INDUSTRIAL REVIVAL

An incremental reaffectation strategy for Sappi Maastricht.

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Urban architecture studio

Introduction

At the beginning of this graduation year, there is a theme: Glaneurs, Glaneuse.

'We are concerned with the city as a man-made landscape. The studio intends to reap and sow pieces of the city, to work with the existing and make use of its resources and potentials.'

In this case, gleaning is interpreted as an attitude to valorize residues, leftovers, what people would consider as non-space. By looking more deeply, diving into the site, and progressively identifying different layers of value (political, economic, architectural, etc), this research aims to discuss the image of industries in urban districts. Sometimes discrete, sometimes prominent, we often only remark their existence once they are gone.

'There is a need to invent new processes and business models, more gradual and cooperative transformations working with existing building stock {…}.'

What Markus Schaefer (Hosoya, 2021) suggests in the book "Industrious city" is to better consider the value existing buildings instead of too simply decide to tear them down. He suggests elaborating new reconversion strategies, especially in urban environments which consider social, cultural, and societal parameters, more than only looking for financial profitability. Looking at former industrial campuses anchored in urban tissues, too often their reconversion has been oriented towards a tertiarization of city districts, somehow replacing a monofunctional industrial campus by another one.

In that respect, the case of Maastricht is particularly interesting to investigate. Considered for a long time as the first industrial city in the Netherlands, such slogan as become more a marketing strategy to develop tourism than a real representation of what the job market looks like. In December 2021, one of the biggest employers of the city, Sappi, a South-African paper company, announced leaving its historical situation in North Maastricht (Philippens, 2021). The departure of the paper mill, beyond the social disaster the loss of more than 600 jobs represents, also brings back on the table the status of industrial spaces in urban environments. It also offers an opportunity to draw a more inclusive strategy, as suggested by Markus Schaefer, for the redevelopment of this testimony of the industrial prosperity of Maastricht.

In that respect, this research aims to evaluate the potential interest in redeveloping productive activities in the Sappi campus and to elaborate a strategy for the reprogramming of the industrial site into a more inclusive productive urban environment.

Industrial History

Reaffectation Strategy

Conclusion

Industrial History.

Industrial History

Early Industrial Development.

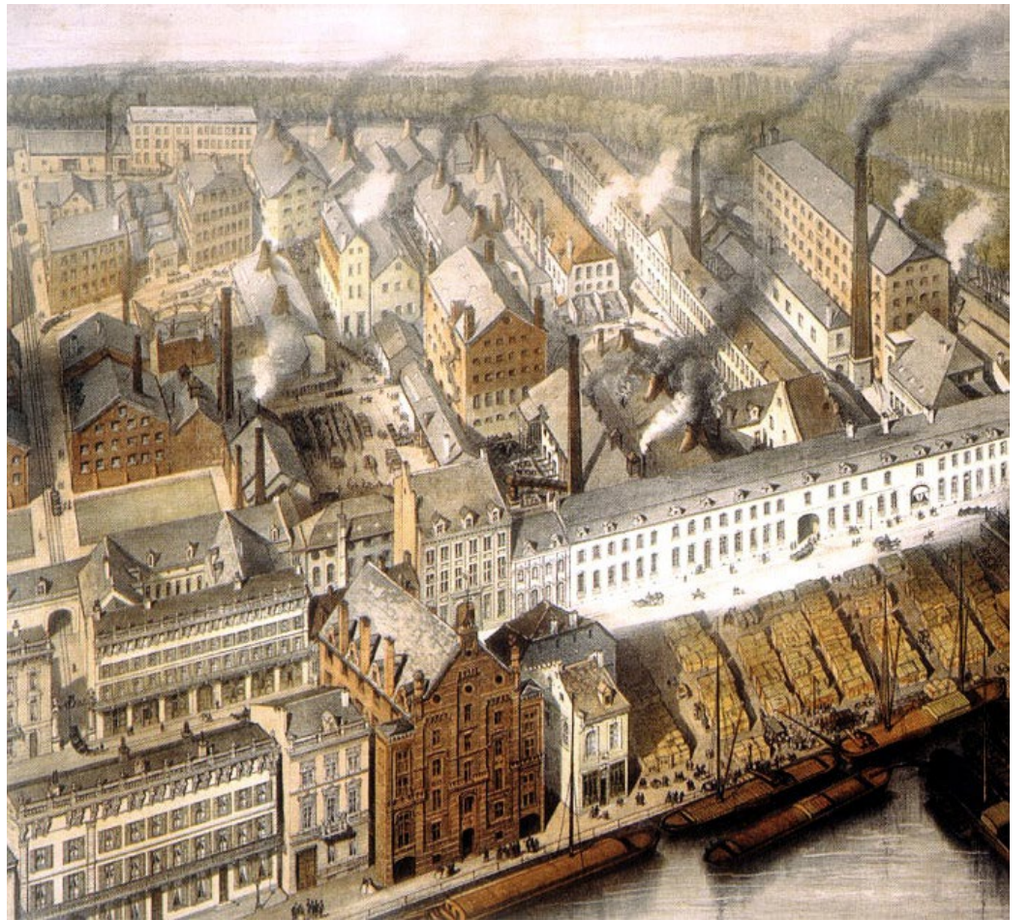


Figure 1 Cité ouvrière, Maastricht. 1865.

Maastricht has an important merchant and industrial history which was initiated during the Roman period with the construction of a bridge crossing the Meuse. Maastricht was then an important checkpoint on the road between Cologne and Bavay. Indeed, Maastricht is located along the Meuse where the river was crossable as stated by the origin of its name. Maas means the Meuse in Dutch meanwhile *-tricht* refers to a Latin etymology *Traiectu* which means the passage, the ford (ref). Known as an important religious stronghold, the city flourished as a place of religious power and pilgrimage. The city also has seen an important economic development during Middle age with the apparition of a wool and leather market.

However, the real development of Maastricht as an industrial center appeared in the early 19th century when, consequently to the opening of the Bassin, a harbour, Petrus Regout founds four different companies on the North of the city: a ceramic, a glass, a rubber and a gaz industry. In the meantime, on eastern side of the Meuse, the Société Céramique is established. Few years later, the *Lhoëst – Weustenraad & Cie*, manufacturing paper, joins Petrus Regout around the Bassin. Both industries chose Maastricht for geographical reasons: the first one, for the proximity with argil carries, the other one for its dependence to the city for its raw material, rags which were collected through the city by ragpickers and for the important amount of water needed in the fabrication process of paper. Both industries forged the premises of mechanized industrial production in the Netherlands, allowing them to considerably increase their production. The Meuse rapidly gave another opportunity to both sectors when production increased. Indeed, the river and dug canals linked to it, allowed them to export their products in surrounding countries and even in South America and Canada, exporting along with the final product, the local craftmanship of Maastricht.

Figure 2 The Bassin, Maastricht.

Sappi Maastricht.

1850

In 1850, the Lhoëst's family buys a fragment of the site located on the North side of the Bassin, and creates the "Lommelefabriek" with the construction of the white building that is still standing today as the oldest industrial building of the Netherlands. The vertical typology of this building is quite unusual in the industrial landscape surrounding it. The choice for a vertical building was justified by the few possibilities of expansion the site was offering, stuck between the defense wall, the Bassin and the Meuse. The factory grew a lot during the first decades of its existence, employing more than 700 people.

1867

In 1867, the defense character of Maastricht was removed together with the demolition of the fortress. The factory site could expend more to the North reintegrating low-rise industrial buildings until the Fransensingel, the extansion of the Frontensingel, a series of boulevards surrounding the city drawn by architect W. J. Brender à Brandis in 1873. On the northern site of the Fransensingel, a worker residential district was built "the Amelie Kwartier" once again blocking the expansion of the factory to the North.

1875

In 1875, the name of the company changes and becomes "Koninklijke Nederlandse Papierfabriek" (KNP) and exports its paper in England, France, Australia and South America, taking advantage of the direct connexion to ports of Rotterdam and Antwerp via the Meuse and the Albert Canal.

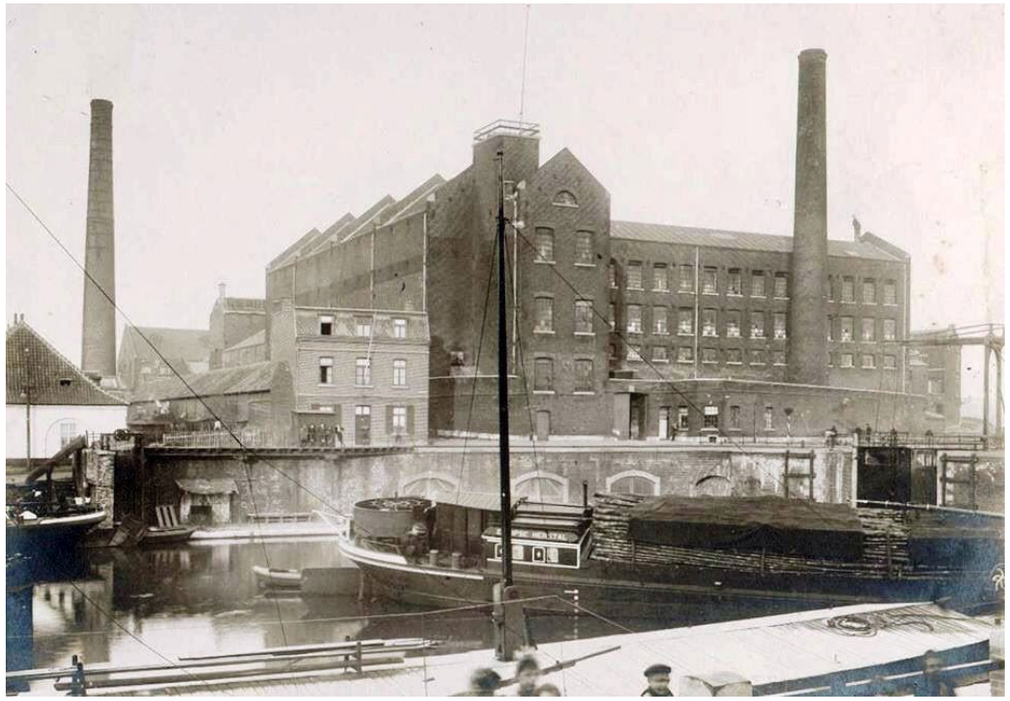


Figure 3 The Lomelefebrik, Maastricht. 1925.

Industrial History

War time and Global market.

Figure 4 M4 tanks production line, Detroit, USA. 1944.

From man-based to machine-based.

The beginning of the 20th century is marked by an important turn into the development of production processes. The research of production efficiency, developed in the early twentieth century by Henri Ford and theorized by Frederic W. Taylor in 1911 under the name “scientific management” meant to subdivide work organization both horizontally and vertically (ref). The rationalization of production influenced the manner industrial spaces were conceived : from all-in-one buildings where each worker was following the entire workflow to a series of machine-based envelopes in which products were moving from one worker to the other, each of them representing a chain link of the general production process. The period was also marked by the development of new materials allowing such lightweight envelopes to be built: steel, concrete, glass (Guillen, 1997). Innovations offering chearer and faster industrial buildings.

1950

Though the paper fabriek in Maastricht continued its growth during the beginning of the 20th century with the construction of new storage and production warehouses along the Meuse, the economic recession, together with both world wars drastically reduced production pace. It’s only at the beginning of the 50’s that factory modernized its production process with the construction of the PM-5 building hosting a new paper machine able to continuously produce coated paper. In the 60’s a new generation machine was built: PM-6 on the northern site of the fransensingel which was then free with the bombing of Amelie residential district during World War II. This new machine increased the production pace which had to be continuously fed with pulp paper. In that respect, the construction of PM-6 was also followed by the erecting of storage spaces along the Fransensingel.

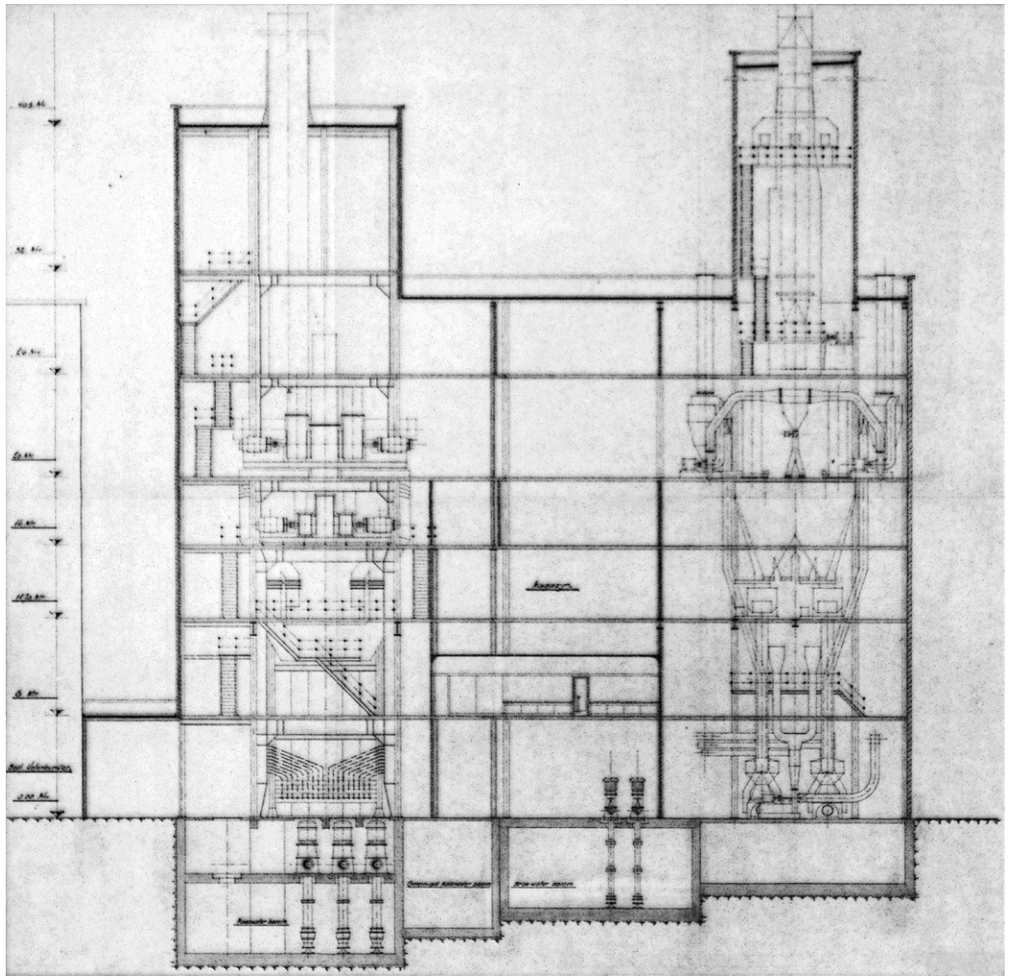


Figure 5 KNP Power plant section, Maastricht. 1950.

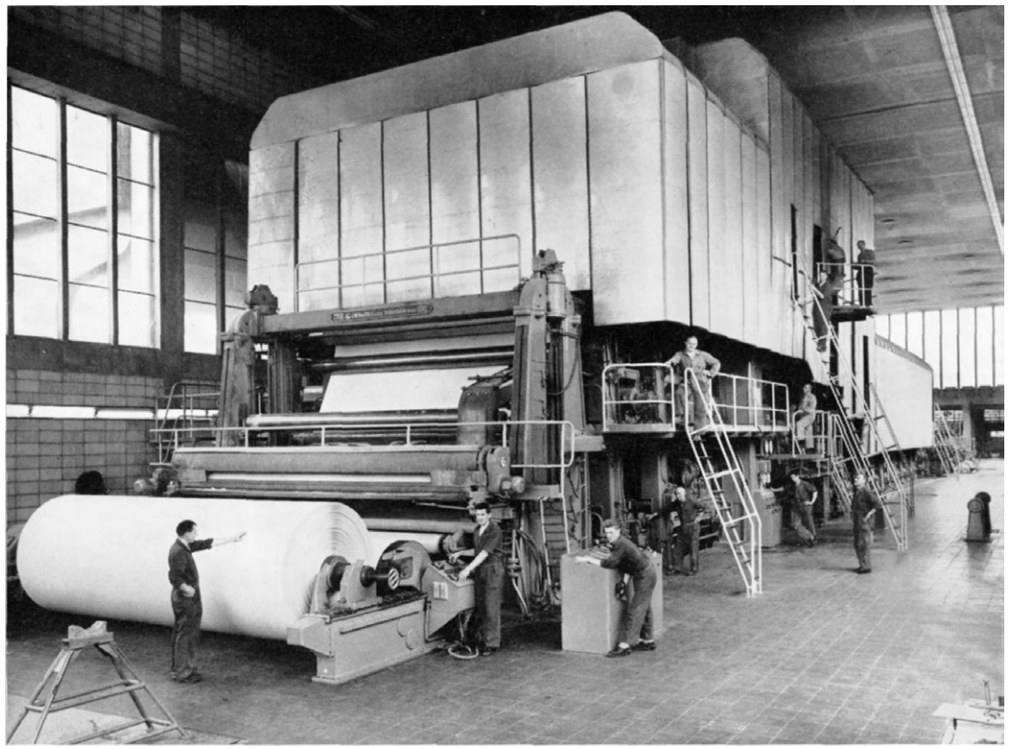


Figure 6 Paper Machine, Nijmegen.

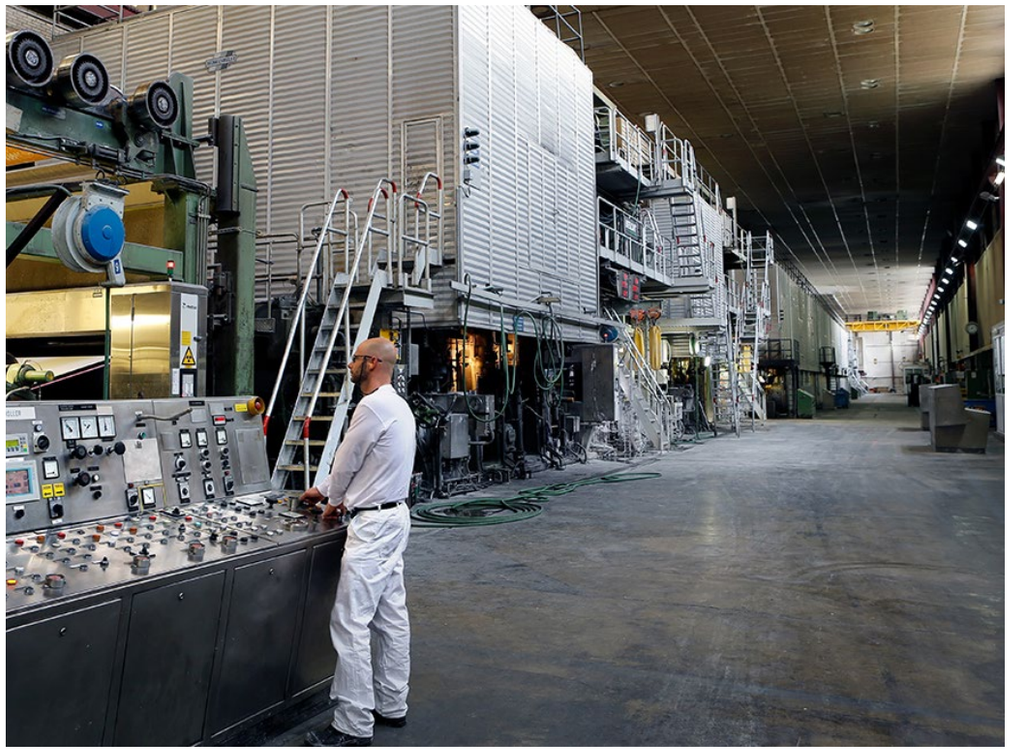


Figure 7 PM-6 Sappi, Maastricht. 2018.

Reliable infrastructure networks.

Wartimes have also influenced the development of a more efficient strategy regarding supply chain based on regional and international range of action. The continuous necessity of supplying fronts in the European conflicts led to the development of a system that put production sites and distribution networks into close relationship to optimize the supply. A system based on a regional scale and the decentralization of industries in hinterlands where urban logistics issues would be minimized.

Decades following the end of World War II have seen important investments made in infrastructure networks as well as important innovations in the transport sectors. The standardization of transport pallets, a wooden structure of 1,20m x 0,80m, created in 1940's New York to optimize transport and storage volumes as well as its manutention via adapted engines such as forklifts changed the transportation sector. However, it's the invention of the ship container in 1956 by Malcolm McLean that represents the biggest step forwards in that sector, drastically accelerating the transfer of products from a boat to a truck.

The standardization of transportation units and dedicated engines also influenced the development of new building typologies such as transportation hubs also called logistic centres. These new typologies work as transitory stop in a new form of geographic economy: the constellation (schema). In such buildings, products from different suppliers are stored together in waiting for being exported towards final clients or another logistic hub. All in all, investments made on infrastructure and optimization of transport chains allowed companies to develop their businesses worldwide as long as they were connected to transportation networks. This new economy increased the interest of companies to be located around transportation hubs, drastically reducing intermediary transportation costs (ref).

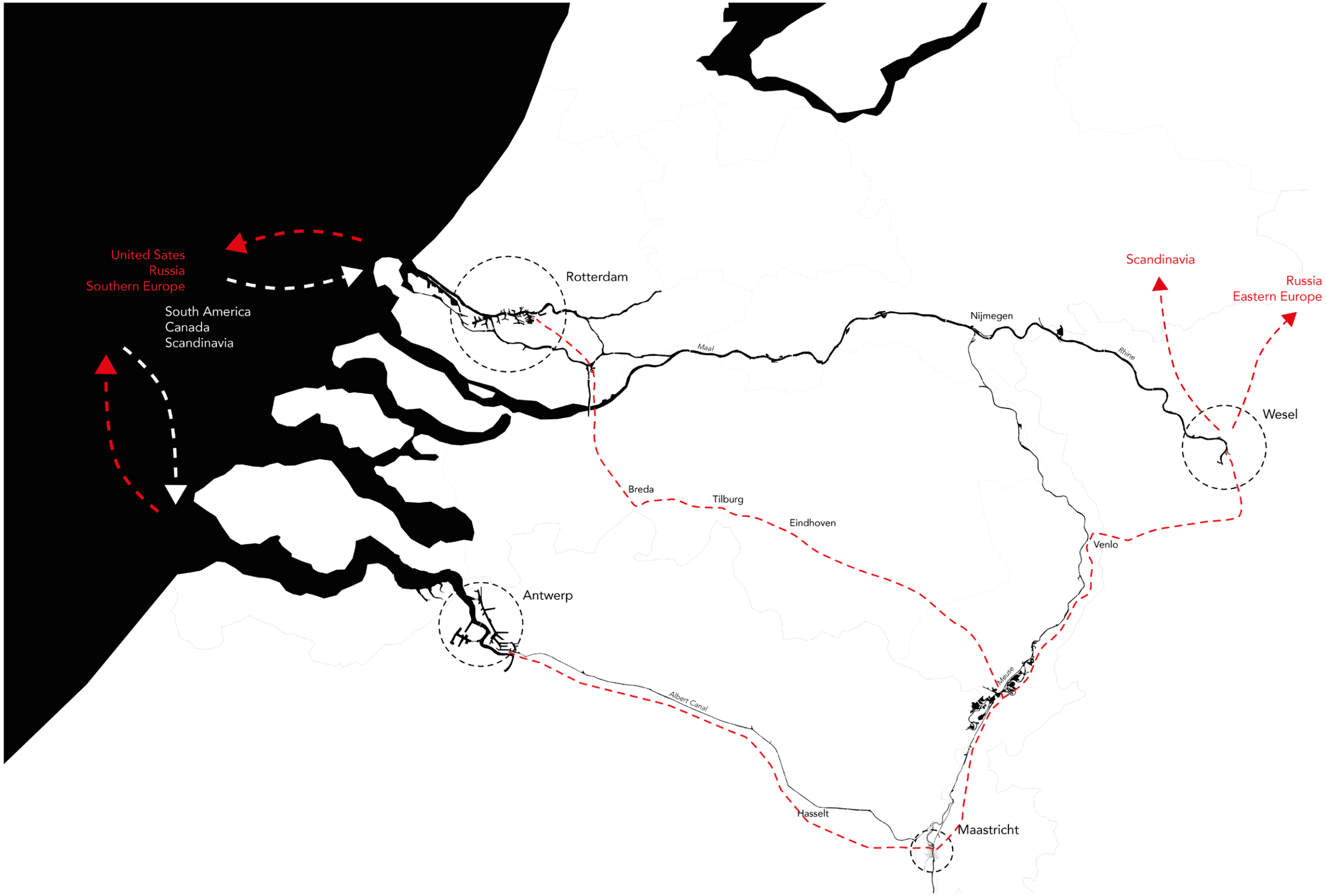
The development of clusters around such nodes was also supported by political regulation which organized land use in creating economic zones around them preserving a competitive land price. Aware of the tendency of urban exodus of industries towards transportation hubs or low-wage regions, the municipality of Maastricht proceeded to the creation of a new economic zone outside of the city organized around a new harbour along the Meuse. The Beatrixhaven was built in the 1960's and has seen the development of a new industrial era for the city with companies specialized in steel manufacturing, materials recycling, and engines manufacturing.

1990

In 1998, the south-african paper company Sappi buys the Maastricht paper mill as well as the ones of Lanaken and Nijmegen. Following its intention to create an European distribution network shipping paper by trucks through Germany, the nothern production site is optimized with the construction in 2005 of a logistic center for exports. A contrario, the southern part of the site is progressively left vacant or transformed into poorly optimized storage spaces. Oldest paper machines halls (PM-2, PM-3, PM-4 and PM-5) are emptied and left vacant since then.

Considered now as a chain link of the Sappi global paper production, Maastricht is integrated in the system with the construction of an innovative and automated logistics centre. Taking advantage of its strategic position along the Meuse, close to Germany and Belgium, the site develops its production internationally, importing cellulose from South-America through Rotterdam and Antwerp harbours by boat and reintegrates final products in the distribution network of Sappi Europe centralized in the dispatching logistics centre of Wesel in Germany.

Figure 8 Aerial picture of the Beatrixhaven, Maastricht.


United Sates
Russia
Southern Europe
South America
Canada
Scandinavia
Rotterdam
Maal
Nijmegen
Rhine
Scandinavia
Russia
Eastern Europe
Wesel
Breda
Tilburg
Eindhoven
Venlo
Antwerp
Albert Canal
Meuse
Hasselt
Maastricht

Delocalization / Reconversion.

The situation in Maastricht and the disappearing of its industrial economy also brings the question of what to do with these important pieces of valuable lands in the city centre. If we look back at the reconversion of Société Céramique and Sphinx, a certain trend transcends both situations: a will of orienting the city as a more residential, cultural and service-based environment meanwhile concentrating productive spaces in economic clusters.

SOCIÉTÉ CÉRAMIQUE

In the case of the Société Céramique, the company sold its plot located on the Eastern side of the Meuse in 1987 to the municipality which mandated architect Jo Coenen for the elaboration of a masterplan. In 1990, Société Céramique, bought by major concurrent Royal Sphinx, leaves its historical site to be fusioned with the Sphinx bastion along the Bassin. With this project, the municipality of Maastricht aims to change its image of a regional city into an international one underlining its leading position on the border territory it is located in. The new district will englobe museums, administrative, 283 service-oriented facilities (among which one of the biggest employers of the city: Vodafone) along a majority of 1200 housing units. The redevelopment strategy brakes ground in the same year with the dismantelement of the entire industrial site except the Wiebengahal which will be later refurbished as one of the two very last testimonies of any production activities in the area together with Bordenhal. The reconversion of the site took almost 20 years to be completed and ended up with the inauguration of the cultural centre Centre Céramique in 2010.

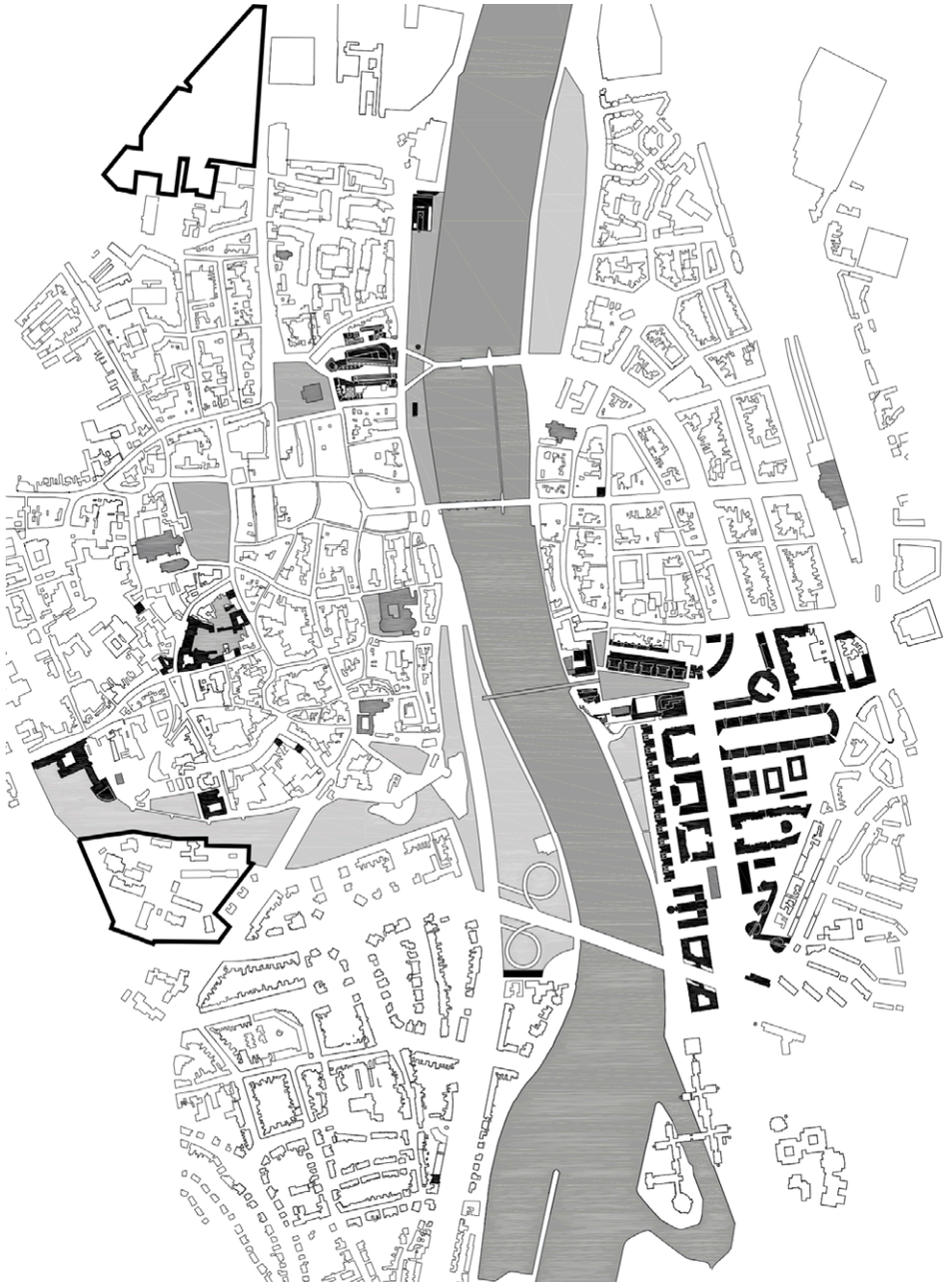


Figure 9 Urban plan, Maastricht, 1990.

Figure 10 Aerial picture of the Société Céramique, Maastricht. 1974.

Figure 11 Aerial picture of the Ceramique district, 2000.

Sphinx District

In the case of the Sphinx kwartier, the ceramic factory off-shored its production line in Eastern Europe in 2006. This datum initiated the refurbishment strategy of the site. Meanwhile couple of buildings were preserved for their heritage value (mainly the Eiffel building and the Timmerfabriek), the urban renewal strategy was oriented towards increasing the housing offers in the area as well as increasing the touristic attractivity of this isolated district by adding hotel rooms, restaurants, bars and cultural places as well as some working spaces and co-working dedicated to young creatives and small companies. Once again, the industrial value of the area is only perceived as a touristic attraction or as a visual interest in a newly gentrified district (ref).

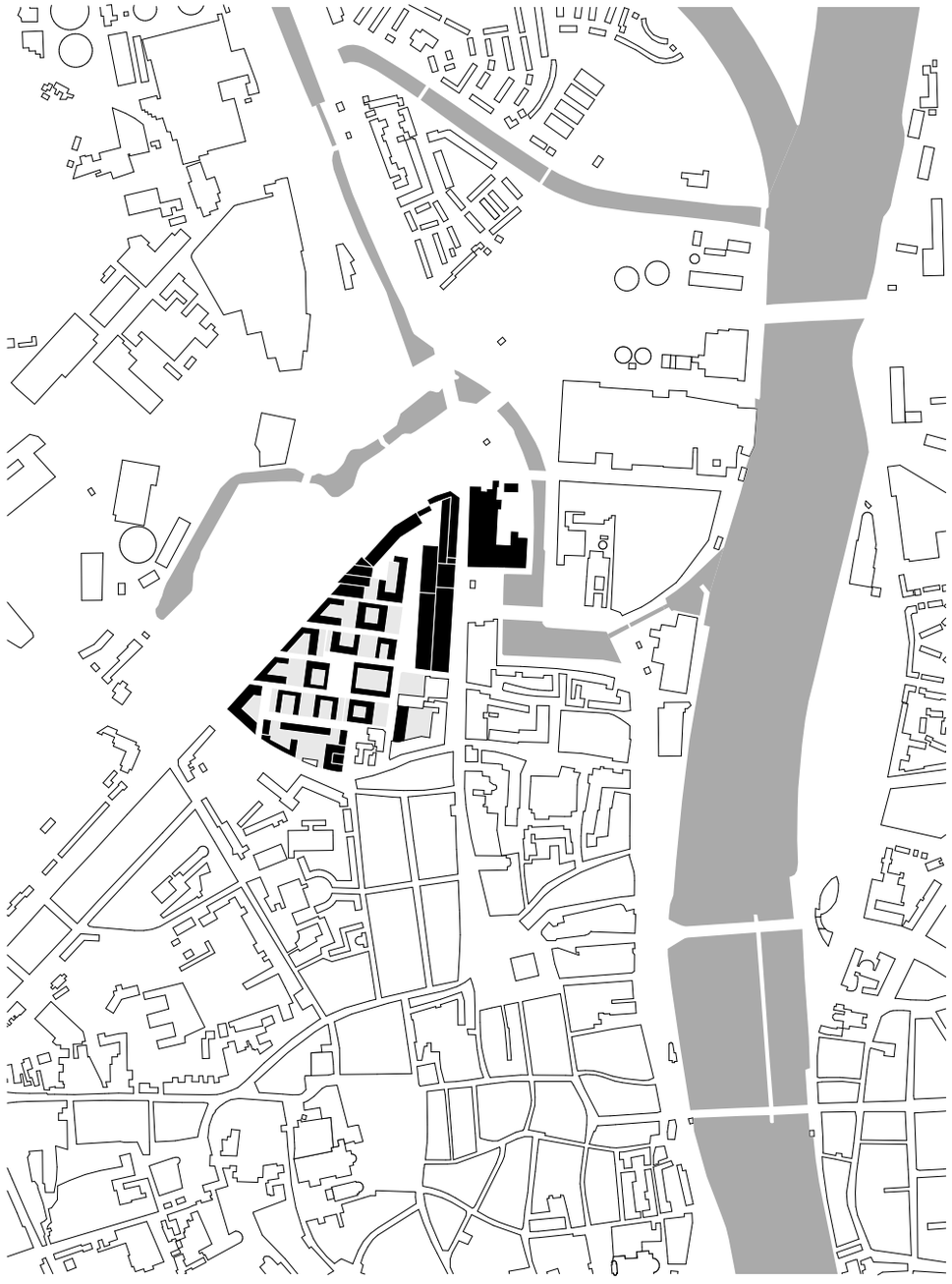


Figure 12 Aerial picture of the Sphinx industrial campus, Maastricht.

Figure 13 Aerial picture of the Sphinx Kwartier, Maastricht. 2020.

What transcend both examples are a profound change of land affectation as well as value for residential, tertiary, and cultural functions in detriment of more affordable productive spaces that will be complex to retrieve in such expensive areas (Rappaport, 2019). Such reconversion strategy can also be explained by the clear position of the Limburg province regarding the development of industrial campuses – Brightlands – in the region (CBS, 2017). Those campuses have the ambition to attract and concentrate industrial companies and international researchers in districts aiming to create synergies and to develop a collective innovative catalysis. By concentrating productive spaces outside urban centres, municipalities invest in the development of a tertiary city, orientated towards knowledge, communication, and retail sectors and, in the case of Maastricht, tourism (CBS, 2017).

However, Limburg is also marked by a less educated and qualified population which contrasts with investments made in highly qualified sectors. Limburg is also confronted to an exodus of young workers towards the West of the Netherlands with the ambition to find better professional opportunities. In the end, it appears that the professional climate in Limburg is less profitable for start-ups and entrepreneurs, which struggle to get access to industrialization, than for already established industrial companies aiming to invest and create partnerships with educational institutions (CBS, 2017). The potential return of productive spaces embedded in urban environments could increase the development of synergies and the concretization of entrepreneurial ideas by reconnecting people with production.

In that respect, couldn't the potential redevelopment of Sappi Maastricht site be an opportunity to reinforce productive dynamics intertwined in an urban environment? This project aims to develop a reconversion strategy for Sappi Maastricht with the ambition to bring closer productive environments with potential entrepreneurs.

Figure 14 Aerial picture of the Société Céramique industrial campus, Maastricht. 1990.

Reaffectation Strategy.


OPGELET !
IN- en UITGAAND
HEFTRUCKVERKEER


sappi

Reaffectation Strategy

Deja-vu.

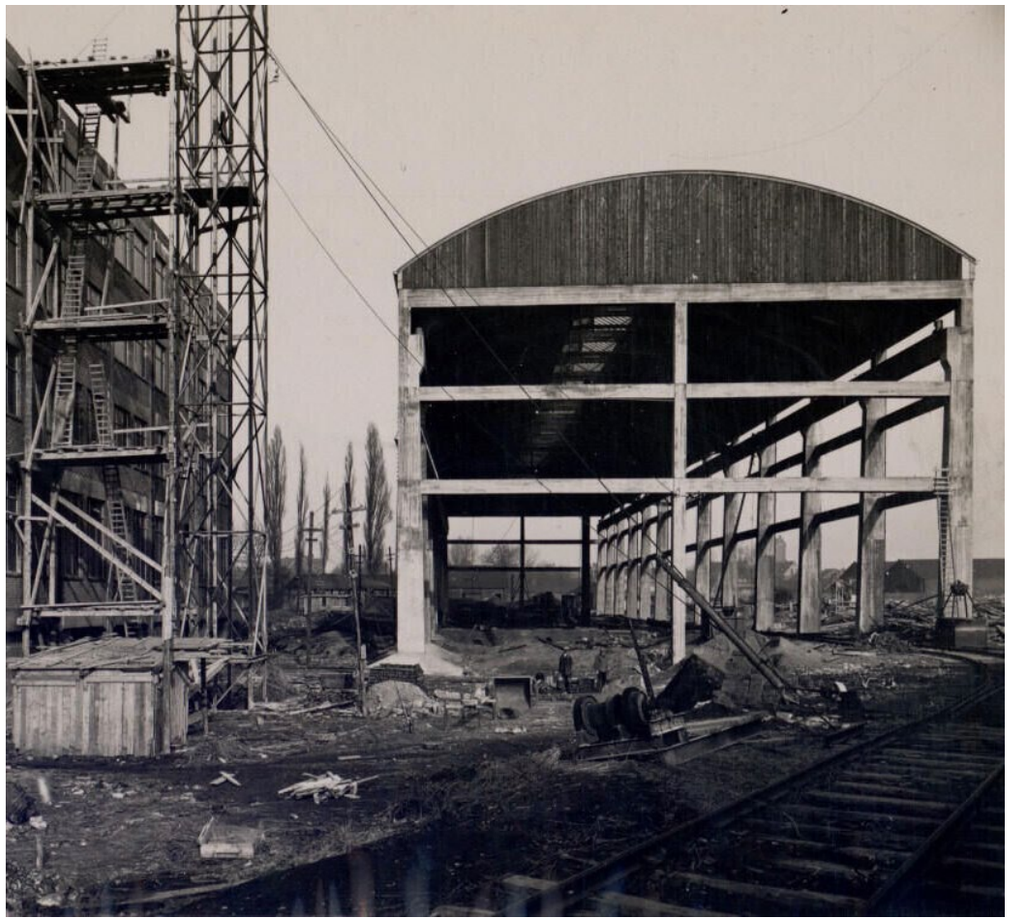
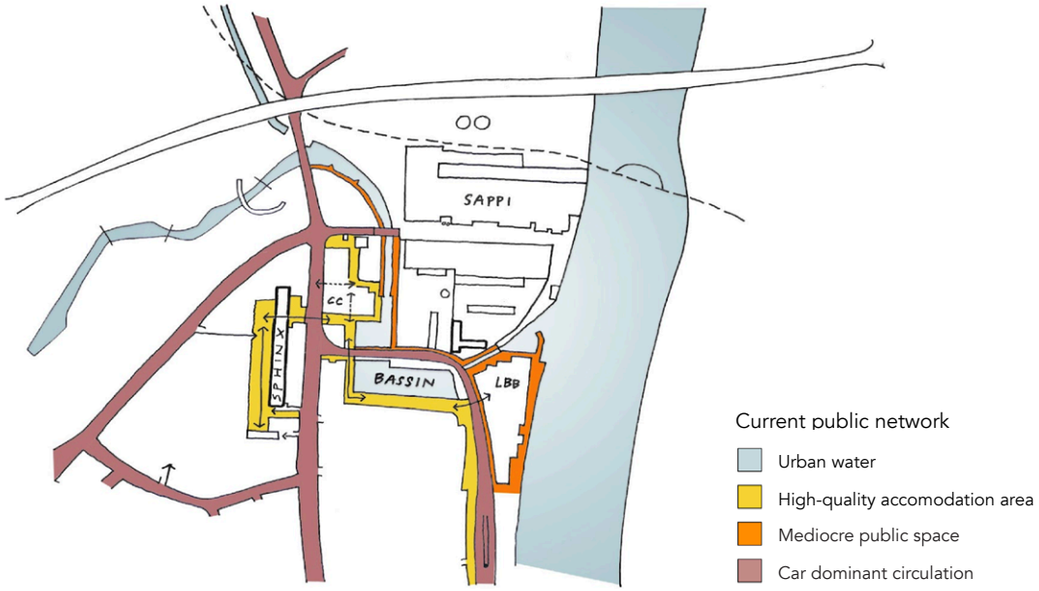
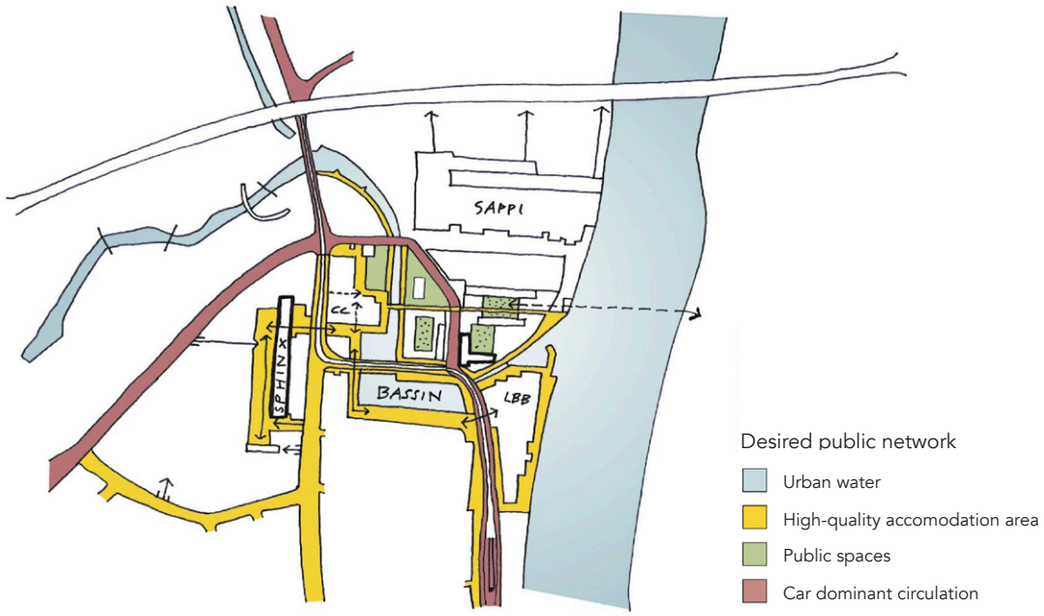


Figure 15 Wiebengahal, the unique building preserved of the Société Céramique district, Maastricht.

As indicated earlier, Sappi announced in December 2021, its intention to sell the site in Maastricht due to a lack of rentability in a highly competitive sector such as paper making. However, this long reappropriation process started years ago with, first, the sale of Landbouwbelang area in 2003 to the municipality which had the ambition to increase housing units in the central district of Maastricht. Though, the site has not been refurbished yet due to a lack of investors, changing politics and the presence of an important squat, particularly active as cultural incubator. In 2019, the municipality continues its reappropriation by buying the Western part of Sappi site with the ambition of extending the Maasboulevard along the site, decreasing the presence of the car into the city centre. The urban proposal also explores the partial densification of the site, clearing the south-western site to build new collective housings in relation with the Lumiere district located on the other side of the canal. This initial part, including the demolition of existing structures and the creation of a new road, has started in early 2022 and is planned to be done for early-2023, meanwhile the construction of new collective housings is planned to start in 2025, considering the time necessary to get building permits.

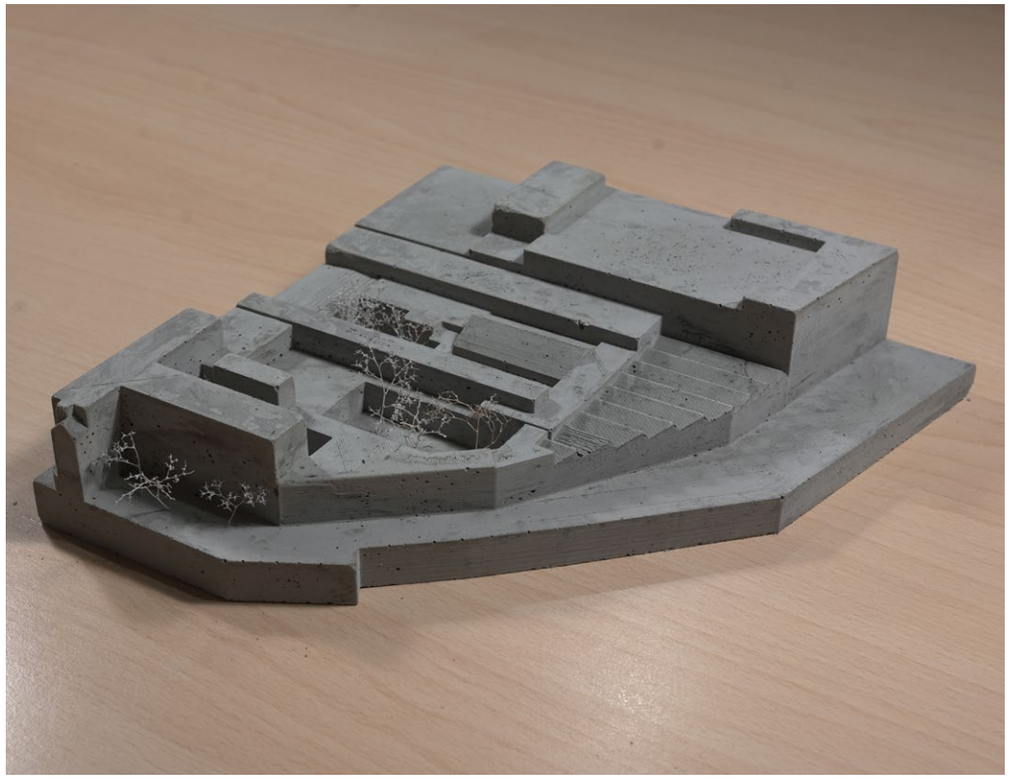
Negotiations for the potential reconversion of the South-eastern part of the Sappi site have also started with the elaboration of a masterplan. Considering building typologies, the project is oriented towards the reconversion of existing industrial buildings, some of them being listed as monuments. The program proposed in the reuse strategy echoes previous industrial campuses refurbishments in Maastricht, such as Société Céramique and Sphinx district. It consists in a concentration of housing units around courtyards cleared from low-rise warehouses, few square meters dedicated to retails and coworking spaces. The defined strategy, once again, undoubtedly responses to an ambition of focusing city centre on a housing and service-oriented district.





Reaffectation Strategy

Reappropriation.



In contrast to such masterplan, the below-mentioned reconversion strategy suggests a counterbalanced position, choosing the redevelopment of productive spaces using existing building stocks as a manner to provide cheaper working environments during the transition towards a more inclusive cohabitation between residential and productive interests. Existing site regroups an important intrinsic potential waiting for a new purpose. Enhancing productive spaces in urban environments is also linked to a regain of interest of urban production made possible by innovation in industrial processes and building materials.

"After a century of systemic separation, of zoning out and scaling up, of globalization and offshoring, the pendulum is swinging back again. Digitalization, new production technologies, the knowledge economy, start-up culture, new mobility, and the Internet of Things, but also a sense of global fragility and a new localism bring industry and cities back together." (Schaefer, 2021).

Through these words, Markus Schaefer justifies a return to the productive city based on the redevelopment of small companies influenced by a more affordable access to production. In that respect, innovation and democratization in robotics, 3D printing, CNC milling are changing the approach of industrialization. This equipment also affects the cleanliness of production spaces which in return, eases the redevelopment of productive activities in urban environments. In her research regarding urban vertical factories, American-based critic Nina Rappaport underlines the development of new production processes relying on information systems that allowed the growth of "neo-cottage" industries with less workers but more companies "*that only use between 1.000 and 5.000 square feet each*" (100-500 m2). In that context, one could argue that fenced-off urban mega factories are no longer profitable both for urban environment and the company itself.

Figure 16 Gravure of a 19th century cottage industry, England.

The neo-cottage industry refers to 18th century english residential fabric production. The return to such production typology suggests the reconnection of residential and productive functions as well as a reduction of space necessary.

1 Divide and Rule.

As stated earlier by Nina Rappaport, the new urban productive typology tends towards smaller spaces which then questions the relevance of maintaining monolithic production campuses in dense and valuable areas. In that respect, actual questions regarding the future of Sappi Maastricht might get an answer from this argumentation. Indeed, Sappi Maastricht's situation is quite ambivalent considering the important monofunctional campus it englobes though its occupation is only partial, the southern part of the campus being almost completely vacant. Moreover, Sappi Maastricht is an example of a factory deeply anchored in a globalized economic model importing and exporting materials worldwide with no anchor and relationship with the city life. Indeed, raw materials are imported by boat through Rotterdam and Antwerp harbours from South America meanwhile final products are exported by trucks towards centralized logistic centre of Sappi in Germany.

Moreover, 40% of Sappi Maastricht workforce come from surrounding countries. Beyond a certain size, industrial campuses become societies as such and stand-alone behind fences (ref). With the potential leaving of Sappi, the transition towards a new approach regarding production spaces can be expressed, exploiting the ambivalence of a global industry anchored in a local urban tissue.

In that respect, the reappropriation approach regarding Sappi Maastricht will aim to change the connotation of the site, seen as a monolithic company by opening the site to different actors. By fragmenting the site in pieces, the idea is to create a more flexible district able to absorb companies moving-out, moving-in and extension. It will also generate synergies between entrepreneurs similarly to dynamics appearing in economic clusters. A dynamic defined by Johann Heinrich von Thünen and afterwards by Alfred Marshall in 1920. Marshall underlines the fact that clustering dynamic influences the rentability and innovation of companies by making savings on logistic costs on three main elements:

MOVING PEOPLE

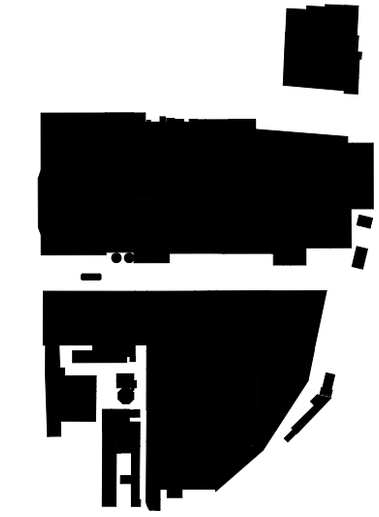
First, grouped together, businesses become more likely to attract people and create new customers. The grouping of similar companies also influences the development of an important class of skilled workers which benefit from mutual experiences to develop and increase their capacities and efficiencies. It also allows them to positively influence their working conditions in a more competitive environment.

MOVING GOODS

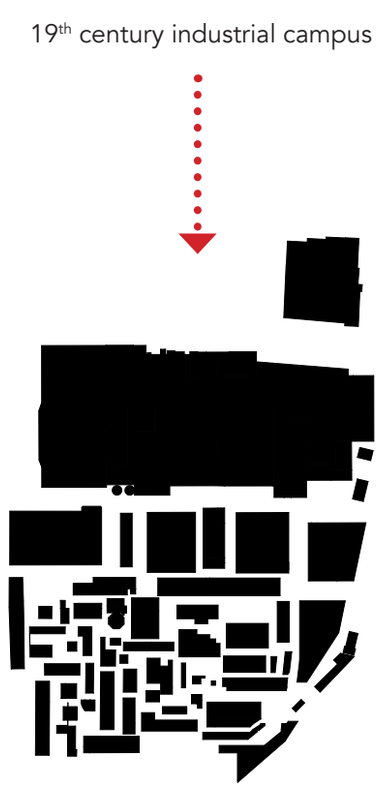
Second, the clustering also allows to make savings on costly deliveries. In a cluster where companies are interdependent, distance between each actor of a production process is reduced aiming companies to spare some money and then becoming more competitive.

MOVING IDEAS

Finally, Marshall argues that clustering also has an impact on the innovativeness of companies. "Proximity influences 'something in the air'" (ref). There is an interesting exchange of know-how and ideas happening in such districts where companies are put together in a climate of permanent evolution. Sometimes, clustering happens around a source of knowledge such as a university or a hospital. In that respect, companies involved in innovative products deeply linked with research aim to get closer to the source to ease the transition of information and people from research to production. Maastricht, with the Brightlands Maastricht Health Campus, has developed a knowledge district around the University Hospital of the city, the UMC+, around which gravitate private research labs, medical product manufactures and affiliated service companies.



19th century industrial campus



21st century urban cluster

Circularium, Brussels

Such phenomenon of fragmenting a vacant industrial site to reactivate it, has been applied in the Circularium project in Brussels. Concerned about the redevelopment of their 25.000 m2 car factory, d'Ieteren Immo mandated 51N4E to establish a reconversion strategy to reactivate the site during the elaboration of a final project. In that respect, 51N4E reprogrammed the industrial complex into several pieces meant to be rented by small productive actors of the city for a period of 5 years. Today more than 100 actors involved in circular initiatives are members of the Circularium.

MAKETTT

Another interesting but also challenging aspect of the Circularium is the neccesary on-site coordination of actors. In that respect, 51N4E mandated Makettt (Make iT Towards Transition), a consulting partner whose mission concists in reprogramming vacant buildings. Makettt made it possible to optimize functions and cohabitation within the former d'Ieteren garage in minimizing building adjustments and in opting for the preservation of existing functions, though anchored in a circular and inclusive approach.

"The use of adaptable infrastructures makes it possible to experiment with different models of cohabitation as an on-site learning process for a mixed program in the area."

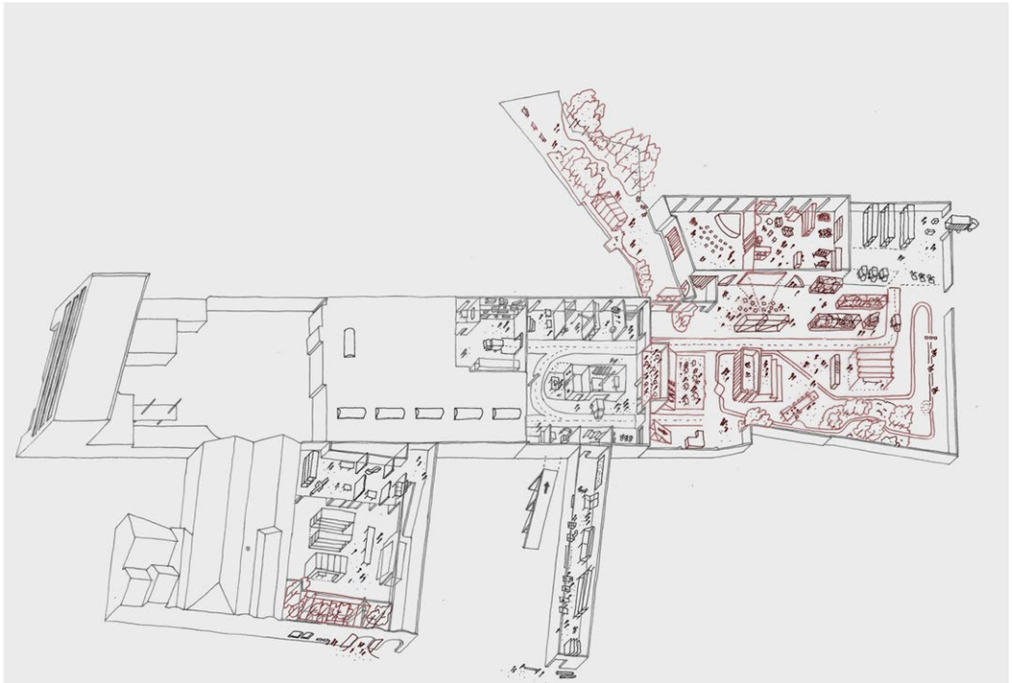


Figure 17 Proposal for the reoccupation of the d'Ieteren, Brussels. 51N4E.

Figure 18 Inside the Circularium, Brussels. 51N4E.

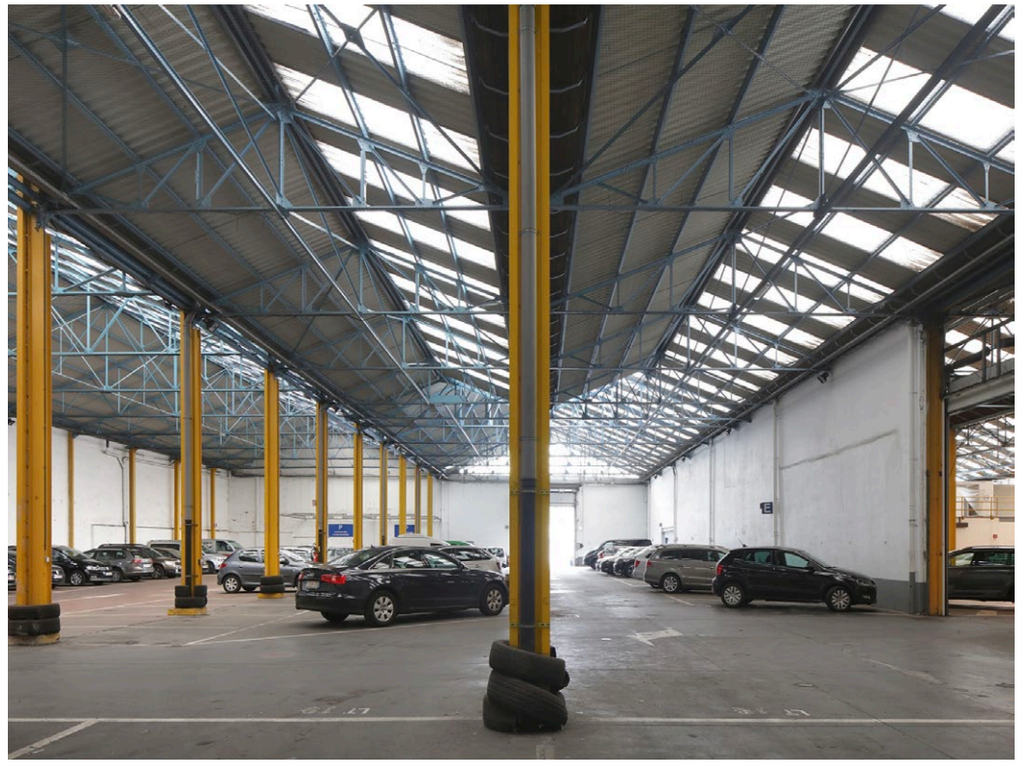


Figure 19 Inside the Circularium, Brussels. 51N4E.

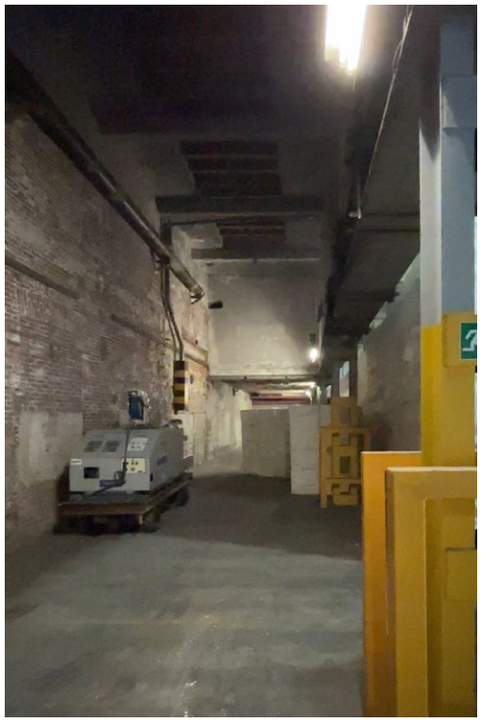
2

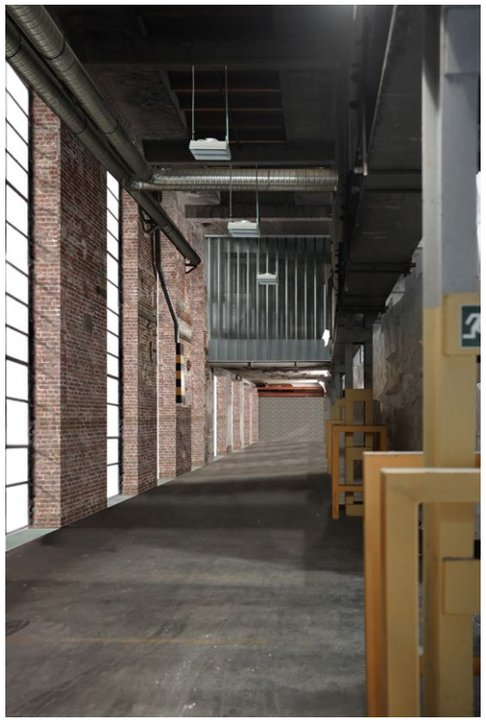
Clean before the party.

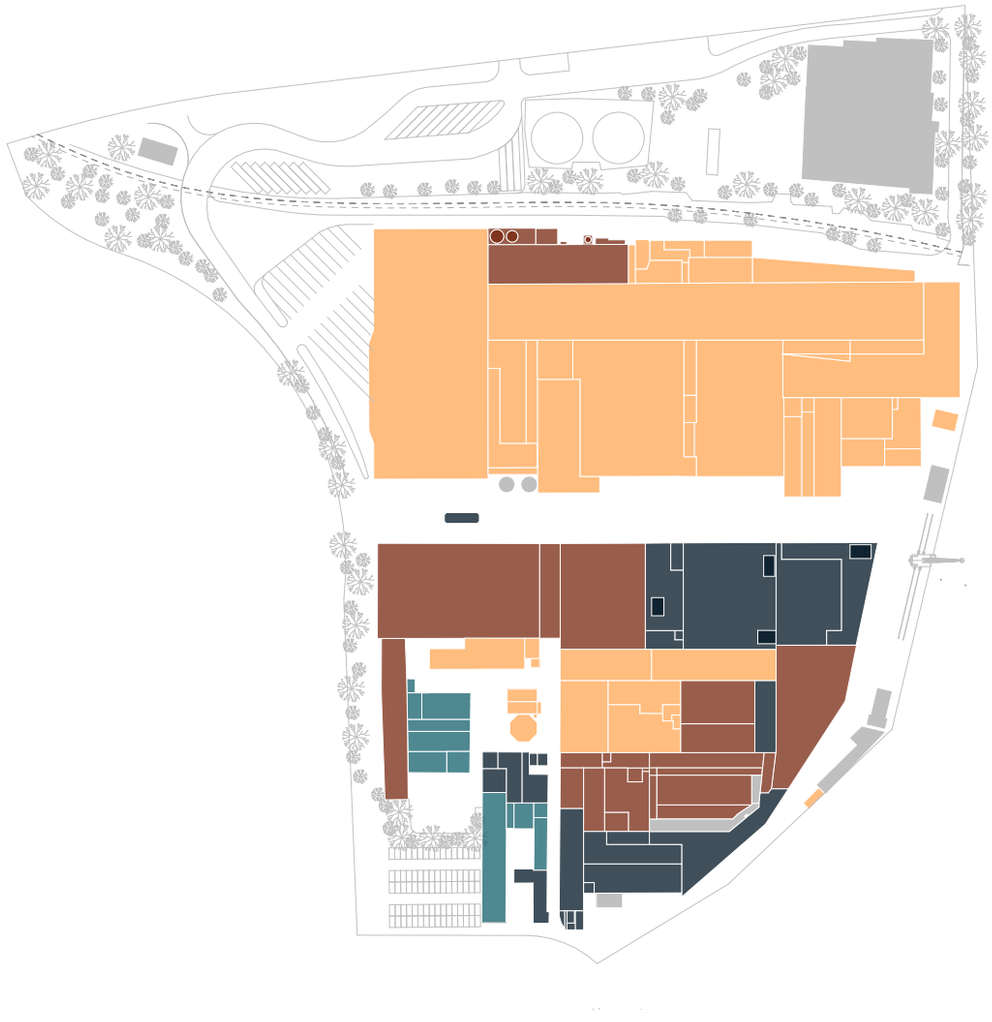
The reconversion of Sappi Maastricht is meant to propose cheap productive spaces in an incremental reappropriation strategy based on the gradual migration of Sappi towards North of the site before completely leaving it. In that respect, the intervention implies a reflection regarding the smallest interventions needed to make the site attractive for companies as well as making it functional meanwhile preserving low rental fees. “Clean before the party” as stated by Renaud Haerlingen from Rotor DC in a discussion regarding the proposed strategy. An initial inventory of on-site conditions is particularly important to understand how we could intervene on site. As an industrial presence is supposed to be preserved on site, mainly to the nothern part, a clear understanding of the perimeter of intervention has to be done.

This perimeter should englobe available buildings whose reconversion does not require an important investment in time and money to secure/remove industrial equipments or stigmats.

Through a series of map analysis, a perimeter of action will be outlined based on actual production intensity, its location on site, the dangerosity and exploitable buildings.

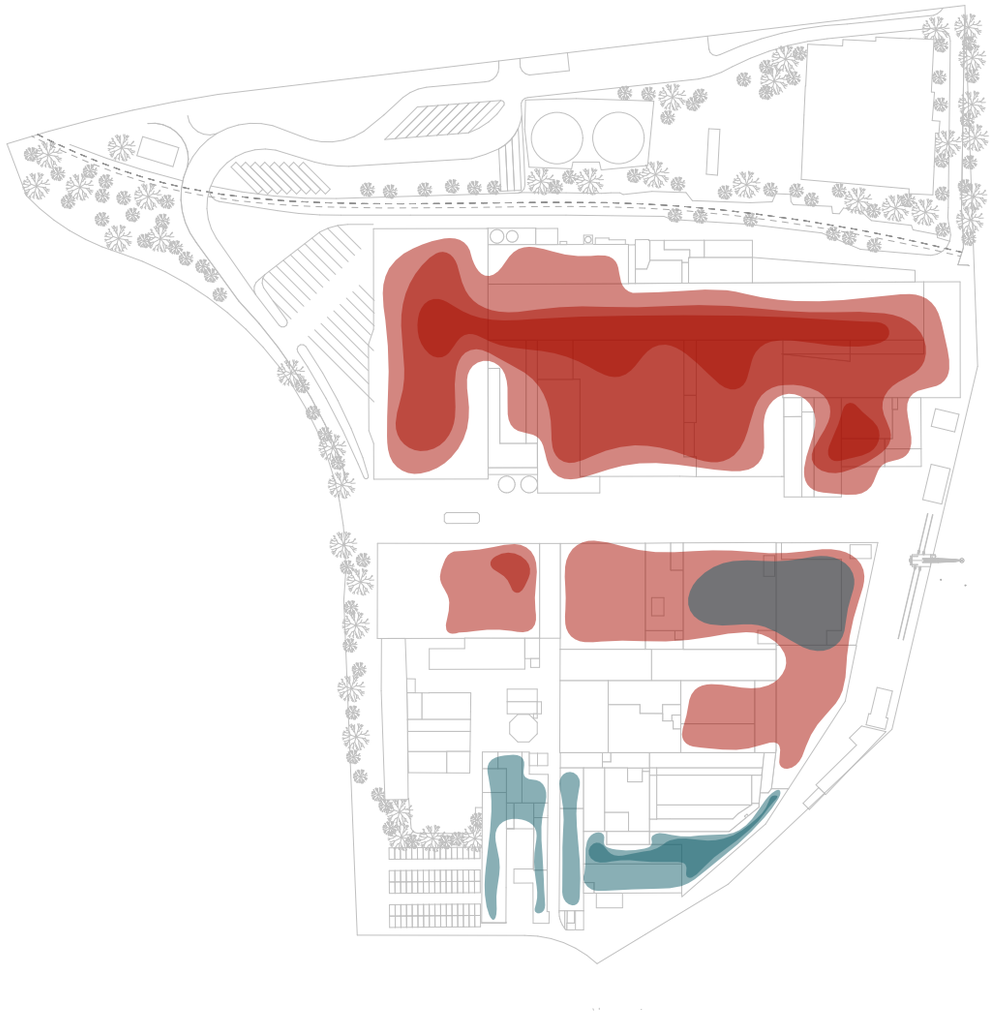






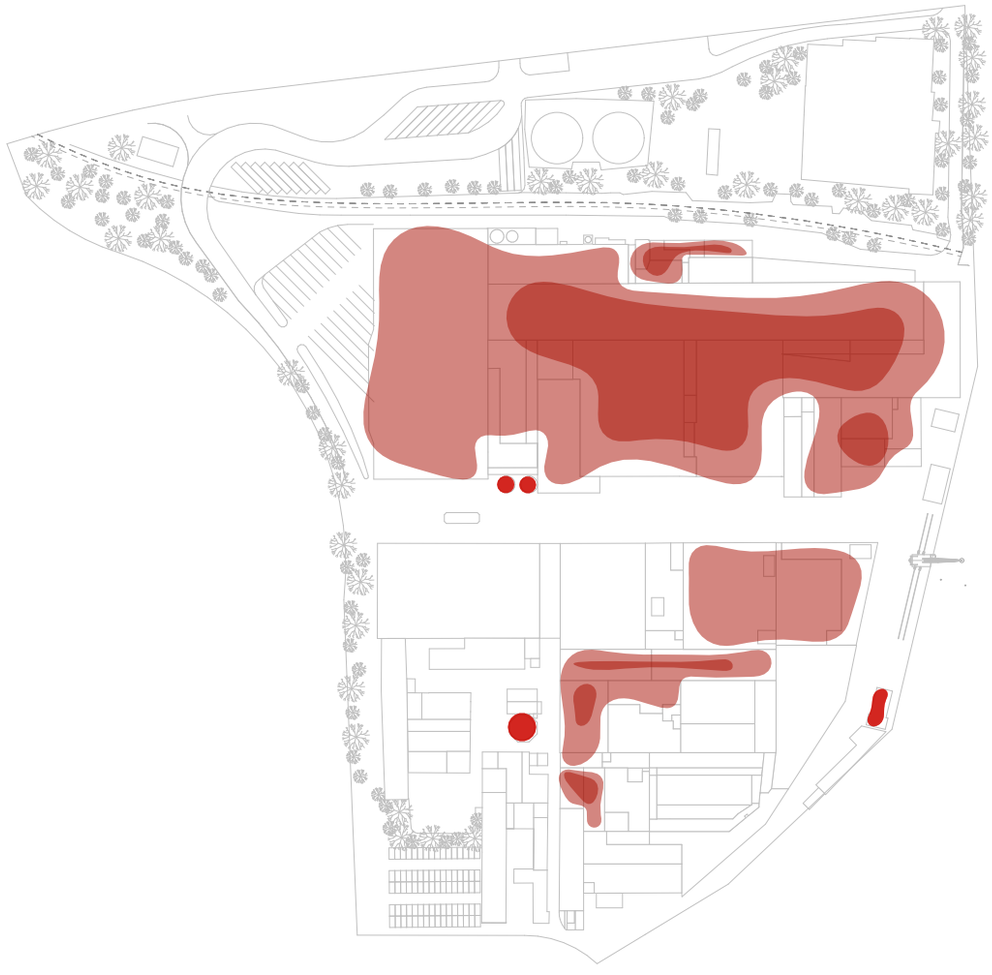
Spatial occupation

- Raw material storage
- Office spaces
- Maintenance spaces
- Production
- Tank



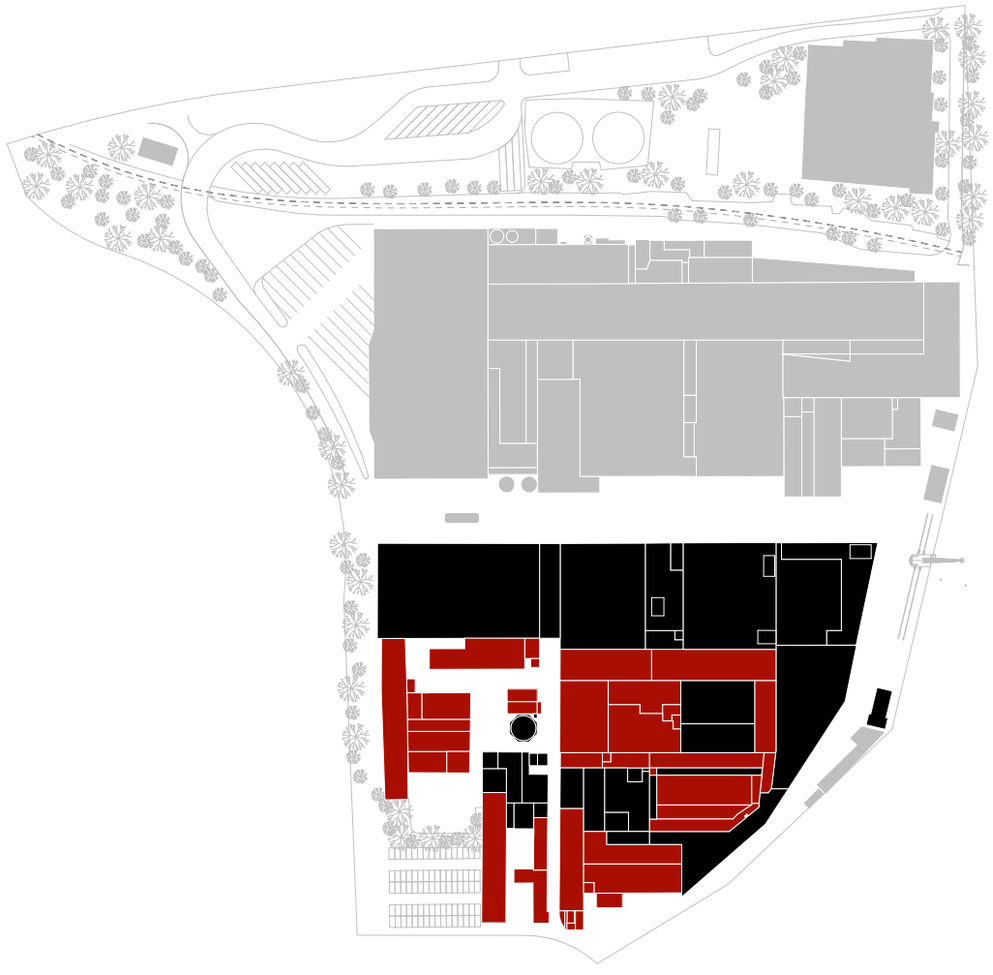
Work intensity

- Industrial production
- Administrative work spaces
- Danger perimeter



Dangerosity

- Danger intensity
- Danger perimeter



Vacant buildings

- Raw material storage
- Danger perimeter

Once the range of action defined, the main question regarding the reappropriation of the site was to make people come and interact into the site.

In order to make the site attractive, a series of necessary interventions has to be done. The fragmentation of the Sappi industrial campus to reach a more inclusive production area, also implies to make the site accessible for different actors. This goal of accessibility is already being organized. On the western part of the campus, the municipality of Maastricht bought a first part of the old factory with the ambition to divert Maasboulevard through Sappi island, opening-up the industrial complex towards the Lumiere district on the other side of the canal.

There is an important loaded connotation of the previous campus-like organization that has to be removed: endless blind corridors, buildings density and dangerosity. Indeed, a more inclusive and livable area implies also certain levels of comfort: basically security, natural light and accessibility. In that respect, the strategy towards the reappropriation of the site aims to change the blind campus connotation into a more porous and fragmented neighborhood.

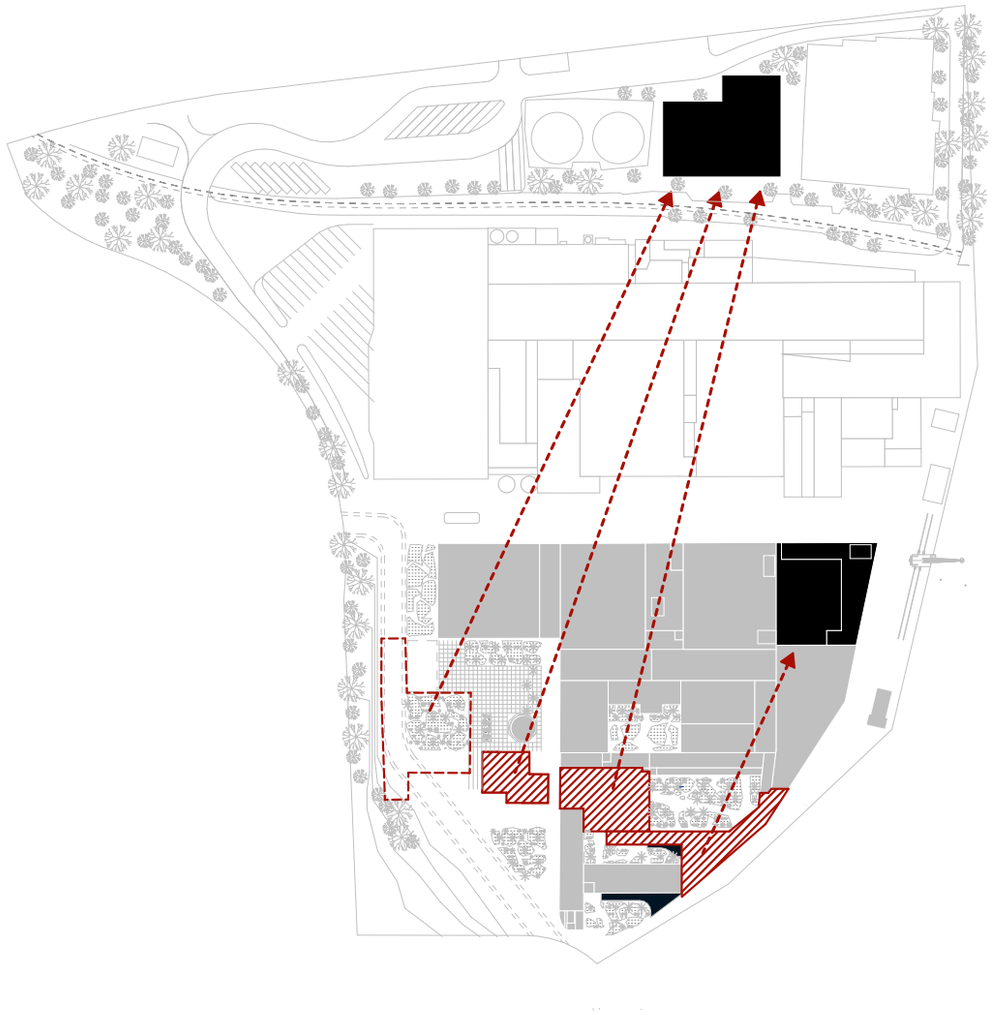
To reach such porosity, courtyards are cleared where lightweight and landlocked sheds were previously standing. By organizing buildings around public plazzas and courtyards, the deambulation is meant to be more spontaneous as well as offering a framework to be appropriated by local communities. As stated by Nina Rappaport, public spaces in productive districts have the potential to connect thinkers and workers in a more solidary city.

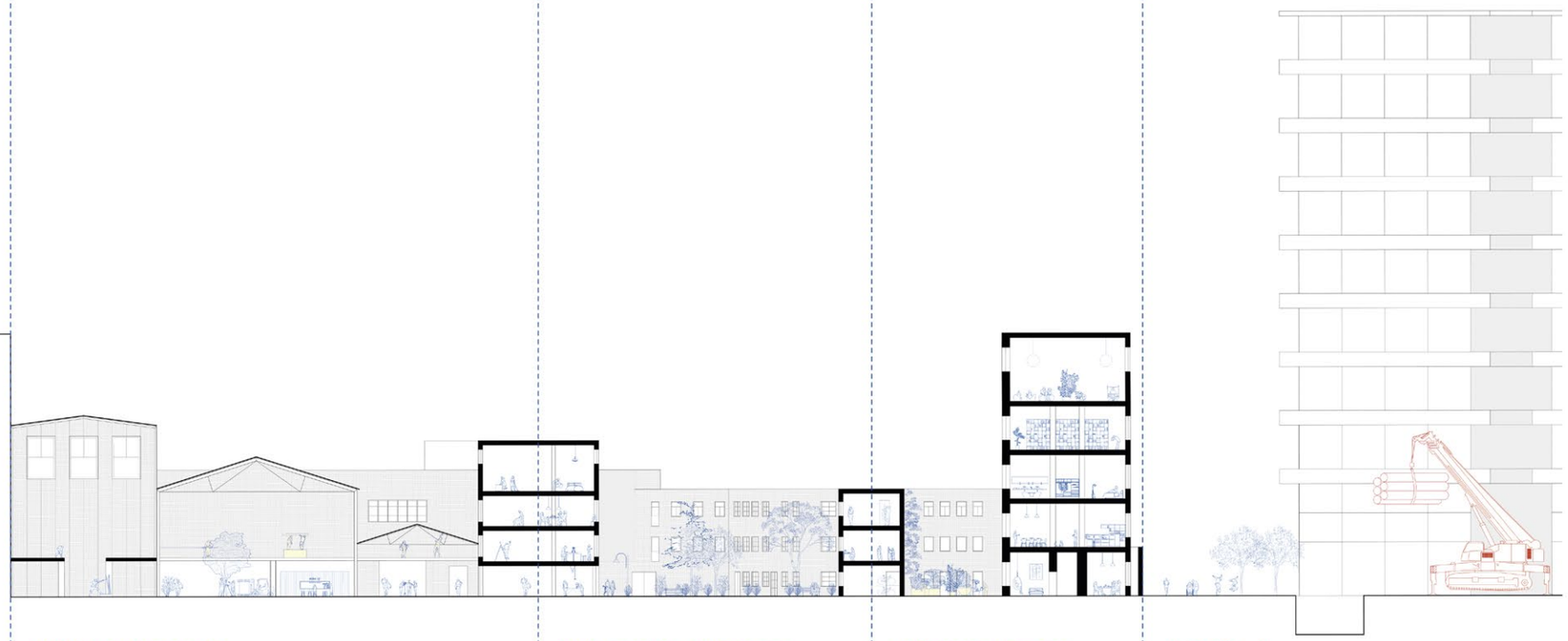
An incremental reappropriation

As stated earlier, Sappi Maastricht is looking for a new buyer to reinvest in the paper mill that the South-African company is leaving. In the meantime, the company is also looking for selling the southern part of the campus, though some key functions (research departments, storage spaces, maintenance areas) are still located in there.

With the ambition of relocating the whole managing and production process on the nothern part of the fransensingel, the time necessary to execute such task remains important. In that respect, the proposed strategy aims to be incremental, considering a simultaneous relocation of Sappi's functions. The initial step in the development of an incremental reappropriation is to step on the site and establish an on-site presence to coordinate reaffectations and engage with Sappi and the Municipality. With the range of priorities defined earlier, the reappropriation is initiated with the reactivation of waterfront buildings as a natural attractive pole for people.

Later on, following relocalization pace of Sappi functions, the intervention will focus on progressively clearing courtyards inside the factory to reactivate surrounding buildings, public spaces becoming the interface between tourists and makers.





SAPPI production site

NOW - 6 / 9 months

Ground floor storages relocation and first refurbishment process.
The aim of this first intervention is to highlight and exploit the identity of the industrial ensemble. Infact, the different traces of usage and transformation over time are being preserved. Therefore, the existing building fabric is maintained to the greatest extent possible, and overdense spaces are partially demolished to change their connotation from close to open spaces . This approach makes sense ecologically – it saves resources and avoids waste, temporaly – it creates available reusable spaces in a short amount of time, but also brings economic benefits to the previous user sand the next ones.

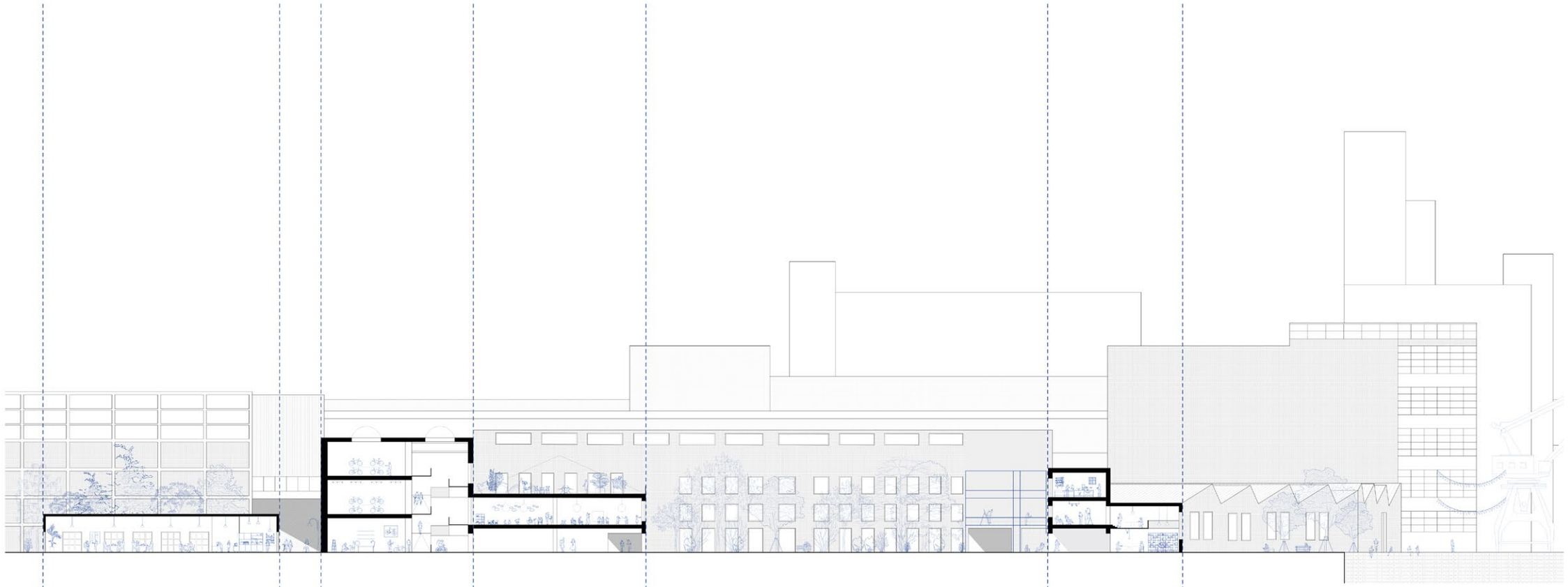
6 / 9 months - 2.5 years

Offices relocation and second refurbishment process.
The next phase of the intervention is to re-activate the upper levels. Most of the facilities on the south part of the factory are offices and laboratories. With their gradual relocation towards the north side, they'll be available spaces, and later, flexible environments for other (co)working and living purposes. Moreover, in-between sheds and weak structures will be dismantled to provide more light and open public/green spaces to the future users.

2.5 years - 5 years

Final refurbishment process.
The overall process consists in creating a framework of spaces where workers, entrepreneurs, investors, and families, too, can co-habitate. This link between entrepreneurship and public life is provided by the potential and flexibility of industrial spaces, thus different buildings can host different functions in different stages

5 years - +



the canteen
08.00 am – 02.00 am

the bike park
!"#$

the school
08.00 am – 06.00 pm

the garden

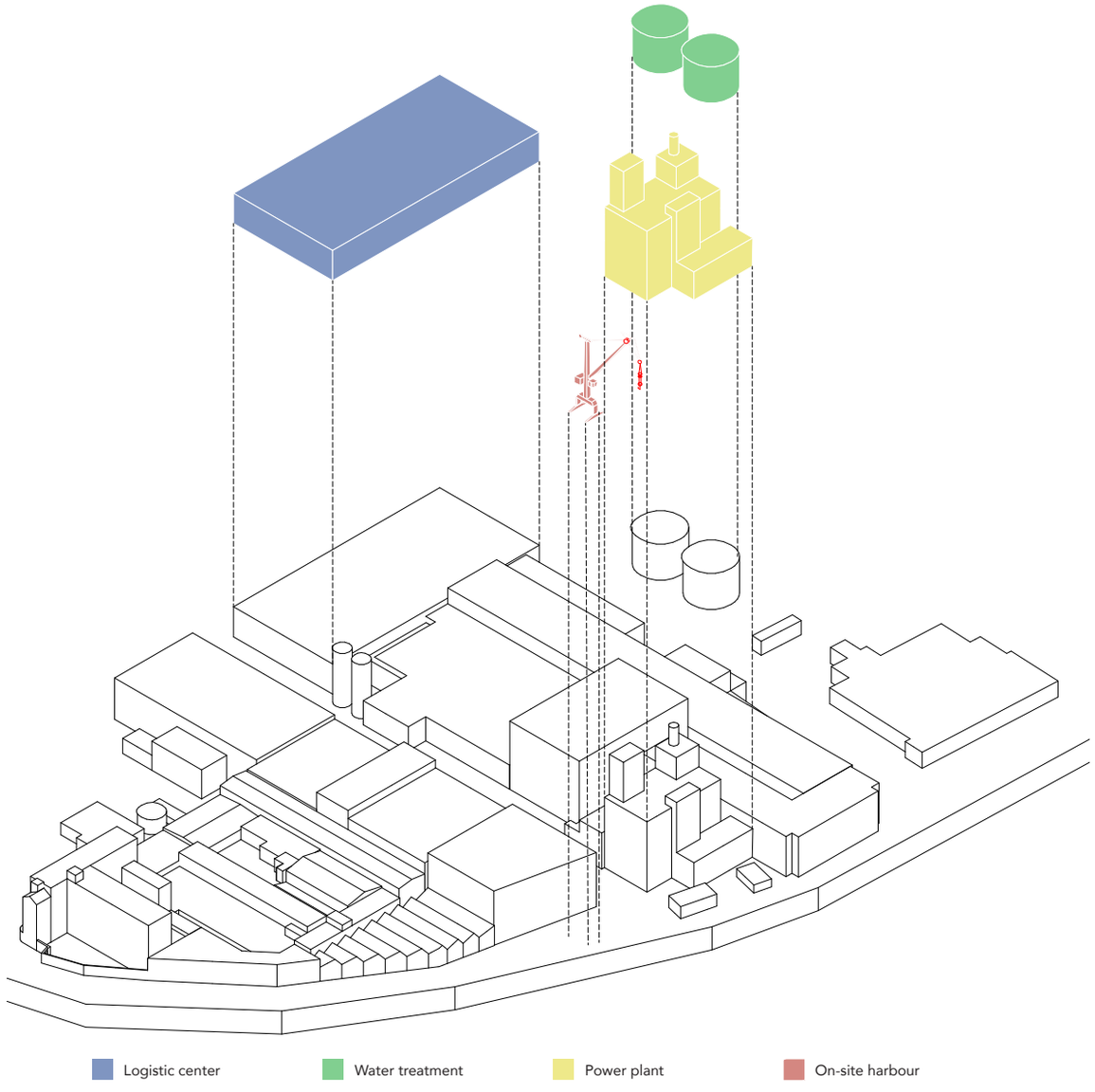
the architecture collective
09.00 am – 06.00 pm

the dock

3 Share the risks.

Clustering of companies can also imply sharing facilities to save money by optimizing occupation and rental costs. In that respect, Sappi Maastricht benefits from equipment with the potential of being shared. In such aspect, the paper mill is an ambivalent site, anchored in an urban environment, though oriented towards a global market importing and exporting goods worldwide. To manage such mobility of products, Sappi Maastricht benefited from manutention equipment to transship raw materials from boats as well as a logistic centre organizing arrival and departure of products through road network. Such equipment could be preserved as collective and centralized platforms of importation and exportation on the outskirts of the campus, reducing the traffic of trucks through the site, and minimizing noise pollution by internalizing manutention inside buildings.

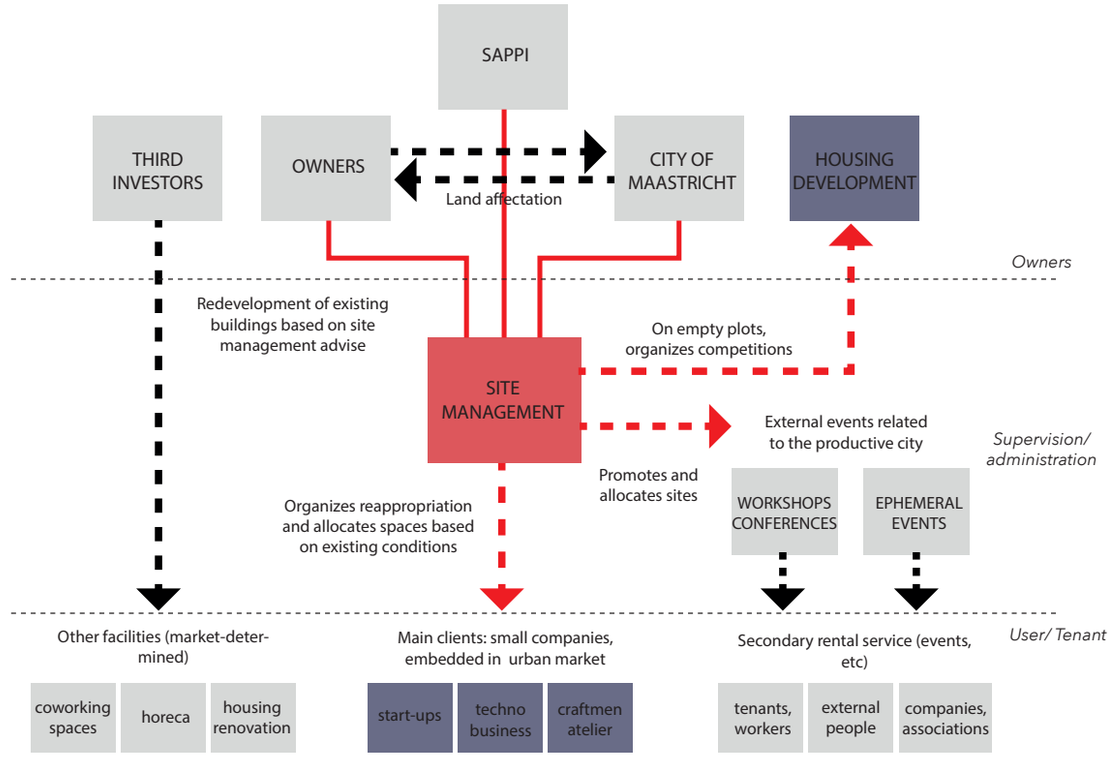
Sappi Maastricht also benefits from its own powerplant which is already connected to both electric and heat networks of the city. Such power source will be used to deserve the new productive site taking advantage of industrial residues to produce more sustainable and local electricity and heat.

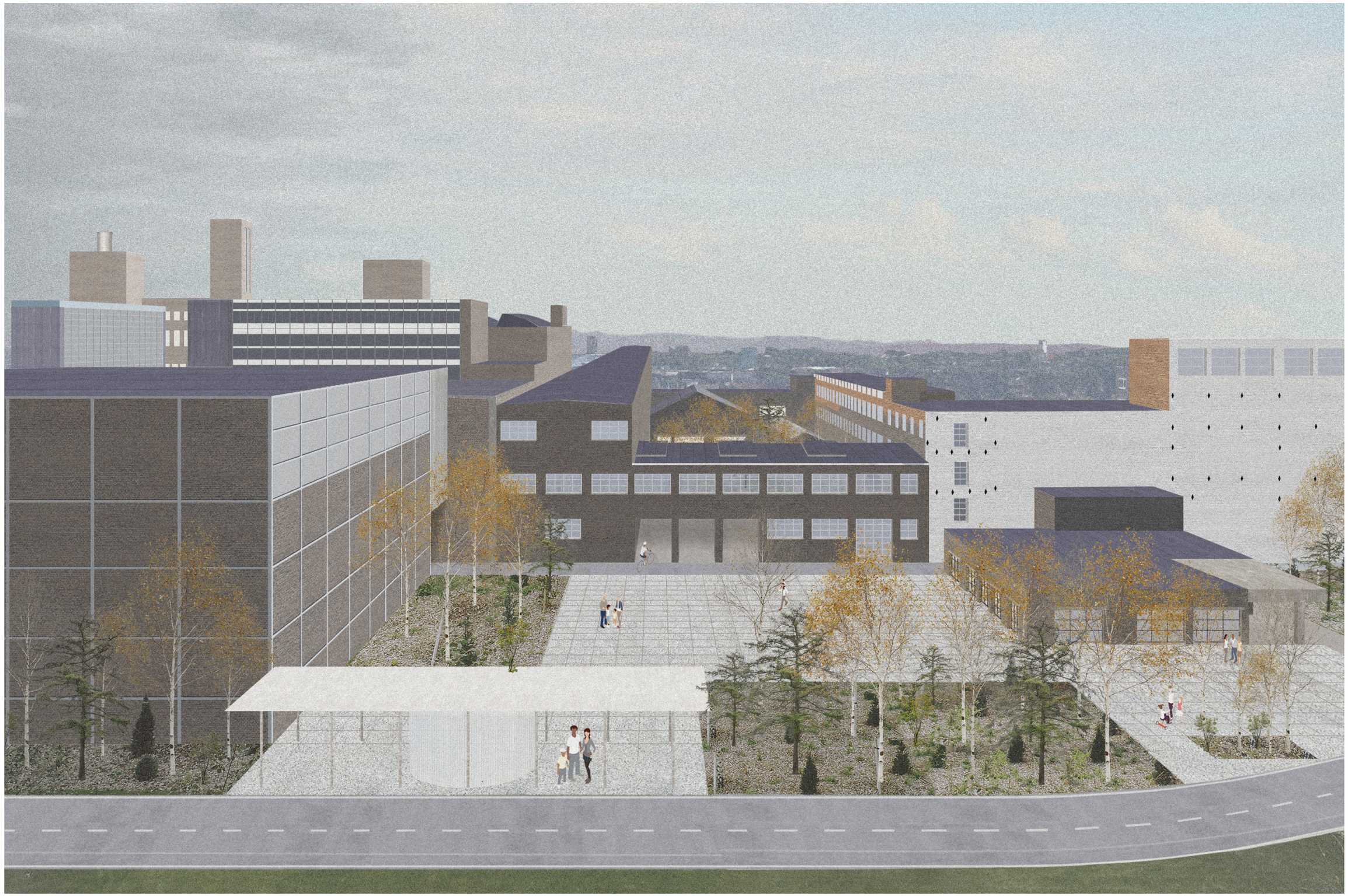


4 On-site reappropriation management.

In order to react and adapt to the evolving architectural context, the goal of the on-site office is to explore the relationship between the architectural profession and the 'things around it (us)'. Absorbing and incorporating knowledge and skills of different expertises means expanding architect ecological system (a new ecology of practice). A more concrete definition of the system is given by the term holding company, in which the architect as an entrepreneur defines an office that takes care of other diverse activities, such as facilitating collaborations in order to develop larger/broader processes of transformation and in the same time, ensuring the pertinence of interventions on site. Different offices within an office (like a room in a room) each of which are responsible – in different steps – of the same intervention. But, none of them is independent from the other.

Regarding the specific case of Sappi, the purpose of the collective is to to build up a framework and catalogue of buildings in which interested 'developers' are in a position to choose for themselves (not anymore developers > architects, but architects > developers). Locating the collective in the Sappi's former office building fulfils the Urban Architecture expectations of adding a building that can (re)designing an entire environment. Defining a conceptual and physical framework in which the various parties interested in the site can locate themselves and develop their own interest(s), aims to assemble a new configuration of buildings which functions are not overdetermined, allowing a continuous transition of activities – starting from the relocation of the actual ones – also once the site is completely re-appropriated.

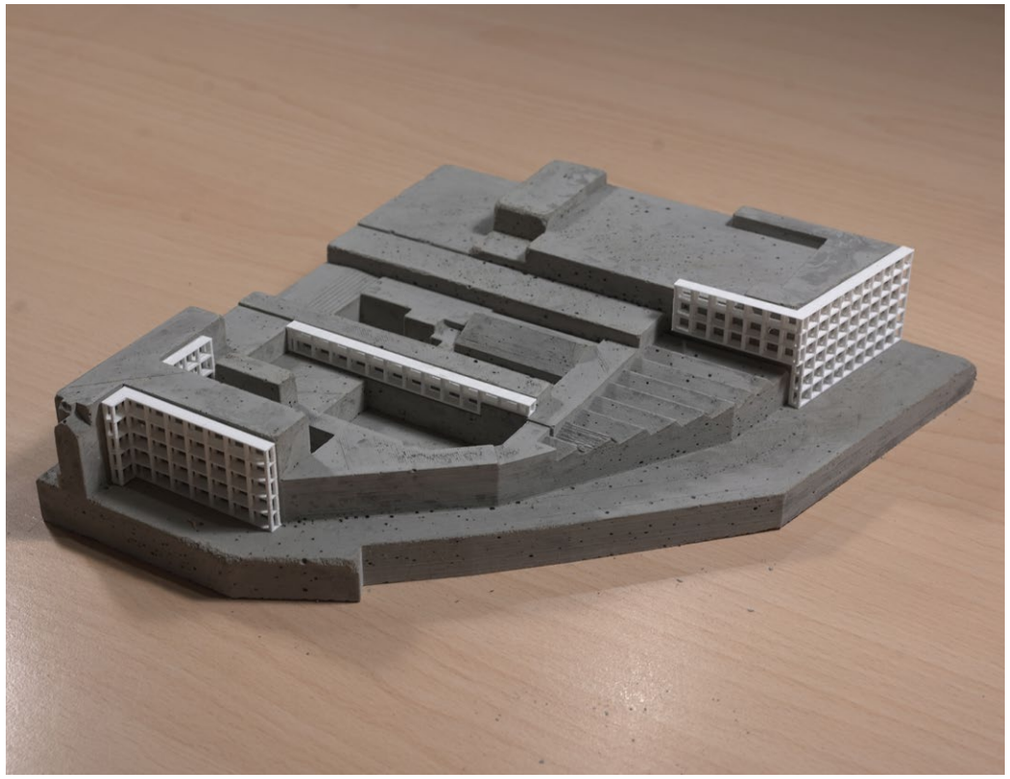





sappi
MARTINI
STELLA ARTOIS

Reaffectation Strategy

Transformation.



In the quest of reintroducing productive spaces in urban environments, there is a will of reconnecting job opportunities and workforce in a period marked by a necessary change in mobility, from a car-oriented city to more sustainable ways of moving, which also implies to get closer living and working functions in the ideal perspective of proposing an 15-minute city as defined by Carlos Moreno. In that respect, cohabitation is also meant to reconnect production process with people from every economic classes.

To do so, public spaces share an important role as common grounds. As stated during the exhibition "*A good City Has Industry*", public spaces have the power to make thinkers and makers meet in a more inclusive city. This vision is shared by Nina Rappaport who underlines the role of voids in urban factories able to change the negative connotation transcending industrial spaces.

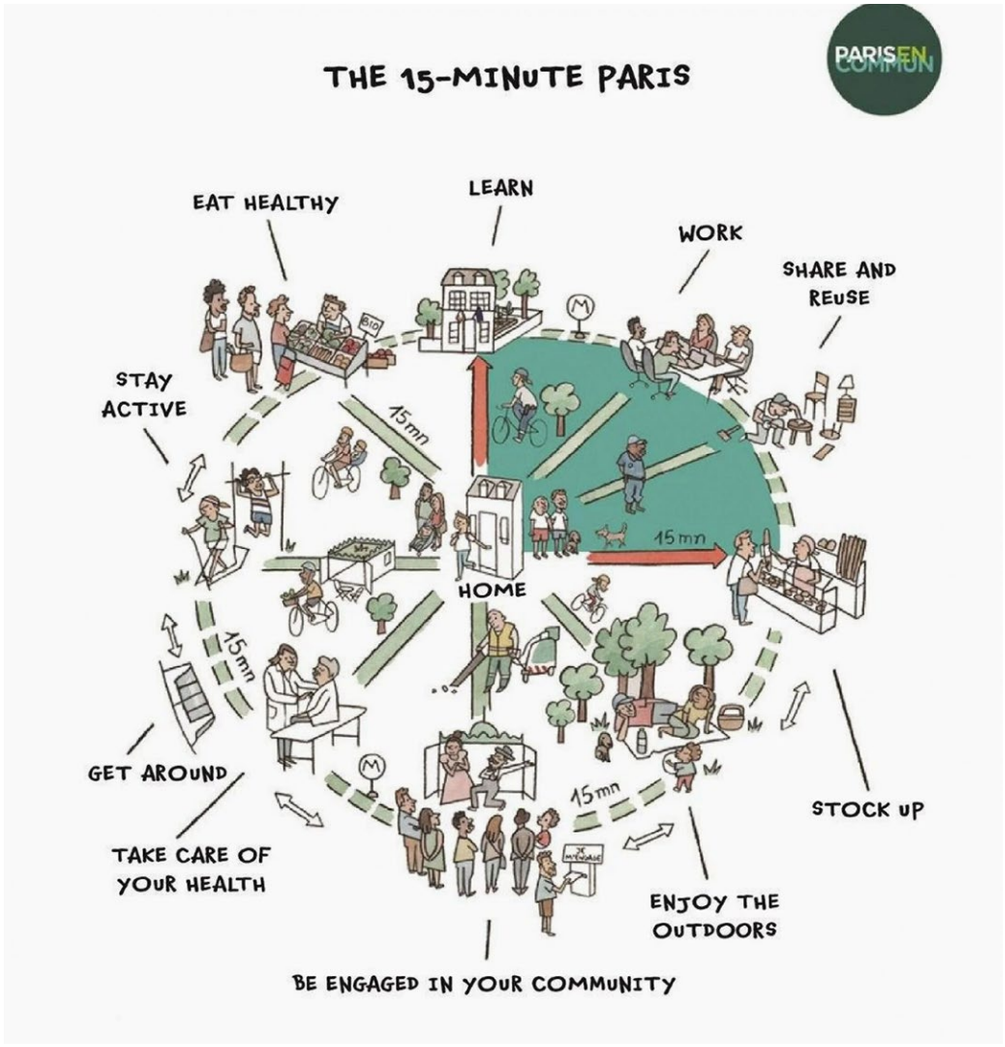


Figure 20 The 15-minute Paris, Carlos Moreno.

5 Industry has changed.

However, such cohabitation is not easy to introduce. The first issue regarding cohabitation is the mistrust of investors, perceiving industrial spaces as a risk for the rentability of the development project. In that respect, often banks ask developers to finance by themselves costs related to production spaces (Urban Vertical Factory, 2022). A second issue regarding cohabitation is the fear surrounding the question of pollution – both in terms of air, noise, and light. In that respect, innovations made in production processes with for example, the democratization of CNC milling, 3D printers and electric tools has drastically reduced the dirtiness of industries. Together with embedded ventilation system and air treatments, conditions surrounding productive spaces have become cleaner and cleaner which influenced the return of industries to the city. Noise pollution is also regulated through regional laws as a new form of zoning which forced industries to invest in noise control and acoustic insulation. Acoustic pollution produced by delivery vehicles are, in the case of this reconversion strategy, limited due to the internalization of logistic movements inside buildings meanwhile limiting economic activities to regular working hours.

The development of housing units on site is also meant to attract and keep potential young workers in Maastricht instead of leaving for the Randstad in the quest of better job opportunities. By proposing small housing units, embedded in existing buildings, the idea is to create accessible apartments.

6 Political support.

Moreover, the development of productive spaces in urban environments doesn't only depends on economic or architectural faisability. A political support has to follow the initiative.

In Brussels, the redevelopment of the Canal surroundings is particularly targeted due to the strong productive orientation of the area (the harbour of Brussels is located there, as well as vital industrial sites) but also due to the necessity to transform it into a more livible environment. More precisely, the land reform called Biestebroeck PPAS* is particularly interesting regarding mix-use of both residential and productive functions.. The district, located along the Canal in Anderlecht, Brussels, is meant to be transformed to develop Brussels' harbour activities meanwhile better integrate them in the urban tissue by increasing mixity with qualitative housing. The land reform, accompanied by a masterplan, proposes to elaborate on vertical mix-use of residential and productive functions. In that respect, a new administrative typology has been created: ZEMU (Zone d'Entreprise en Milieu Urbain) aiming to reflect on questions of mixity. The political direction taken in the Canal area of Brussels is clearly oriented towards the preservation of economic and productive activities and tries to define perspectives of cohabitation with more residential functions. It underlines the necessary role played by political decisions in the redevelopment of productive spaces on sites already having such affectations. Because, it is important to underline that once an industrial space is converted into residential functions, backpedaling is nearly impossible. (Rappaport, 2019)

Figure 21 Masterplan for the redevelopment of the Biestebroeck area, Anderlecht. 2017.

Making a(nd) living

Few examples of mix-use buildings have been built. However, Brussels is particularly investing in research about the return of a productive city together with the Atelier Metropole, an urban lab englobing academic researchers, architects, and politics.

Among them, architecture agencies Plus Office Architects, MS-A and B2Ai are developing a mix-use project in Brussels in which productive spaces cohabitate with housing units. The repartition of programs is clear: production and logistic areas lay on the ground, in direct relation with the Canal. Housing units are erected on top, built on an elevated ground floor on which inhabitants can meet. In this case, the relation between both programs is visual. Important arched skylights illuminate logistic areas meanwhile offering an overview of what is happening inside from the collective elevated ground floor.

Figure 22 Making a(nd) Living project illustration, Plus Office Architects.

Figure 23 Making a(nd) Living project illustration, Plus Office Architects.

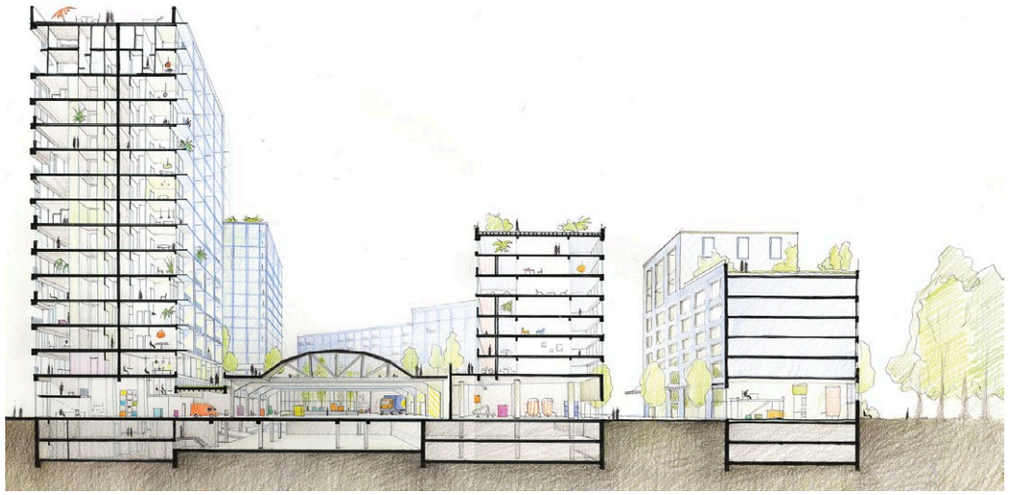
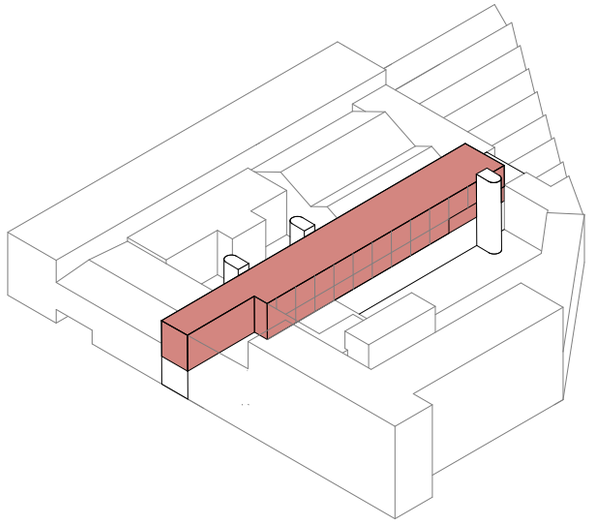
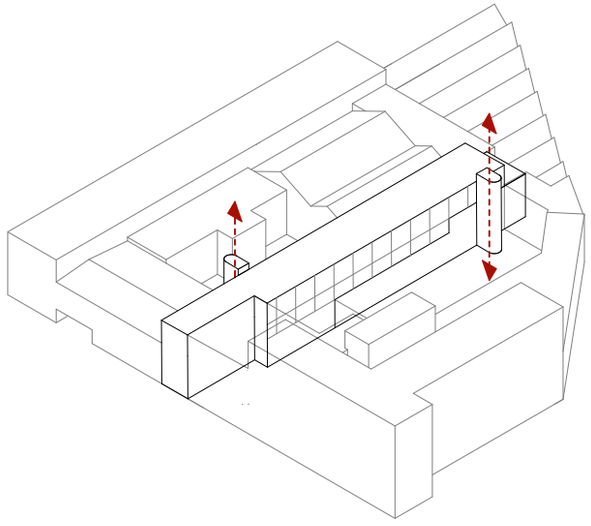


Figure 24 Making a(nd) Living project illustration, ms-a.

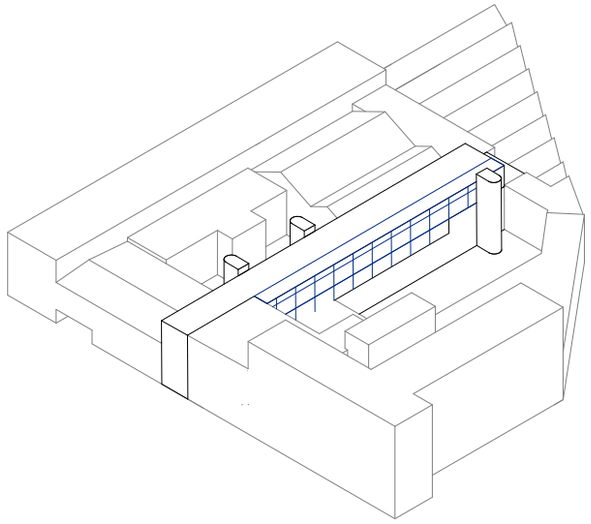
Figure 25 Making a(nd) Living project illustration, ms-a.



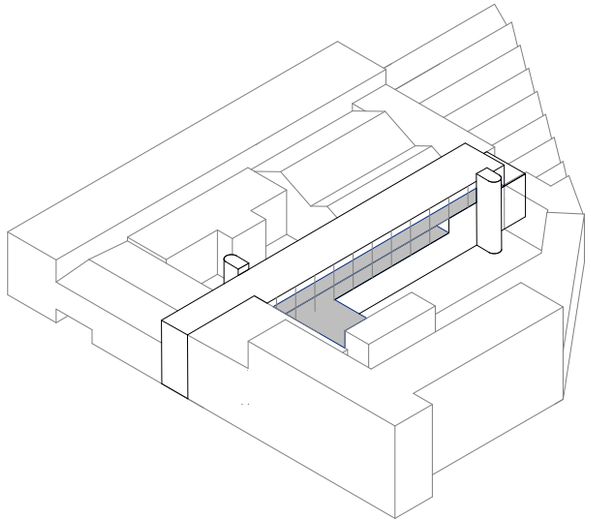
Existing upper floors transformation



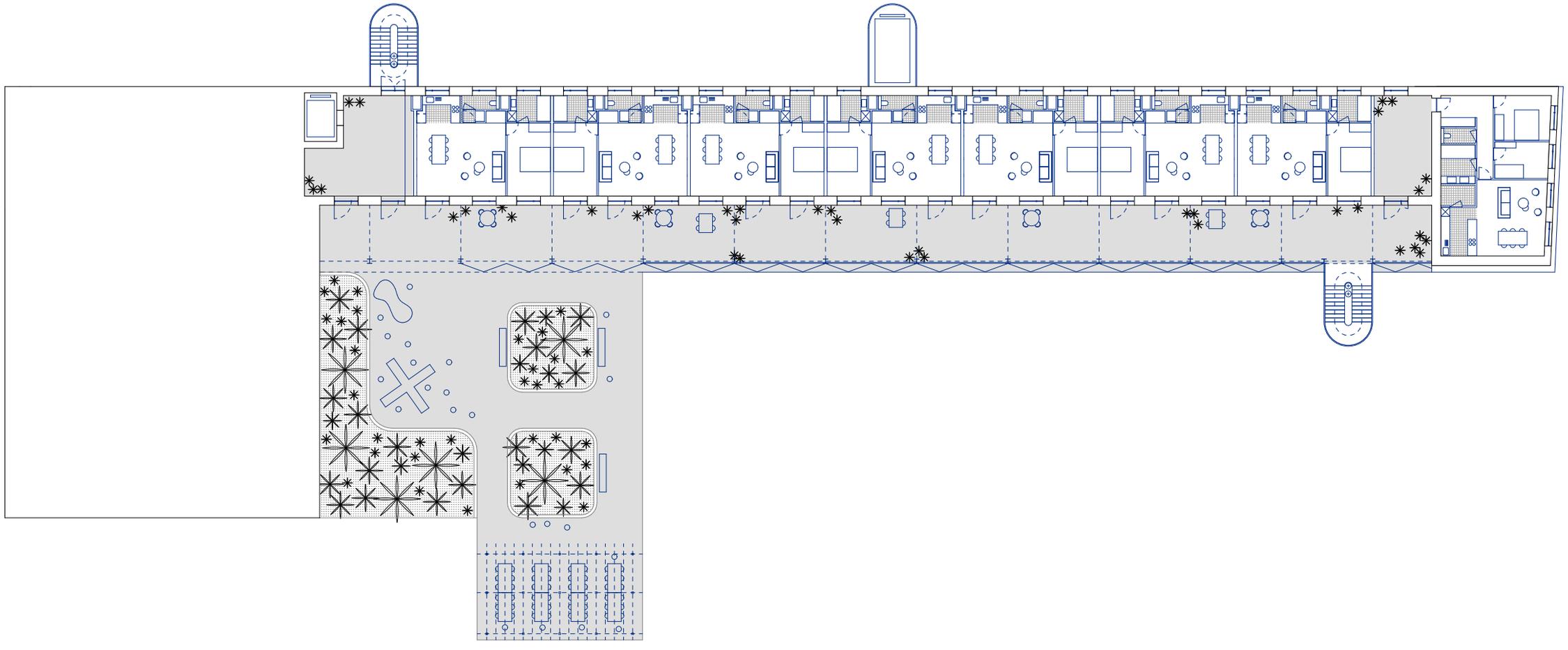
Vertical accessibility



New collective appropriable distribution

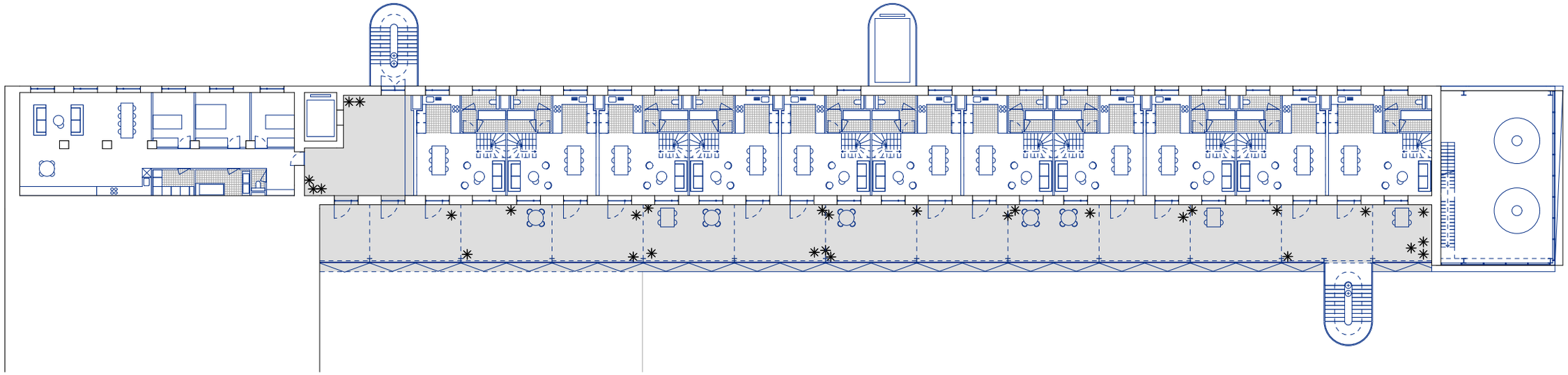


Emphasis on meeting places



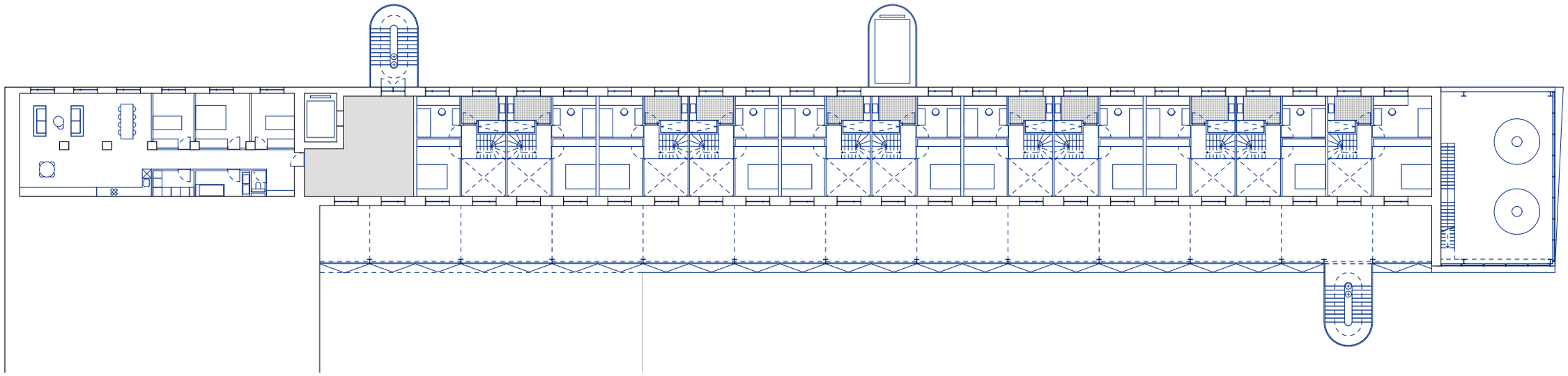
First Floor

0 2 10m



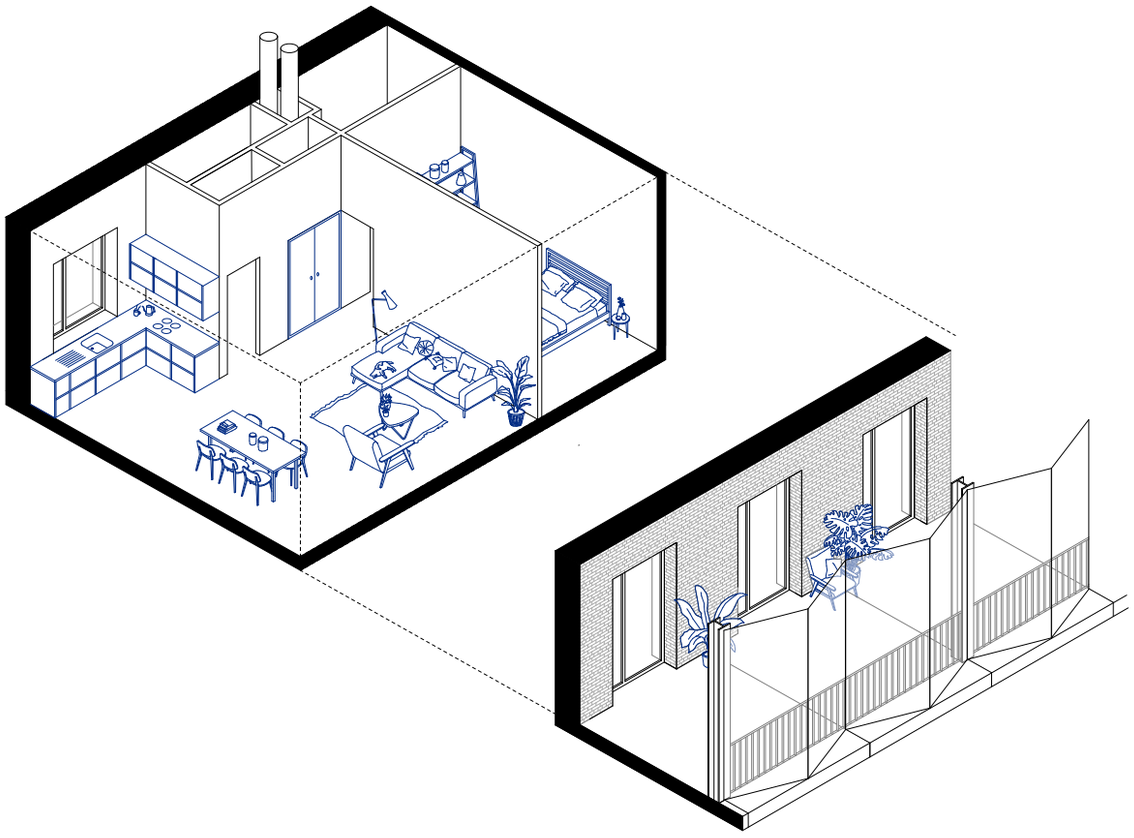
Second Floor

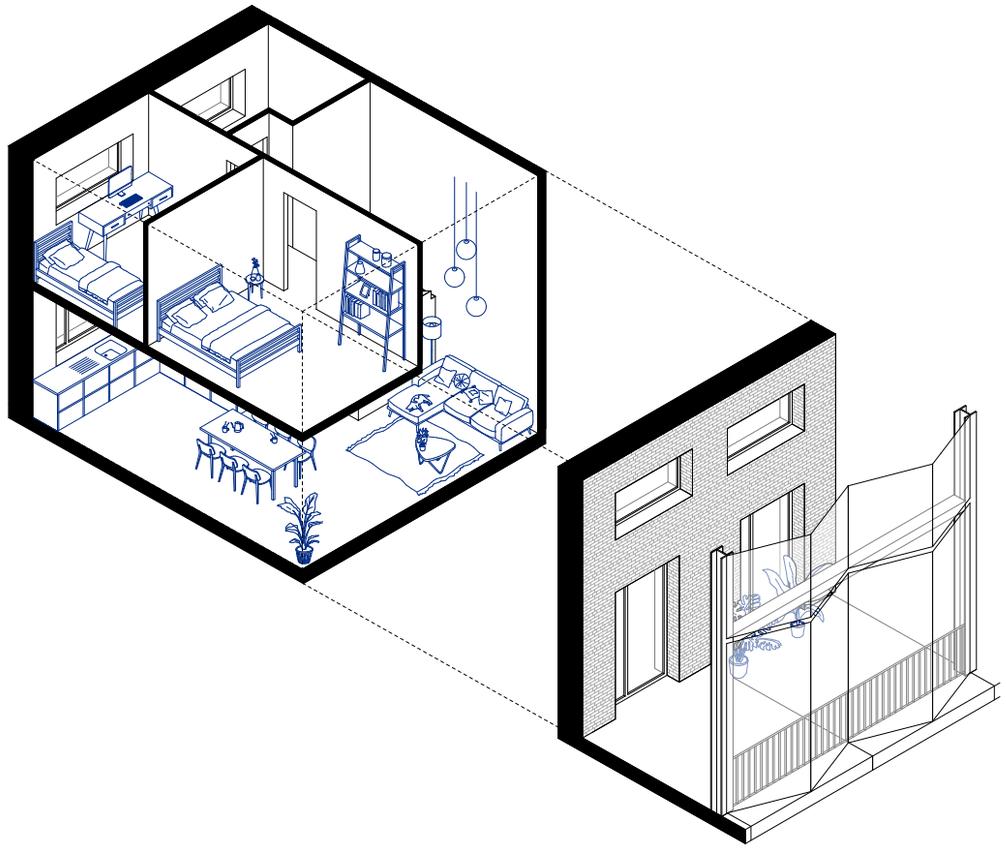
0 2 10m



Third Floor (duplex)

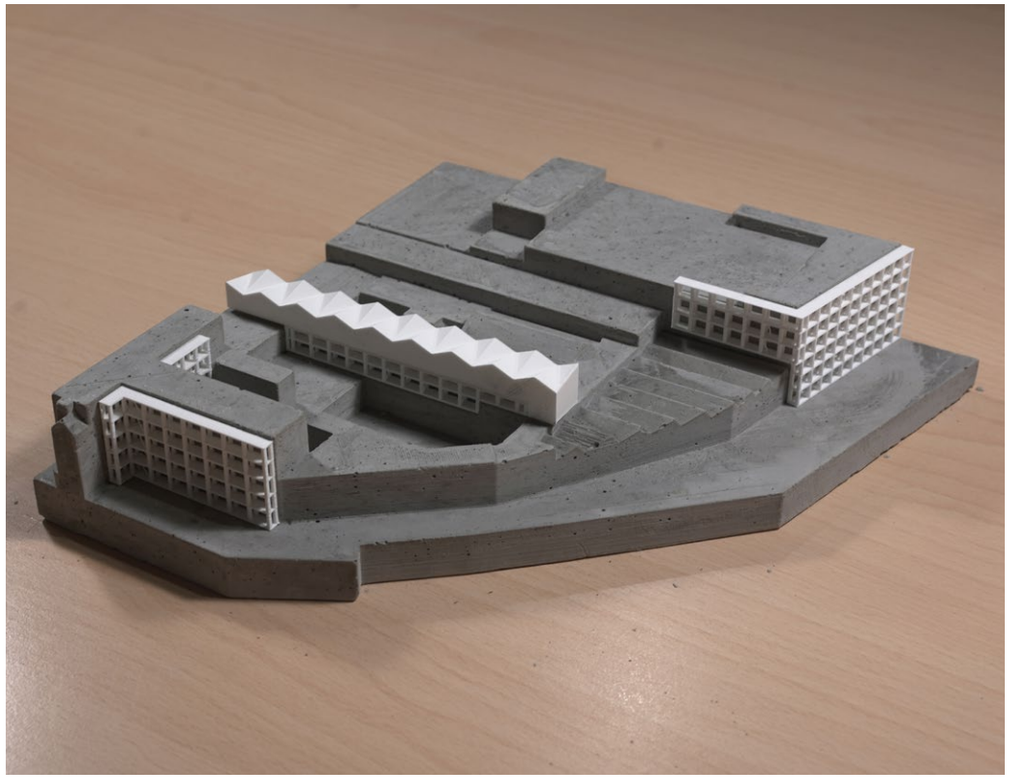
0 2 10m





Reaffectation Strategy

Extension.



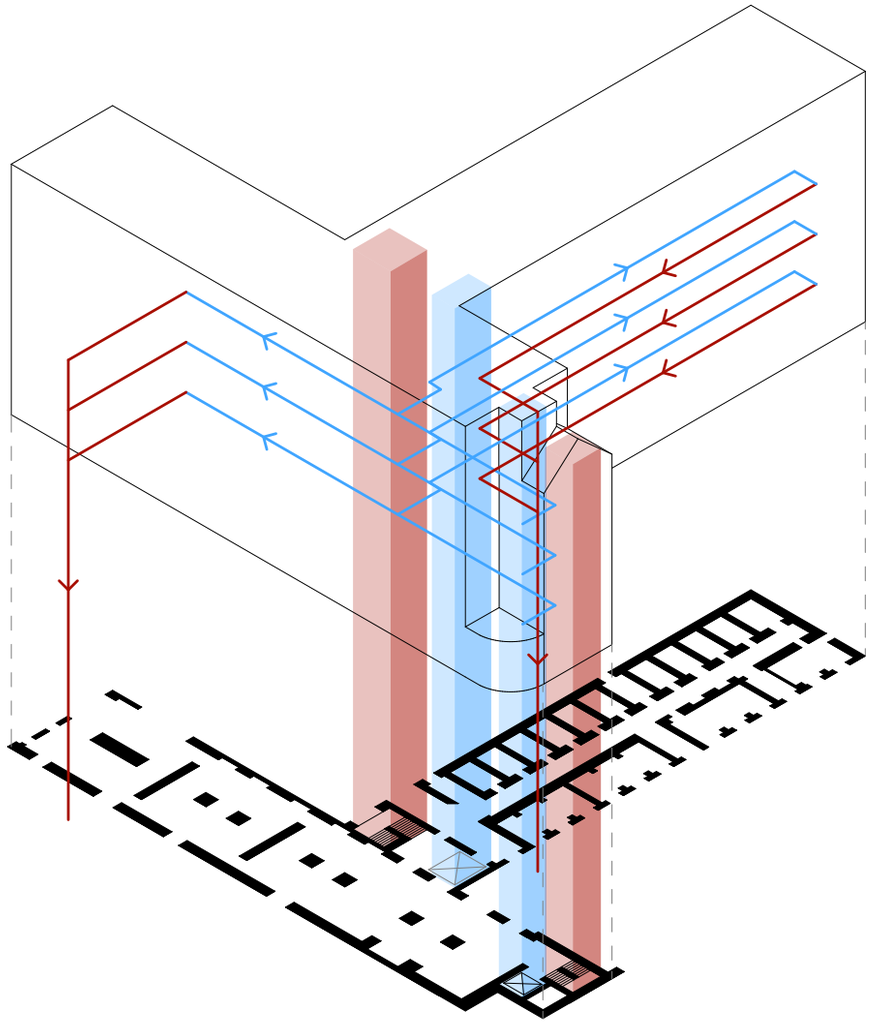
7 Anticipate tomorrow's economy.

The return and development of urban productive spaces is influenced by a certain stepback to a more local economy particularly underlined during Covid crisis and Ukraine war when Global production has been weakened by penuries, delays and, consequently, price increases. There is also a necessity to think about a more sustainable way of producing and consuming goods. Circular economies are more and more present today. Recycling circles are getting closer to urban centres, their biggest market. In that respect, the dependence between production spaces and urban markets shows a tendency of a return to a geographical proximity, also influenced by a will of reducing transportation costs. The development of a new urban mobility oriented towards sustainable and green transportation systems (public transports, bikes, etc) also influences the perimeter of job research, closer to home as stated by Carlos Moreno. Such tendencies suggest a necessity to invest on productive spaces aiming to absorb and sustain the demand for a more local production of goods. In that respect, the project proposes a final phase exploring the possibility of increasing the economic zones offer in the Sappi site considering its productive character.

"From large-scale factories to the new smaller neo-cottage industry, the squeeze for space in cities encourages vertical factories."

The Lomelefebriek

Moreover, it is relevant to investigate the development of vertical urban factories as workflows slightly differ from traditional horizontal organization of work. In such aspect, the Sappi factory, formerly Lhoëst – Weustenraad & Cie, defines the original conditions of what vertically organizing production implies. As stated earlier, Sappi Maastricht has been implanted on a narrow piece of land when the company was founded in 1851, forcing the entrepreneurs to opt for a vertical building instead of classic horizontal typologies spreading over the land as done in the case of Sphinx and Société Céramique. Due to such circumstances, material flows were distinctive from horizontal repartition of work. The Lomelefebrik, the first building of the factory to be built, integrated four floors with an attic stacked under a pitched roof. Raw materials, rags, chemical products, and coal transited by boat in the Bassin in front of the factory. Once unloaded, raw materials were brought through a small, vaulted canal leading to an elevator running along the building façade, dispatching materials on every floor. Final products were then reexported through the elevator towards the Bassin or were lowered using a hoist along the façade directly loaded in trucks.



Vertical factories

GRAVITY EXPLOITATION

The case of Sappi underlines the importance of vertical circulation of goods in the process. Water mill used hoists to lift grains on the upper level taking advantage of the gravity in the transformation process until the packaging of the flour (Emile Bourdelin, 1760). Gravity was also exploited using helicoidal ramps able to control the fall speed of packed elements. Such equipment is still used in parcel distribution warehouses.

LIFT AND FREIGHT-ELEVATOR

With the invention of the lift and freight elevator, lifting materials was not anymore limited to human forces. With the development of vertical urban factories during last century, lifts have become the most solicitated tool to move goods vertically thanks to the economy of space it gave into buildings.

In the case of the Cory & Cory 1931's elevators at Starrett-Lehigh, in New York, trucks were lifted instead of their load. Due to its location along the docks of the West side in New York, boat transport also had to be taken into account. Transshipping materials was organized along railtracks connecting the piers to the building. Traintracks were built on the ground floor of the Starrett-Lehigh buildings to ease loading and unloading away from the urban trafic of the area.

HOISTS AND MONRAILS

Finally, monorails also represent a solution for the vertical displacement of chain of productions. Such equipment is used in car factories to overlap flows of production.

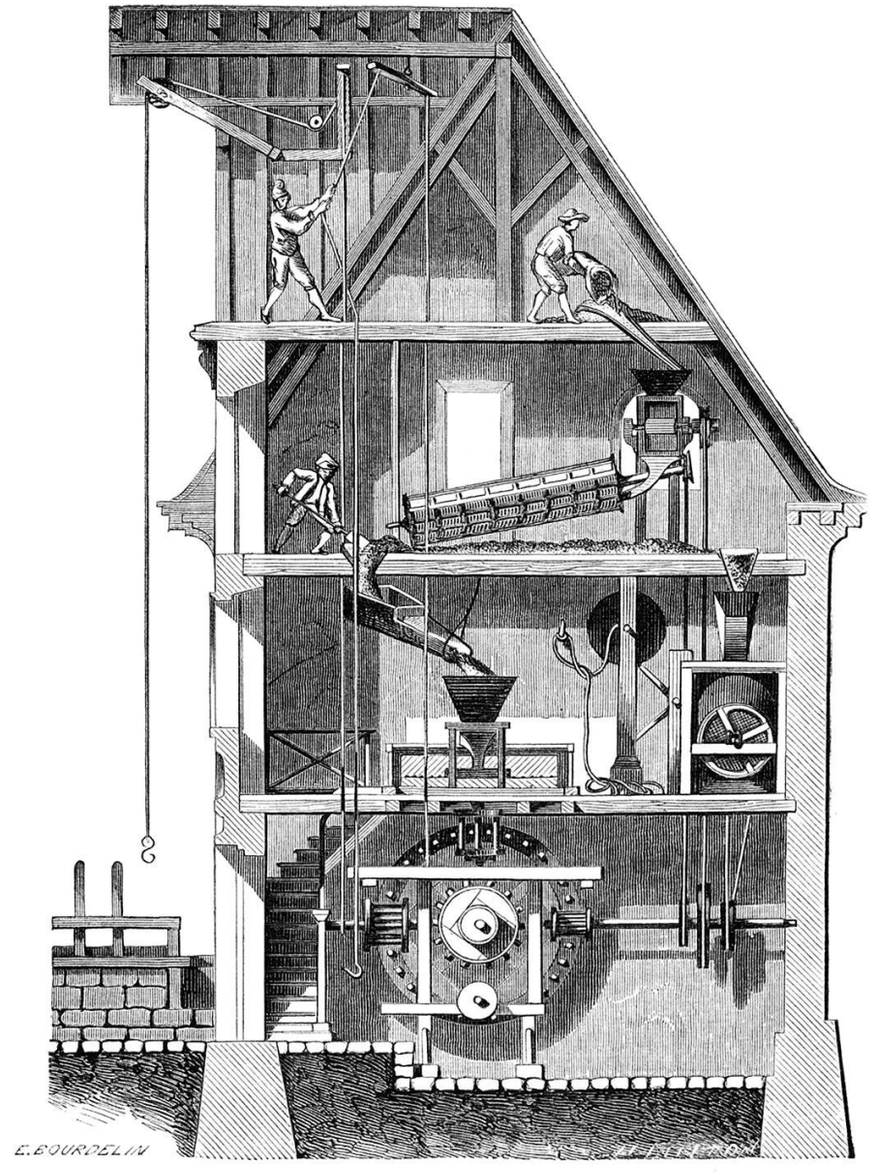


Figure 26 Gravure of the production process of a Mill. 1875.

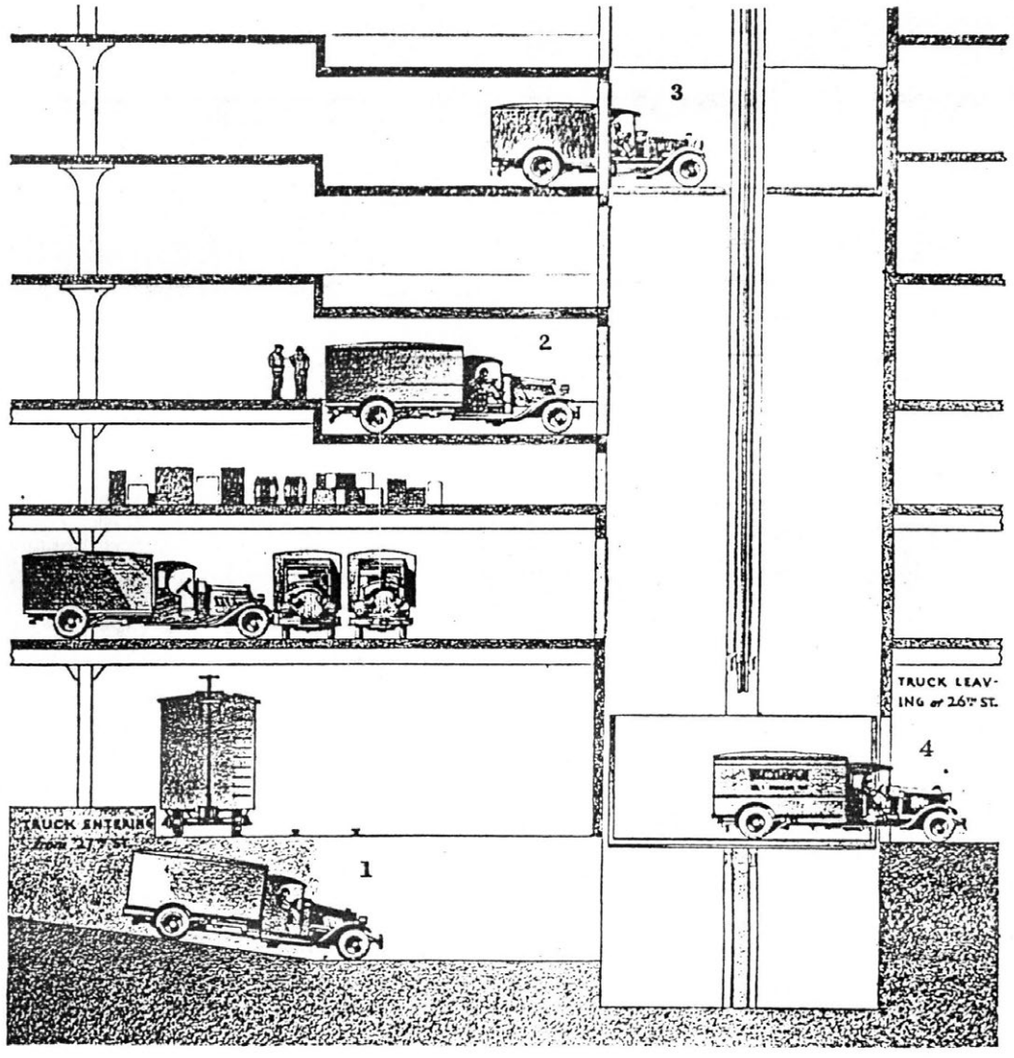
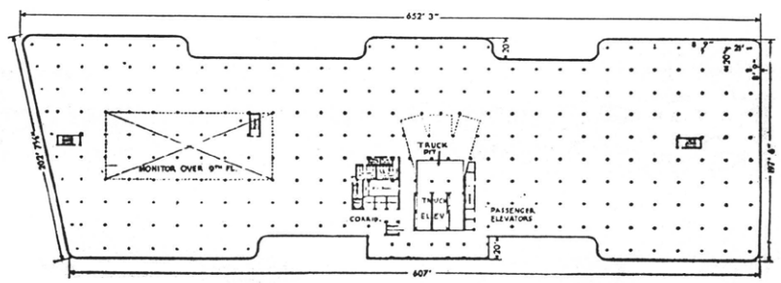


Figure 27 Section of the Starrett-Lehigh building, New York. 1930.



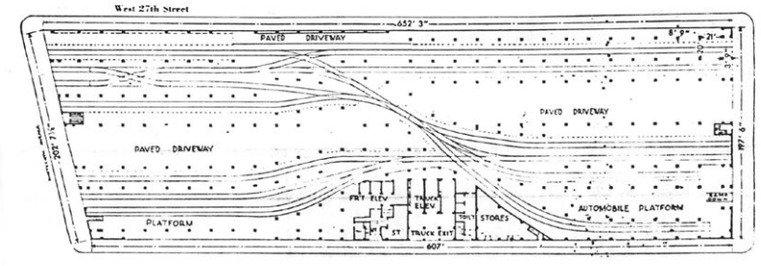


Figure 28 Floorplans of the Starrett-Lehigh building, New York. 1930.

Hôtels industriels

In 1980's - 1990's, the city of Paris explored the potential reintegration of production into the city and the morphological consequences it will have. Through the development of several Hotels Industriels through the city, the municipality intended a return to a more productive environment able to redevelop economic growth in such sector.

The inevitable density and important land value of the French city influenced the development of vertical typologies also using lifts as architectural landmarks through the site aiming to make more visible delivery spots considering the horizontality of those buildings. It is particularly true in the case of the hotel industriel Metropole 19 designed by architecture agency Viguier. Freight-elevators appear as pillars implanted on the logistic area.

The plan organization is interesting as it undeerlines specifics needs to such an unusual architectural typology. Beyond vertical circulations, which are clearly divided expressing the distinction between people and goods distribution, the plan offers different workspace areas with the potentiality of combining them to absorb a lack of space. An important element to be identified is the presence of collective areas (coffeebreak, drinks, professional discussions) as well as protected storage spaces.

Due to the large range of activities that can potentially happen inside such building, ateliers are designed with important load resistance floors and high ceilings aiming to host a second story/ mezzanine.

Figure 29 Metropole 19 Hôtel industriel, Paris. 1988.

Figure 30 Metropole 19 Hôtel industriel, Paris. 1988.

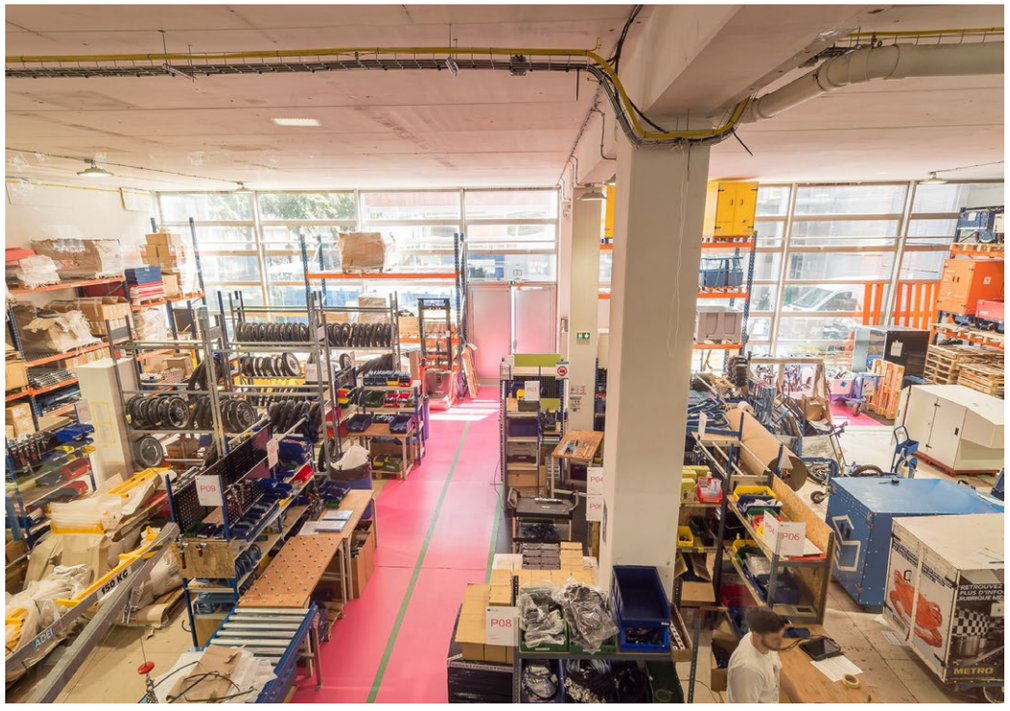


Figure 31 Metropole 19 Hôtel industriel, Paris. 1988.

Figure 32 Metropole 19 Hôtel industriel, Paris. 1988.

8 The next big thing, a lot of small things.

The density of urban environments often makes it hard for small entrepreneurs to rent a decent space where they can develop their business. In the case of Maastricht, 13% of the workforce are independent workers (ZZP) prospering with no employees in a limited space (excluding trading sector). Alongside zzp'ers, there are also more than 800 new starters per year. Garages, cellars or even small trucks often represent important places of innovation in cities. Afterall, the first Macintosh has been invented in a garage. In that respect, the return of a productive city is not only meant to allocate space for well-established technological and innovative companies. There is also a strong interest in creating decent spaces for these independent workers to help them making their business flourish. The idea of creating a mix-use productive district is also meant to put in relation these makers together, with the potential of developing synergies and a competitive environment, but also to put in relation makers and thinkers, forming a more innovative yet solidary city.

"*The next big thing in industrial revival, will be a lot of big things.*" It is with these words that Ward Verbakel initiated its intervention during a lecture about Vertical Urban Factory in Brussels in 2022. Once again, it underlines the future of productive spaces typologies: small, yet agglomerated spaces. Nina Rappaport, in her words, underlines the redevelopment of neo-cottage industry. It also indirectly explains what kind of companies would be interested in moving in. Heavy transformative industries have no interest in going back to the city; from logistics issues, lack of space available, land value to pollution and complex cohabitation, such big scale companies rely more on the regional scale, as part of an international trading network than a local footprint in dense urban environments.

In contradiction to them, companies embedded in the industry 4.0 sharing a common interest for digitalization, robotic and cleaner production processes could easily come back to urban environment better connecting with living areas of actual and future collaborators. Start-ups, small manufacturing as well as small entrepreneurs looking for a close relationship with their market will find attractive to come back to a decent production place in the city. Companies involved in the development of circular initiatives, embedded in urban market also represent a source of opportunity. This range of potential stakeholders also shows the revolution intended by industries towards cleaner, more silent and more inclusive workshops.

9 Hybridization of productive typologies.

Embedding factories in urban environment also questions a hybridization of architectural typologies reducing the contrast between residential and productive buildings. The hotel industriel Berlier, designed by Dominique Perrault is a good example showing the corporatization of industrial spaces as a solution to integrate this new typology in an urban district. The building is surrounded by on one side, a logistics area dedicated to the loading and unloading of trucks meanwhile on the other side, the building welcomes workers as employees would enter in their office buildings. The plan is organized following a heavy post-beam concrete structure punctuated by two cores integrating vertical circulations and servicing spaces. Facades are treated as a technical wall distributing electricity and ventilation meanwhile offering an integrated sun protection.

Figure 33 Hôtel industriel Berlier, Paris. 1990.

Nothing to hide

The Perrault' s hotel industriel shares a connotation of transparency regarding production in urban environments. A search for transparency that intends to express the change of paradigm in productive spaces towards cleaner, lighter and more inclusive production environment. Digitalization and AI production assistance play an important role in this changed image. But the interest in making production process more transparent, both physically and philosophically also echoes a gain of interest shown by people in understanding how things are made. Nina Rappaport suggests that such regain of interest can be found in the distancing of people from things making. The disappearing of local craftmanship for off-shore mass consumption affected the relation citizens share with the know-how. A fascination for machinery as tangible testimony of a revolute industrial past. In industrial cities, such as Maastricht, machines are exposed and used as a tourist attraction. Bars and cultural programs as well as coworking spaces are designed as theme parks transporting visitors and workers into cleaned-up working environments of last century industrial glory. The redevelopment of the Sphinx quartier clearly understood this opportunity, particularly for the refurbishment of De Timmerfabriek.

Figure 34 Hôtel industriel Berlier, Paris. 1990.

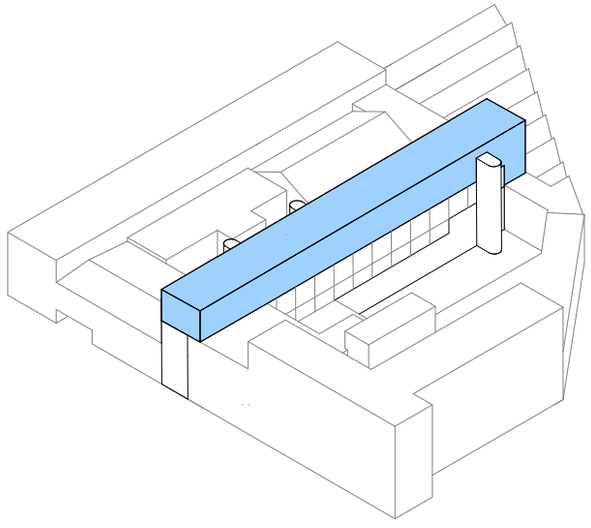
10

Industrial tourism.

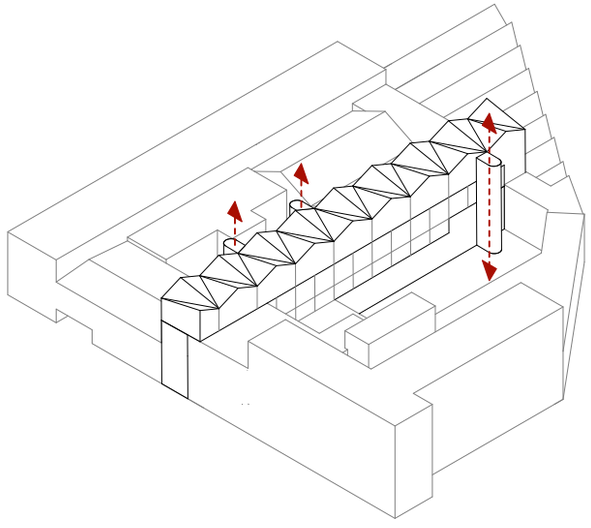
The productive redevelopment of Sappi Maastricht has then the double opportunity to open-up closed doors of the factory and has the potential of becoming a touristic attraction aiming to excite industrial nostalgia, but it also has the opportunity to become an economic catalyser emphasizing on the curiosity and educational interest of contemporary productive processes. Nina Rappaport underlines: "*Visiting the factory has become more prestigious than shopping at the store in the city and connects the consumers to their desire for brand authenticity*". In other words, making productive spaces visible for potential customers represents a marketing interest. Breweries and wine cellars have understood this for a long time now. There is a demand to get images from "behind the scenes". Finally, Nina Rappaport underlines the educational role interactive productions can have through active learning, it can promote potential careers and consequently maintain young workers within Maastricht. Such interest for the public in production processes could also increase investment made in industries both by public and private entities.

The interest found in developing welcoming facilities around productive spaces has promoted the development of interesting hybrid typologies. Vitra furniture brand, known as a leading industrial campus in terms of mixity with a series of pavilions made by renown international architects exploring the relation between architecture expression and industrial production, organized in 1994 a workshop questioning the idea of hybridization. "*Industries should no longer be understood merely as a necessary evil, but as an enrichment to urban cultural life.*" This workshop had the ambition to promote connections beyond industrial and cultural spaces, rather emphasizing on the necessity to making cohabitate residential and productive areas instead of isolating them.

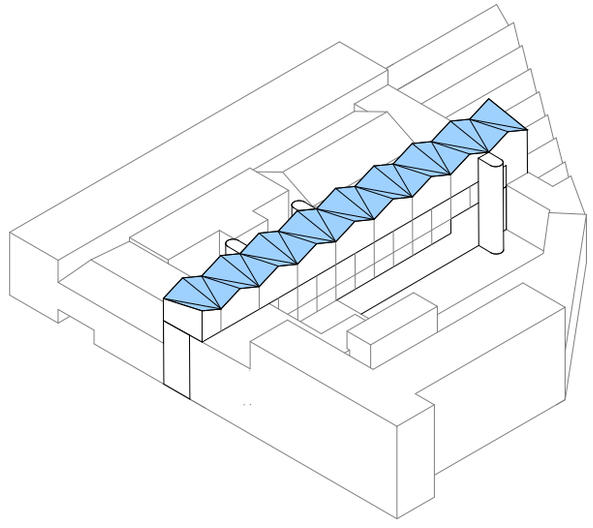
Figure 35 Vitra Logistic Centre, Weil-am-Rhein. SANAA.



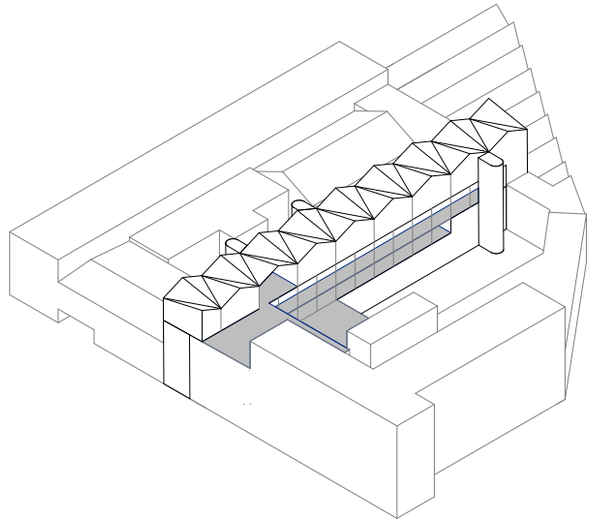
Densification on top of existing building



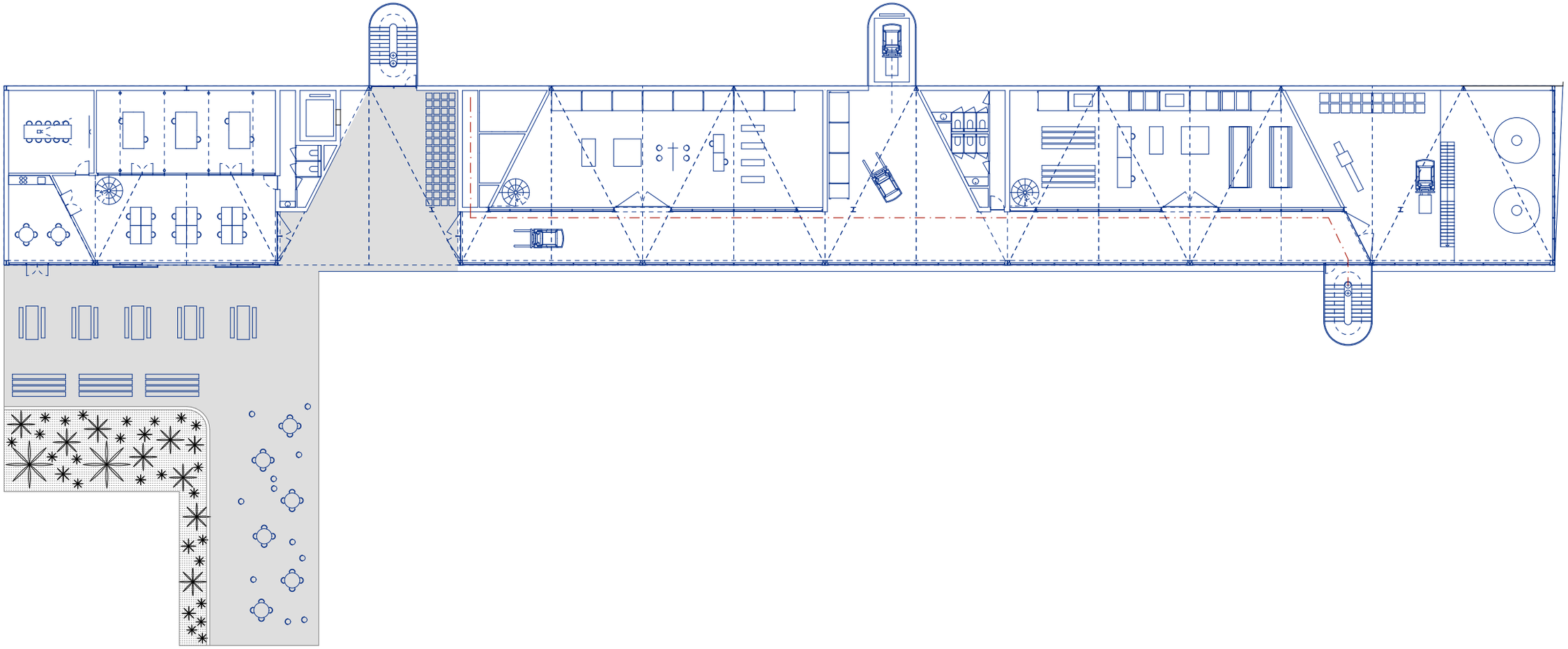
Vertical accessibility



Traditional shed-inspired roof as landmark

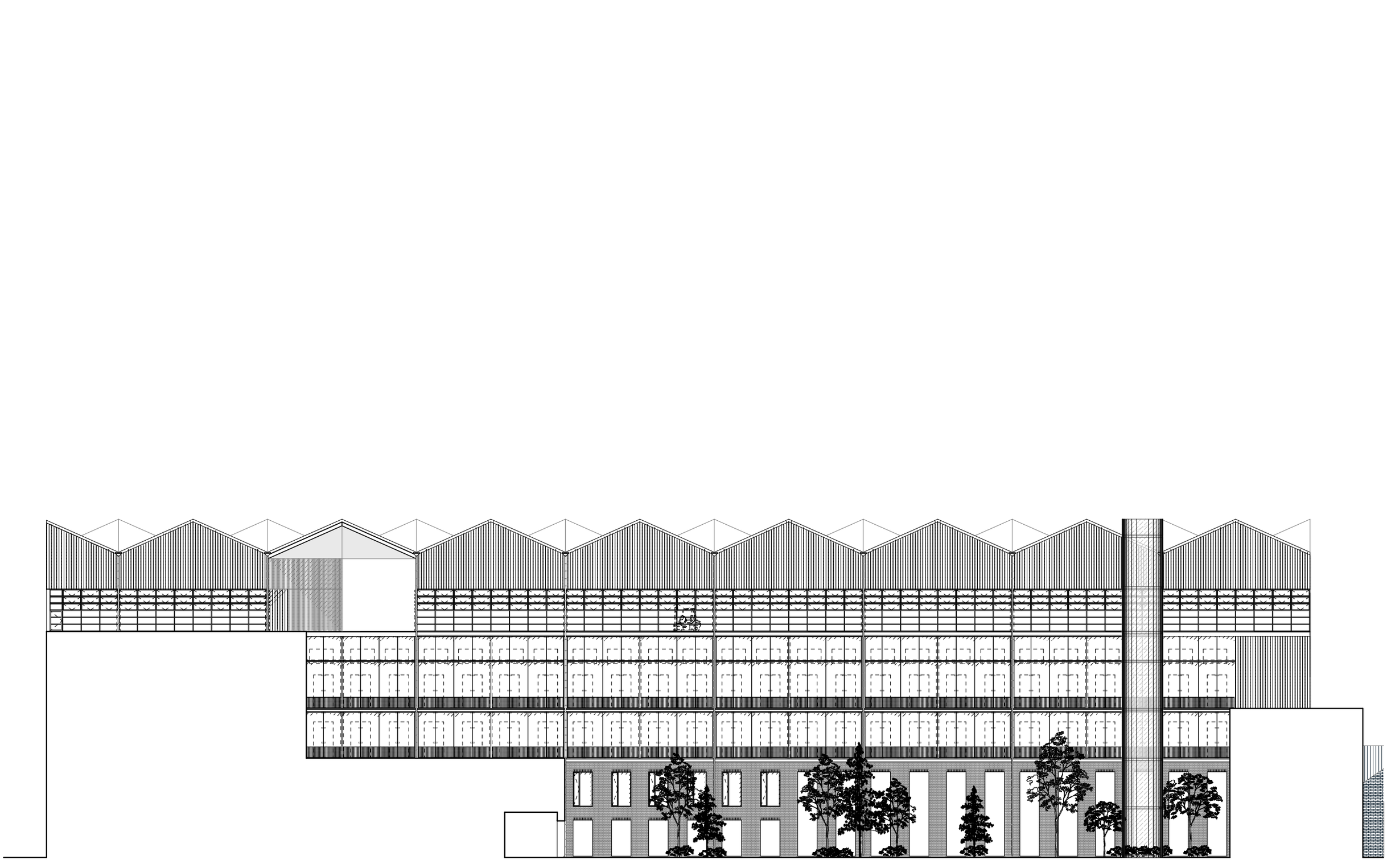


Distributive axis



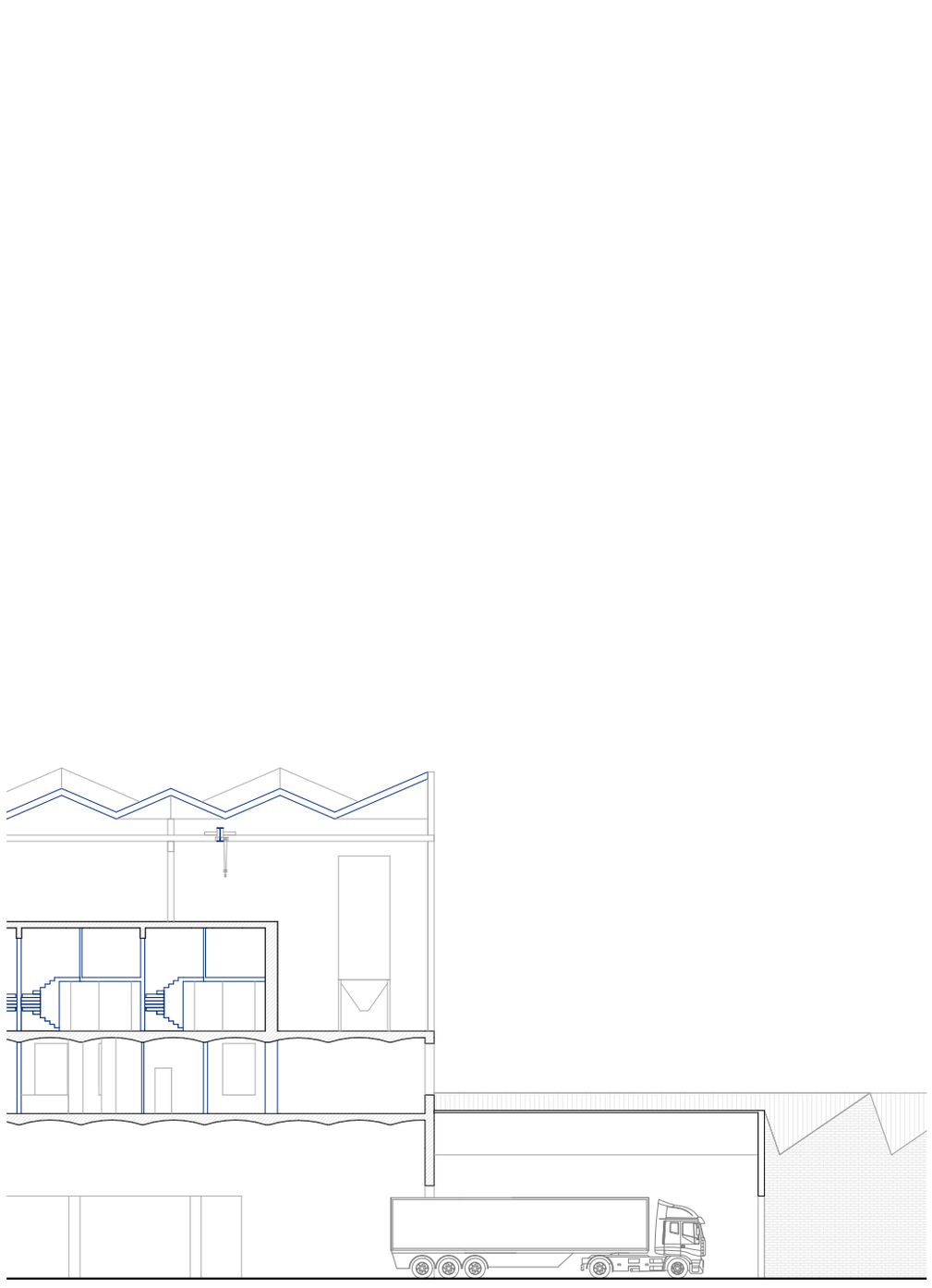
Fourth Floor

0 2 10m



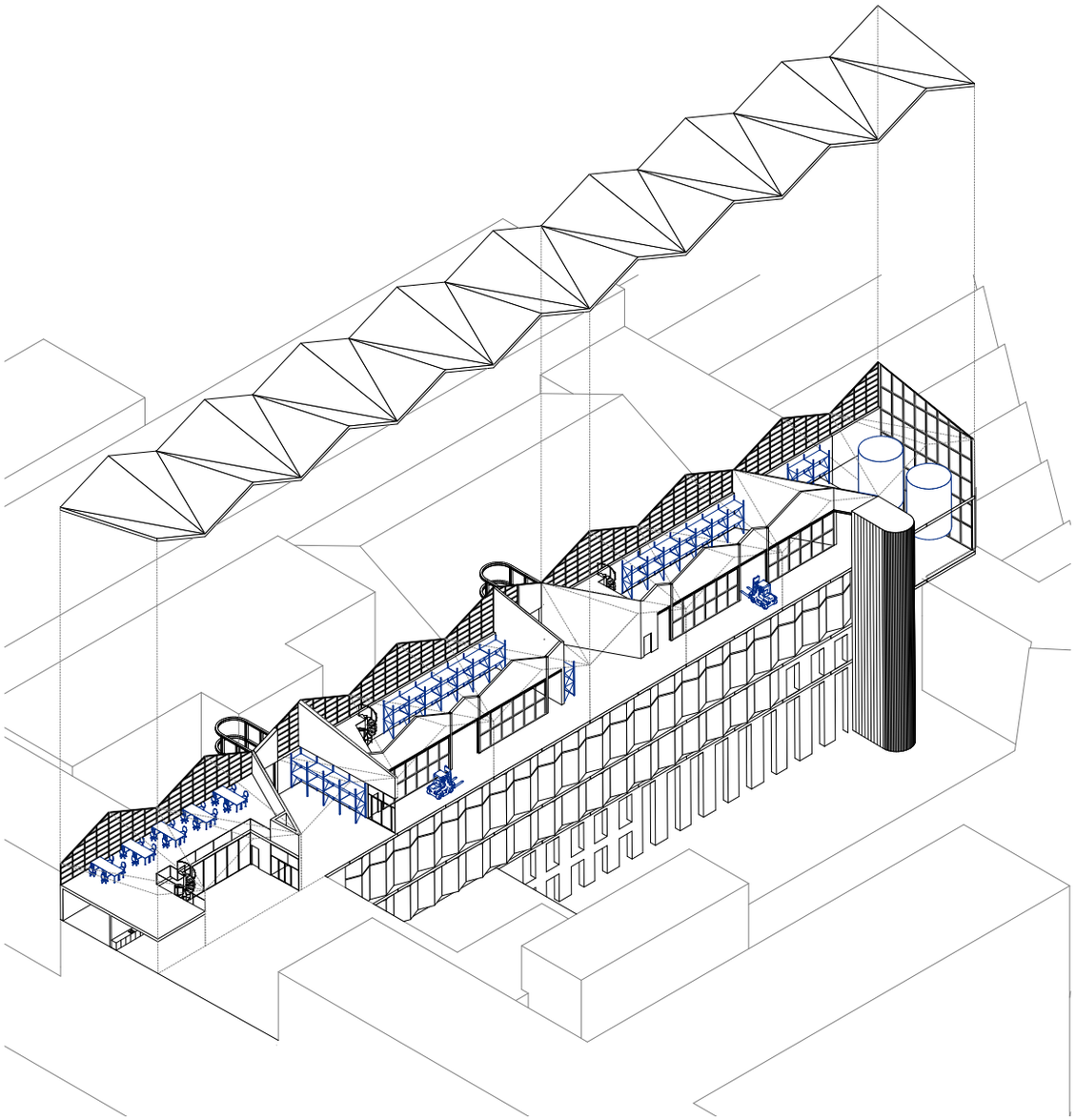
South Facade

0 2 10m

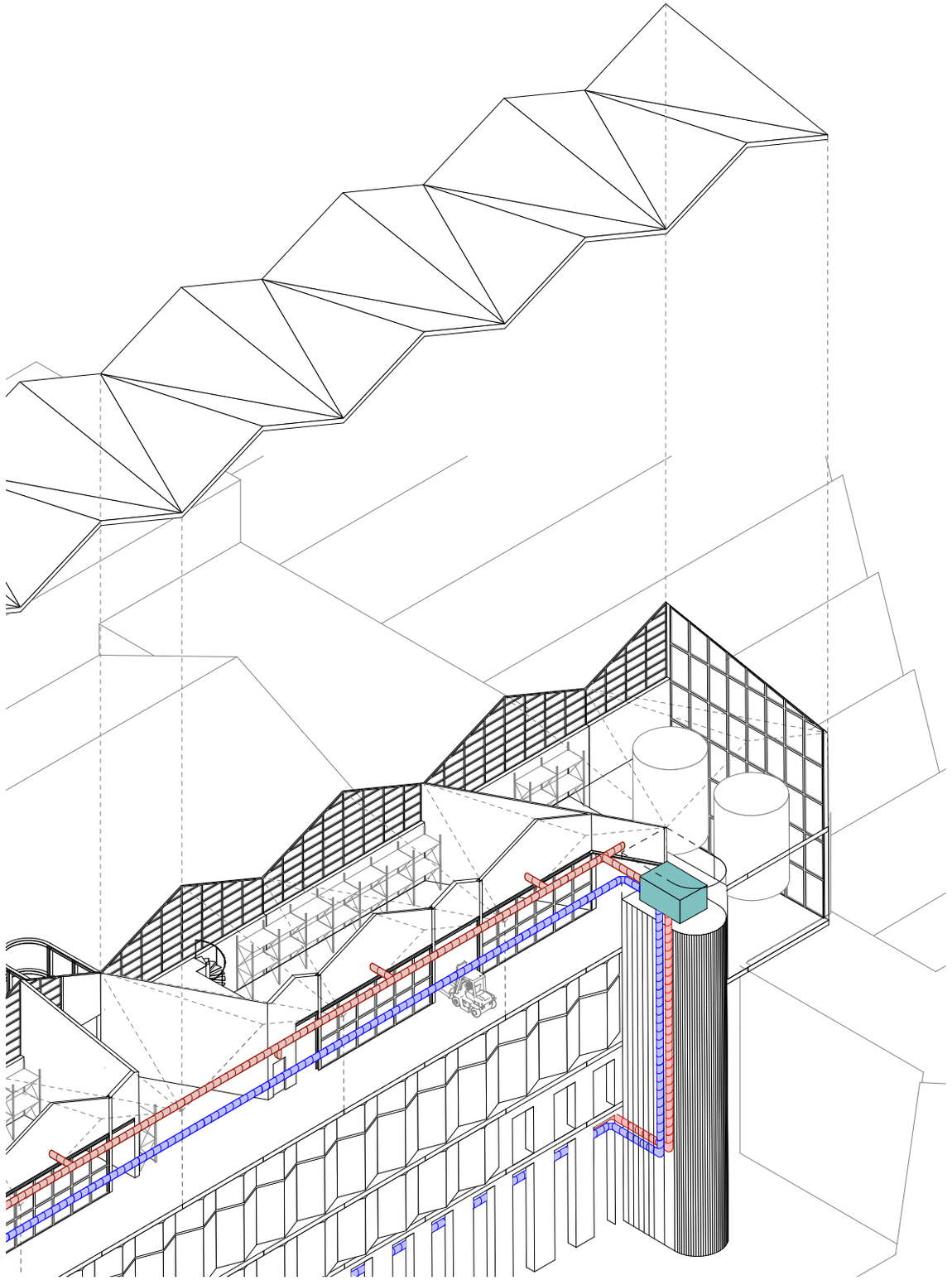


Longitudinal Section Fragment

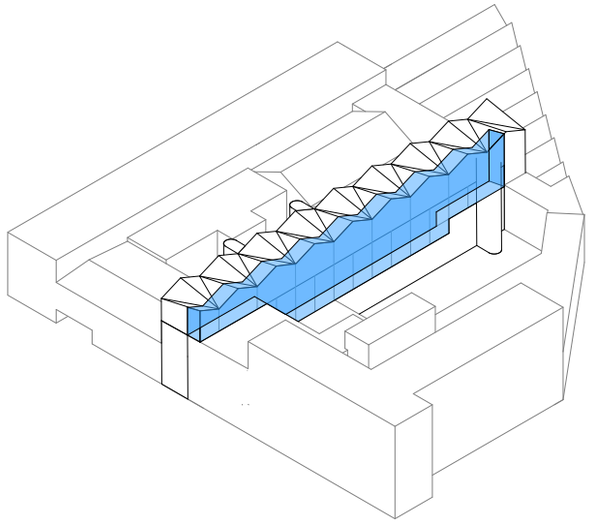
0 2 10m



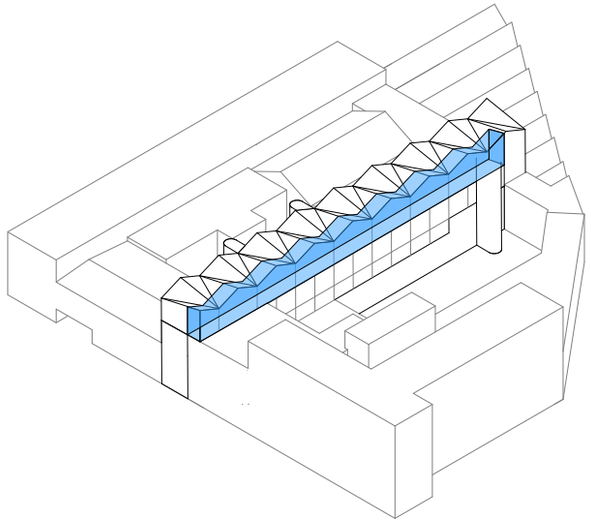
Productive spaces



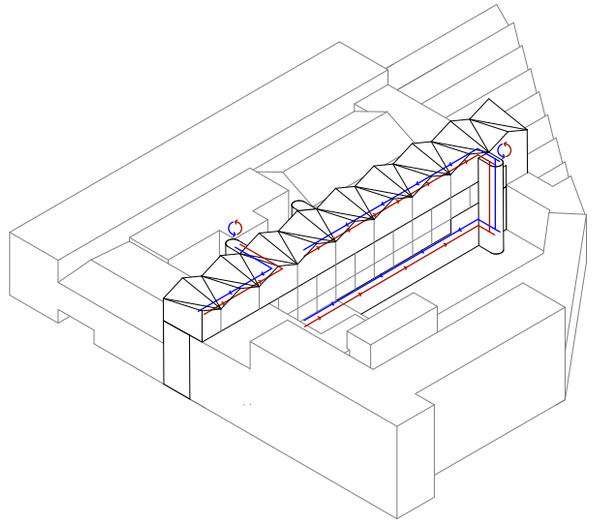
Ventilation distribution



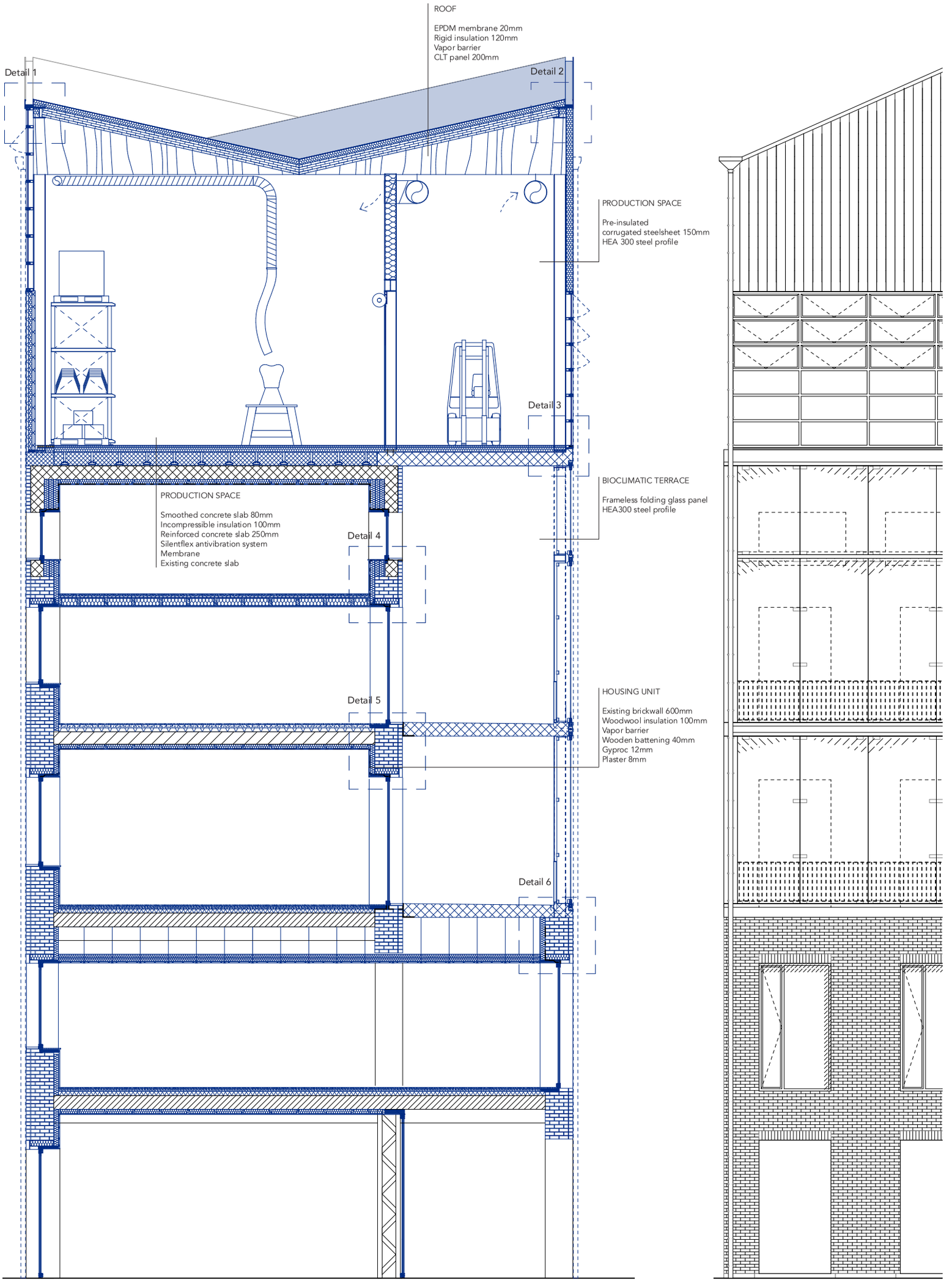
Bioclimatic terraces as bufferzone



Acoustic bufferzone

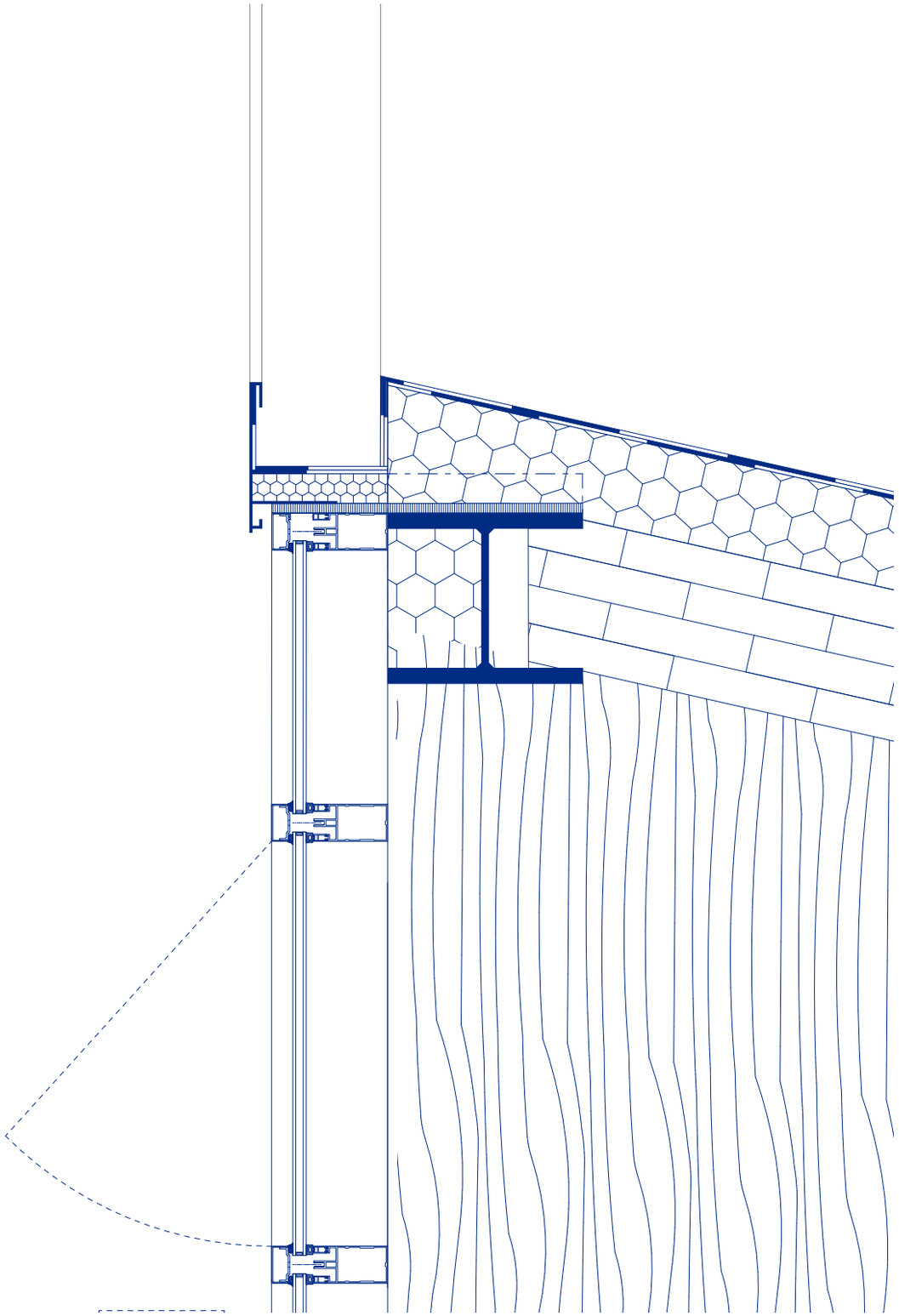


Ventilation principles



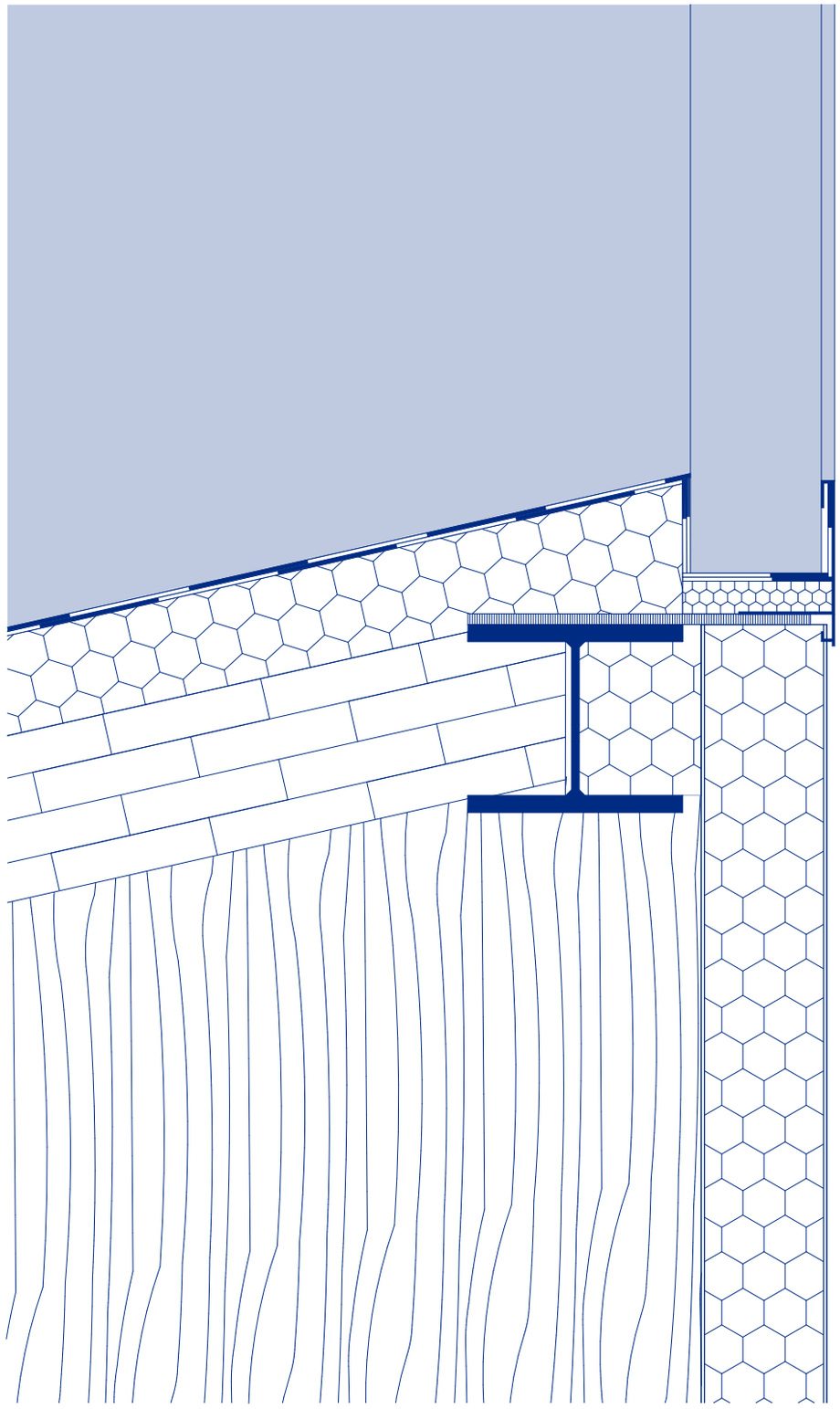
Detail transversal section

0 0,5 2,5m



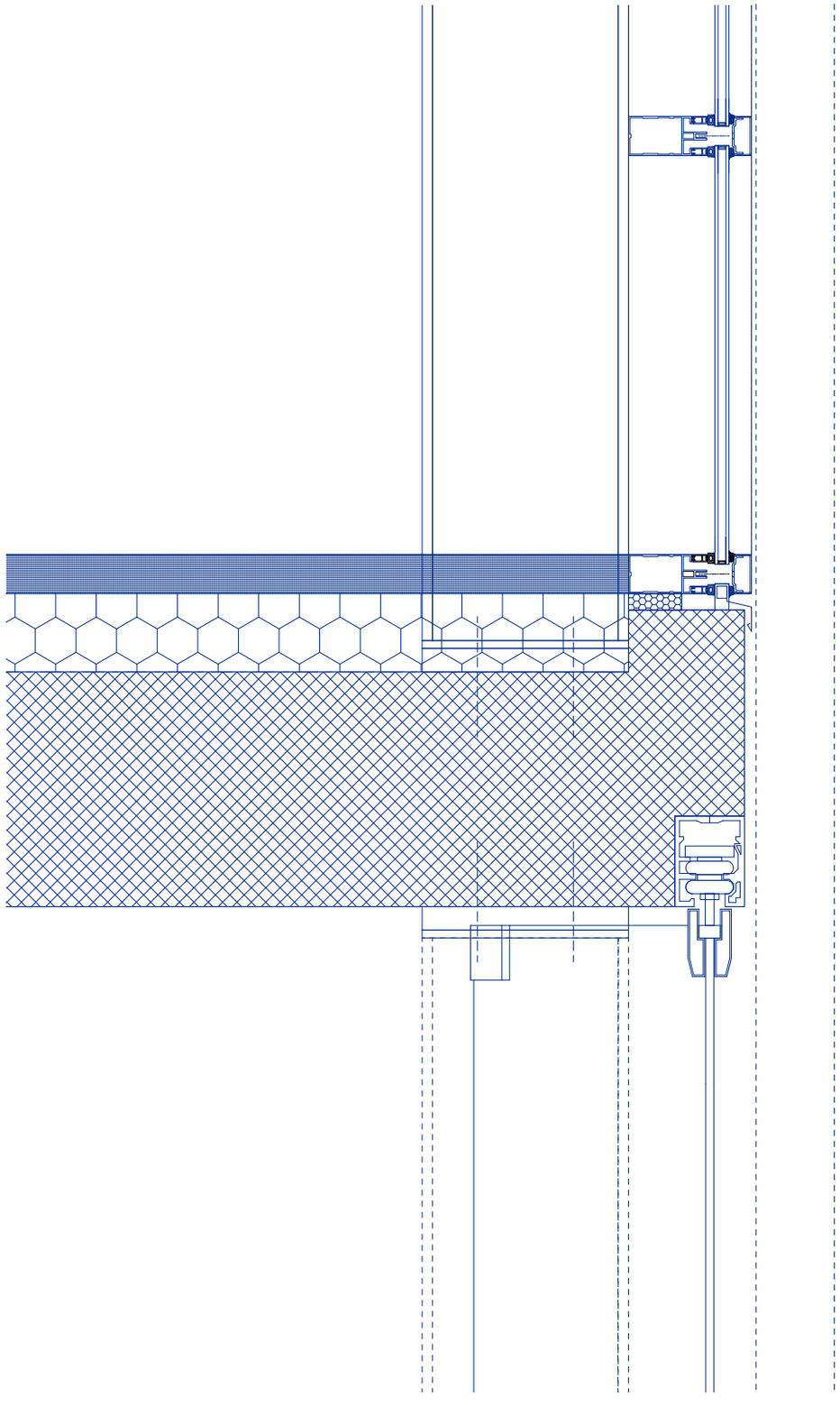
Detail 1

0 0,05 0,25m



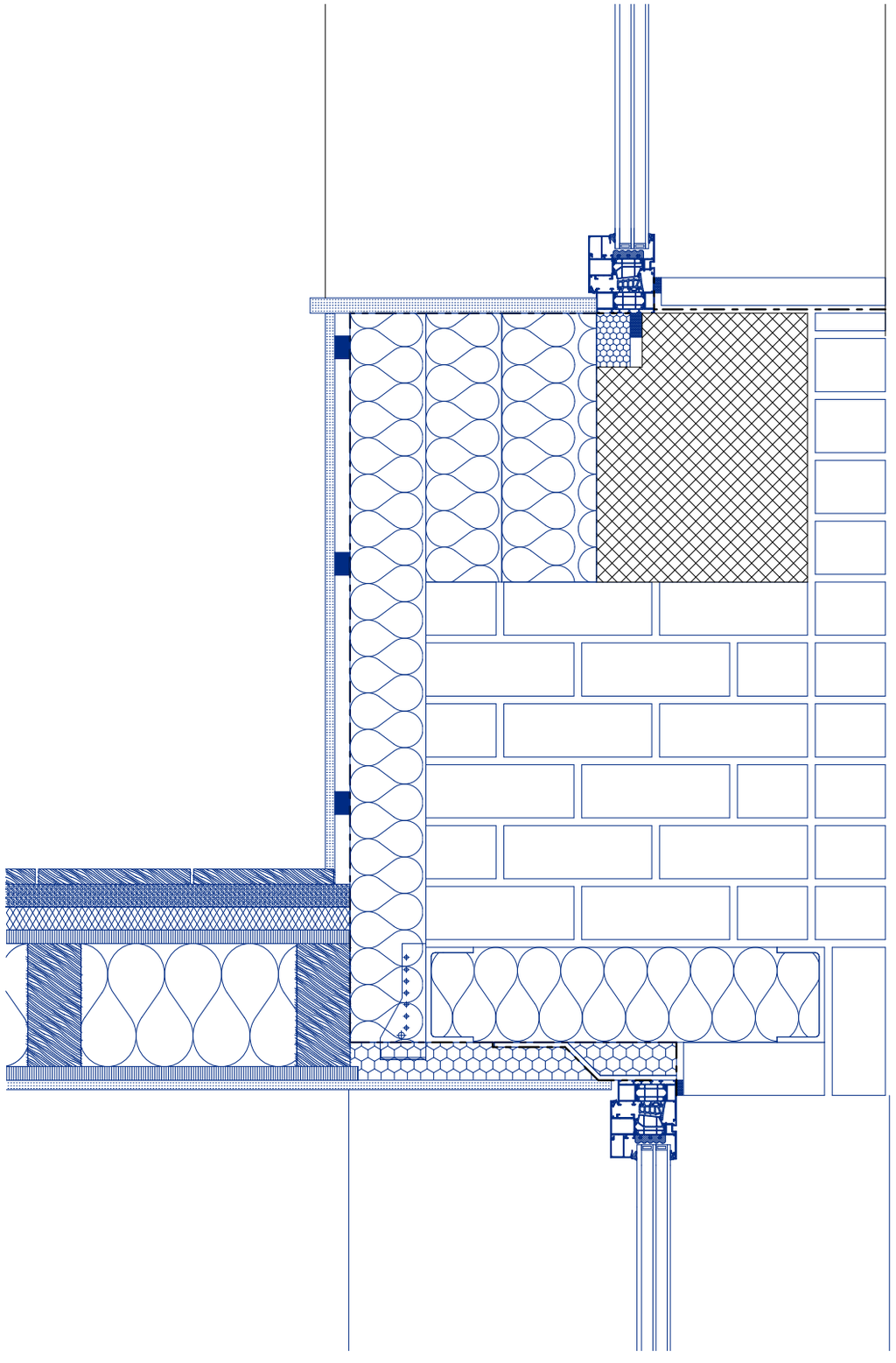
Detail 2

0 0,05 0,25m



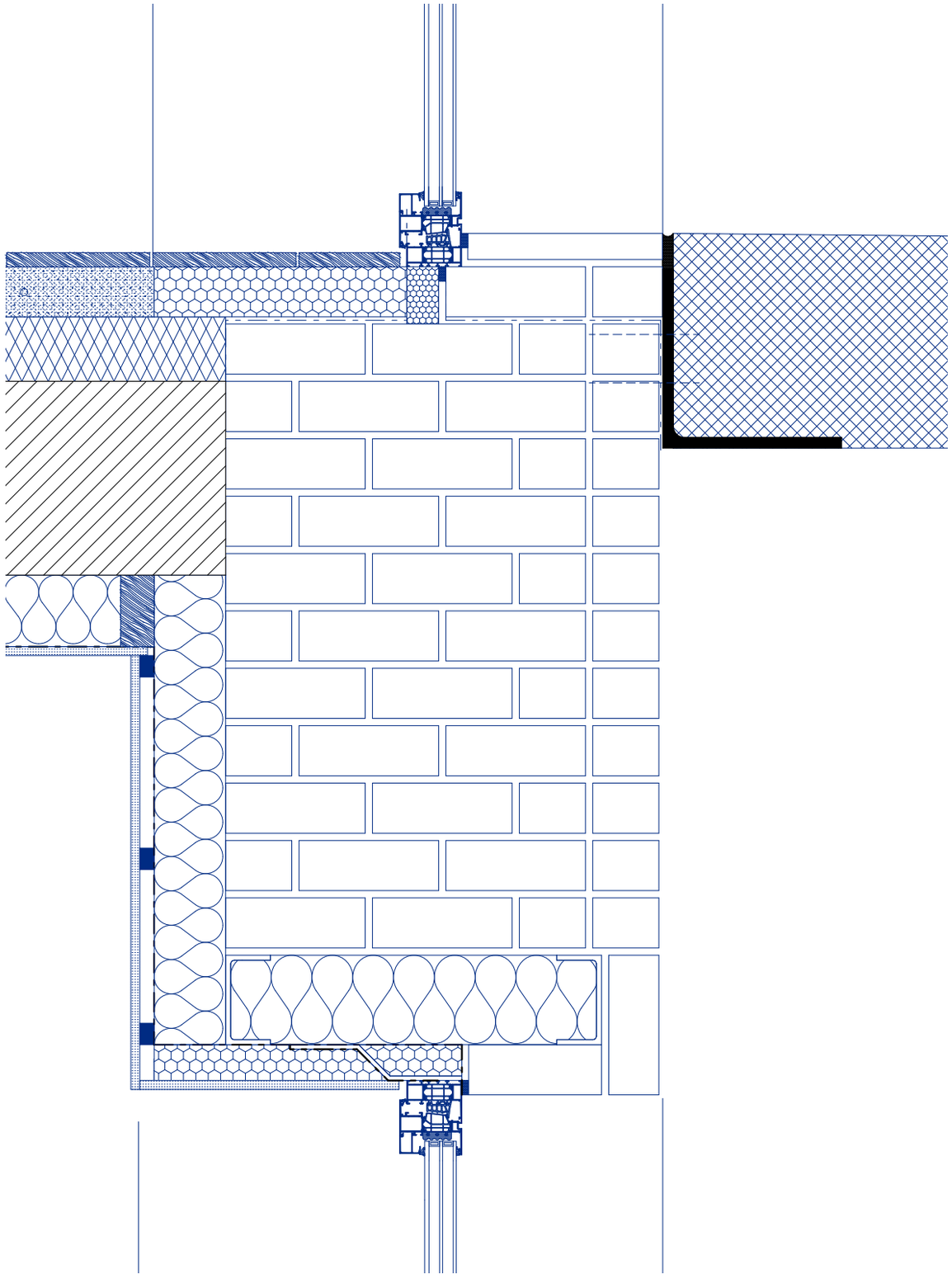
Detail 3

0 0,05 0,25m



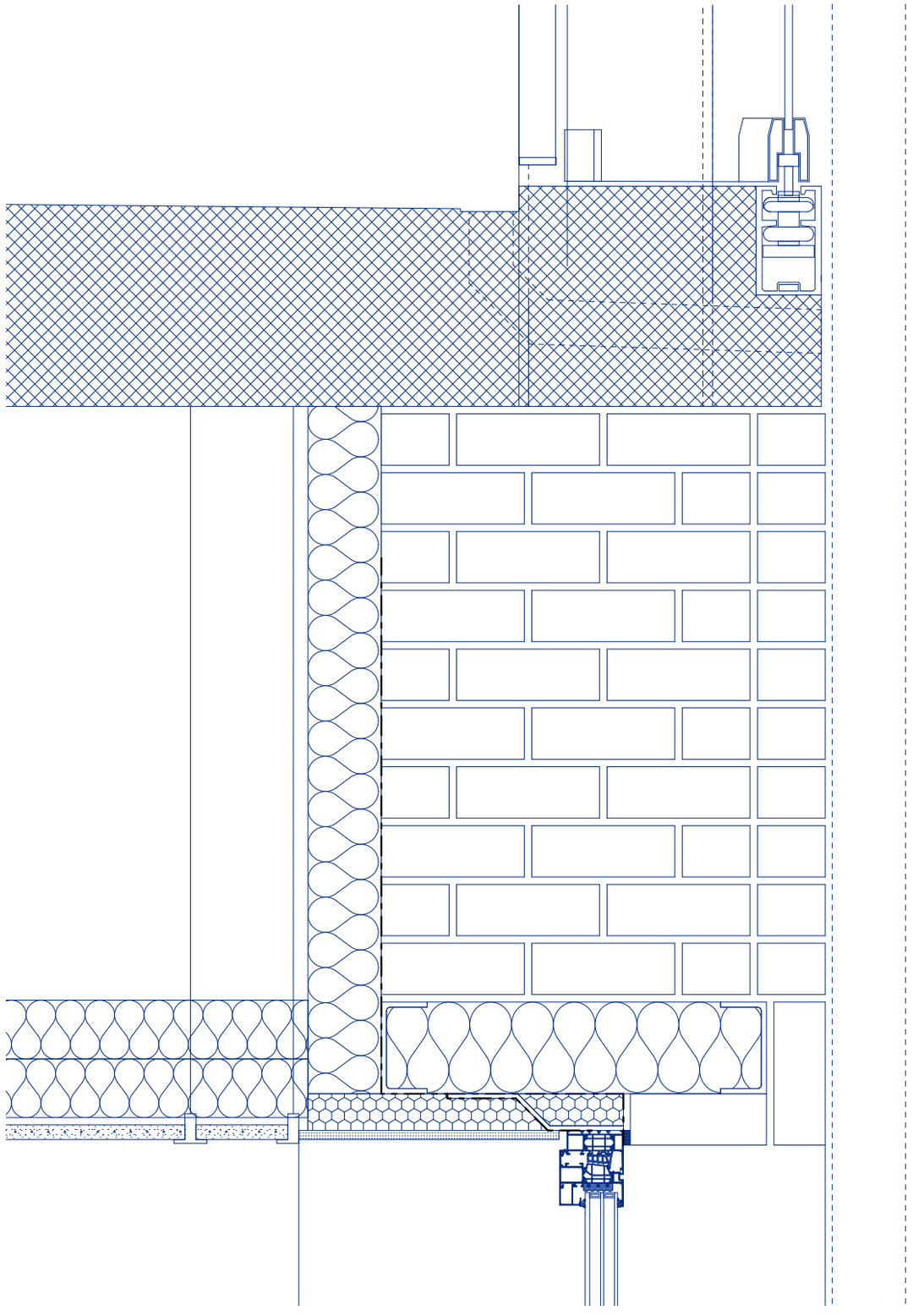
Detail 4

0 0,05 0,25m



Detail 5

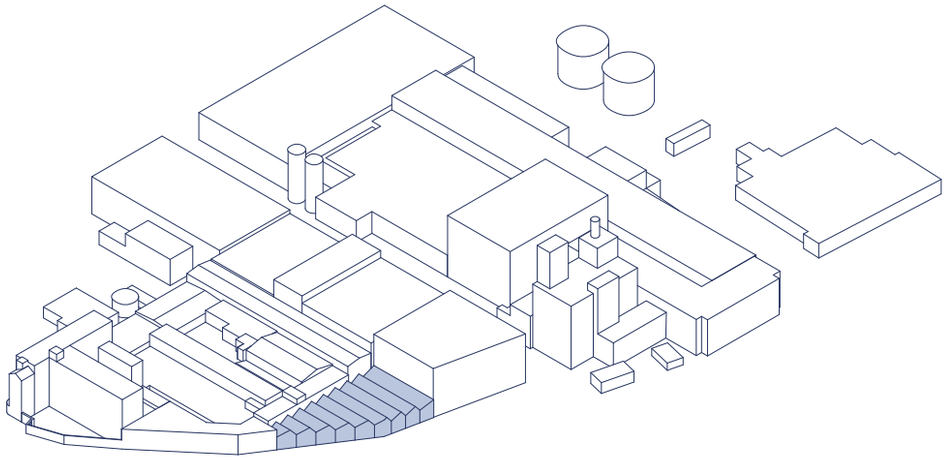
0 0,05 0,25m



Detail 6

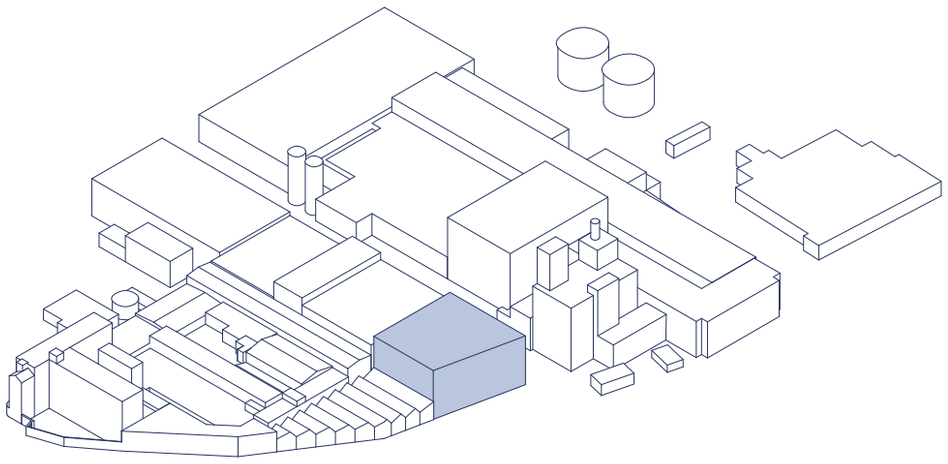
0 0,05 0,25m

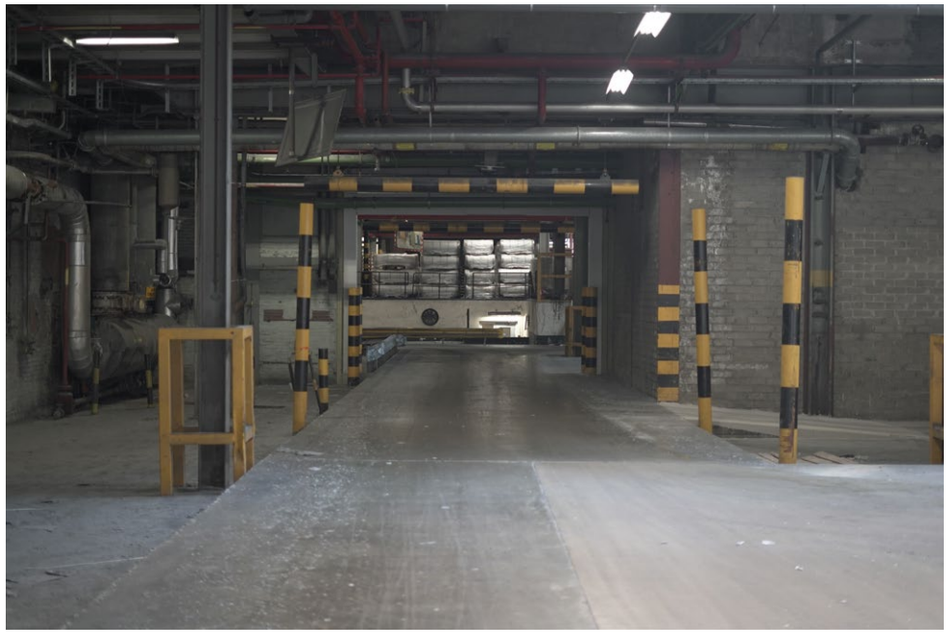
Buildings inventory.



Building S-01

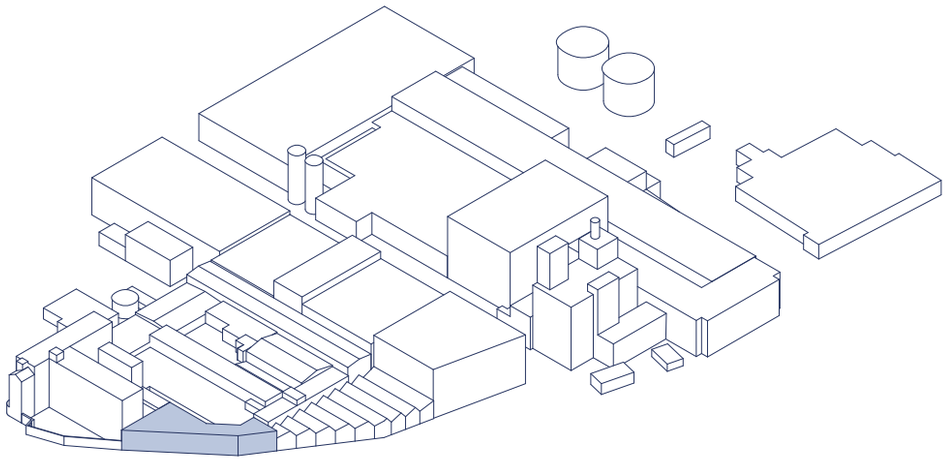
surface: 1.790 m²
access: Waterfront
floor covering: Smooth concrete
electricity: yes
light: yes
height under beam: 6,00 m





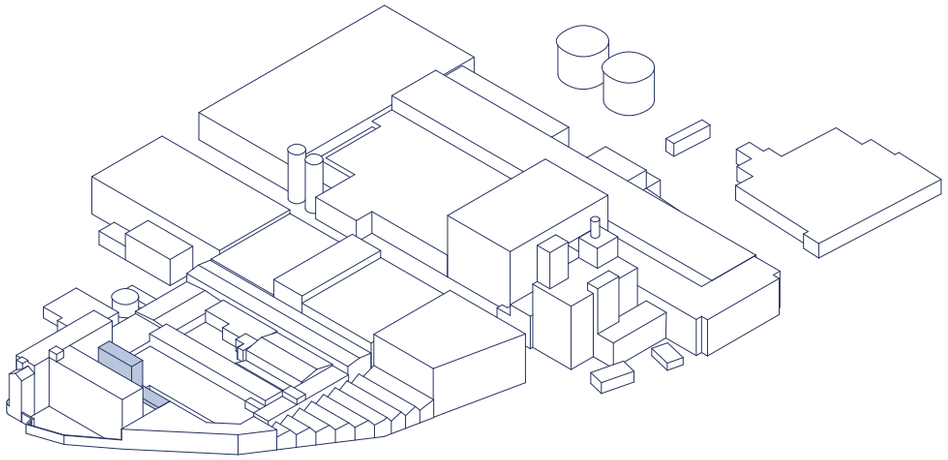
Building S-02

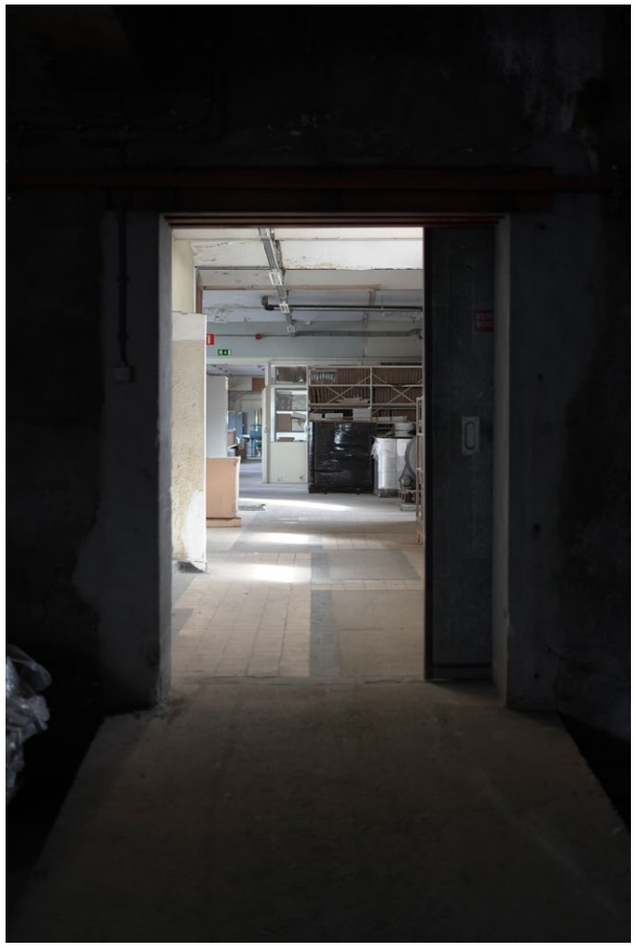
surface: 8.000 m²
access: Waterfront, Fransesingel
floor covering: Smooth concrete, Ceramic tiles
electricity: yes
light: yes
height under beam: 4,00 m



Building S-03

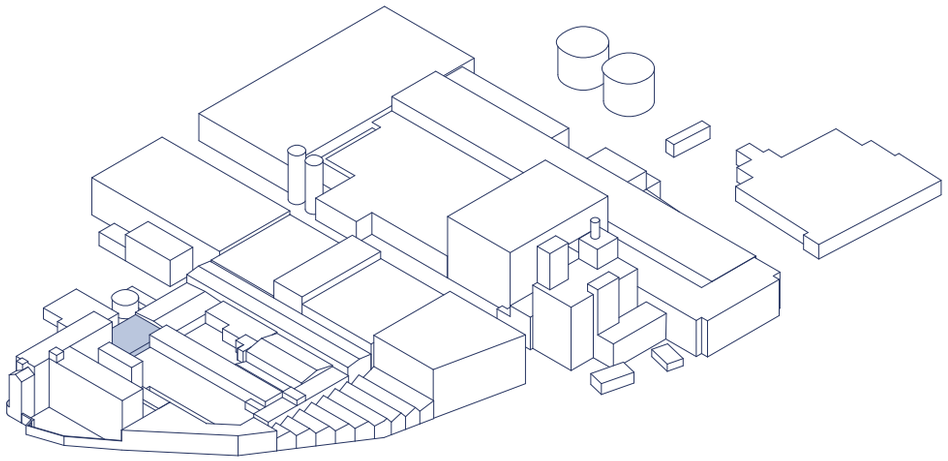
surface: 2.100 m²
access: Waterfront
floor covering: Ceramic tiles
electricity: yes
light: yes
height under beam: 3,00 m

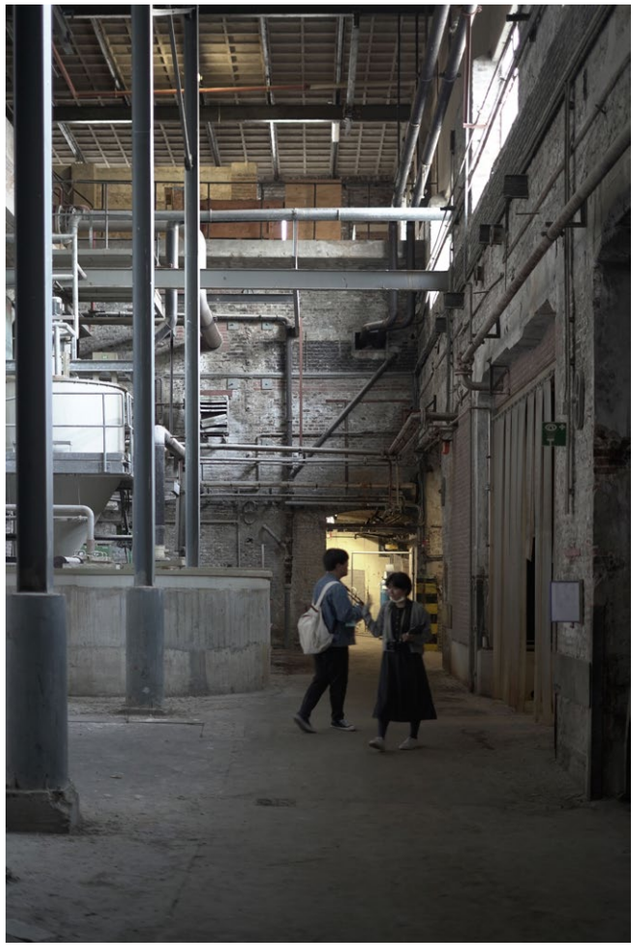




Building S-04

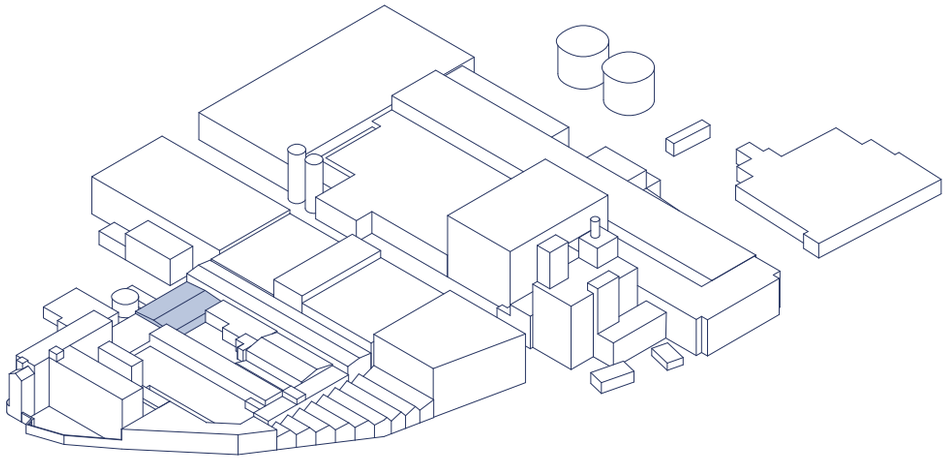
surface: 750 m²
access: Courtyard
floor covering: Ceramic tiles
electricity: to be changed
light: to be changed
height under beam: 4,00 m





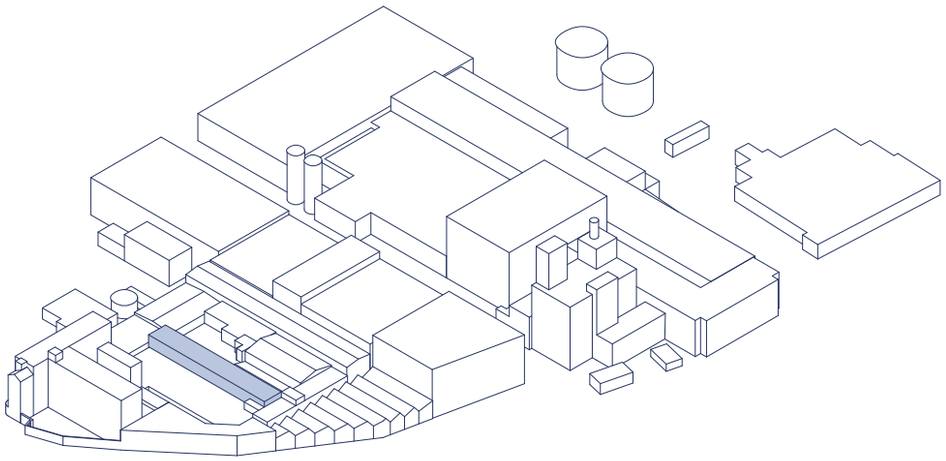
Building S-05

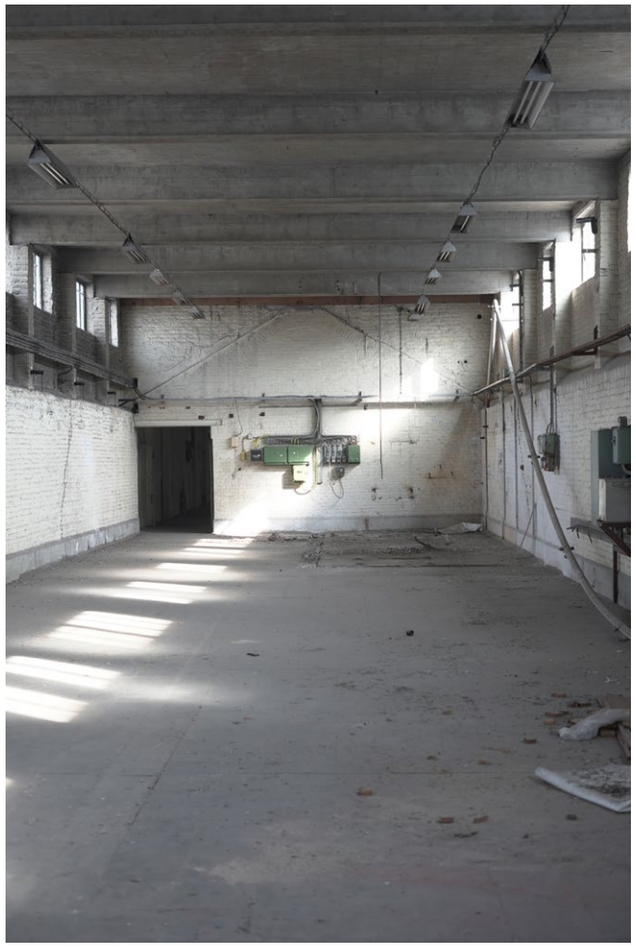
surface: 3.120 m²
access: Maasboulevard
floor covering: Concrete, ceramic tiles
electricity: yes
light: yes
height under beam: 4,00 m, 12,00m



Building S-06

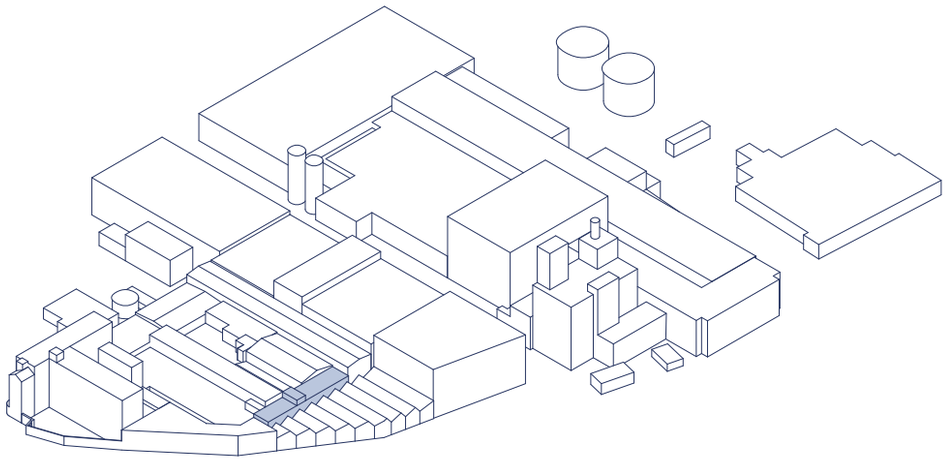
surface: 1.270 m²
access: Maasboulevard
floor covering: ceramic tiles
electricity: no
light: no
height under beam: 5,00m

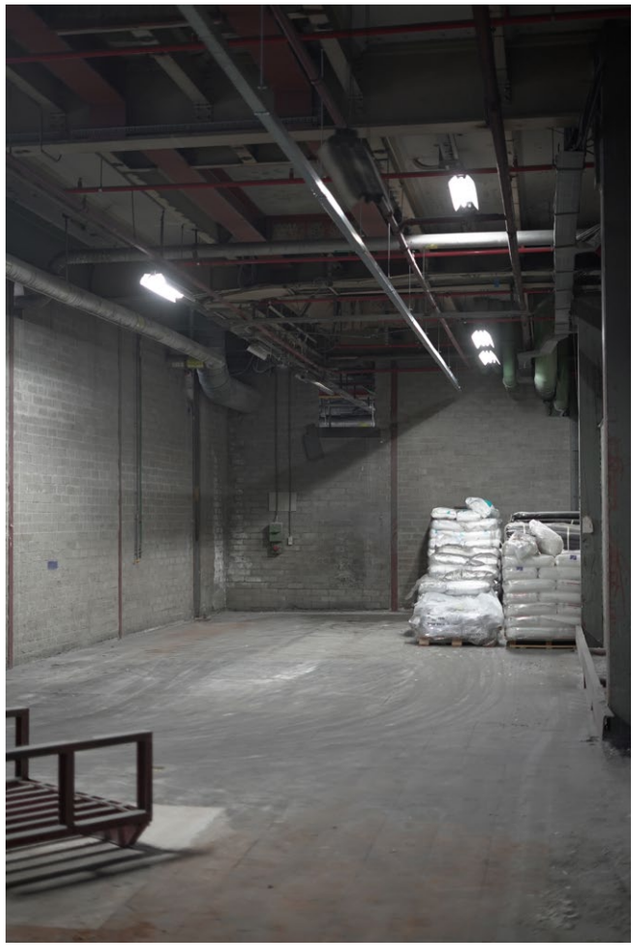




Building S-07

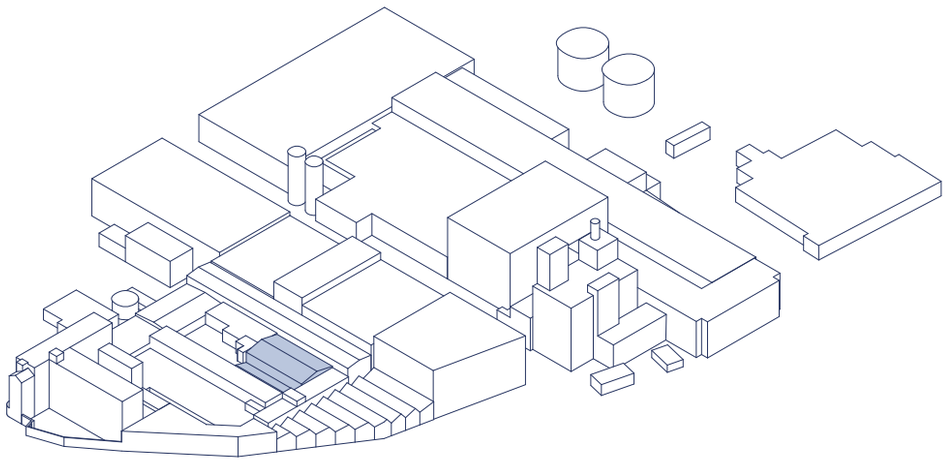
surface: 1.800 m²
access: courtyard
floor covering: ceramic tiles
electricity: yes
light: yes
height under beam: 4,00m





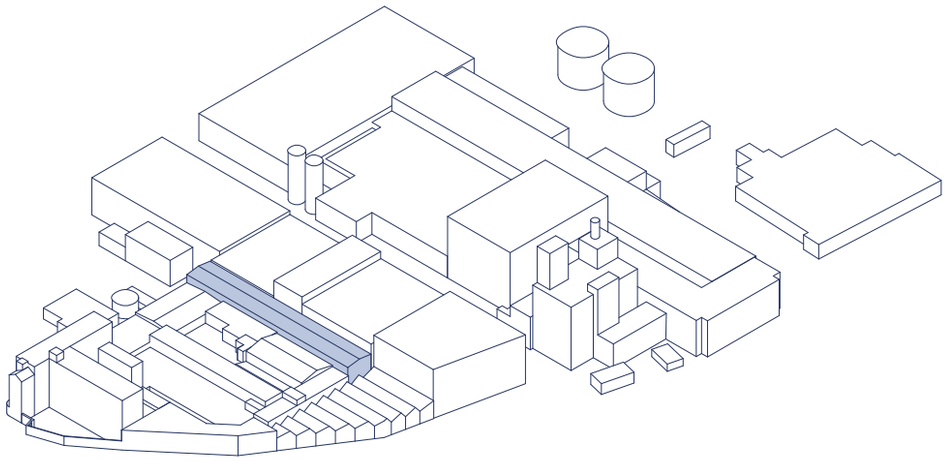
Building S-08

surface: 350 m²
access: building S-01
floor covering: smooth concrete
electricity: yes
light: yes
height under beam: 4,00m



Building S-9

surface: 1.140 m²
access: building S-01, courtyard
floor covering: smooth concrete
electricity: no
light: no
height under beam: 6,00m, 9,00m



Building S-10

surface: 3.100 m²

access: Maasboulevard, courtyard

floor covering: smooth concrete, ceramic tiles

electricity: yes

light: yes

height under beam: 3,00m, 11,00m

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IN THE ATTEMPT OF (RE)ACTIVATING A PARTIALLY VACANT INDUSTRIAL COMPLEX, THE URBAN PROPOSAL AIMS TO OPEN UP THE SITE WITH NEW ACCESSES AND AXES PROVIDING THE CITY TO SPREAD WITHIN IT. BUT HOW TO INTEGRATE EXISTING DYNAMICS AND THE FUTURE PROGRAM ?
THE 20% OF THE SITE IS COMPOSED BY ITS OPEN SPACES AND BUILDINGS' GROUND FLOORS. CREATING POROSITY BETWEEN THESE TWO ELEMENTS ALLOWS THE PUBLIC DOMAIN TO TAKE POSSESSION OF PREVIOUSLY INACCESSIBLE ENVIRONMENTS.