenges. Hence, the City of Vienna developed the 'Produktive Stadt' in 2017 in close partnership with the Vienna Chamber of Commerce and the Federation of Austrian Industry.

The mutual benefits of collaboration between on the one hand knowledge institutions in favor of innovation, adaptability, and on the other hand a more networked, collaborative economy, no longer need to be the domain of universities and larger research facilities. This thesis takes as a stance the potential for Austria's wide range of vocational disciplines in specialized schools for students at the Upper Secondary Level. Such education trajectories prepare them for future employment in the productive sector. It raises the question whether we can develop alternative models from this collaboration for an inclusive environment for makers with various financial and expert backgrounds, as well as ensuring qualitative, sustainable education through early hands-on experience.

Through literature and policy evaluation, spatial analysis, and design research, a personal design proposal seeks to integrate socio-economic, and architectural strategies in a newly emerging urban context through the architecture of a future-proof mixed-use productive education building.

The resulting architecture envisions adaptable, hybrid spaces that cater to traditional and new industries, providing a flexible and sustainable environment for small businesses, self-employed people, and start-ups. The integration of these real-world working conditions in addition to the required general infrastructure for education, creates an environment in which students are motivated to become good craftspeople. The focus on inspiring makers goes even beyond the student population, since the local diy'er, teachers and professionals are able to enjoy lifelong practical and theoretical skill building. The importance of qualitative education and the re-integration of production on a mixed-use site, will by extension have a positive impact on enforcing this economic growth and stability as well as creating a local identity for its' residents.

Re-Evaluating 7

Future-Proofing the Most Liveable City 11

Urban Growth Challenges 13
Space for Every(one/thing) 16
Thriving Urban Economy 17
Learning Innovation 18
Local Circularity 19

Learning the Trade 21

Compulsory Education or Training 24
Future Opportunities 25

Case Studies 29

General Information 30
Surroundings 32
Mobility Flows 34
Entrances 36
Ground Floor Plans 38
Sections 40

A Productive Campus 43

Ambitions & Strategies 44
Welcome to Aspern Seestadt 52
Analysis 54
Rethinking Connections 56

Designing the Program 59

Building the Program 60
Shaping the Building 62
Small Scale Production 66
Large Scale Production 70

Reflection 75

Addendum 79

Viennese Production 80
Zentralberufschulgebäudes - Kronaus Mitterer Architekten 84

References 88

Re-Evaluating

The problem statements about the Produktive Stadt outlined in the booklet '*Vienna Made*' were shortly revisited during a discussion with Dorothee Huber at the TU Wien, who contributed to the graphical output of the booklet. [1]

Problem statement 1: most productivity falls outside of the scope of the productive city

A graphic design choice was made to leave out the smaller productive zones for aesthetic reasons. In hindsight, it has also made it easier for project developers to find loopholes, making it even more difficult to implement meaningful pilot projects.

Problem statement 2: how much of the mixed-use development is effectively production

While there was a lot of enthusiasm in the beginning when the Produktive Stadt was first released, it has since diminished due to the lack of these exemplary pilot implementations. In contrast to what is known in Brussels, CityDev as a business model for integrating mixed-use development, Austria is not familiar with these supportive structures. There are many developers for residential projects in addition to separate developers for industry but no actors are specialized in mixed-use development.

Case study Atelierhaus C21 in Vienna, presents such a loophole with residents permanently living at their place of work.

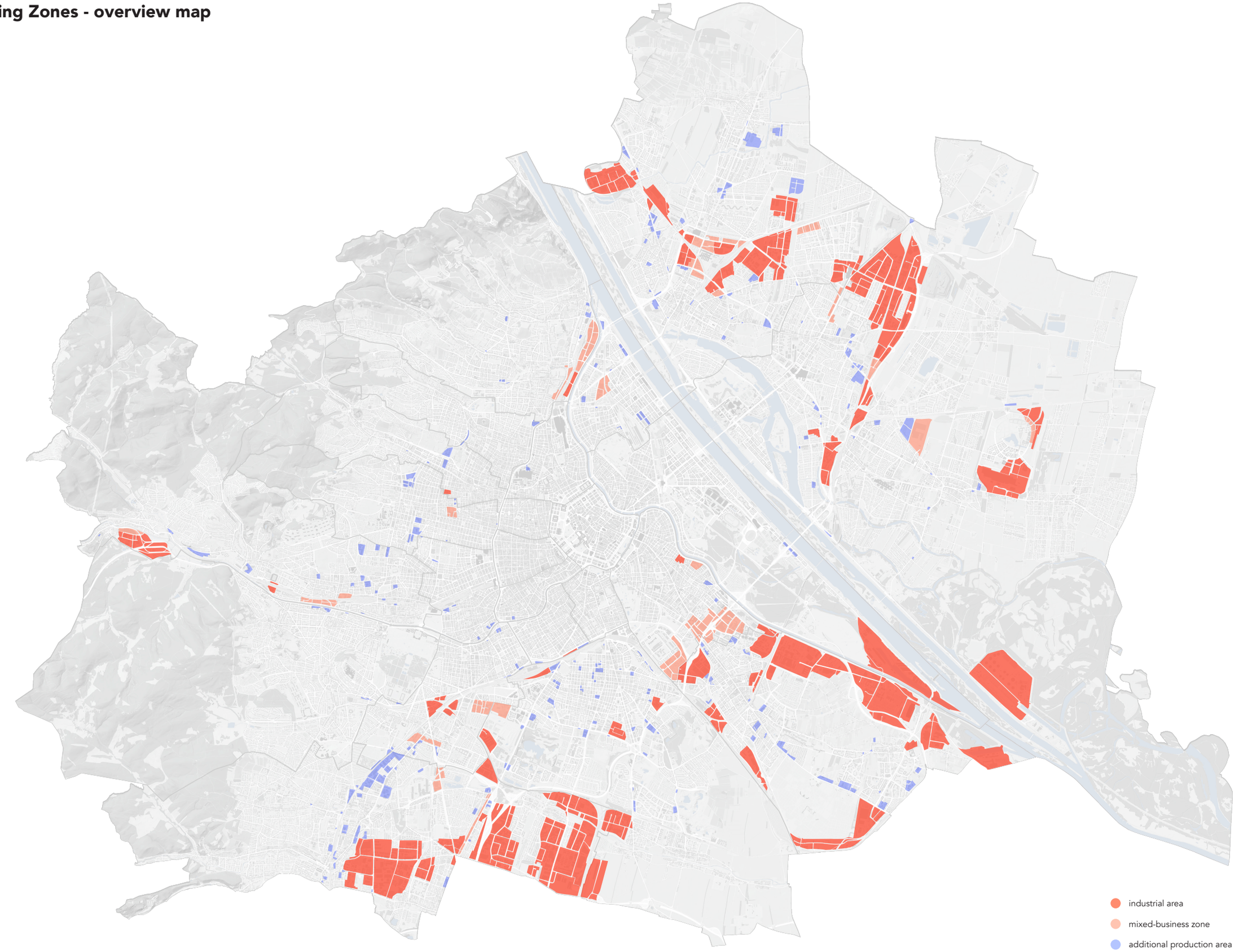
Problem statement 3: Viennese Vacancy

Since the framework is still lacking to recognize former productive sites as strategic assets, many prior productive sites are not yet enough considered as significant base locations. Often times their infrastructure and spatial configurations are already ideal for a renewed productive future. However, they are often converted to accommodate for housing.



[Figure 1]

Operating Zones - overview map



[Figure 2]



FUTURE-PROOFING THE MOST LIVEABLE CITY

Yet again, in 2024 The Economist has awarded Vienna with the title of the most liveable city in the World for the third time in a row based on the “Global Liveability Index 2024”. Each city is ranked based on 30 factors within the following five categories: stability, healthcare, education, culture and environment, and infrastructure. [1]

A detailed look into Vienna's ranking would lead us to far and is not the primary focus of this thesis. However, according to the city, supposedly four, more precise, categories are appointed for contributing to its' high score [2].

1

Quality of life and reputation – "Affordable housing, access to healthcare system and education, infrastructure (water supply, waste management, electricity supply), dense and affordable public transport network, general safety and security, political stability, social stability."

2

Business and innovation – "Vienna is smart, sustainable and innovative. The city is one of the most attractive locations worldwide for employees and businesses."

3

Science and universities – "Austria's capital is one of the major centers of knowledge in the world. Next to Berlin, it is the largest university city in the German-speaking region."

4

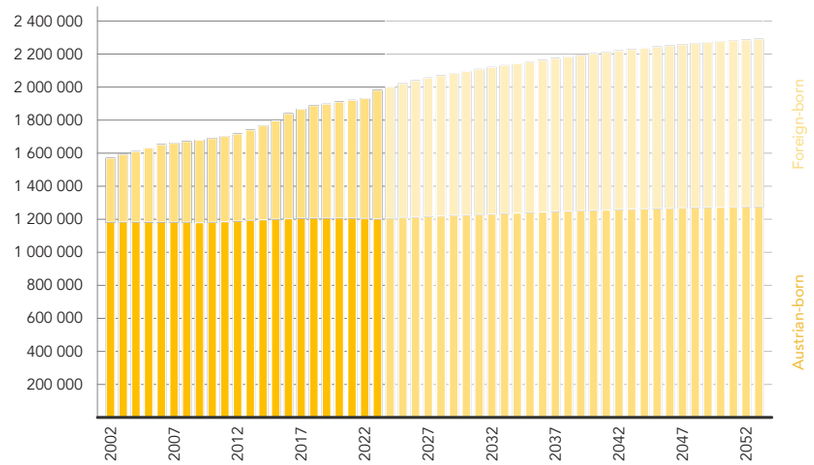
Culture and tourism – "Locals and guests love Vienna's rich cultural heritage, magnificent architecture and wealth of activities."

Vienna is facing many new urban growth challenges because of its' dynamic population development and post-industrial economy. In order to maintain its ranking as the most liveable city, a detailed framework, such as the publication of the *Produktive Stadt* (2017), will have to provide enough long-term guidance for future sustainable urban development.

Urban Growth Challenges

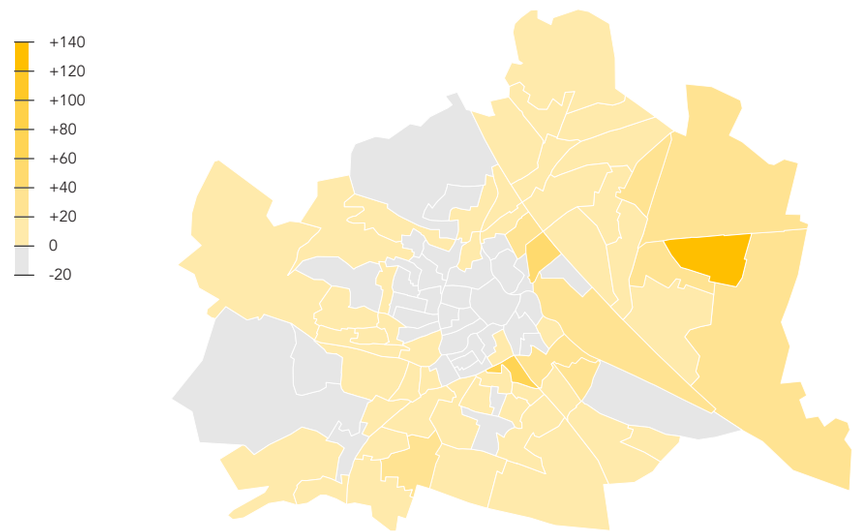
Vienna is currently ranking as the fifth largest city in Europe due to its' rapid population growth. This implicates a large demand for housing, jobs, and goods and services for basic needs as well as the need to expand urban infrastructure such as schools, green spaces, hospitals, and public transport. In order to accommodate for these growing requirements, the city is coping with a substantial increase in the need for space. [3]

Population development by country of birth in Vienna
2002-2053



[Figure 1]

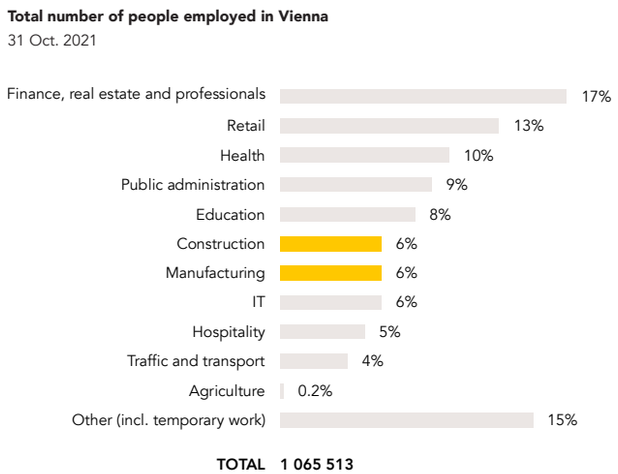
Population development in small-scale forecast areas of Vienna
2023-2033



[Figure 2]

The renewal of the European city has long been characterized by the rapid growth of the services and knowledge-based economy, to the detriment of the productive sector which lost its' importance in the post-industrial society. However, an international paradigm shift from post-industrial to productive has become internationally noticeable in recent years when the European Commission proclaimed the "Renaissance of Industrialisation" in Europe in 2013. The industry and manufacturing sector have been recognized as being indispensable for Vienna's economy, reviving a political discussion that puts these productive sectors forward as possible drivers for a resilient economic development and by extension a sustainable urban growth.

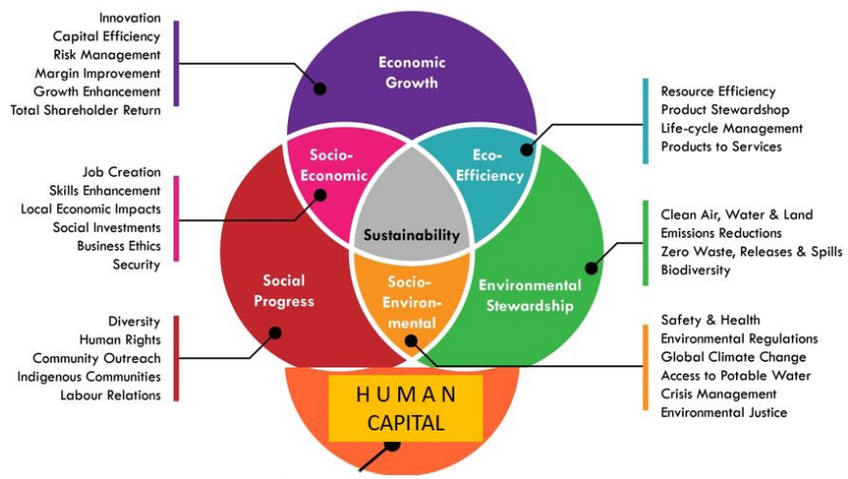
In the last decade, the changing economy has brought along a rising demand for high-quality employment in the production as well as in service sectors. Based on numbers of the Vienna labor market from 2021, around 55% of all employees work in highly qualified white-collar jobs having at least attained a high school diploma, an additional 30% in qualified service jobs, and only 15% work in blue-collar jobs. [4]



[Figure 3]

The excellent framework conditions for the economy and jobs are often times overlooked in public discussions about Vienna's high quality of life. With the five categories determining the Global Liveability index, one can assume that 'economic stability' would certainly contribute to a city's final score.

In order to allow for qualitative urban development, any implemented measures should be thought out with sustainability in mind. This will include all four pillars, meaning: environmental, economic, social, and human sustainability. [5]



[Figure 4]

Based on literature research, insight into the benefits of (re)-integrating industry into the city fabric and possible measures that could help tackle the urban growth challenges Vienna is facing, are presented with special focus on the aforementioned high-scoring categories.

Space for Every(one/thing)

In order to support employment growth, especially in the productive sector, a provision of attractive, affordable, and upgraded locations for traditional and new operational uses such as co-working spaces, innovation labs, and makerspaces are necessary.

Protection of Industrial Zones

The city's focus will be on preserving at least 5% of the city's area for productive industries, no longer allowing housing and office development to take over the already scarce space left completely and driving up the land prices. [6]

Public Land Ownership

Another way to keep production spaces affordable is by expanding public land holdings and using lease models (e.g. Community Land Trusts).

Heritage

Not only the preservation of the industrial zones as mapped out in the Flächenwidmungsplan is important. Protecting the historical production spaces that may previously have already been established in non-designated (mixed-use) zones, should be a first measure in ensuring that industrial displacement is counteracted. Of course, any disruption to the urban quality of life should be taken into careful consideration.

Micro-Zoning

By applying zoning on a smaller, building-block level and requiring a minimum percentage of production space within mixed-use zones, the aim is to create mixed-use development for economic vitality and providing a variety of small- to large scales spaces in response to different production requirements. [7]

Vertical Production

The need for space forces us to start thinking out of the box by promote sustainable models to optimize space. With the current planetary boundaries, horizontal expansion is no longer an option. In densely populated areas, enough ground space is required for infrastructure, public transport, and diverse green areas. A possible solution is to investigate the vertical stacking of functions in a way that still allows for optimal activity freedom.

"Sufficient space for industry in Vienna." [8]



[Figure 5]

"Expansion of infrastructure and active property management." [9]



[Figure 6]

Thriving Urban Economy

The city of Vienna has fundamental economic policy functions due to its' role as the federal capital and as the location of international headquarters from which international markets are developed and managed.

Resilience

A diverse and broadly oriented urban economy provides a stable basis against economic fluctuations lead on by global crisis' and presents the starting point for a sustainable development of future economic sectors. Industrial production, due to its strong interconnections with a wide range of actors and economic sectors – including knowledge, R&D, and associated services – plays an indispensable role as a link in the value chains of an innovative urban economy, both now and in the future.

Creating Prosperity

Because the manufacturing sector directly and indirectly addresses multiple associated economic sectors it accounts for a third of Vienna's added value, equating to about a fifth of Austria's total added value. This above-average value contributes to the prosperity in Vienna. Not least of all, Vienna's industrial companies make a significant contribution to local tax revenue.

Some essential municipal services play a crucial role in supporting the production value chain and form the foundation of Vienna's high quality of life. Look at the energy production at the Freudenau power plant, or the wastewater treatment in Simmering, and the waste incineration in Spittelau, for example.

Accessible Jobs

Jobs in Vienna's industry are considered attractive, well paid and are open to people with less formal education. Providing enough jobs for a growing population, means creating opportunities that allow people with various skill sets and knowledge backgrounds to contribute to a healthy economy. [10]



"Diversity of the local economy as a strength."

"Commitment to industry, awareness of the importance of industry for the labor market and value creation in Vienna." [11]

[Figure 7]

Learning Innovation

Post-industrial urban environments have become increasingly attractive for businesses due to their high concentration of highly qualified professionals, particularly in knowledge-intensive sectors such as R&D, and the creative industries.

Knowledge Transfer

These cities foster innovative and well-connected ecosystems characterised by a high diversity of companies, openness to external knowledge, and dense information flows, all of which enhance knowledge transfer and create significant location advantages for both knowledge-intensive services and research- and technology-intensive production sectors.
Vienna exemplifies this trend, with its impressive density of universities and research facilities—educating around 195,000 students—making it the largest university location in the German-speaking world.

Inter-company Cooperation

The growing integration between research institutions, creative industries, and industrial production reflects a shift towards a more networked, collaborative economy in which outsourcing and inter-company cooperation (e.g., in the servo-industrial sector) play a central role in the need for integration of industry in the urban context. It makes sense for corporate headquarters to keep part of the manufacturing capacity close to university locations.

Innovation

Moreover, smart networks and close proximity to a large number of customers, offers a large sales market for manufacturing companies. This enables companies to swiftly respond to changing consumer demands as the city can serve as a "test market" for establishing new locally developed and produced products, quickly adopting innovations and incorporating them into production chains. [12]

"Further development of the structure of the city in such a way that science and research can be expanded." [13]



[Figure 8]

"Provision of framework conditions that enable and promote the free development of creativity and initiative." [14]



[Figure 9]

Local Circularity

Due to climate change, legislation on energy and resource consumption is becoming increasingly strict. Integrating industry into the urban environment enables for shorter supply chains, bringing both ecological and operational benefits for companies and customers.

Made Locally

The spatial proximity of energy producers facilitates energy sharing and efficient use of the city's infrastructure. Together with shorter transport routes, product prices can be lowered for the sake of the consumer.

Circular Economy

The growing shortage of raw materials is presenting disposal industries with new challenges, meaning that residual materials and waste are becoming key resources for the economy of tomorrow. This shift in mindset is paving the way for emerging opportunities for closed-loop production chains of reuse, recycling, and upcycling, which are particularly promising in densely populated areas. [15]

The mutual benefits of collaboration between on the one hand knowledge institutions in favor of innovation, adaptability, and on the other hand a more networked, collaborative economy have come forward as being an indispensable component to the discussion for a sustainable productive future. Although often times when talking about knowledge exchange, it is limited to higher level education and research institutions. Interest in the Austrian School system led to the formulation of the following research questions:

1

How can local production and education benefit from collaboration in building a resilient and sustainable economy in Vienna's post-industrial urban environment?

2

Which architectural concepts facilitate this mixed-use collaboration?

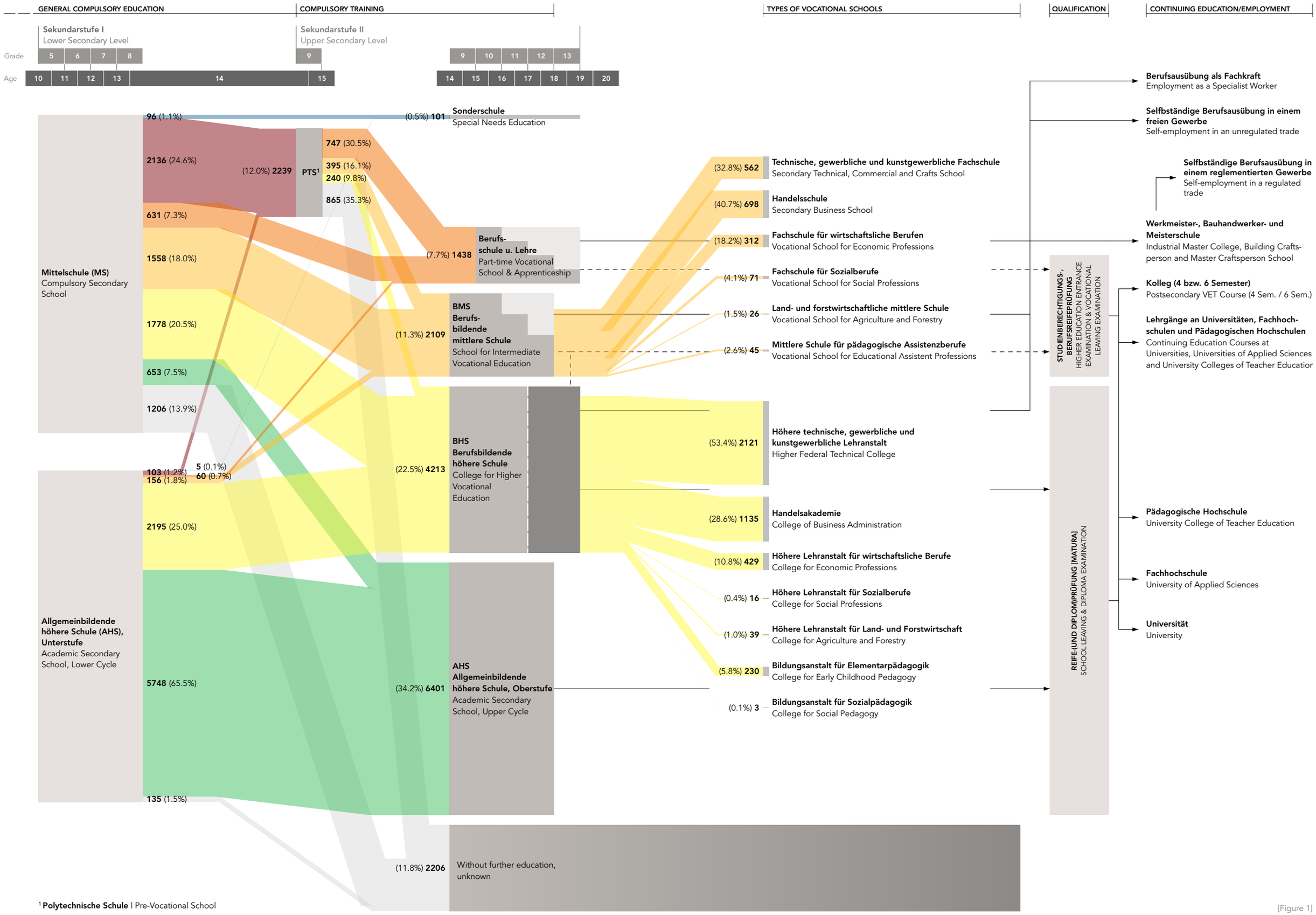
"Best quality of life for all Viennese with the greatest possible conservation of resources through comprehensive innovations." [16]



[Figure 10]



LEARNING THE TRADE



[1] **Polytechnische Schule** | Pre-Vocational School

[Figure 1]

Compulsory Education or Training

A closer examination of the Austrian education system reveals a broad spectrum of schools at the Upper Secondary Level that combine hands-on, manual disciplines with a strong foundation in theoretical knowledge. [1] [2]

After completing their general compulsory education at either a *Mittelschule* or the lower level of an *Allgemeinbildende höhere Schule* (AHS Unterstufe), students are required to make a decision about their further education. Depending on their career goals or academic aspirations, they may choose between vocational education or continuing a more general academic track at the *AHS Oberstufe*.

Vocational education in Austria is offered through several types of schools, each with different emphases on theoretical instruction and practical training. A key difference between them lies in how much time is allocated to apprenticeships and manual production within the curriculum.

One option is the *Polytechnische Schule*, which serves as a pre-vocational year, allowing students to explore a variety of disciplines before committing to a specific vocational path. After completing this introductory year, students can enter directly into the second year of one of the three main vocational school types.

The *Berufsschule* operates under a dual-learning model, where students spend the majority of their time as apprentices in actual work environments, gaining hands-on skills alongside albeit limited classroom education.

The *Berufsbildende mittlere Schule (BMS)* and *Berufsbildende höhere Schule (BHS)* each offer similar types of vocational programs, but differ primarily in their duration, final qualifications, and the distribution between general and vocational subjects. Having completed *BMS*-students have the opportunity to redirect to a *BHS* for additional training and specialisation.

According to school-leaving data from the 2021/22 academic year, approximately 55% of Viennese students who continued into Upper Secondary Level enrolled in vocational education. These programs cover sectors such as services, commerce, and manufacturing. Among them, the Technische, gewerbliche und kunstgewerbliche schools are especially notable for offering the widest range of production-oriented disciplines and seem to be popular choices for students pursuing vocational training.

Future Opportunities

Future educational and career opportunities in Austria largely depend on the qualifications obtained at the end of Upper Secondary Level. [1] [2]

Programs with a broader academic focus, generally offer greater access to higher education. Students who complete *Berufsschule* or *BMS* training may pursue post-secondary vocational education or select specific university courses for continuing education. Additionally, specialized colleges focused on industrial and manufacturing disciplines offer further training pathways as a necessary step for self-employment in a regulated trade.

Graduates from *BHS* programs have the widest range of options. They can transition into higher education, or continue to build on their practical skills through advanced crafts education.

Each of the three vocational school types prepares students for direct entry into the workforce, qualifying them as specialist workers or enabling them to operate as self-employed in unregulated trades.

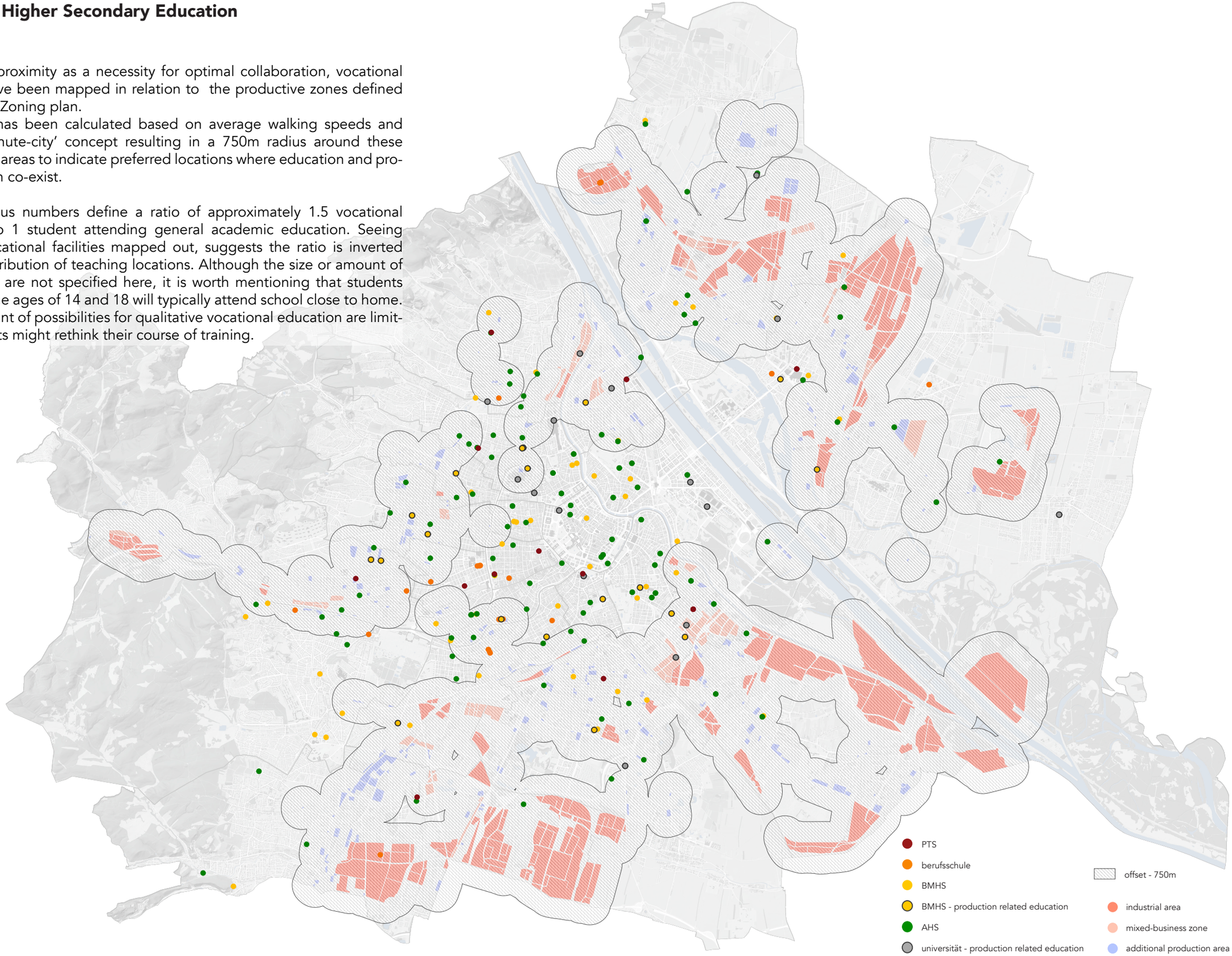
As noted earlier, the growing demand for highly skilled blue-collar professionals is one of the urban growth challenges. Addressing this challenge begins with strong, sustainable vocational education that prepares students for real-world work environments.

Additionally, Vienna is very supportive of lifelong-learning opportunities by investing in Continuing Education programs and special Schools for Employed people that help guide and upskill workers throughout their careers.

Vienna's Higher Secondary Education

Based on proximity as a necessity for optimal collaboration, vocational schools have been mapped in relation to the productive zones defined in Vienna's Zoning plan.
An offset has been calculated based on average walking speeds and the '10-minute-city' concept resulting in a 750m radius around these productive areas to indicate preferred locations where education and production can co-exist.

The previous numbers define a ratio of approximately 1.5 vocational students to 1 student attending general academic education. Seeing these educational facilities mapped out, suggests the ratio is inverted for the distribution of teaching locations. Although the size or amount of classrooms are not specified here, it is worth mentioning that students between the ages of 14 and 18 will typically attend school close to home. If the amount of possibilities for qualitative vocational education are limited, students might rethink their course of training.



[Figure 2]

CASE STUDIES

The following section is dedicated to understanding the architectural qualities needed to support production and education by looking at four examples. More precisely, the surroundings, mobility flows, entrances, floor plans and sections are compared to understand dimensions and functionality.

General Information

Atelierhaus C21
Werner Neuwirth
Vienna, Austria
2019-2021
7.375m²

The Atelierhaus C21 removes the typical spatial boundaries between 'working' and 'living' and provides the framework for a range of living structures and usage possibilities that users can design and determine themselves.

The studios create both spatial and building space for freelancers, craftsmen, artists, small businesses and for everyone who needs an open, flexible space for working and living under certain conditions. The studio house is primarily designed as a commercial building and also offers possibilities for residential use for business users. [1]



[Figure 1]

Berlin Decks
Thomas Müller, Van Reimann Architecten
Berlin, Germany
2020-2026
48.000m²

In today's industrial working world, initial ideas must not only be further developed but also implemented directly on site. The building is designed around the idea of synergy creation and is intended to bring companies and people together.

The building provides a variety of spaces for offices, production halls, workshops, showrooms, co-working spaces, laboratories as well as educational facilities, and recreational areas for an innovative mixed-use environment. [2]



[Figure 2]

Gewerbehof Meistermeile
bogevischs buero
Hamburg, Germany
2014-2018
24.100m²



[Figure 3]

Gewerbehof Meistermeile is the first craft centre in Northern Germany. Hamburg offers business premises at fair rents to around 100 small and medium-sized craft and production companies. It is based on the successfull reference building from Munich, Laim Gewerbehof.

In the workshop there is a colourful mix of approximately 30 different professions, covering both the classic construction sector, and the food sector or finer crafts such as making and repairing instruments or making models. Companies from the creative and innovative sector are also represented. [3]

AP Hogeschool - Campus Hallen
Jaspers-Eyers Architects, Office KGDVS
Antwerp, Belgium
2020-2024
21.800m²



[Figure 4]

A former slaughterhouse in Antwerp was transformed into a new campus for the AP University of Applied Sciences and Arts as part of a masterplan design for a mixed use development combining living, working and studying. The single-storey industrial hall was repurposed for 3,500 science and biomedical technology students. Together with the newly built tower, the project forms a landmark for the area's future. [4]

Surroundings



[Figure 5]

Atelierhaus C21 - The site is strategically positioned right next major transport lines, in the heart of the rapidly developing Sonnwendviertel. It's form and orientation align with the urban fabric grain of neighboring residential and commercial functions.



[Figure 6]

Berlin Decks - The larger mobility axes and the greater urban tissue accommodate this larger-scale project. The logistical spaces are oriented towards the busy road network, while other mobility flows approach the site via the waterfront.



[Figure 7]

Gewerbehof Meistermeile - The building is strategically oriented in such a way that it forms a noise buffer for the residential areas to the west and the larger commercial, industrial zones to the east.

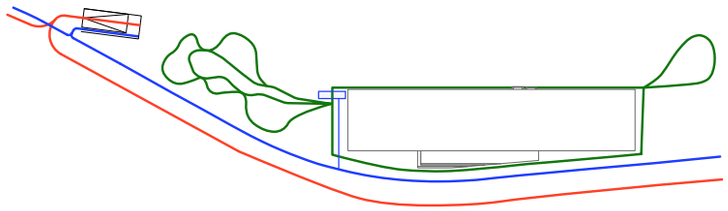


[Figure 8]

AP Hogeschool, Campus Hallen - Embedded within the existing fabric, proximity to water and major traffic roads are reoccurring. Adjacent smaller-scale residential row houses maintain a close spatial relationship with education.

Mobility Flows

vehicle
bicycle
pedestrian

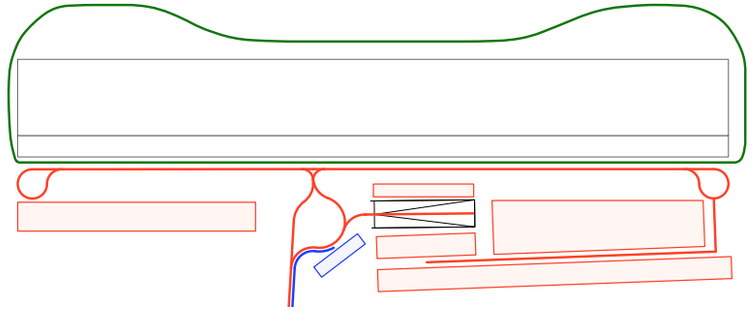


[Figure 9]

Atelierhaus C21 - Cyclists and motorized traffic are forced to stay on the main road and merely access the site to enter the underground garage. Since no large deliveries are required, vehicular transport stays limited to automobiles and small vans. Pedestrians have freedom on the site to walk around the building and green areas provide space for rest and wandering.

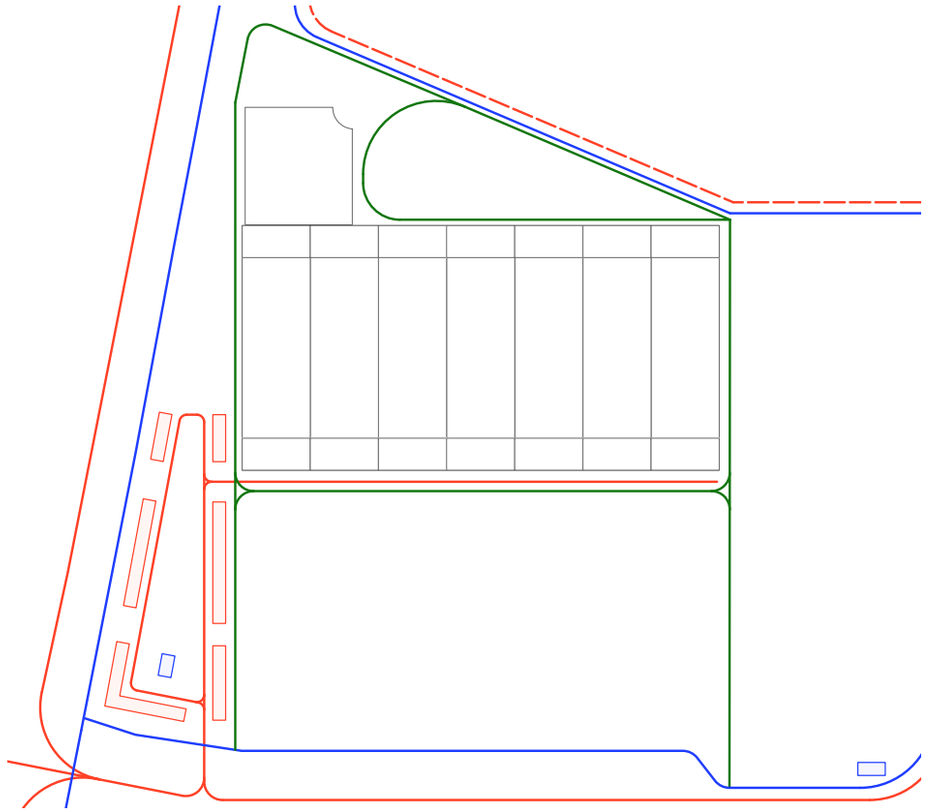
[Figure 10]

Berlin Decks - Heavy transport circulates on the site around the buildings to make deliveries. A central courtyard provides a conflict free space for slow circulation, spontaneous encounters, and contact with ground floor production spaces being active inside and outside.



[Figure 11]

Gewerbehof Meistermeile - The site is primarily focused on the motorized traffic allowing loading and maneuvering for cars with trailers and larger vans on the yard. Cars also have access to an underground parking garage. Pedestrians primarily have a traffic-free outdoor resting area at the back of the building.



[Figure 12]

AP Hogeschool, Campus Hallen - The main traffic flows pass by the building site on the main roads, with only designated car park spaces to the side of the building. In case of a large delivery, local traffic is allowed access via side entrances. The area surrounding the campus building is predominantly focused on pedestrian flows.

Entrances

loading & unloading

people



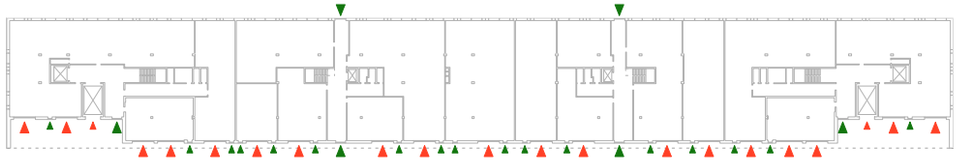
[Figure 13]

Atelierhaus C21 - A main entrance for larger goods allows simple interior circulation. Multiple entrances are located mostly to the front for easy public accessibility.



[Figure 14]

Berlin Decks - In accordance to the mobility flows, logistical entrances are located at the rear of the building, while several public entry points serve the courtyard in addition to the separate workshop entrances.



[Figure 15]

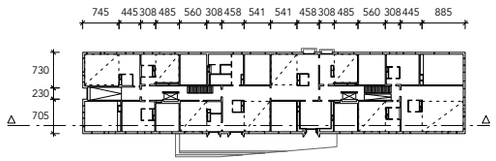
Gewerbehof Meistermeile - The facade features large logistical garage doors for easy deliveries. Access points to the ground-floor operational areas and vertical circulation cores are also primarily located on this side, indicating that the building is primarily accessed by workers and visitors via the front facade.



[Figure 16]

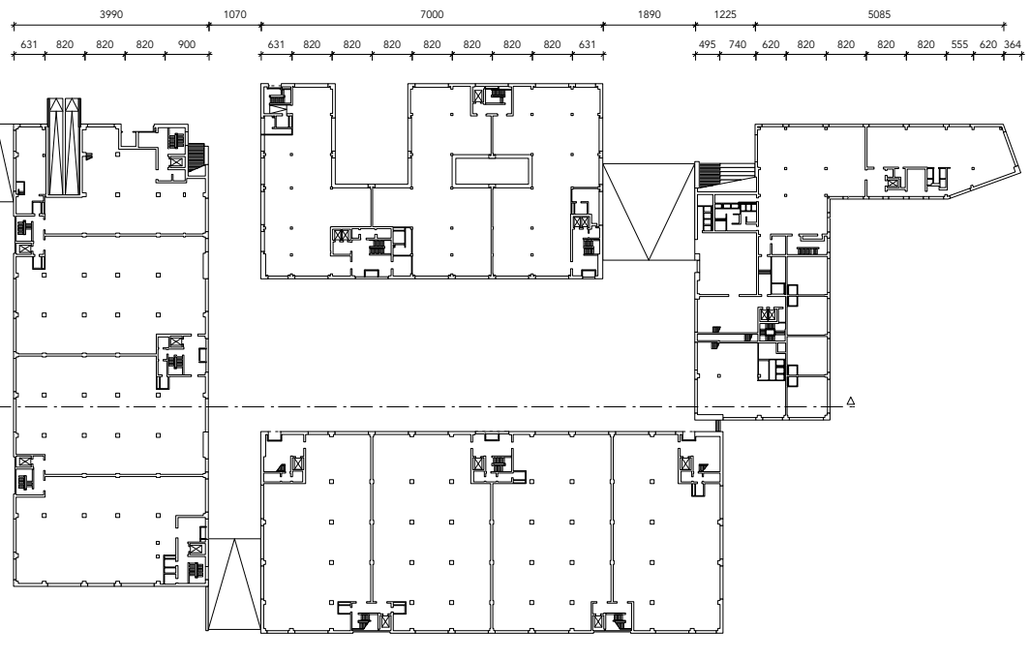
AP Hogeschool, Campus Hallen - The primary focus is on public entry points to the main service areas, but accessibility is ensured throughout the entire building.

Ground Floor Plans



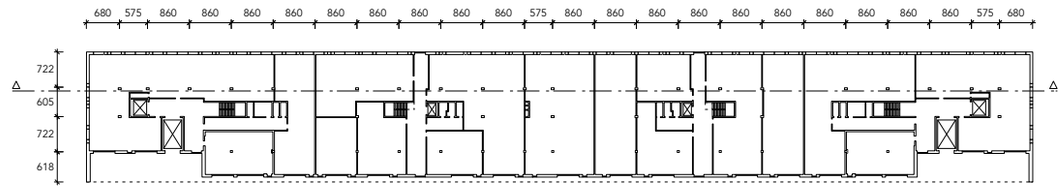
[Figure 17]

Atelierhaus C21 - The compact structure is composed of several structural cores that integrate sanitary facilities, combined with a solid construction method to ensure stability. Its minimal dimensions maximize the efficient use of the building plot.



[Figure 18]

Berlin Decks - An open-plan design of columns and beams ensures maximal flexibility and adaptability for accommodating various functions, each having access to their own vertical circulation cores.



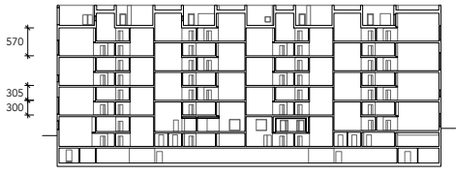
[Figure 19]

Gewerbehof Meistermeile - A beam-and-column structure together with some strategic vertical circulation cores don't define the space boundaries. Spaces can be adjusted in size if necessary to support optimal operational activities.

[Figure 20]

AP Hogeschool, Campus Hallen - A primary and secondary beam-and-column structure provide ample space to freely roam in the communal areas and support a flexible infill of the spaces needed for the individual educational needs.

Sections



[Figure 21]

Atelierhaus C21 - Through vertical stacking of functions, the limited plot size imposes minimal limitations. Certain spaces, such as bathrooms, require much less room height than the living areas or in this case, the working areas, making it possible to play with the units for an efficient arrangement as if they were blocks in a Tetris game.



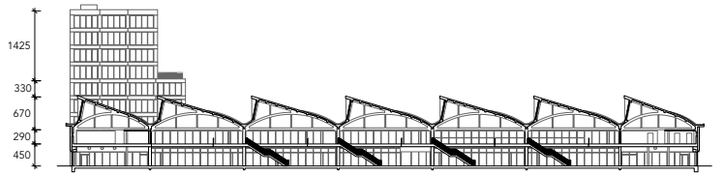
[Figure 22]

Berlin Decks - As the ground floor accommodates the main large-scale production activities, a higher ceiling height is necessary. The layout of windows also provides much more visual access to what is happening inside or 'behind closed doors', almost inviting you in as if strolling past storefronts.



[Figure 23]

Gewerbehof Meistermeile - A higher ground floor level provides just enough space for logistical deliveries, needing to load and unloading heavier and larger goods on a ground floor level in order to distribute to upper levels later on. An underground garage hosts a lot of parking spaces and additional waste and storage spaces.



[Figure 24]

AP Hogeschool, Campus Hallen - The old structure was kept intact during renovation providing qualitative classrooms with sufficient daylight through the skylight windows and an interesting connection to the buildings' productive past. However, a new concrete floor slab was inserted. The newly designed volume much rather resembles Antwerps' skyline through vertical stacking of boxes.



A PRODUCTIVE CAMPUS

Ambitions & Strategies

The previous case analysis' and future-proofing strategies have prompted a set of ambitions for an individual design proposal of a hybrid educational, productive building as a fifth addition to the case studies. By means of several architectural, socio-economic, and eco-efficient strategies, the proposed project aims to showcase the possible implications of the ambitions in the built space.

1. Qualitatively integrating production in a lively, mixed-use neighborhood without disturbing the present dynamics.

Through the idea of micro-zoning, production and education can co-exist in the same building block.
By clustering co-dependent functions and stacking productive spaces, which don't require ground floor accessibility for optimal use, on top of each other, enough ground space is made available for diverse green areas and public squares.

2. Providing affordable, and flexible spaces for production businesses of different scales to co-exist.

Not all production businesses require the same amount of space or amenities. Designing with a structural grid of columns and beams, flexibility is guaranteed for future adaptability and optimizing the use of space.

Since public spending on education is distributed among the federal government, the provinces and the regional boards of education, production spaces could be used by businesses for a small fee. Small scale businesses or start-ups that don't have the financial means to rent or buy a space in the city, could benefit from this opportunity. After all, these production spaces are necessary in the educational curriculum but will often not be in use all day, every day.

3. Fostering a collaborative atmosphere between production and vocational education, as well as with the general population. Having enough highly-skilled blue-collar workers starts with the quality of education.

Close proximity of students and professionals allows a connection with real-life practices on a daily basis which means that students don't have to wait for an apprenticeship at the end of their school career to get involved with real life situations.

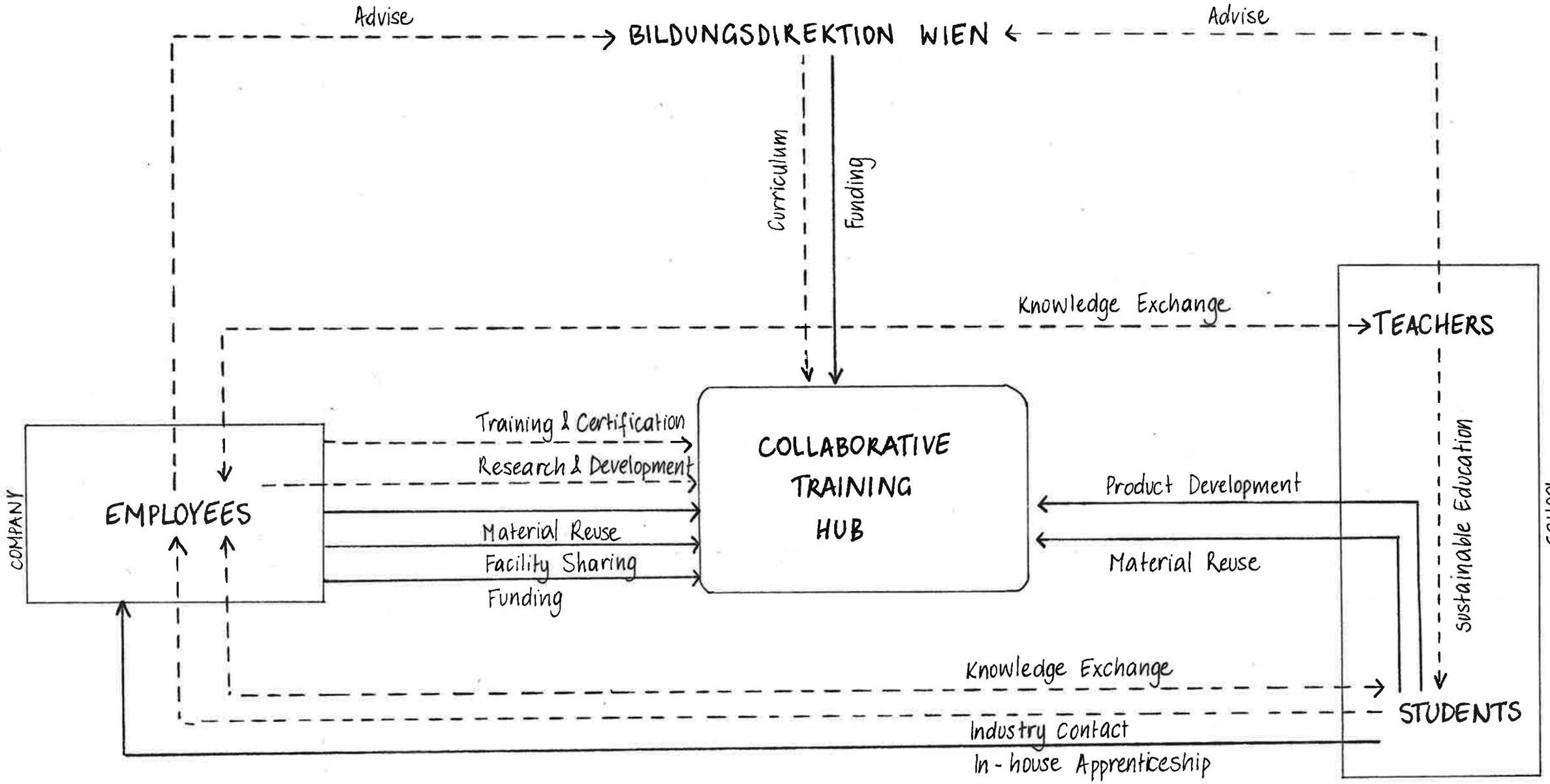
The idea of lifelong-learning becomes even more realistic since professionals get easier access to theoretical and practical, innovative knowledge, both through students and other companies. Teachers also get to sharpen their skills through knowledge exchange with the professionals, keeping up with their competences and newest technology.

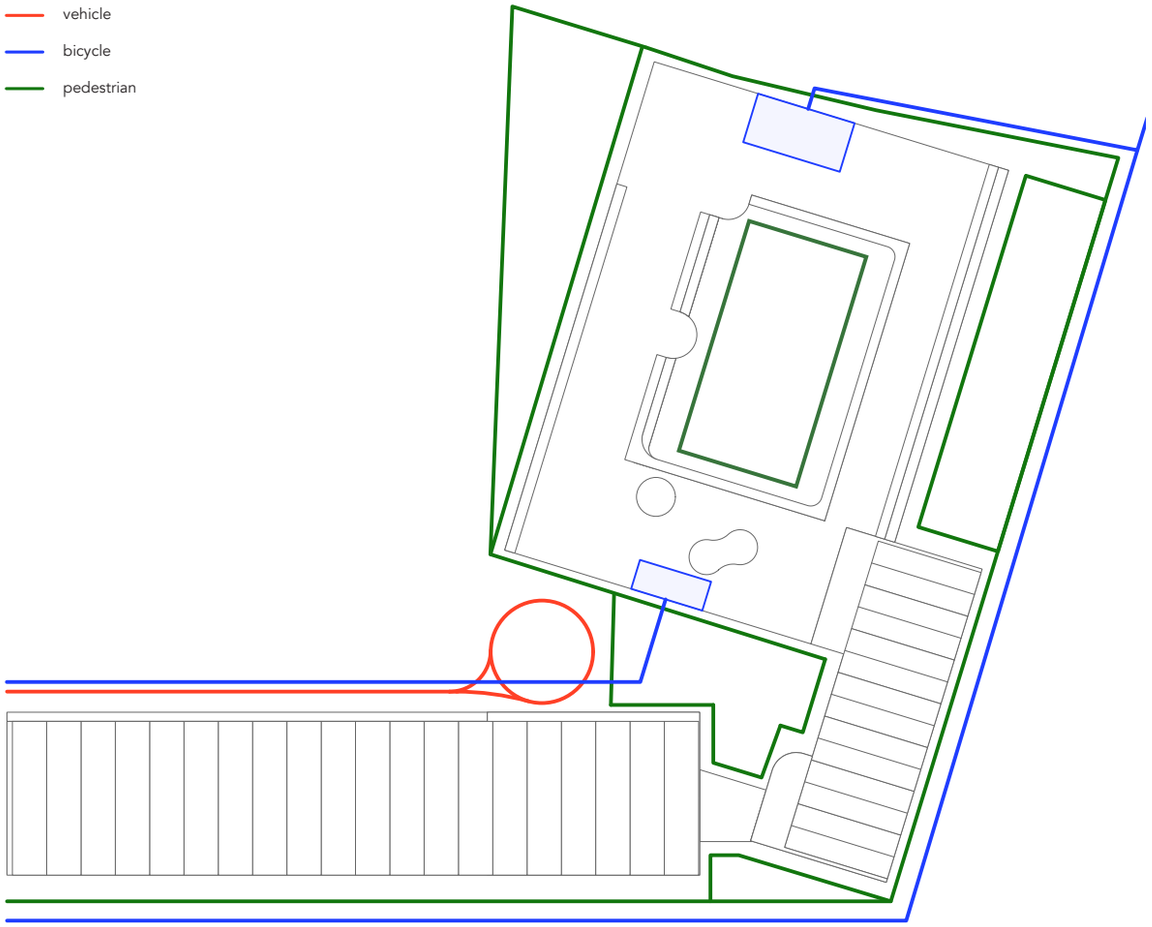
By making production visible, passersby and students get a chance to look into what is happening inside. No longer hiding production, but instead celebrating its' presence in the urban landscape is an important step in the overall re-acceptance and could trigger passersby to want to learn more about the production process.

4. Optimal use of material, infrastructural, and knowledge resources.

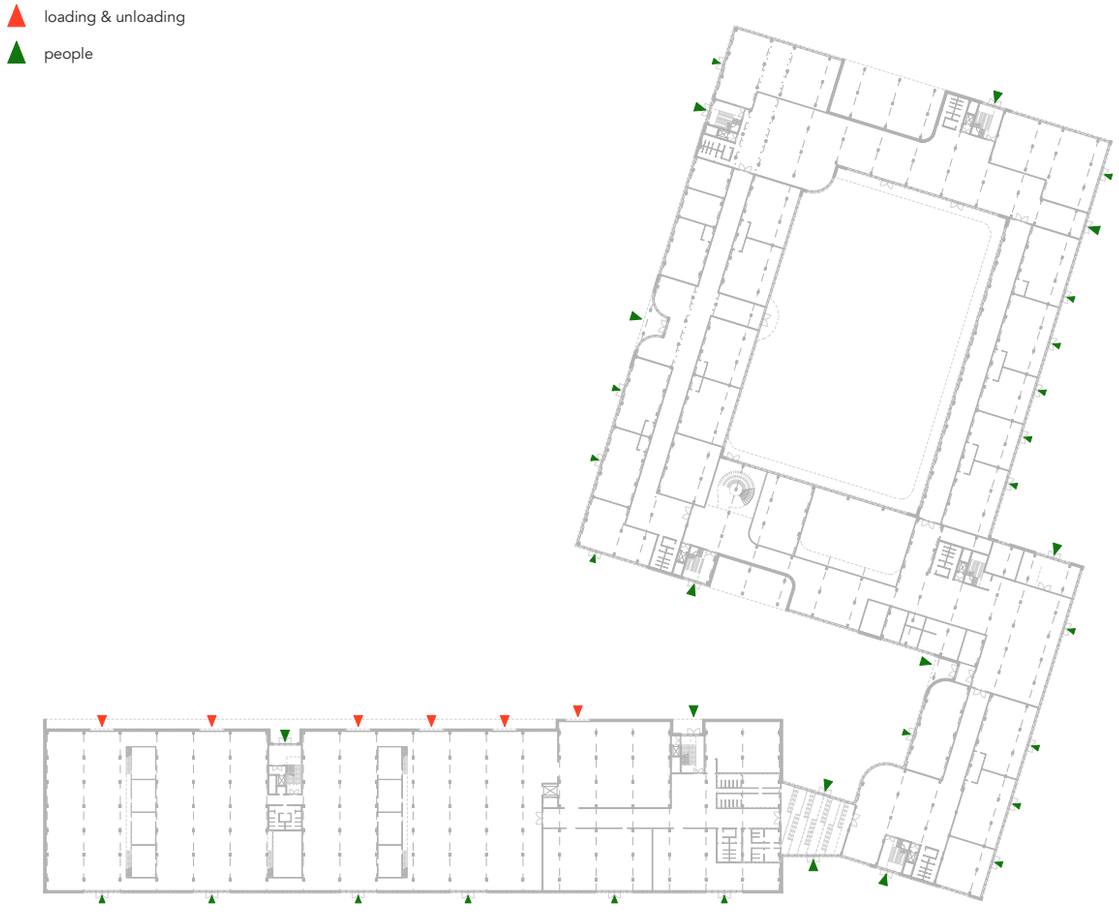
Since the facilities and machines are a shared resource subsidized by the government, access to these machines could further be an incentive for young workers to start a business with less financial hesitation.

Additionally, a lot of materials are often wasted due to requirements such as specific amounts and dimensions. These 'scraps' could very well be used by students when learning certain techniques or for small-scale projects, further contributing to the circular local economy and waste distribution.

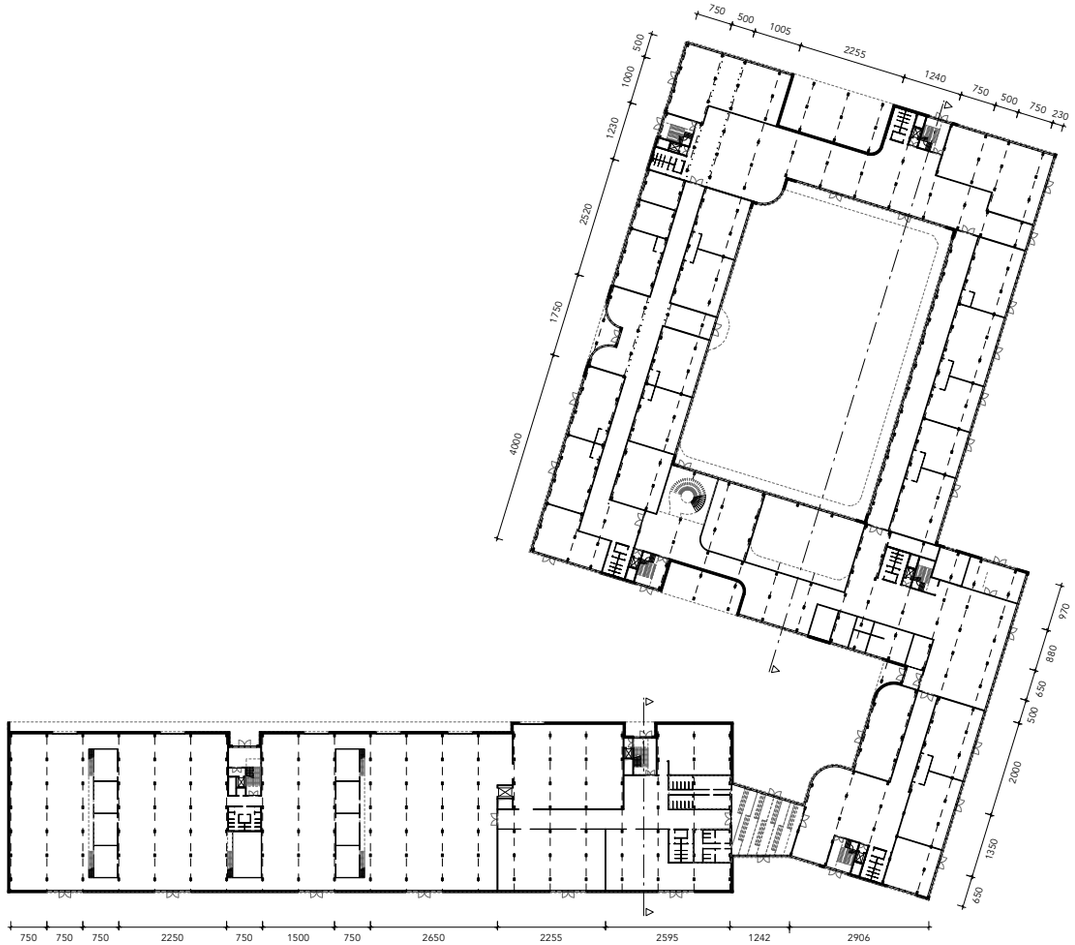

Advise
BILDUNGSDIREKTION WIEN
Advise
Curriculum
Funding
Knowledge Exchange
TEACHERS
Sustainable Education
SCHOOL
COMPANY
EMPLOYEES
Training & Certification
Research & Development
Material Reuse
Facility Sharing
Funding
COLLABORATIVE TRAINING HUB
Product Development
Material Reuse
Knowledge Exchange
STUDENTS
Industry Contact
In-house Apprenticeship

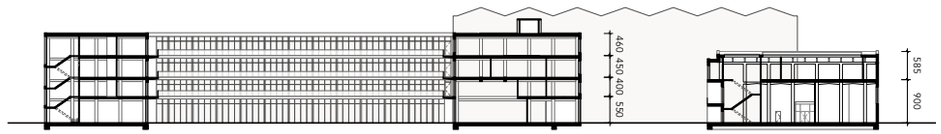


Mobility flows - Vehicular on-site circulation is limited to school and production deliveries. Buildings around this logistical area can act as a noise barrier for the surroundings. Continuous on-site circulation for pedestrians allows for a good flow of passage and maximizes possibilities for social encounters. Several bicycle storage spaces and site approaches eliminate chaos and conflicts with other mobility flows.



Entrances - To accompany the various mobility flows, sufficient entry points are required in such a large building to spread out the mass of people and enable efficient circulation routes inside the building. Logistical entrances are situated to the side of the supply and delivery zone. Several larger public entrances are distributed along the facades, with smaller entry points to the ground floor educational spaces.





Ground Floor - A production hall is designed as an open floor plan with a column-beam structure and units placed inside to separate the large space into smaller zones. The main educational building is structured according to a similar grid pattern as the production hall, with infills to create spaces of different sizes. The two volumes are connected via an interior corridor.

Section - Various occupations require different unobstructed vertical movement. Both buildings accommodate for these functions with a distinction in ceiling height. The production hall has very large room spans which can quickly feel cramped and the activities require such free movement. The upper classrooms can do with a lower ceiling since the spaces are much smaller and activities are quite static. The main education building has several larger public/communal functions on the ground floor which could benefit from a higher ceiling. Exceptions of spaces needing even more height are made by creating a void.

Welcome to Aspern Seestadt

General

The population projections for Vienna predict the highest rise in the smaller area of Seestadt in the Aspern district. The infrastructural needs for housing and education will grow along with the population and will be a point of subject for present and future project development.

Asperns' significant history starts in 1809, when the Austrian troops defeated Napoleon's army here. A decade later, in 1912, the area became home to Europe's largest airfield, hosting events like a Zeppelin landing and the world's first international airmail flight in 1918. Later on, it served multiple military and commercial aviation purposes, including during WWII when it was used by the German and Soviet air forces. Post-war, the airfield was repurposed for racing and later partly industrialised, with General Motors (Opel Werk) opening a large production plant in 1982.

By the 1990s, the rising housing demand made Aspern shift towards an urban development hotspot. A first planning competition in 1992 laid the groundwork, but infrastructure challenges stalled progress. In 2007, renewed efforts led to the approval of the Flugfeld Aspern master plan, aiming to build housing and workplaces for 20,000 people around an artificial lake. This lake was the first major modification to the plain area. With U2 metro access since 2012, the Seestadt Aspern is set to become one of Europe's biggest and most sustainable, ambitious urban development projects by 2028, combining residential, commercial, education, research and development, production, and green spaces on the 240 hectares large site, representing a city in a city. [1] [2]

Zentralberufsschulgebäudes

The city of Vienna is building a new central vocational school in Seestadt Aspern for integrating seven commercial vocational schools and a vocational school for the construction industry. The building is required to accommodate up to 7.500 students and 350 employees by September 2028. The plan behind the new school is to relocate vocational schools already existing at other locations in Vienna for approximately 2.500 vocational students. The first works on site have started as of April this year.

A two-stage EU-wide open competition was launched and by means of a participation process with users of existing vocational schools, a building program was fixed for the new educational building. The winning project came from the architectural firm Kronaus-Mitterer ZT GmbH. [3]



2024 [Figure 1]



2001 [Figure 2]



2011 [Figure 3]



2014 [Figure 4]

Analysis

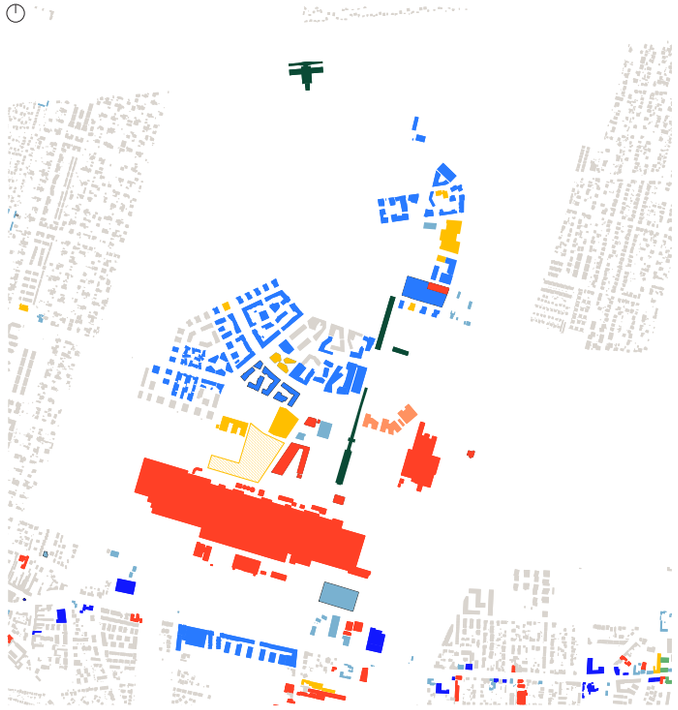
Built ground floor – Aspern Seestadt is characterized by fragmented building blocks with alignments radially spreading out from the centre. A stark contrast with the smaller housing of the Gartenverein to the west and east.



[Figure 5]

- residential
- religious building
- mobility station
- education
- research & development
- production/logistics
- service
- commercial
- service/commercial

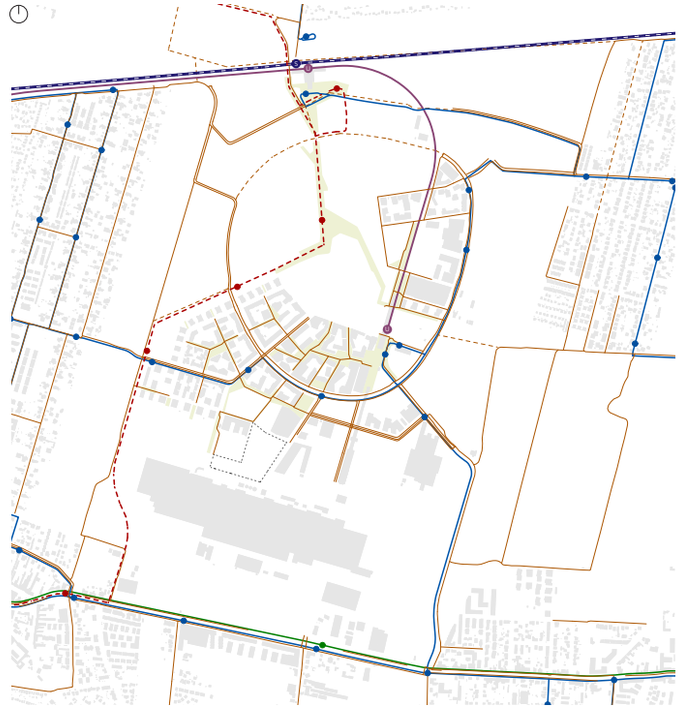
Ground floor activation – With the urban development goals backing the realisation of Aspern Seestadt, the functional mix becomes apparent when comparing to the neighborhoods of residential allotments.



[Figure 6]

- S-Bahn
- U-Bahn
- Bus
- Regionalbus
- Straßenbahn - planned
- Cycling path
- Cycling path - planned
- Pedestrian zone

Mobility – New mobility axis' are to be realised in the coming years. An extension to the 25-Linien will better connect the new urban centre to Vienna's historic centre. A strong focus went out to pedestrian and cyclists, prioritising them over vehicular traffic. The U-Bahn reaches its' final destination at the heart of Aspern's centre.



[Figure 7]

- Pedestrian zone
- Public courtyard
- Community garden
- Park

Permeability & facade orientation – With the primary focus on vulnerable road users, the buildings are mostly all designed in the same manner. Inner courtyards appear everywhere in the fabric, enveloped by facades, creating calm area's allowing multiple spontaneous or arranged encounters.

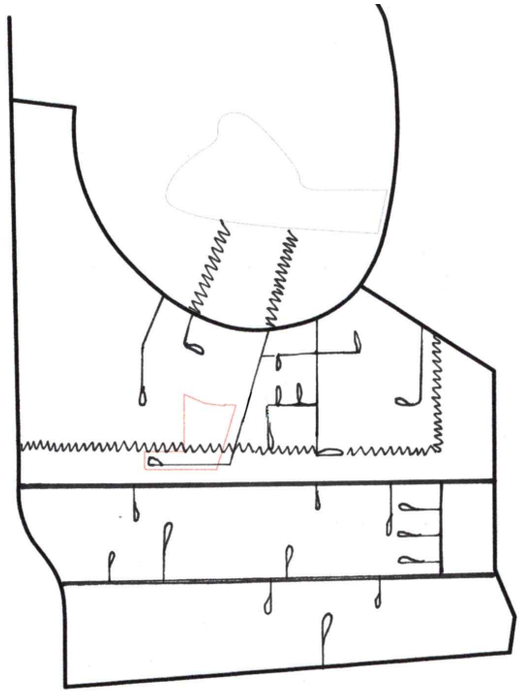


[Figure 8]

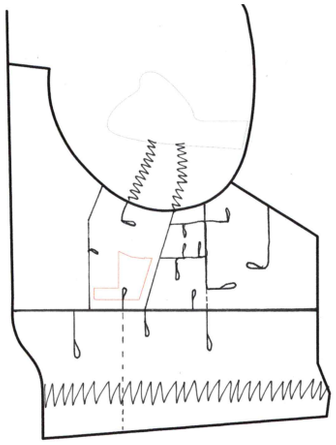
Rethinking Connections

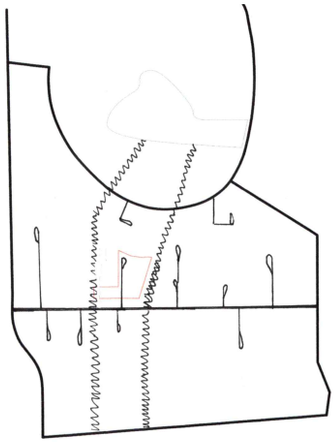
The large Opel factory has lost good access to the centre of development. A strong fenced barrier and single point access routes make it even more difficult to re-integrate large production in the city when it's not even possible for visitors to roam close by.

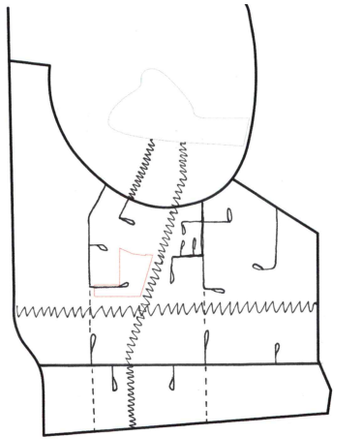
Investigating new possibilities through sketches, a first design research and possibilities arise.



Existing situation



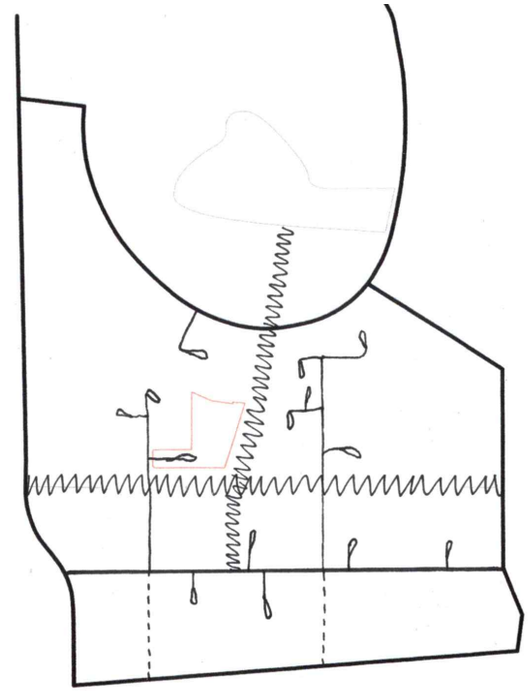




The newly proposed urban circulation suggests clustering access roads and thus provides an alternative way of accessing the site.

From the centre, a pedestrian boulevard is extended and to the south of the site a new boulevard is created in place of a currently enclosed productive axis.

Together with the project ambitions and laid out strategies, this the starting point for the design proposal on the site.





DESIGNING THE PROGRAM

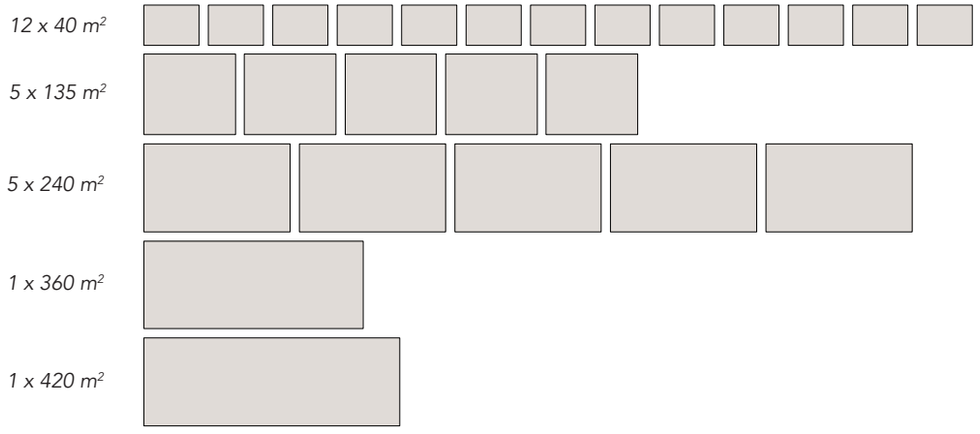
Building the Program

- General & social spaces
- Educational spaces
- Supporting spaces
- Production spaces

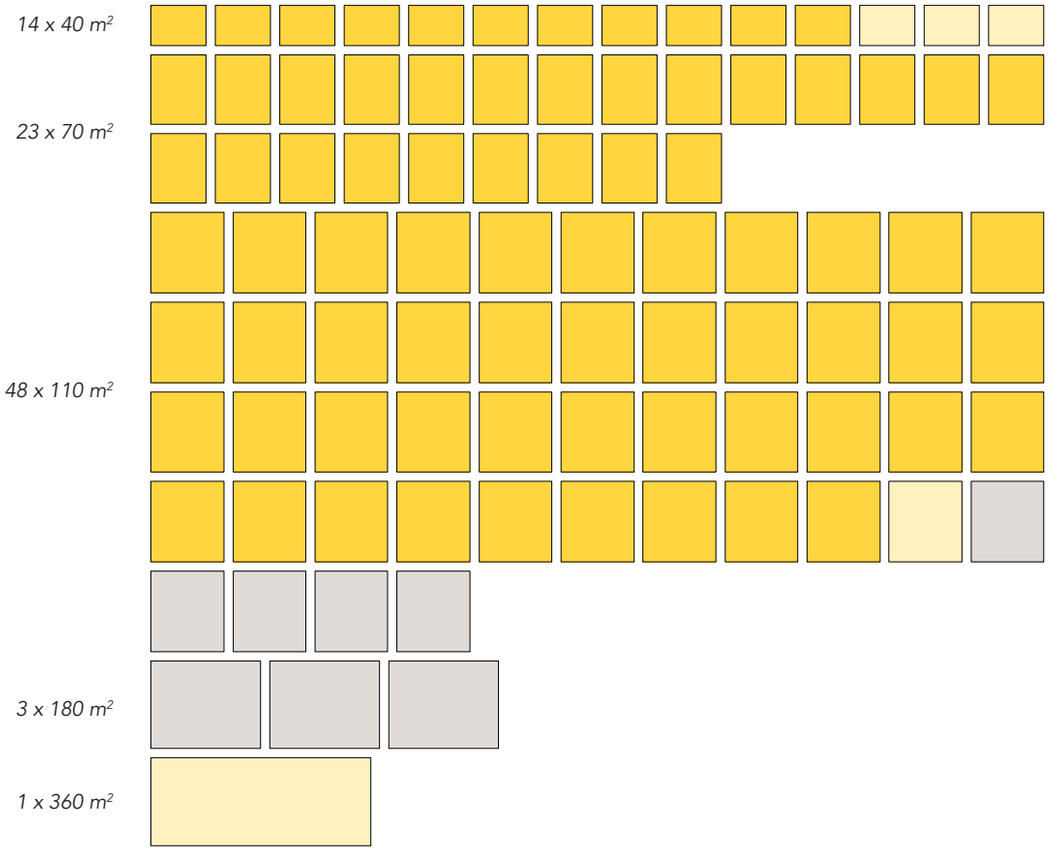
Netto 25 370 m²

~15% for communal social areas

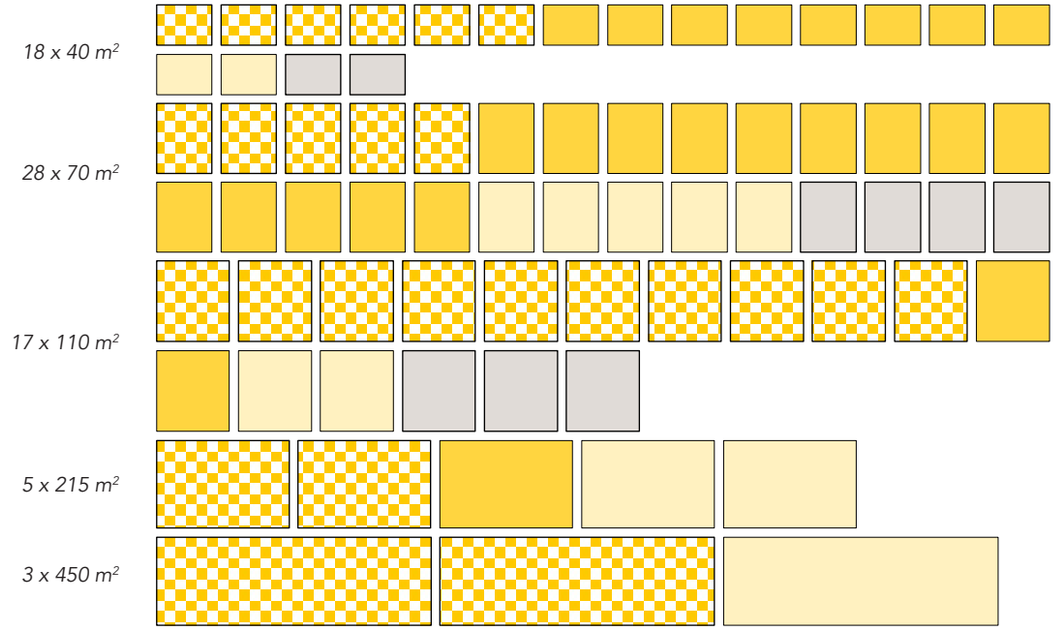
General — 3135 m²



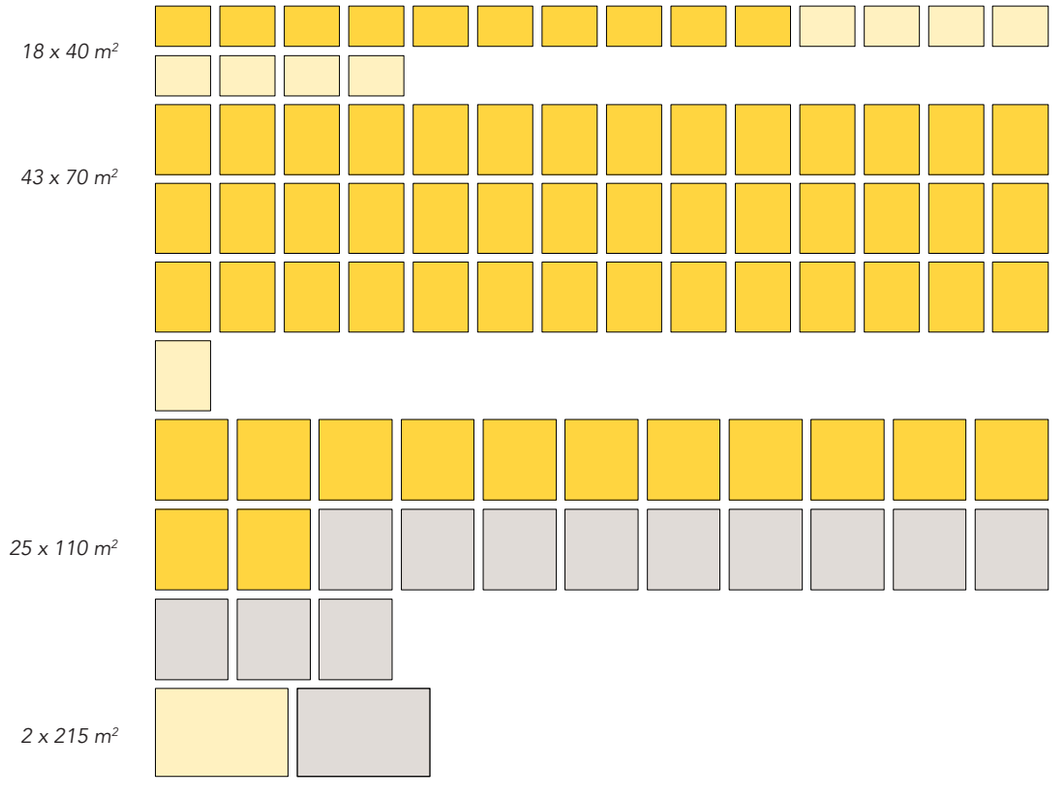
Retail Education — 8350 m²



Building Construction Education — 6975 m²

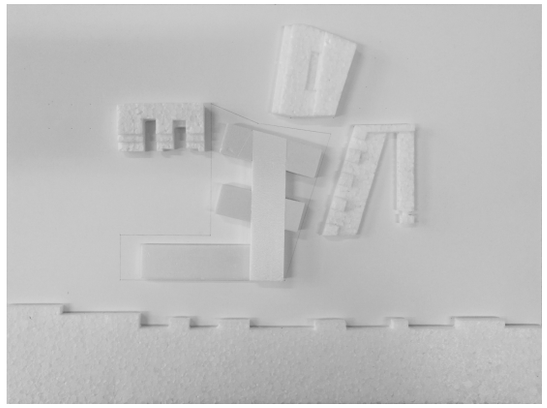


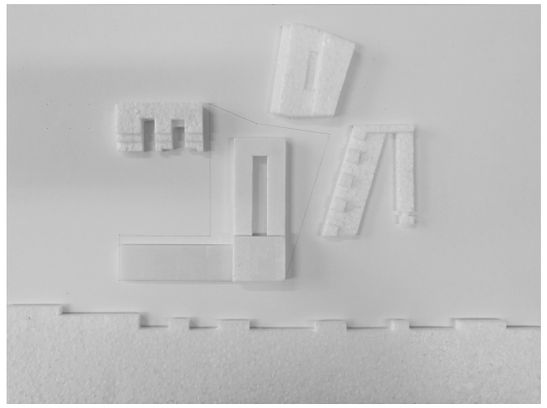
Office Education — 6910 m²

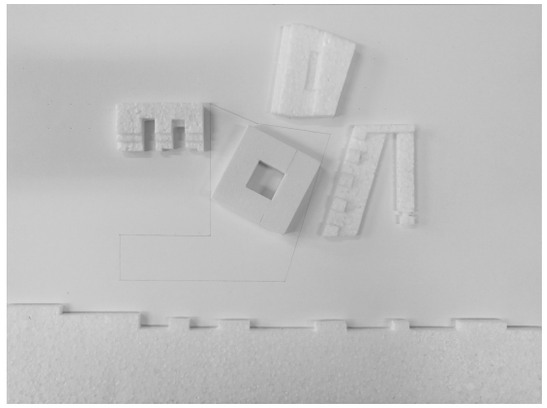


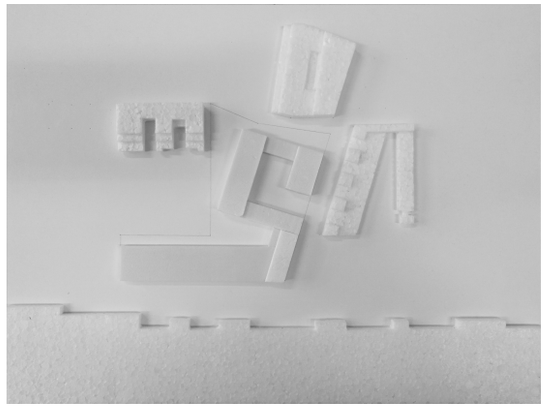
Shaping the Building

The above-mentioned program was based on the design by the competition winners for the Zentralberufsschulgebäudes, Kronaus & Mittere Architekten and was a starting point for a volumetric study.



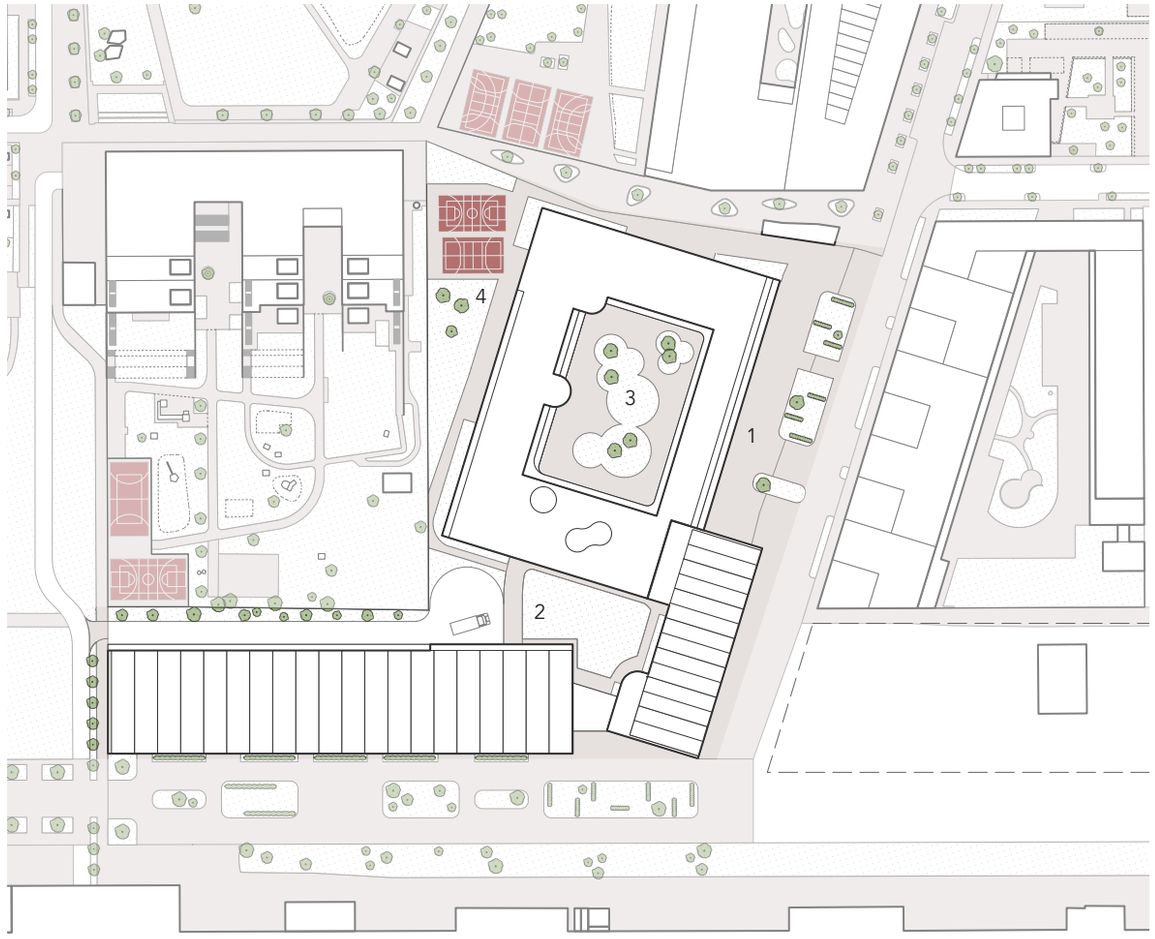






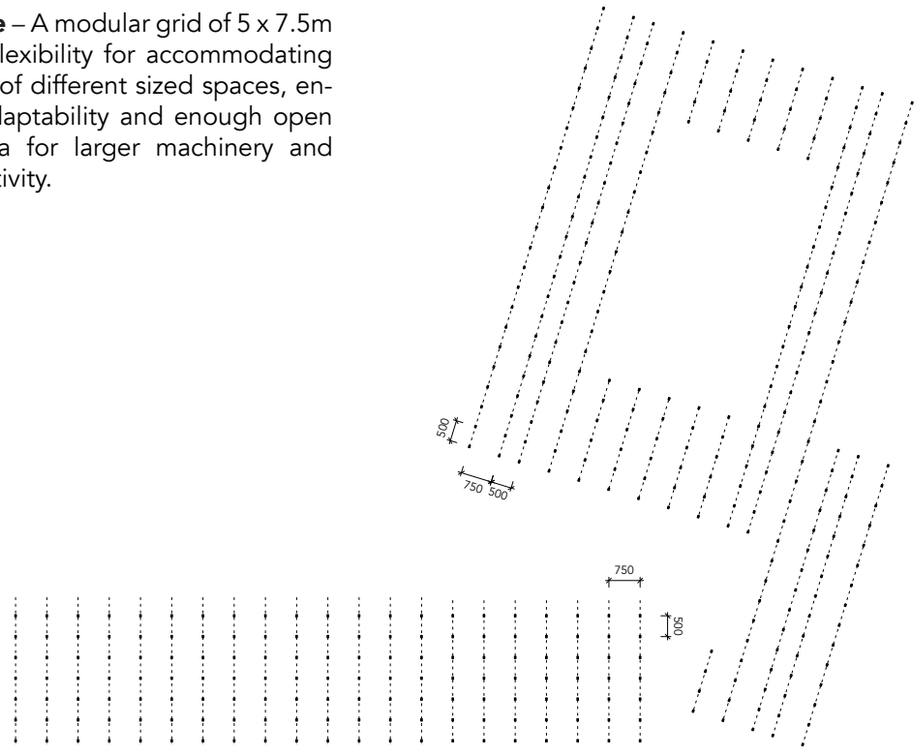
Site Plan

Scale 1:2000

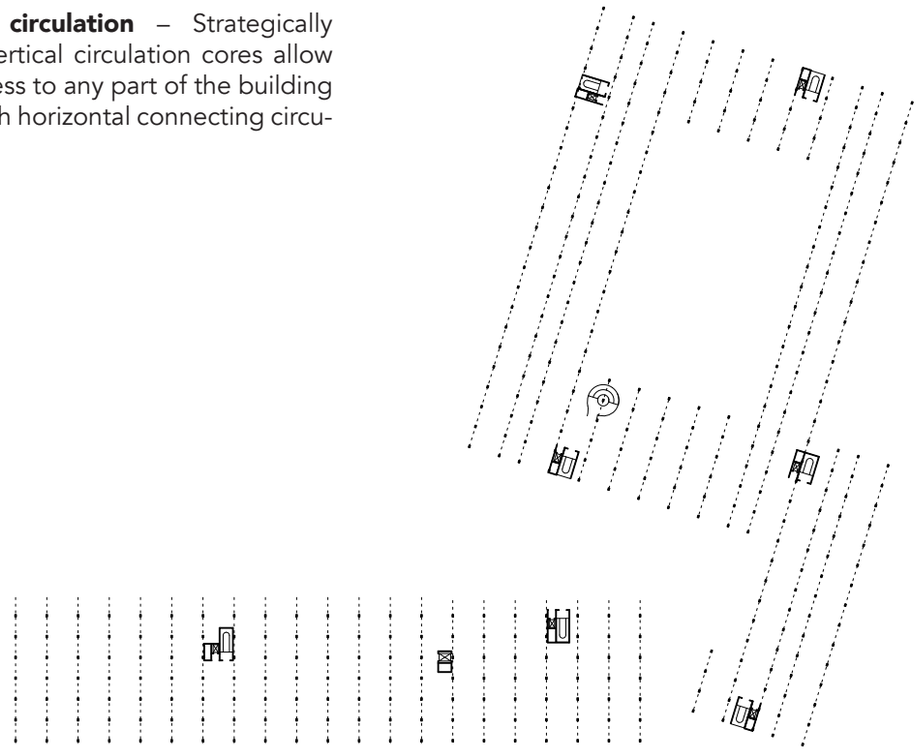


1. Front yard
2. Productive courtyard
3. Inner courtyard
4. Back yard

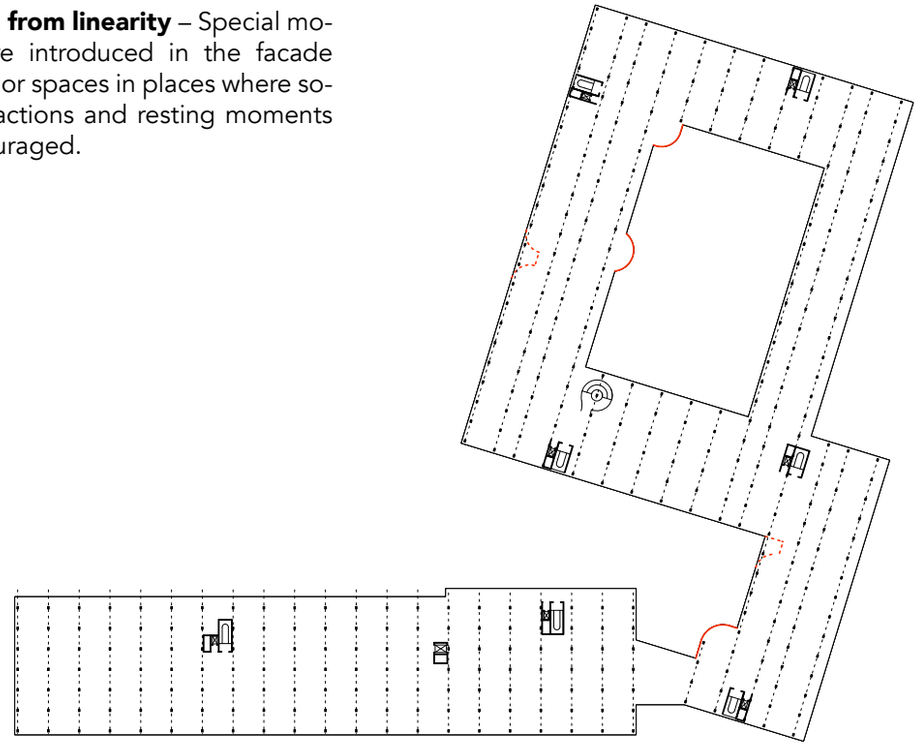
Structure – A modular grid of 5 x 7.5m ensures flexibility for accommodating a variety of different sized spaces, ensuring adaptability and enough open floor area for larger machinery and heavy activity.



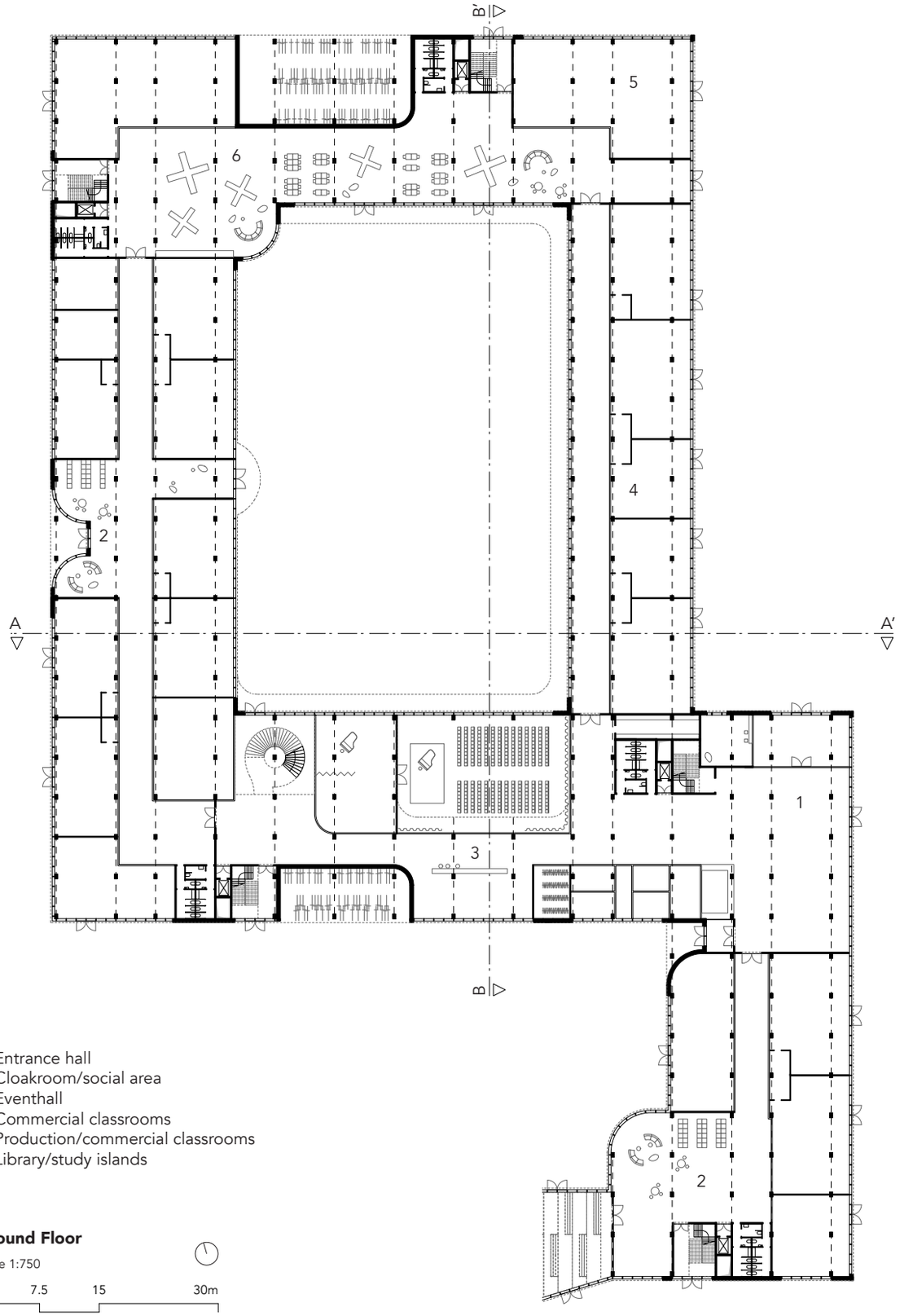
Vertical circulation – Strategically placed vertical circulation cores allow easy access to any part of the building along with horizontal connecting circulation.



Breaking from linearity – Special moments are introduced in the facade and interior spaces in places where social interactions and resting moments are encouraged.



Small Scale Production



1. Entrance hall
2. Cloakroom/social area
3. Eventhall
4. Commercial classrooms
5. Production/commercial classrooms
6. Library/study islands

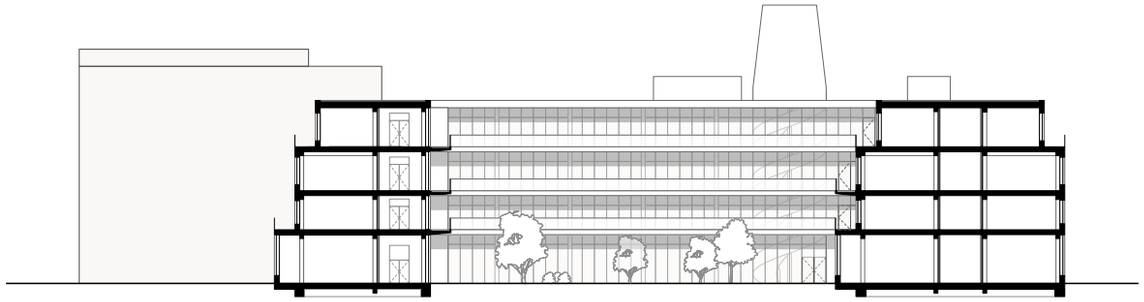
Ground Floor

Scale 1:750

0 7.5 15 30m

Section AA'

Scale 1:750



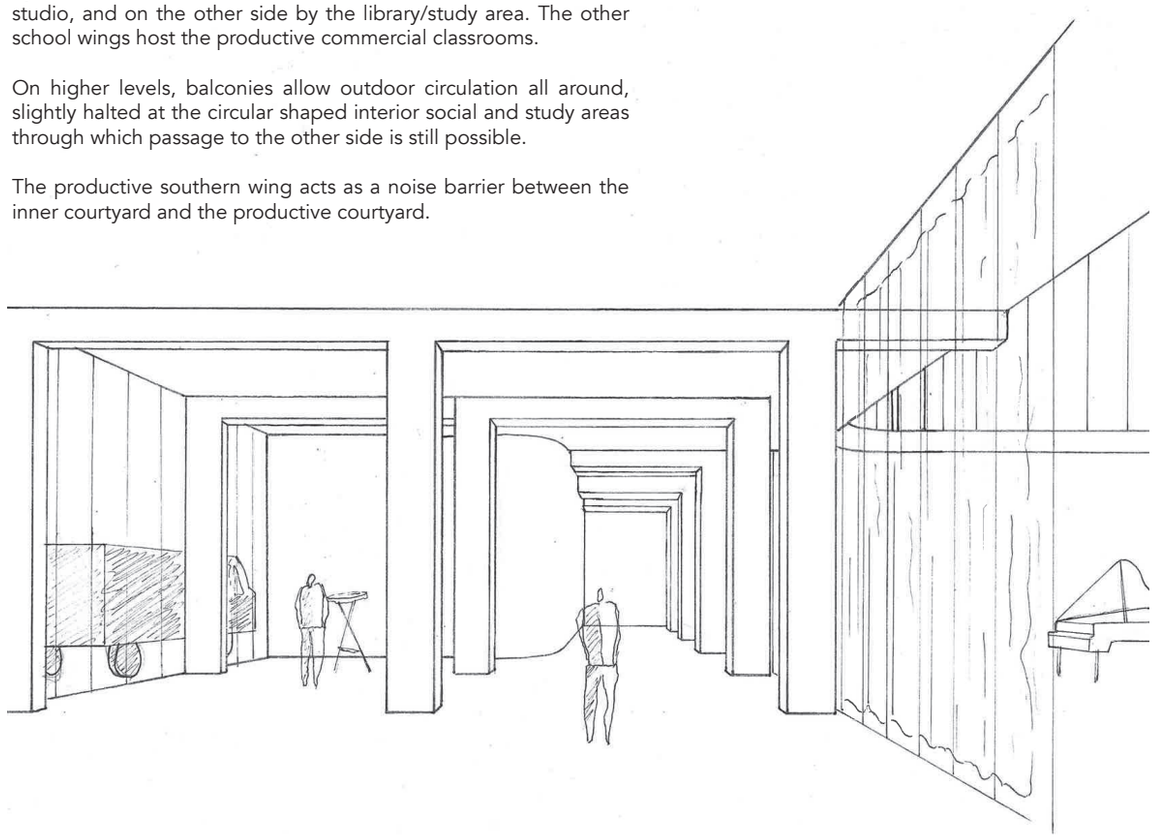
A grand central spiral staircase is clearly visible behind the glass facade and protrudes through the roof as a resemblance to the industrial chimneys.

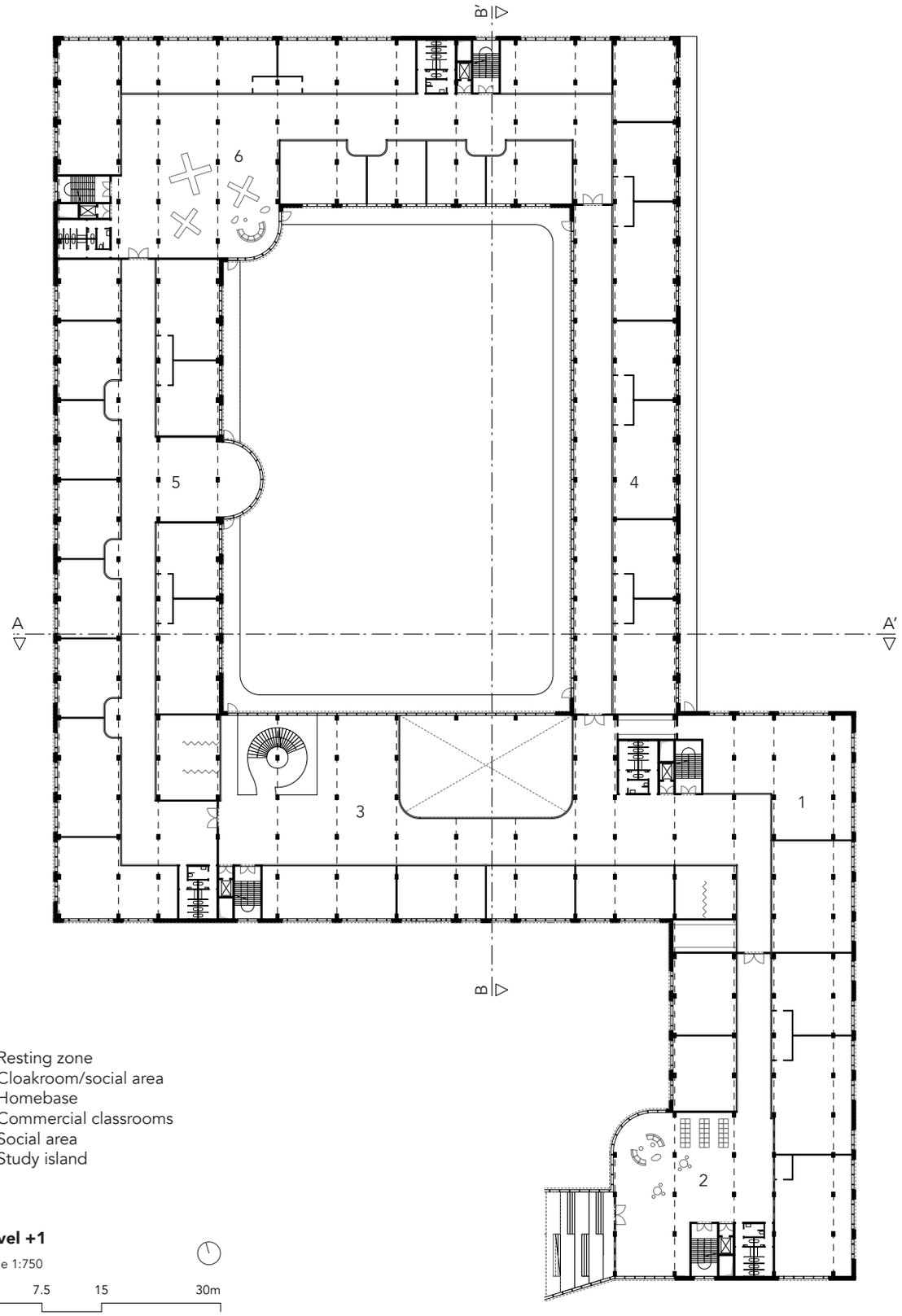
The horizontal circulation and opened up spaces allow for additional encounter opportunities and brings sufficient sunlight into the core of the building.

The central courtyard is enveloped by the school on opposite sides by communal social functions such as the eventhall and a music studio, and on the other side by the library/study area. The other school wings host the productive commercial classrooms.

On higher levels, balconies allow outdoor circulation all around, slightly halted at the circular shaped interior social and study areas through which passage to the other side is still possible.

The productive southern wing acts as a noise barrier between the inner courtyard and the productive courtyard.





1. Resting zone
2. Cloakroom/social area
3. Homebase
4. Commercial classrooms
5. Social area
6. Study island

Level +1

Scale 1:750

0 7.5 15 30m

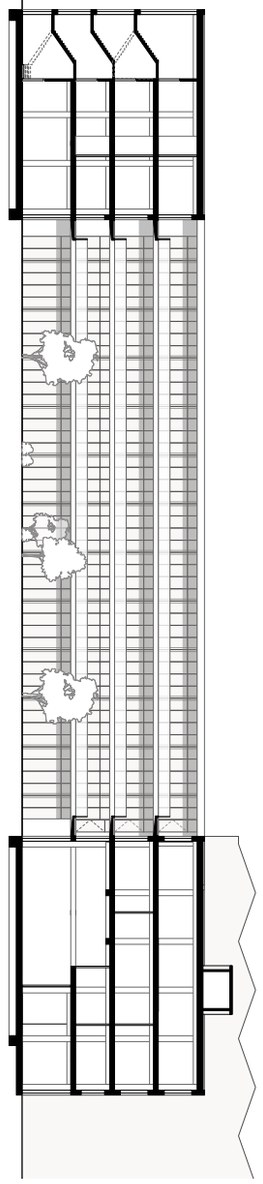
East Facade

Scale 1:750



Section BB'

Scale 1:750

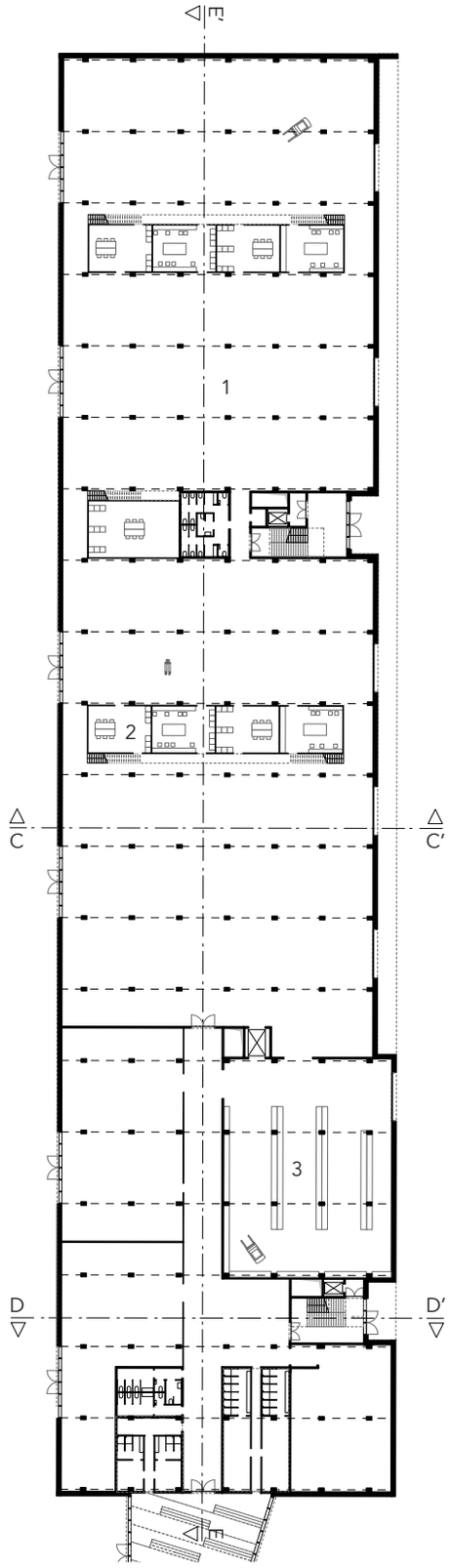


The facade expresses the functions behind it. The ground floor opens up to the public with a store-front appearance as commercial education functions are able to invite in passersby, allowing students to practice their skills in real-life.

On the top floor of the front building block, sports facilities required additional height, resulting in a more creative roof structure with skylights and a more distinct facade. Larger window sections and heights bring additional light and views to the interior of the space as well as connections with the outdoor boulevard.

Little pavilions on the accessible roof add to the outdoor space and offers additional pathways to and from the split level of the sports wing.

Large Scale Production



1. Large production workspaces
2. Laboratories/workshops
3. Material warehouse

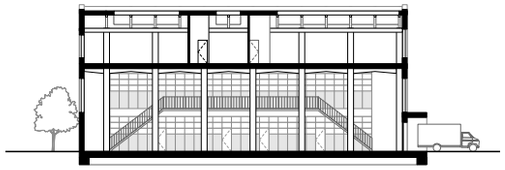
Ground Floor

Scale 1:750

0 7.5 15 30m

Section CC'

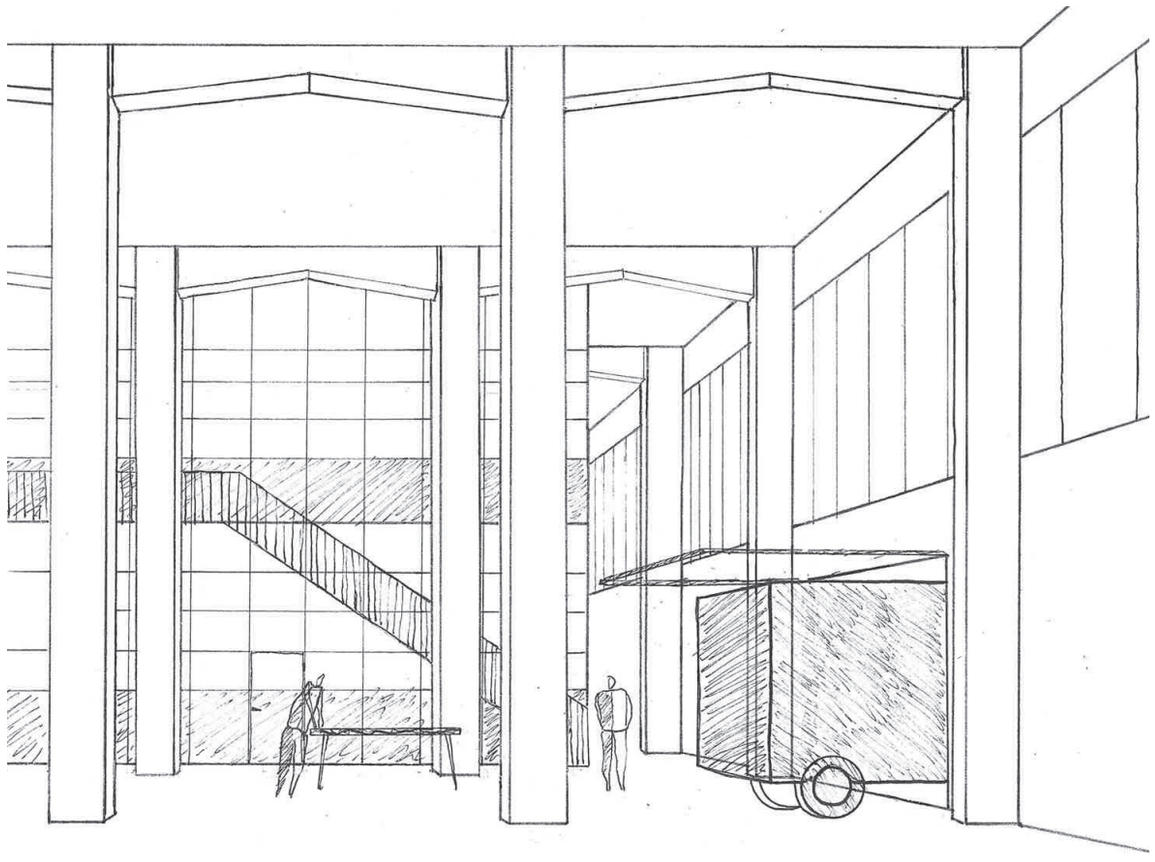
Scale 1:750



Section DD'

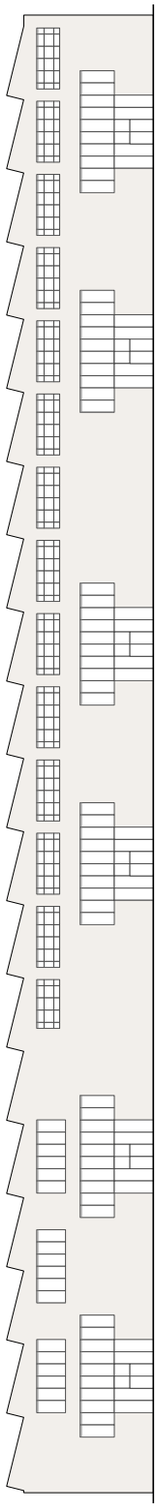
Scale 1:750





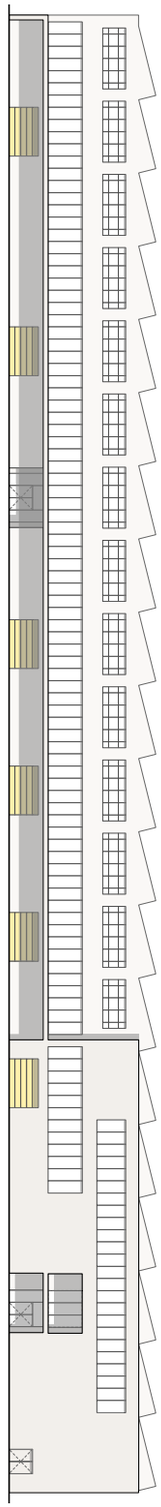
South Facade

Scale 1:750



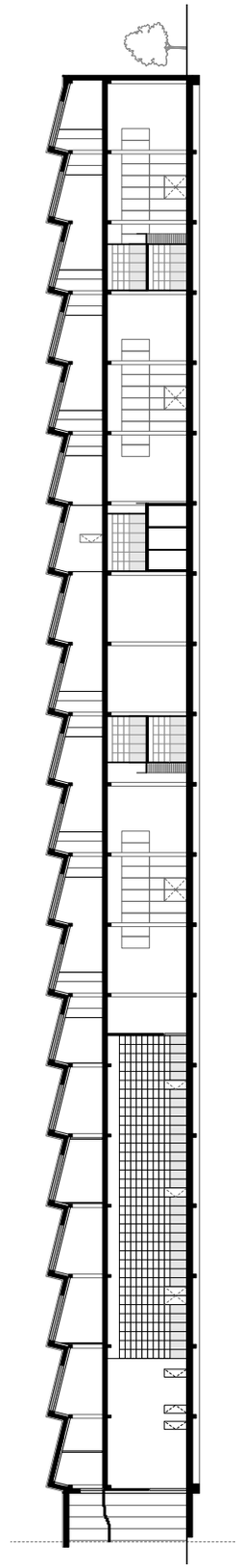
North Facade

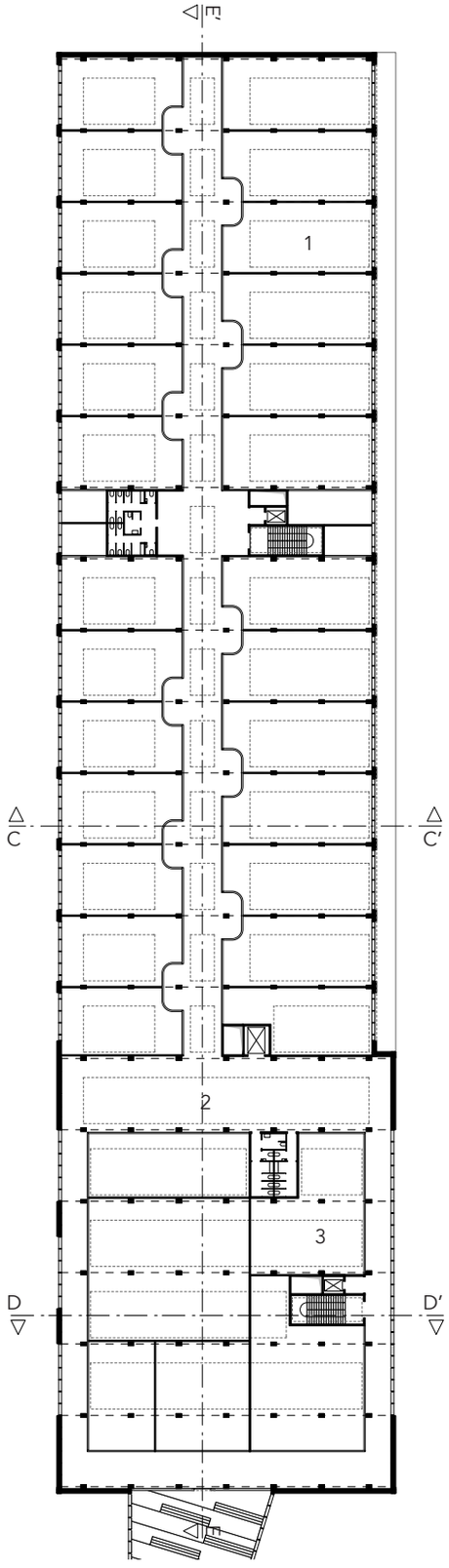
Scale 1:750



Section EE'

Scale 1:750





The facades showcase an industrial architecture with the shed roof segments allowing sunlight to penetrate into the deeper classrooms on the top floor. The higher positioned windows on the ground floor let the light indirectly penetrate into the larger production spaces.

Entrances on the south facade are highlighted through the alternation of glass and solid infill, making a visual connection with passers-by on the boulevard.

The northern facade has a more logistical appearance with the brightly coloured garage doors, adding a playful element to the long solid wall.

The double-height production free space is divided by single-storey smaller workshops and laboratories stacked on top of each other and accessible via stairs in the large production hall. Free flow throughout remains guaranteed, proving easier connections between companies, students and teachers practicing different disciplines.

On the top floor a series of educational rooms provide the necessary space for theoretical coursework or potentially serve as co-working office spaces for companies using the facilities.
The free infill and an additional stockroom make it possible for a variety of supplementary productive workspaces to be implemented on this level as well.

1. Teaching rooms/laboratories/ workshops
2. Social area
3. Materials storage

Level +1

Scale 1:750

0 7.5 15 30m



REFLECTION

"Yet again, Vienna is awarded the title of the most livable city in the World". This statement has become widely spread knowledge and serves as a tagline for Vienna's city brand. Nevertheless, Vienna is not spared from the post-industrial challenges rooted in an increasing population growth and unpredictable global economy.

The increasing pressure to accommodate for urban growth, safeguard affordable housing, and maintain economic stability has led to the marginalization of productive industries in favor of more profitable residential and service-based developments. However, the growing recognition of how production is intertwined with the city's economic, social and ecological value systems highlights the need for supportive future-proofing guidelines securing a collective way of thinking, and operating.
Even more importantly, present development discourse emphasizes the demand for various spatial strategies in supporting such collaborative systems towards an innovative, more networked urban economy, one where production can once again claim its rightful presence in the urban landscape.

A closer look into knowledge and resource sharing through a collaborative relationship between local production and vocational education proved to offer mutual benefits, not only for the students, teachers and professionals directly involved. These actors take advantage of their proximity and the shared facilities for knowledge exchange and innovative product-making in a collaborative atmosphere. Each of them is (in)directly contributing to a future of high-quality local production and economy, whether through motivational, tailored education or sustainable production output.
The collaboration also acts as a catalyst for a resilient and sustainable 'urban' economy by helping to create a local identity strongly rooted in production and generating financial means for further infrastructural developments to contribute to a qualitative urban area for all its' residents.
In addition to a theoretical background, developing a set of architectural concepts for this mixed-use integration was necessary to concretize opportunities and provide feasible alternatives to existing models as a way to inspire an alternative future approach.

In light of projected population growth, the current absence of a vocational school campus, and the site's proximity to productive zones, Aspern Seestadt provided an excellent framework for innovative, out-of-the-box thinking as a new, multifunctional urban center. Nonetheless, producing a 'better' alternative to the winning proposal for the new 'Vienna Central Vocational School' challenged me to rethink their approach with the previously compiled future-proofing ambitions and strategies in mind. The design proposal of a Productive Campus is the result of these principles.

Stepping back to assess the accessibility of the site and large-scale production from the central mobility hub revealed the first key challenge: reimagining these connections to ensure active integration and public engagement.

Through architectural case study analysis, multiple key spatial strategies were identified to envision a building that becomes both a workplace and a learning environment while contributing to the quality of urban life.

These strategies included clustering complementary functions by way of micro-zoning, integrating public and communal spaces for rest and social interaction, and maximizing resource efficiency through shared facilities, materials and adaptable floor plan layouts.

With the desire to focus on productivity on a school campus site, the commercial classrooms could potentially become mixed-use spaces themselves. The idea behind this is that the sold products would also need to be manufactured. This local production of goods would answer to eco-efficiency guidelines and show consumers the process behind the final product, piquing their interest.

Importantly, the building becomes a place of visibility, where the culture of making is showcased and integrated into society. Beyond these spatial implications, the architectural response also needed to improve social and financial accessibility, foster sustainable learning practices, and strengthen community identity.

Looking ahead, the future of the neighboring Opel factory is uncertain.
Productive activities will largely be safeguarded, although quite possible in a different form, but ideas for a more integrated approach with culture, recreation, and education have already been introduced. Due to its size, the building and by extension the surrounding area would require extensive reorganization in order to qualitatively accommodate these functions. These design opportunities have thus far been explored by students at the TU Wien during the academic year 2024-2025 on a masterplan scale. Potential future collaboration and resource sharing between the Productive Campus and Opel Werk could unlock new opportunities on a larger scale and offer a valuable platform to further evaluate and refine the proposed strategies.

Beyond the proposed site-specific solution, the thesis aims to contribute to broader urban and architectural discourse on adaptive reuse, industrial heritage, and socio-economic sustainability. Accordingly, the Productive Campus argues for a shift in how architects and urban planners conceptualise the city, namely as a dynamic network of interdependent activities. The laid-out strategies are thus to be thought of as elements in a designer's toolbox, where some could be easily implemented in existing facilities or organizations without major infrastructural adaptations, others are largely associated with a forward-thinking approach when it comes to new hybrid development projects. The architecture of the productive city should enable encounters, support skill-building and life-long learning, and secure economic diversity, qualities which are so far being exemplified in Aspern Seestadt since 2008.

Further exploration into policy-making tools such as community land trusts or educational funding models, co-ownership of resources, and the long-term adaptability of buildings in evolving labor markets, would be a valuable addition to the set of future-proofing strategies in this research.

Ultimately, the success of a truly livable city depends not only on infrastructural greatness, but on the ability to empower and involve all its citizens with space, opportunity, and pride: the people make the city.

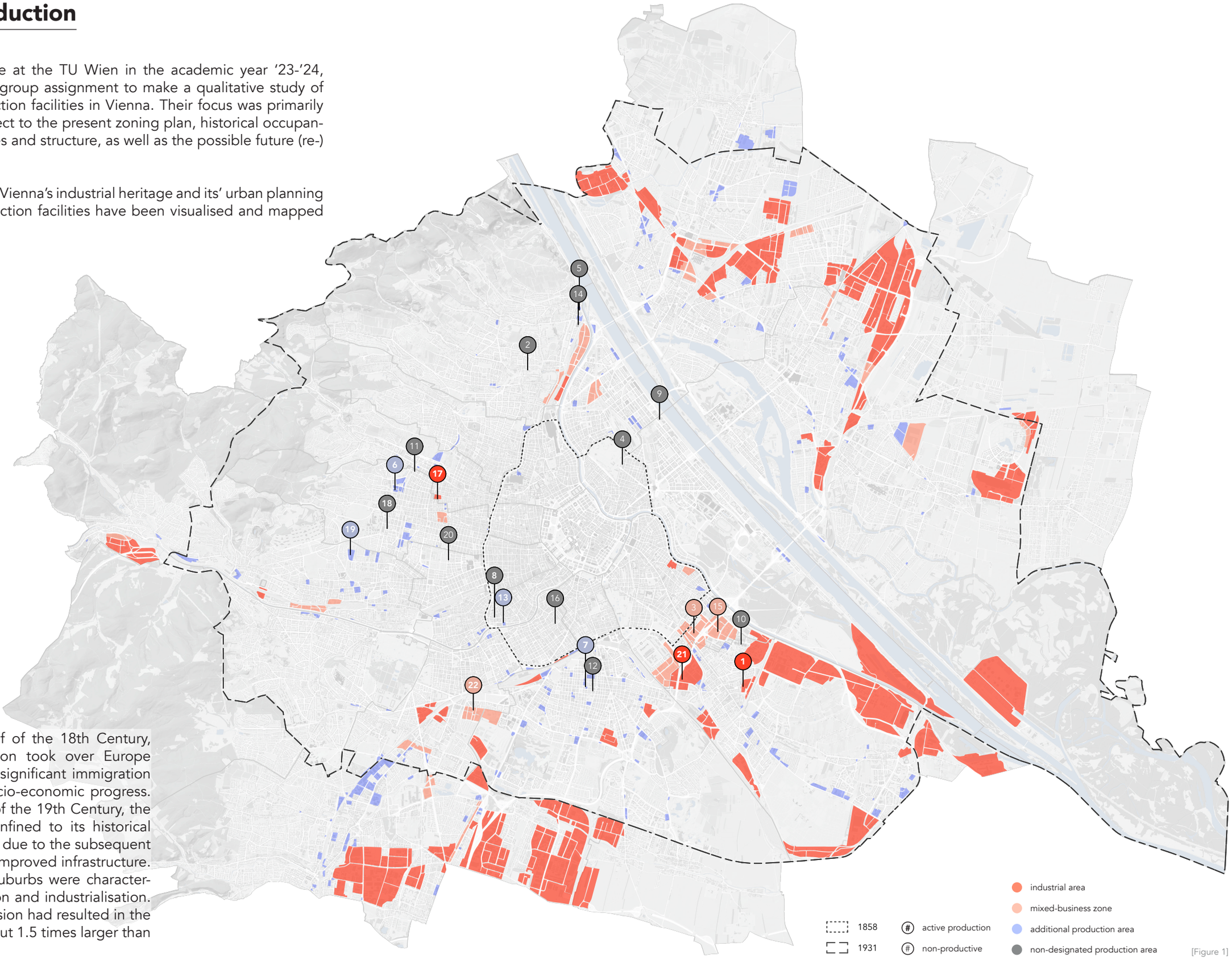


ADDENDUM

Viennese Production

During a design course at the TU Wien in the academic year ’23-’24, students were given a group assignment to make a qualitative study of several (former) production facilities in Vienna. Their focus was primarily on the location in respect to the present zoning plan, historical occupancy, architectural qualities and structure, as well as the possible future (re-) use for production.

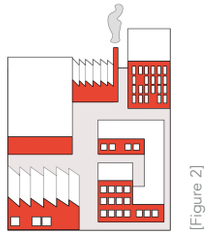
As a way to understand Vienna’s industrial heritage and its’ urban planning strategies, these production facilities have been visualised and mapped out.



[Figure 1]

During the second half of the 18th Century, the Industrial Revolution took over Europe by storm leading to a significant immigration rise to the city and socio-economic progress. From the second half of the 19th Century, the city was no longer confined to its historical 17th Century boundary due to the subsequent housing shortage and improved infrastructure. Rather, the Viennese suburbs were characterised by urban expansion and industrialisation. By 1954, further expansion had resulted in the current urban area, about 1.5 times larger than it was before.

The cases were divided into three categories according to their integration into the urban fabric, as was defined in the 'Produktive Stadt' mixed-use typologies. Within these categories an analysis of the designated productive zones in the Viennese Flächenwidmungsplan reveals that the architectural typology of the mixed-use developments does not necessarily correspond to the assigned zone. In some cases, sites that aren't officially zoned as 'productive' do fit within the architectural typology of productive mixed-use. If productive activities have ceased to exist on site, they could potentially be re-integrated according to the proposed mixing typologies much easier again in the future if the supporting amenities have remained intact.

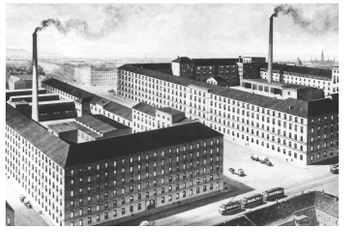

[Figure 2]

1


[Figure 3]

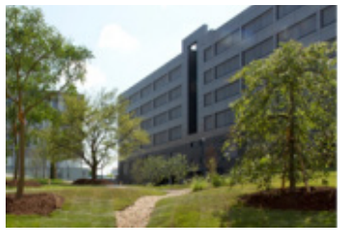
Mautner Markhof – 1861

17

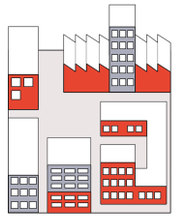

[Figure 4]

Manner – 1913

21


[Figure 5]

Otto Bock HealthCare Products GmbH – 1972


[Figure 6]

3


[Figure 7]

Marx Halle – 1880

5


[Figure 8]

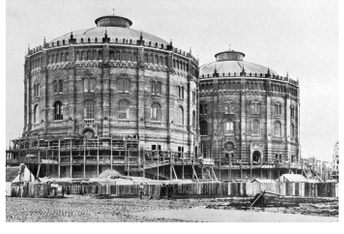
Handschuhfabrik – 1886

7


[Figure 9]

Maschinenfabrik Gläser – 1889

10

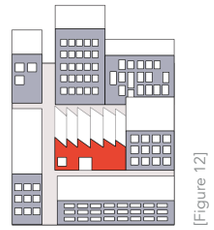

[Figure 10]

Gasometer – 1898

13


[Figure 11]

Jubiläumwerkstätte – 1909


[Figure 12]

15


[Figure 13]

Arena –1910

22


[Figure 14]

KapschTrafficCom – 2006

2


[Figure 15]

Zacherlfabrik – 1870

4


[Figure 16]

Mühlefabrik – 1881

6


[Figure 17]

Warchalowski, Eissler & Co – 1887

8


[Figure 18]

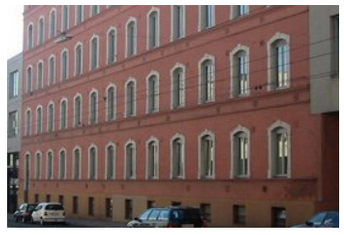
Listo-Film – 1893

9


[Figure 19]

Mörtelfabrik – 1896

11


[Figure 20]

Schokoladenfabrik – 1904

12


[Figure 21]

Maschinenfabrik Luzzato – 1907

16



[Figure 22]

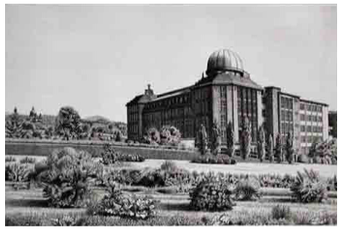
Bothe & Ehrmann – 1912

18


[Figure 23]

Aufzugsfabrik SOWITSCH – 1914

19


[Figure 24]

Philips Zeiss Werke – 1917

20

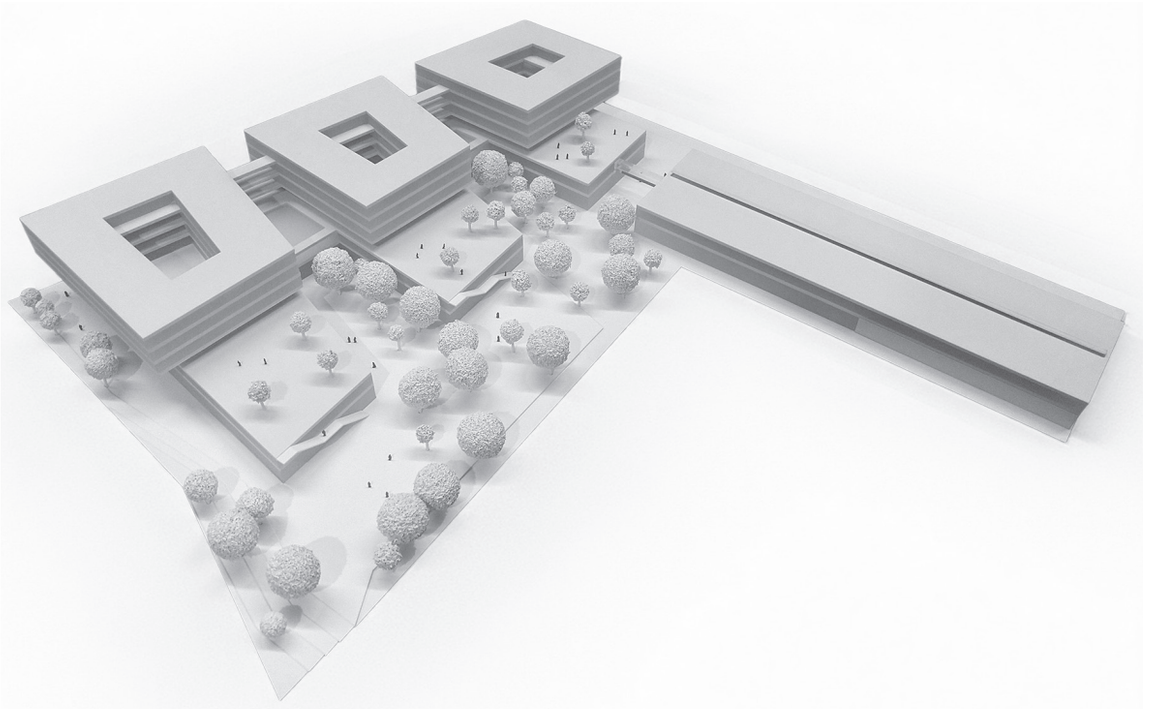

[Figure 25]

Bally AG – 1925

Zentralberufsschulgebäudes
Kronaus Mitterer Architekten

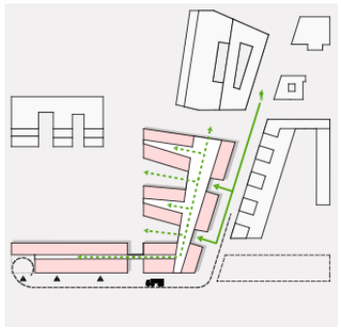


[Figure 26]



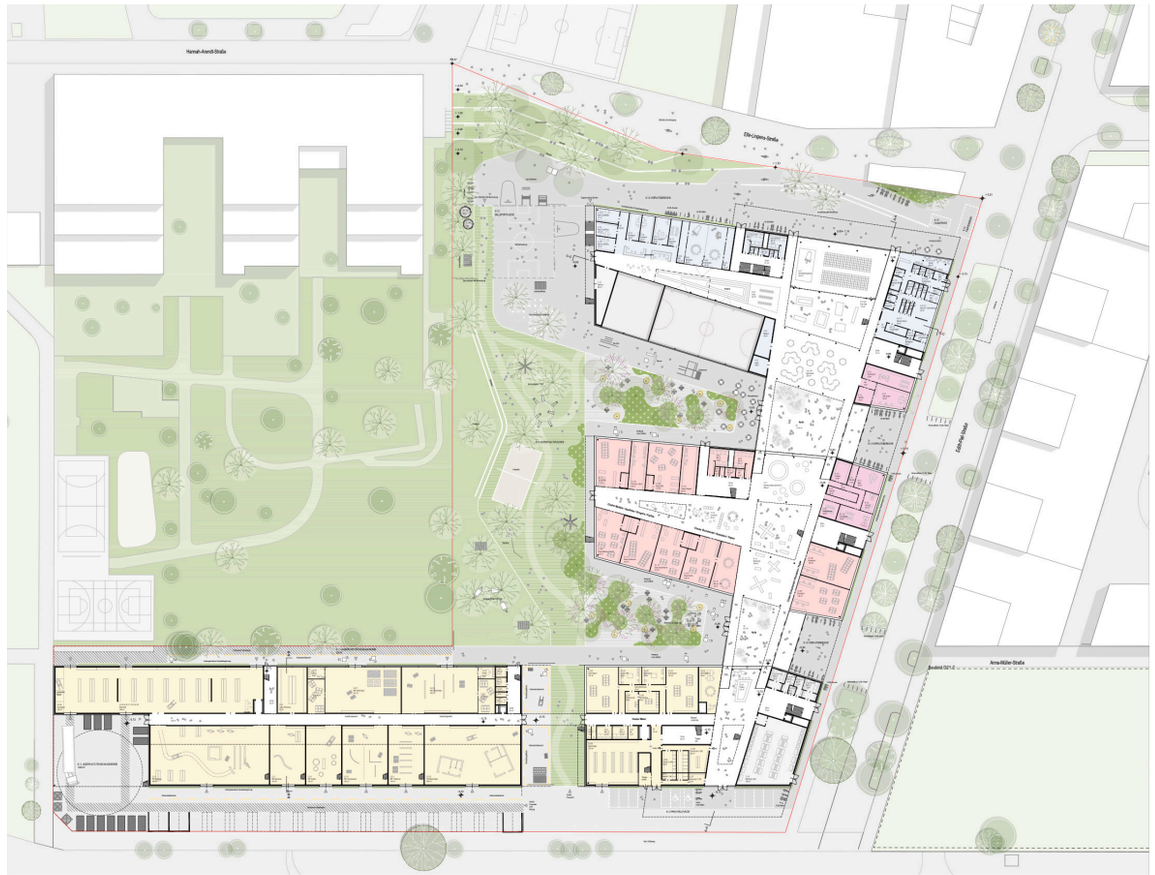
[Figure 27]







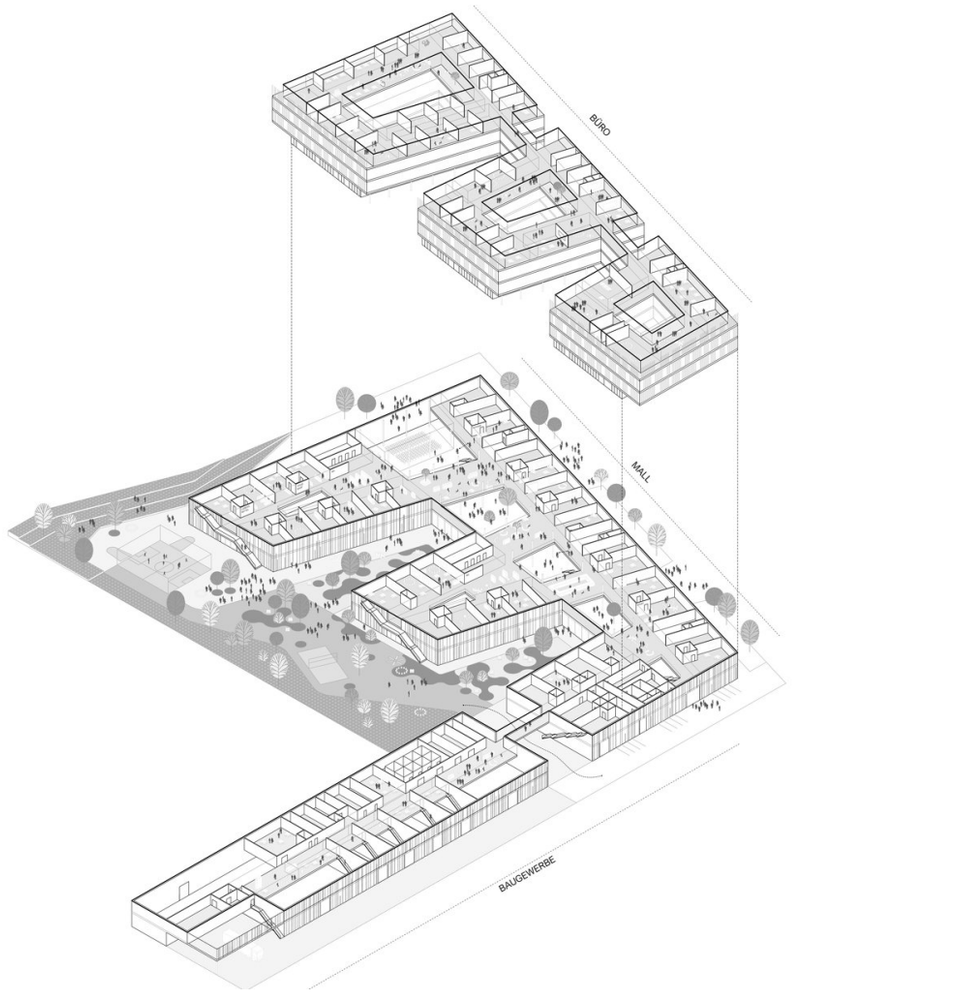
[Figure 28]



[Figure 29]



[Figure 30]



[Figure 31]



[Figure 32]

REFERENCES

[1] Driessen, C., Goddeeris, E., Kolenberg, N., & Vandenberghe, I. (2024). *Vienna Made* (0808168_57760437) [Master's thesis, KU Leuven]. Teneo. https://repository.teneo.libis.be/delivery/DeliveryManagerServlet?dps_pid=IE19284501&. Adapted by author in May 2025.

Re-Evaluating

Text

[1] Recorded by author during an oral exchange with Dorothee Huber in January 2025

Figures

[1] Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2017). *Fachkonzept produktive Stadt.* (No. 171). Vienna: Stadtentwicklung Wien. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-580956

[2]

a. Stadt Wien. *Stadtplan Wien.* https://www.wien.gv.at/stadtplan. Adapted by author in October 2024.
b. Offene Daten Österreich. (s.d). *Generalisierte Flächenwidmung Wien.* https://www.data.gv.at/katalog/dataset/a73c5b74-a9c9-4caa-a796-e4c832645614#resources. Mapped by author in October 2024.
c. Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2017). *Übersichtsplan Produktive Stadt.* Wienbibliothek im Rathaus. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-580956. Mapped by author in October 2024.

Future-Proofing the Most Liveable City

Text

[1] Stadt Wien. (s.d). *Vienna is the most liveable city in the world.* https://www.wien.gv.at/english/politics/international/comparison/ranking-economist.html

[2] Stadt Wien. (s.d). *Vienna in a global context.* https://www.wien.gv.at/english/politics/international/comparison/

[3] [4] Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2017). *Fachkonzept produktive Stadt.* (No. 171). Vienna: Stadtentwicklung Wien. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-580956

[5] Researchgate. (21 December 2021). *Four pillars of sustainable development – how important is human capital today? What does need to be sustainable in the eco-system?* https://www.researchgate.net/post/Four_pillars_of_sustainable_development-how_important_is_human_capital_today_What_does_need_to_be_sustainable_in_the_eco-system

[6] Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2017). *Fachkonzept produktive Stadt.* (No. 171). Vienna: Stadtentwicklung Wien. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-580956

[7] De Boeck, S., & Ryckewaert, M. (2020). *The Preservation of Productive Activities in Brussels: The Interplay between Zoning and Industrial Gentrification.* 5. 6. Urban Planning, 5(3), 351–363. https://doi.org/10.17645/up.v5i3.3092

[8] [9] [10] [11] [12] [13] [14] [15] [16] Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2017). *Fachkonzept produktive Stadt.* (No. 171). Vienna: Stadtentwicklung Wien. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-580956

Figures

[1] [2] Stadt Wien. (s.d.) *Bevölkerungsprognose – Statistiken.* https://www.wien.gv.at/statistik/publikationen/bev-prog-2023-zusammenfassung.html. Adapted by author in April 2025.

[3] Stadt Wien. (August 2024). *Vienna in Figures 2024.* https://www.wien.gv.at/statistik/pdf/viennainfigures-2024.pdf. Adapted by author in May 2025.

[4] Researchgate. (21 December 2021). *Four pillars of sustainable development – how important is human capital today? What does need to be sustainable in the eco-system?* https://www.researchgate.net/post/Four_pillars_of_sustainable_development-how_important_is_human_capital_today_What_does_need_to_be_sustainable_in_the_eco-system

[5] Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2014). *STEP 2025 Urban Development Plan Vienna.* Vienna: Stadtentwicklung Wien. https://www.wien.gv.at/stadtentwicklung/strategien/step/step2025/publikationen.html

[6] [7] Oesterreichische Nationalbank. (June 2015). *Monetary Policy and the Economy Q2/15.* Vienna: Oesterreichische Nationalbank. https://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy/2015/Monetary-Policy-and-the-Economy-Q2-15.html

[8] Municipal Department 23, Economic Affairs, Labour and Statistics. (September 2015). *Vienna's Research, Technology and Innovation Strategy.* Wienbibliothek im Rathaus. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-142071

[9] Oesterreichische Nationalbank. (June 2015). *Monetary Policy and the Economy Q2/15*. Vienna: Oesterreichische Nationalbank. https://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy/2015/Monetary-Policy-and-the-Economy-Q2-15.html

[10] Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (February 2022). *Smart City Strategy Vienna*. Vienna: Stadtentwicklung Wien. https://smartcity.wien.gv.at/wp-content/uploads/sites/3/2022/05/scwr_klima_2022_web-EN.pdf

Learning the Trade

Text

[1] Österreichs Agentur für Bildung und Internationalisierung. (s.d.) *The Austrian Education System*. https://bildungssystem.oead.at/en/

[2] Federal Ministry of Education, Science and Research. (2022). *Educational Paths in Austria 2022/23*. Vienna: Federal Ministry of Education, Science and Research. https://www.statistik.at/fileadmin/publications/BiZ-2020-2021.pdf.

Figures

[1]

a. Österreichs Agentur für Bildung und Internationalisierung. (s.d.) *The Austrian Education System*. https://bildungssystem.oead.at/fileadmin/Dokumente/bildungssystem.at/Plakate/EN_Plakate2024_Bildungssystem_web.pdf. Adapted by author in November 2024.
b. Statistik Austria. (2023). *Bildung in Zahlen 2021/22*. Verlag Österreich. https://www.statistik.at/fileadmin/publications/BiZ-2020-2021.pdf. Mapped by author in May 2025.

[2]

a. Stadt Wien. *Stadtplan Wien*. https://www.wien.gv.at/stadtplan. Mapped by author in October 2024.
b. Offene Daten Österreich. (s.d). *Generalisierte Flächenwidmung Wien*. https://www.data.gv.at/katalog/dataset/a73c5b74-a9c9-4caa-a796-e4c832645614#resources. Mapped by author in October 2024.
c. Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2017). *Übersichtsplan Produktive Stadt*. Wienbibliothek im Rathaus. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-580956. Mapped by author in October 2024.
d. Offene Daten Österreich. (June 2011). *Universitäten und Fachhochschulen Standorte Wien*. https://www.data.gv.at/katalog/en/dataset/3e62e13e-3955-494a-91b3-f00ab9e84b48#resources. Mapped by author in November 2024. Mapped by author in November 2024.

[2]

e. Offene Daten Österreich. (May 2011). *Schulen Standorte Wien*. https://www.data.gv.at/katalog/dataset/c1ba372b-dba2-4bce-b72e-b5c832eaaf44. Mapped by author in November 2024.
f. Bildungsdirektion Wien. (s.d.) *Mittlere und höhere Schulen für Mode*. https://www.bildung-wien.gv.at/dam/jcr:98c5ae8b-65c1-4fca-a911-bd5ec8821381/HUM_Mode.pdf. Mapped by author in November 2024.
g. Bildungsdirektion Wien. (s.d.). *Schule für Kunst und Gestaltung*. https://www.bildung-wien.gv.at/dam/jcr:3f6236fa-43cc-4c22-8e79-127a5471db54/HUM_Kunst%20und%20Gestaltung.pdf. Mapped by author in November 2024.
h. Bildungsdirektion Wien. (s.d.) Mittlere und Höhere technische Schulen. https://www.bildung-wien.gv.at/dam/jcr:57db5cf4-27b5-4024-9ddd-6a33ad6421e9/H%C3%B6here%20Technische%20Lehranstalt.pdf. Mapped by author in November 2024.
i. Cronkleton, E. (14 March 2019). *What is the Average Walking Speed of An Adult. Healthline*. https://www.healthline.com/health/exercise-fitness/average-walking-speed#takeaway. Mapped by author in December 2024.

Case Studies

Text

[1] C.21. (s.d.) *Atelierhaus C.21*. https://www.c-21.at

[2] Mueller-Reimann Architekten (s.d.) *Berlin Decks*. https://mueller-reimann.de/projekte/berlin-decks

[3] Handwerkskammer Hamburg. (s.d.) *Handwerkerhof Meistermeile*.https://www.hwk-hamburg.de/artikel/handwerkerhof-meistermeile-93%2C404%2C1817.html

[4] Office KGDVS. (s.d.) *University Campus – Antwerp*. https://officekgdvs.com/projects/301

Figures

[1] Müller, S. (s.d.) *Atelierhaus C.21, street view* [Photograph]. EUmiesaward. https://www.miesarch.com/work/5020

[2] (s.n.) (s.d.) *Berlin Decks* [Rendered image]. https://mueller-reimann.de/projekte/berlin-decks.

[3] ISOHAUS GmbH & Co. KG. (s.d.) *Handwerkerhof Meistermeile* [Photograph]. https://www.hwk-hamburg.de/artikel/handwerkerhof-meistermeile-93%2C404%2C1817.html

[4] (s.n.) (s.d.) *AP Hogeschool - Campus Hallen* [Photograph]. AP Hogeschool. https://www.ap.be/campus/campus-hallen

[5] Image produced by author based on Google. (4 May 2023). *Atelierhaus C.21* [Aerial photograph]. Google Earth Pro. Adapted by author in April 2025.

[6] Image produced by author based on Google. (31 May 2021). *Gewerbehof Meistermeile* [Aerial photograph]. Google Earth Pro. Adapted by author in April 2025.

[7] Image produced by author based on Google. (20 July 2022). *Berlin Decks* [Aerial photograph]. Google Earth Pro. Adapted by author in April 2025.

[8] Image produced by author based on Google. (28 April 2022). *AP Hogeschool* [Aerial photograph]. Google Earth Pro. Adapted by author in April 2025.

[9] [13] [17] [21] EUmiesaward. (s.d.). *Atelierhaus C.21.* https://www.miesarch.com/work/5020. Adapted by author in November 2024.

[10] [14] [18] [22] Mueller-Reimann Architekten. (s.d.) *Berlin Decks.* https://mueller-reimann.de/projekte/berlin-decks. Adapted by author in November 2024.

[11] [15] [19] Handwerkskammer Hamburg. (s.d.) *Handwerkerhof Meistermeile*.https://www.hwk-hamburg.de/artikel/handwerkerhof-meistermeile-93%2C404%2C1817.html. Adapted by author in November 2024.

[12] [16] [20] [24] Office KGDVS. (s.d.) *University Campus – Antwerp*. https://officekgdvs.com/projects/301. Adapted by author in December 2024.

A Productive Campus

Text

[1] Wohnfonds Wien (March 2019). *Aspern – The Seestadt of Vienna; Subsidized living in a new urban district.* Vienna: Wohnfonds Wien, fonds fur wohnbau und stadterneuerung. https://www.wohnfonds.wien.at/media/Website%20PDF-INFO%20Downloads/English%20Information/aspern_seestadt_2019_english-pdf.pdf

[2] Apern Seestadt. (October 2021). *Aspern Seestadt Facts & Figures.* https://www.aspern-seestadt.at/jart/prj3/aspern/data/downloads/2021_aspern_Seestadt_Facts_Figures%20EN_Q4.pdf

[3] Stadt Wien. (s.d.) *Zentralberufsschulgebaüdes Seestadt Aspern.* https://www.wien.gv.at/stadtplanung/berufsschule-edith-piaf-strasse

Figures

[1] Image produced by author based on Google. (23 November 2024). *Aspern Seestadt 2024* [Aerial photograph]. Google Earth Pro. Adapted by author in May 2025.

[2] Image produced by author based on Google. (25 August 2001). *Aspern Seestadt 2001* [Aerial photograph]. Google Earth Pro.

[3] Image produced by author based on Google. (17 August 2011). *Aspern Seestadt 2011* [Aerial photograph]. Google Earth Pro.

[4] Image produced by author based on Google. (29 August 2014). *Aspern Seestadt 2014* [Aerial photograph]. Google Earth Pro.

Addendum

Figures

[1]
a. Stadt Wien. *Stadtplan Wien.* https://www.wien.gv.at/stadtplan. Adapted by author in October 2024.
b. Offene Daten Österreich. (s.d). *Generalisierte Flächenwidmung Wien.* https://www.data.gv.at/katalog/dataset/a73c5b74-a9c9-4caa-a796-e4c832645614#resources. Mapped by author in October 2024.
c. Magistratabteilung 18, Stadtentwicklung und Stadtplanung. (2017). *Übersichtsplan Produktive Stadt.* Wienbibliothek im Rathaus. https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-580956. Mapped by author in October 2024.
d. Stadt Wien. (s.d.) *Wien Kulturgut - Stadtplan 1858.* https://www.wien.gv.at/kulturportal/public/ Mapped by author in March 2025.
e. (s.n.) (s.d.) *Historischer Atlas von Wien. Die Grenzen von "Groß Wien" (1938 - 1946/1954) sowie davor und danach* [Historical map]. Stadt Wien. https://www.wien.gv.at/actaproweb2/benutzung/image.xhtml?id=51dc47811471c4d9b1b3239793aa986d. Mapped by author in March 2025.
f. TU Wien. (s.d). 210.010 *Projektarbeit Bauprozessmanagement – Integrale Planung und Industriebau.* https://tiss.tuwien.ac.at/course/courseDetails.xhtml?dswid=9643&dsrid=450&semester=2024W&courseNr=210010. Mapped by author in November 2024 based on the information provided by the course submissions of students at TU Wien during the summer semester of 2024.

[2] [6] [12] Driessen, C., Goddeeris, E., Kolenberg, N., & Vandenberghe, I. (2024). *Vienna Made* (0808168_57760437) [Master's thesis, KU Leuven]. Teneo. https://repository.teneo.libis.be/delivery/DeliveryManagerServlet?dps_pid=IE19284501&. Adapted by author in December 2024.

[3] Mautner Markhof. (s.d.) *Unthernehmen*. https://www.dynastiemautnermarkhof.com/de/unternehmen/. Consulted by author in December 2024.

[4] Manner. (s.d.) *Manner Geschichte*. https://www.manner.com/de-DE/uber-manner/manner-geschichte. Consulted by author in December 2024.

[5] Input. (s.d.) *Otto Bock Healthcare Products GMBH, Austria*. http://www.input-h2020.eu/otto-bock-healthcare-products-gmbh-austria/. Consulted by author in June 2025.

[7] Meine Klima Zukunft. (2024). *Trade fair location - KlimaZukunft*. https://www.meineklimazukunft.com/lang%3Den/1206.htm. Consulted by author in June 2025.

[8] Michael's Roots in Vienna. (15 July 2024). *Handschuhfabrik J.E.Zacharias*. https://michaelsrootsinvienna.at/blog/2024/07/15/handschuhfabrik-j-e-zacharias/ .michaelsrootsinvienna.at. Consulted by author in June 2025.

[9] Image produced by author based on Google. (Sept 2023). *Maschinenfabrik Gläser*. [Photograph]. Google Earth Pro. Consulted by author in December 2024.

[10] Wien Energie. (s.d.) *Inbetriebnahme Gaswerk in Simmering – 1899*. https://www.wienenergie.at/ueber-uns/meilensteine/1899-inbetriebnahme-gaswerk-in-simmering/ .wienenergie.at. Consulted by author in June 2025.

[11] Kaiser Franz Josef I. Jubiläumfonds für Werkstättengebäude. (s.d.) *Werkstättenhof Mollargasse*. https://www.kfj-fonds.at/werkstaetten-hof-mollardgasse/. Consulted by author in December 2024.

[13] Schlot. (s.d.) *Schweineschlachthaus St. Marx – Arena Wien*. https://www.schlot.at/2024/01/09/schweineschlachthaus_st_marx_arena_wien/. Consulted by author in December 2024.

[14] Loquis. (s.d.) *Kapsch AG , Wien Podcast*. https://www.loquis.com/de/loquis/2019994/Kapsch%2BAG.geschichtewiki.wien.gv.at+5loquis.com+5de.wikipedia.org+5. Consulted by author in June 2025.

[15] Wien Geschichte Wiki. (s.d.) *Zacherlfabrik*. https://www.geschichtewiki.wien.gv.at/Zacherlfabrik.geschichtewiki.wien.gv.at+1geschichtewiki.wien.gv.at+1. Consulted by author in June 2025.

[16] Wien Geschichte Wiki. (s.d.) *Mühlen*. https://www.geschichtewiki.wien.gv.at/M%C3%BChlen .geschichtewiki.wien.gv.at. Consulted by author in June 2025.

[17] Mein Bezirk. (7 January 2018). *Ehemalige Maschinenfabrik Warchalowski, Eissler & Co*. https://www.meinbezirk.at/ottakring/c-wirtschaft/ehemalige-maschinenfabrik-warchalowski-eissler-und-co_a2368000. Consulted by author in December 2024.

[18] Normalverbraucher, O. (8 January 2009). *Listo-Film Wien Fassade 2009*. Wikipedia. https://de.m.wikipedia.org/wiki/Datei%3AListo-Film_Wien_Fassade_2009.jpg .de.m.wikipedia.org. Consulted by author in June 2025.

[19] archINFORM. (23 April 2025) *Projekt 27188*. https://deu.archinform.net/projekte/27188.htm. Consulted by author in June 2025.

[20] archINFORM. (23 April 2025). *Projekt 41452*. archINFORM. https://www.archinform.net/projekte/41452.htm. Consulted by author in June 2025.

[21] archINFORM. (23 April 2025). *Projekt 25743*. https://www.archinform.net/projekte/25743.htm. Consulted by author in June 2025.

[22] Heilinger, R., (29 August 2018). *Wohn- und Geschäftshaus 6486 in A-1050 Wien*. https://de.m.wikipedia.org/wiki/Datei%3AWohn-_und_Geschäftshaus_6486_in_A-1050_Wien.jpg. Consulted by author in June

[23] Schlot. (2018). *1160 Wien - SOWITSCH Aufzüge*. https://www.schlot.at/2018/10/11/at-1160-wien-sowitsch-aufzuege/. Consulted by author in December 2024.

[24] Bayer, F. (1986). *Wiener Radiowerk – Zeiss Gebäude* [Etching]. Galerie Tulbingerkogel. https://www.gtk.at/kunstwerke/franz-bayer/philips---wiener-radiowerk---zeiss-geb-ude---radierung-aus-1986/3713. Consulted by author in June 2025.

[25] Bild des Monats. (8 March 2021). *Die Stechuhr der Firma Bally*. https://bm15blog.wordpress.com/2021/03/08/stechuhr-bally/. Consulted by author in December 2024.

[26] [27] [30] [31] Kronaus Mitterer. (s.d.) *Zentralberufsschule Wien Seestadt Aspern*. https://www.kronaus-mitterer.at/projekte/zentralberufsschule-wien-seestadt-aspern/

[28] [29] [32] Wettbewerborganisation. (s.d.) *Neubau des Zentralberufsschulgebäudes in Wien 22. Edith-Piaf-Straße, Seestadt Aspern*. http://www.wettbewerbsorganisation.at/upload/ausstellungen/weitere/12/03.pdf

General Knowledge

FABRICations. (19 July 2024). *De Werkende Woonwijk* [Audio Podcast]. https://open.spotify.com/show/1tAr3XLJ0qJ0mWgGASA3Eo?si=611cf1b68e154f63

De Boeck, S., & Bassens, D. (2022) *De essentiële economie : motor voor een sociaal-ecologische transitie*. Sarah De Boeck (ed.). Brussel: ASP.

Pamer, V. (2019). *Urban planning in the most liveable city: Vienna*. *Urban Research & Practice*, 12(3), 285–295. https://doi.org/10.1080/17535069.2019.1635728

Pietsch, S., Schreurs, E., Mandias, S., & Broekhuizen, D. (2018). *The New Craft School*. Jap Sam Books.

Studio ‘Vienna Made’

Britt Van Gulck