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DIPLOMARBEIT

CENTERGROSS „LIVE STREET“

Ausgeführt zum Zwecke der Erlangung des akademischen
Grades eines Diplom-Ingenieurs

unter der Leitung
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ABSTRACT

Centergross Fashion Hub is a wholesale fashion goods retailer located in Bologna, Italy. Founded in the 1970s, it is a typical representative of industrial architecture of the 20th century.

The concept of using the least amount of construction materials, optimization of the construction time, and structural planning decisions through the use of standard precast concrete constructions are inherent to this period.

The approach of designing quickly in response to economic changes allowed Centergross's founders to move a business from the city center beyond its limits in minimal time and by using private funds. So in a short time, Centergross became an example of doing business in the fashion industry and established itself as a fashion citadel in Italy.

It has been 40 years since then. Naturally, today, Centergross complex needs reconstruction to meet the re-

quirements of today and keep us with modern times. Technological progress and ways of social interaction between people have changed, as have the conditions for doing business.

Obviously, architecture must respond to new needs and requirements of the society, including functional and space-planning solutions to provide high-quality workspace.

This situation makes Centergross a great experimental space for thinking about the issue of intelligent intervention for the qualitative coexistence of old substance with the new.

In the framework of this work, the issue of optimal reconstruction of functional, three-dimensional, planning and structural structures of the complex is considered. Much attention is paid to the possibility of introducing new features that, in the future, could potentially extend the range of Centergross capabilities.

It is important to note that dismantling process of an existing substance is oriented on the "less is more" strategy, which focuses on rethinking, reusing, and maximizing the use of that space that can still be effectively used.

Into the existing space, throughout the whole complex, new pedestrian-friendly multifunctional streets and squares for various scenarios, such as pop-up events, performances, permanent and temporary installations, as well as recreational space for employees and visitors of the complex is introducing.

At the buildingscale, the subject of more detailed analysis and design is the main service/office building of Centergross is - Asta Servizi. This 1km long building is the multi-functional heart of the Centergross, that need renovation on the first place, and sets many complex and exciting tasks to the architect.

KURZFASSUNG

Centergross Fashion Hub ist ein Großhandelsunternehmen für Modeartikel in Bologna, Italien. Es wurde in den 1970-er Jahren gegründet und ist ein typischer Vertreter der Industriearchitektur des 20. Jahrhunderts.

Das Konzept, möglichst wenig Baumaterial zu gebrauchen, die Bauzeit zu optimieren und bauliche Entscheidungen durch die Verwendung von Standard-Betonfertigteilkonstruktionen zu treffen, ist für dieses Zeitraum charakteristisch.

Der Ansatz, schnell auf wirtschaftliche Veränderungen zu reagieren, ermöglichte es den Gründern von Centergross, das Unternehmen mithilfe der privaten Mittel in kürzester Zeit aus der Innenstadt zu verlegen. So wurde Centergross in kürzester Zeit zum Geschäftsmodell in der Modebranche und etablierte sich als Modezitadelle in Italien.

Seitdem sind 40 Jahre vergangen. Natürlich sollte der Centergross-Gebäudekomplex umgebaut werden, um den heutigen Anforderungen zu entsprechen und mit

der modernen Zeit Schritt zu halten. Der technologische Fortschritt und die Art und Weise der sozialen Interaktion zwischen den Menschen veränderten sich genau so wie die Voraussetzungen für ein Geschäft.

Offensichtlich muss die Architektur auf neue Bedürfnisse und Anforderungen der Gesellschaft reagieren, einschließlich funktionaler und raumplanerischer Lösungen, um qualitativ hochwertigen Arbeitsplatz zu bieten.

Diese Situation macht Centergross zu einem großartigen experimentellen Raum, um über die Frage der intelligenten Intervention für das qualitative Zusammenleben von alter und neuer Substanz nachzudenken.

Im Rahmen dieser Arbeit wird das Thema der optimalen Rekonstruktion von funktionalen, dreidimensionalen, planerischen und strukturellen Strukturen des Komplexes betrachtet. Viel Aufmerksamkeit wird der Möglichkeit gewidmet, neue Funktionen einzuführen, die in der Zukunft die Bandbreite der Centergross-Leistungsmöglichkeiten erweitern könnten.

Es ist wichtig zu beachten, dass sich der Abbauvorgang eines bereits vorhandenen Objekts an der Strategie „weniger ist mehr“ orientiert, bei dem es darum geht, den Raum, der noch effektiv genutzt werden kann, zu überdenken, wiederzuverwenden und zu maximieren.

In den vorhandenen Raum werden im gesamten Gebäudekomplex neue fußgängerfreundliche multifunktionale Straßen und Plätze für verschiedene Angelegenheiten wie Pop-up-Events, Performances, permanente und temporäre Installationen sowie Erholungsräume für Mitarbeiter und Besucher der Gebäude eingeführt.

Auf der Gebäudeskala ist das Hauptdienstleistungs-/ Bürogebäude von Centergross, Asta Servizi, Gegenstand einer detaillierteren Analyse und Planung. Dieses 1 km lange Gebäude ist das multifunktionale Herz des Centergross, das in erster Linie eine Renovierung braucht und vor dem Architekten viele komplizierte und spannende Aufgaben.

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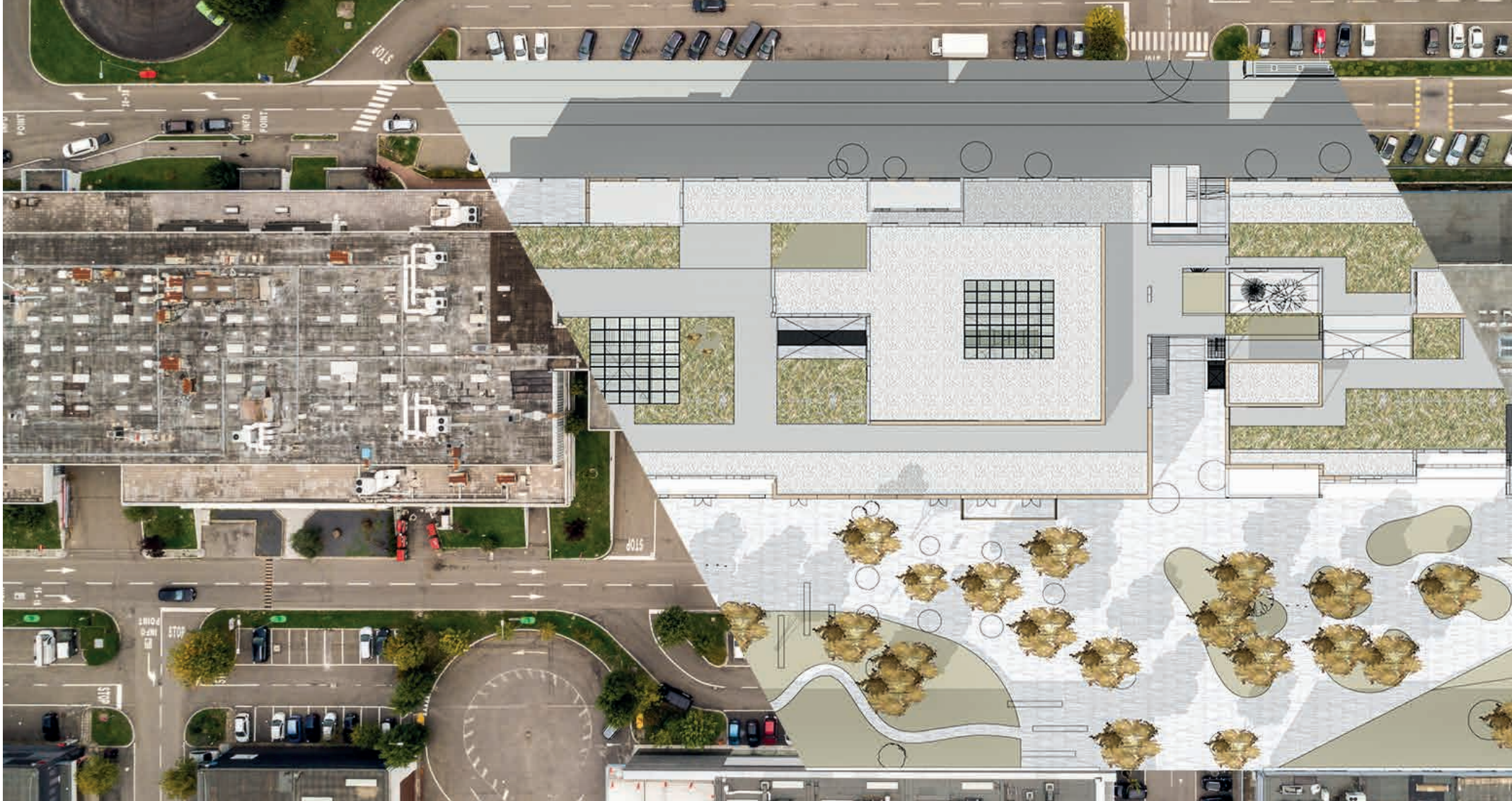
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INTRODUCTION





The issues of life expectancy and sustainability of not just one building but a whole system of different spaces of its own, from which the complex is formed is the subject of study in this thesis.

The complex itself is the largest trading district in Europe dedicated to fast fashion products made in Italy, which brings together over 600 businesses belonging to approximately 20 sectors in addition to fashion.

The very idea of creation of Centergross originated in the '70s as a reaction to the economic, technical, and social progress in society. 180 entrepreneurs decided to unite and invest private funds to create a large-scale trade center.

The multifunctional complex unites in a single structure many world-class companies working in the fashion industry. Warehouses, offices, customer service, and park area

coexist on the territory 100 ha and form a satellite center at a distance of 14 km from the city center of Bologna.

It has been 40 years since the center was built. Naturally, today, Centergross complex needs reconstruction to meet the requirements of today and keep us with modern times.

Technological progress and ways of social interaction between people have changed, as have the conditions for doing business. Obviously, architecture must respond to new needs and requirements of the society, including functional and space-planning solutions to provide high-quality workspace.

This area and the task is an exciting challenge for the architect, which makes the Centergross a great experimental space to reflect on the issue of intelligent intervention for the qualitative coexistence of old and new substance.

« CENTERGROSS' MISSION OCCUPIES A NUMBER OF COMPLEMENTARY LEVELS THAT RANGE FROM SATISFYING THE REQUIREMENTS OF ITS VARIOUS STAKEHOLDERS, FROM PRODUCT BUYERS TO THE COMPANIES INTERESTED IN INVESTING IN THE DISTRICT, TO THE MANY INSTITUTIONS AND PLAYERS INVOLVED IN AN ONGOING DIALOGUE AIMED AT THE ECONOMIC AND SOCIAL PROMOTION OF THE CENTRE. »

« CENTERGROSS' CORE MISSION IS TO ACT AS A TEAM AND PROMOTE INITIATIVES CENTRED AROUND PERSONAL DIGNITY AND THE VALUE OF SOLIDARITY, IN A VISION OF SYNERGY AND COOPERATION, WITH THE ULTIMATE AIM OF HELPING ONE ANOTHER, RATHER THAN OF ACCUMULATING. »

RESEARCH RELEVANCE

“Centergross has grown exponentially over the past four decades, and as it has grown, its content and exterior have evolved constantly to adapt to technological and market requirements.”

To date, one of the main challenges and goals of the company is to find the optimal architectural solution for the reconstruction of Centergross to ensure its quality functioning.

The subject of more detailed analysis and design is the main service/office building of Centergross - Asta Servizi. This 1 km long building is the multi-functional heart of the Centergross that needs reconstruction first and foremost. Its floor plan and functional structures are out of date and do not meet the challenges of the century. These buildings require new features and additional social and working space.

However, Asta Servizi has a lot of potential for rethinking and expanding, thanks to its structural system, which in large part is reinforced concrete structure.

AIMS

The primary purpose of the research is to find optimal, architectural, planning, and functional solutions for the quality renovation of the complex.

It is crucial to take into account the basic needs of the company, based on its goals, and bear in mind the conclusions of a comprehensive analysis of the existing environment.

On the example of a draft proposal, to check if it is possible while working with an existing substance, to use "less is more" strategy, which focuses on rethinking, reusing, and maximizing the use of that space that can still be effectively used.

RESEARCH METHODS

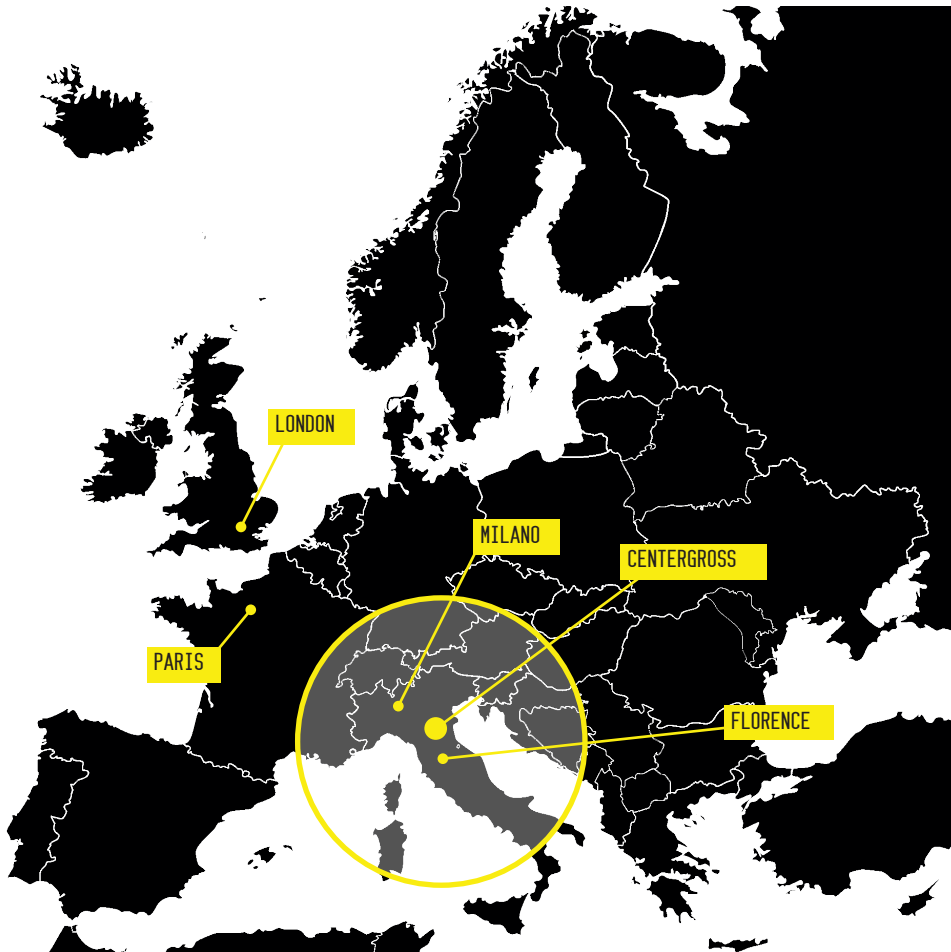
This paper uses theoretical research methods.

The multifunctionality of the complex calls for the need for a parallel study of several topics simultaneously. The method of analysis and synthesis, as well as induction method (from individual to general) and deduction method (from general to specific), are used.

Graphic (3D) and physical modeling, as well as historical and logical approaches, take an essential place in the research.

LOCATION

DIAGRAM 1.1.



BOLOGNA,
ITALY
44°30'27"N,
11°21'5"E

Centergross is a real commercial city created in 1977 in Funo di Argelato, near Bologna (*Diagram 1.2.*). The multifunctional complex integrates into a single structure of world-class companies operating in the field of fashion, both regionally, nationally and internationally.

The very idea of the creation of Centergross originated in the '70s as a reaction to the economic, technical, and social progress in society. 180 entrepreneurs decided to unite and invest private funds to create a large-scale trade center.

The main idea was to create not only a center with a large number of retail space but also with the conditions for productive communication and business. Thus, the location of the promising satellite center was decided to operate at a distance of 14 km from the center of Bologna, since this location has several economic and logistical advantages.

Let's look at a few of them.

The first important parameter that allows Centergross to maintain its leading position is its location near the center of Bologna. (*Diagram 1.2.*) Bologna is an important agricultural, industrial, financial and transport hub, where many large mechanical, electronic and food companies have their headquarters as well

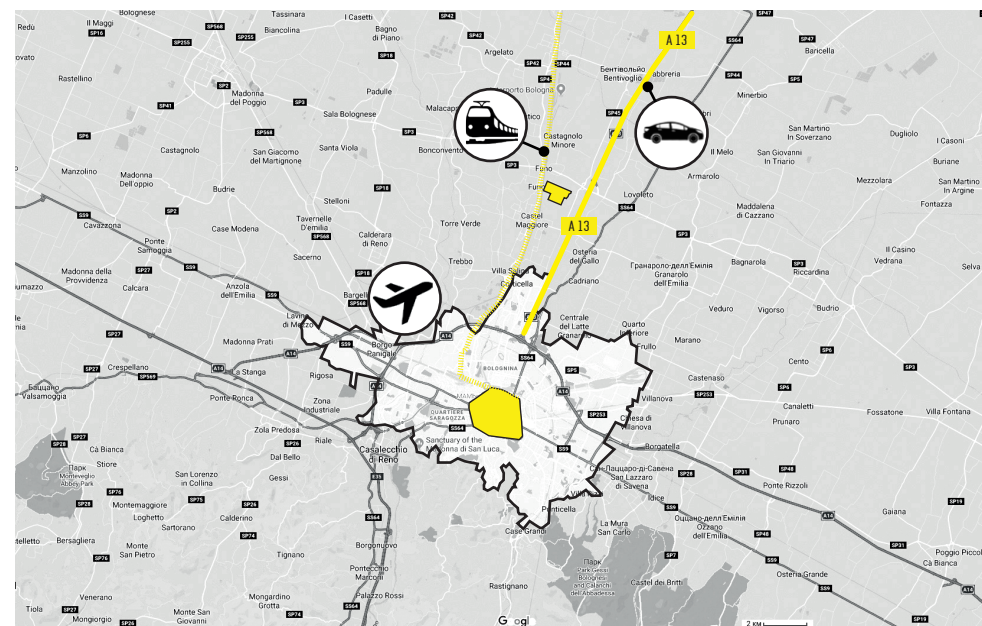
DIAGRAM 1.2.



as one of the largest permanent trade fairs in Europe.¹ The second factor - the territory of the complex has direct, quick access to the main international transport vectors and connections. The Fashion Hub is located close to the airport, railway network, and major artery (A13 motorway). A freeway passes through the Italian peninsula, linking it to the rest of Europe (Diagram 1.1. and 1.3.). So we have 30 minutes to Florence, one hour

1 "Bologna." Wikipedia, Wikimedia Foundation, 28 Oct. 2019, <https://en.wikipedia.org/wiki/Bologna>.

DIAGRAM 1.3.



to Milan and two hours to Rome. The third important factor that allowed companies to change the strategy of doing business in the market was that same distance from the center of historical development (city center). This made it possible for founding companies to invest in the purchase of space 4 times more massive than would have been possible in the city center.

"Therefore, Centergross was born" big" right away, which allowed it to immediately position itself as the

first center of trade on the national level."²

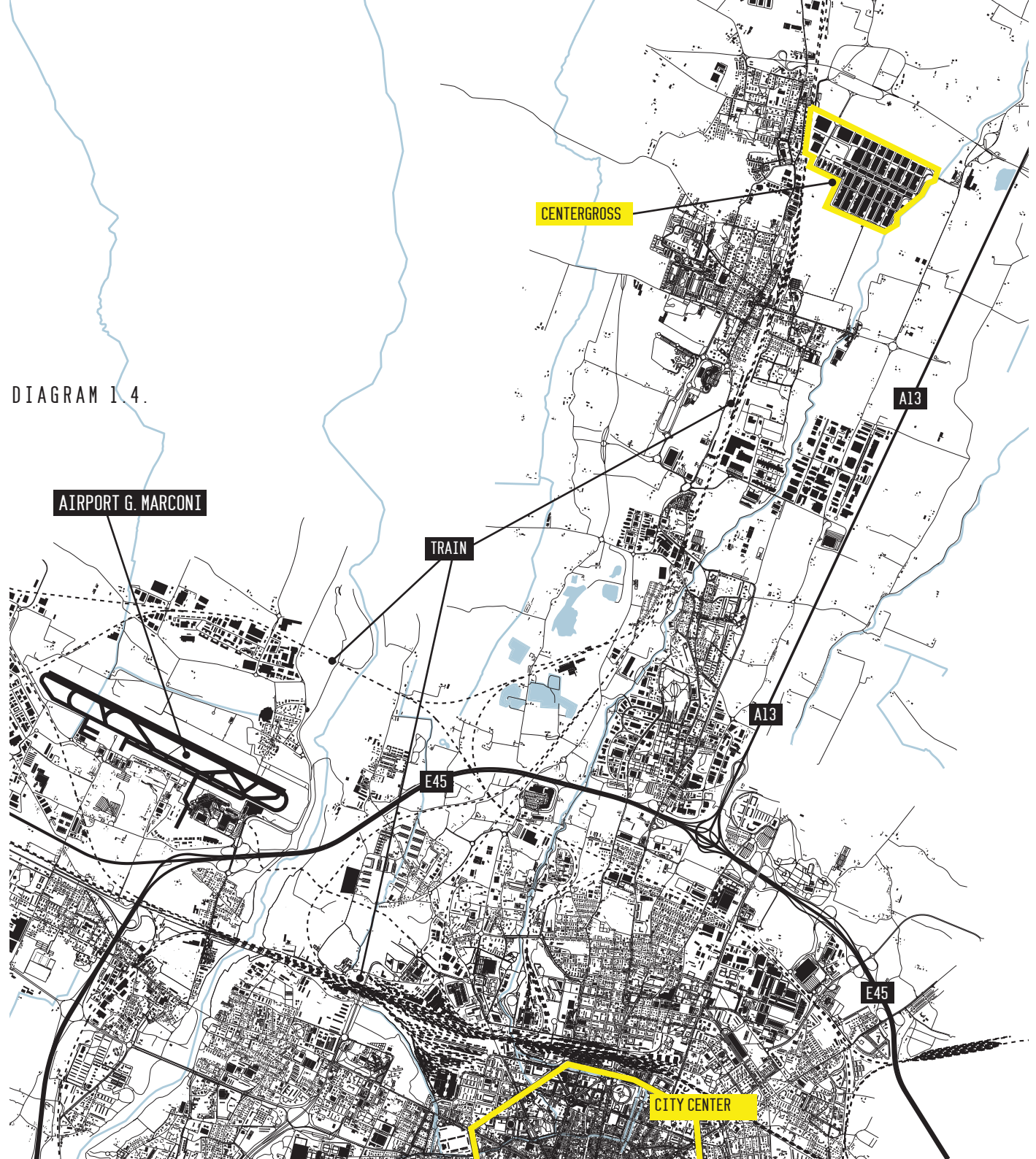
Fast access from the Centergross to different corners of the World is due to the intersection of main transport routes, then the historical and cultural character of Center is due to the tight proximity to the city of Bologna.

2 "Centergross Company Profile." Centergross.com, <https://www.centergross.com/en/>.

INTRODUCTION

TRANSPORT CONNECTION

DIAGRAM 1.4.



BY BUS 97

distance: 13km
frequency: 15min
travel time: 58min
price: 7€



BY TRAIN

frequency: less than an hour
travel time: 1.17min
price: 6€



BY TAXI

distance: 14km
travel time: 20-25min
price: 25-30€

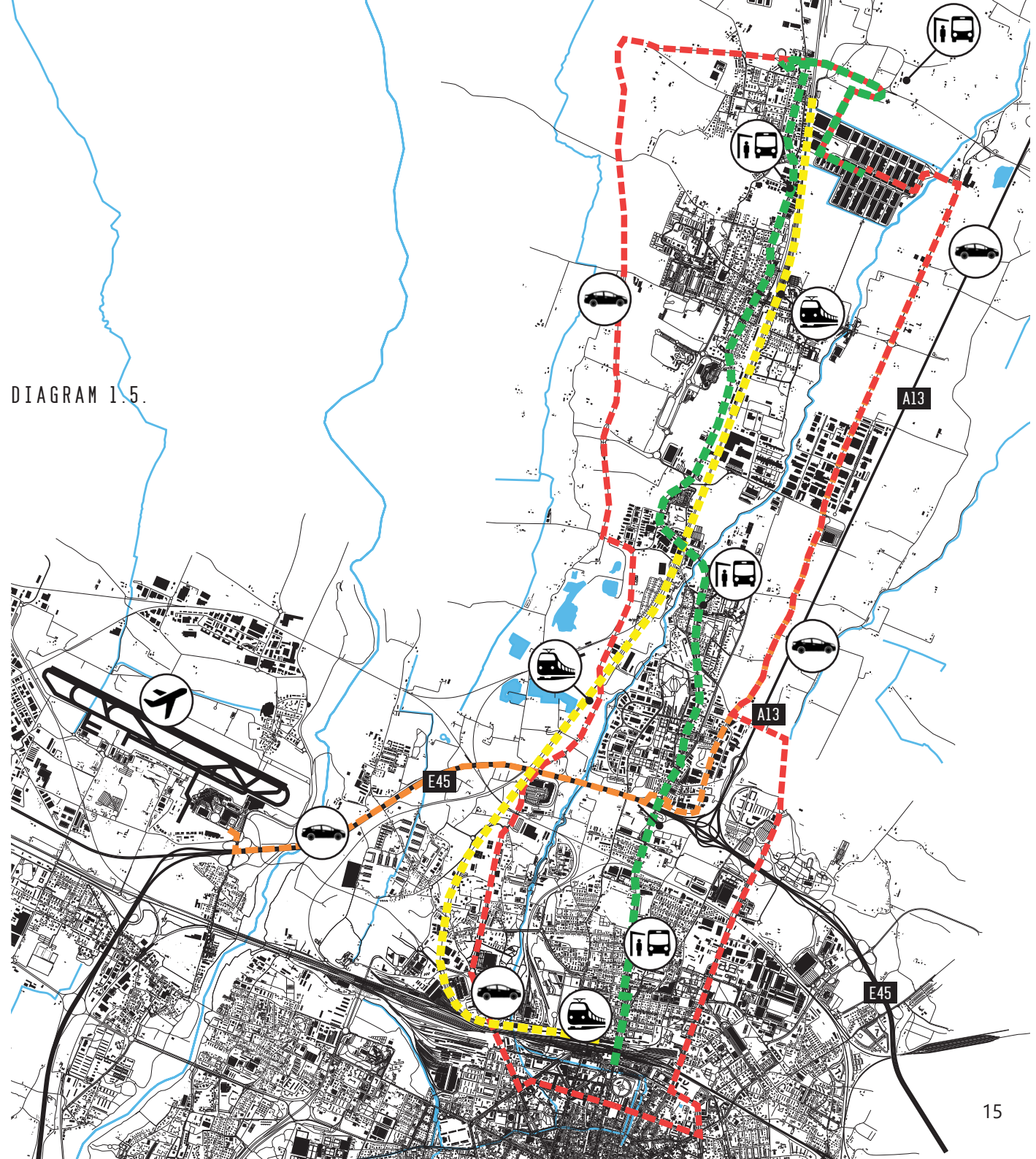


BY CAR FROM AIRPORT

distance: 15km
travel time: 15-20min



DIAGRAM 1.5.



BOLOGNA HISTORY

Bologna is the capital and largest city of the Emilia-Romagna Region in Northern Italy. The city lies on the edge of the Pada Plain, at the foot of the Northern Apennines between the valleys of the Reno and Savannah rivers.

The Etruscans founded Bologna under the name of Felsina (534 BC) in an area formerly inhabited by the Villanova, a nation of plowmen and shepherds. The Etruscan city grew around a shrine built on a hill. In the 4th century, the Gallic tribe conquered the city, hence the ancient Roman colony of Bononia, founded in 189 BC.

It is the seventh most populous city in Italy, at the heart of a metropolitan area of about one million people. About 80,000 students enrich the city's social and cultural life. One of the oldest universities in the world, founded in 1088, is situated in Bologna.¹

Bologna has a well-preserved historic center, one of the largest in Italy thanks to the careful restoration and conservation of cultural and historical sites pursued by local authorities in the late 1960s - despite the significant destruction caused by late 19th-century rebuilding and wars. Due to its Roman heritage, the central streets of Bologna, today largely pedestrianized, follow the grid pattern of the Roman settlement.

¹ "Bologna." Wikipedia, Wikimedia Foundation, 14 Sept. 2019, <https://en.wikipedia.org/wiki/Bologna>.

The city is known for its towers and long galleries.

The original Roman ramparts were supplanted by a high medieval system of fortifications, remains of which are still visible, and finally by a third and final set of ramparts built in the 13th century, of which numerous sections survive. No more than twenty medieval defensive towers remain out of up to 180 that were built in the 12th and 13th centuries before the arrival of unified civic government.

The most famous of the towers of Bologna are the central «Due Torri» (Asinelli and Garisenda), whose iconic leaning forms provide a popular symbol of the town.¹

The cityscape is further enriched by its elegant and extensive porticoes, for which the city is famous. In total, there are some 38 kilometres (24 miles) of porticoes in the city's historical centre (over 45 km (28 mi) in the city proper), which make it possible to walk for long distances sheltered from the elements.¹

The Portico di San Luca is possibly the world's longest.² It connects Porta Saragozza with the Sanctuary of the Madonna di San Luca.

The Porta Saragozza is one of the twelve gates of the ancient walls built in the Middle Ages, which circled a 7.5 km (4.7 mi) part of the city.

The Sanctuary of the Madonna di San Luca is a church located on a hill 289 metres overlooking the town, which is one of Bologna's main landmarks. The church begun in 1723 on the site of an 11th-century edifice which had already been enlarged in the 14th century, prominently.

The windy 666 vault arcades, almost four kilometres (3,796 m) long, effectively links San Luca, as the church is commonly called, to the city centre. Its porticos provide shelter for the traditional procession which every year since 1433 has carried a Byzantine icon of the Madonna with Child attributed to Luke the Evangelist down to the Bologna Cathedral during the Feast of the Ascension.³

² Caird, Jo. "Bologna City Guide: Top Five Sights." The Telegraph, Telegraph Media Group, 16 Jan. 2009, <https://www.telegraph.co.uk/travel/citybreaks/4223609/Bologna-city-guide-top-five-sights.html>.

³ «The Porticoes of Bologna» (World Heritage Site submission). UNESCO World Heritage Centre. 1 June 2006. Retrieved 29 June 2012.

PHOTO 1.1.

© Steffen Brinkmann



A portico is a porch leading to the entrance of a building, or extended as a colonnade, with a roof structure over a walkway, supported by columns or enclosed by walls.

This idea was widely used in ancient Greece and has influenced many cultures, including most Western cultures.

A pronaos is the inner area of the portico of a Greek or Roman temple, situated between the portico's colonnade or walls and the entrance to the cella, or shrine. Roman temples commonly had an open pronaos, usually with only columns and no walls, and the pronaos could be as long as the cella.⁴ The different variants of porticos are named by the number of columns they have.

⁴ "Portico." Wikipedia, Wikimedia Foundation, 16 Aug. 2019, <https://en.wikipedia.org/wiki/Portico>.

CENTERGROSS HISTORY

«In the late 1970s, the town planning of the city of Bologna was going through a period of great transformation and the dramatic increase in the city's traffic was starting to stunt the expansion of the wholesale sector and the city as a whole.

With great far-sightedness, a group of wholesale entrepreneurs, led by the first Founder-Chairman, Salvatore Barbiera, supported and assisted by Bologna's trade association Confcommercio Ascom and the Chamber of Commerce, established a joint-venture for the creation of a common site, 10 km to the north of Bologna and 16 km from G. Marconi Airport.¹

Bologna Municipal and Provincial Authorities, and the Municipal Authorities of Argelato and Bentivoglio took part in the project, which involved the development of the road and motorway system, in order to favour connections with the new centre.

The lot of land chosen enjoyed an excellent geographical position, given its close proximity to both the A13 motorway and the railway.

However, what is most surprising is that the project was based on an act of faith and courage of a group

of small and medium-sized private entrepreneurs that, in just a few years, with its own capital, with a normal mortgage, without any special incentives or public capital or welfarism, succeeded in a monumental undertaking, and, most of all, an undertaking that is still, at the same time, useful and advantageous for companies and investors and of use to the public. In addition, it has relieved central Bologna of a great deal of traffic and, consequently, pollution and has led to the creation of employment and wealth, which has spread to the surrounding area.²

¹ "ABOUT US." About Us, <https://www.centergross.com/en/about-us/>.

² Centergross Company Profile. Centergross Company Profile, Centergross, 2019, <https://www.centergross.com/en/centergross-company-profile-2/>.



© Centergross
PHOTO 1.2./1984

1971

Incorporation of Centergross srl

1974

The first foundations are laid

1977

Official opening, attended by Giulio Andreotti

1984

57th (bike) Tour of Italy

2012

Meeting with the President Giorgio Napolitano

Centergross acknowledges the most deserving entrepreneurs and employees working at the District with the Employment Minister, Elsa Fornero. The Young People for the Future Award.

2015

Expo 2015 Universal Exhibition in Milan.

2017

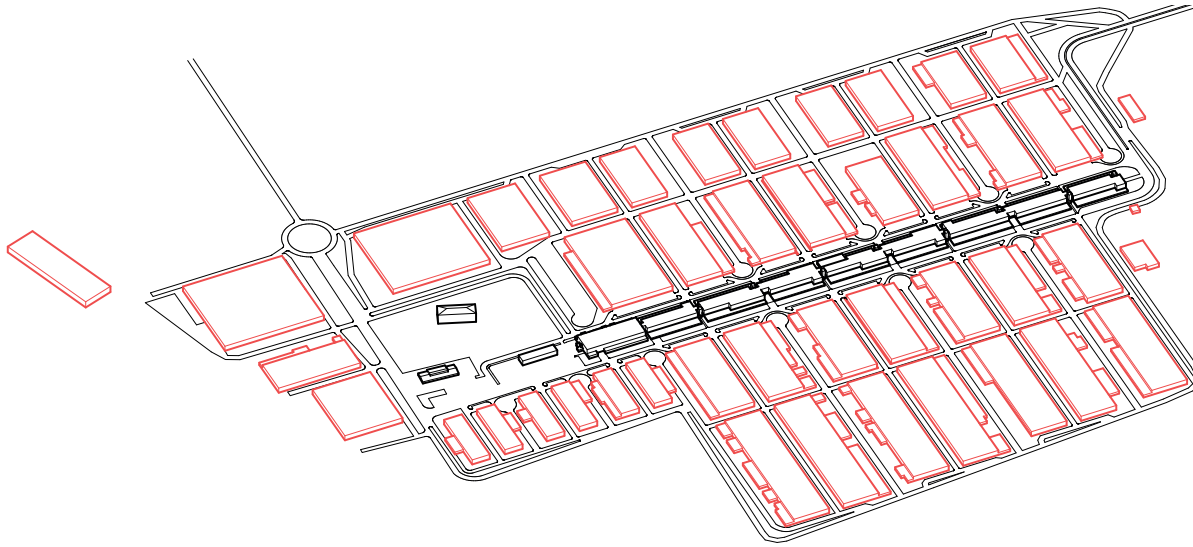
Celebrations for our first 40 years from official opening.

PHOTO 1.3.

© Centergross



DIAGRAM 1.6.



Centergross was designed as a huge fashion hub. Therefore, it is natural that most of the territory is occupied by retail space.



-  Warehouses
-  Office buildings

PHOTO 1.4.





PHOTO 1.5.



© Andrea Ventura

WAREHOUSE TYPOLOGY

PHOTO 1.6.



The warehouse is a most common type of commercial building for storage of goods. Warehouse is a flow combination of the materials movement, people, and traffic within building.¹

By storing the goods throughout the year and releasing them as and when they are needed, Warehousing creates time utility.

Warehouses are an important part of any consumer-based business. They must be designed to accommo-

date the loads of the materials to be stored, the associated handling equipment, the receiving and shipping operations and associated trucking, and the needs of the operating personnel.

The design of the warehouse space should be planned to best accommodate business service requirements and the products to be stored/handled. The economics of modern commercial warehouses dictate that goods are processed in minimal turnaround time.² Some new constructions are built up warehouse-like,

¹ "4 Tips on How to Effectively Plan a Warehouse Layout Design." DEAR Cloud Inventory Management, 19 Jan. 2018, <https://dearsystems.com/warehouse-layout-design/>.

² "Warehouses: Their Typology and Emerging Trends." The Masterbuilder, 24 Sept. 2016, <https://www.masterbuilder.co.in/warehouses-their-typology-and-emerging-trends/>.

PHOTO 1.7.



even if they do not have a storage function. Some aspects like the free design of ground plan, the wide interiors and the large windows are appreciable over and above their functional reasons. With the Industrial Revolution warehouses were dominated the urban landscape. In that period they were usually rectangular, built in red bricks and with a double pitched roof.³

The interior was an unique room and wide windows were necessary to light the vast space inside. All these features arose for functional reasons.

³ "TYPOLOGY: The Warehouse." ARCHISCAPES, 15 Jan. 2015, <https://archiscapes.wordpress.com/2014/11/23/warehouse-illustrated-history-archetype/>.

PHOTO 1.8.

© Onnis Luque



PHOTO 1.9.

© Theo Peekstok



FUNCTIONS OF WAREHOUSING

The following important functions are performed:

STORAGE

The basic function of warehousing is Storage. The form of storage depend on the size and quantity of the items in inventory and the handling characteristics of the product. Surplus commodities which are not needed immediately can be stored in warehouses and supplied when needed by the customers.

ORDER PICKING

The process of removing items from storage to meet a specific demand is called order picking. Its represents the basic service that the warehouse provides for the customer and is the function around which most warehouse designs are based.

PRICE STABILIZATION

Price stabilisation is achieved by the creation of time utility by warehousing. Fall in the prices of goods when their supply is in abundance and rise in their prices during the slack season are avoided.

RISK BEARING

When the goods are stored in warehouses they are exposed to many risks in the form of theft, deterioration, exploration, fire etc. Warehouses are constructed in such a way as to minimise these risks. Contract of bailment operates when the goods are stored in warehouses. The person keeping the goods in warehouses acts as bailor and warehouse keeper acts as bailee. A warehouse keeper has to take the reasonable care of the goods and safeguard them against various risks. For any loss or damage sustained by goods, warehouse keeper shall be liable to the owner of the goods.²

FINANCING

Loans can be raised from the warehouse keeper against the goods stored by the owner. Goods act as security for the warehouse keeper. Similarly, banks and other financial institutions also advance loans against warehouse receipts. In this manner, warehousing acts as a source of finance for the businessmen for meeting business operations.

PACKING AND SHIPPING

Warehouses now-a-days provide the facilities of packing, processing and grading of goods. Goods can be packed in convenient sizes as per the instructions of the owner.

GRADING AND PACKING

Following tasks are include in the packing and shipping process:

- checking orders for completeness;
- packaging of merchandise in an appropriate shipping container;
- preparation of shipping documents, including packing list, address label and bill of lading;
- weighing of order to determine shipping charges;
- accumulation of orders by outbound carrier;
- loading trucks (in many instances, this is a carriers responsibility).

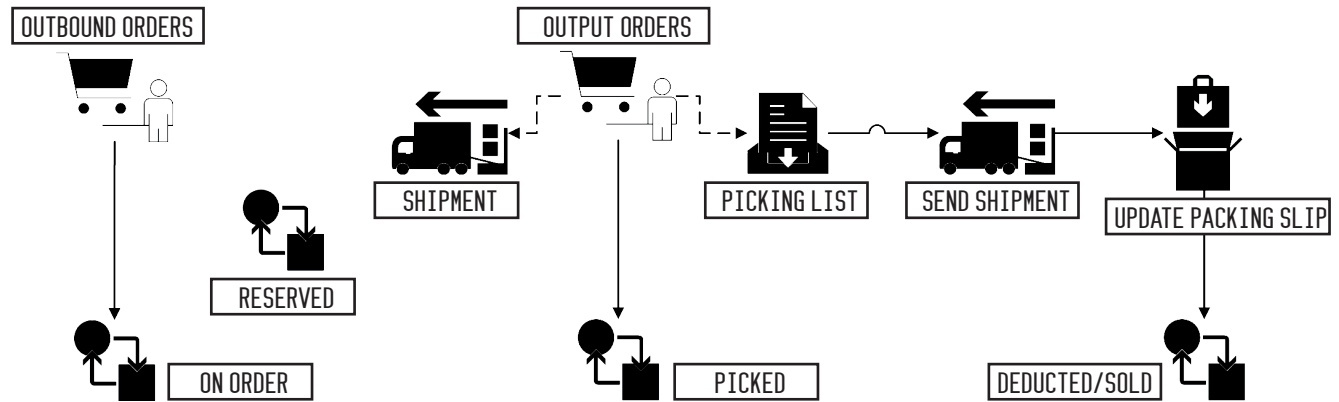


DIAGRAM 1.7.

TYPES OF WAREHOUSING

The classification of warehouses can be made from different viewpoints:

- on the basis of the structure;
- on the basis of ownership;
- on the basis of service rendered.

**ON THE BASIC STRUCTURE
CLASSICAL WAREHOUSE**

It is a single storey building divided into various compartments through a concrete wall. These warehouses are generally used for storage of general merchandise. Racks and lift trucks may also be provided in such type of warehouses for the convenience in storage.

SILO

It is a vertical structure room equipped with mechanical devices. The loading and unloading functions are affected through mechanical devices such as conveyor belts, automatic aeration and temperature control arrangements. Silos are ideally suited for bulk storage of grain, coal, cement, carbon black, woodchips, food products and sawdust.

Three types of silos are in widespread use today: tower silos, bunker silos, and bag silos. Large cities where land and labour costs are very high make use of silos for the storage of food-grains and other commodities.

BINS

Bins are small cylindrical cabins of different sizes meant to store varieties of products. These are man-



© Nicole Berganski

PHOTO 1.10.

ually operated and provide bulk storage facility. The storage bin is the smallest available unit of space in a warehouse. The storage bin therefore describes the position in the warehouse where the goods are or can be stored.

Since the address of a storage bin is frequently derived from a coordinate system, a storage bin is often referred to as a coordinate. The coordinate 01-02-03 for example, can refer to a storage bin in row 1, stack 2, and level 3.

ELEVATOR

Elevator is a big vertical premise and are of craned types. These are used for lifting and de-lifting of products. From the elevator goods are directly discharged from wagons. A vertical Material Lift will move products from one elevation to another.

These can be used to move products in warehouses or anywhere that products, supplies or materials need to move from one level to another. Warehouses 5Since these lifts are not elevators and transport material only, elevator safety codes do not apply to this line of products.

PORTABLE WAREHOUSE

It is a type of temporary warehouse which can be removed or set in a short time. These warehouses have enough capacity to withstand rains and winds. Portable warehouse buildings are also used to protect cars, trucks or SUV from the harsh weather.

AUTOMATIC WAREHOUSE

An automatic warehouse is one in which whole or a substantial part of receipt, store and dispatch

operations are performed without manual handling of goods. It reduces the total cost of distribution of goods. The benefits of an Automatic warehouse system include reduced labor for transporting items into and out of inventory, reduced inventory levels, more accurate tracking of inventory, and space savings. Items are often stored more densely than in systems where items are stored and retrieved manually.¹

¹ "Warehouses: Their Typology and Emerging Trends." The Masterbuilder, 24 Sept. 2016, <https://www.masterbuilder.co.in/warehouses-their-typology-and-emerging-trends/>.

ANALYSIS

CENTERGROSS FIGURES

«The District occupies a strategic position just outside Bologna, in the pulsing heart of a vast area that is known internationally as Italy's Fashion Valley, but also Packaging Valley, Motor Valley and Food Valley. Easily accessible by car, thanks to a dedicated motorway turnoff (Centergross Interporto turnoff on the A13), Centergross also benefits from the international connections provided by Bologna's G. Marconi Airport, while the Frecciarossa and Italo high-speed

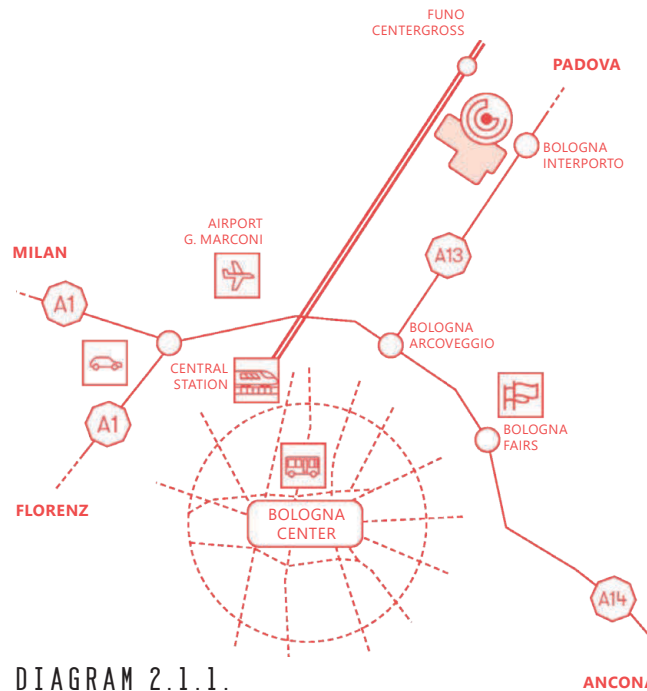






DIAGRAM 2.1.1.1.

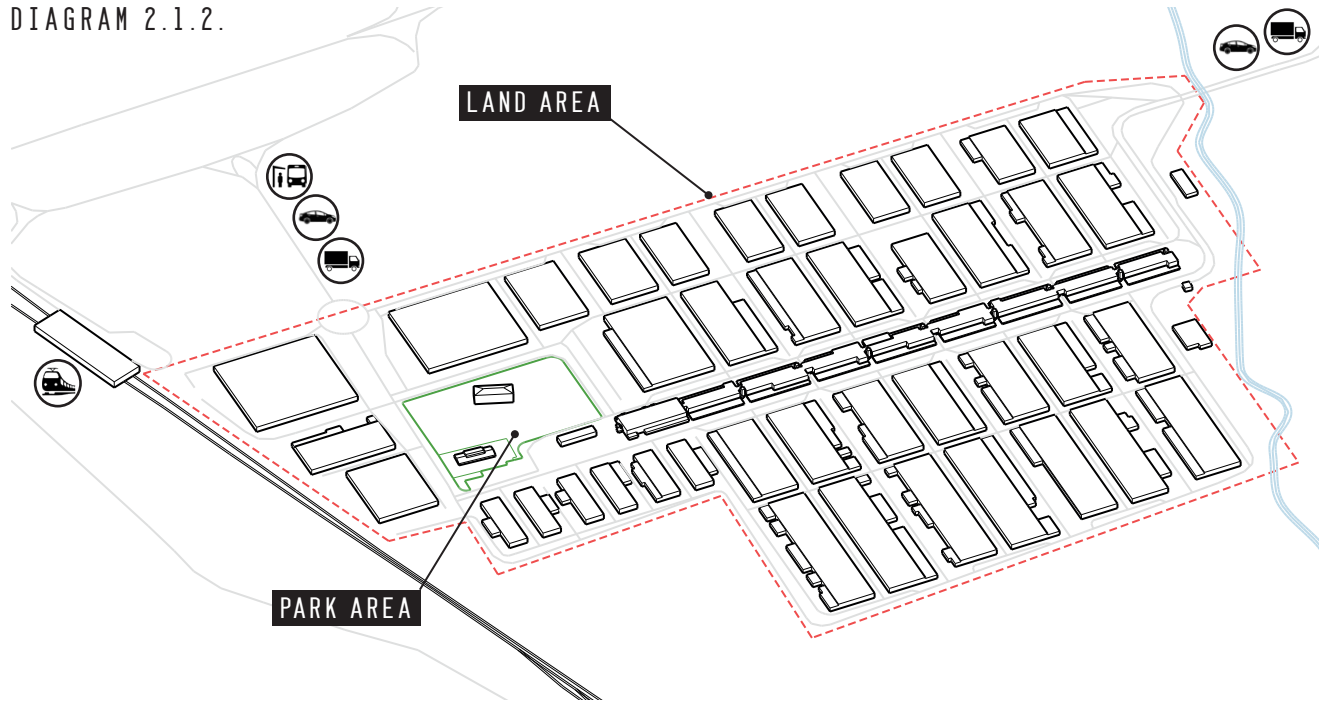
train services mean that it is just one hour from Milan, 35 minutes from Florence and 1 hour and 15 minutes from Venice. In just ten minutes, visitors can reach Centergross from Bologna's central train station, using the local line to Ferrara. Taxi and buses services are also available.»¹

¹ "Note - Centergross - Italia." Doczz.it, July 2016, <http://doczz.it/doc/111509/note---centergross>

-  Dedicated train station (Funo-Centergross station) on the Bologna – Ferrara line managed by Trenitalia
-  TPER public bus service routes 95 and 378, Centergross stop
-  Dedicated motorway turn-off (A13 Bologna-Padua, Bologna Interporto/Centergross) turn-off. Sat nav coordinates Lat. 44°35'11.00 – Long 11°23'15.00
-  15 minutes by car from Bologna's G. Marconi International Airport

«Centergross occupies a site with a surface area of 1 million square meters in Funo di Argelato, just outside Bologna. Founded in 1977, it is home to over 600 companies, with a combined workforce of 6,000 employees. The total annual sales volume of 5 billion euros makes it one of the most active and productive areas for the Italian fashion sector worldwide. Here visiting buyers find a "permanent trade fair" with "immediately available" products.»

DIAGRAM 2.1.2.



| | |
|------------------------------|--------------------------------|
| LAND AREA | 1.000.000 m² |
| EXHIBITION SPACE | 400.000 m² |
| OFFICES | 100.000 m² |
| PARK AREA | 32.500 m² |
| ROADS | 174.500 m² |
| PARKING | 60.000 m² |
| WORKERS | 6.000 (60% are women) |
| COMPANIES | over 600 |
| IN FASHION SECTOR | 70% |
| IN TECHNICAL SERVICES | 20% |
| IN SERVICES | 10% |
| AGGREGATE SALES/YEAR | 5.000.000.000 € |

«The District's productive goal is to satisfy the requirements of the world's middle class, a class that continues to expand and traditionally prefers products that are good value for money.

Centergross is visited by an average of 10,000 buyers a day, 60% of whom from abroad: Asia, Europe, United States and the Middle East. It is estimated that 35% of the foreign buyers who come to Centergross every

day are from countries that previously belonged to the Soviet Union, whereas China represents about 20% of our foreign incoming.»²

² Centergross Company Profile. Centergross Company Profile, Centergross, 2019, <https://www.centergross.com/en/centergross-company-profile-2/>.

CENTERGROSS FUNCTIONS

Centergrass complex is a kind of satellite city, more precisely trade city. Considering the scale of the complex (section 2.1), it becomes obvious that to ensure its full operation, along with production, business and exhibition space, the sphere of technical and service is inevitably located.

The functional structure of the complex is a mixed-use structure in its essence. It aims to provide quality work and leisure space not only for 6,000 employees but also for regular Centergross customers and 10,000 visitors every day.

The mixing of functions can be traced not only at the level of the master plan, but also directly at the level of individual buildings and structures.

For a more detailed analysis, consider the basic structural, functional units and their percentage in the territory.

There are 5 primary functional groups: Fashion, Exhibition, Service, Recreation, and Transport.

FASHION

Under this function are mean all trade and office areas, as well as schowroom areas in the fashion sector (clothing, textile and haberdashery, window

dressing and accessories). The fashion section takes 58% of the total functions area and is the essential function of this trade city. Centergross enters into cooperation with partners capable of deepening the development of both individual companies and the center as a whole.

Overall 240 fashion brands and 98 textile and accessory manufacturers are located here.

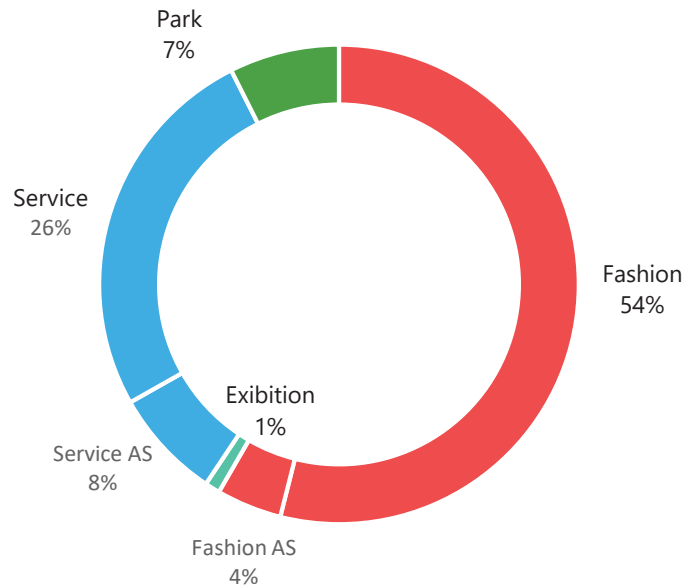


DIAGRAM 2.2.1.

EXHIBITION

As the totality of multifaceted, multifunctional realities operating in different areas in the center, the need for exhibition and conference spaces is increasingly felt. Centergross conducts and organizes some events designed to strengthen cooperation between partners, the city, investors, and educational institutions. Currently, two buildings, the 5A block and the

historical building, the Orsa Villa, are being used in the complex for these purposes. Together they make up 1% of functions area.

SERVICE

In the service field, we can distinguish 4 basic categories: administration and info point; restaurants and bars; personal service (kindergarten, spa, haircut, pharmacy, dentist, post office, newsletter, banks); various services (logistics, consulting firms, technical goods, insurance agency, travel agency). Basically, that is 34% of the area. Particularly valuable in the historical context is Villa Orsi (dated 1574), located on the territory of the complex. It is used as a restaurant and the main focus of festive receptions.

RECREATION AND GREEN SPACE

Villa Orsi garden is an essential green, recreation area for Centergross workers and customers. The garden is dating from 1400 and, like Villa Orsi is a cultural heritage of the region. When organizing celebrations, the park area is used under a temporary tent hall, in direct contact with the villa of the restaurant.



TRANSPORT

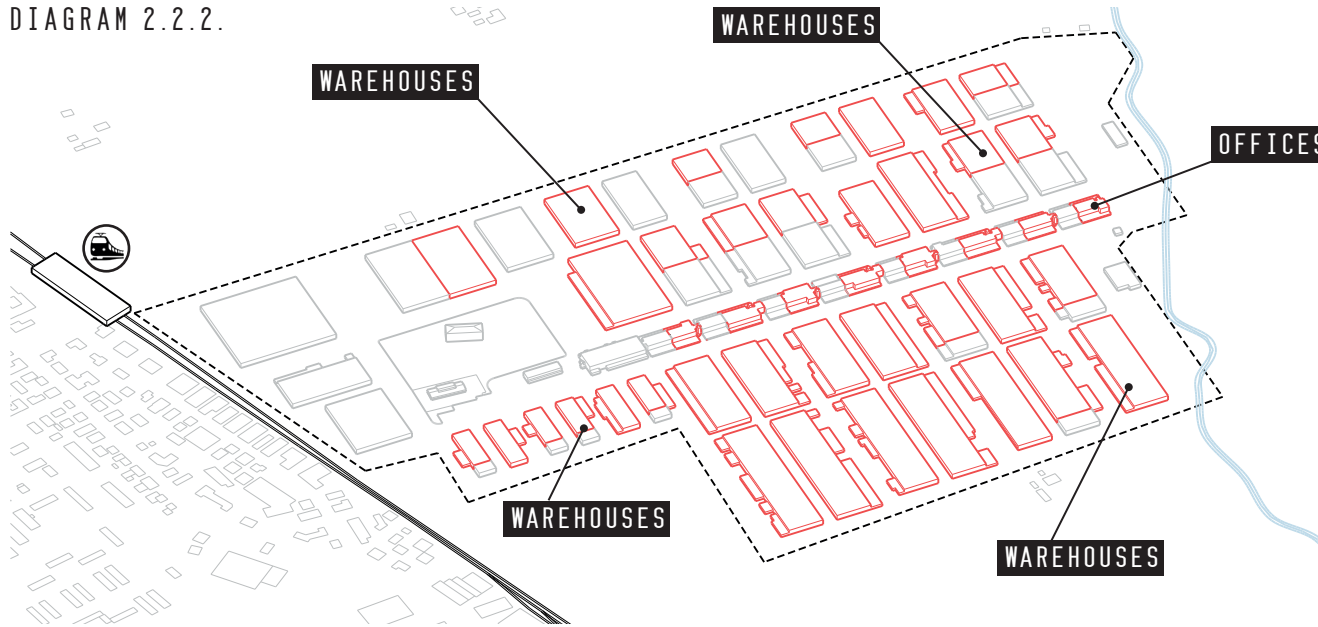
The transport system and quality transport support are an important prerequisite for the smooth operation of the Centergross. This kind of retail outlet not only requires direct access by private or public transport but also it requires loading and unloading areas (commercial areas) and a large parking area.



PHOTO 2.2.1.

PHOTO 2.2.2.

FASHION

DIAGRAM 2.2.2.



-  Fashion trade and office function
-  train station

+ Asta Servizi consists of several sections connected by a passage that allows getting to the desired store or office from the inside of the building, regardless of which section you came from, which, given the scale and planning structure, is an important condition for fast walking accessibility.

- However, this concept is limited by the barriers in the form of clearly defined areas of entrances and exits of the building and a drop in 1.2m between the street level and the Ground floor of the building.
- The urgent need to access the shopping area directly from the street is impossible without interfering with the existing parking system and creating additional ramps and stairs.
- The planning structure, physical characteristics, and external aesthetics of Asta Servizi is morally outdated and no longer meets the needs of modern business and does not provide quality working space.
- There is no smooth transition between private and public space. There are no semi-private or semi-public zones.

Basically, Centergross fashion velly is represented thru 2 bulging types: WAREHOUSES AND OFFICE BUILDINGS.

The warehouses are located perpendicular to «the very soul of Centergross», Asta Servizi building. This thin but 1 km long building axis consists of several typical sections in which the office space in the fashion field borders with the service sphere.

Diagram 2.2.2. shows only the areas related to the fashion area.

This concept of orthogonal planning is typical for industrial complexes of the 2nd half of the 20 century. The possibility of direct contact with large retail space to office structures with a basic range of service functions makes it easy to navigate the territory easily.




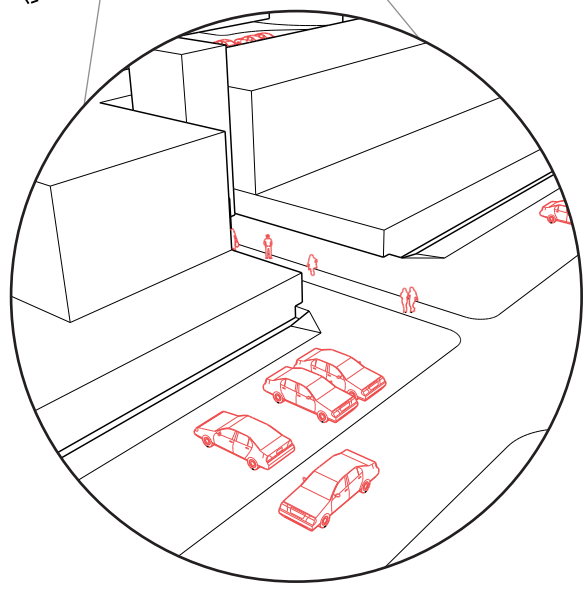
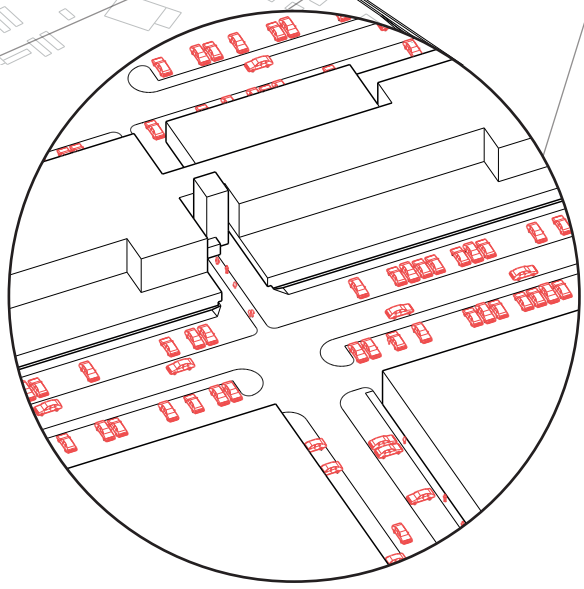
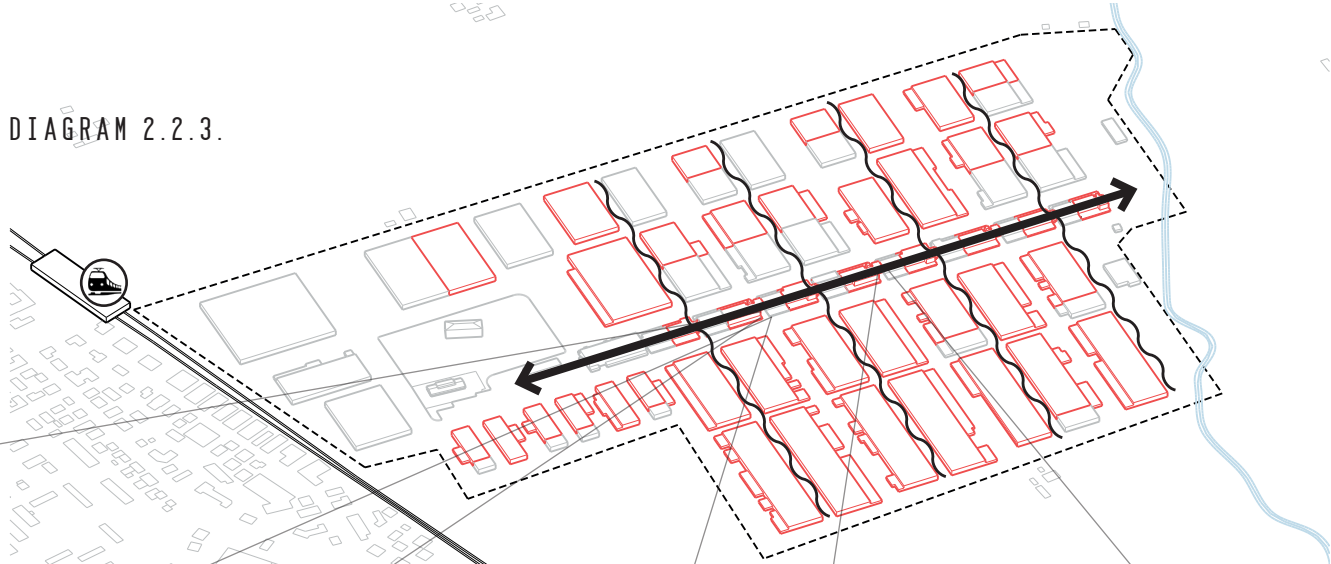
-  Fashion trade and office function
-  pedestrian connection to the Asta Servi
-  pedestrian connection throw the Asta Servi

DIAGRAM 2.2.3.



SERVICE

Most Centergross service functions, as well as the Fashion function, are located in warehouses and Asta Servizi office areas. The service buildings also include the oldest centergross Villa Orsi building, as well as two separate detached buildings: a kindergarten and a post office.

For better orientation, the service functions can be divided into 4 basic categories:

- administration and info point;
- restaurants and bars;
- personal service (kindergarten, spa, hair salon or barber pharmacy, dentist, post office, newsletter, banks);
- various services (logistics, consultancy firms, technical goods, insurance, travel agency).

Diagram 2.2.4. features these groups in different colors. Only the first group, administration and infopoint are taken out.

As we can see, the group of functions «various services», mainly consisting of services in the field of logistics, transportation logistics, technical service, (and all others) that needed more space for goods, are located in a buildings type warehouses. Photos 2.2.4. and 2.2.5.

This is very convenient because this type of building is designed for such purposes (Section 1.6.) and already has provided areas for commercial entrances for unloading and loading.

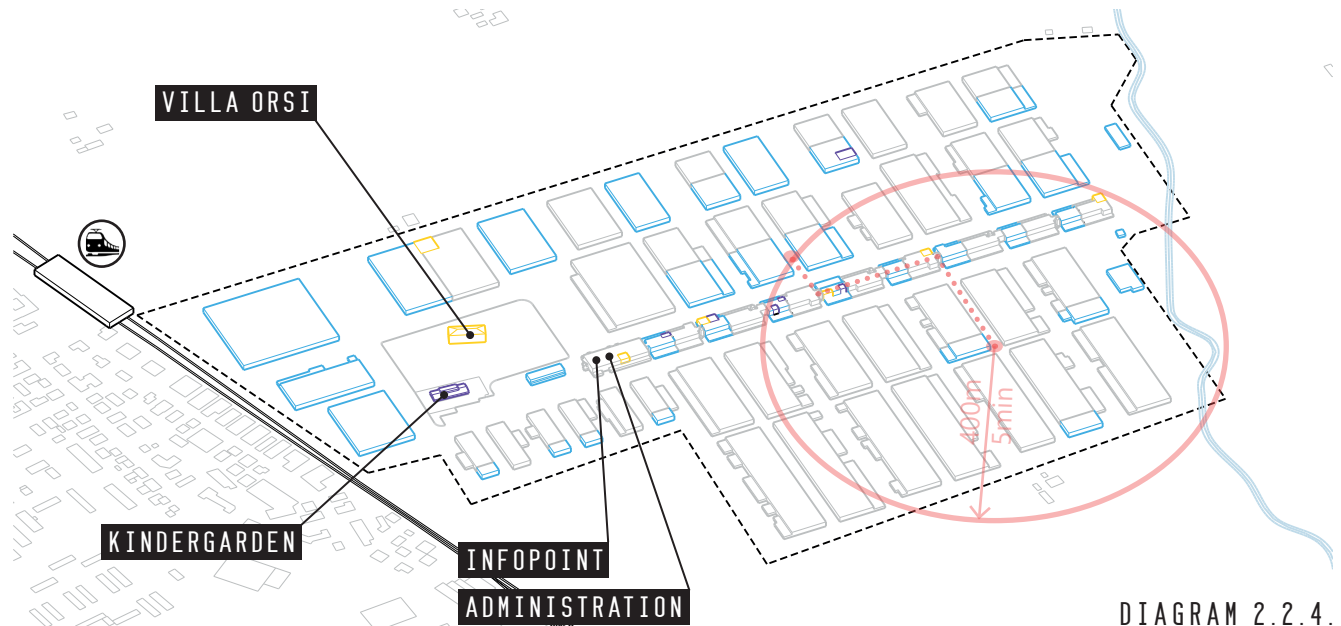


DIAGRAM 2.2.4.

+ The concept of locating the scope of service functions in warehouse buildings right next to the fashion function works well because this approach allows you to position and develop spontaneously, responding to consumer needs without interfering and without destroying the overall functional structure of the complex. A significant advantage is the presence of commercial and unloading areas.

- Diagram 2.2.4. shows a pedestrian shed with a 400m radius or 5-minute walk. As we can see, getting from one end of the complex to the other should not be difficult at all. However, there are a few difficulties. On the one hand, this is a problem of roads along both sides of the central Asta Servizi building, and another issue is the lack of pedestrian walking zones. Parking lots now occupy a large area that could potentially be





-  varios service function
-  personal service function
-  restorants and bars
-  pedestrian shed 400m/ 5min

PHOTO 2.2.4.



PHOTO 2.2.5.



used for social, recreational, pedestrian transit areas. Photo 2.2.6. and 2.2.7.

- The Asta Servizi building, which was designed primarily as a service axis, extending across the entire center of the complex, is not that popular these days. Access to services is mainly from the inside of the building and is oriented more to the employees of the complex than to its visitors. There are attempts to pro-

vide access to the building from the outside. Replanning of the entrance and making it outside entrance (for example, a restaurant, Photo 2.2.8.) is very difficult to implement. There is a need to arrange the stairs and ramps. In this case, the direct contact with the road and parking is becoming apparent, are the sharp contrast and the sharp transition between the private and transit, public zones.

+ The aesthetics of Warehouse structures are morally outdated. However, the policy of restoring them from inside works quite well (Photo 2.2.9.)

- Asta Servizi building cannot use the same approach for revitalization.



PHOTO 2.2.6.



PHOTO 2.2.7.

PHOTO 2.2.8.



© Centergross



© Paolo Gasparini

PHOTO 2.2.8./1984

PHOTO 2.2.6.



© Fabio Casati



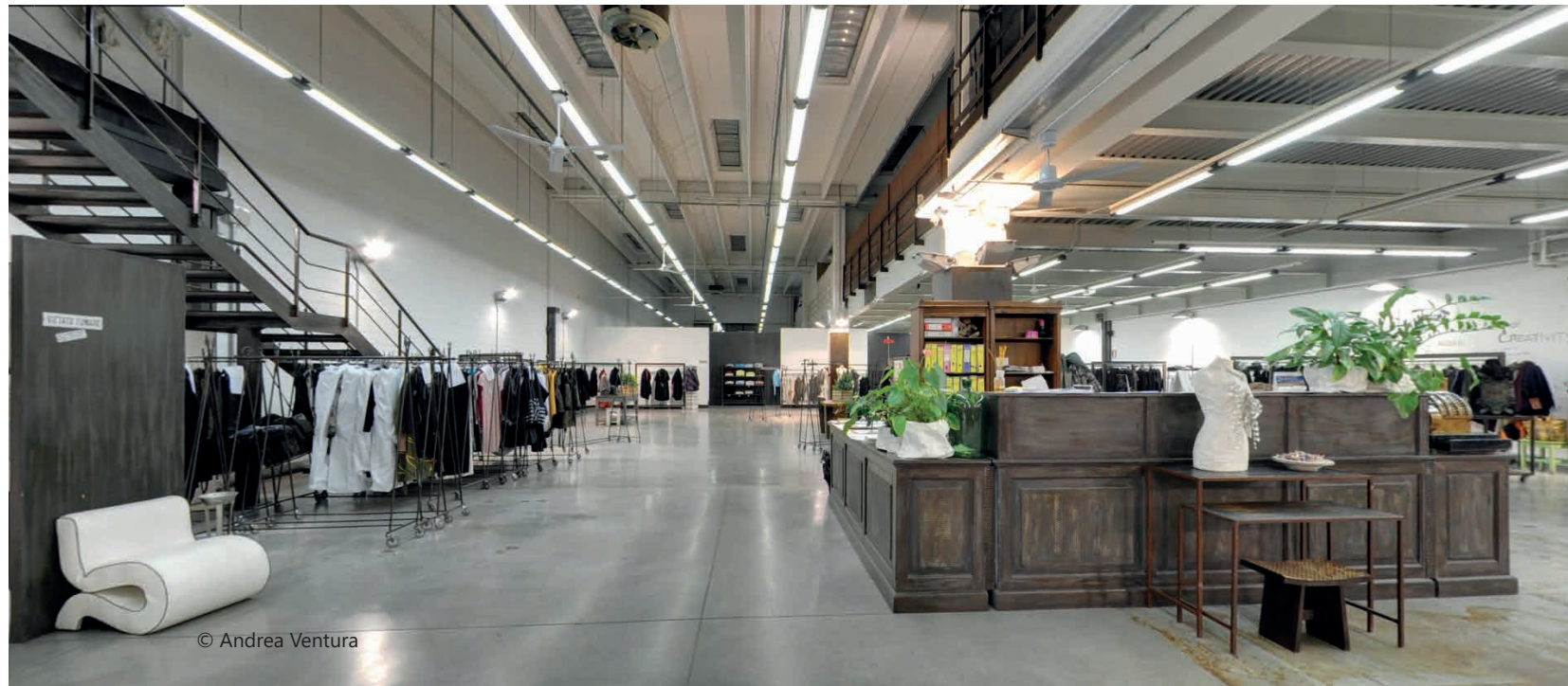
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PHOTO 2.2.10. PHOTO 2.2.11.

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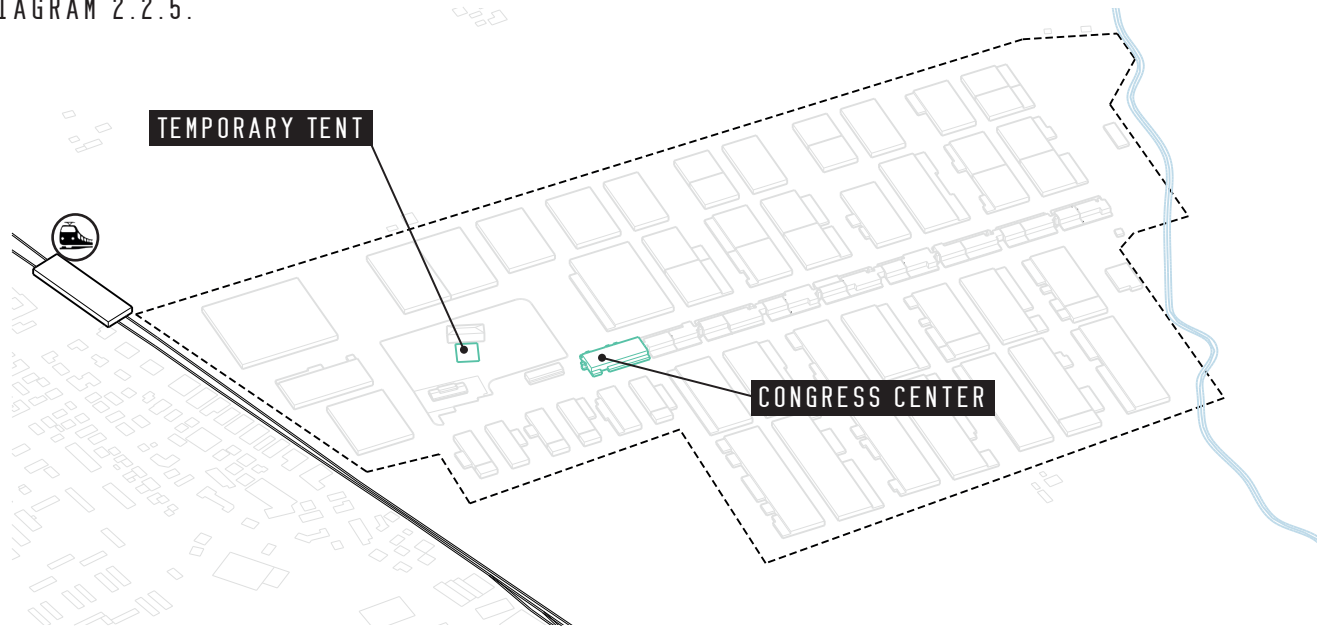




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PHOTO 2.2.12.

EXHIBITION

DIAGRAM 2.2.5.



-  Exhibition function
-  train station

Centergross has a congress center on its territory, which is used as the primary location of the center's administration. High-level business meetings, as well as delegations of different levels, are hosted here.

+ Congress center is a continuation (start) of Asta Servizi, which allows several companies to have easy access to it.

- Centergross needs a flexible space that can be used for conferences (conference rooms) and an exhibition. Unfortunately, the congress center does not meet these needs.
- There are no "alive" lobbies and zones of social interaction and recreation in the premises of the congress center.

- The planning structure, physical characteristics, and external aesthetics are morally outdated. The center is not able to accommodate the required number of people. There is no high-quality entrance space directly in front of the congress center. It is occupied by open parking.

In the current situation, the management decided to completely demolish the existing congress cen-



PHOTO 2.2.13.



PHOTO 2.2.14.



PHOTO 2.2.15.

ter building and build a new exhibition center, which should be able to adapt to the needs as mentioned earlier. " Centergross' architectural appearance has always been fundamental since its establishment in the 1970s. The current board of directors hopes to bring about the evolution of the same structure that has made the District a sector benchmark, with a project in step with times, that looks to the future and that makes environmental sustainability its greatest add-

ed value. An important pathway is being undertaken in accordance with new generations of entrepreneurs that have proudly taken over companies present inside the Bolognese Production District. "¹

¹ Centergross Company Profile. Centergross Company Profile, Centergross, 2019, <https://www.centergross.com/en/centergross-company-profile-2/>.

Currently, large-scale events like conferences and conventions are using the park area in front of Villa Orsi. Diagram 2.2.5. A temporary tent is being laid out in this territory. The advantage of being directly connected to Orsi Villa is distinct. On one side it is connected to the restaurant and sanitary areas. From another side - to the historical heritage of the region. Photo 2.2.1. and 2.2.2.

RECREATION AND GREEN SPACE

DIAGRAM 2.2.6.



- park
- 🚆 train station



The largest recreational green space on the territory (3% of land area) of the Centergross is the park, with its historical building of the Orsi villa.

- + The park is located near the central service axis of the Asta Servizi building. Diagram 2.2.6
- + The park is a historical heritage of the region and has cultural value.

- The park is surrounded by roads around its perimeter, that differentiate it from the rest of the territory
- The rest of the green areas are perceived as a buffer zone without the potential for social interaction or contact. Photo 2.2.16. and 2.2.17.
- Big contrast between private and public territory. Photo 2.2.16 2.2.17

- There is no «life» on the streets. All streets are used only as transit zones and do not provide any recreational space, which is inherent in shopping areas (improvement, pedestrian zone, places for rest, street food, etc.)



PHOTO 2.2.16.



PHOTO 2.2.17.

VILLA ORSI

«Villa Orsi is the green heart of Centergross, with its historical gardens dating from 1400. Some time in the XVI century, the Orsi family, one of the most influential of the age, chose this area for its country residence and centre of its farming and trading activities.

It was to this same area north of Bologna that, in the late 1960s, a group of entrepreneurs decided to transfer their family businesses and, in 1977 founded Centergross, the wholesale district that draws its inspiration from the area's tradition of momentum and vitality.

In 1574, a Roman Stele was discovered here, in the grounds of Villa Orsi. Whilst the original is exhibited in Bologna's Public Museum of Archaeology, in 2017 a replica was brought back to the Villa to mark Centergross' 40th anniversary and celebrated during the meeting "A family history - the Roman stele at Villa Orsi". The stele is always greatly admired by the for-

eign customers who visit Centergross and who marvel at how trade, culture and history live together in harmony here in the Emilia area of Italy.

Fashioned in luni marble, the stele depicts the decision of a powerful Roman dynasty to establish, between the 2nd and 4th century AD, its home on this site, where Villa Orsi, the stately home that is now very much part of the Bolognese District, was built many centuries later.

According to the inscription, the stele was carved to mark the death of Aurelius Gallus, who held the position of tribune, a high-ranking officer, in the 7th Claudia legion, one of the oldest of the Roman army that was active at least until the end of the 4th century AD.

The copy of the Roman stele, a faithful replica of the original, has become a symbol of the lengthy process that transformed this area into an excellent economic

hub, based on the principles of cooperation, solidarity and mutual support. The promotion of our origins is part of a process that continues today with the commitment of Centergross' Board to Directors to support projects that are important to the local area, such as the exhibition "Villa Vicus Via", in San Pietro in Casale, showcasing exhibits and presenting information and archaeological finds collected in recent decades concerning the events and growth of the area in Roman times.

Initiatives of this kind are never intended as a celebration as an end in itself, rather their aim is to discover the past as a lesson on which to build the centre's current identity with greater awareness and to transmit these contents abroad, for the furthering of the district and its marketing abroad.»¹

¹ Centergross Company Profile. Centergross Company Profile, Centergross, 2019, <https://www.centergross.com/en/centergross-company-profile-2/>.



© Centergross

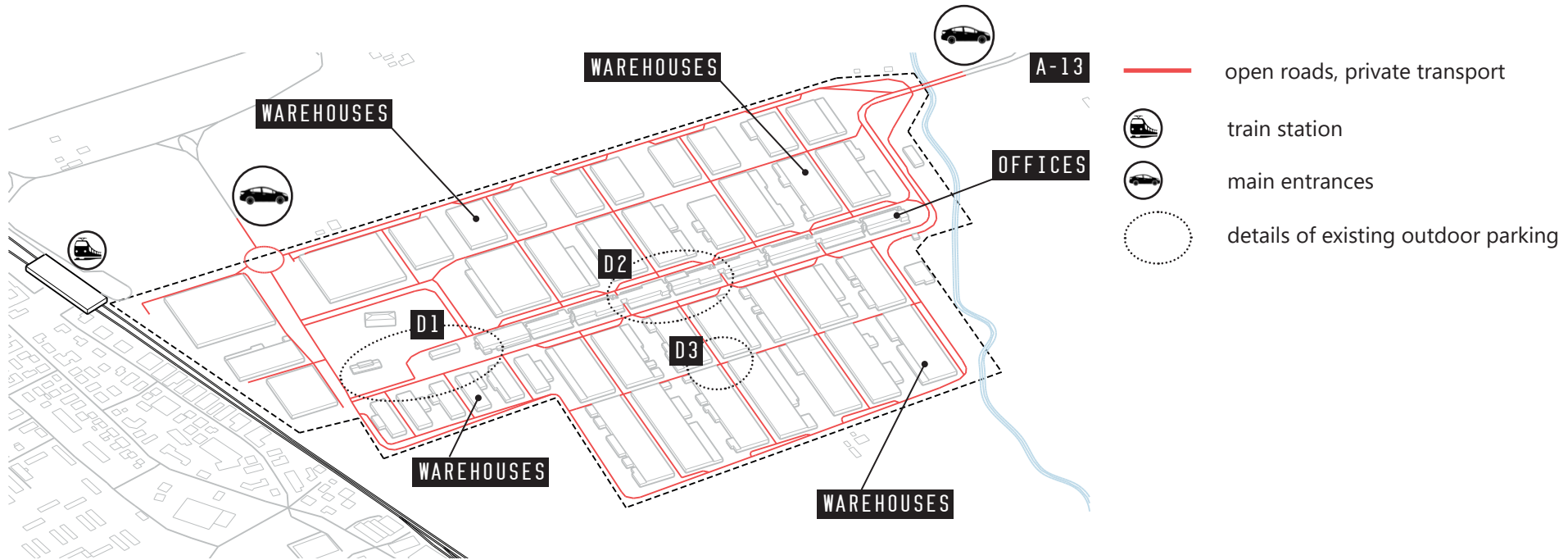
PHOTO 2.2.18.



PHOTO 2.2.19.

TRANSPORT

DIAGRAM 2.2.7.



The territory of the Centrogross is riddled with a grid of straight roads. There are two ways to enter the center - from the A13 Freeway on the southeast side and on the opposite side where is the small town of Funo (population 5652 people). Also, there is a train stop heading towards the city center of Bologna.

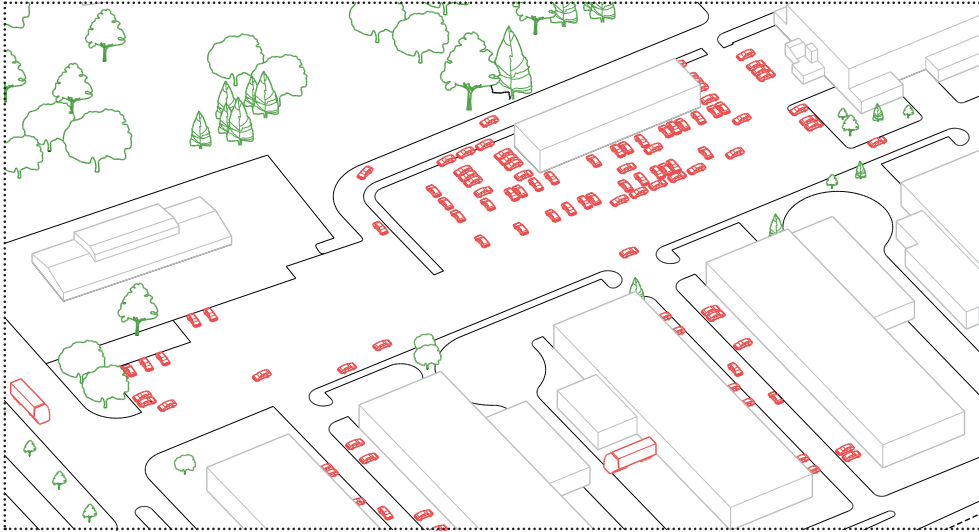
To get to the complex one can either use a private car or public transportation like train or bus. Arrivals of goods trucks are made from the same en-

trances, however the way of delivery, unloading is only partially imposed on public roads. All warehouses have a separate route for pickup trucks and private use. Diagram 2.2.7.

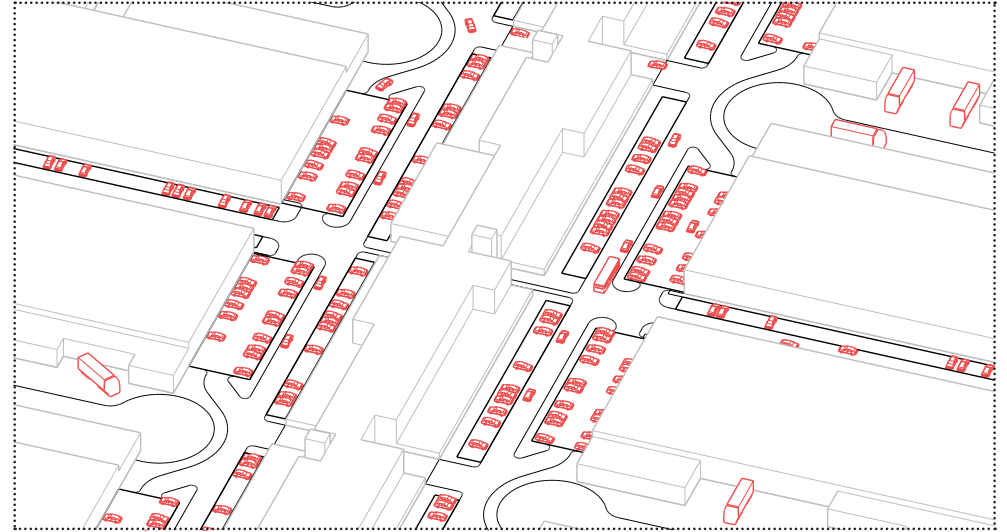
+ As we can see the orthogonal mesh of the complex makes it easy to navigate the territory. Entrances to the warehouses do not intersect with entrances to the commercial area with unloading and loading.

- The Asta Servizi building is cut off from all sides by the roads.
- The park is cut off from all sides by the roads.
- The pedestrian zone is only available along the entrance area to the warehouses.
- There is no convenient walking distance from the train station to the Asta Servizi service building

DETAIL 1



DETAIL 2



DETAIL 3



There is open parking on the territory. Detailed diagrams 1-3 show the main three types of parking. Detail 1- parking area in front of the convention center and office building. Detail 2- parking system along Asta Servizi, and further entrance to Warehouses. Detail 3- direct parking at Warehouses (entrance area, intersection). Particularly in detail 2, we see what accessibility barrier to the Asta Servizi building created by the existing transport and parking system. Despite the number of parking spaces, there is a need for additional parking, as evidenced parking on a not designated place — photo 2.2.19.-2.2.21.

PHOTO 2.2.19.



PHOTO 2.2.20.

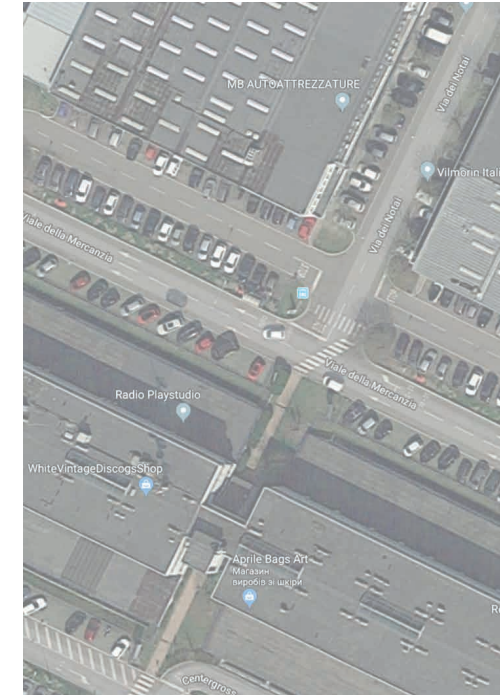
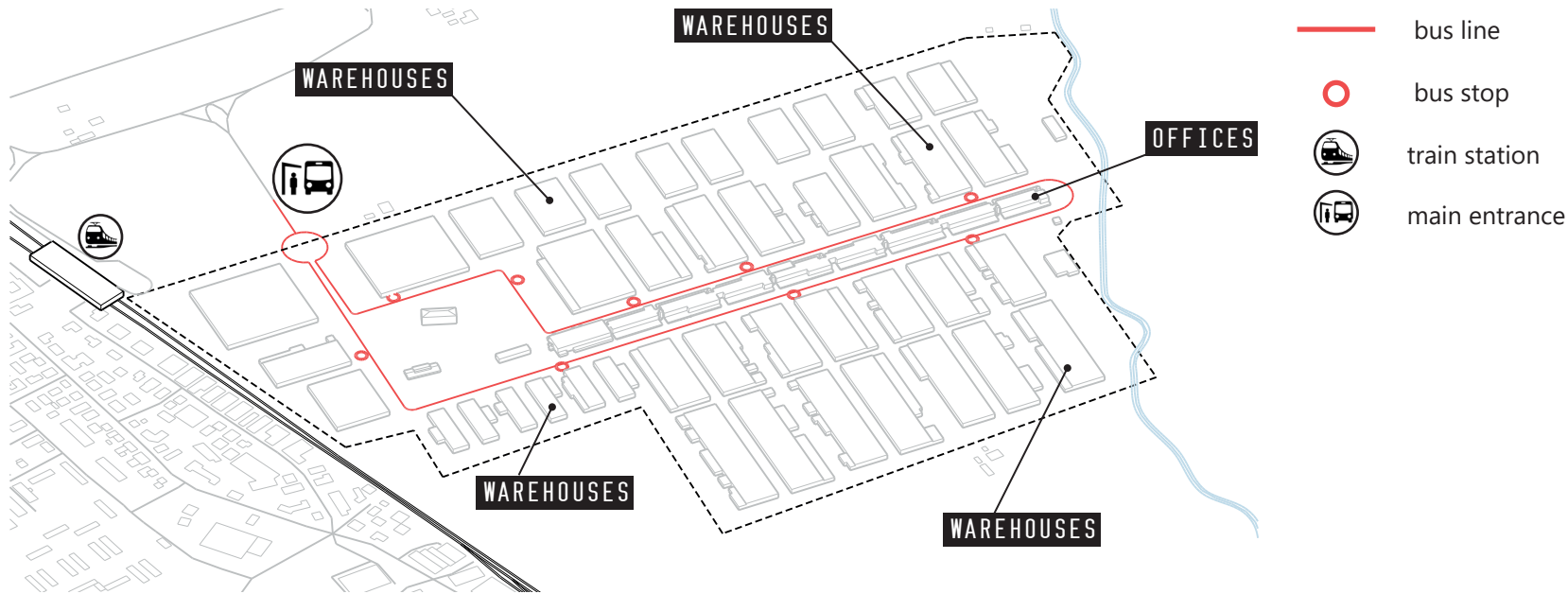


PHOTO 2.2.21.



PUBLIC TRANSPORT

DIAGRAM 2.2.8.



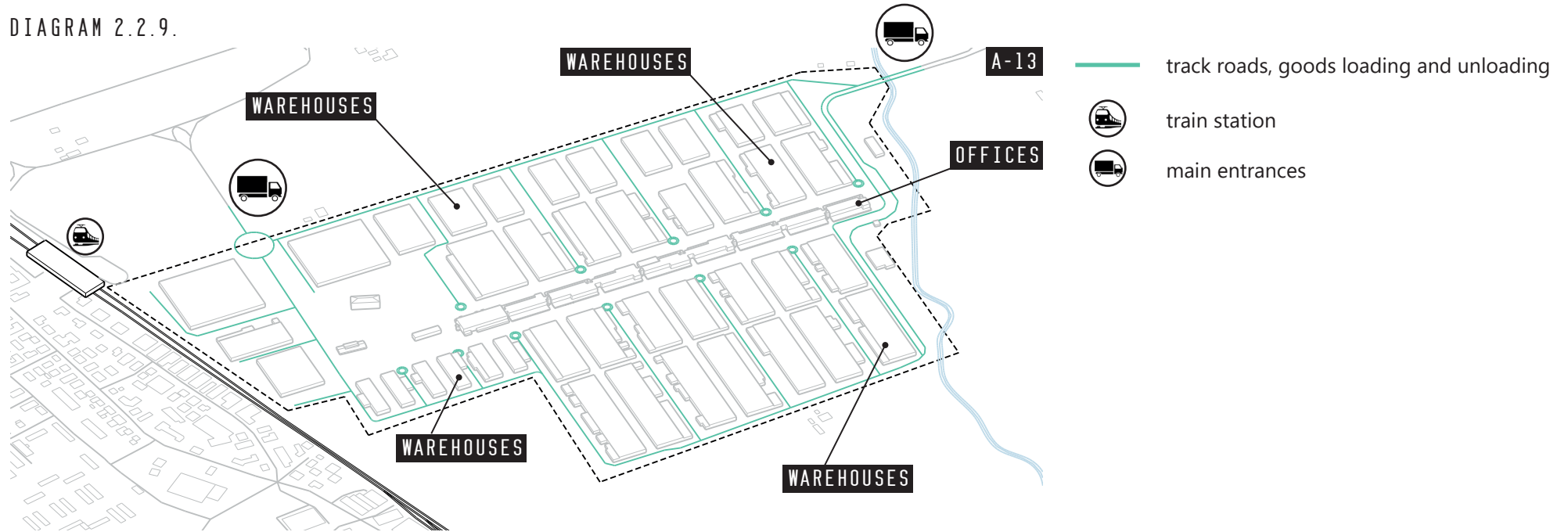
On diagram 2.2.8. shows the bus route system on the territory. Six thousand employees work at the Center-Gross, most of whom work in the central building, in the offices. That is why the bus line runs along with this building and has three stops on each side.

Workers and visitors of the complex who want to get to warehouses can use the perpendicular pedestrian streets on either side of the central building.

- + Public transportation allows you to get from the city center to the complex without using your own car and in that way, eliminating traffic jams.
- Positioning the bus line in that particular way isolates the central building.

LOADING AND UNLOADING ROADS

DIAGRAM 2.2.9.



On diagram 2.2.9. depicts the system of entrances and exits to economic zones of warehouses. As we can see, all the buildings of warehouses are grouped in two in such a way they have one entrance on two blocks of buildings. Loading and unloading of goods are carried out within these zones.

- + Occasional open-air sales are organized in this private area from time to time.
- Since there is not enough parking space in the territory, some people are forced to park in these areas.
- The disadvantage that makes it difficult for a space to respond to such natural changes is walking acces-

sibility. The green lawns that separate the U-turn from the economic zone and the main central road along Asta Servizi block the access, which causes people to go around a lot.

CONCLUSIONS SUMMING UP

PROBLEM 1 ISOLATION OF ASTA SERVIZI

REASONS:

In the existing structure of Centergross Asta Servizi, a kilometer-long structure with primary office and service (private service) premises is separated from the main vectors of walking traffic. The road surrounds the building with a ring (Diagram 2.2.7). Besides, the design structure of the building is implemented in such a way that the ground floor level is 1.2 meters above the entrance level; the entrance is a kind of bridge since the rest of the territory along the front line is surrounded by a moat.

MAIN PROBLEMS:

- Difficult entrance to the Asta Servizi building itself, especially for barrier-free access.
- The service is not as accessible as it should be; it is difficult to respond to the needs of the environment. Clearly defined entrances to the building (every 160m central entrance and displaced by 80 meters with additional entry).
- Access to functions only from the middle of the building, making it much harder to navigate the territory. A longer way to get to the right place. Some

service functions like: restaurants, banks, pharmacies, shops could potentially serve more people if they are in direct optical and walking distance.

- The separation of the transit zone and the private zone is obvious. There is no life on the streets. Except for the passage in Asta Servizi there is no half-private area. In this regard, the territory that can potentially provide quality social space with semi-private and recreational areas is now being used solely as a transit area. (Diagram 2.2.3.)

PROBLEM 2

PARKING PLACES

REASONS:

In the territory of Centergross, the main priority was given to the car. Given the history of the complex and its function, it is quite understandable (paragraph 1.4.-1.6.). Today, there is only street parking, and there is not enough of it as we can see in the photo 2.2.19.-2.2.21. Cars are parked throughout the complex in the no parking zones.

MAIN PROBLEMS:

There is a need for more parking spaces within the existing Centergross structure.

- Need for new parking for new facilities and functions.
- The absence of the ground parking structures calls for a restructuring of the existing transportation system of the complex. (paragraph 2.2.)

PROBLEM 3

ISOLATION OF THE PARK

REASONS:

Centergross is fortunate enough to have on its territory the historical heritage of the region - the Villa Orsi and the surrounding park (paragraph 2.2.). The park, however, is a closed area and is not being used for recreational purposes. Like the Asta Servizi building, it is surrounded on all sides by the road that creates a barrier of accessibility. The other green or pedestrian space is morally obsolete and serves only as a barrier. (Photo 2.2.16. and 2.2.17.)

MAIN PROBLEMS:

- Roads isolate the biggest green heart of Centergross. It is not used as a social space.
- Improvement of the territory is morally outdated
- Dead streets, no life on the streets. There is a need for an entrance area in front of the exhibition and administrative congress center (detail 1) and pedestrian areas for social interaction and recreation.

PROBLEM 4

NEED FOR ADDITIONAL SPACE

REASONS:

Centergross is developing. Unfortunately, currently, the functional and planning structure of the complex is no longer in line with the goals set by Centergross management. Considering the statements made by the management of the complex, the question being raised now is increasing the office space, the construction of a new congress center, and the construction of a design school.¹

MAIN PROBLEMS:

- There is a need for more office space and the adaptation of existing to the needs of today.
- Construction of a new congress center for various events and conferences.
- Construction of a design school.

¹ "Young Architects Competitions." Young Architects Competitions, <https://www.youngarchitectscompetitions.com/competition/italian-fashion-hub>.

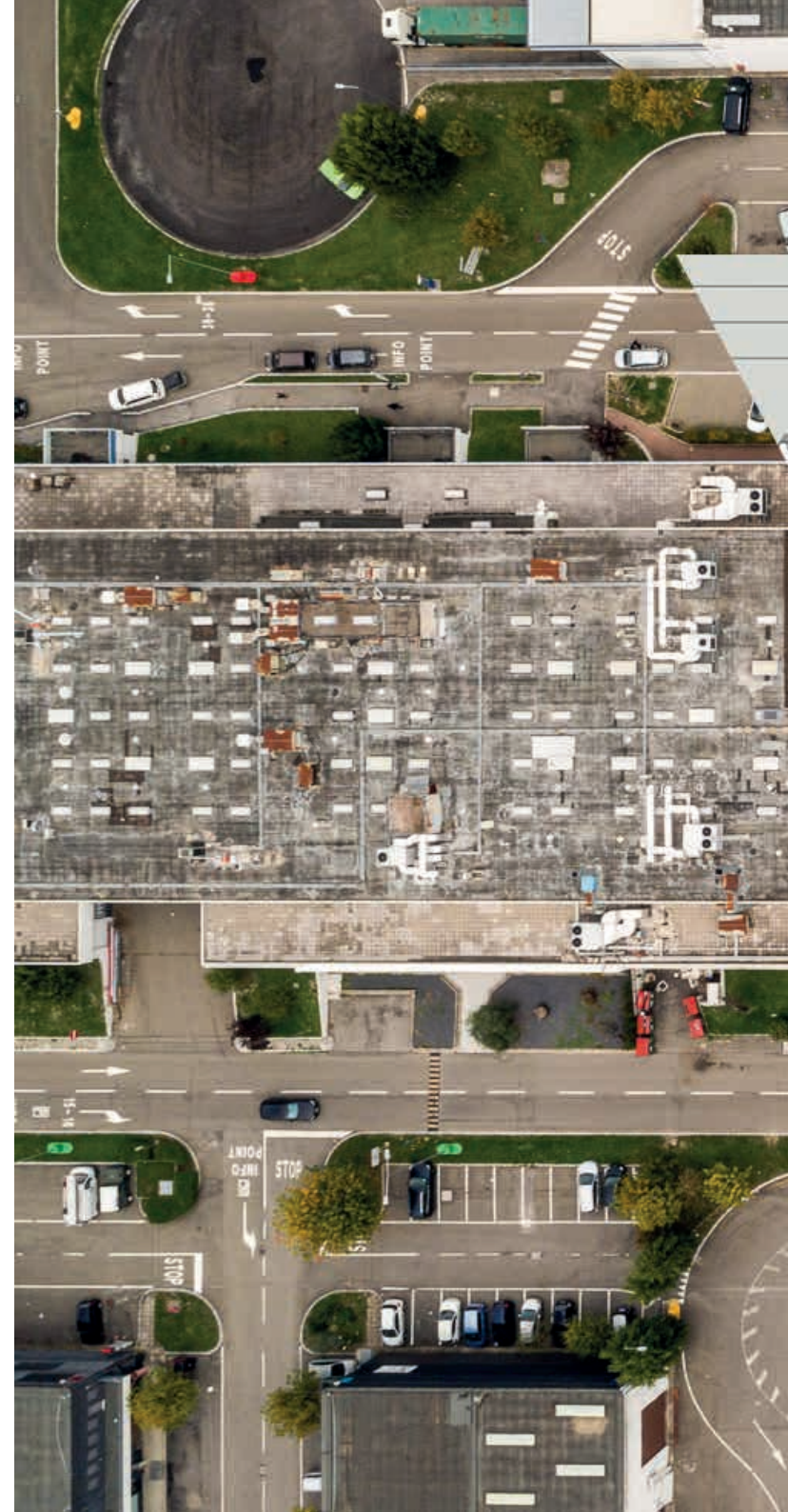
MACRO CONCEPT STRATEGY

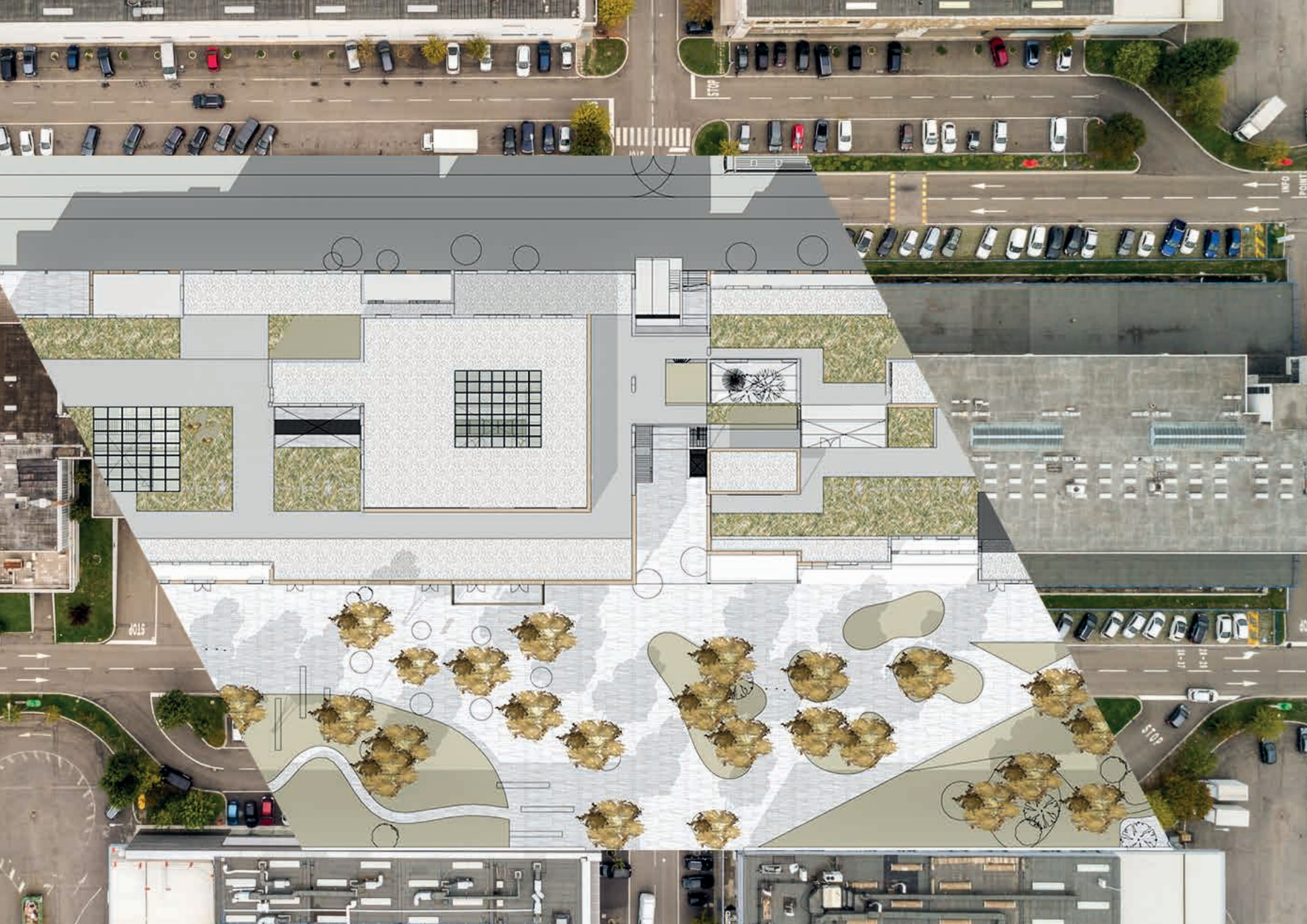
The macro concept is an offer of the design strategy for the whole territory of complex CG. In this section, we look at the possible implementation of changes that can help by solving the problematic points described and summarized in paragraph 2. Analysis, by using the design strategy, "less is more."

Design method "Less is more" is the method of minor interventions in the existing environment, which nevertheless leads to significant qualitative changes.

The purpose of this section is to identify which of the proposed changes allow to quickly respond to acute problems at the level of the whole complex, and which are additional and solve specific local issues.

Therefore, the concept of reconstruction of the Centergross Fashion Hub will show what implementations need to be put in place immediately to improve the existing state of the complex and which can wait and be completed when the necessary resources arrive.





LIVE STREET

Based on the above facts, in my opinion, two problems are most critical. The first is the problem of isolation of Asta Servize, dead streets, and the park area, and the second problem is the problem of insufficient parking. Intervening in the existing structure should prioritize these two issues first.

To improve this situation, I offer to implement a «Live street» design concept, which means the creation of main pedestrian multifunctional area (1km long) for social communication, shopping, relaxing and pop-up events. It will connect, like a «bridge», two types of building- and working areas: office/service and warehouses.

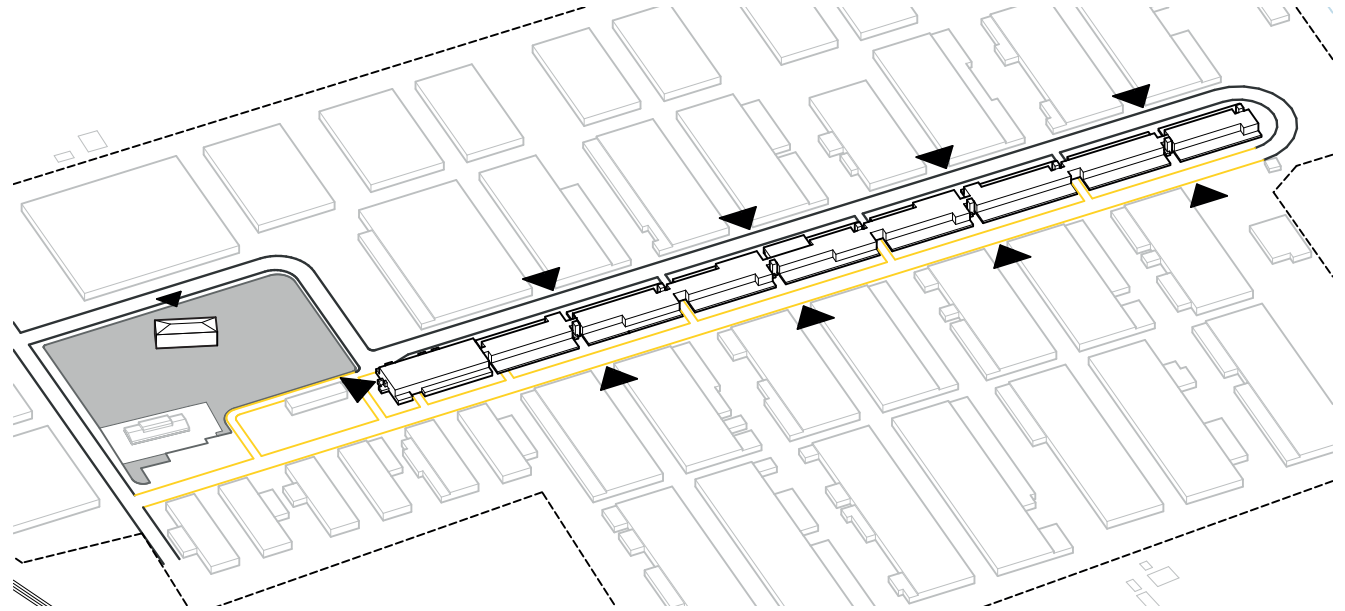


DIAGRAM 3.1.1.

PEDESTRIAN AND SOCIAL STREET

Diagram 3.1.1. and 3.1.3. shows how roads create a barrier for people wishing to enter Asta Servizi. Currently there is a two-lane road on both sides of which parking lots are located, but there is no pedestrian area near the parking lots.

There is also a ditch (diagram 3.1.5.) between the parking lot and the building. The existing semi-underground floor, currently used as a storage space, has windows for its insulation. Its advantage is that there is a car ramp and it can easily be turned into an underground parking lot.

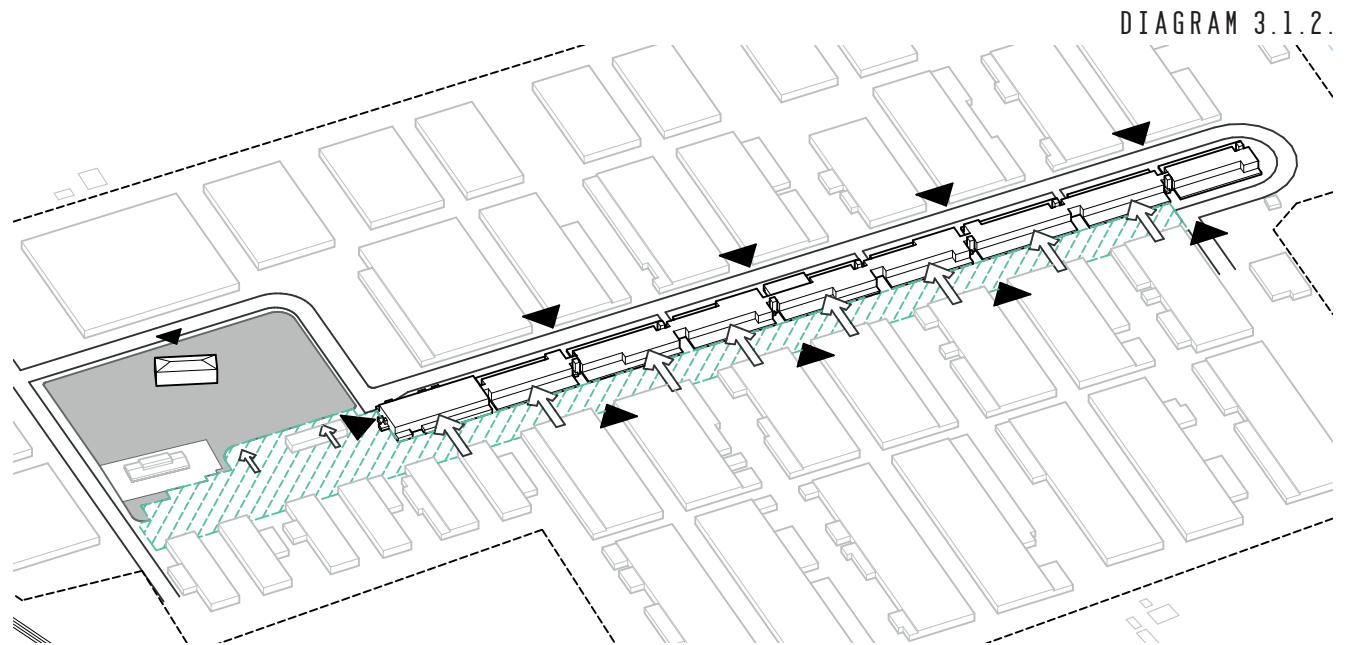


DIAGRAM 3.1.2.



DIAGRAM 3.1.3.



DIAGRAM 3.1.4.

Villa Orsi Park is surrounded by roads which discourage visitors from walking through the only recreational area.

By designing a walking area on the road and parking area diagram 3.1.2. and 3.1.4. a large pedestrian recreational area appears for the day workers and visitors of the complex. The park will have a direct connection with live street and will become more open to people.

To make it easy for people to access Asta Servizi, the street level needs to be raised to the ground floor level. Currently, there is a height difference of about 1.2m (7-8 steps), which creates another kind of barrier for people, especially for the disabled. By filling the ditch and raising the street level, barrier-free access to the building is achieved, which will allow making private entrances to the offices or services from the first level of the building.

The new pedestrian recreation area should become an attractive place for leisure or work breaks outside the office. It should provide a variety of ways to spend time for active as well as passive people. Another new kindergarten area should be added. The new pedestrian zone is 930x37 (70) m

The road in front of the park should be taken away. The barrier will disappear, which separates the (now existing) congress center, administration area, info point, and freestanding post office so that the Historical Park will receive a new entrance from the side of the pedestrian area.

MOAT

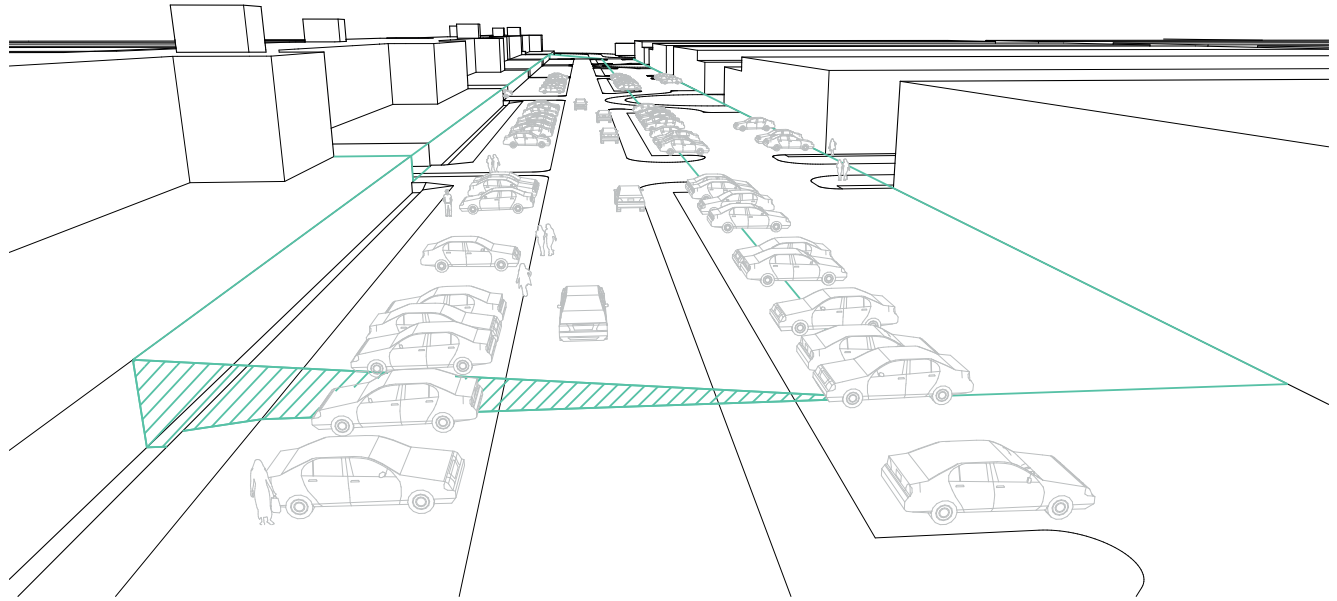


DIAGRAM 3.1.5.

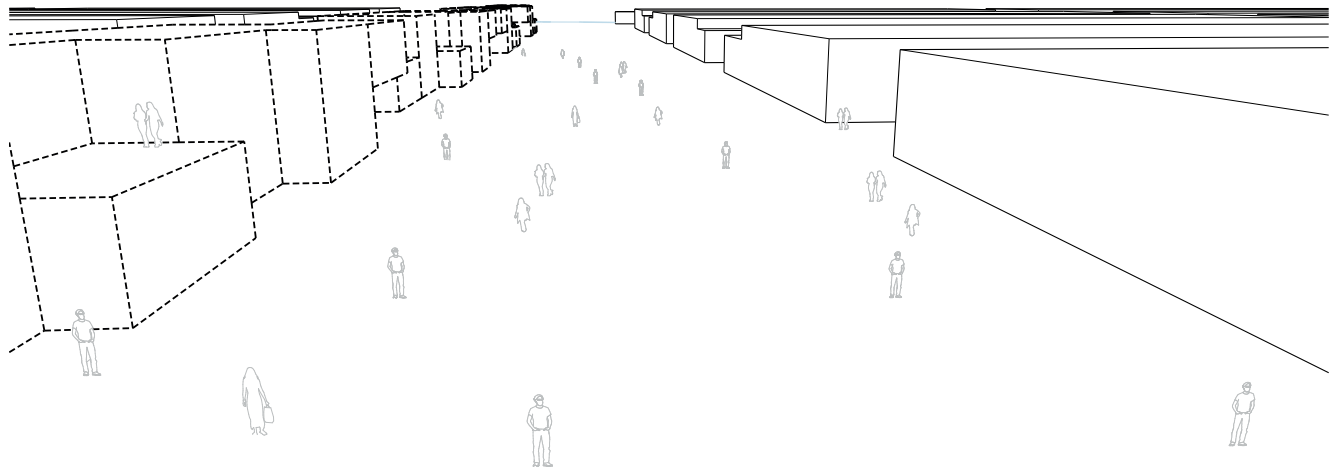


DIAGRAM 3.1.6.

PHOTO 3.1.

© Centergross



MACRO CONCEPT/ LIVE STREET



PHOTO 3.2.



PHOTO 3.3.

PHOTO 3.4.



MACRO CONCEPT

VERIETY AND ORDER

People like symmetry. It creates harmony and beauty in our imagination.

The complex has a straightforward layout structure with simple building volumes. However, this monotony can be a horror for the human eye. Therefore, it is vital that along with order and symmetry, there is some diversity.

Since the parts belong to different companies, this diversity is present in the complex. (different facade textures, advertising signs, paint colors photo 3.5.)

An example of Variety and Order is this city Telč in the Czech Republic.^{1,2}

Where every house (photo 3.6.) is the same width and height, but within that ordered pattern, every house has been allowed freedom at the level of form and color.

Perfectly in the middle ground between chaos and boringness here. That's what people adore.

1 CzechTourism. "Telč." Czech Republic, <https://www.czechtourism.com/c/telc-unesco/>.

2 Life, The School of. "How to Make an Attractive City." YouTube, YouTube, 26 Jan. 2015, <https://www.youtube.com/watch?v=Hy4QjmKzF1c>.



© Fabio Casati

PHOTO 3.5.

PHOTO 3.6.



© Ladislav Renner

DEAD STREETS- ALIVE STREETS

There are streets that are dead and streets that are alive.

Currently, the complex is not a very attractive place to spend extra time there or to relax. The absence of a pedestrian zone, open recreational areas drives customers to the premises where these areas are created and away from the complex.

The visual component plays a significant emotional role in people. People love with their eyes. The parking lots that now completely surround Asta Sevizi set it apart from the warehouses. The only accessible pedestrian zone in front of the store entrances is not able to make the center attractive to the visitor. In that way, one much-needed function (parking) affects the other (recreation, landscaping). Therefore, the impression of dead Street is made, where the only movement is created by cars.(photo 3.7. and 3.8.)

Today the places where a lot of work gets done look dull and lifeless. And you never go there unless you happen to work there yourself because there is nothing to see.

The streets have a visible life.

Contrast this with the streets we all love where you can see things going on: a bakery, a cobbler's shop, a burger bar, a bookstore. These are the streets we love because they are full of life where you can see people at work and feel connected to others.³

³ Life, The School of. "How to Make an Attractive City." YouTube, YouTube, 26 Jan. 2015, <https://www.youtube.com/watch?v=Hy4QjmKzF1c>.



© Nicola Jannucci

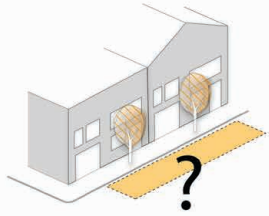
PHOTO 3.7.

PHOTO 3.8.



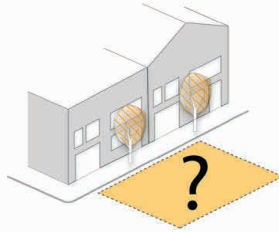
© Andrea Ventura

MACRO CONCEPT / DEAD STREETS- ALIVE STREETS



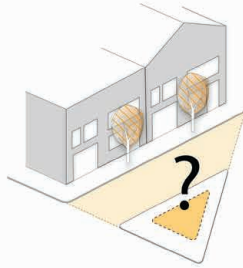
PARKING SPACE

How can a parking space be adapted?



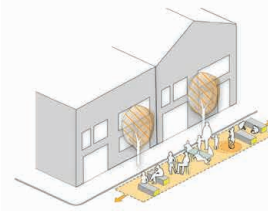
STREET SPACE

How can street space be adapted?



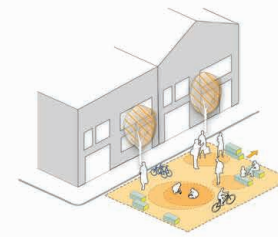
RESIDUAL SPACE

How can residual space be adapted?



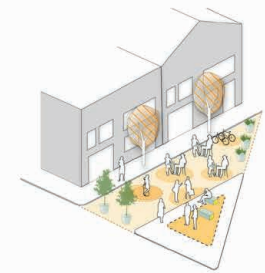
PARKING SPACE

Parklet
 Curb Bulb
 Sidewalk Extension



STREET SPACE

Temporary Street Transformation
 Street Park
 Shared Street/Woonerf
 Demonstration Cycle Track
 Traffic Calming



RESIDUAL SPACE

Shoreline Street End Park
 Eco/Social Median
 Triangle Plaza

This section will focus on strategies that can be used to transform parking spaces, street space, and residual space.

PARKLET

Parklets transform on-street parking spaces into small spaces for people to use and enjoy. They provide pedestrian amenities such as seating, landscaping, and bike parking. Parklets typically involve a public-private partnership between the city and a community sponsor. The sponsor is responsible to design, build and maintain this public space with permits from the city. Parklets typically are designed to be semi-

permanent structures in the right-of-way and were inspired by an annual international event called 'PARK(ing) Day'.

PHYSICAL PROTECTION

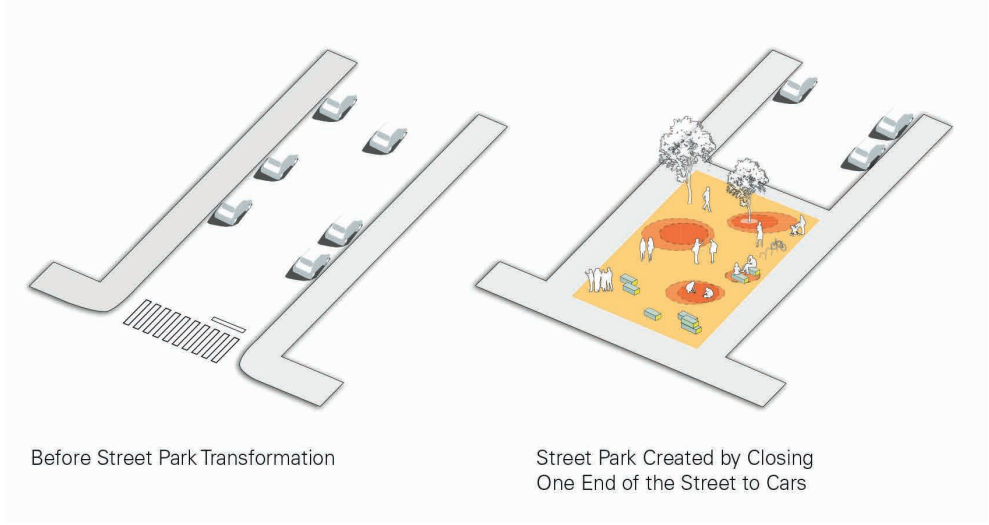
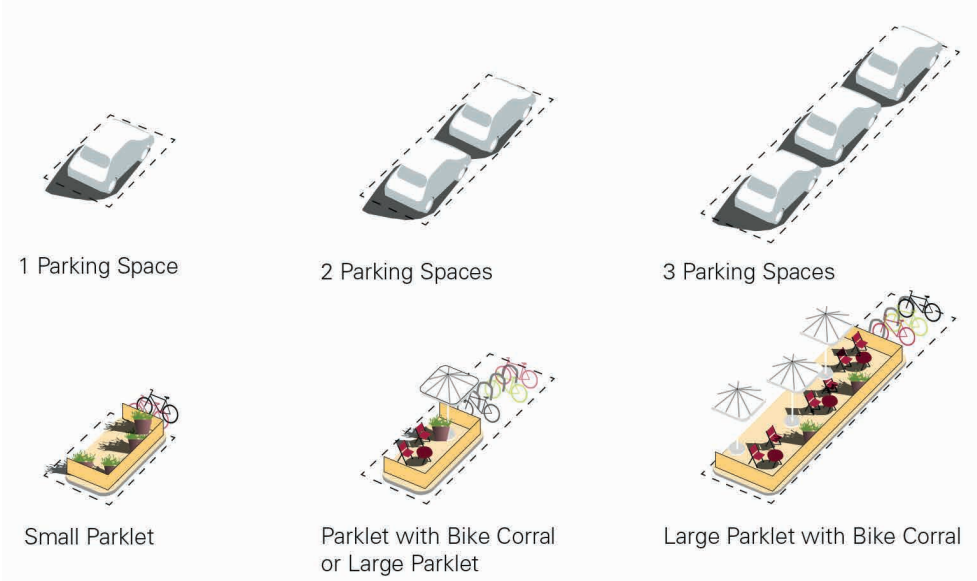
Protection from Traffic and Weather
 Planters, bollards, trees, and umbrellas are all examples of classic elements. Creative examples include dumpsters, logs, and furniture to protect and define space for human use.

INTERACTIVE OBJECTS

Activities and Play
 Exercise equipment, game tables, ping-pong, instruments, and artwork inspire spontaneous interactions and playful uses of urban spaces.

PLANTS

Ecosystem Services and Habitat
 The many benefits that plants provide humans can be referred to as ecosystem services. From the shade trees contribute to the cleansing of both air and water, to storm water mitigation, the impacts extend beyond people to the broader environment.



WAYFINDING/SIGNAGE

Navigation and Identity

A small sign can be used as a friendly invitation to a space. In larger spaces, consistent surface markings and materials can provide wayfinding.

PEDESTRIAN AMENITIES

Basic Needs and Comfort

Amenities such as restrooms, water fountains, bus shelters, and kiosks help create pedestrian-friendly spaces.

BICYCLE FACILITIES

Encouragement, Parking and Repair

Providing facilities that make bicycling easier and more convenient can include options for parking at the end of trips as well as support along the way such as ramps, fixed pumps and tools.

SURFACE MATERIALS

Variation, Color and Accessibility

Paint, permeable paving, precast concrete, cobbles, wood, etc., can add interest and define space for new uses. Choose sturdy materials for longer-term interventions. Variations in material can indicate

circulation but should be easy for users to navigate. ¹

¹ Schwindeller, Mike. "Adaptive Streets: Strategies for Transforming the Urban Right-of-Way." Issuu, https://issuu.com/schwin/docs/14_04_26_adaptivestreeets_final.

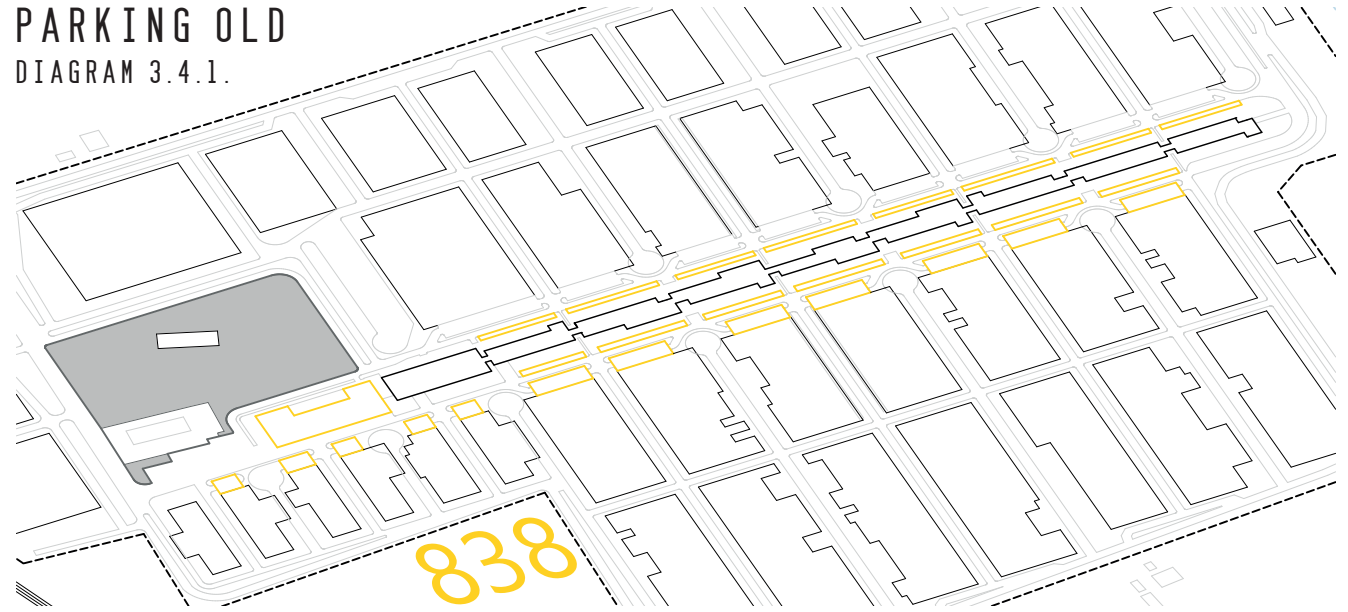
ROADS AND PARKINGS

On both sides of Asta and near the existing congress center, there is a parking area (838 spaces). These parking lots are transferred to underground parking (864 spaces). This will create a space for the pedestrian zone, which will give the new life to the complex.

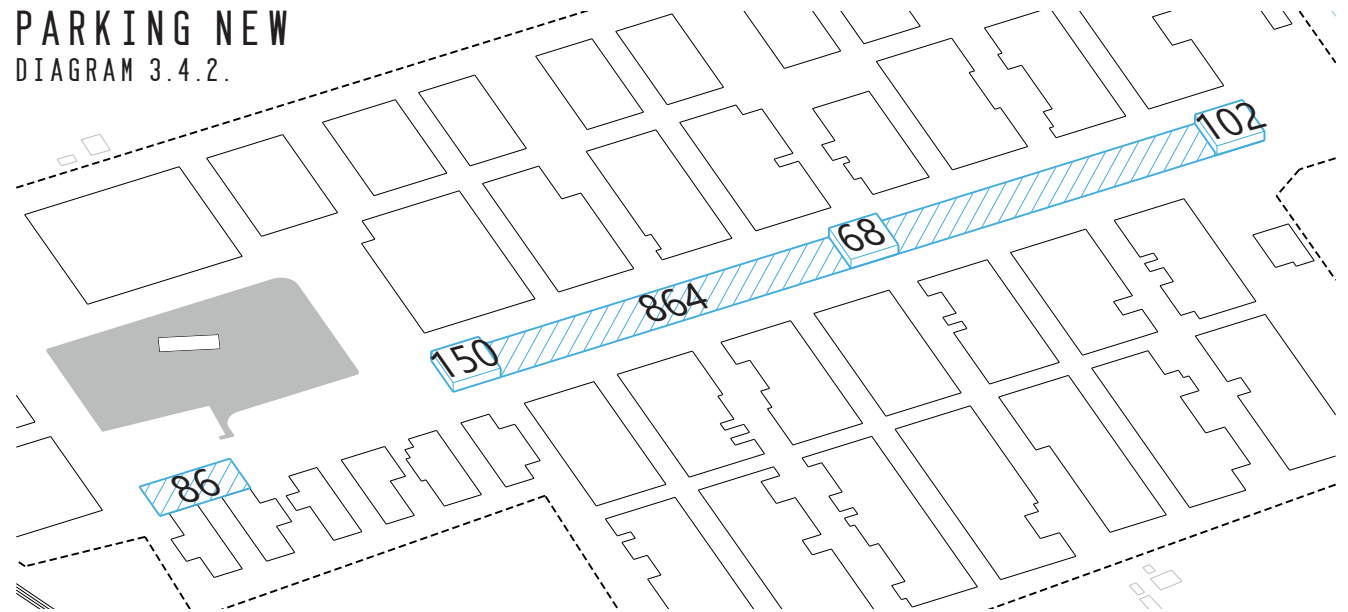
3 level parking lots (150, 68, 102) are also added to help with the parking problem. They will be dispersed along the Asta Servizi axis. They will provide buffer space for parking during rush hours as well as for large-scale events (conferences, new collections shows, etc.) without disturbing the normal workflow of the whole complex.

Another reason for the construction of multi-level parking is the new function of the design school. At the beginning of the pedestrian zone, an open parking lot for 86 spaces was designed. It is also a buffer parking lot for large exhibitions in the new Exhibition Center.

PARKING OLD
DIAGRAM 3.4.1.

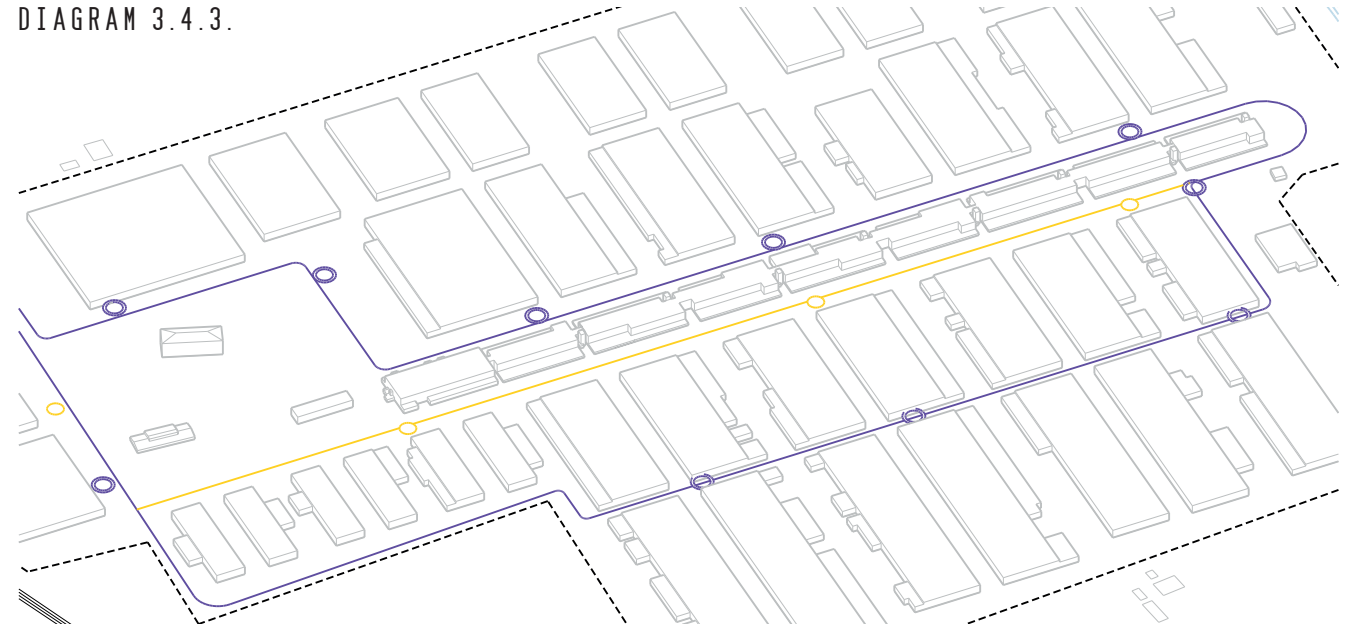


PARKING NEW
DIAGRAM 3.4.2.

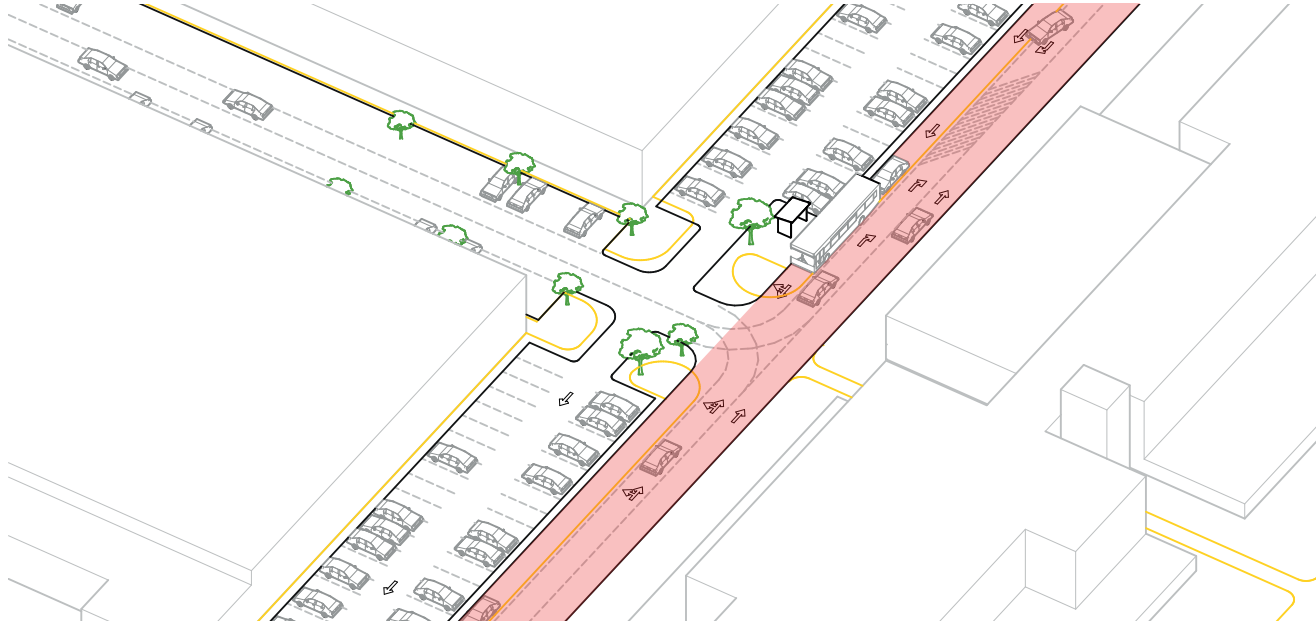


As the road to the southwest side of Asta ceases to exist (diagram 3.4.3), there is a need to change the route to public transportation and stops on the given territory. The old system had stops at the center of Centergross by Asta Servizi. A new path with additional stops passes in a parallel street.

DIAGRAM 3.4.3.



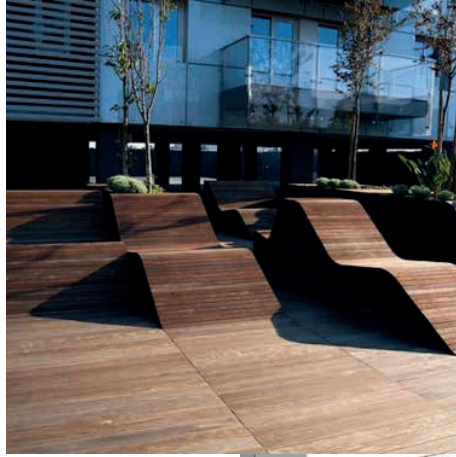
NEW ROAD



The old road was one-way with two lanes. The new road will be a two-way three-lane. Although the number of lanes has increased, visually, the road will seem narrower because parking will be removed, and additional space will be left for the pedestrian area as well as for bicycle or electric scooter lanes.

DIAGRAM 3.4.4.

LIVE STREET DESIGN



© Christian Marc Schmidt



© Christian Marc Schmidt

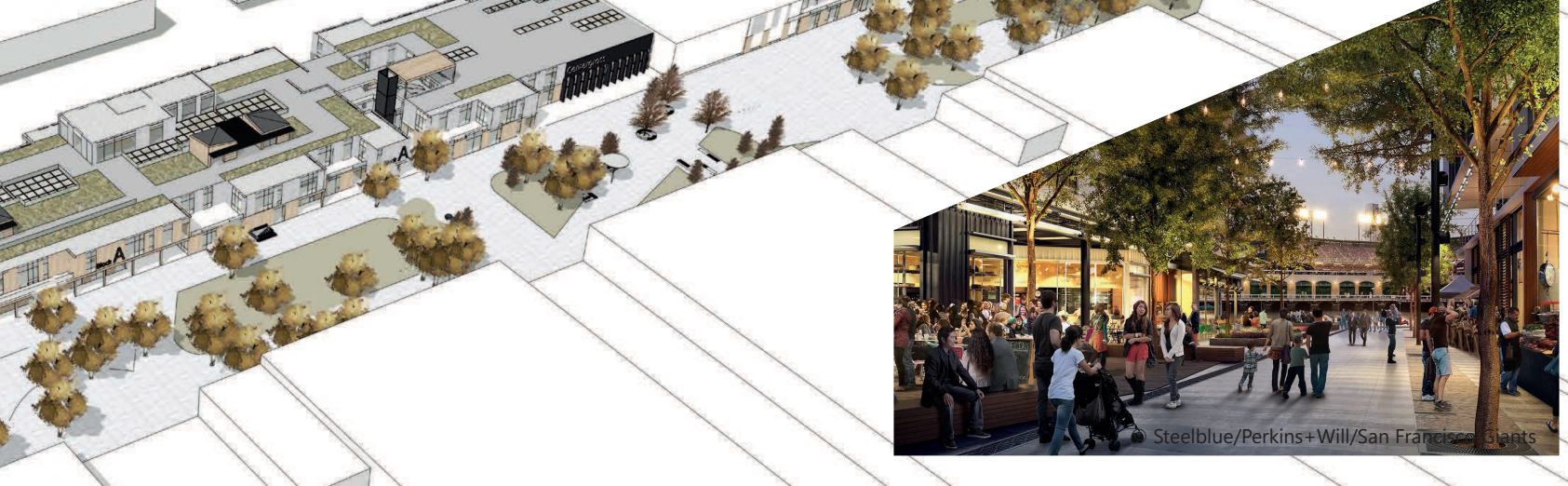


© Ed.Square





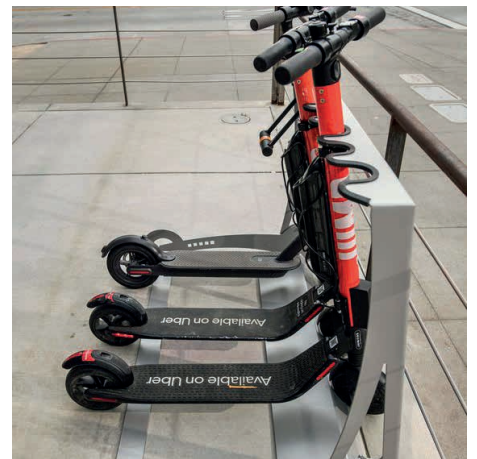
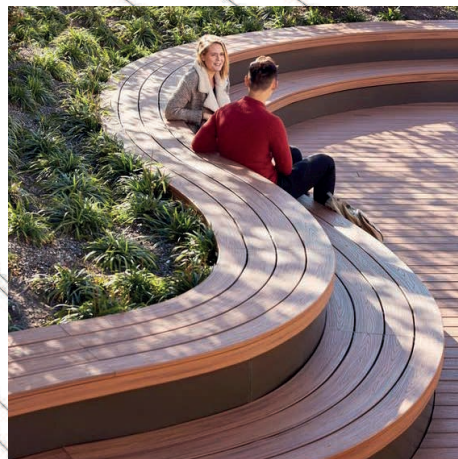
© Borje Müller-Nolasco



Steelblue/Perkins+Will/San Francisco Giants



© slow ottawa



MICRO CONCEPT STRATEGY

Micro concept strategy is a design strategy in the buildingscale. In this study, the subject of more detailed analysis and design is the main service/office building of Centergross is - Asta Servizi.

This 1km long building is the multi-functional heart of the Centergross, that need renovation on the first place, and sets many complex and exciting tasks to the architect.

In this section, on the one hand, we will look at the possibilities of reconstructing the existing structure of Asta Servizi to adapt it to the modern needs of doing business, as well as to increase office and service space.

On the other hand, we will consider introducing new features such as fashion design school, exhibition and administrative spaces, as well as a way to reorganize the parking system and, in particular, to layout

multi-level parking.

The problem of the revitalization of such structures requires more comprehensive analysis and consideration of more factors than new buildings. It involves taking into account the features of the existing building, its structural, as well as physical, planning and aesthetic parameters. All of these factors cause the complexity of the task of introducing new architectural elements and functions.

VOLUME EXCHANGE

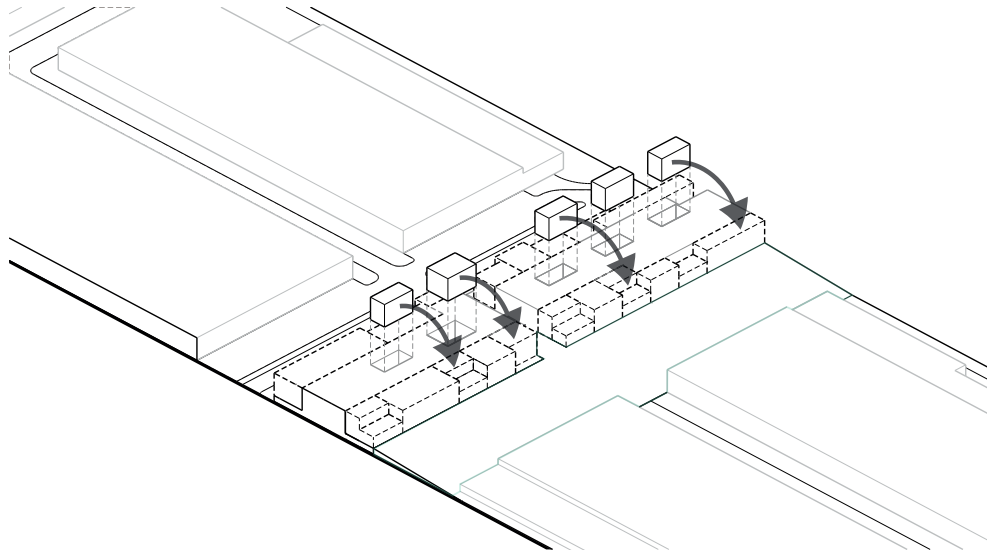


DIAGRAM 3.5.1.

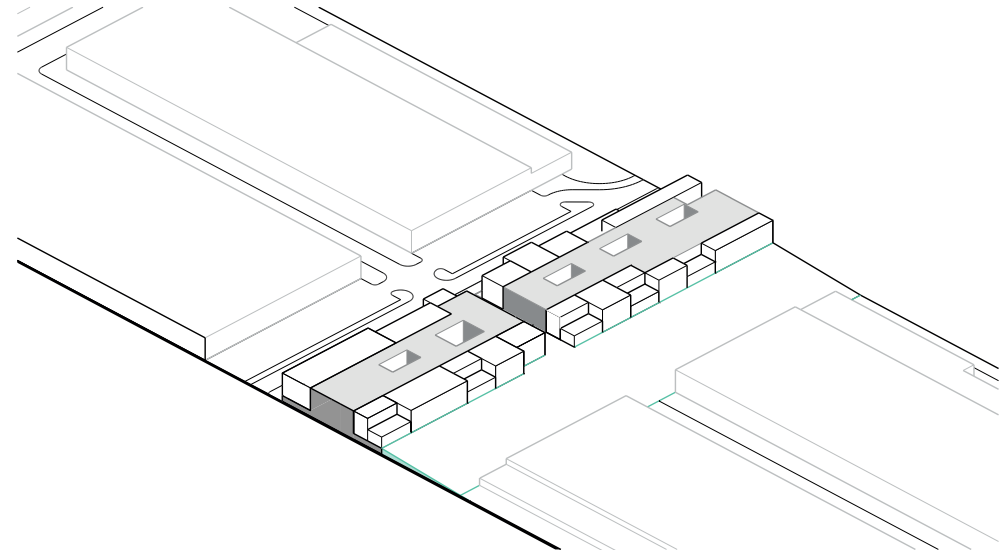


DIAGRAM 3.5.2.

The design concept that is proposed to solve these problems can be described as a "Volume exchange" concept.

The concept of volume exchange (diagram 3.5.1-2) implies the extension of the building through the creation of patios and the extension of the outer contour of the building to the boundary of the existing basement floor. In other words, the empty space from the outside brings air into the building, and the volume squeezed from the inside places outside.

This will allow you to get the extra space you need, bring in more natural light, and create more diverse space. Thus, the natural light atriums that will reach the ground floor and will provide it with scattered sunlight and at the upper levels will significantly increase the perimeter of the building. However, light spaces can be either courtyards or terraces of semi-private or private spaces, as well as gardens for the lower levels of the building. This three-dimensional planning solution will also al-

low diversifying the facade, which is one kilometer long, forming ledges and recesses at different levels and providing direct access to Live Street.



ANALYSIS OF SIMILAR COMPLEXES

GUCCI HUB

The old Caproni factory, built-in 1915 in the eastern suburbs of Milan, has been brought back to life thanks to a renovation and redevelopment project done by the Milan-based architecture firm Piuarch transforming this old plant into the new Milan offices of the famous fashion brand Gucci. The premises, (35,000 square meters) which were used for designing, assembling and testing airplanes, have now been developed into large complex holding offices, showroom, and spaces for holding fashion shows and operations connected with graphics, as well as a canteen and restaurant.

The project, based on renovating this industrial site, focuses on enhancing the stylistic features of the 1920s' architecture.

Regenerating the old facilities has resulted in a modern office complex, which manages to meet modern-day needs and requirements in construction with powerful historical connotations. A place of dynamism and circulation of ideas, for about

400 persons, in keeping with the concept of learning organization of a campus. Every zone is different from the next, personalized, tailored.¹ The abandoned industrial warehouses, set out in a regular pattern across the site and featuring modular structural bays, have been renovated and enhanced: covered by a shed-style roof that lets zenith light flow into the interiors and featuring exposed brick facades, the spatial layout of these buildings creates seamless interaction between the inside and the outside.

The large hangar has been transformed and can now host events and fashion shows, thanks to the careful renovation project. Inside the regular layout of structures, a central pedestrian path connects the axis along via Mecenate to a large covered space: this internal plaza, covered by thin metal structures engineered back at the start of the century, sets out the various functions inside Gucci's Milan offices.

¹ "Gucci Hub." Interni Magazine, 15 Mar. 2018, <https://www.internimagazine.com/projects/gucci-hub/>

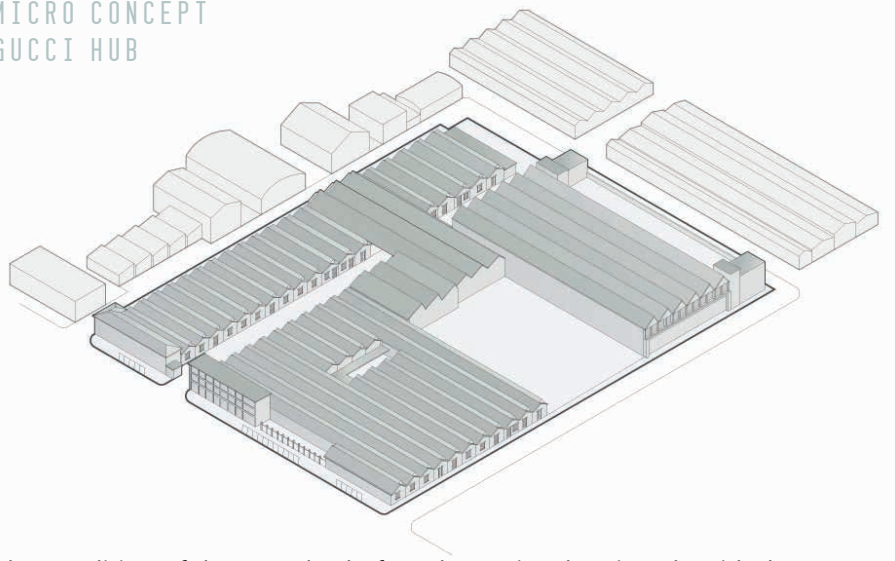


© Andrea Martiradonna

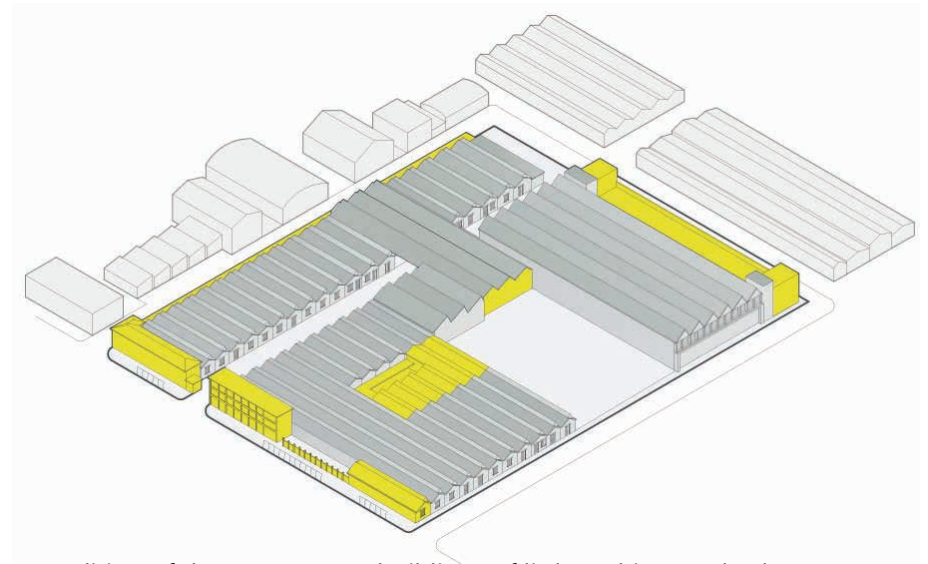


© Andrea Martiradonna

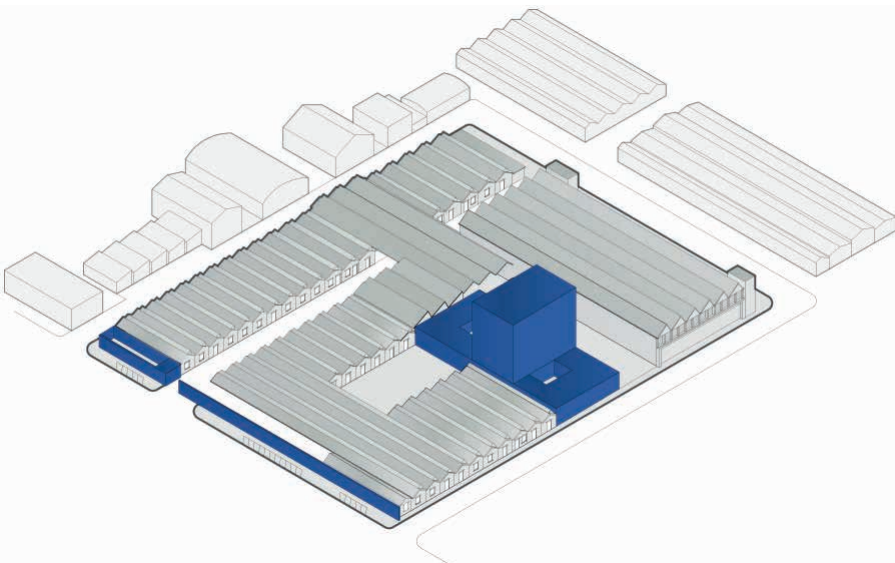
MICRO CONCEPT
GUCCI HUB



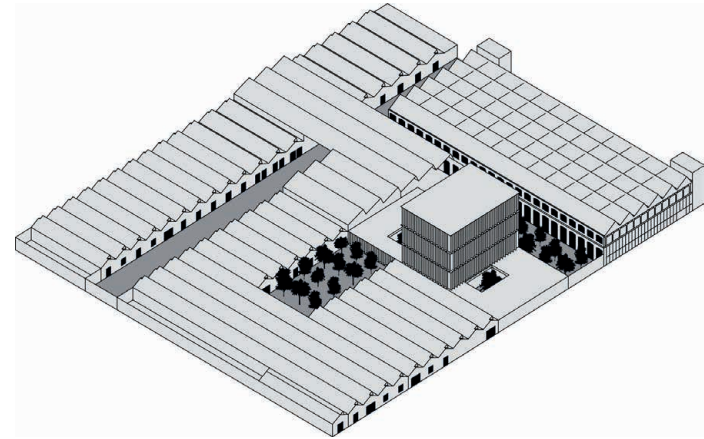
The condition of the complex before the project by Piuarich, with the historical buildings and the parts added over the years



Demolition of the more recent buildings of little architectural value



The completed project with the new office tower and the front on Via Mecenate



Final Project

Pedestrian paths tun between the buildings, which are mainly located on the ground floor, in a sequence of solid structures and empty spaces in which landscaping plays a key role: running right across the site and smoothly interacting between the old buildings and green spaces. The large plaza, surrounded by exposed brick fronts, is livened up by carefully positioned trees, while a thick wood of lime trees gives the project a distinctly “green” feel, focusing on sustainable design. The project incorporates a six-story tower in its industrial fabric of warehouses, which interacts closely with the old constructions. This volume, surrounded by a glass façade and covered with a regular pattern of sunscreens, breaks down the site’s symmetry and tends to draw together all the different functions. Constructed out of a glass surface, the structure is covered with a web of vertical elements made of a dark-colored metal that shelter the interiors from the sunlight: this tall modern building sets up powerful chromatic relations with the red-colored exposed bricks of the low-level warehouses.²

² Rojas, Cristobal. “Gucci Hub / Piuarch.” ArchDaily, ArchDaily, 26 Feb. 2018, <https://www.archdaily.com/889603/gucci-hub-piuarch>.





MASSIMO DUTTI HEADQUARTERS IN TORDERA

© Jordi Surroca

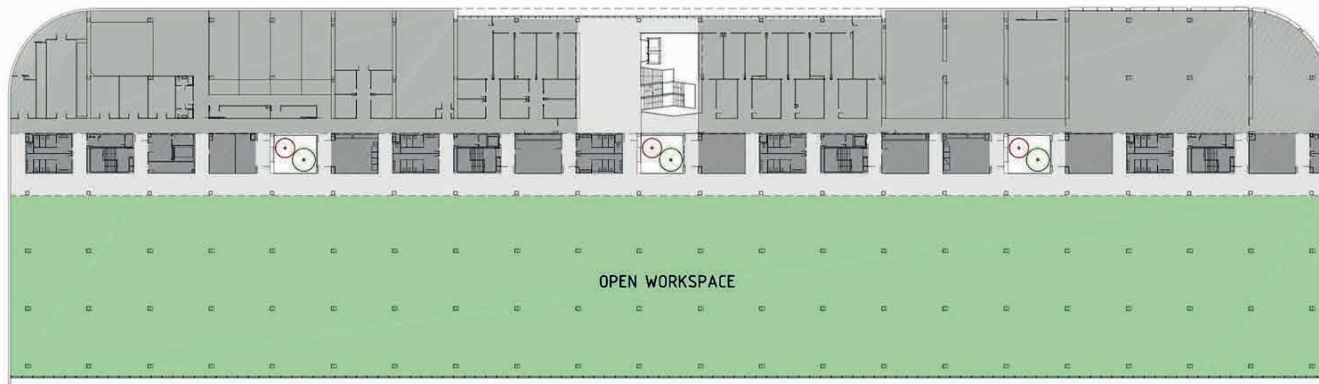
The building is located in Tordera outskirts, in the old "Fibracolor" industrial area, where a warehouses mosaic currently configures the Massimo Dutti's Logistic Platform of global distribution and some other brands of Inditex Group.

Large work centers have historically generated a mobility problem that has been fixed with outskirts (and low-cost) land use, creating landscapes where parked vehicles have a crucial role. The typological solution

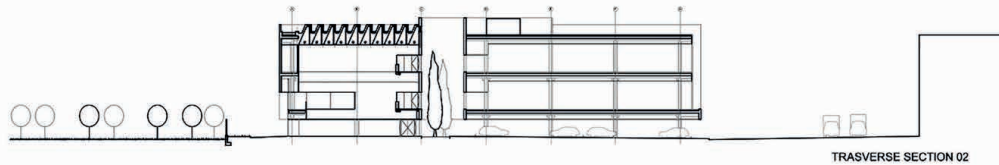
generated for this project consists of a palafitte building that releases most of its ground floor to allocate the space for the parking of vehicles, maximizing land profit, and creating a better accessibility model. This strategy differs from the typological solutions in industrial land or urban solutions (consistent to implement parking below ground, due to the high cost of the soil). The proposed solution generates optimal road accessibility to the building, giving it an image

that dignifies the access, far from treating it as a residual space car park. This typological solution allows protecting vehicles and users from weather and locates complementary uses like meeting facilities, installation cores, and safety systems.

The 220 m long building, 60 m. wide and 3 levels, set access to the building on the ground floor and lets two upper floors be entirely dedicated to the work-



1st/2nd FLOOR

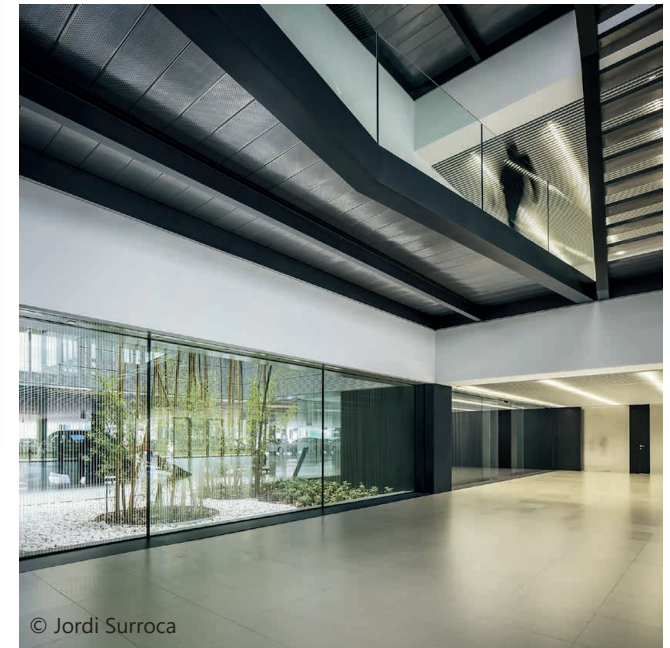


TRASVERSE SECTION 02

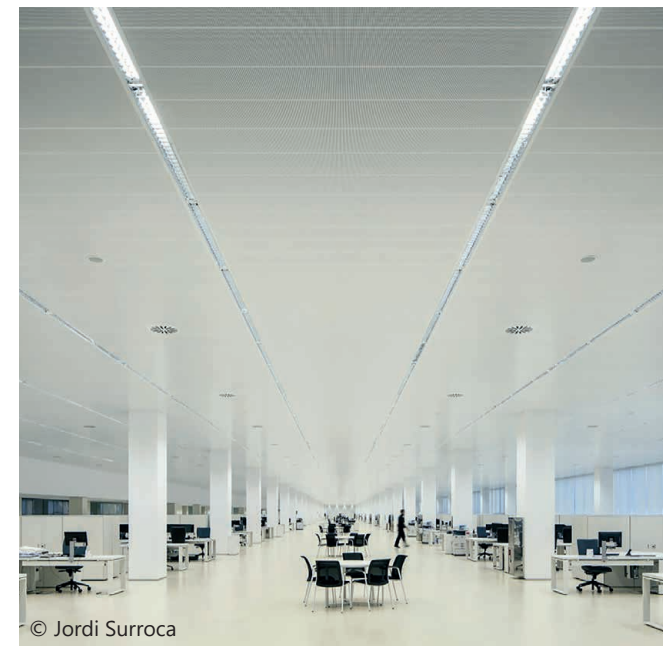
space. Total building height is 15mts, being ground plant 4mts high and 5,5mts the workspace floors. Commitment for sustainability and getting healthy workspaces has been translated into diverse landscaped courtyards, also into technological systems and painstaking material solutions. The environmental taken measures to get this environmental character includes the use of courtyards, technological skins, and a Ground floor treatment as ventilated outer parking.

"Thinking big" spirit has been translated into serial, prefabricated and large-scaled solutions, allowing tight resources economy. A building designed to foster collaborative work in spacious, simple, kind and optimally illuminated environments, just working as background to allow textile goods to be the real protagonists.¹

¹ Valenzuela, Karen. "New Massimo Dutti Headquarters In Tordera / Battle i Roig Architectes." ArchDaily, ArchDaily, 5 June 2014, <https://www.archdaily.com/512441/new-massimo-dutti-headquarters-in-tordera-battle-i-roig-architectes>



© Jordi Surroca



© Jordi Surroca

OFFICE TYPOLGY

Taylorism (1900)

The American engineer Frederick Taylor is known as being one of the first people to ever design an office landscape. Inspired by the Industrial Revolution at the turn of the 20th century, Taylor's office design resembled a factory. Workers were crowded in a completely open environment, whilst their managers observed them from private offices.¹

1910-1930: THE PRE-WAR SOCIAL DEMOCRATIC OFFICE

Echoing the skyscrapers of Chicago and New York, many European countries saw a rise in "miniature skyscrapers," as well as "miniature Taylorist offices," throughout the first 30 years of the 20th Century. Architects like Mies van der Rohe designed concrete office buildings with "continuous ribbon windows," above head height, to let in light but not allow employees to see out from their desks. These designs lacked financial backing at the time, due to 1929 Wall Street Crash-induced depression and prevalent war-time economies, but there are many examples of unbuilt ideas.

Le Corbusier's glass curtain wall project for government offices in Brazil of 1936 provided such an exam-

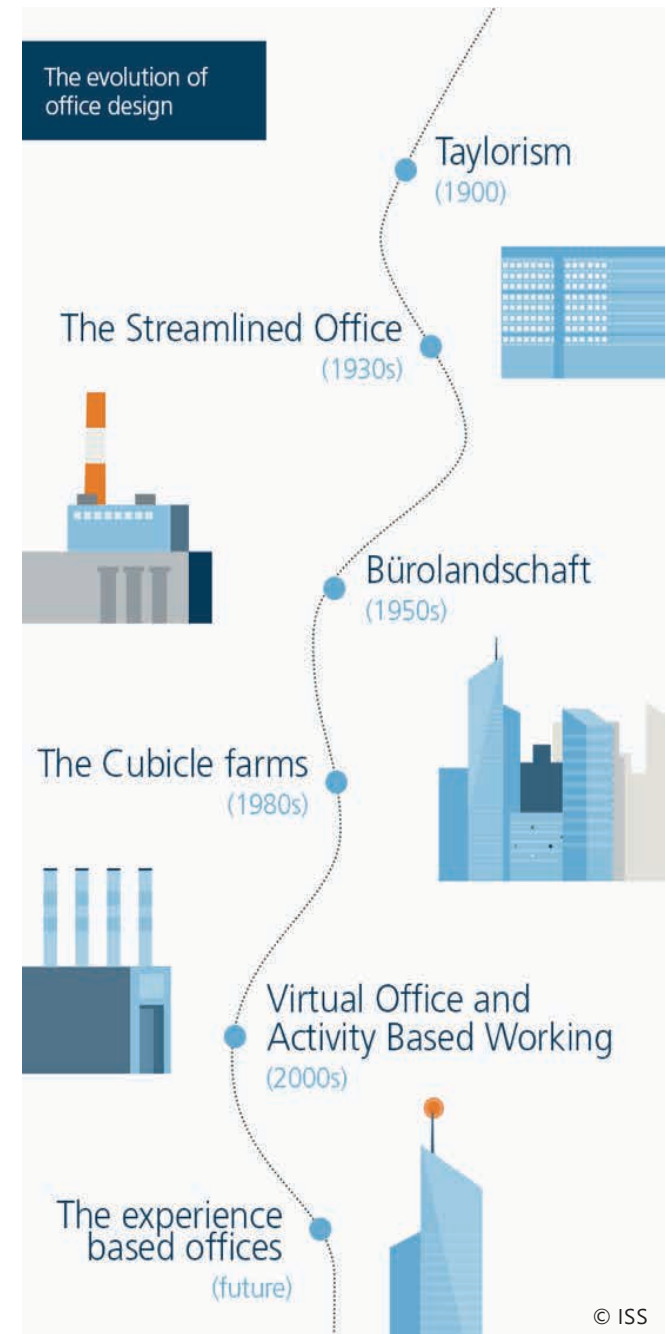
¹ English. "Does Your Office Reflect the Workplace Behaviours of the 21st Century?" Does Your Office Reflect the Workplace Behaviours of the 21st Century?, 17 Sept. 2019, <https://www.servicefutures.com/office-reflect-workplace-behaviours-21st-century>.



ple; of "the literal and organizational transparency of a modern democratic state." These designs still utilized the now-entrenched Taylorist principles, but due to the wider emphasis placed on natural light sources, the Taylorist open plan had to be incorporated on a smaller scale. A built example of this is van der Rohe's Friedrichstrasse.

THE STREAMLINED OFFICE (THE 1930S)

With the Wall Street Crash in 1929, major corporate companies had become interested in two main things: designing offices to express their corporate image and producing work at a more economical rate. Despite not moving far from the Taylorist structure, retaining the rigid hierarchy, this streamlined office design encouraged more interaction between employees. The office design also created a more modern, vibrant and





warm space for workers through radiant, streamlined materials to compensate for the lack of interaction with the outside world.

THE 1950S: OPEN PLAN OFFICES

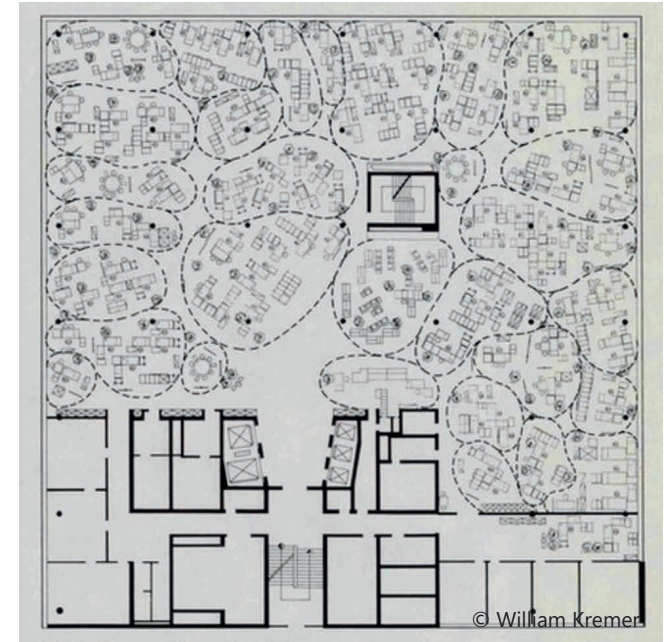
The dawn of the 1950s brought with it further advances into building with modern materials like steel and glass. The smart, clinical architecture of the international modern movement was adopted as the new image of corporate business. With the widespread use of advanced air-conditioning and fluorescent lighting, these new high-rise buildings had very little need for natural light or ventilation through opening windows. With these technological developments, the 1950s saw the corporate office become utterly autonomous from the outside world – as well as allowing for more comprehensive, open-plan floors where workers could

be placed virtually anywhere. This formula enjoyed worldwide influence.²

BÜROLANDSCHAFT (THE 1950S)

Bürolandschaft can directly be translated to “office landscape,” and represents a whole new space reinvention that consists of free and open plans of furniture that are scattered around a large, loosely and un-structurally divided space with different environments. Partitions and plants were used to create distinct areas and some level of privacy. Workers in departments, such as IT or media, were

² Lovell, Morgan. “The Evolution of Office Design.” Morgan Lovell, <https://www.morganlovell.co.uk/articles/the-evolution-of-office-design/>.



grouped more loosely in a space where they could easily interact more frequently, whereas more bureaucratic, the corporate management staff were situated in more controlled, subdivided areas. Though Bürolandschaft enjoyed a brief period of popularity in Europe, as well as being established within some British offices by the end of the 1960s, the sheer nature of its open, scattered, and charmingly random layout did not lend itself well to worldwide adoption. “Action Furniture” was developed to adapt the desk to this new office environment, mitigate noise, and address concerns of privacy – but this ultimately ended up undermining the idea behind Bürolandschaft.



THE 1960S: HERMAN MILLER AND THE ACTION OFFICE

Out of the Socio-Democratic principles of Bürolandschaft rose Herman Miller's Action Office, a series of desks, workspaces, and other modular furniture designed to allow freedom of movement, and flexibility to work in a position suitable for the work being done. Action Office was developed and marketed under the supervision of George Nelson and Robert Propst, who were among the first designers to argue that office work was mental work and that mental effort was tied to a suitable working environment. Action Office may be seen as the first prominent example of an office space system built on the post-war European Modernist principles responsible for such marvels as Mies van der Rohe's Seagram Building, or Marcel Breuer's Whitney Museum of American Art.

Action Office I was initially designed with small offices in mind, where staff worked in the same room, on the same furniture. This brought about its own issues. Because the furniture was bespoke and made of high-quality materials, it was prohibitively expensive for cost-conscious office managers, as well as challenging to assemble. This, combined with the need to replace the furniture with changing office needs, made it financially and practically unsuitable for larger, corporate offices.

ACTION OFFICE II

Following a slow uptake and meager sales of Action Office I, Propst and Nelson went back to the drawing board, beginning work on Action Office II. What resulted was a concept of an office as flexible as Action Office I, in that it was capable of frequent modification to suit the changing needs of the employee, without

the need to purchase expensive new furnishings. The new system was designed to allow staff a degree of privacy, as well as the option to personalize their work environment without affecting their colleagues' environments. Propst's recognition of the link between employee productivity and their own, personalized workspace, led to a concept called the "back-up." This was a three-sided vertical division, defining territory and affording privacy without completely cutting employees off from the outside world.

THE CUBICLE FARMS (THE 1980S)

Through a super-economical mindset and a fast-paced culture, came an increase of middle management staff. These middle-managers were far too important for a simple desk office in an open office environment, yet still too junior for a corner office.



This rise of middle management staff resulted in the arrival of Cubicles. Even though productivity slightly increased, the sense of community and socialization in the workplace disappeared.

The Cubicle Farm is a lesson in history that further proves that any good idea can be corrupted by anyone with more interest in the economy, or efficiency, than in human resources. It showed that large, corporate companies had little interest in creating autonomous environments for staff. Instead, Action Office II and its many copies were used to cram as many people into a small space, for as cheaply as possible, as quickly as possible.

1990'S: THE VIRTUAL OFFICE

The rise of the internet was not only revolutionary in terms of promoting connectivity, but it also had a groundbreaking effect on the office landscape. Em-

powered by mobile devices, laptops and the Internet, workers started to conduct their work from anywhere they liked. Growing land prices and ground rents in built-up areas saw more and more growing, multinational companies relocating out of city centers, to industrial parks and underused land accessible only by small train stations and motorways.

Many companies began to introduce the concept of "HOT-DESKING" meaning that employees no longer had a designated desk and instead could work from different places at different times. Companies utilized new communication technology to save money and promote a more flexible working environment. All in all, these advances in office design sought to change the working culture of the organization completely. Though this new form of "completely open plan" office layout had positive intentions – saving costs, enabling better flexibility, and encouraging more collab-

oration, the early Virtual Office still had its drawbacks. In the actual office environment, the regularised, even tedious open plan has made it difficult for employees to identify or feel at home: even the dreaded cubicle was territorial, allowing for workers to customize their own "space." Hot-desking meant employees were less grounded.



THE 2000'S: THE CASUAL OFFICE

The casual office has actually been a trend since the mid-1980s, pioneered by creative industry firms born out of the advent and rapid coming to prominence of the information age. Companies have embraced more casual office styles, designed to encourage highly-personalised workspaces suited to long hours spent programming, analysing data, building links or designing graphics. The "dress code," if there was one, of such an office became much more relaxed than the conventional "suits and ties" of the previous century – and the layouts had to reflect this.

The current trend of office space layouts reflects the often complex evolving structure of modern compa-

nies and the emerging work styles of specific company roles. Rising property prices and resultant rising office rents, particularly in capital cities, have led to a need for more efficient usage of space – and more informal, flexible, multi-purpose meeting spaces.

THE FUTURE: IT'S ALL ABOUT FLEXIBILITY

The solution to this isn't wholly territorial offices or the dreary grey cubicles of yesteryear. Dynamic, activity-based working spaces to suit different working styles are vital to moving away from Open Plan tedium. Contemporary, responsive areas that remain open, but separate, allow for collaboration, inspiration,

mobility, and the completion of specialist projects – without the worry of crowding or disruptions from one working style to another. Workers are presented with a range of logistically different workspaces to choose from to best suit their individual needs at the time – including their own desk, wide-open meeting rooms with whiteboards, IT suites, or informal spaces with coffee and snacks.

Agile working environments are true, the future. Allowing staff to work effectively in different environments within the same space is key to both productivity and workplace wellbeing.

Instead, today's offices have begun to incorporate spaces to accommodate a range of different working

styles – all within the same area. One-to-one reviews, team meetings or merely vast spaces that allow one person to spread papers and designs out and pace up and down alone for a bit are all needed in the most modern offices – and these need to be achieved within a strict space limit. Add to this the fact that nearly 14% of the current working population work from home and the necessity of adaptable, flexible spaces becomes even more apparent. Fixed, formal meeting rooms aren't continuously used and can be a drain on finances, as well as working space.

This emerging shift towards adaptable workspaces to accommodate the most bizarre of ad-hoc working practices not only saves space and money, but also al-

lows for employees to have the best of both worlds: collaboration and communication, and peace, quiet and privacy when they need it. Modern office spaces need to allow for a range of different numbers of people, from one-person phone booths, perfect for personal calls and personal work, to huddle rooms for small groups, loud rooms for informal, creative, collaborative work and quiet rooms for activities of a more reserved nature.

This desire for collaborative, yet adaptive workspace has permeated modern offices significantly through the introduction of "third spaces," or "in-between spaces;" work areas with no rigid purpose; but the ability to adapt to multiple styles of working on different project types.

OFFICE ROOMS TYPOLOGIE

As it has been said, the future of offices is in their flexibility and ability to adapt to the needs of the people who work there — however, not only those who spend there 40+ hours a week, but also customers and visitors. Nowadays, we do not even think about all the qualities that our modern office provides. Moreover, we expect the office to give and serve all our needs.

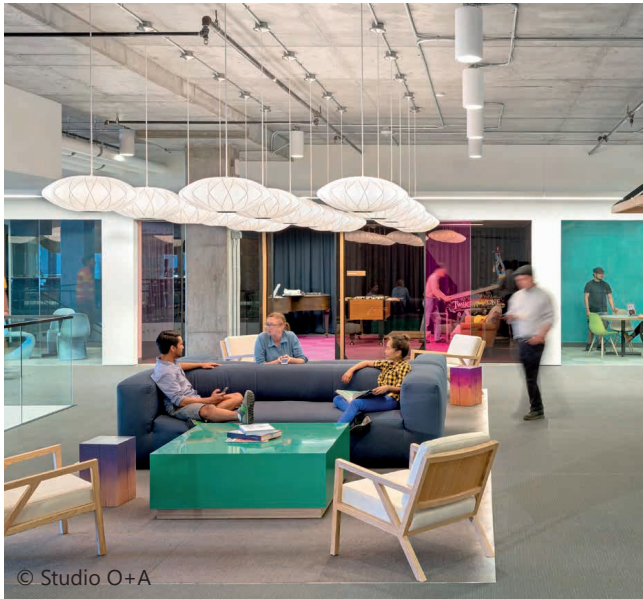
To meet these high demands, companies hire professionals to help achieve this result. They also can help companies find their own corporate identity.

O+A sees designing space as designing experience. «For that reason, we're never satisfied to repeat ourselves. We like to plunge into every project as if

it's our first and to reinvent not just the wheel, but the whole concept of motion every time. We think the reason we keep making lists of groundbreaking design is that every design for us is a new experience, a new experiment in the way people interact with space.»¹

O+A

¹ "Making the List!" Studio O+A, 15 Mar. 2019, <https://o-plus-a.com/making-the-list/>



© Studio O+A

THE LIVING ROOM

Like its residential counterpart, The Living Room is a multifunctional space. Perfect for meetings, it is also a place to sit alone and relax.¹

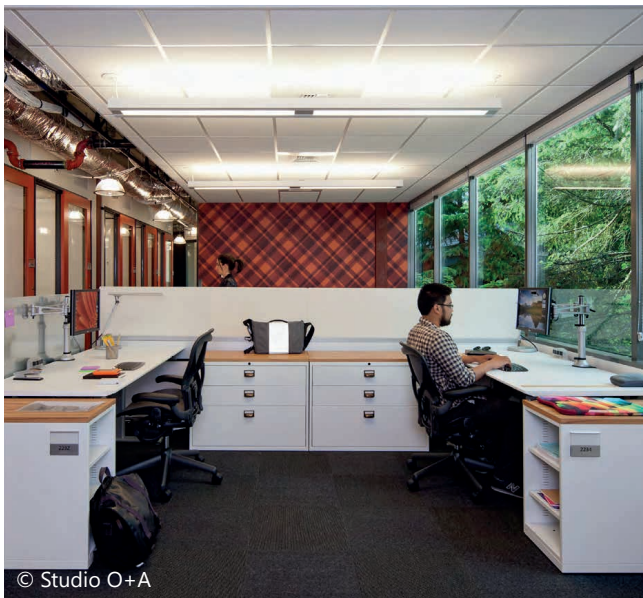
¹ "Typologies 1. The Living Room." Studio O+A, 2 Jan. 2019, <https://o-plus-a.com/typologies-1-the-living-room/>

THE THINK TANK

Think Tanks are spaces that allow every view to be considered, every crazy theory tested, safe from the withering opinion of the crowd.



© Studio O+A



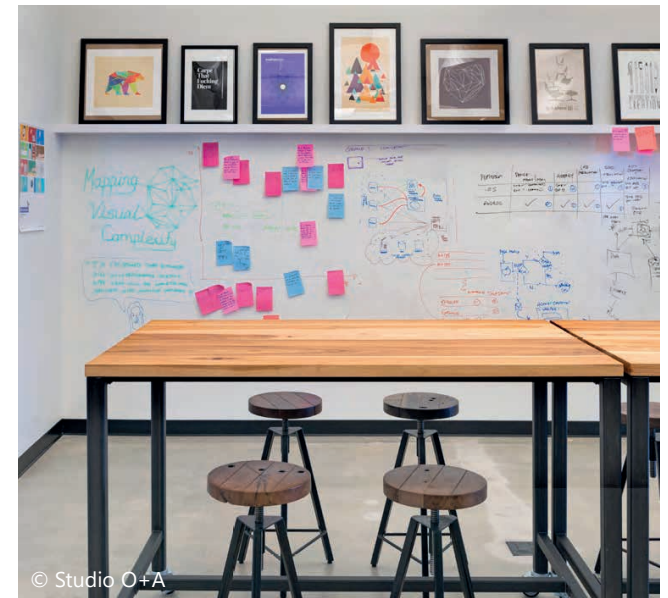
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INDIVIDUAL WORK AREAS

Aside from its obvious day-to-day function, the Individual Work Area subliminally contributes to the larger psychological infrastructure of the office.

STUDIOS

Studios are neutral spaces, stripped down and refurnished as projects change. The essence of the Studio as a design concept is the notion of collective effort in an alternative space.



© Studio O+A

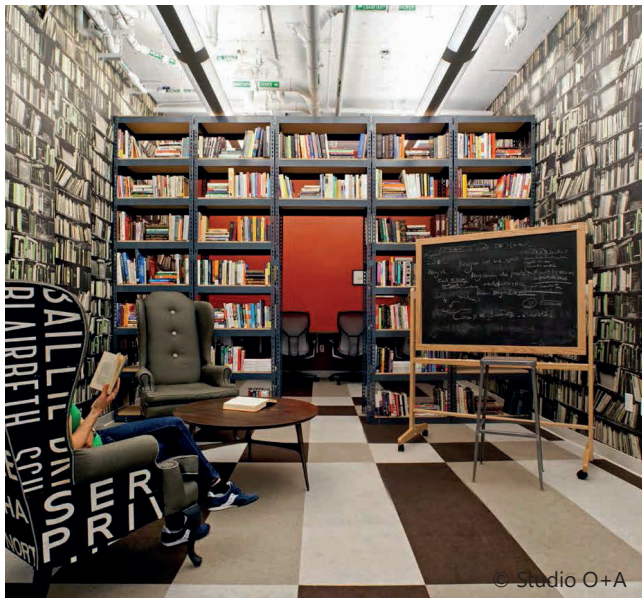


THE WORKSHOP

The Workshop is an acknowledgment that the best work emerges from a balance of work and play and that dedicated space for down time is an increasingly important part of a well-designed workplace.

THE TOWN HALL

The Town Hall functions in a work environment much as a public square functions in a city. It is a central gathering place for residents and visitors alike and a crossroads for the entire population.



THE LIBRARY

The Library establishes a designated zone of privacy in an increasingly collaborative work environment. It is the counterbalance to open plan—developed in response to an open plan’s limitations.

SHELTERS

Shelters are among the most playful features of modern office design. They energize space by defining it and dividing it in unexpected ways.





ANYWHERE

Anywhere rethinks the conventions of space planning. It makes of necessity something unique. This kind of reinvention brings vitality to the humblest areas of an office.

THE WAR ROOM

Despite revolutionary changes in business over the last quarter-century, the need for groups of people to meet in private and in person endures. The War Room provides a space for these private interactions.



STRUCTURE AND MATERIAL

CROSS-LAMINATED TIMBER (CLT)

Concrete, an essential building material, has for decades offered us the possibility of shaping our cities quickly and effectively, allowing them to rapidly expand into urban peripheries and reach heights previously unimagined by mankind. Today, new timber technologies are beginning to deliver similar opportunities – and even superior ones – through materials like Cross-Laminated Timber (CLT).

Cross-laminated timber (CLT) is a wood panel product made from gluing layers of solid-sawn lumber together. Each layer of boards is usually oriented perpendicular to adjacent layers and glued on the wide faces of each board, usually in a symmetric way so that the outer layers have the same orientation. An odd number of layers is most common, but there are configurations with even numbers as well (which are then arranged to give a symmetric configuration). Regular timber is an anisotropic material, meaning that the physical properties change depending on the direction at which the force is applied. By gluing layers of wood at right angles, the panel can achieve better structural rigidity in both directions.¹

¹ "Cross-Laminated Timber." Wikipedia, Wikimedia Foundation, 21 Sept. 2019, https://en.wikipedia.org/wiki/Cross-laminated_timber

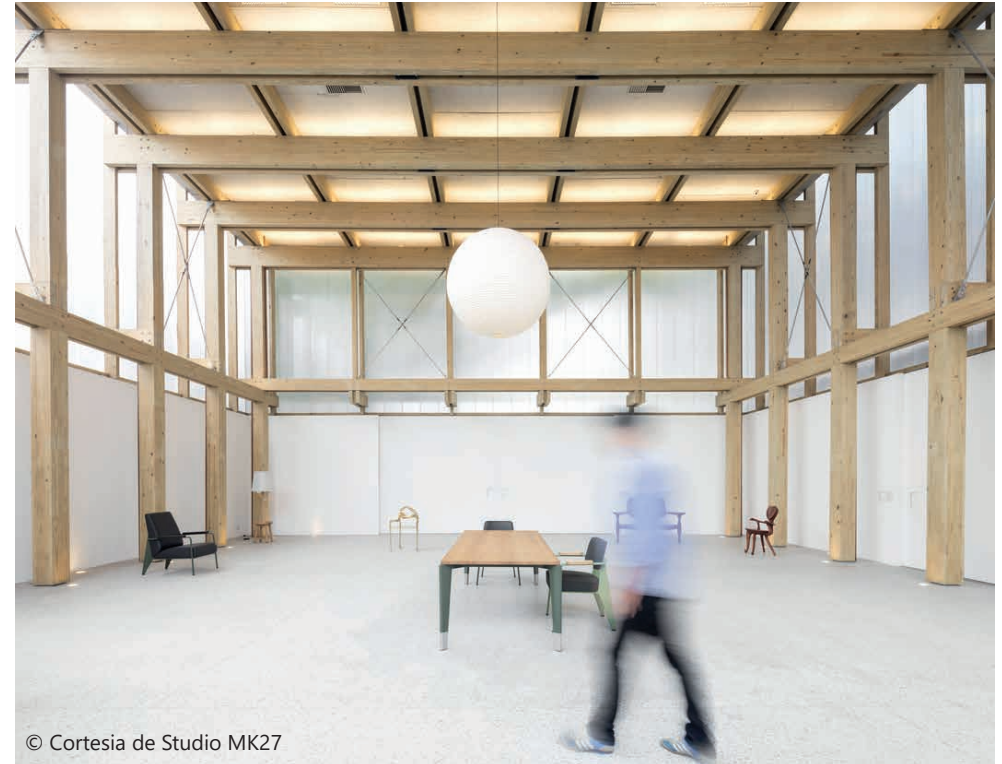


CLT was first developed and used in Germany and Austria in the early 1990s. Austria published the first national CLT guidelines in 2002, based on Schickhofer's extensive research. These national guidelines, "Holzmassivbauweise", are accredited with paving a path for the acceptance of engineered elements in multistory buildings. Gerhard Schickhofer was awarded the 2019 Marcus Wallenberg Prize for their groundbreaking contributions in the field of CLT research.²

² "Green Technology behind High Rise Wood-Based Buildings." Mynewsdesk, 22 Mar. 2019, <http://www.mynewsdesk.com/se/marcus-wallenberg-prize-mwp/pressreleases/green-technology-behind-high-rise-wood-based-buildings-2848681>

CLT has been called "the concrete of the future," and in a sense – it's true. It delivers at minimum the same structural strength as reinforced concrete, but it's a material with a high degree of flexibility that has to undergo great deformations to break and collapse – unlike concrete. Moreover, 1 m³ of concrete weighs approximately 2.7 tons, while 1 m³ of CLT weighs 400 kg and has the same resistance.³

³ Franco, José Tomás. "Is Cross-Laminated Timber (CLT) the Concrete of the Future?" ArchDaily, ArchDaily, 19 Aug. 2019, <https://www.archdaily.com/922980/is-cross-laminated-timber-clt-the-concrete-of-the-future>



ADVANTAGES OF CLT AS A BUILDING MATERIAL:

- Design flexibility – CLT has many applications. It can be used in walls, roofs or ceilings. The thickness of the panels can easily be increased by adding more layers and the length of the panels can be increased by joining panels together.
- Eco-friendly – CLT is a renewable, green and sustainable material, since it is made out of wood and does not require the burning of fossil fuels during production.
- Prefabrication – Floors or walls made from CLT can be entirely manufactured before reaching the job site, which decreases lead times and could potentially low-

er overall construction costs.

- Thermal insulation – Being made out of multiple layers of wood, the thermal insulation of CLT can be high depending on the thickness of the panel.
- CLT is a relatively light building material – Foundations do not need to be as large and the machinery required on-site are smaller than those needed to lift heavier buildings materials.

DISADVANTAGES OF CLT

- Higher production costs – Being a relatively new material, CLT is not produced in many locations. Also, the production of CLT panels requires a considerable

amount of raw materials compared to regular stud walls.

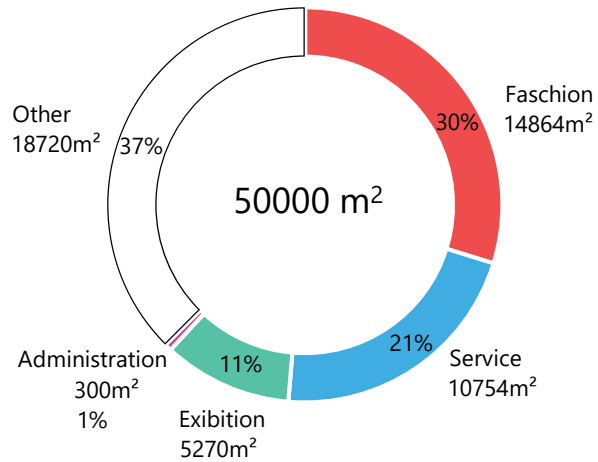
- Limited track record – CLT is a relatively new material, so it has not been used in many building projects. A considerable amount of technical research has been done on CLT but it takes time to integrate new practices and results into the building industry because of the building industry's path-dependent culture which resists deviating from established practices.
- Weak acoustic performance – To achieve acceptable acoustic performance, more CLT panels must be used. According to the CLT handbook, two CLT panels with mineral in-between achieves the international building requirement for sound insulation in walls.¹

DESIGN/ RETHINKING ASTA SERVIZI

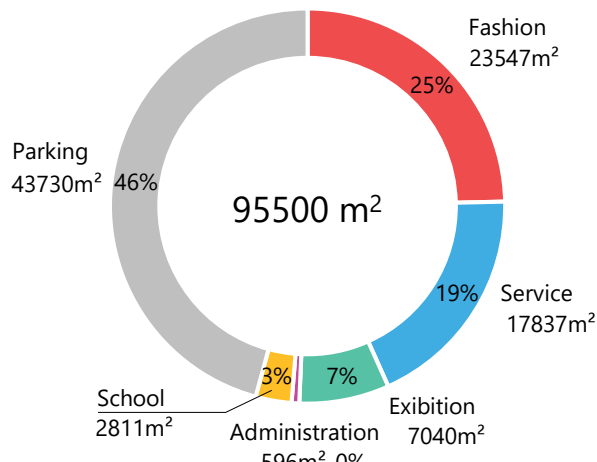


STATISTICS

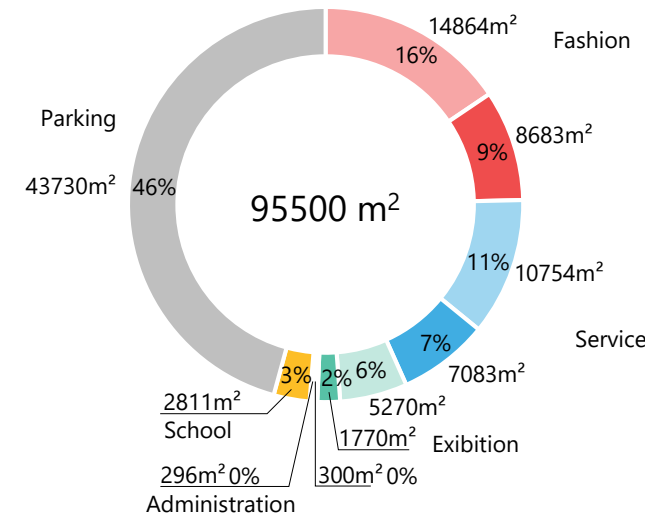
EXISTING BUILDING



NEW BUILDING



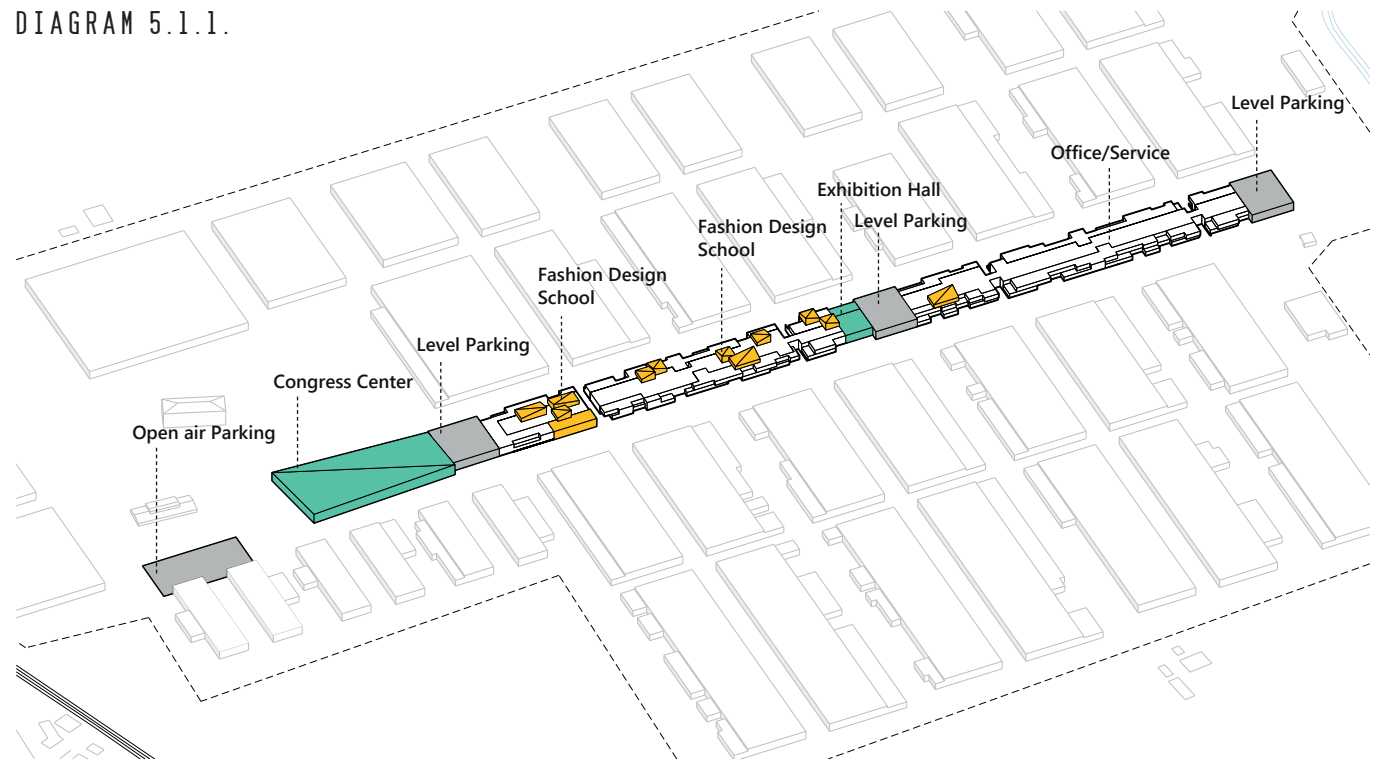
NEW BUILDING EXPANDED



■ Fashion ■ Service ■ Exhibition ■ Administration ■ School ■ Parking □ Other

FUNCTION DESIGN

DIAGRAM 5.1.1.



Since the project is a very large, competent placement of functions in the building as well as on the territory of the complex is necessary.

Parking in the underground floor and in 3 level parking structures evenly distributes space across the territory. Multi-level parking structures are located in the areas that require a lot of parking space at one time.

The first floor is given for most services: quick access and ease of search. On the first level, the walking axis of the corridor is preserved throughout the entire

building.

The second level of the building is almost entirely dedicated to offices and has more private entrances.

The third level is given under the educational function. The design school is spread out on a green roof.

A new Congress center building was designed in the head of the complex. (exhibition function) A smaller exhibition hall was also designed in the middle of Asta

Servizi, which will be used for smaller events as well as temporary exhibitions and as a museum.

EXPLODED VIEW DIAGRAM

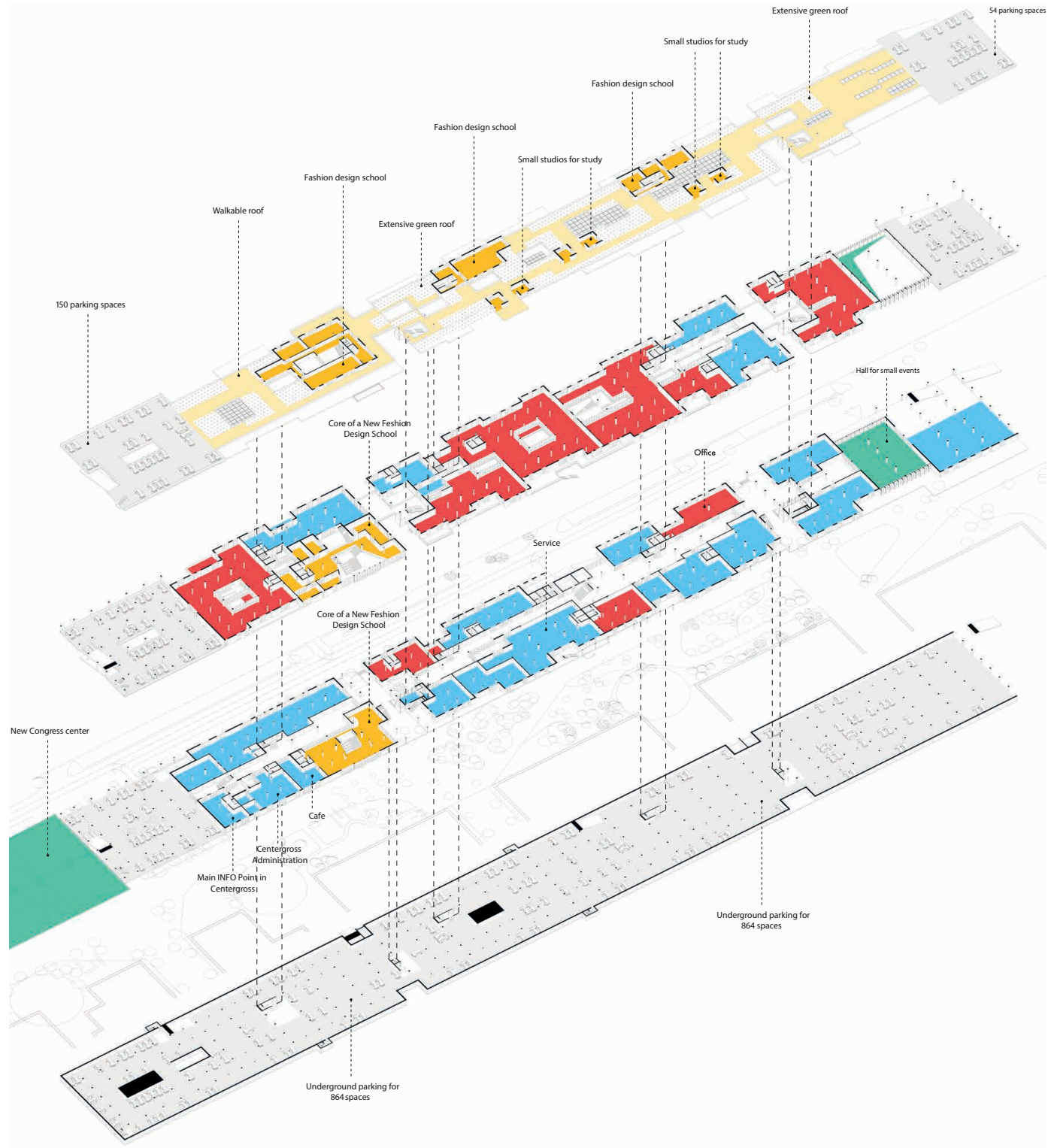
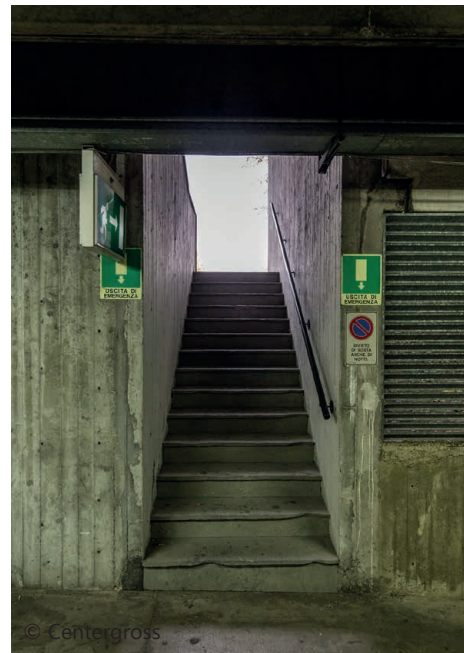
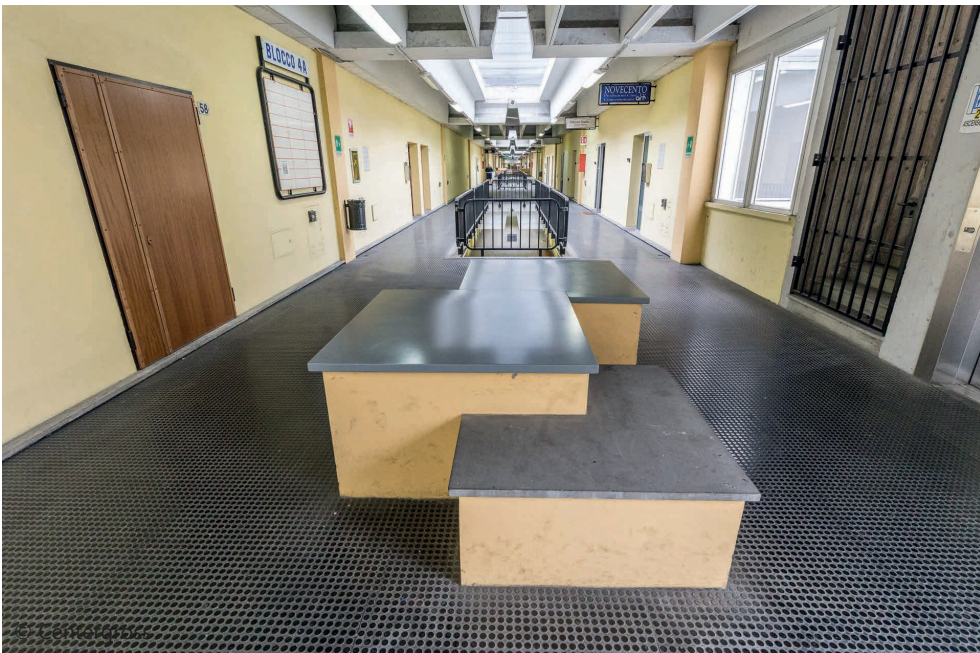


DIAGRAM 5.1.2.

DESIGN





DEMOLITION

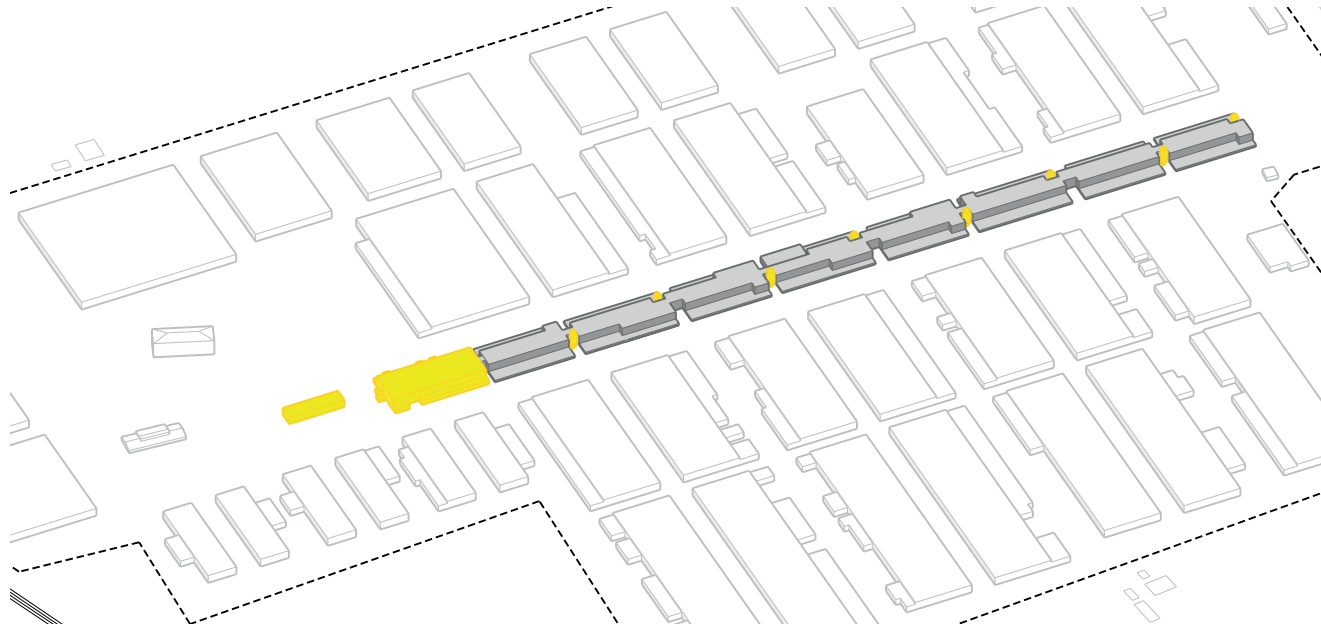


DIAGRAM 5.1.3.

Diagram 5.1.3. shows how much of the Asta Servizi building will be demolished to implement the proposed concept. Detached post office and cafe building and old congress center building. Building entrances and vertical communications throughout the building will also be redesigned.

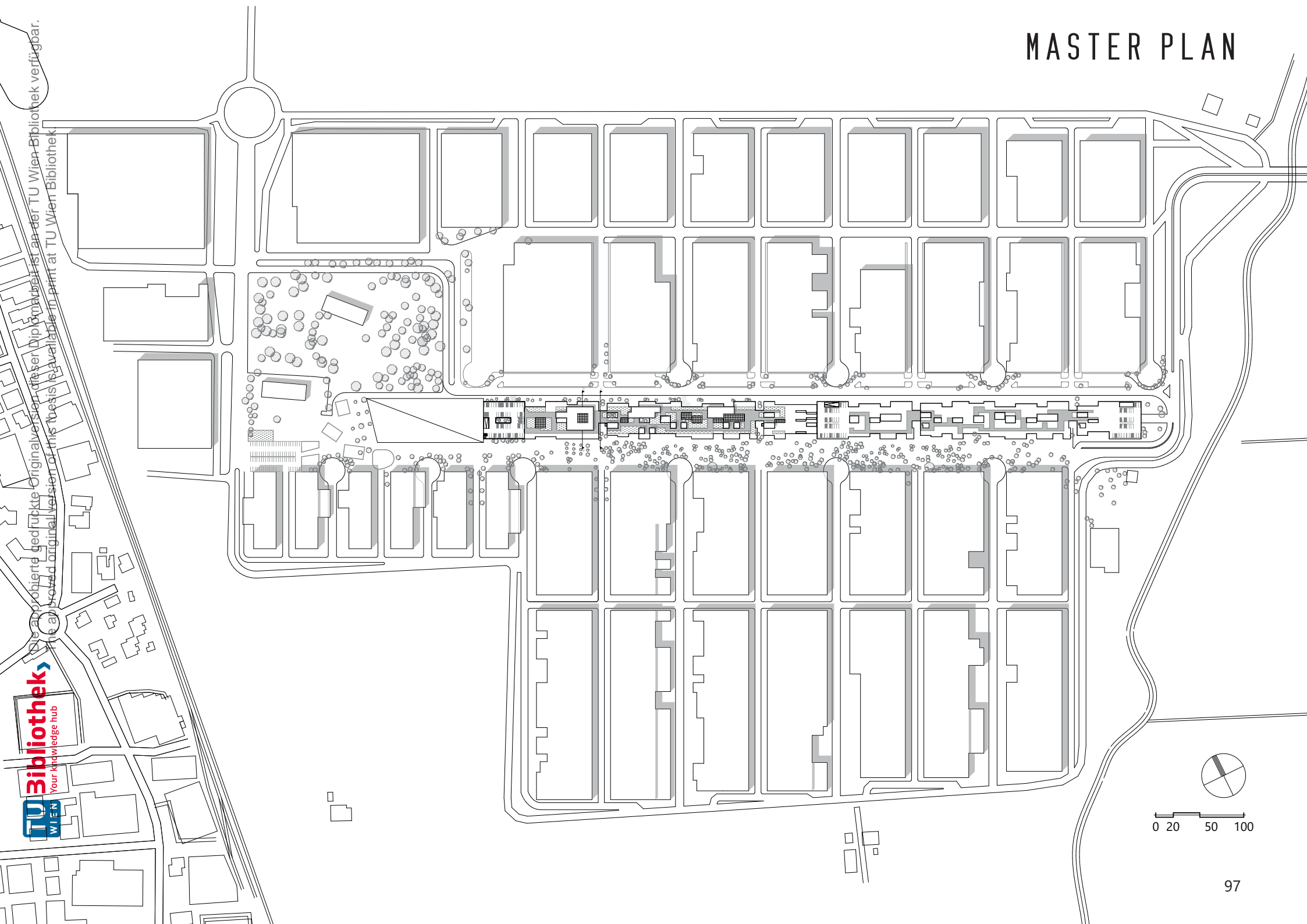
The idea behind the project is to make the most use of existing designs to achieve the goal.

The plan NEW STRUCTURE DESIGN shows in more detail which structures of the old building are to be dismantled. Since the outer walls do not meet the current standards for thermal conductivity, they must be insulated or removed. Since almost the entire facade of the building is moved, the old walls will be dismantled.

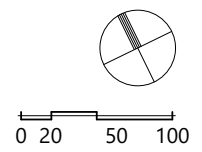
When creating internal atriums, the existing double T slabs 2 * 12m overlap structures are taken into account. In this way, no additional bearing construction is required and allows for larger light openings.



MASTER PLAN

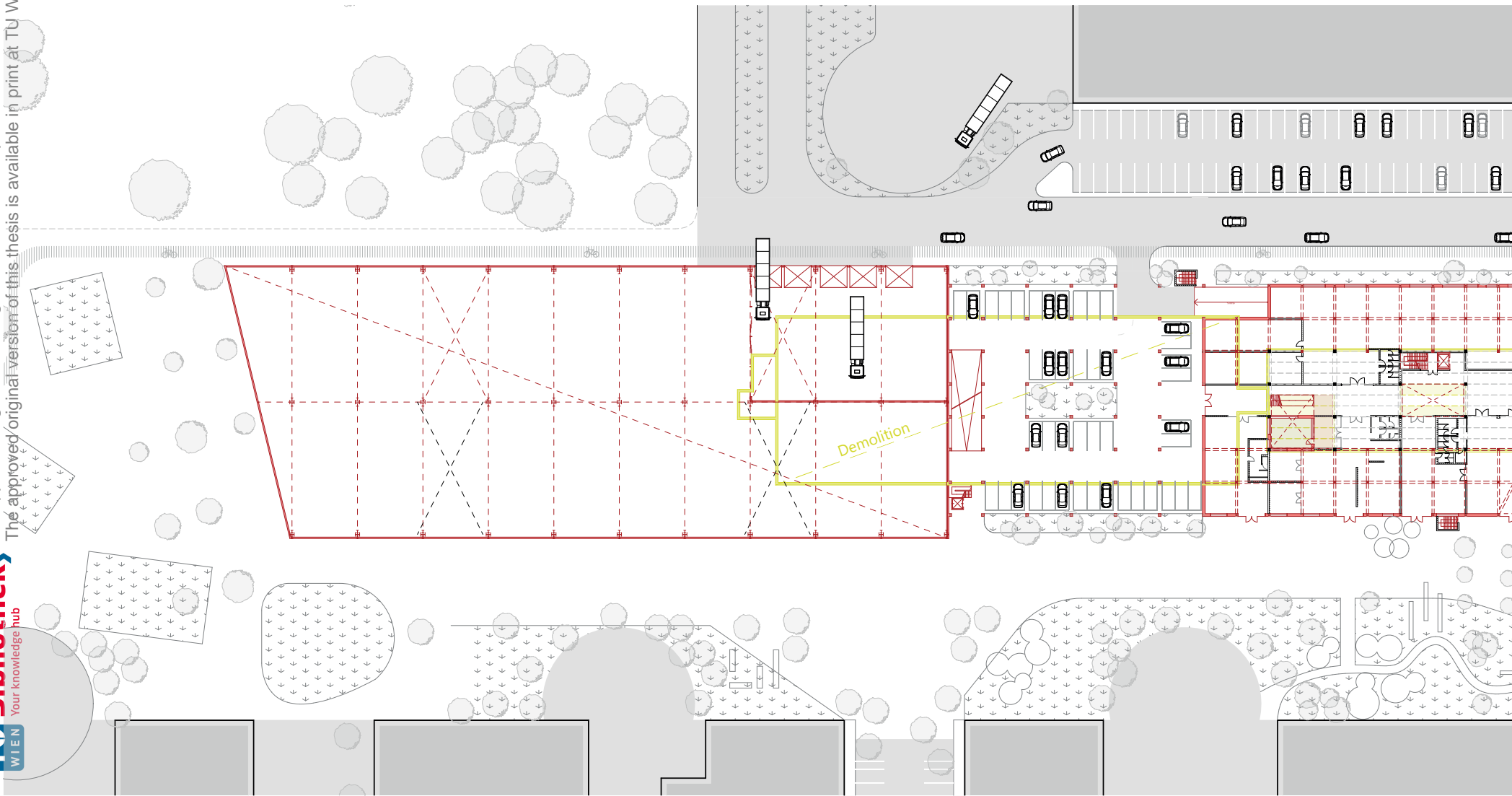


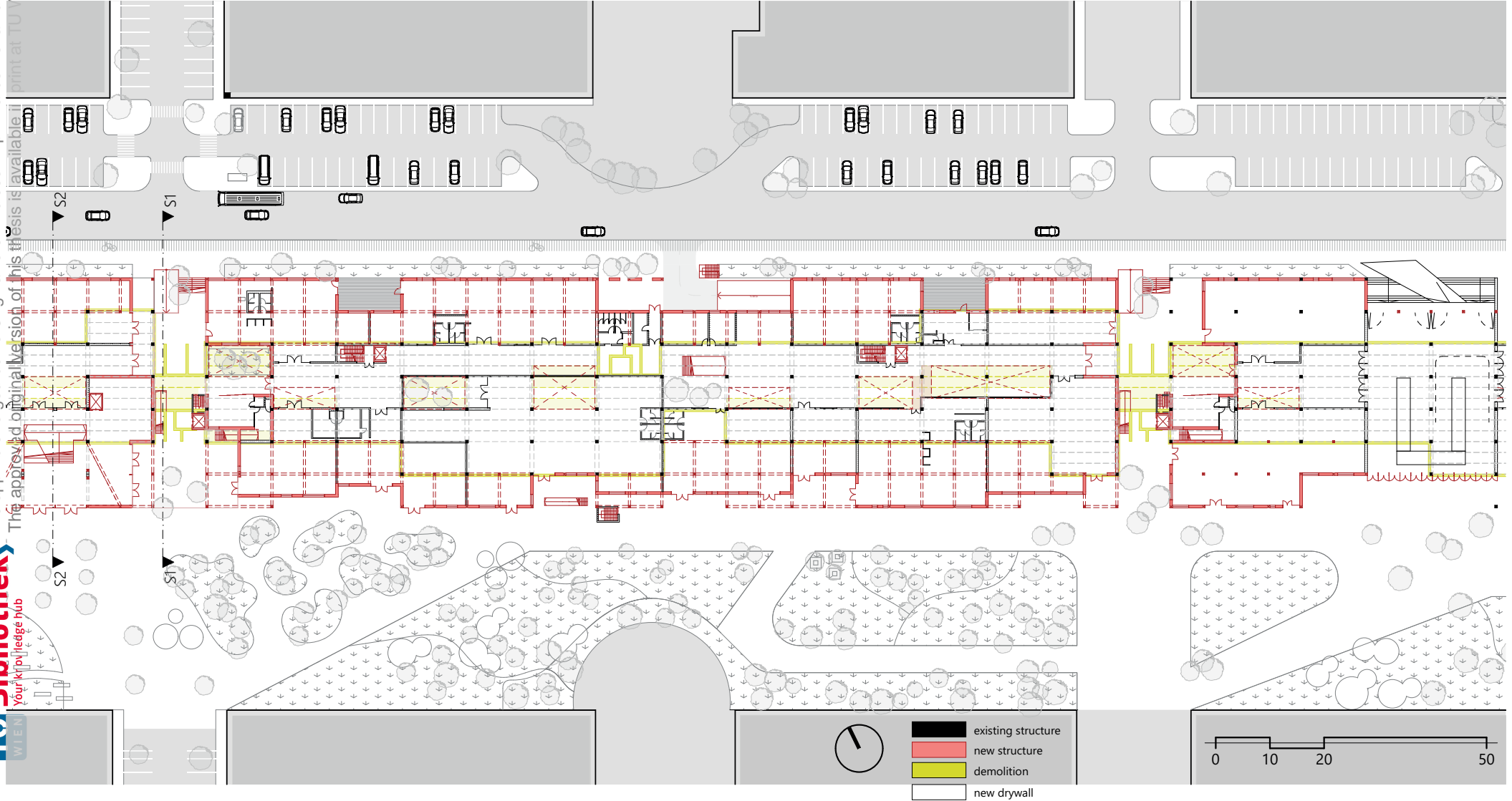
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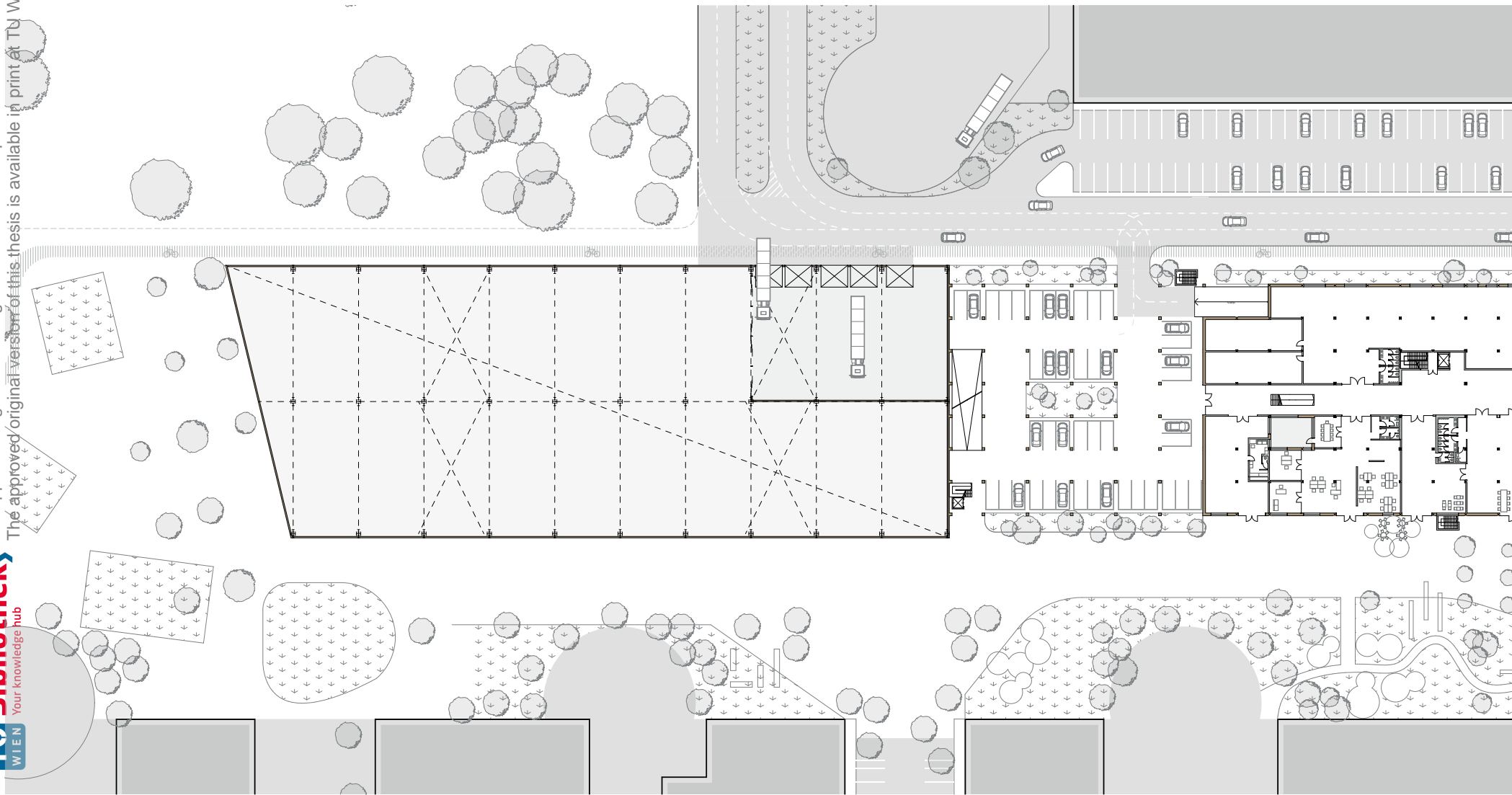
DESIGN

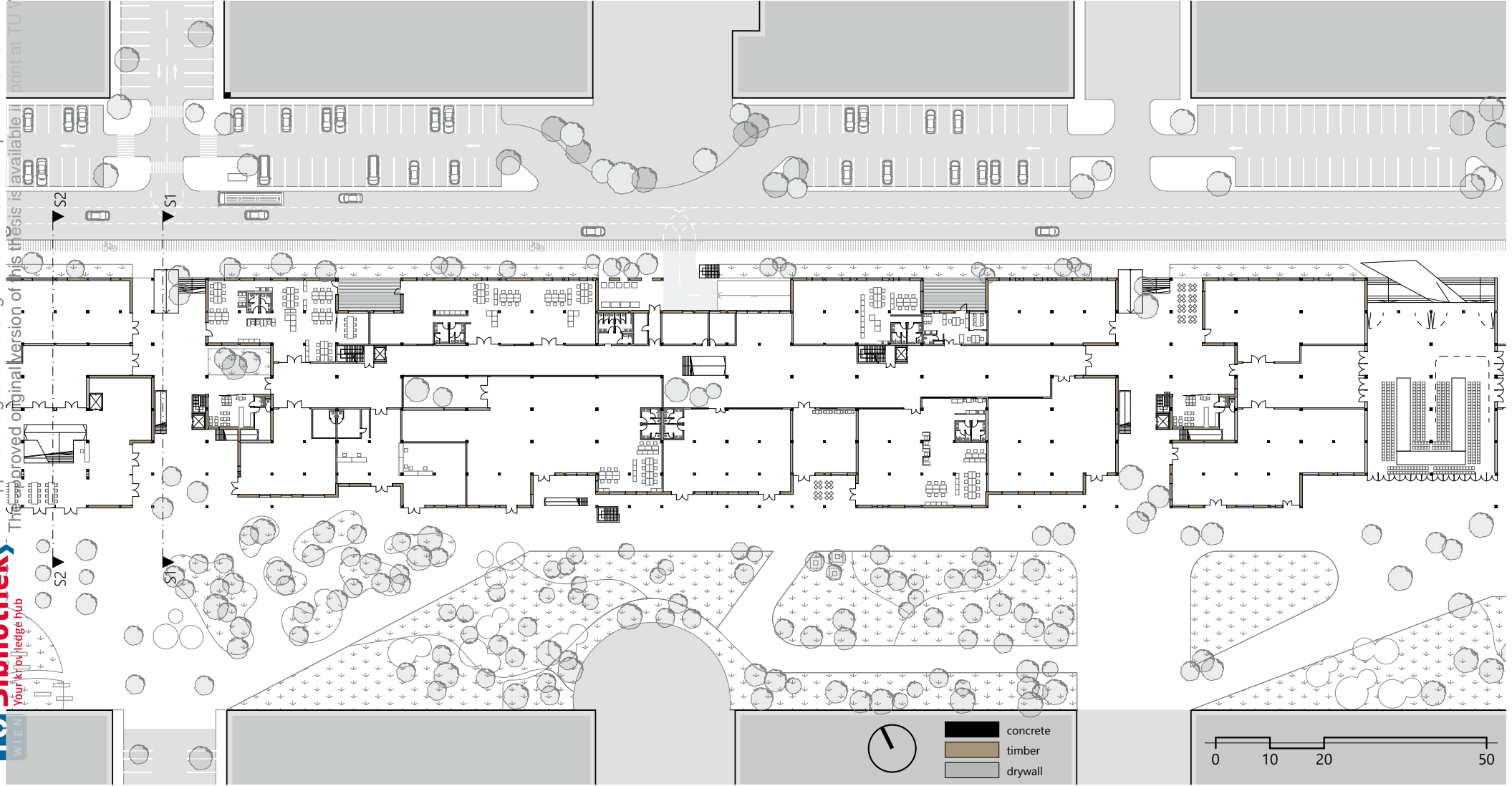
NEW STRUCTURE DESIGN



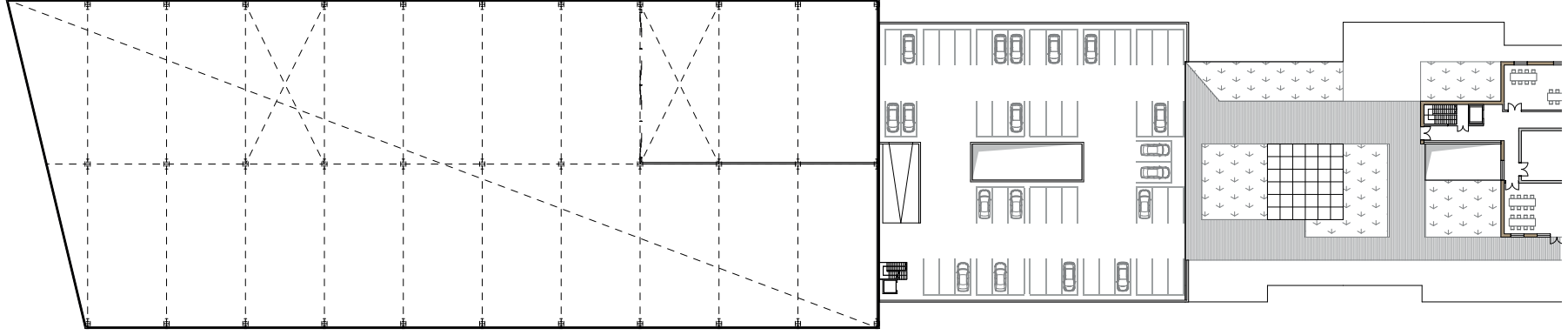


GROUND FLOOR

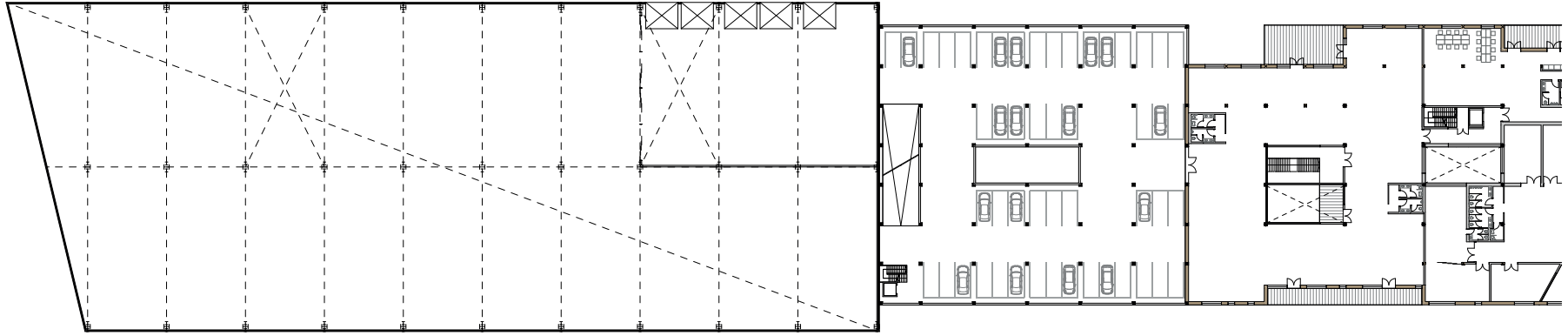


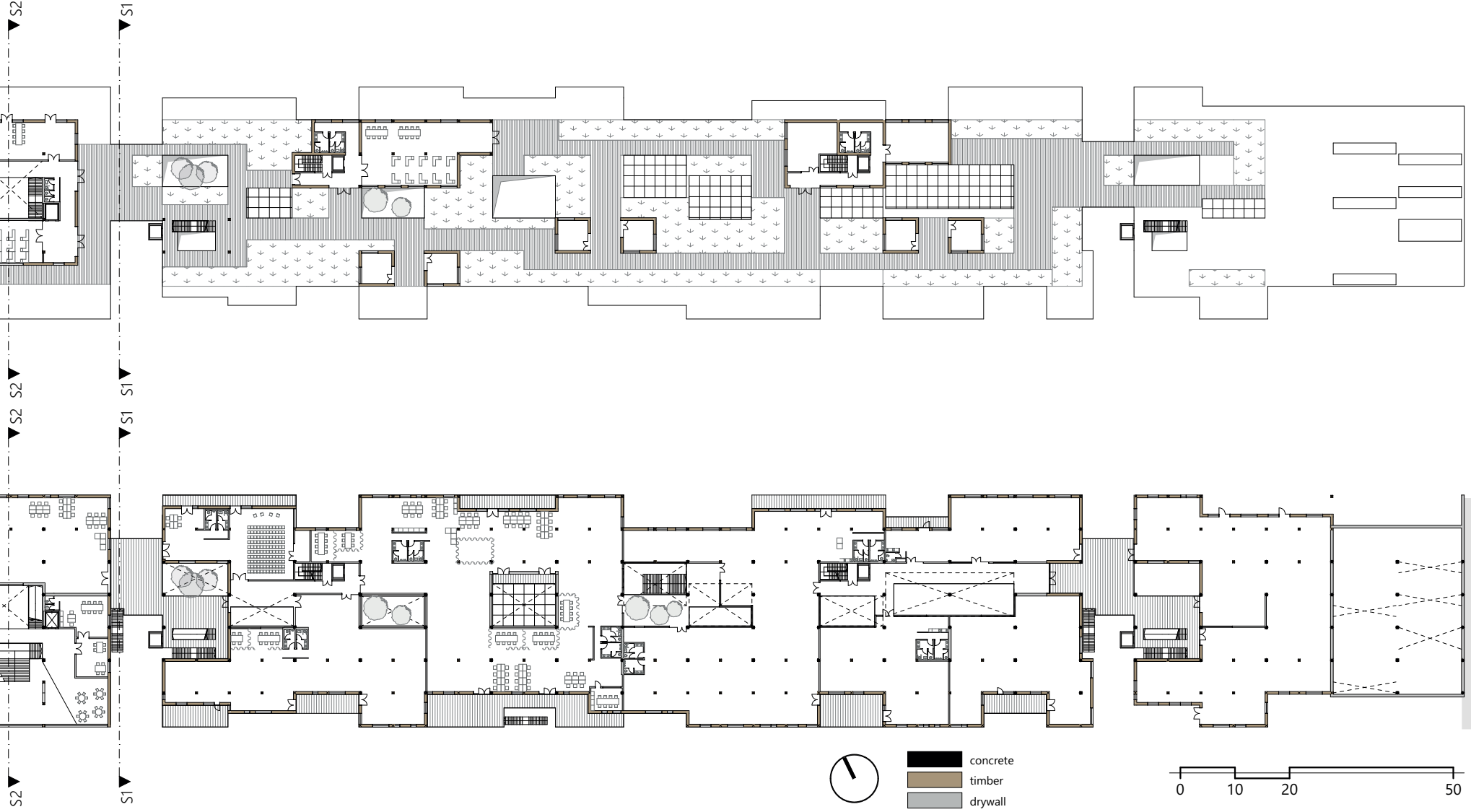


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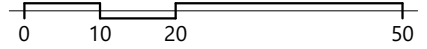


FIRST FLOOR

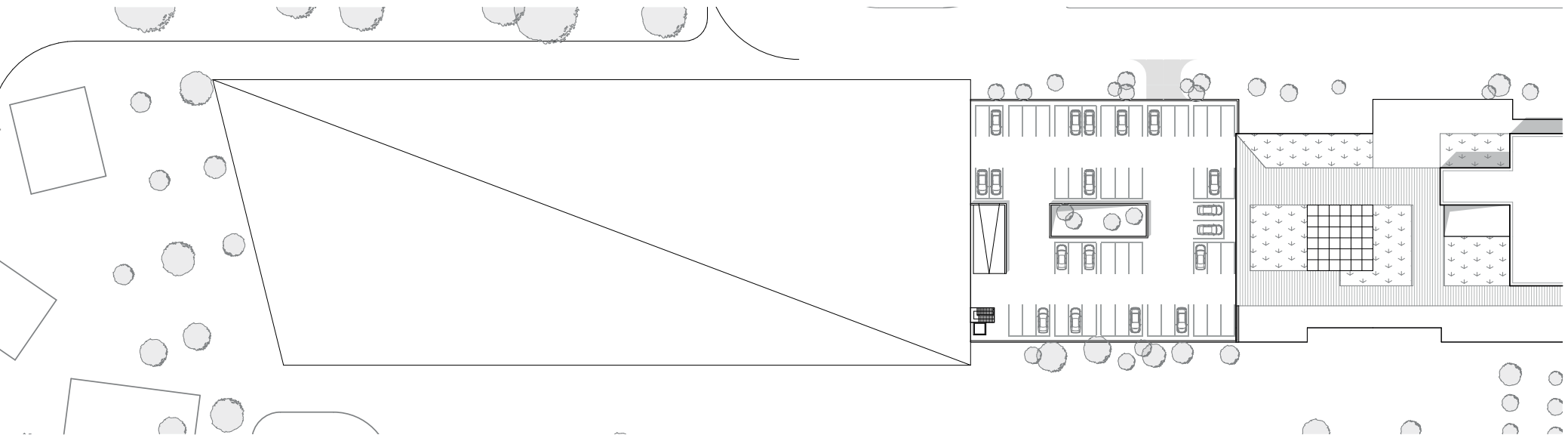




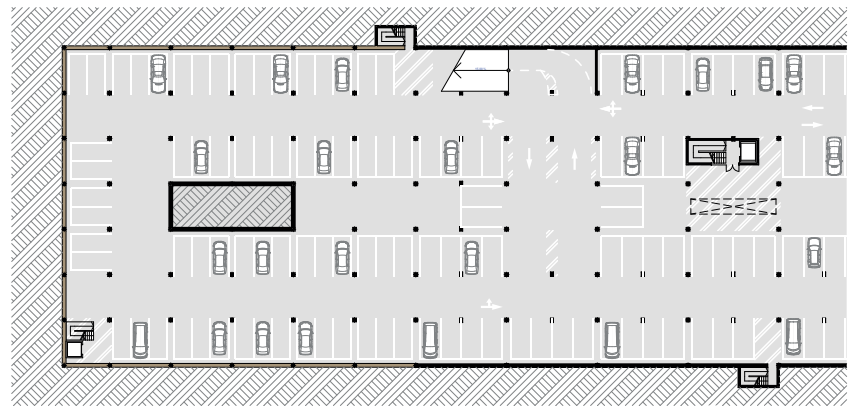
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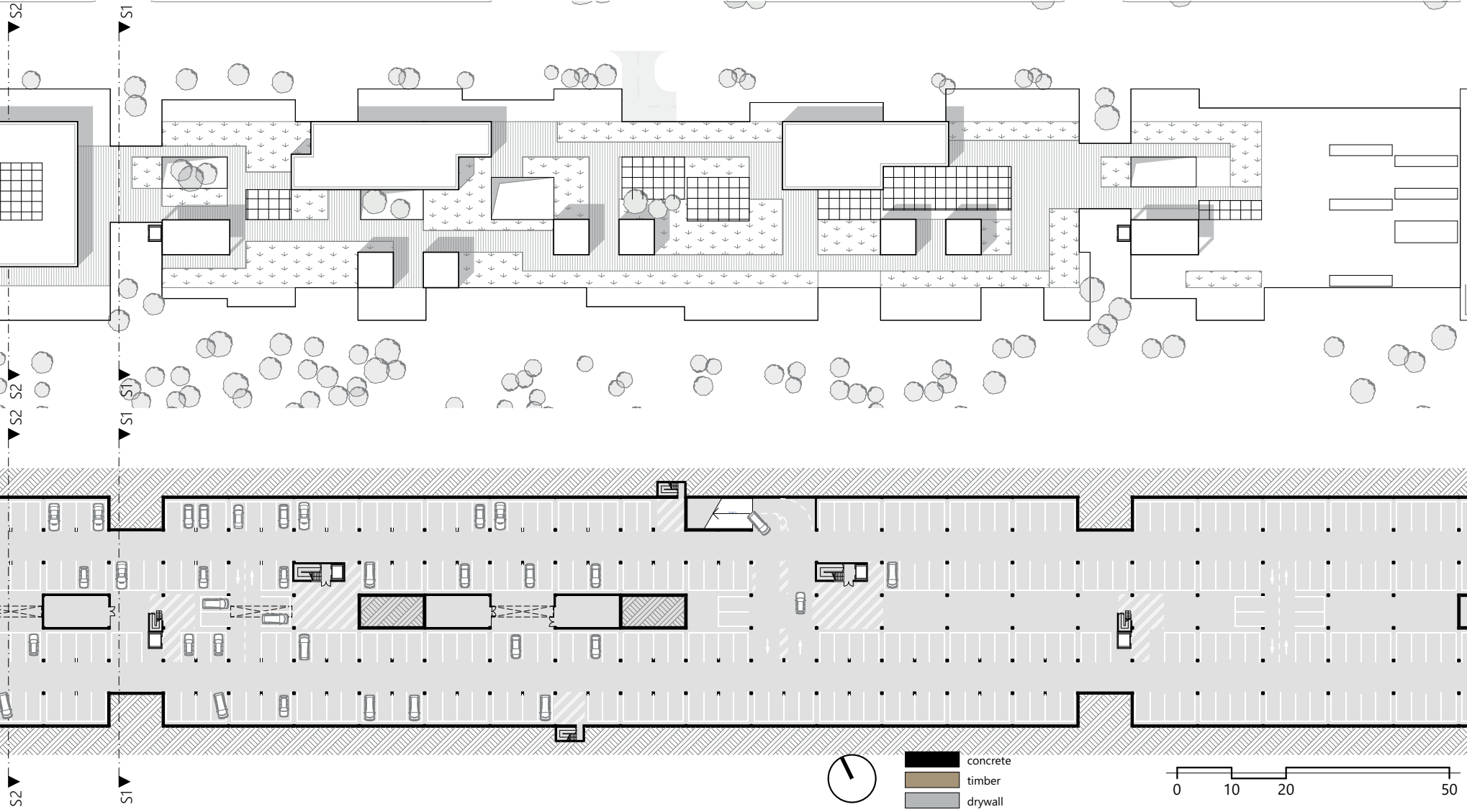


ROOF VIEW

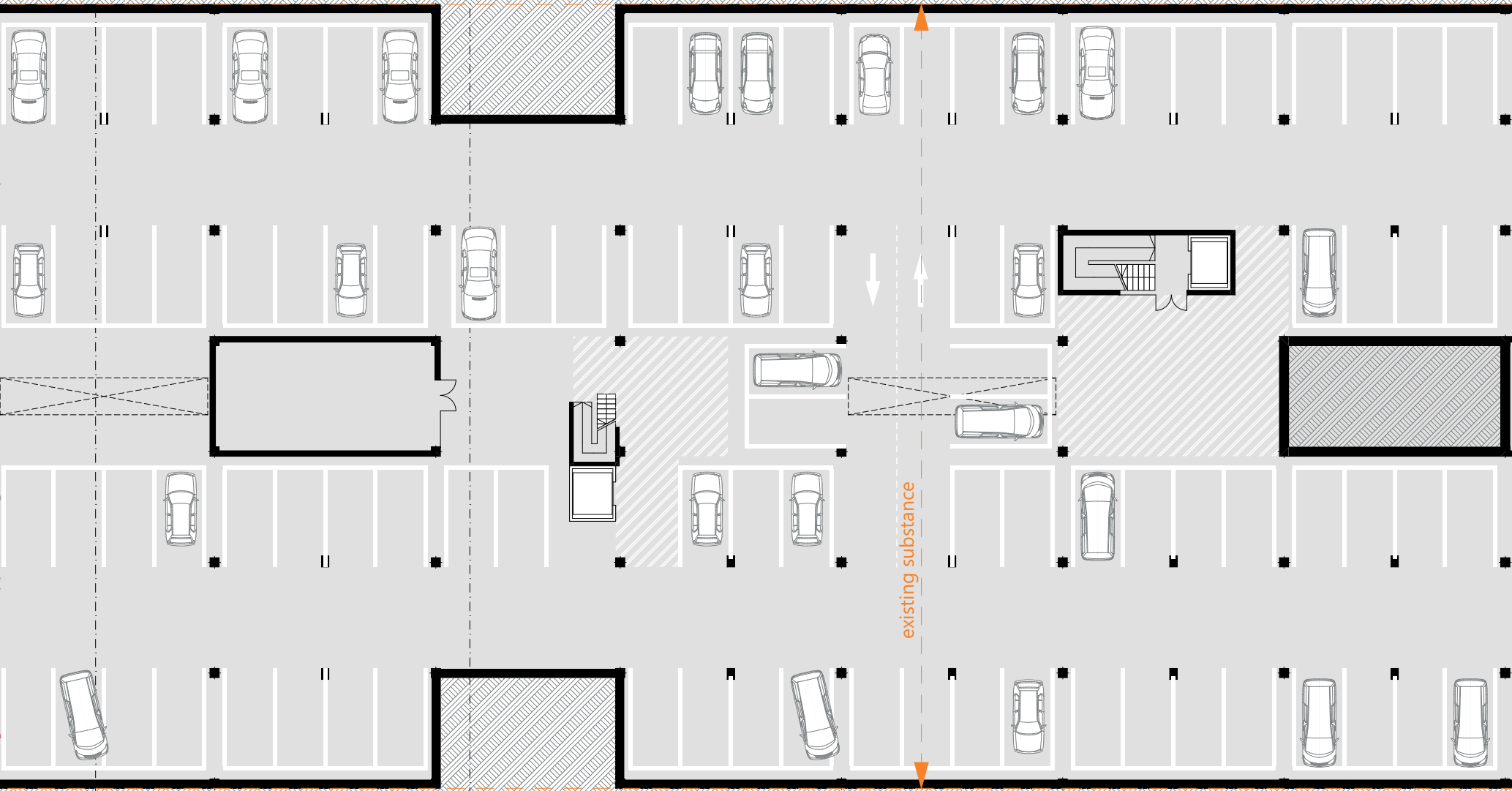


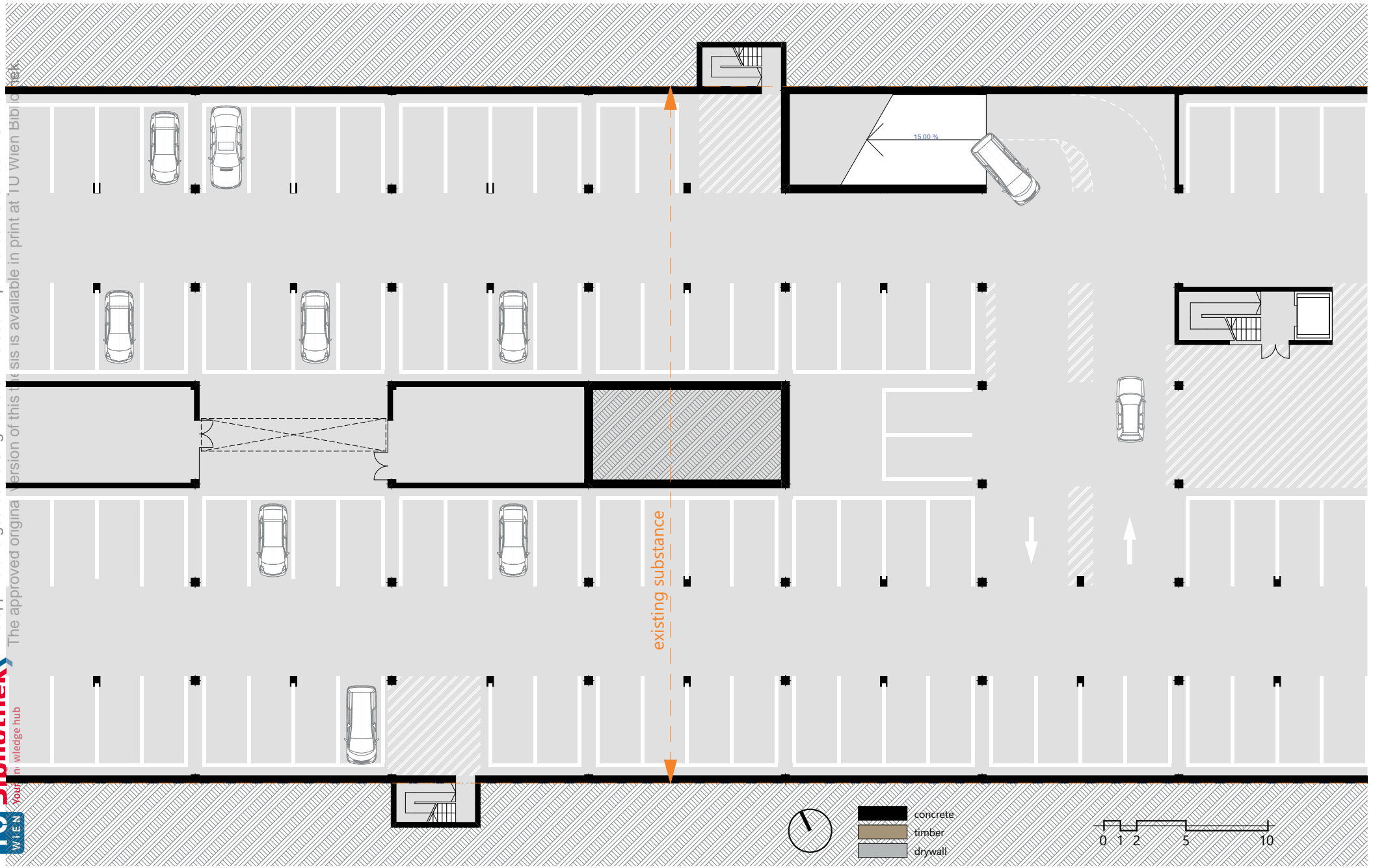
UNDERGROUND FLOOR



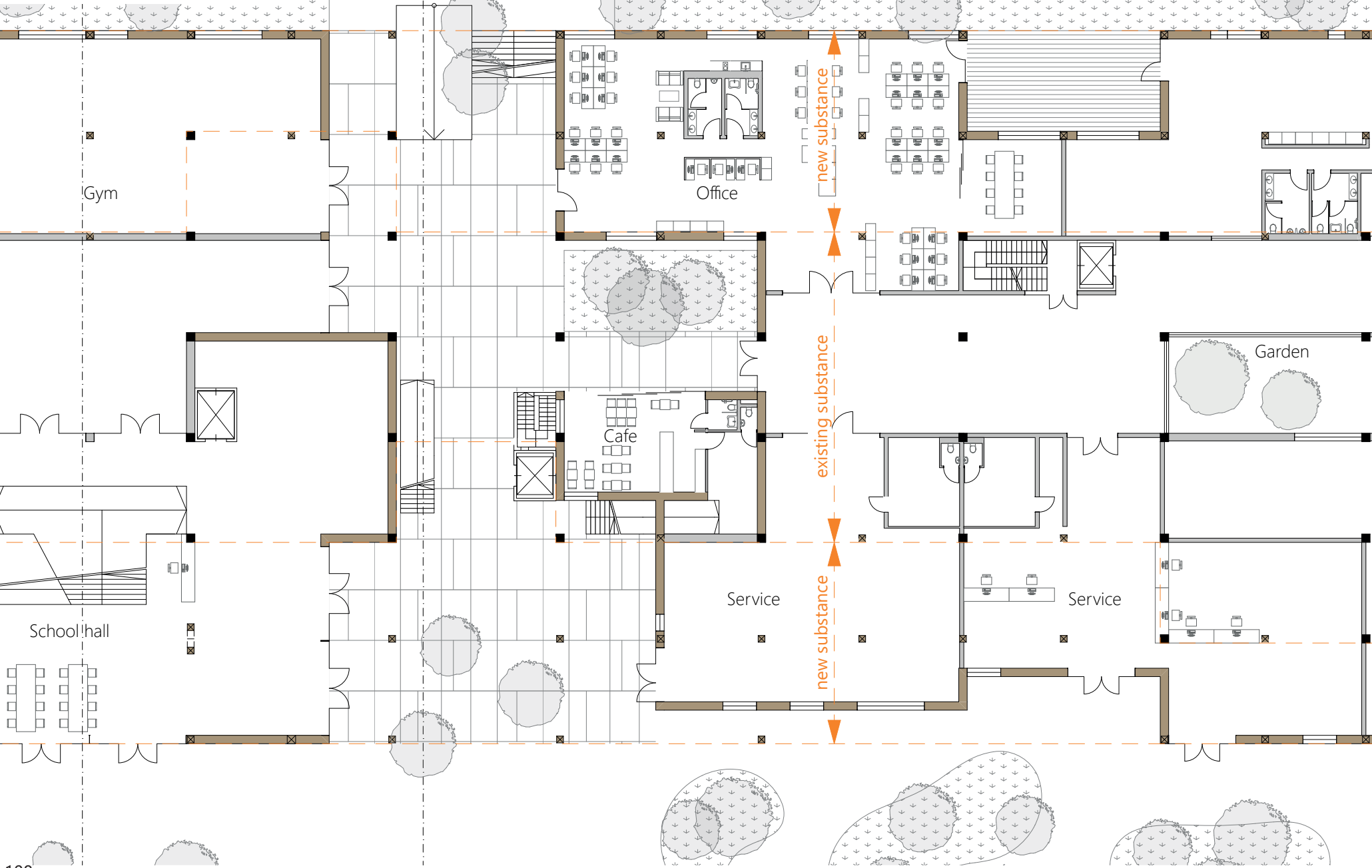


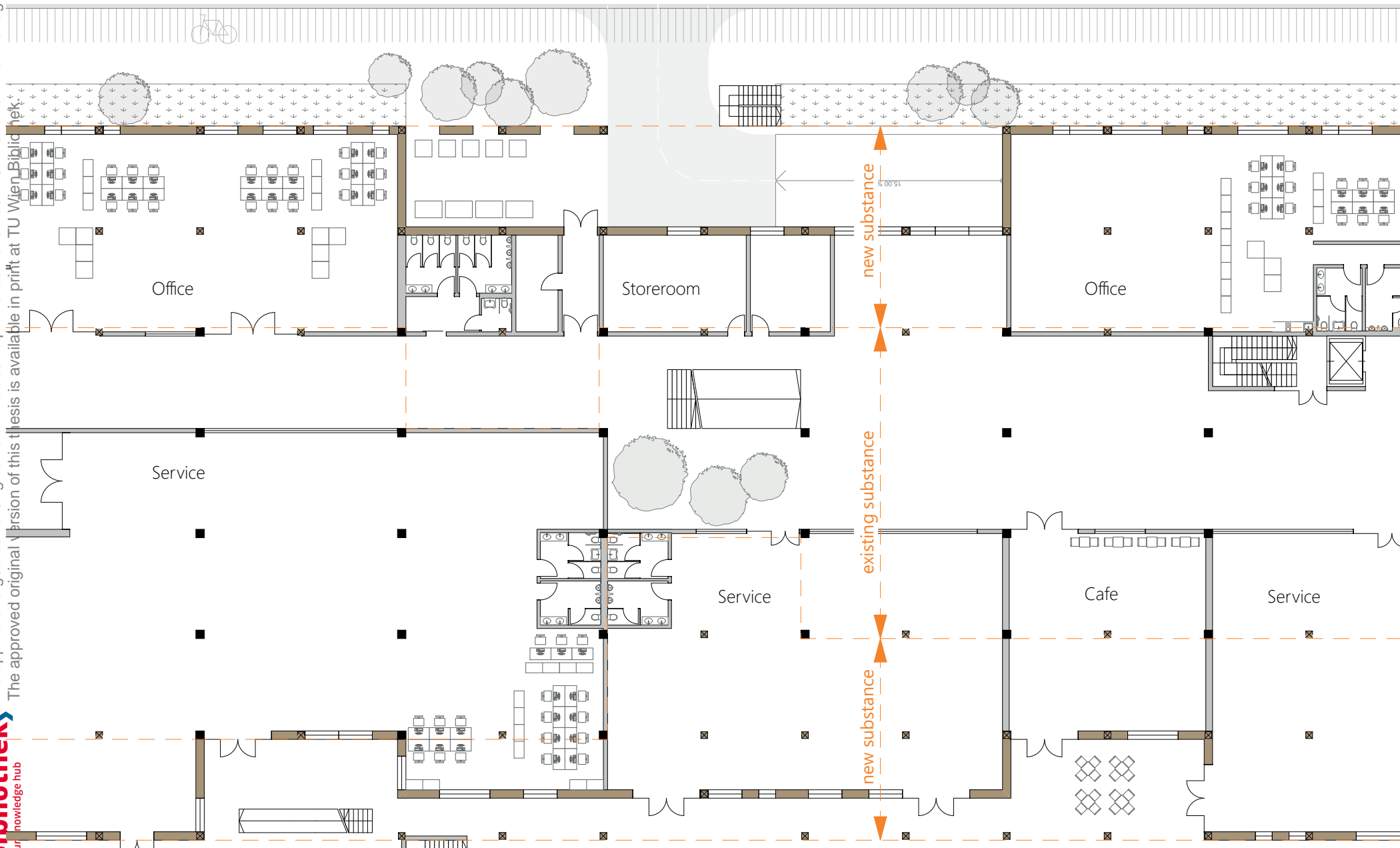
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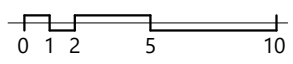


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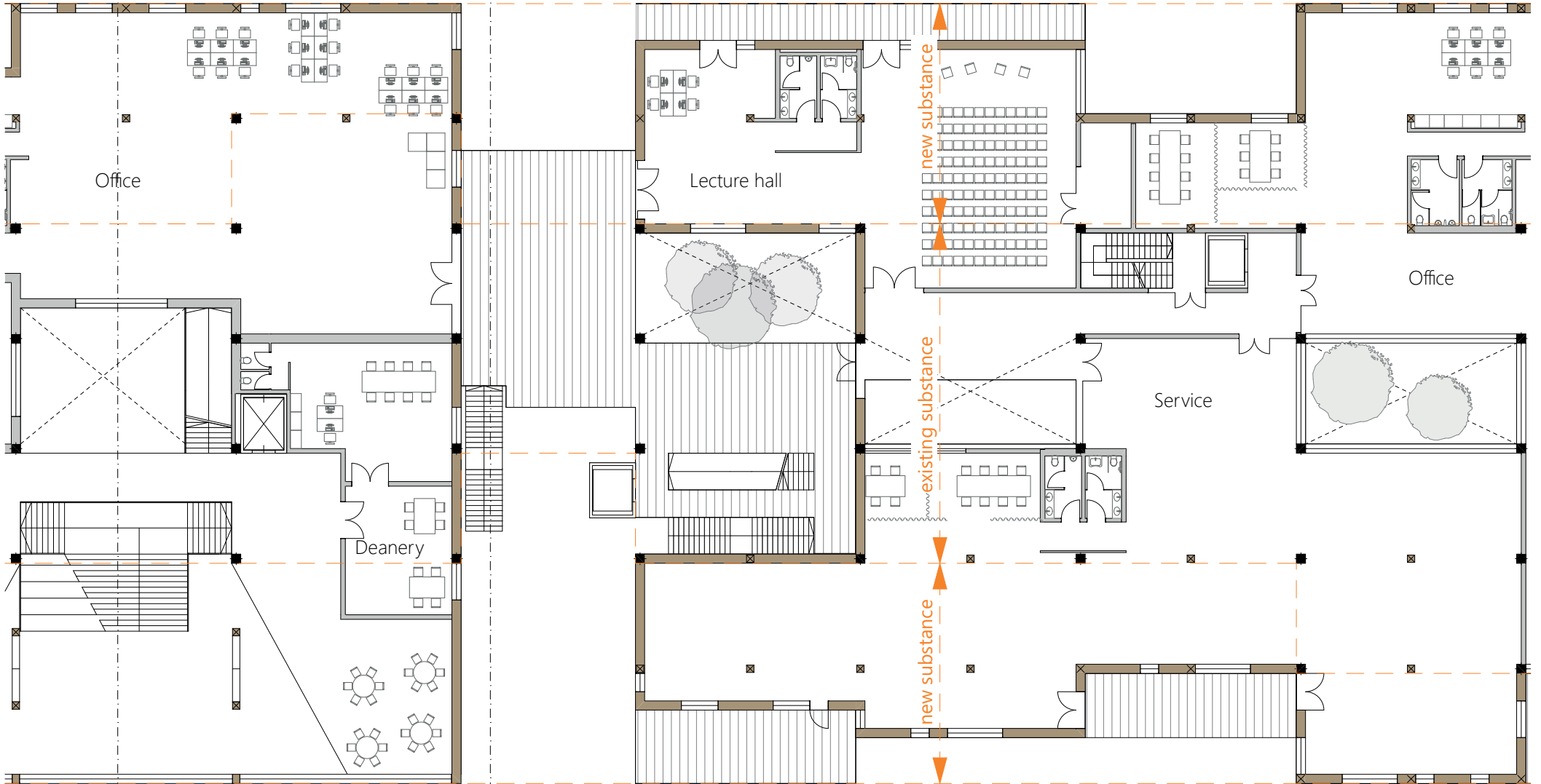


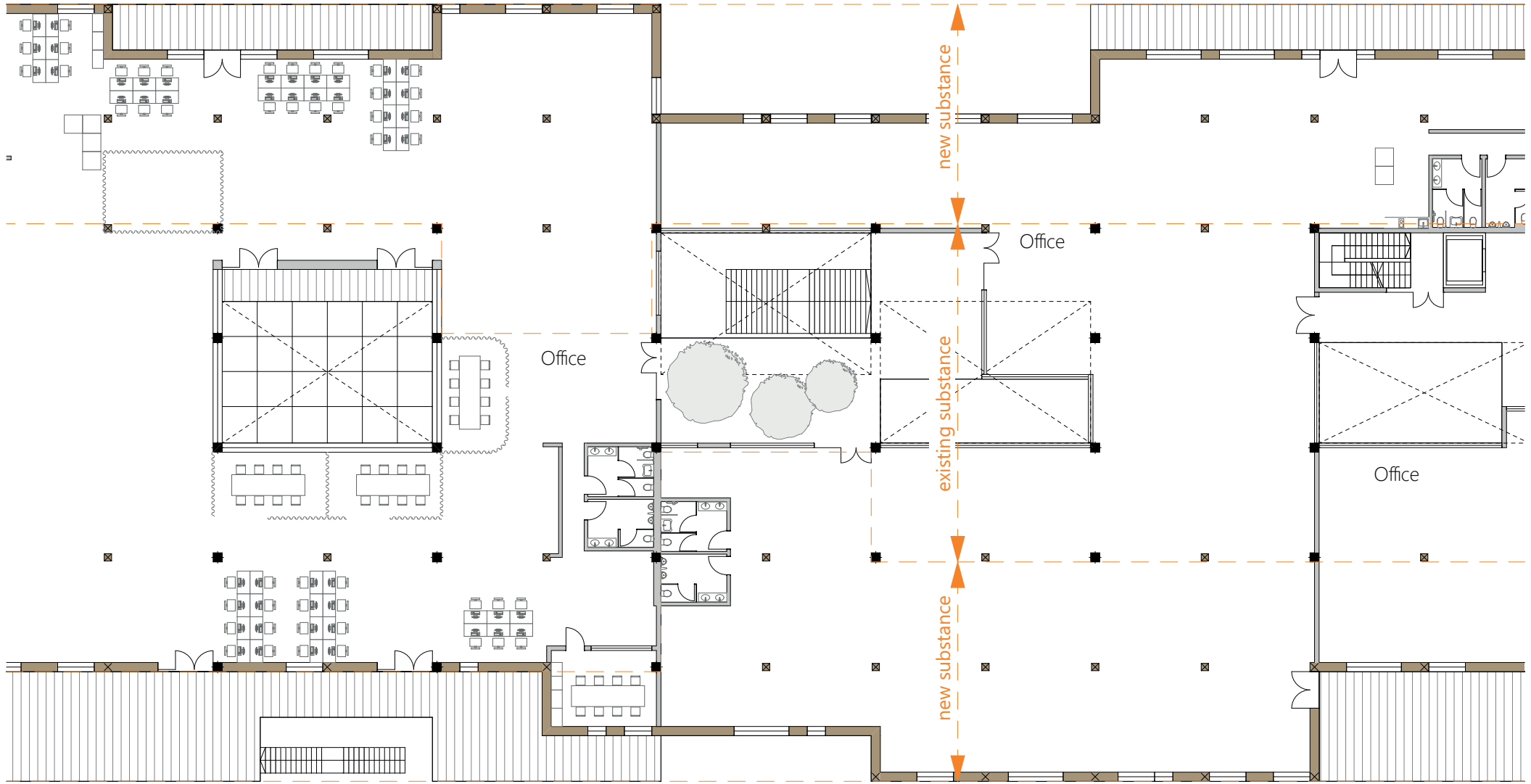


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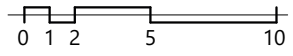


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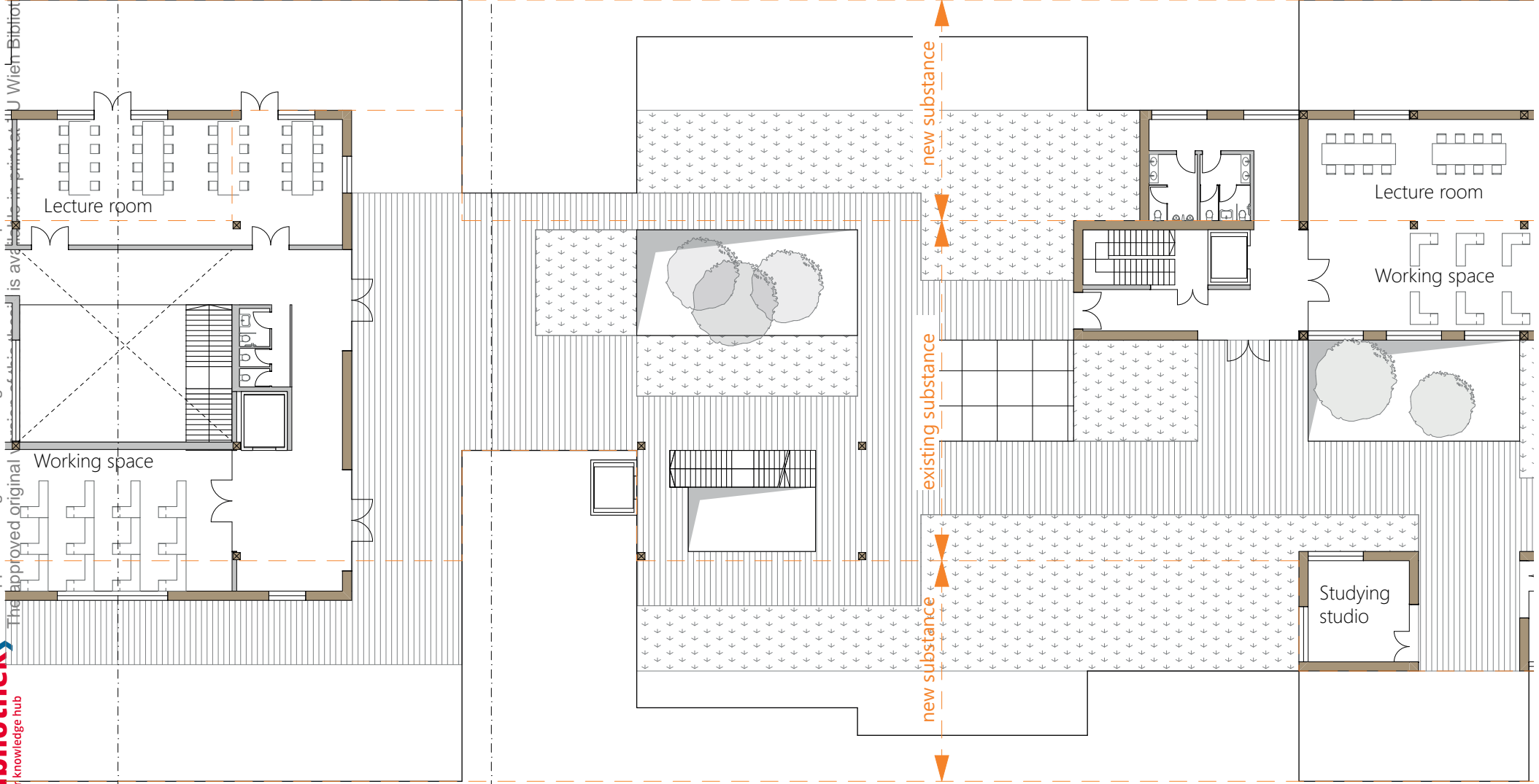


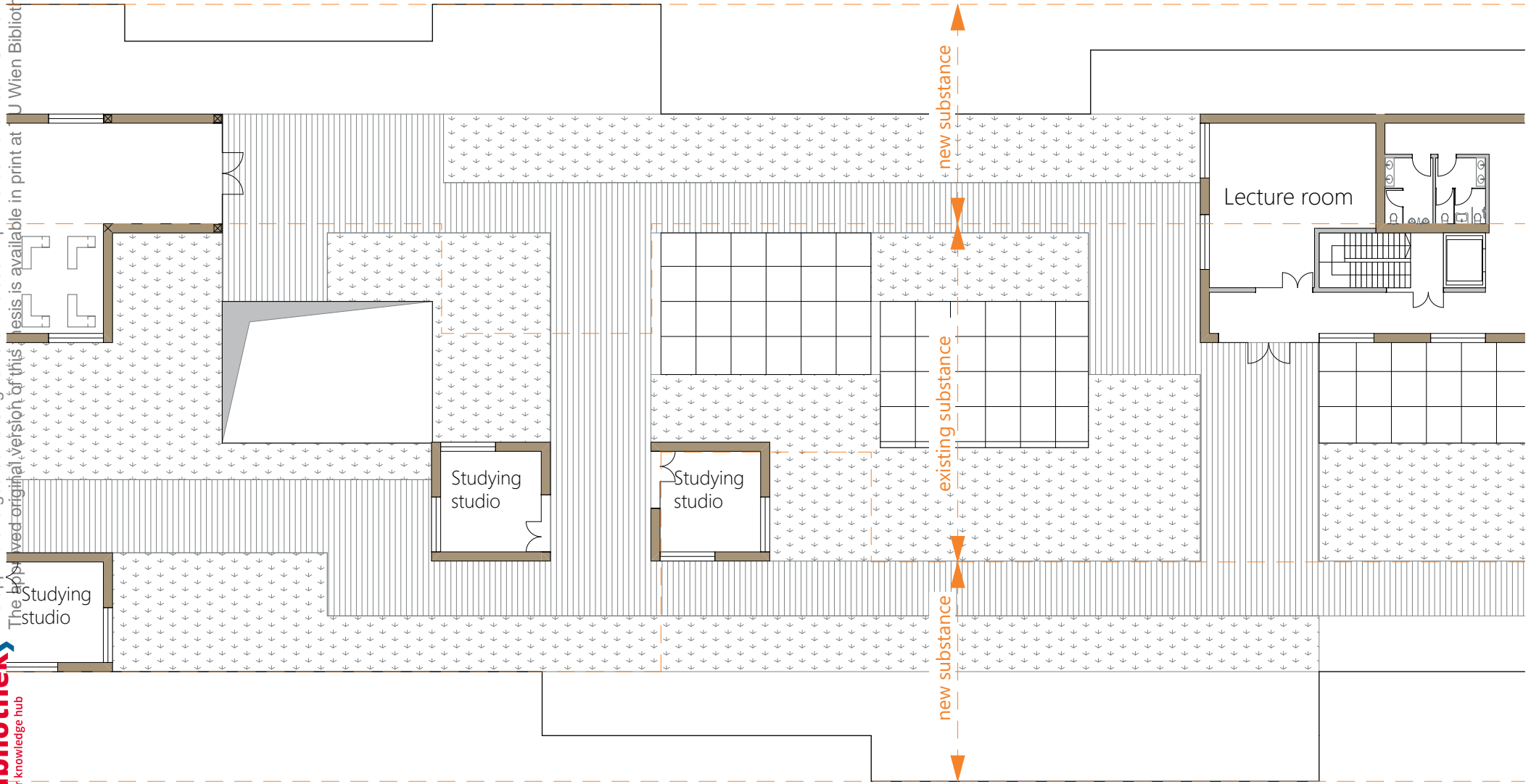


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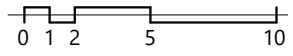


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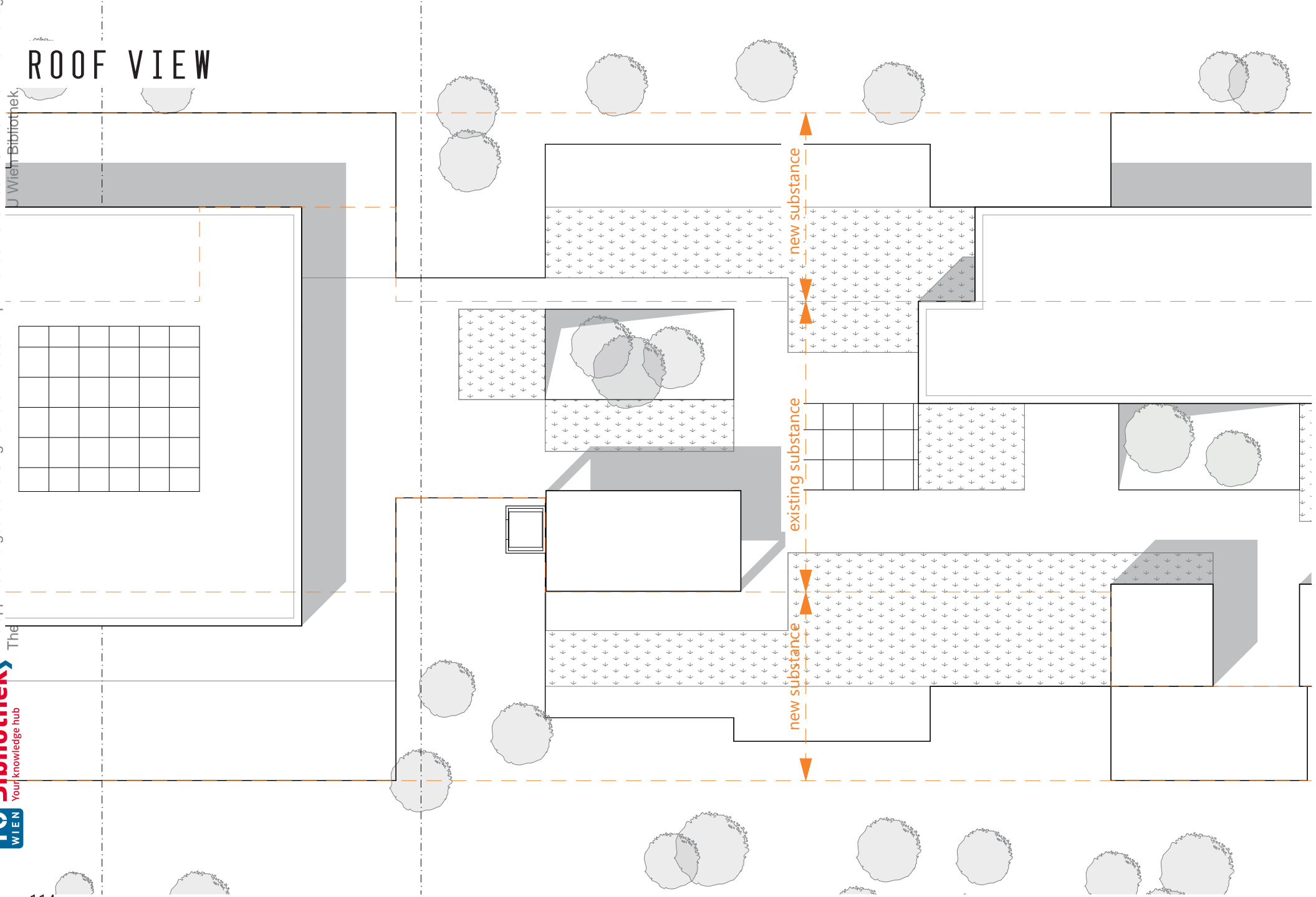


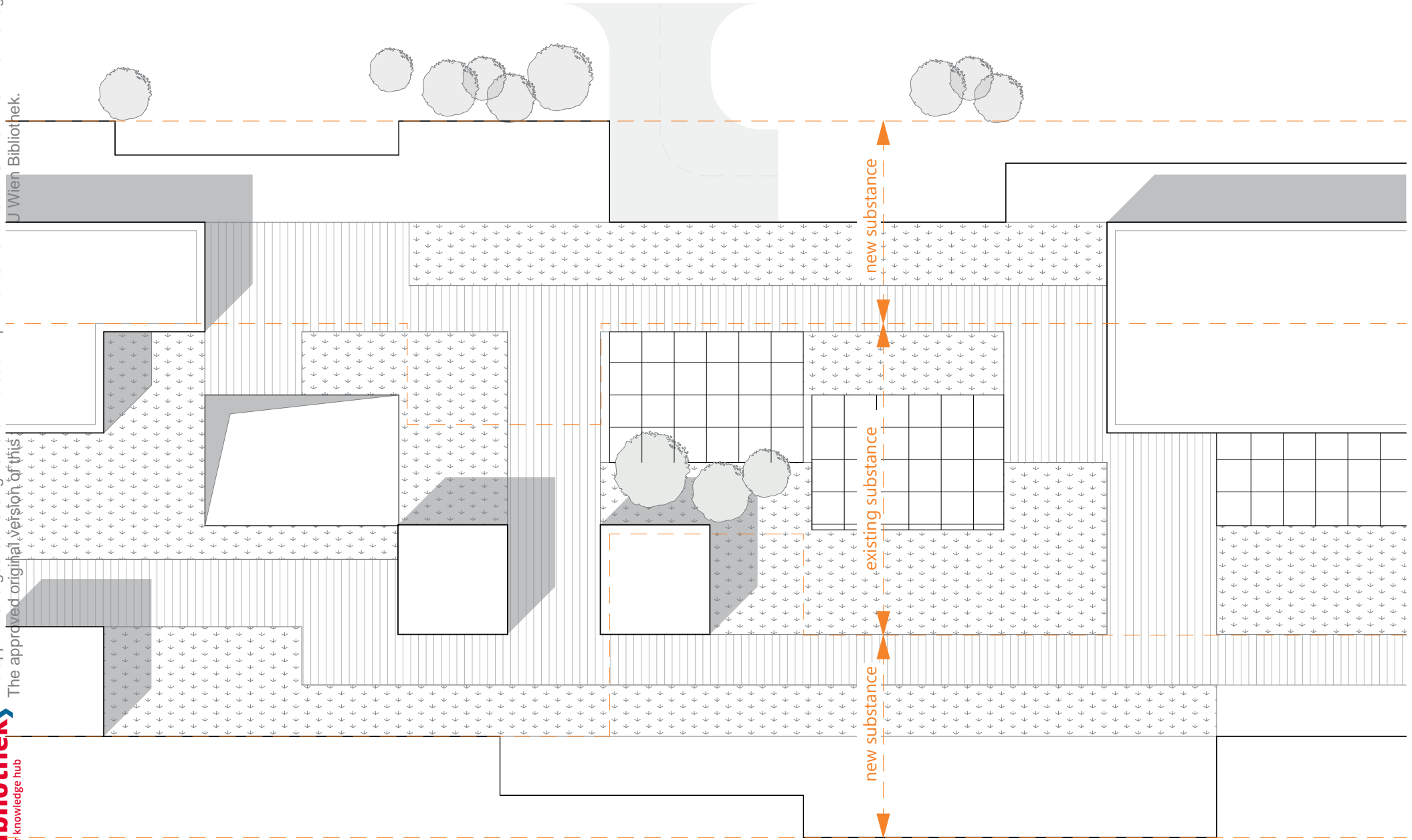


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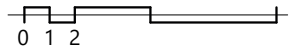


ROOF VIEW

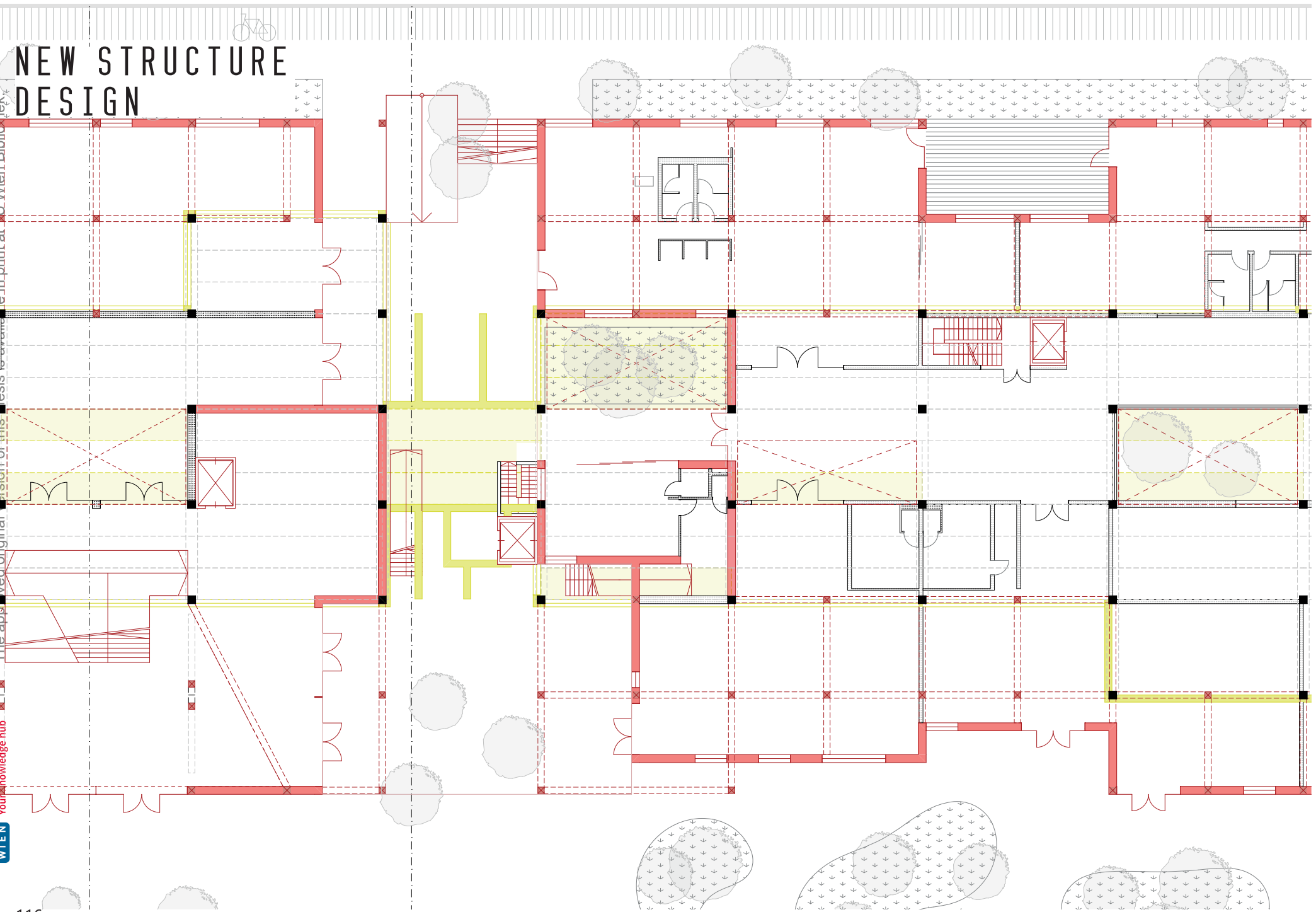


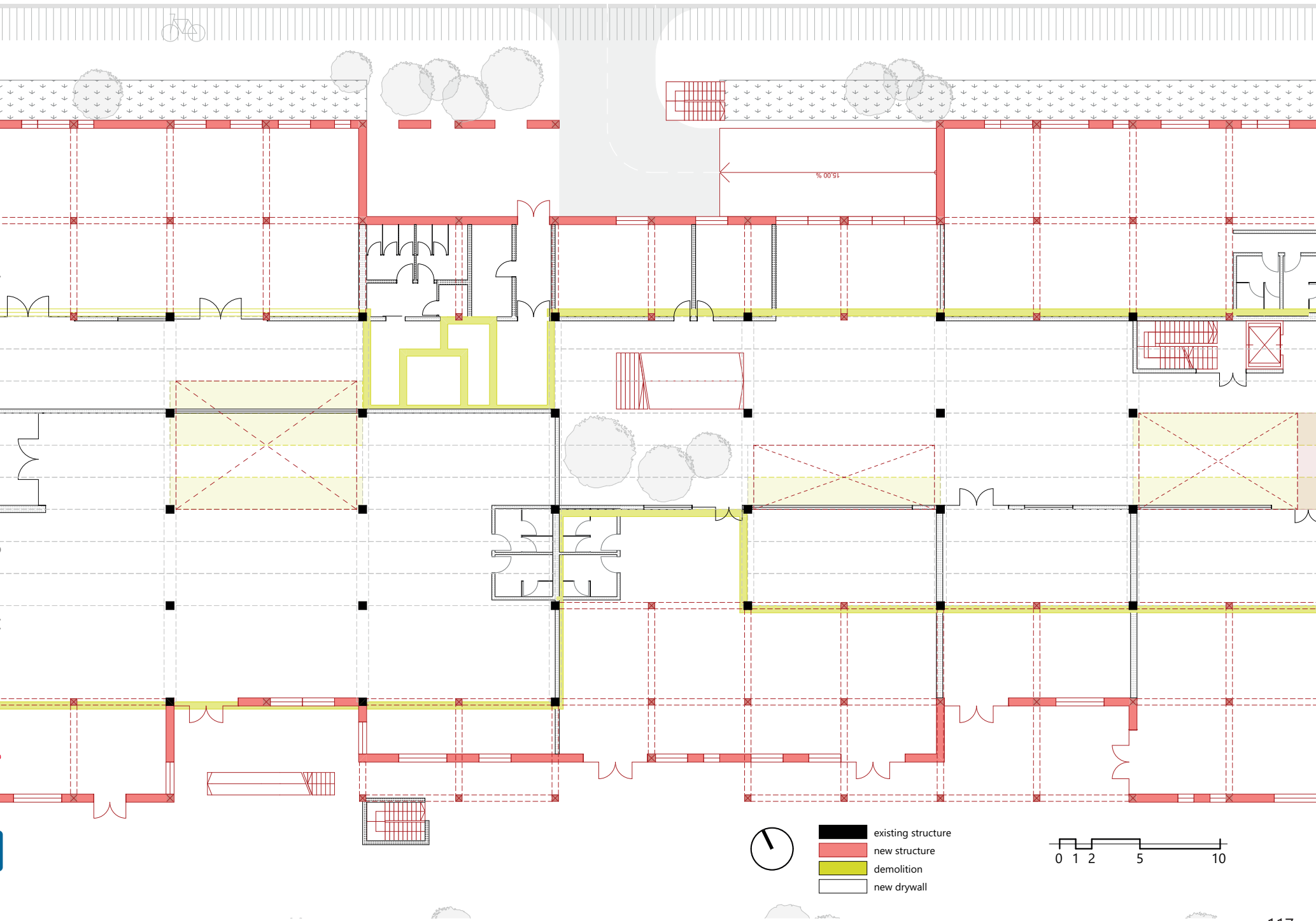


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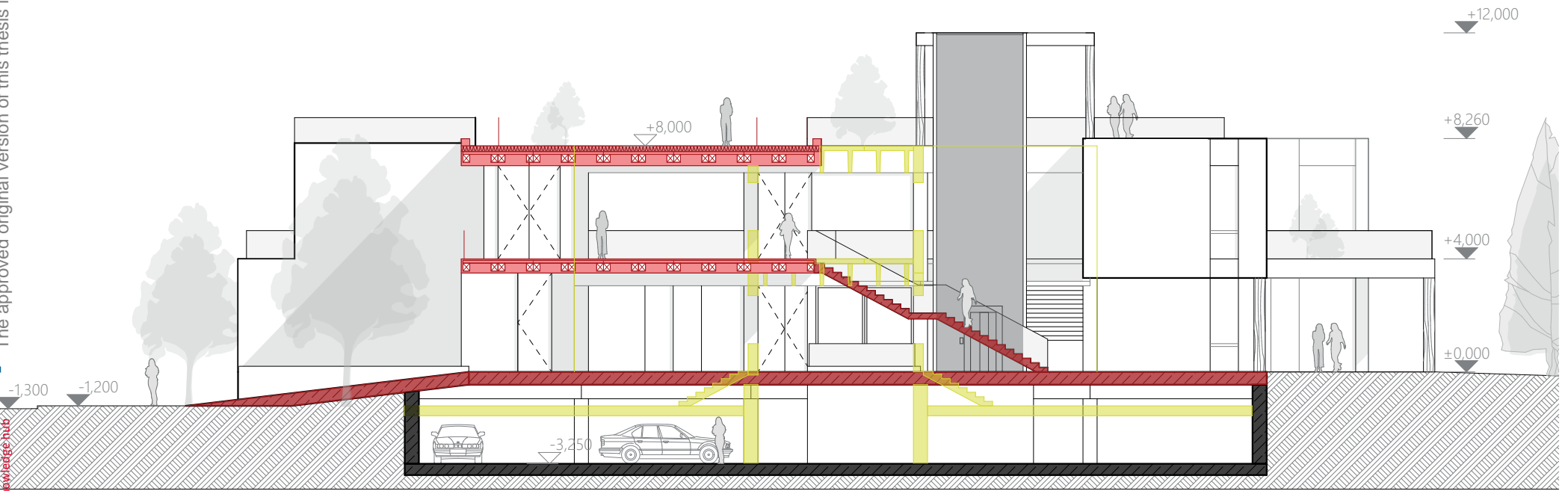
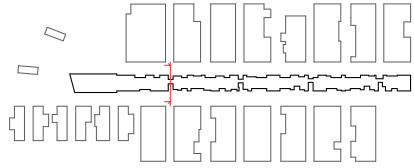


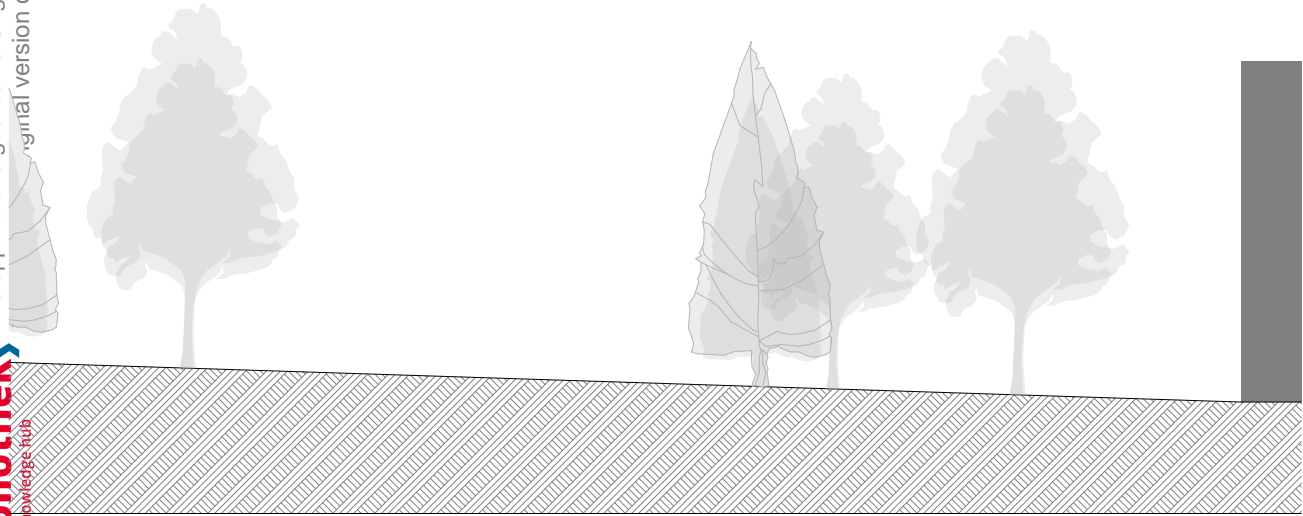
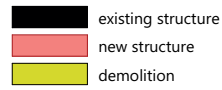
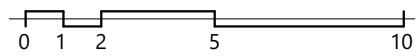
NEW STRUCTURE DESIGN



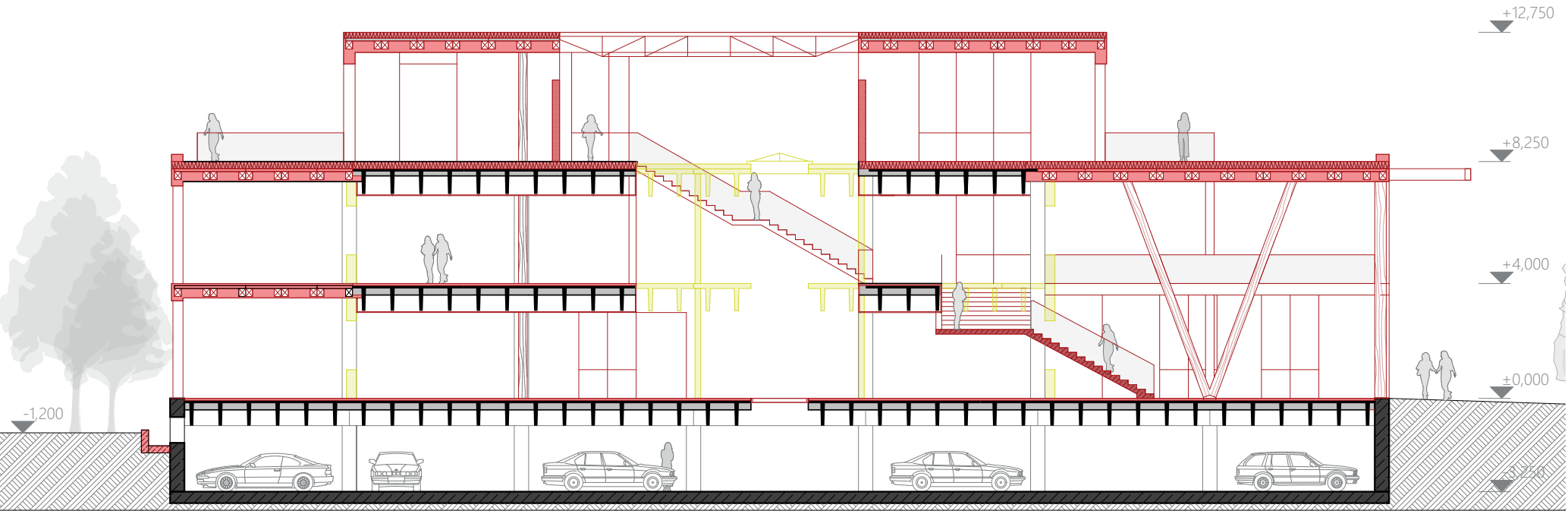
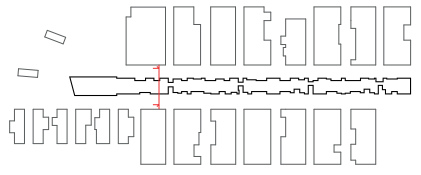


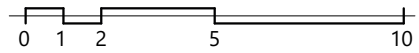
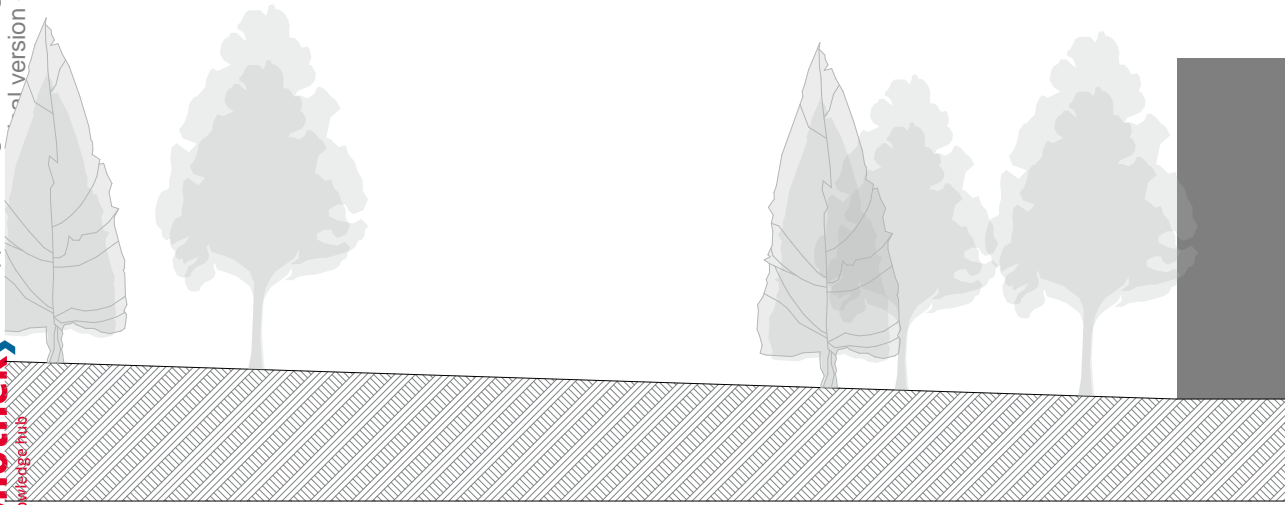
SECTION S1-S1





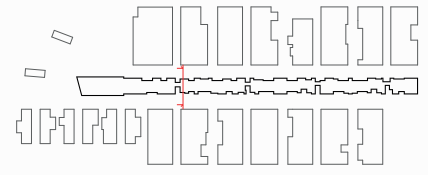
SECTION S2-S2



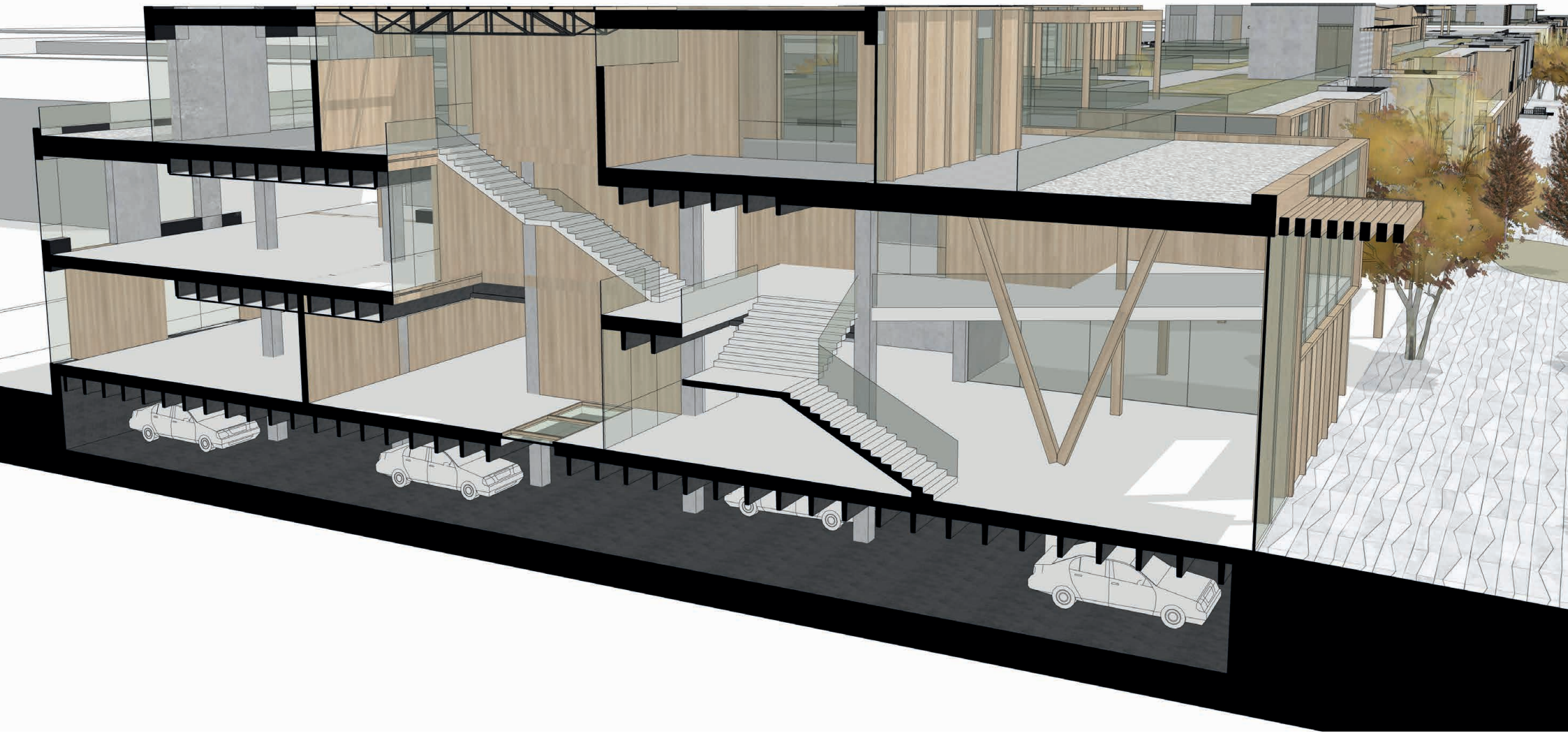
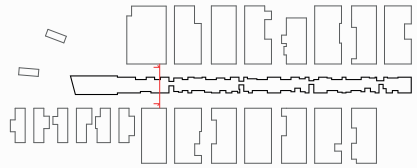


- existing structure
- new structure
- demolition

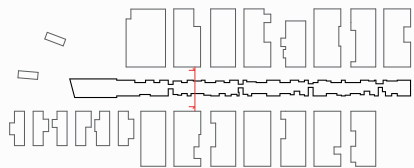
SECTION S3-S3

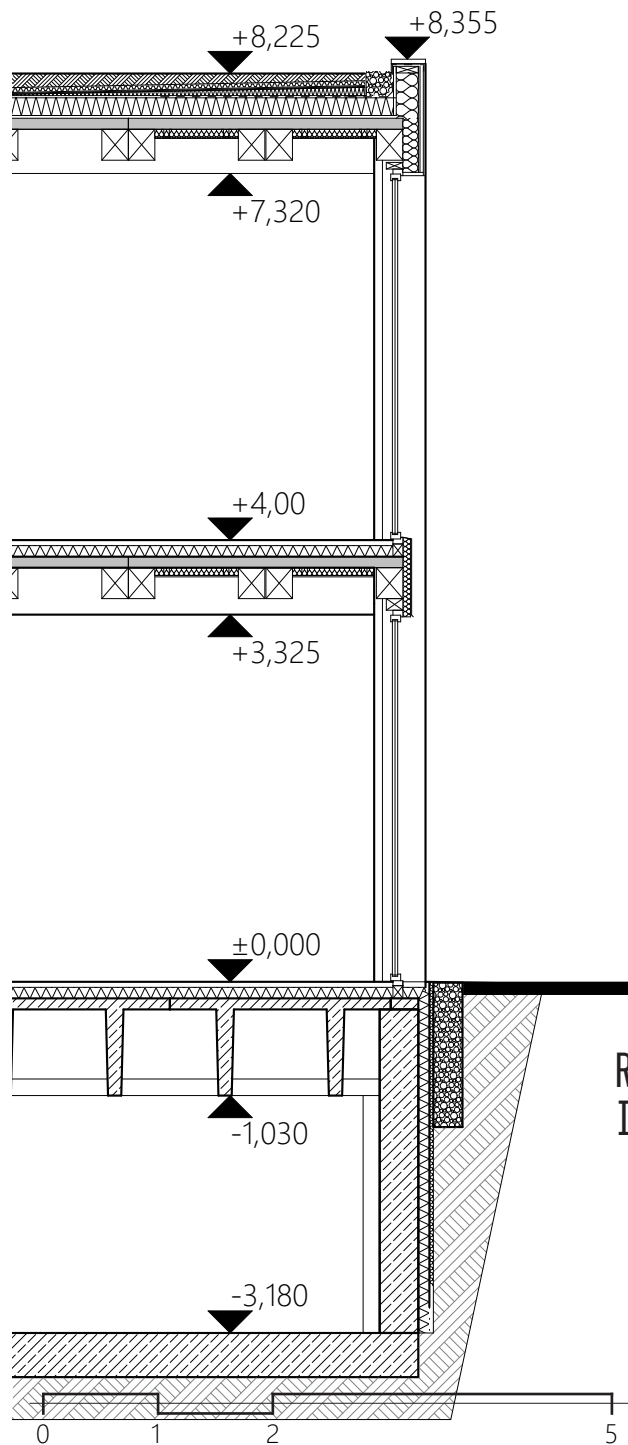


SECTION S4-S4



SECTION S5-S5



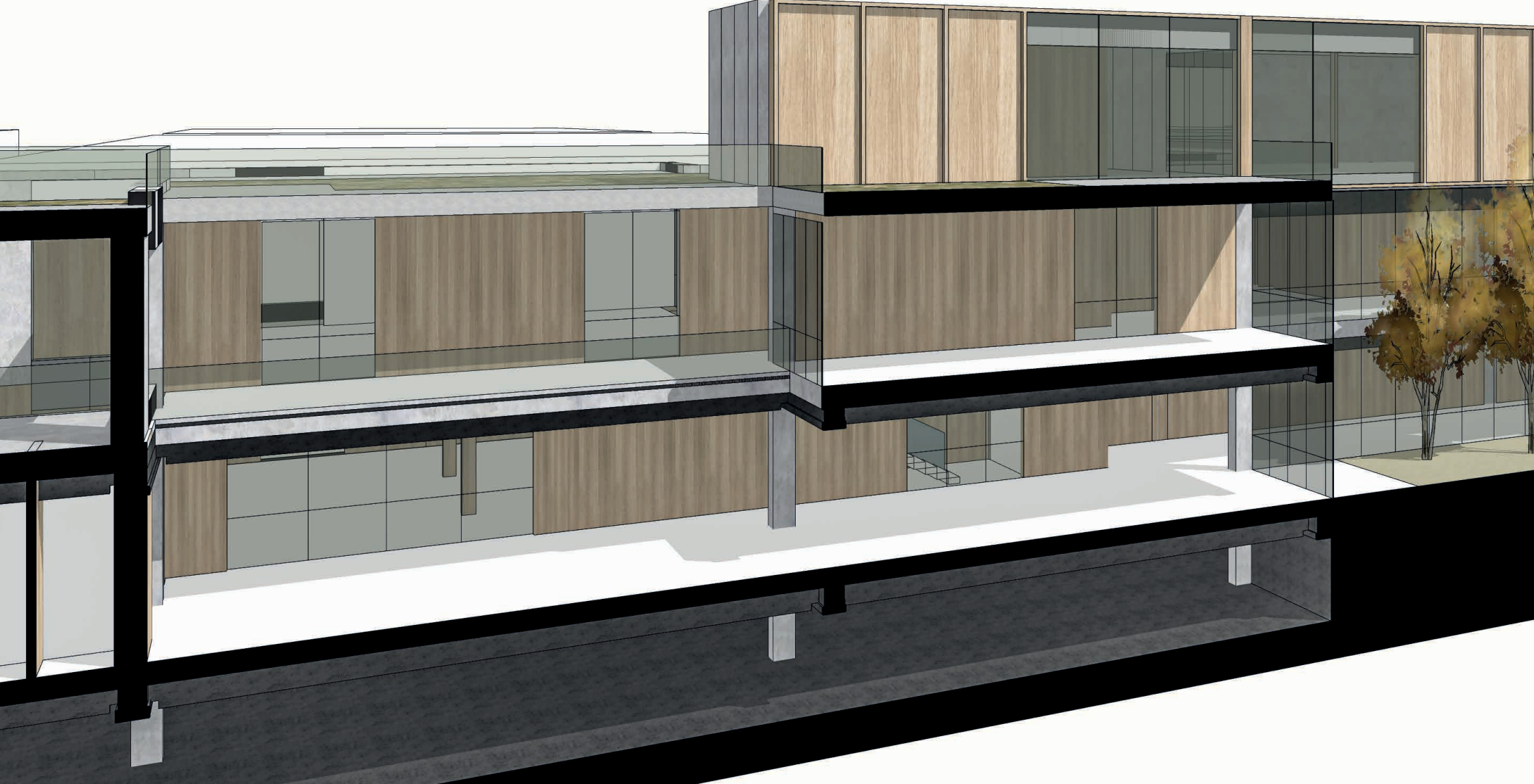
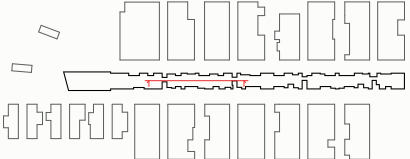


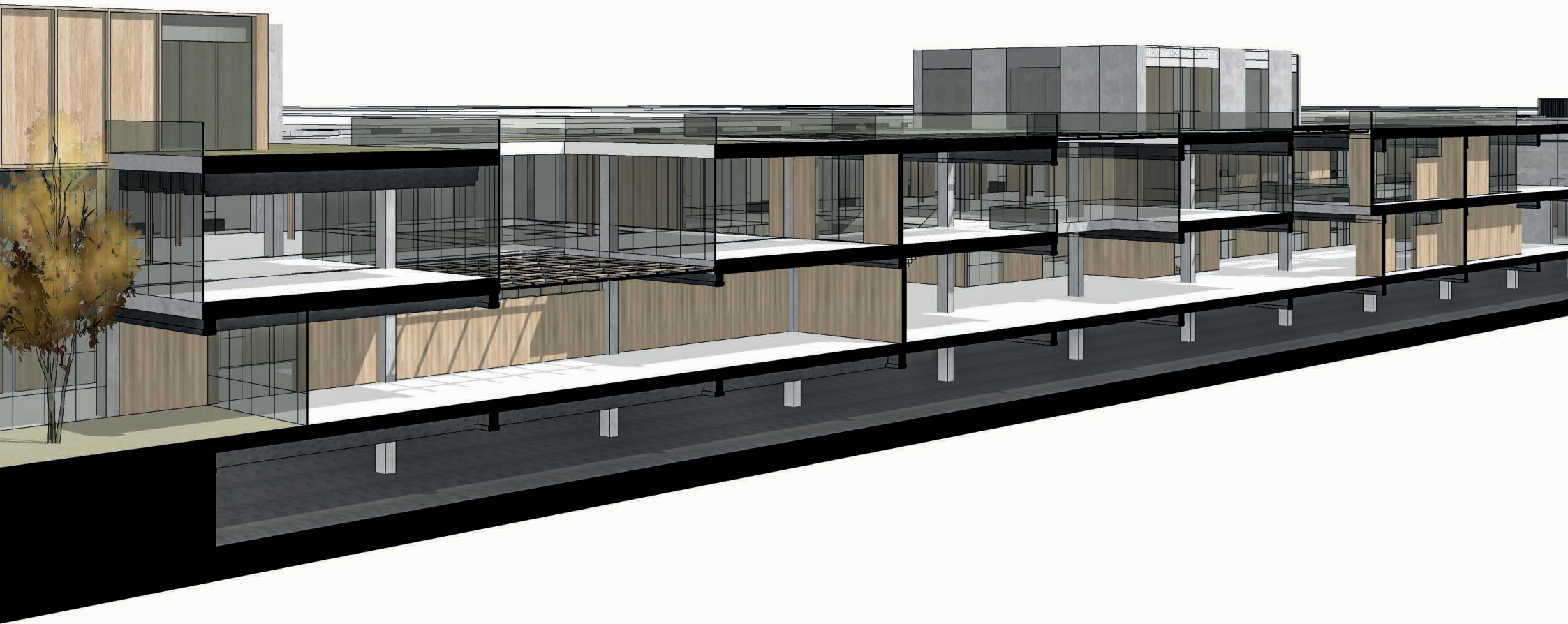
ROOF SECTION INFORMATION

- 150mm soil with plants
- filter fabric
- 44 mm reservoir layer with optional aggregate
- moisture retention layer
- aeration layer
- root barrier
- 160mm polysterene EPS
- drainage layer
- protection course
- waterproofing membrane
- structural deck



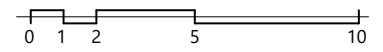
SECTION S5-S5



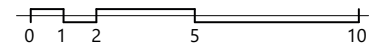


FACADE

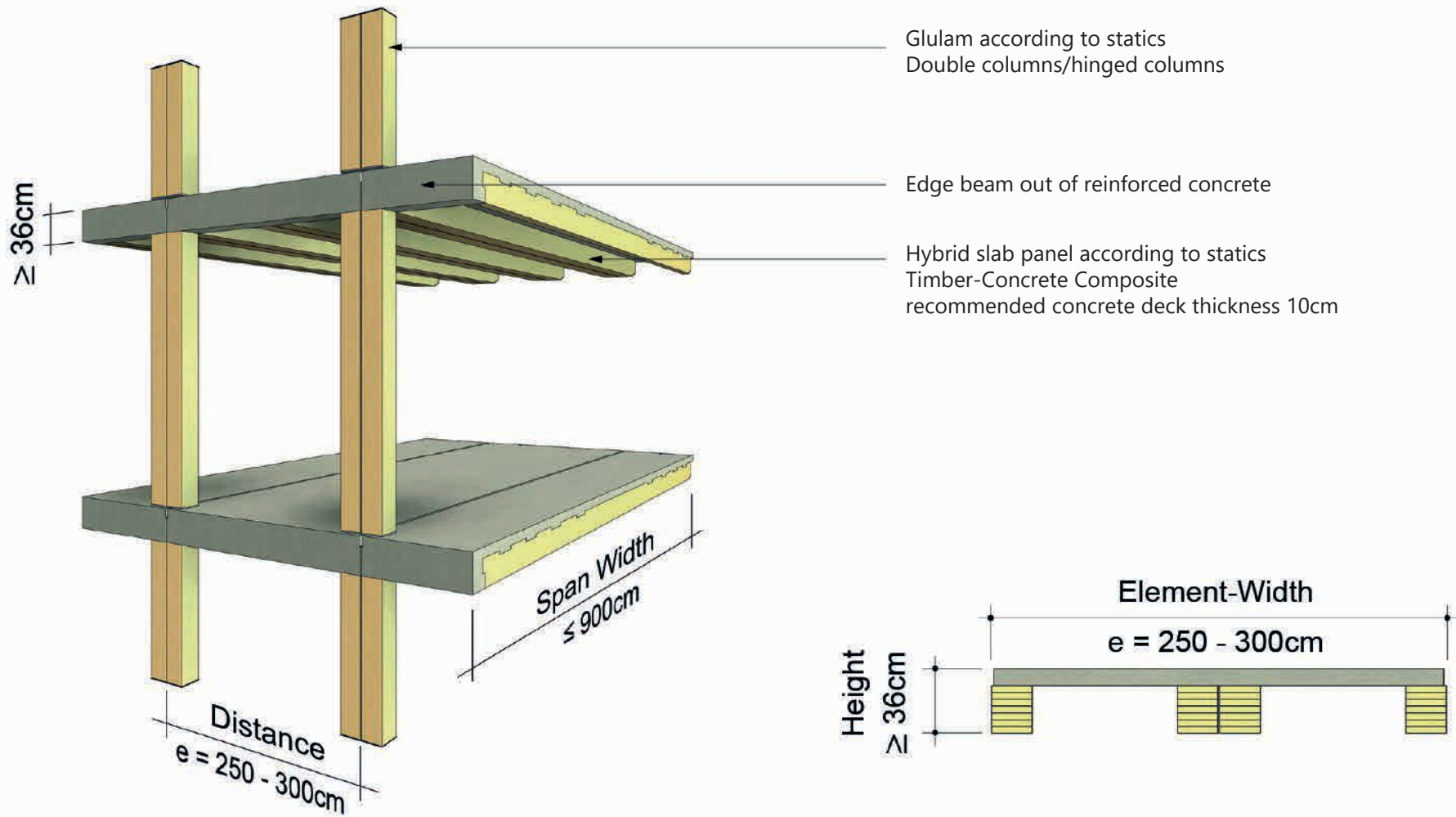






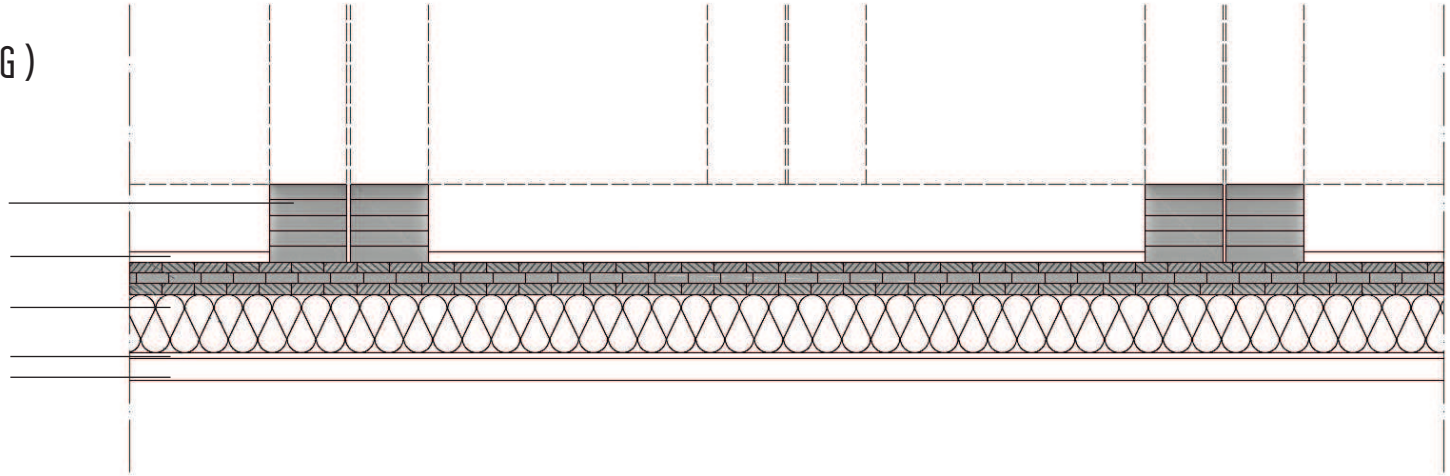


DETAIL



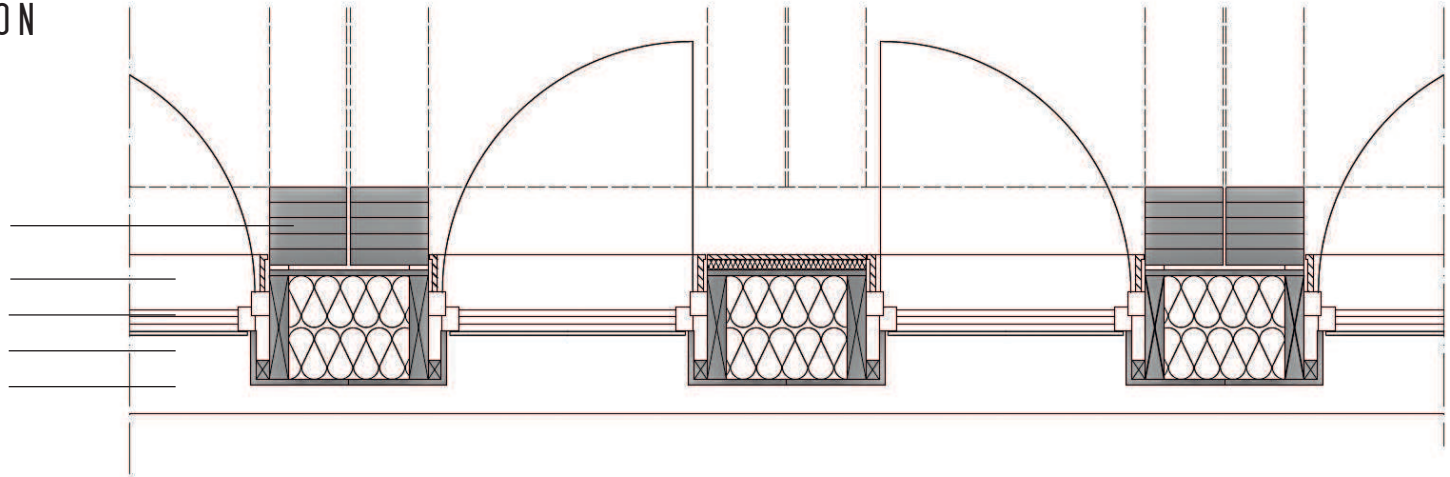
CLT WALL SOLUTION (LOAD BEARING/STIFFENING)

- Glulam column
- CLT wall
- Insulation
- Cement-bonded particleboard
- Facade cladding



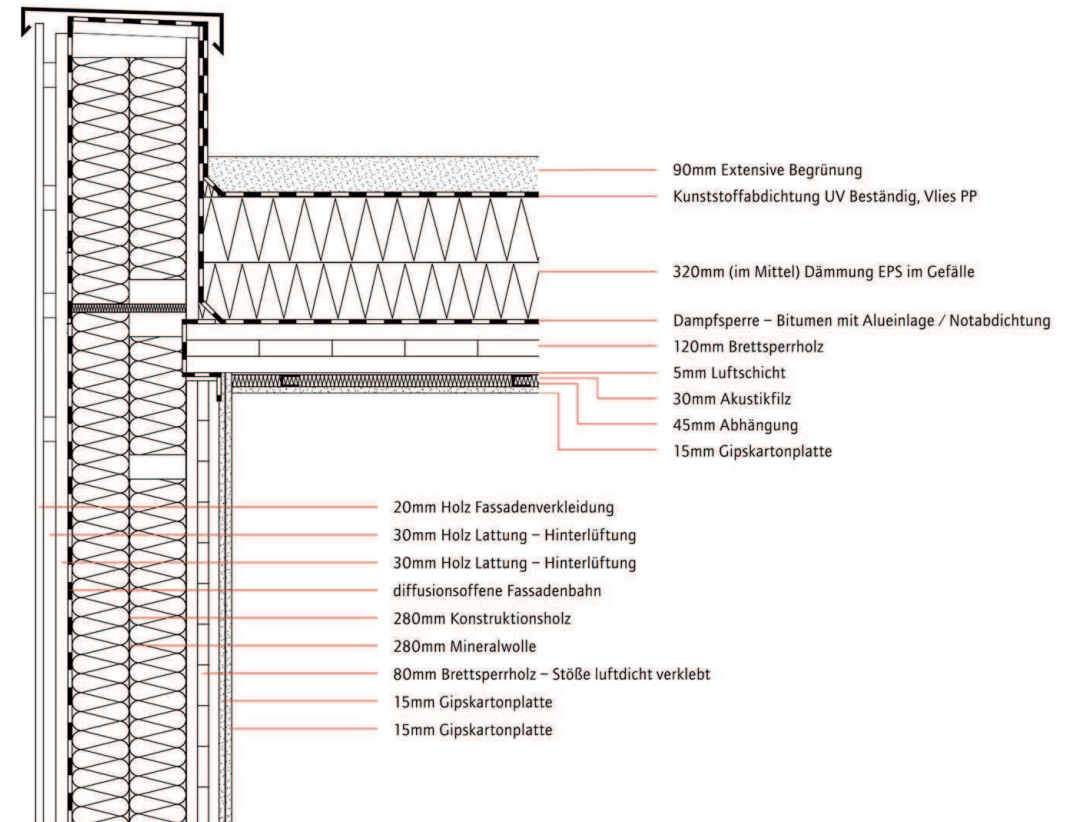
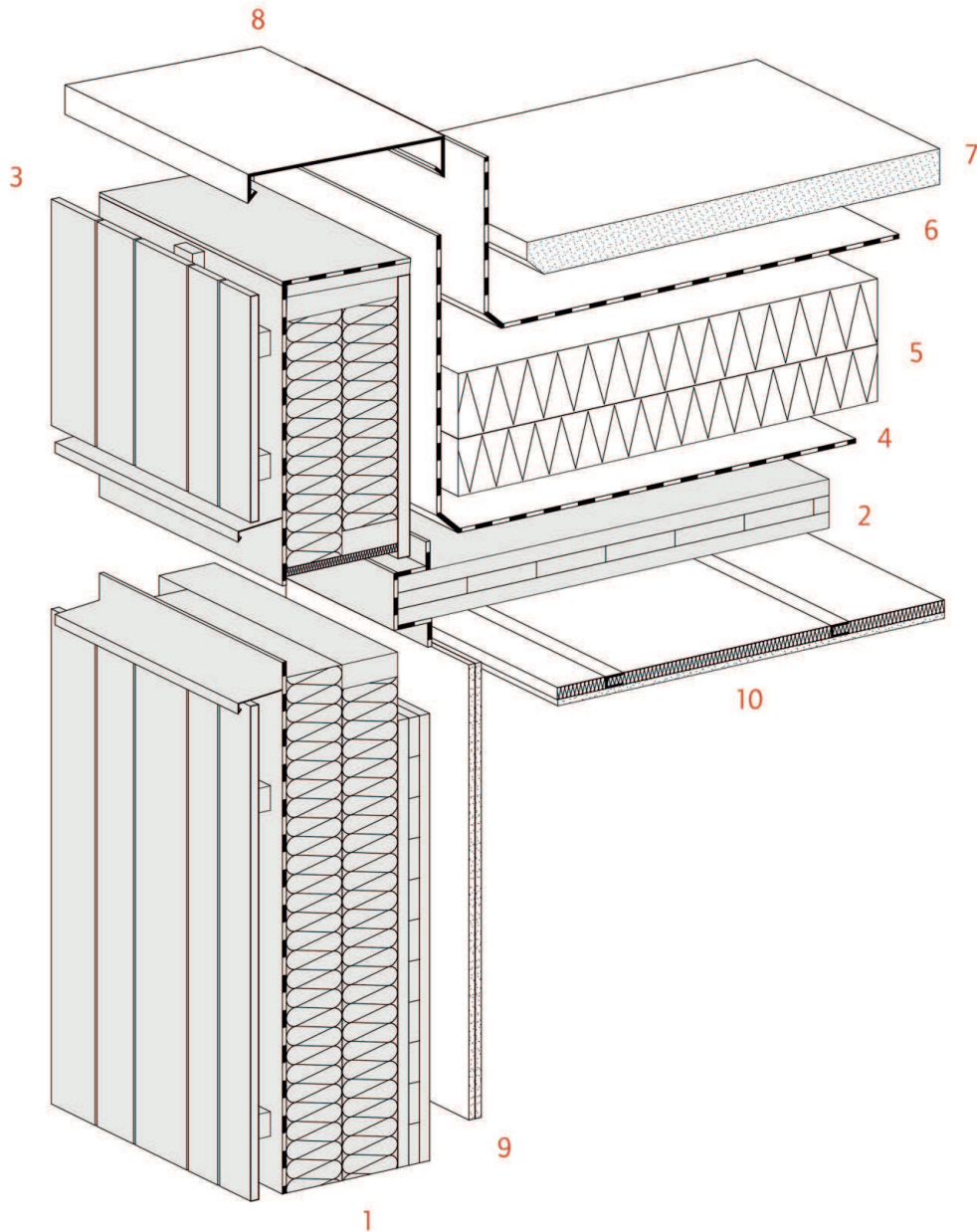
TIMBER FRAME CONSTRUCTION (NON LOAD BEARING)

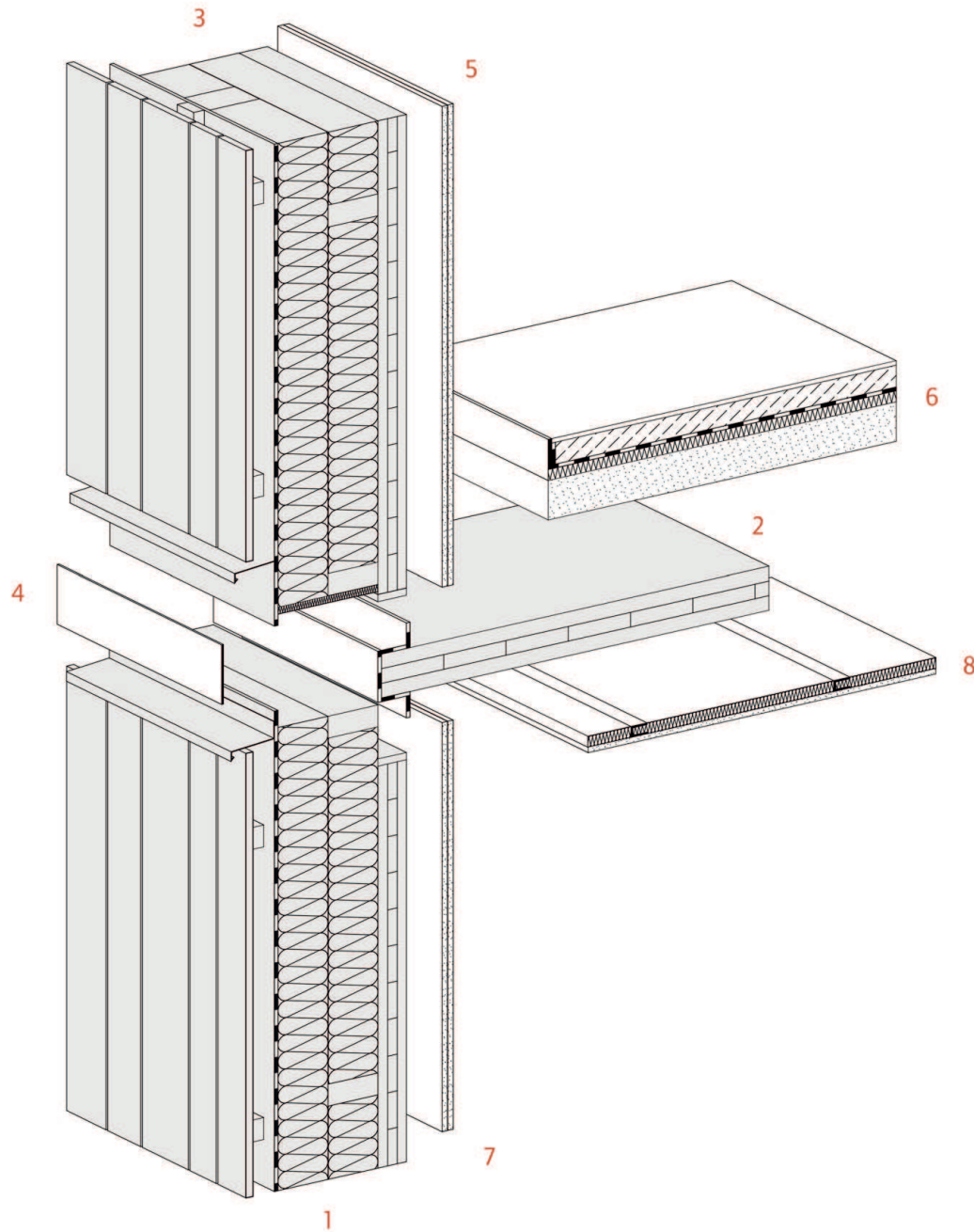
- Glulam column
- OSB
- Framing incl. insulation
- Cement-bonded particleboard
- Facade cladding



Informationen zum Montageablauf

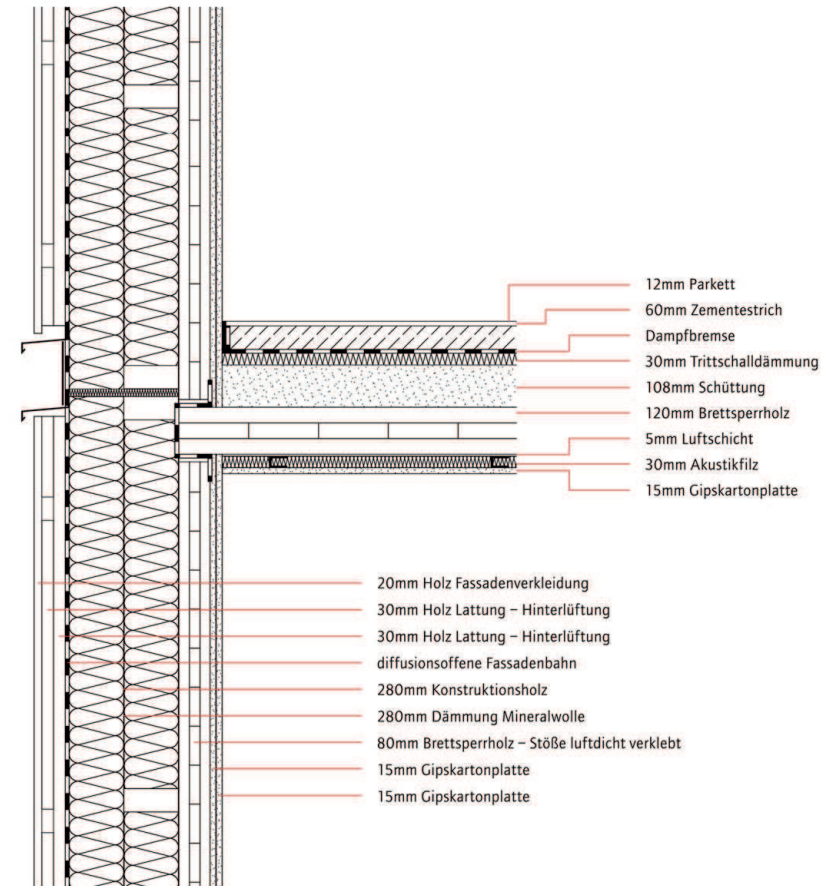
- 1 Montage vorgefertigtes Außenwandelement mit Fassadenbekleidung auf Elastomerlager
- 2 Auflegen der Brettsperrholzdeckenelemente mit Notabdichtung
- 3 Aufstellen des Attikaelementes
- 4 Stöße Wand-Decke und Abdichtungsahn luftdicht verkleben
- 5 Einbringen Dachaufbau (gem. Darstellung 2D)
- 6 UV-beständige Abdichtung mit Attika verkleben
- 7 Extensive Begrünung
- 8 Attikaverblechung
- 9 Montage der innenseitigen GKF-Platte
- 10 Montage der abgehängten Decke



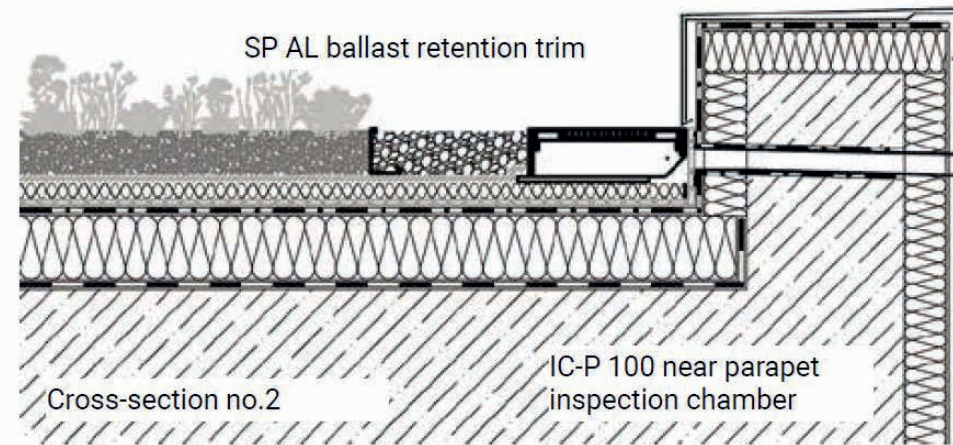
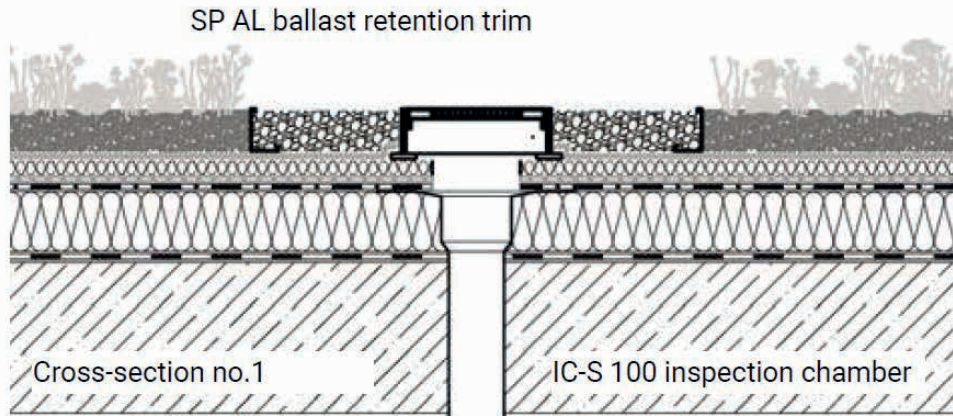


Informationen zum Montageablauf

- 1 Montage vorgefertigtes Außenwandelement mit Fassadenbekleidung auf Elastomerlager
- 2 Auflegen der Brettsperrholzdeckenelemente mit Notabdichtung + Eingelegte Folie luftdicht verklebt
- 3 Aufstellen der oberen vorgefertigten Außenwandelemente auf Elastomerlager
- 4 Ergänzen der Fassade im Stirnbereich mit Blechstreifen
- 5 Montage der innenseitigen Gipsfaserplatten
- 6 Fußbodenaufbau
- 7 Montage der innenseitigen Gipsfaserplatte
- 8 Montage der abgehängten Decke



GREEN ROOF DETAIL



Vegetation

Growing Medium
(15+ cm)

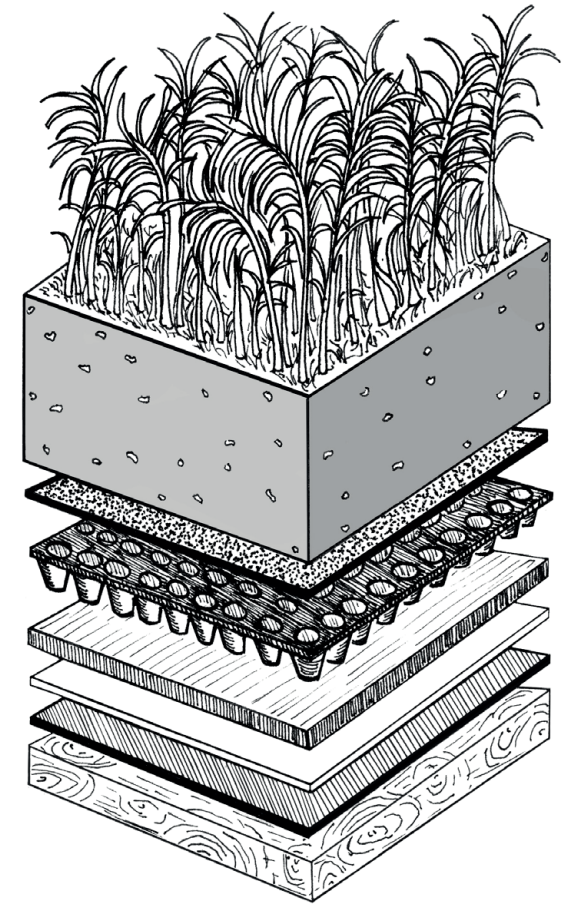
Filter fleece/
Root repellent

Drainage layer

Insulation layer

Waterproof
membrane

Structural support





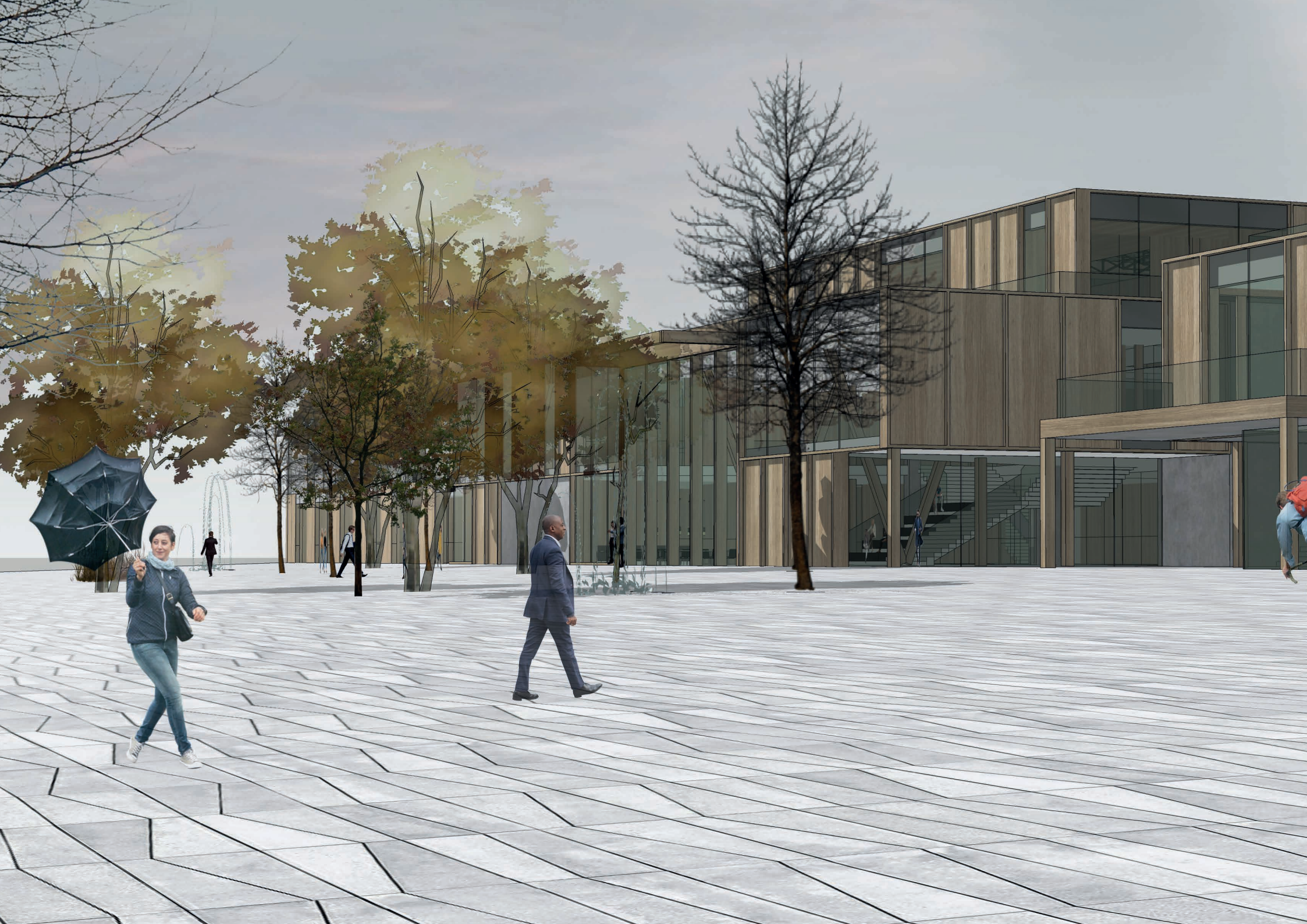






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School







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