

**Politecnico di Milano**

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Architecture and Urban Design 2019

**2037: A Space Odyssey -  
Dynamic Intervention in Città Studi**

*Professors: Croset Pierre-Alain*

## Abstract



'Giù le mani da Città Studi' parade, 2017

Città Studi, as an essential district in Milan, whose history could trace back to 1860s and in which way Città Studi's transition was affected by Milan city's urbanization and in some measure could be seen as a result of Milan's development and expansion.

In recent years, Città Studi has been facing a series of issues and challenges, especially the decision to move to Rho. This movement was resisted by the majority of public since 'it's just to fill the cap of EXPO site both economically and geographically'. Even though there are great amount of opponents and opposing voices, a decision has been made.

This project aims at investigating the future of Città Studi with a dynamic perspective, in which way the whole Milan's urban fabric, history and transition would be studied as context and reference.

What can we do to fill the 'gap' when Città Studi moves to Rho?

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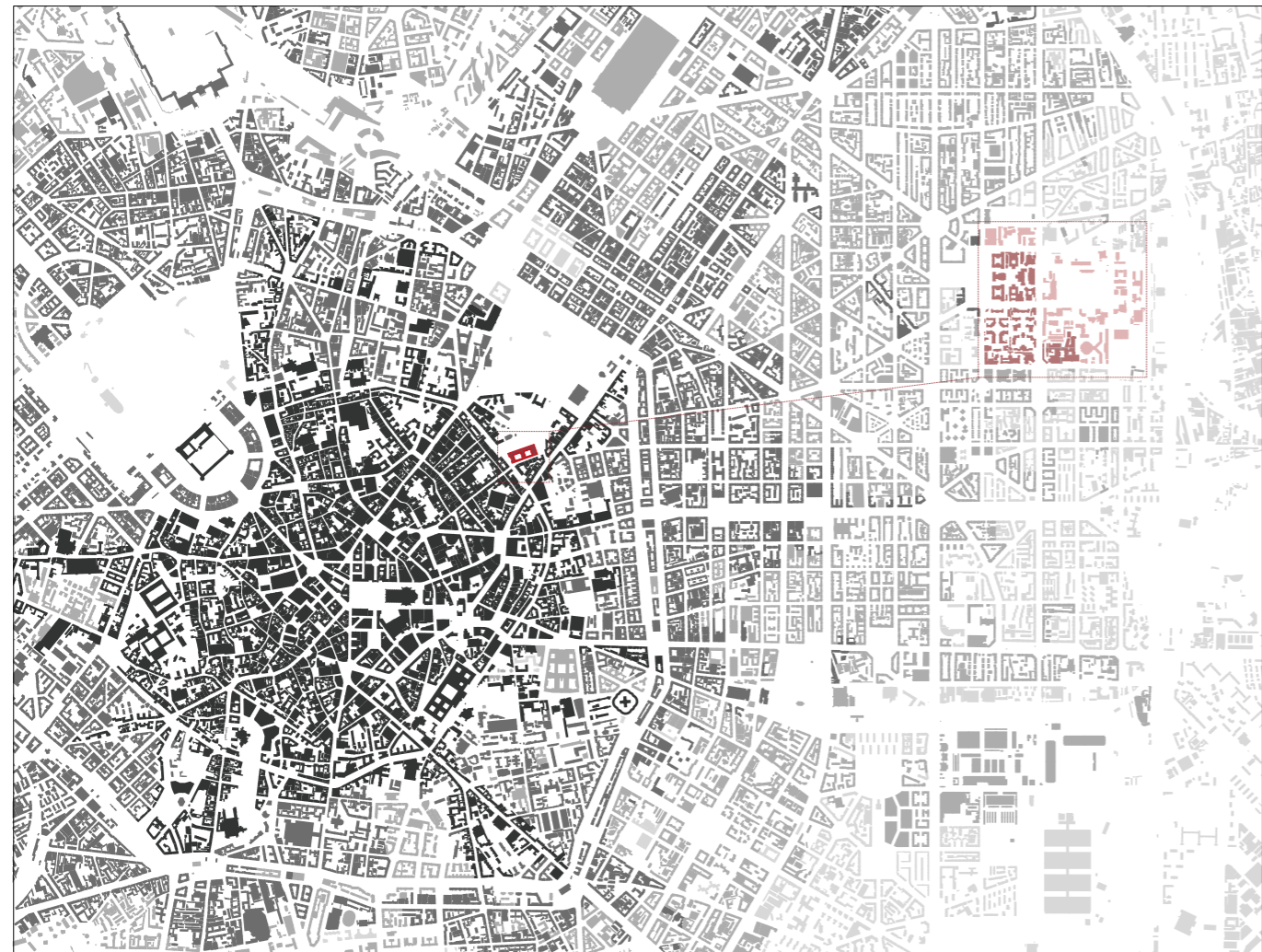
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- 2030: innovated community center
- 2031: dialog between two districts
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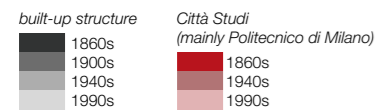
#### *Reference and appendix*

# Transition: Città Studi's origin and development

## 1. History & background



Milan urban expansion from 1860s to 1990s



Palazzo del Senato

Città Studi grew out of a building that is known as the Palace of the Senate today, which was set up in 29th, Nov, 1863 and it was the Politecnico di Milano original edificio. Until 1910, considering about the limited space and rising number of students and educators, it was evaluated and decided that Politecnico di Milano would be transferred, which was inspired by concept of the popular American and British higher education campus at that time, attempting to build up a scientific educational district.



Cascine Doppie, 1913

New site was decided. It located in the northeast of the city, out of the Porta Venezia, called Cascine Doppie which means 'double farm' in English. To complete and improve the construction, the city wall between Porta Venezia, Porta Monforte and Porta Vittoria was demolished that provided better traffic and constructing material as well. The construction started at 1915 but immediately paused due to the war. Project started again at 1920s and completed few years later. During this period, Città Studi started expanding and being under construction, including new complexes (Gran Sasso, Andrea del Sarto, Vanvitelli), high school, University of Milan branches, National Cancer Institute, and Politecnico di Milano department of Engineering and Architecture.



Politecnico di Milano, 1928

In next several decades, Città Studi kept developing. The Kremlin, the Faculty of Chemical and Biomedical Research, new headquarters of built environment for Politecnico di Milano, faculty of Biology and a series of residential buildings were built. Città Studi started being as a 'city' of science and technology.

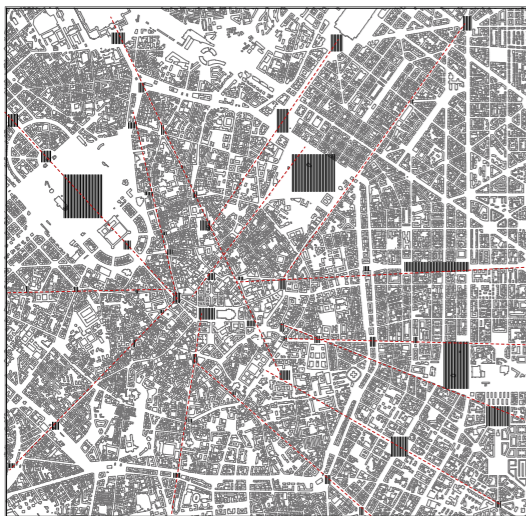


Masterplan of Milan, Beruto plan

Milan's expansion in 20th century could be clearly identified with urban context. Basically it continued with Beruto plan that the expansion areas appeared as a so called 'donuts' mode, showing a ring-like radiation from city center. Within the new areas, city axis was strictly respected. Axes was extended and became new urban fabric's axes. Along the axes always public spaces were located and this rule worked for the new areas. Respect for the historical layout contributed to preservation of Milan's spirit and atmosphere. However, different from Milan historical center's separated urban fabric, the expansion area tended to be regular, which presented a grid form and built in bigger scale. Expansion was a result of urbanization and modernization which required efficient and profit, in which way the new-built constructions more or less reflected the influence of internationalism and modernism, which cost less and easy-built. However, their square windows, scales and layouts still reminded us of Italian architecture.

Expansion was a certain result of social development and meanwhile the development brought transition in Milan's historical center area. Despite the increasing number of new paths to improve accessibility and mobility which was necessarily requested in a modern city, interventions were added to existing urban fabric, satisfying new requirements. A series of interventions did not destroy the existing urban form. On the contrary, they were built along the existing axes and grids, sitting on the existing blocks with proper scales.

Besides additions to existing urban fabric, development of city tends to drive facilities out of centre town. Citta Studi was a typical example. With the rapid improvement of technology and education resource, the limited space could not satisfy the politecnico di Milano, which used to locate in Piazza Cavour and consequently it was moved to Lambrate area, in which Citta Studi gradually built and developed.



Axes and public spaces along them

## 2. Institutes and growth



In 1913 an agreement was stipulated between the State, the Municipality and the Chamber of Commerce of Milan, to host higher education institutions scattered throughout the city in one place.



In 1927, when the work was completed, the Polytechnic moved. University of Milan will establish itself with Agriculture and Veterinary Medicine in 1932. The Cancer Institute was inaugurated in 1928; Il Besta in 1932. Since then the campus has innervated the neighborhood.



In 2018/19, Politecnico started building its new facilities, including a laboratory, Renzo Piano's project for the Trifoglio area of the Polytechnic. And requalification of Ponzio Swimming pool.



By 2024, there would be a transfer: shift of the scientific faculties of the State University; Besta relocation and Cancer Institute in the City of Health; Possible re-use of existing structures by the three public Universities, with a transfer of a total of 30,000 students in the neighborhood.

### 3. Building types



Department of Mathematics  
"Federigo Enriques"  
1935  
G. Ponti



Chiesa di San Luca Evangelista  
1960  
Giò Ponti



Piscina Romano  
1928  
Luigi Lorenzo Secchi



Facoltà di Biologia  
1978-1982  
Vico Magistretti



Dipartimenti di Fisica e Chimica  
1996-1999  
Francesco Soro



Residenza Bassini  
1948-51  
Luigi Moretti

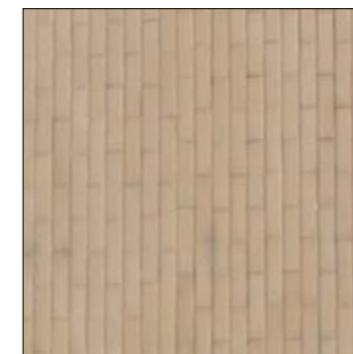
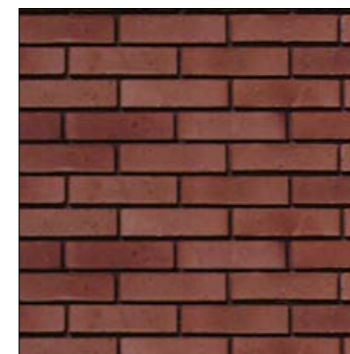


Politecnico di Milano  
1913-1927  
Gaetano Moretti, Augusto Brusconi



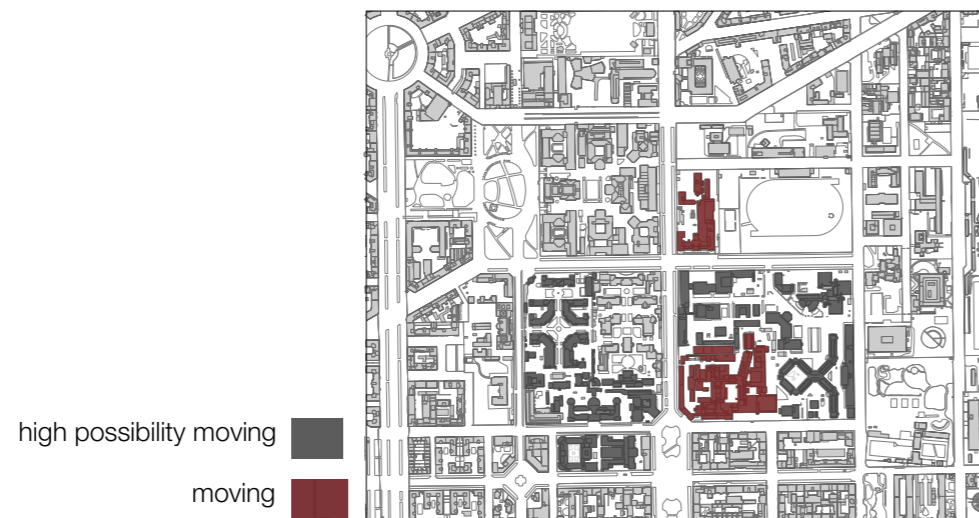
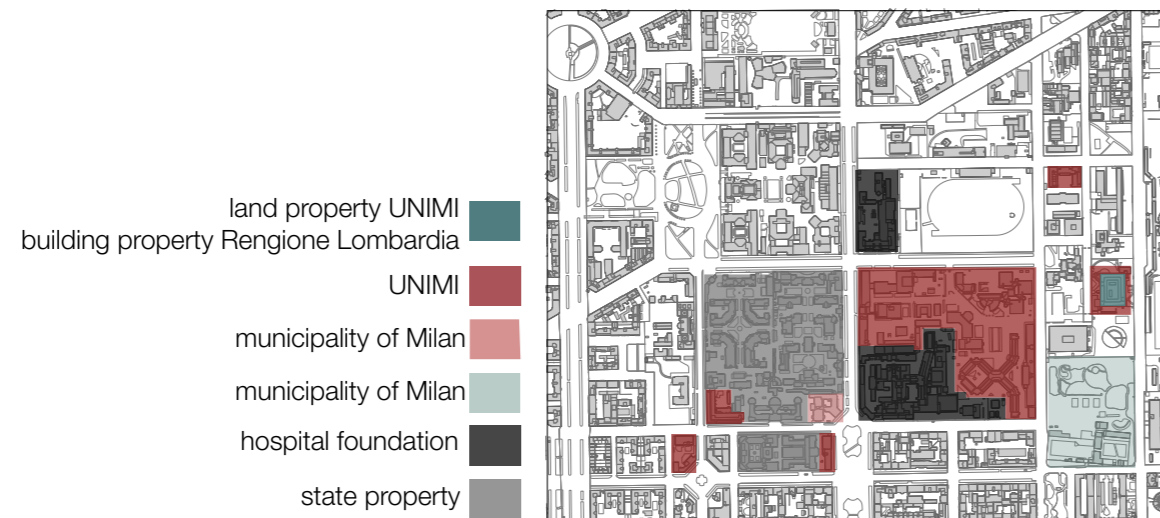
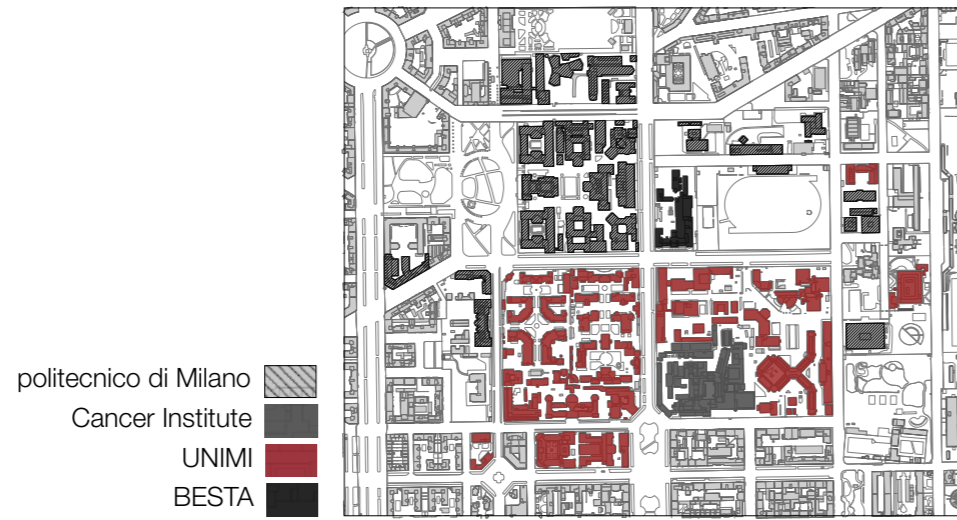
Facoltà di Architettura  
1933  
Giordano Fori, Gio Ponti, Piero Portaluppi

### 4. Typical facade texture in Citta Studi



The term clinker refers to a type of brick obtained from cooking, at very high temperatures, raw materials up to incipient vitrification. This treatment, which gives the surfaces a shiny appearance, makes the material particularly resistant

5. Further treatment



The reflection on the hypothesis of the possible use by the University of the areas that would have become available at the end of the 2015 universal exhibition for the creation of a campus in which to place the educational and scientific activities of the scientific area Departments located in Città studi it began in February 2015. The first resolution of the Board of Directors is dated February 3, 2015 and gives the Rector Gianluca Vago the mandate to investigate the hypothesis of the university's involvement in the use of the Expo areas, orientation later confirmed, in November of the same year, by the Academic Senate. 26 July 2018 the Board of Directors expresses a favorable opinion for the construction of the Campus and is confirmed and the procedure for the preparation of the tender announcement is started on the later meeting.

The City of Health and Research (CdSR) is a strategic project of great importance in many respects: environmental recovery, redevelopment and enhancement of abandoned industrial areas (ex Falck di Sesto San Giovanni) according to the principle of "non-consumption of land" ; in a post-Expo, there are all prerequisites for creating synergies with the Human Technopole project. The innovative design idea (which bears the signature of the architect Renzo Piano) abandons the traditional architectural typology of the monobloc hospital, for a structure with more human dimensions (articulated structure of only three floors, no more than 18 meters high), inserted in an environmental context with a prevalence of green areas.



# Reality: Investigation and analysis

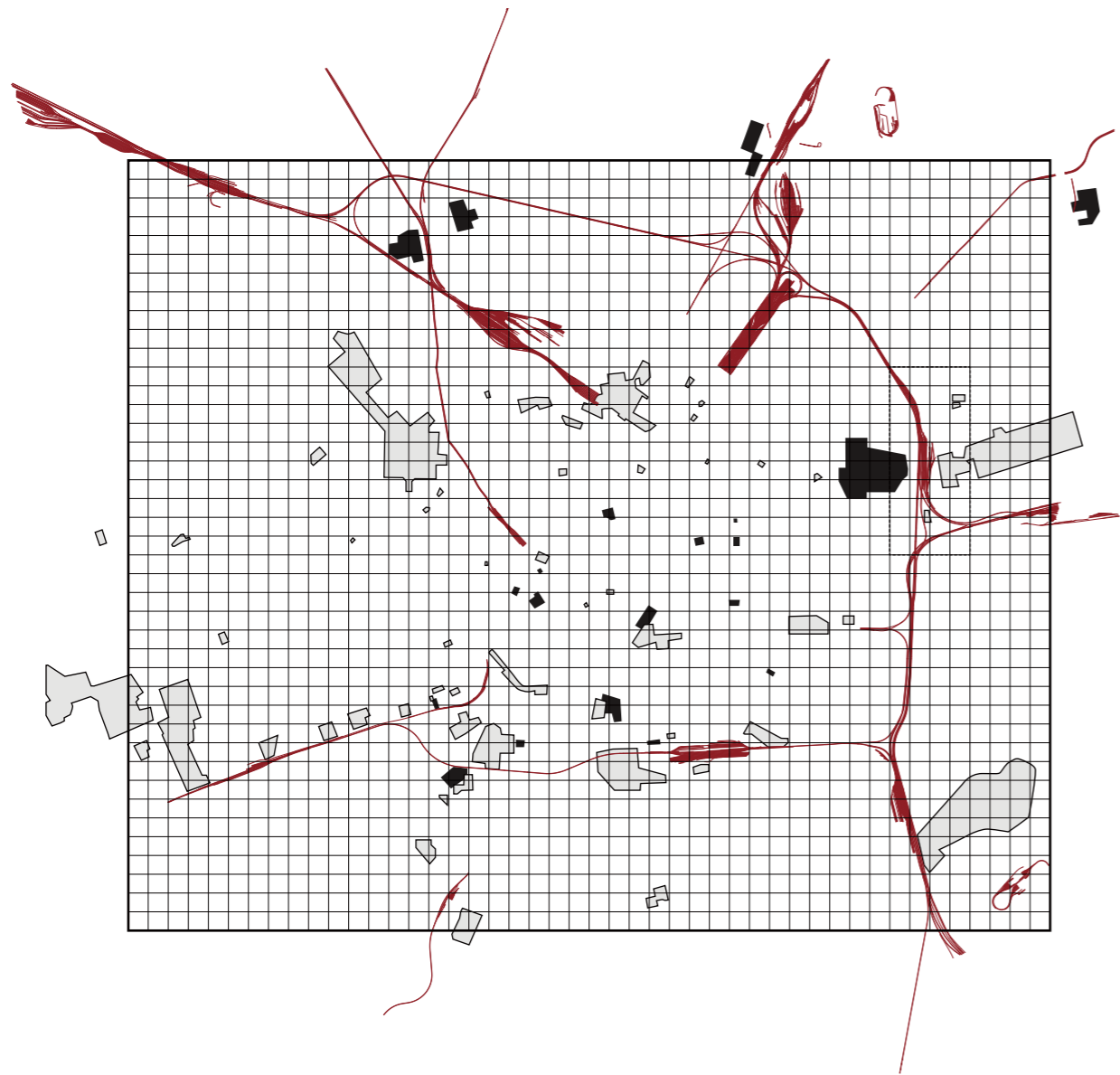
## 1. Comparing Milanese campuses with a city expansion model



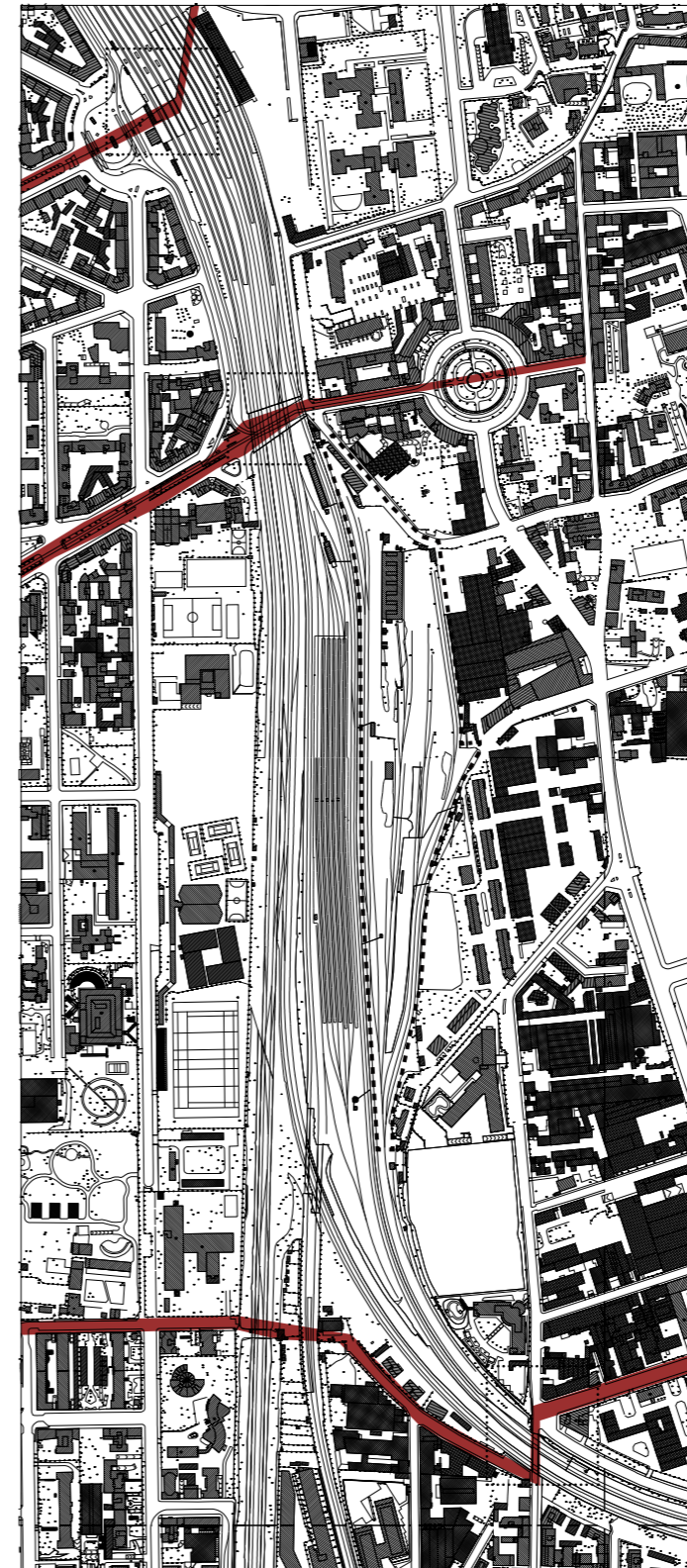
Interventions sites since late 20 century  
data available from:  
<http://www.ordinearchitetti.mi.it/en/mappe/mappaedifici>



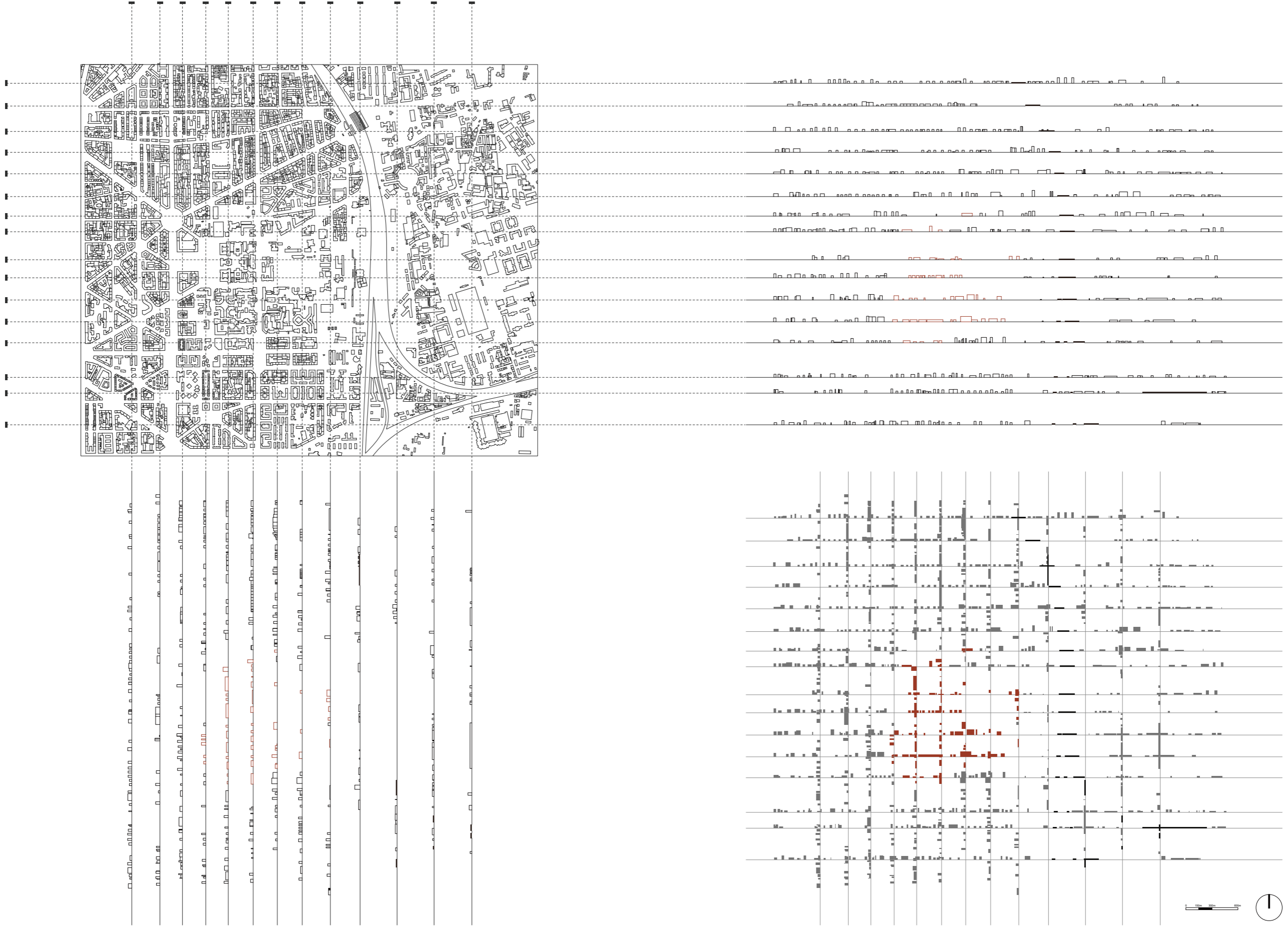
Interventions sites since late 20 century



Higher education campus, in a way, could be seen as the beginer of City's expansion. For example, the establishment of Citta Studi tends to generate and lead and neighborhood. When overlap the new interventions in Milan and Milanese university camps, it is clear that both of them depend on the transportation - railway. Railway plays an essential part in Milan's development and expansion. In Lambrate area, Citta Studi and new development project P.R.U. Rubattino tend to connect.



2. Integration between universities and neighbourhood

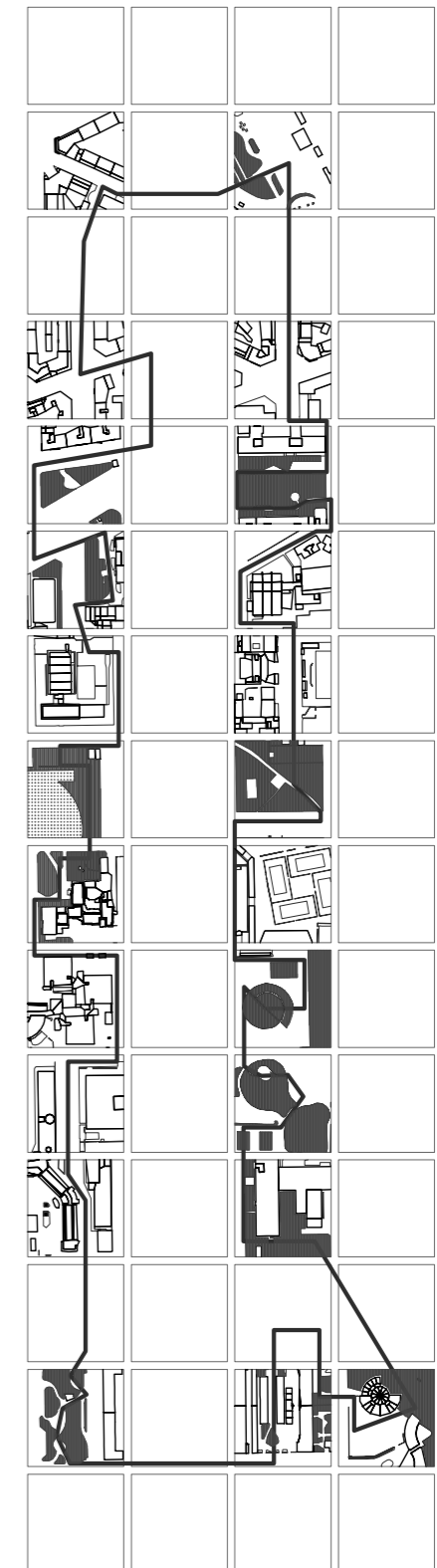
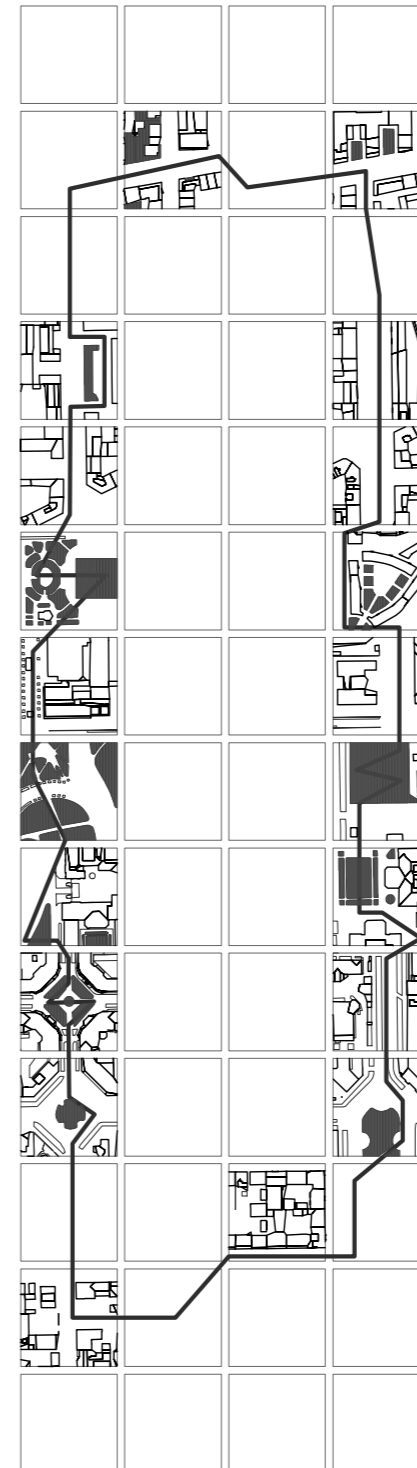


The university buildings in Milan range from a settlement model aimed at strengthening the symbolic value of education, in a prestigious location in the historic centre, to an opposite willing to realise a complete separate neighbourhood, able to reproduce the complexity of the city. Nevertheless, this tension has never led to the building of a real university campus, at least according to the Anglo-Saxon model, which includes a complex of large dimensions, outside the urban boundary and fully provided with open-air spaces and sports facilities. On the contrary, a system characterised by university buildings integrated with the urban fabric prevailed. Consequently, the buildings have become an active part of the city life, but Universities have been suffering from a chronic lack of spaces and facilities.

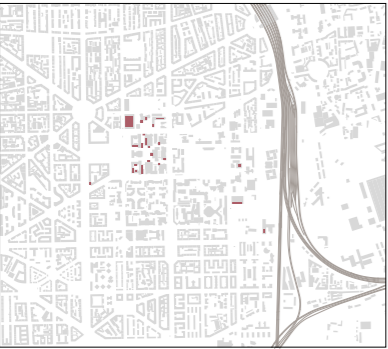
In this scenario, the case of Città Studi is a meaningful one, as it was designed following to a decision made in the first ten years of the twentieth century, with the purpose to concentrate the university departments in a farmland area, entirely outside the city.

However, in 1912, the new Master Plan – known as the Pavia-Masera Plan, after the names of its authors - is released. It proposes again an expansion layout, characterised by concentric rings as in the previous Master Plan by Beruto (1889), only disproportionately bigger. The new Master Plan actually gives some advices on the block design, but it does not provide any guideline about the compatible functions, leaving to the free enterprise –and to the speculative real estate investing- the burden of building the city. The new university sites are so included in the expansion layout of the Pavia-Masera plan, only designing some blocks of exceptional size. Residential buildings are built all around the university departments, filling all the available spaces, following the roads alignments: the process, once all the spaces are occupied, prevents the expansion of the universities.

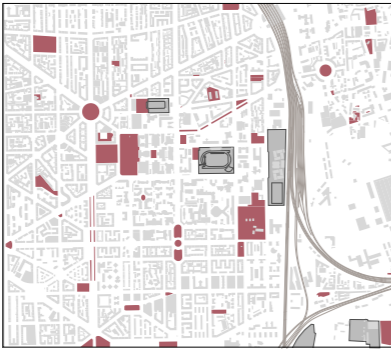
Although the planning and layout brought some issues, such as the lack of space and educational facility, the tightly integration with city life and neighbourhood precisely created an interesting interaction here, providing possibility of space since different groups of people (students, residents, officers, etc.) would share the space every day.



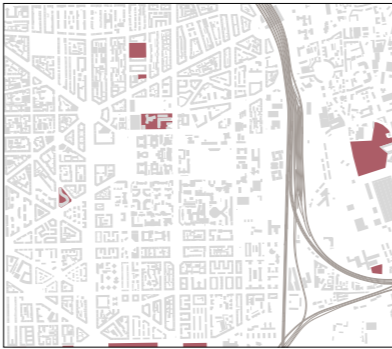
3. Issues of void



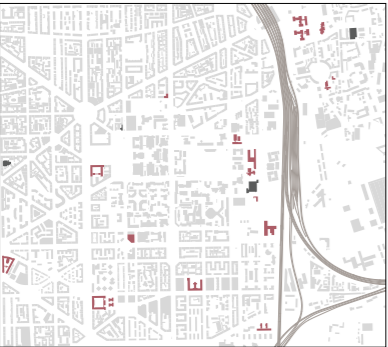
where polimi students study



open/public soaces



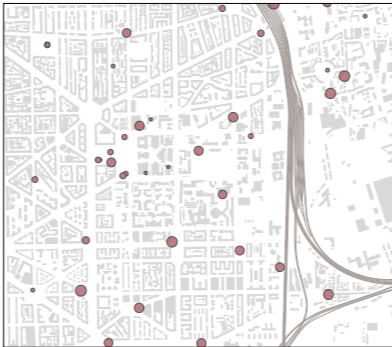
areas under construction



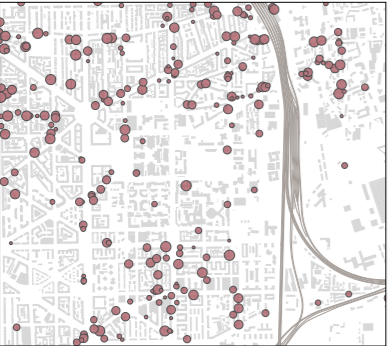
cultural infastructure (dark) and schools (red)



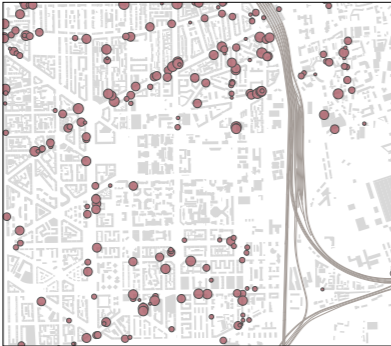
land use: worship (red) and industry (dash lines)



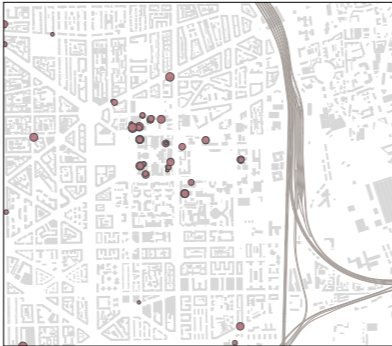
facility: drinking water



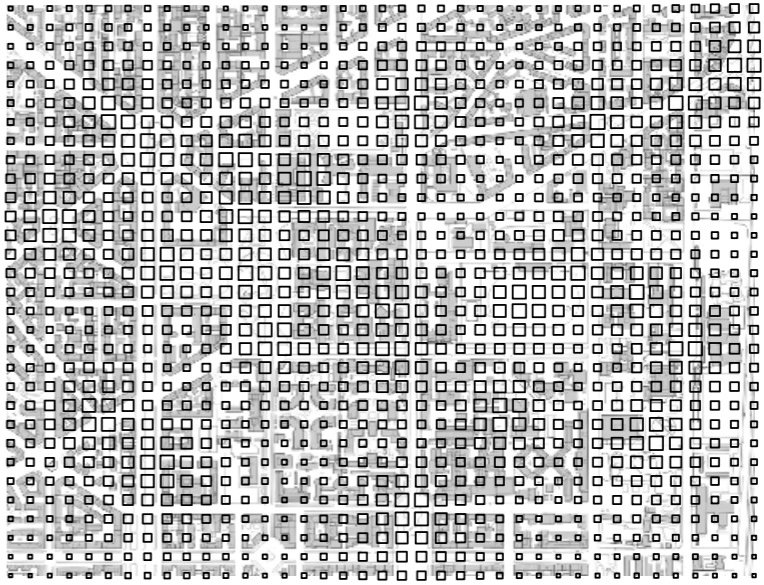
facility: restaurant &bar



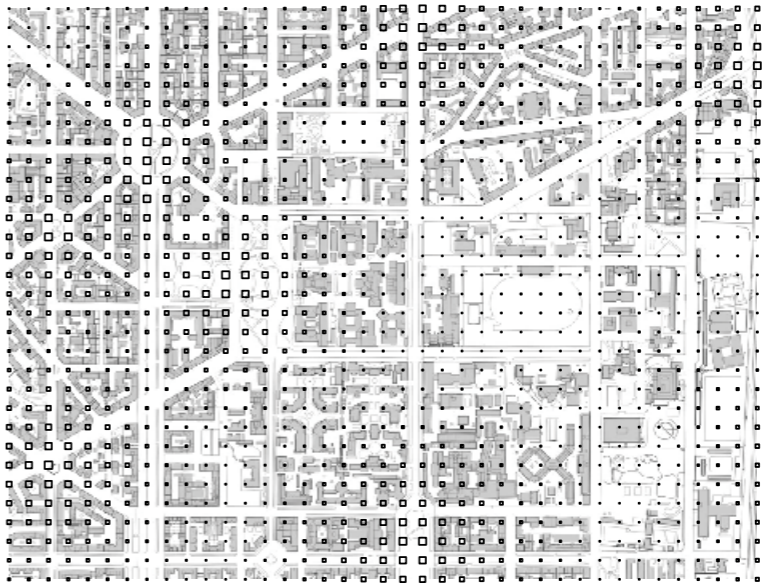
facility: retail &shop



facility: vending machine

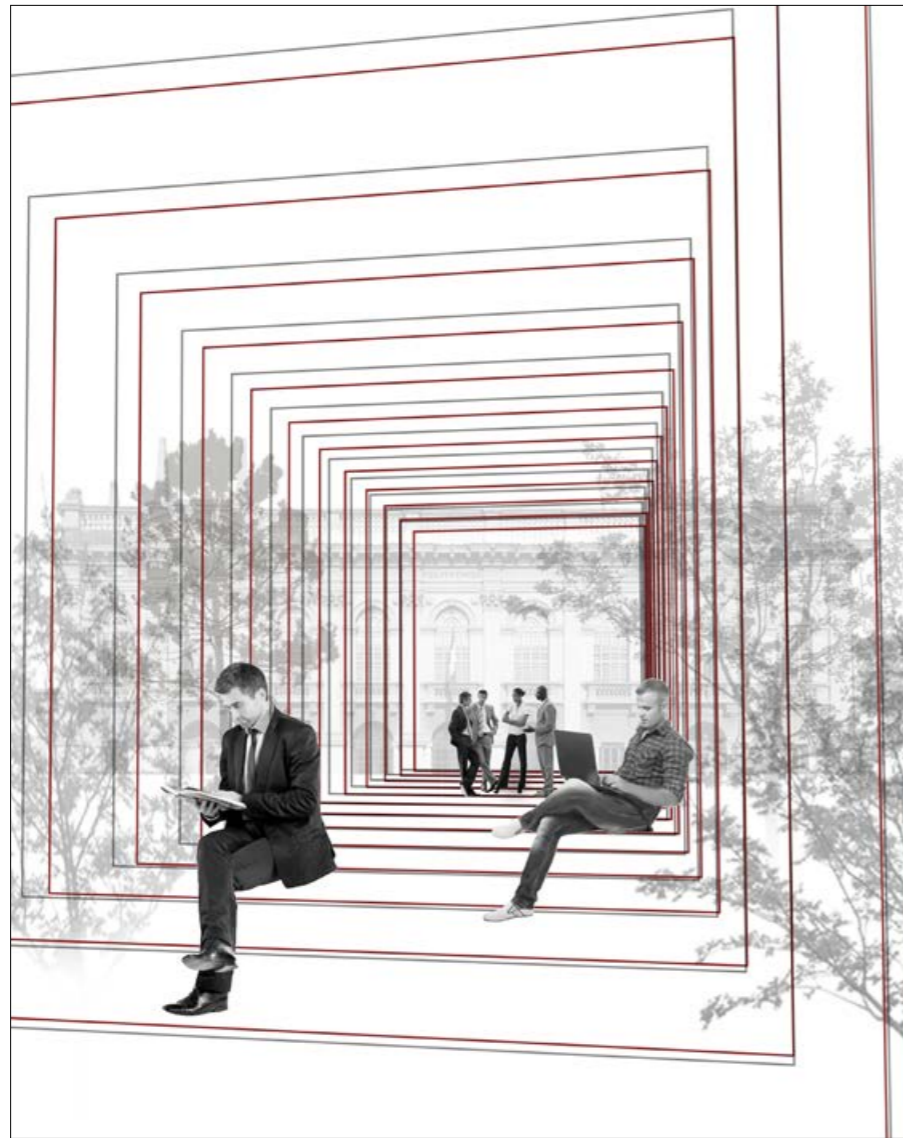


simulated crowd density during day time



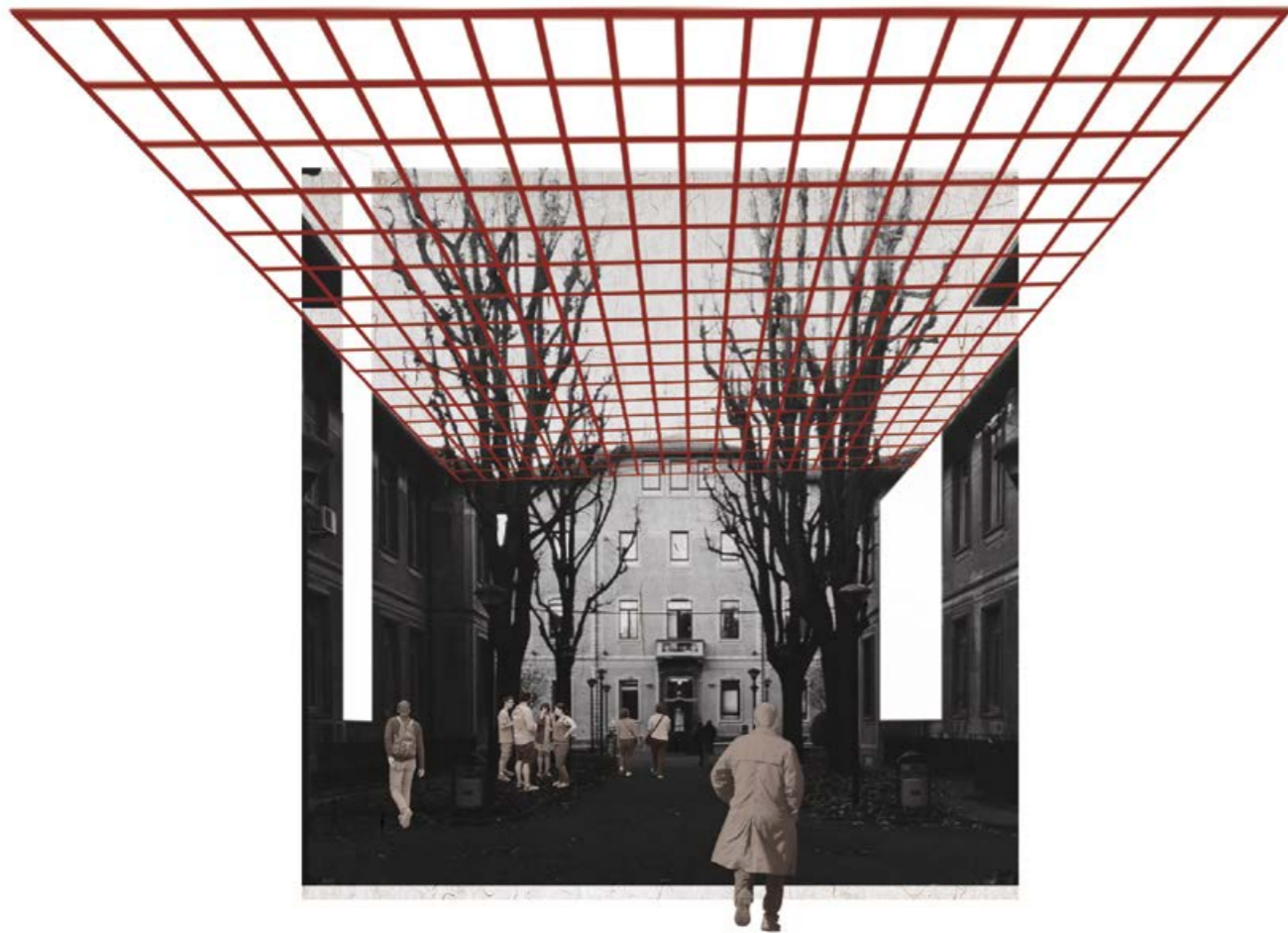
simulated crowd density during evening/ night

## Concept: A dynamic intervention



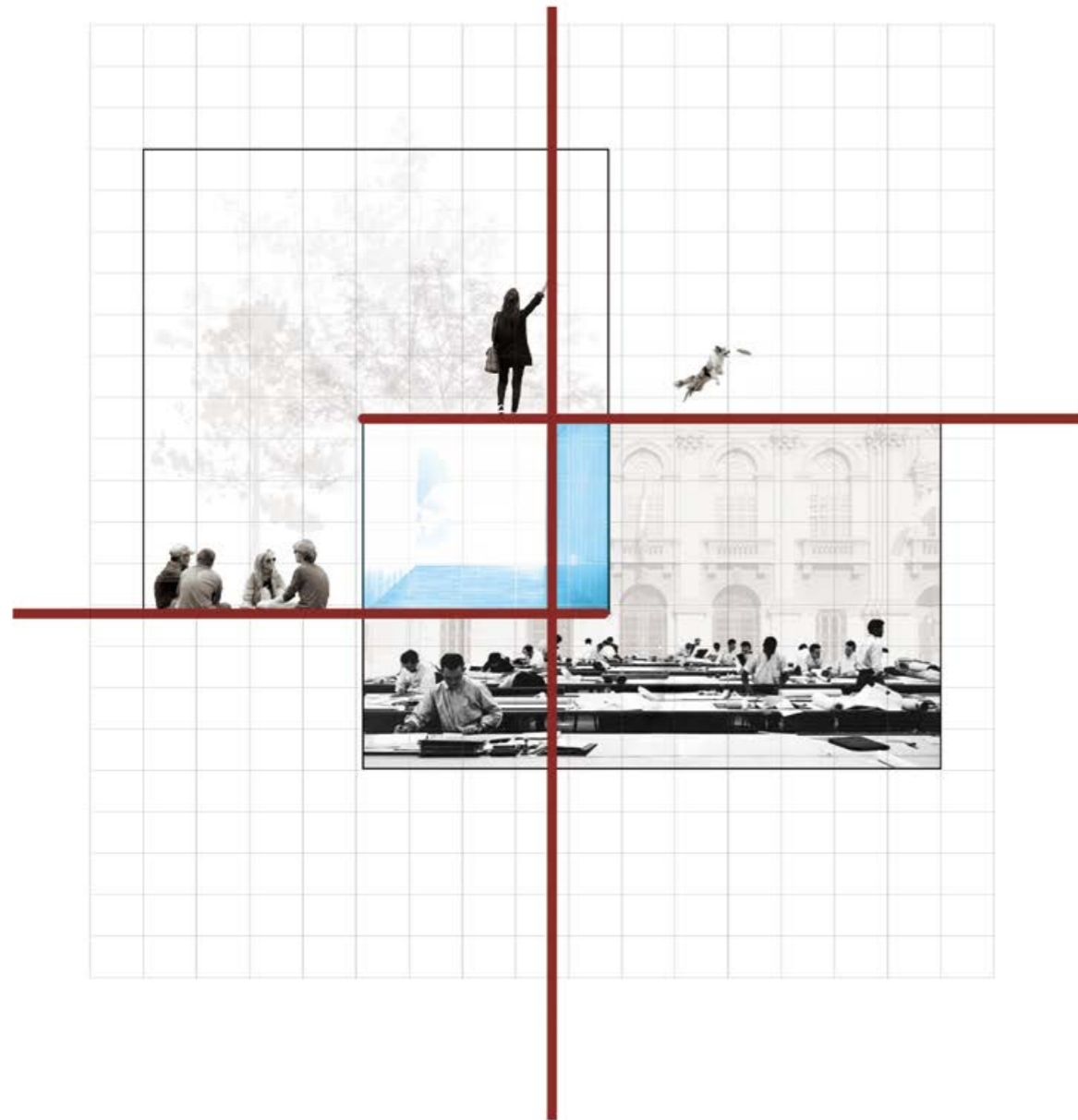
Due to the lack of space for construction and the rising students number recently, and according to the previous research, we can drawing a conclusion that study area for students has always been a problem.

Idea is to provide a serie of installations in Citta Studi, which is cheaper and easy- constructed. Instead of new constructions, these structures could be pre-fabricated and installed in-site. It can solve the recent problem, proveding flexible study area for students. In the future, if needed, these structure could be easily demolished, collected and re-used.

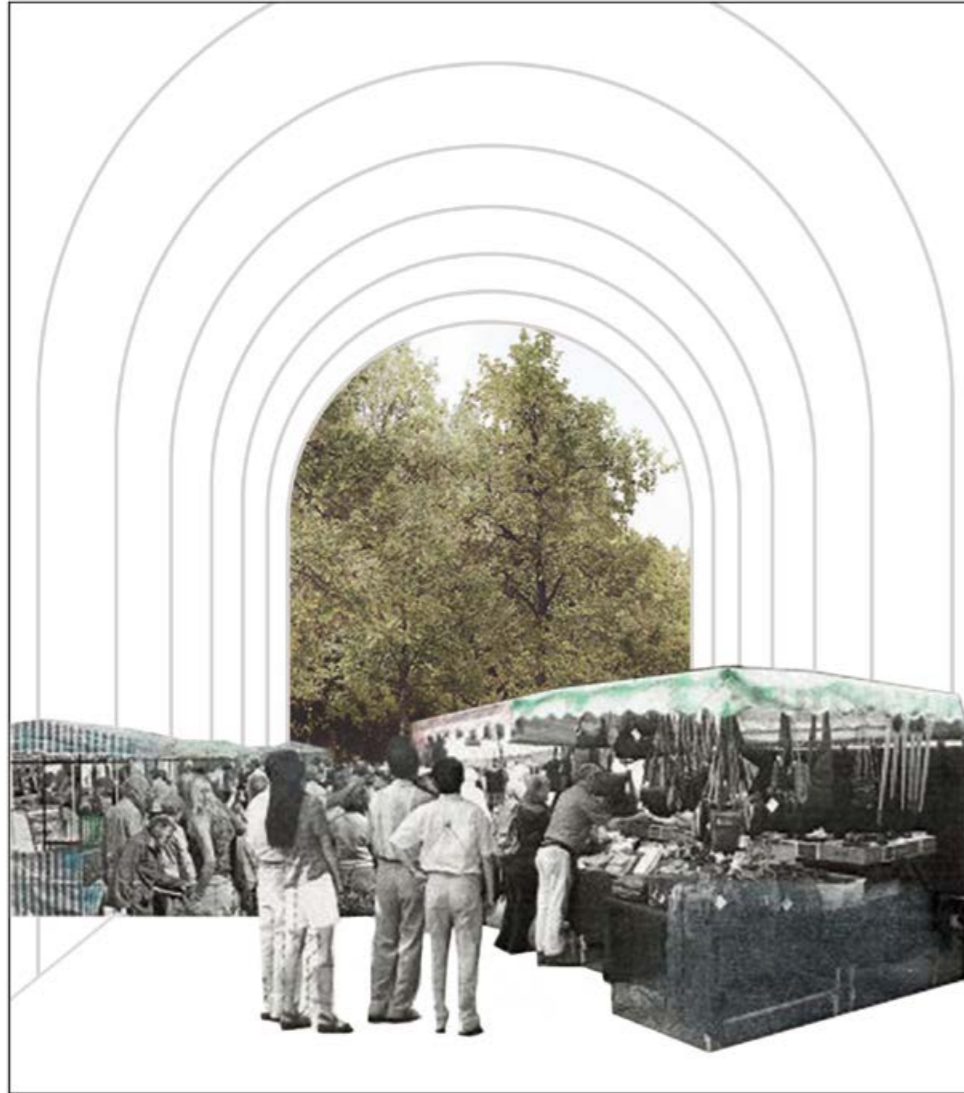


In next stage when existing institutes move out of Citta Studi, there would be a must-consider question. How can we fill the gap on their former sites?  
Idea is to add some new structures to the old ones, integrating old and new spaces, to satisfy new functions and in this way re-use the old buildings.





Citta Studi, as a district led by universities, has been facing a problem that the connection between students and neighborhood is not tight, As the former research shows, during daytime, Citta Studi is crowded and when class ends and students go back, Citta Studi tends to become empty during evening and night. Idea here is to improve the integration between neighborhood and students, by providing mix-used facilities that they can share the space and activities. In addition, attraction of Citta Studi could benefit as well.



Railway improves Milan's expansion and development. However, in this case, railway blocks Citta Studi and reLombro new development district. And area along the railway is now wasted. Idea is to break the physical boundary and at the same time provide commercial and public functions, which is needed in Citta Studi. The districts on the two sides could benefit from each other.

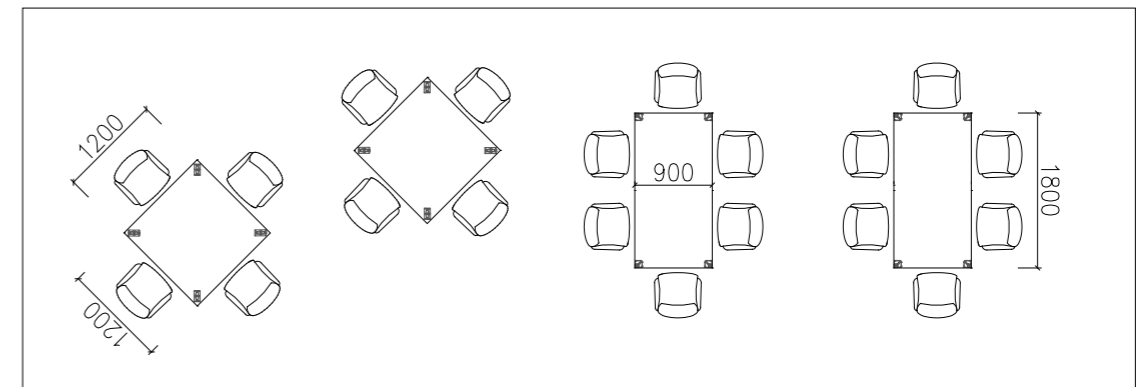
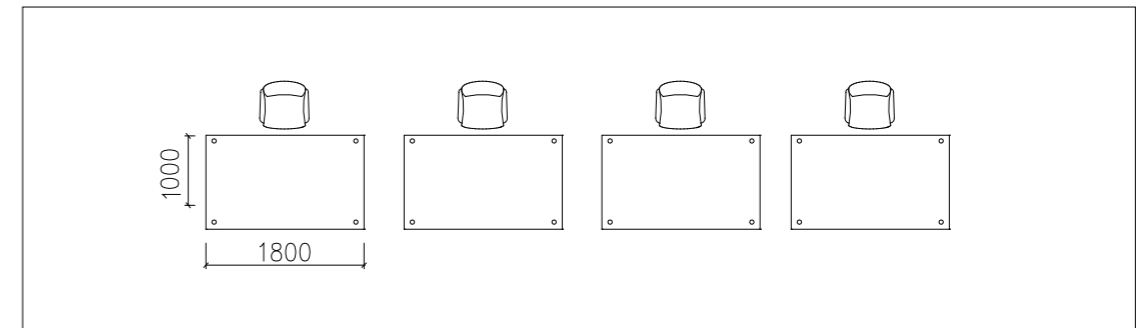
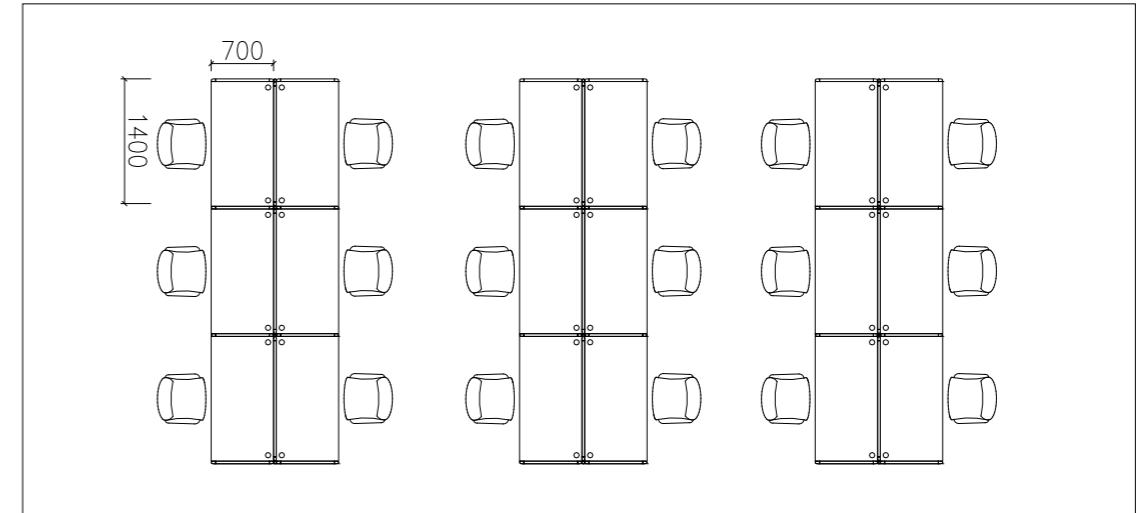
# Design development

2020:  
additional study area

Other students

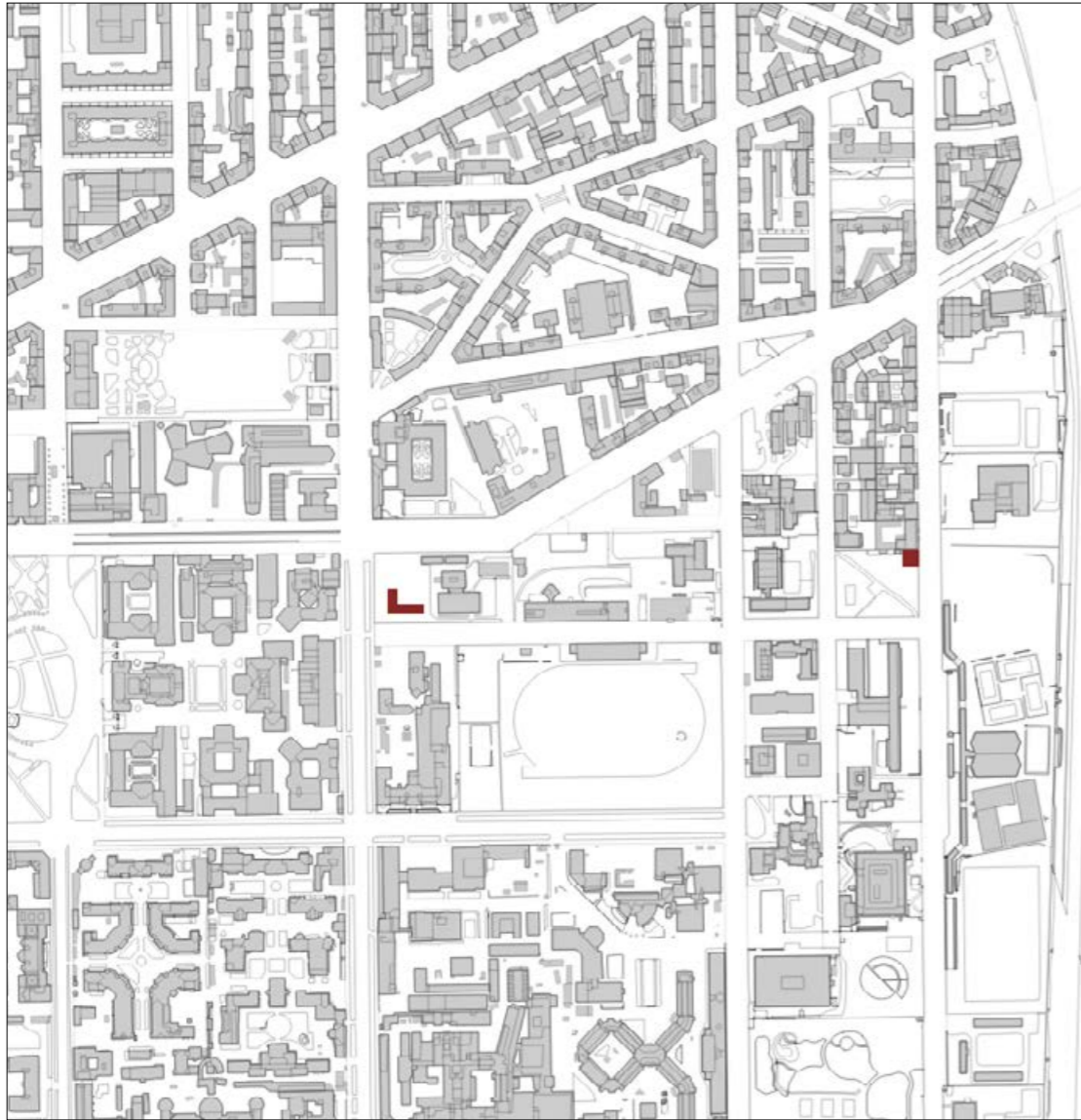


Architecture students



Space required by students

relevant furnitures and sizes



location of intervention

frosted glass



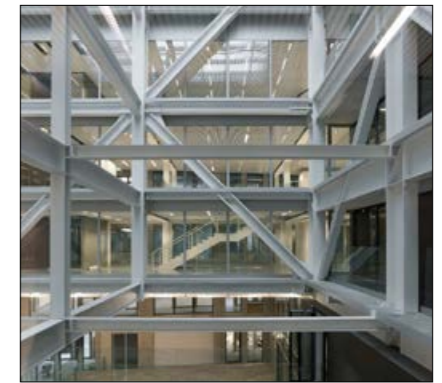
curtain wall



perforated steel plate

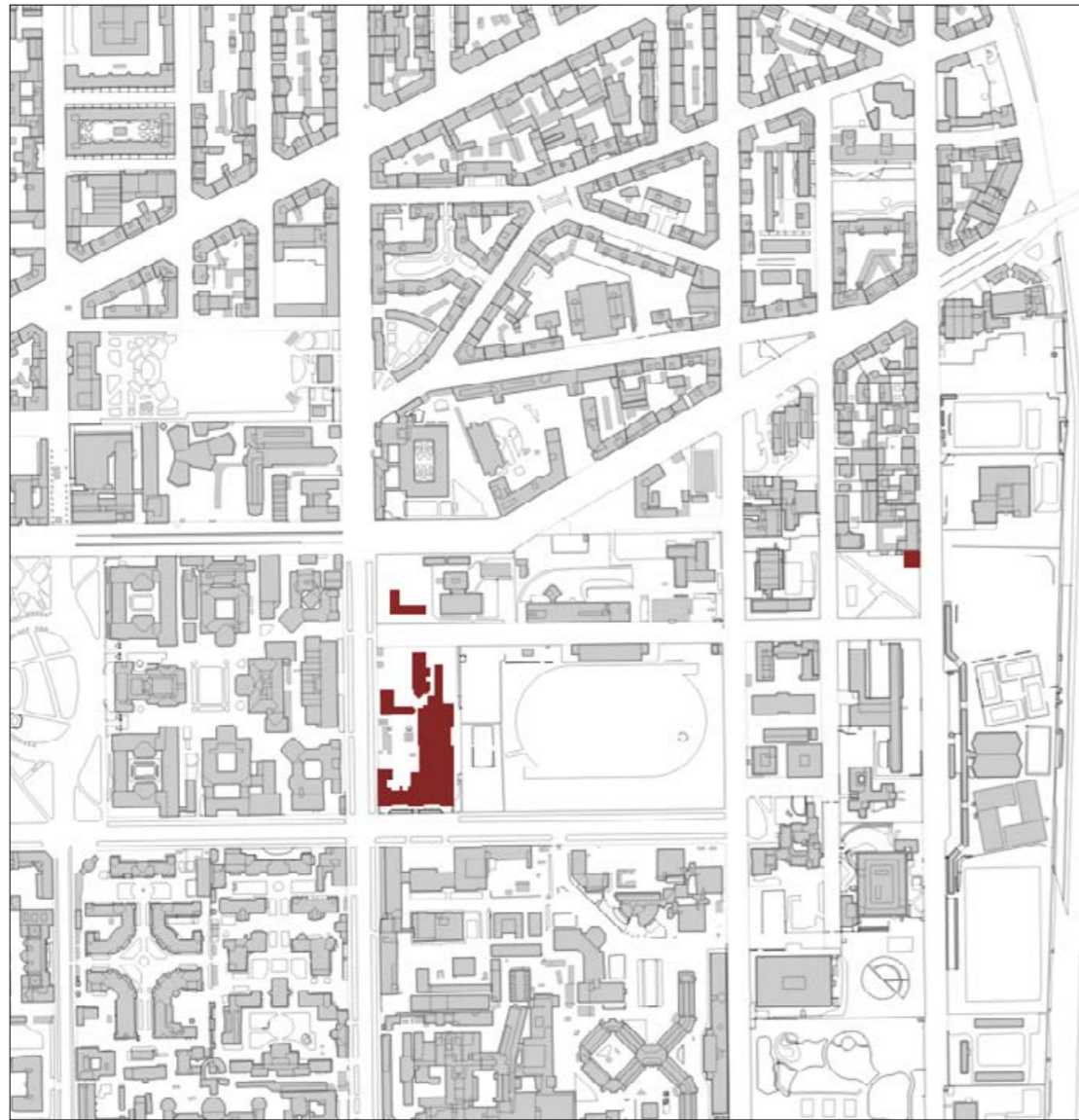


I beam structure

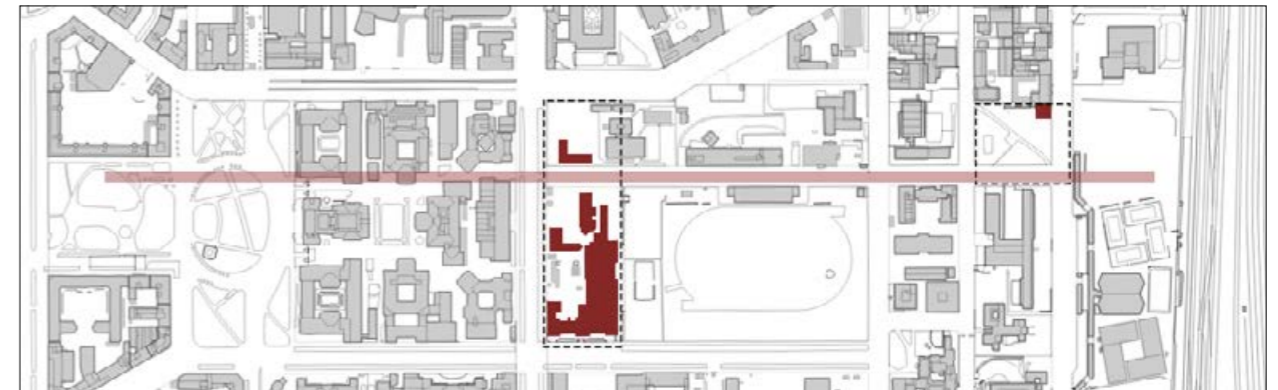


main material use

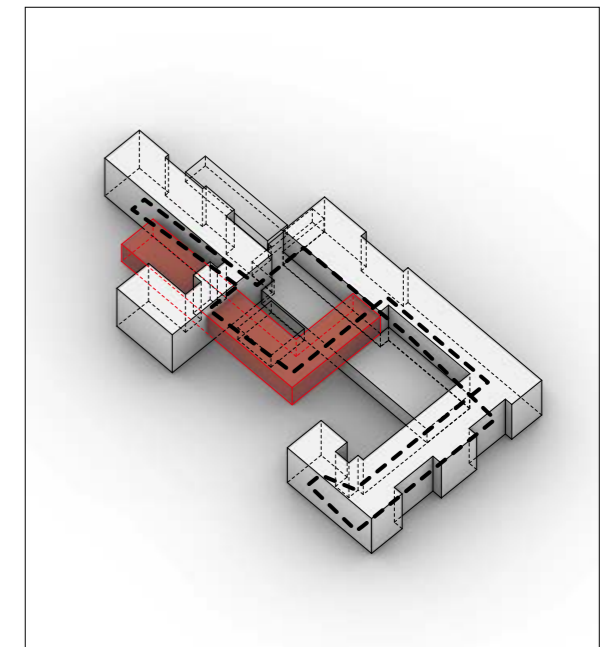
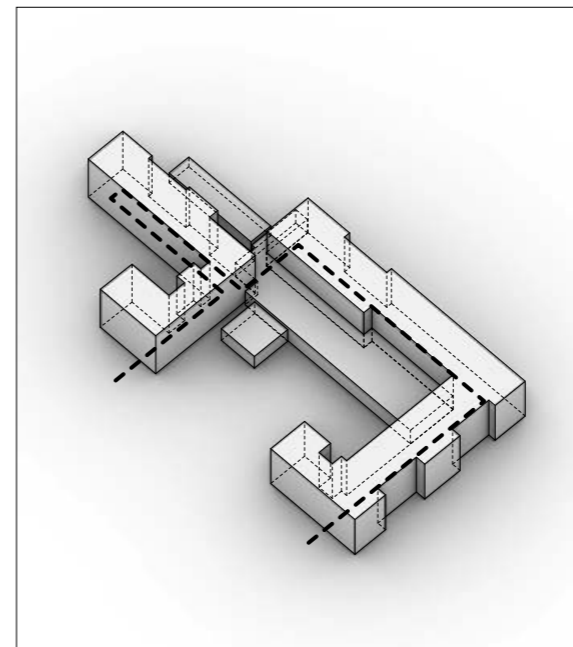
2030:  
Renovated community center



location of intervention



Interventions tend to create an axis which starts from piazza Leonardo Da Vinci and along which new facilities provide a new spatial and functional experience.



By adding new volume, building get a better circulation, which has a better performance for public use.



Work  
Neuroscience center at  
the Besta hospital (MI)

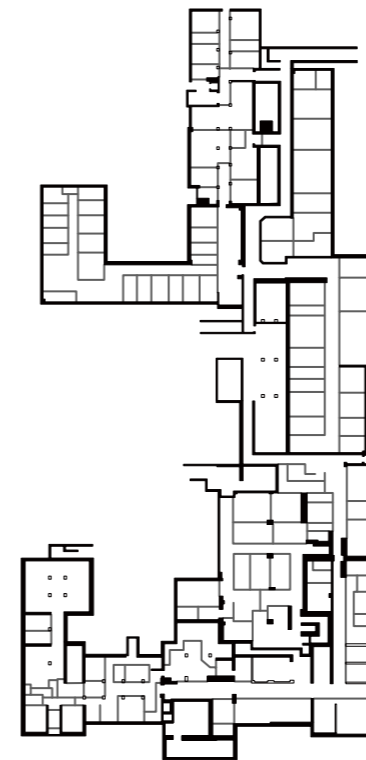
Client  
Istituto Nazionale  
Neurologico Carlo Besta  
di Milano

Period  
1989-1997

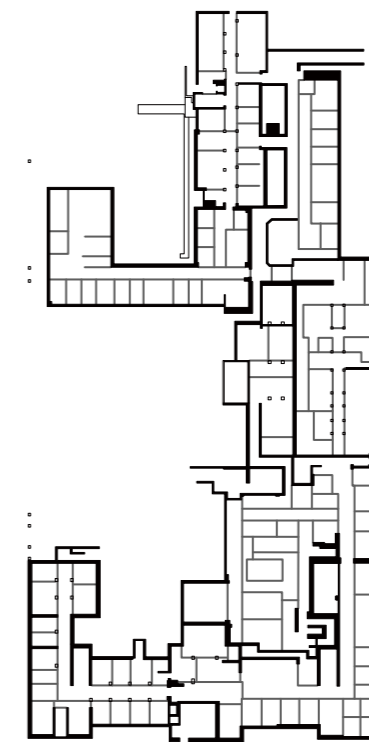
Amount of construction  
€ 60.497.761,16

Carlo Besta Neurological Institute, founded in 1918 and classified since 1981 as a Scientific Research and Treatment Institute (IRCCS), was transformed into the IRCCS Foundation with legal status under public law, pursuant to legislative decree n. 288 of 2003. The activity of the Foundation is governed by the Statute approved by Decree of the Ministry of Health on April 28, 2006. In June 2009 an agreement was signed that establishes the entry of the Mariani Foundation into the "Carlo Besta" Foundation as the first participant private alongside the public founders (Ministry of Health, Lombardy Region and Municipality of Milan).

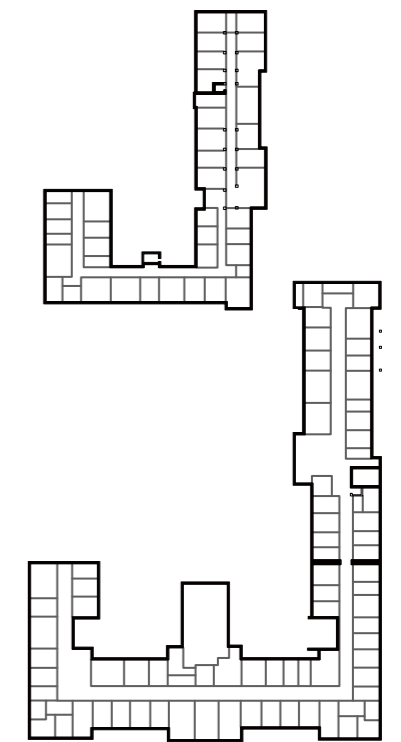
In the regional and national health framework, the IRCCS Carlo Besta Foundation stands as a center of excellence for the research and treatment of the most significant neurological diseases. The Besta combines in a synergistic way the activities of scientific research, diagnosis and treatment - which give rise to a continuous improvement of therapeutic efficacy - in the field of clinical and basic neurology and deals with the neurological disorders of adults and children, of neurosurgical and oncological pathologies, of chronic and rare diseases.



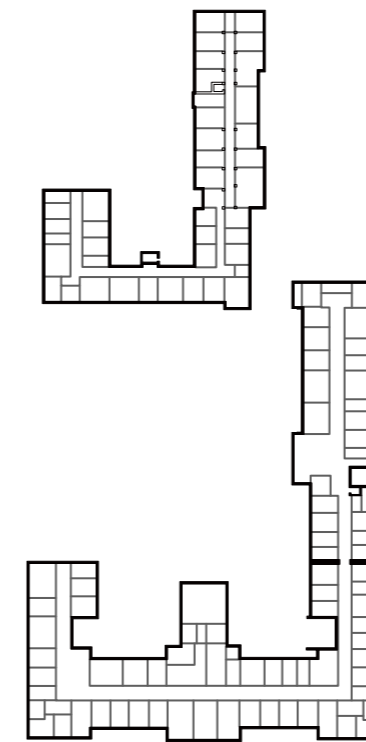
basement



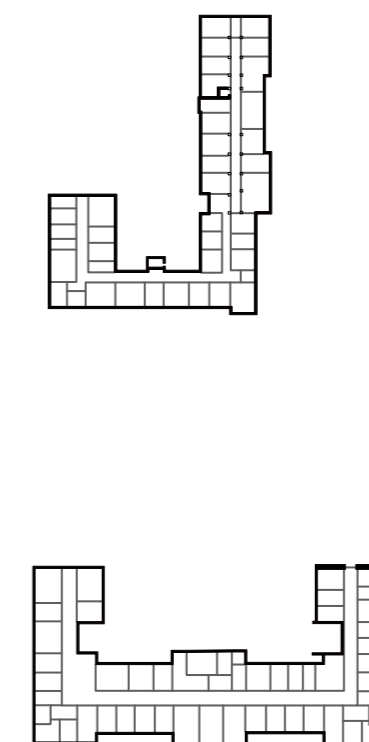
ground floor



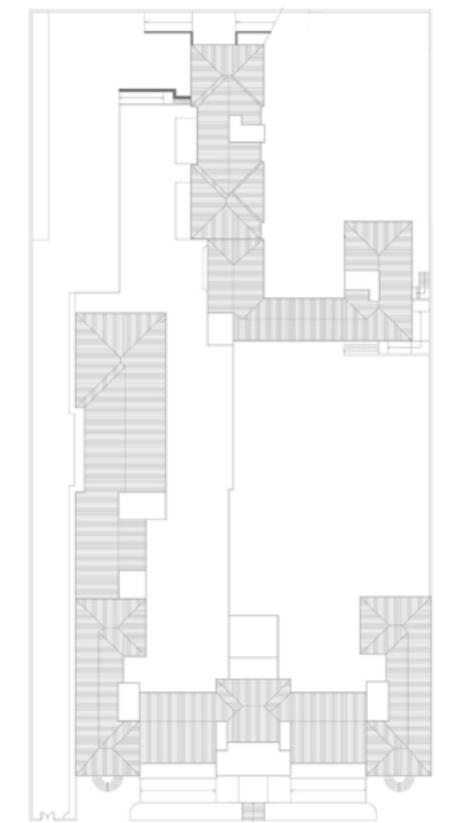
first floor



second floor

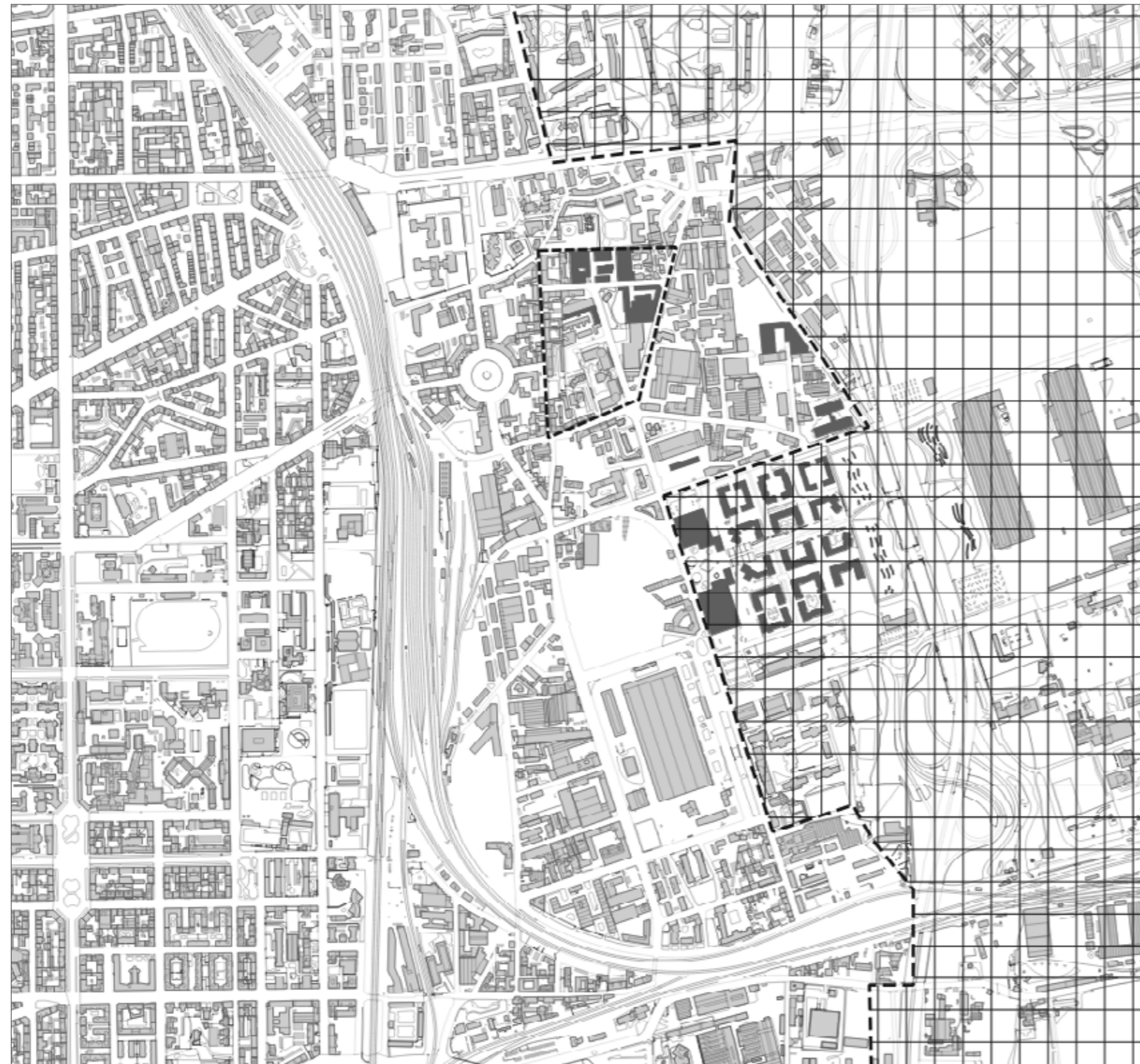


third floor



roof top

2031:  
dialog between two districts



- new development area
- reLombro area
- recent redevelopment or construction



WORK  
Lambrate Gardens

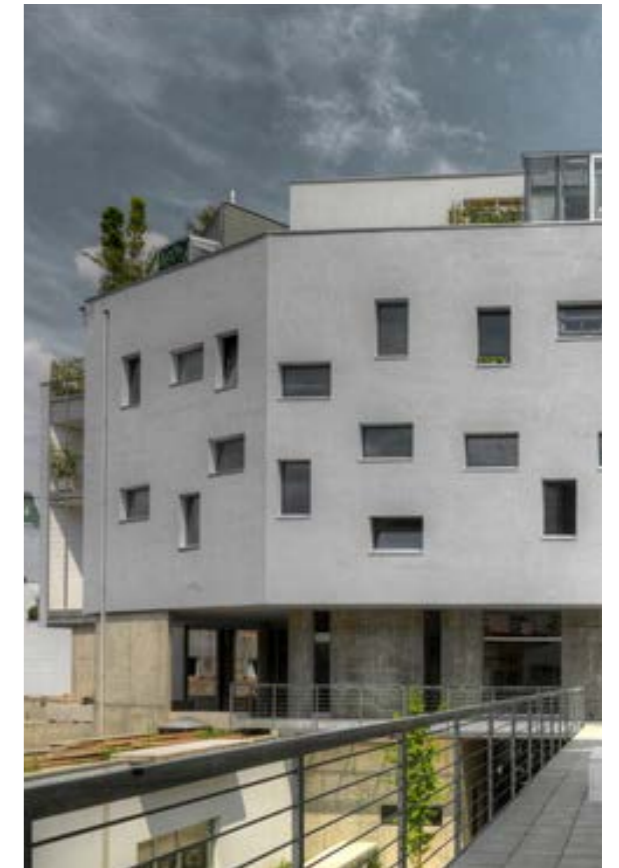
PLACE  
Milan, Lambrate

INTENDED LAND USE  
Multifunction

DESIGNERS  
5 + 1AA Alfonso Femia  
Gianluca Peluffo

DEVELOPER  
Gardens of Lambrate  
spa, Pitteri 89 srl, Galotti  
Agency

Maserati, Innocenti, INNSE: the redesign of this piece of city, affected by the Urban Redevelopment Program, attempts - without success, for various reasons - a redesign in which the presence of the productive fabric (both abandoned and in operation) is an organic element to the transformation which, as in the other PRUs, includes residences, tertiary, large-scale distribution and a large park.



WORK  
Massimiano 25,27 -  
cultural and artistic  
center in Lambrate

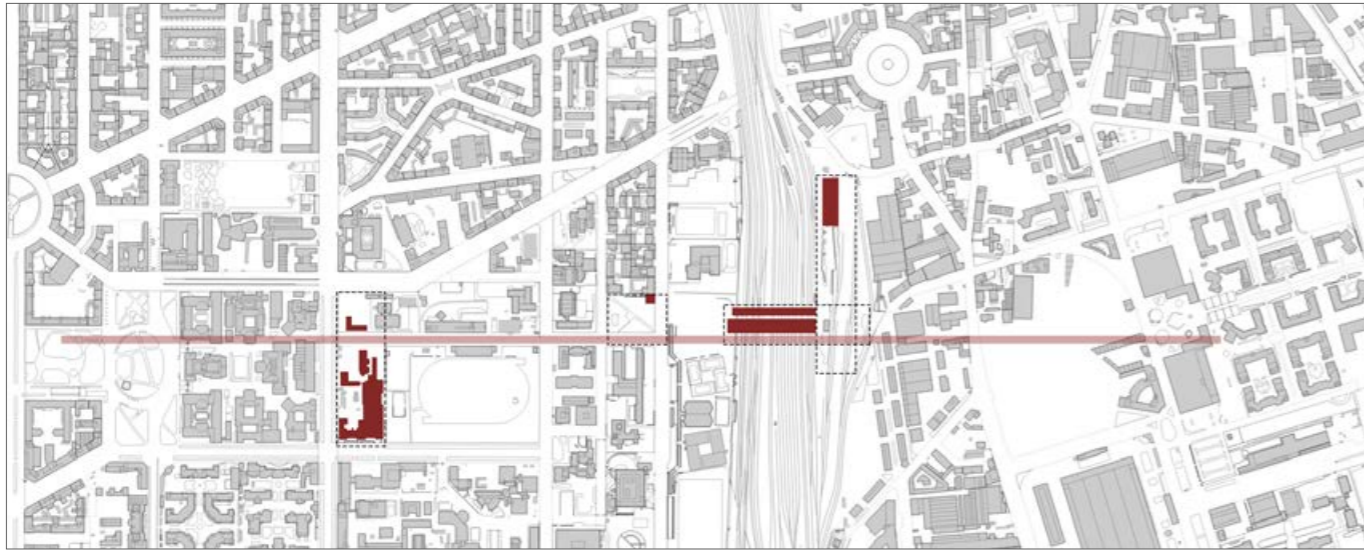
PLACE  
Milan, Lambrate

DEVELOPER  
Imperatore srl

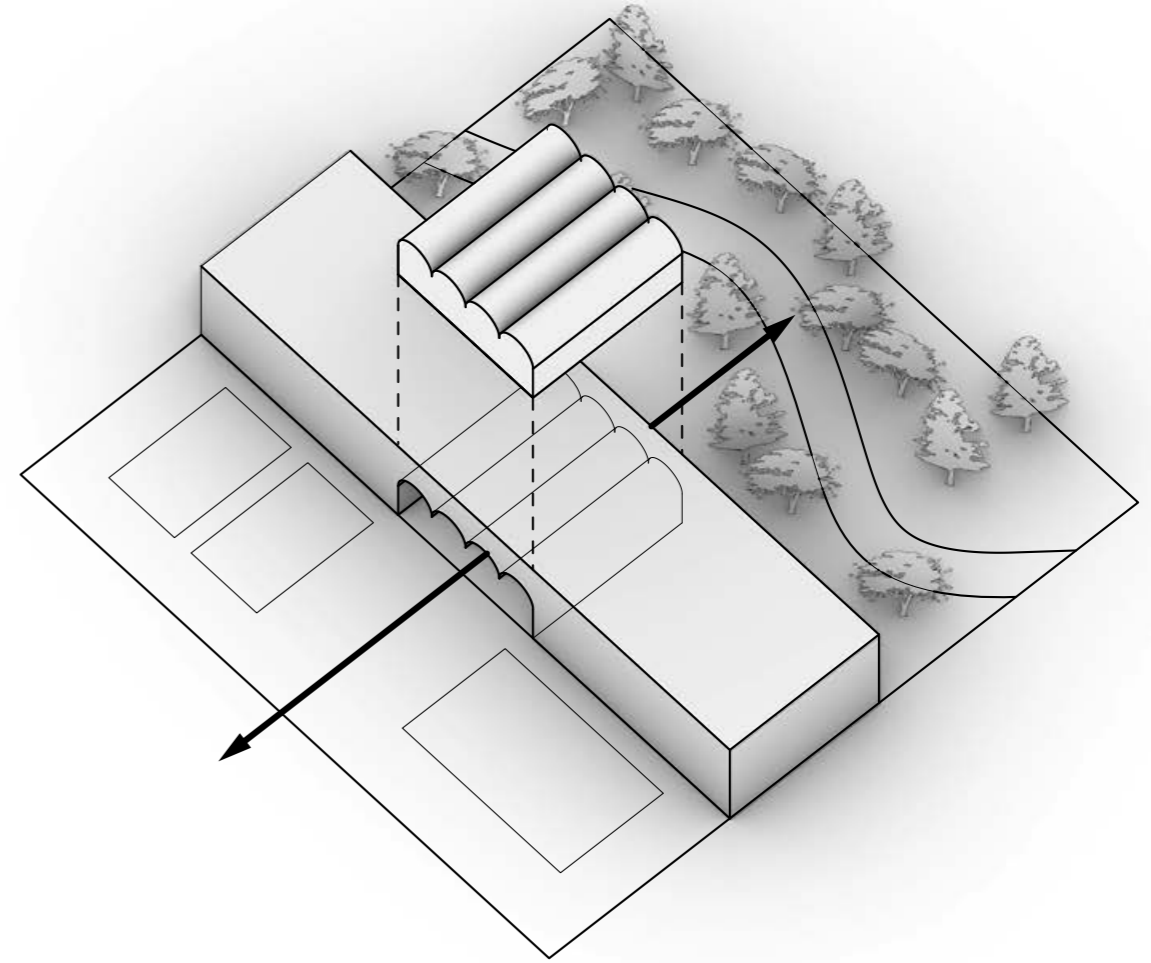
MASTERPLAN  
RuattiStudio  
Architetti srl

PROCEDURE  
Dia

The Lambrate District, in the Northeast area of Milan, is an historical industrial part of the country; among the most important reality, a special mention goes to Innocenti that in the second half of the previous century, here produced thousands of iconic Lambretta and Mini. From 2000, the district has been the subject of an upgrading, which is still going on thanks to its constant evolution.

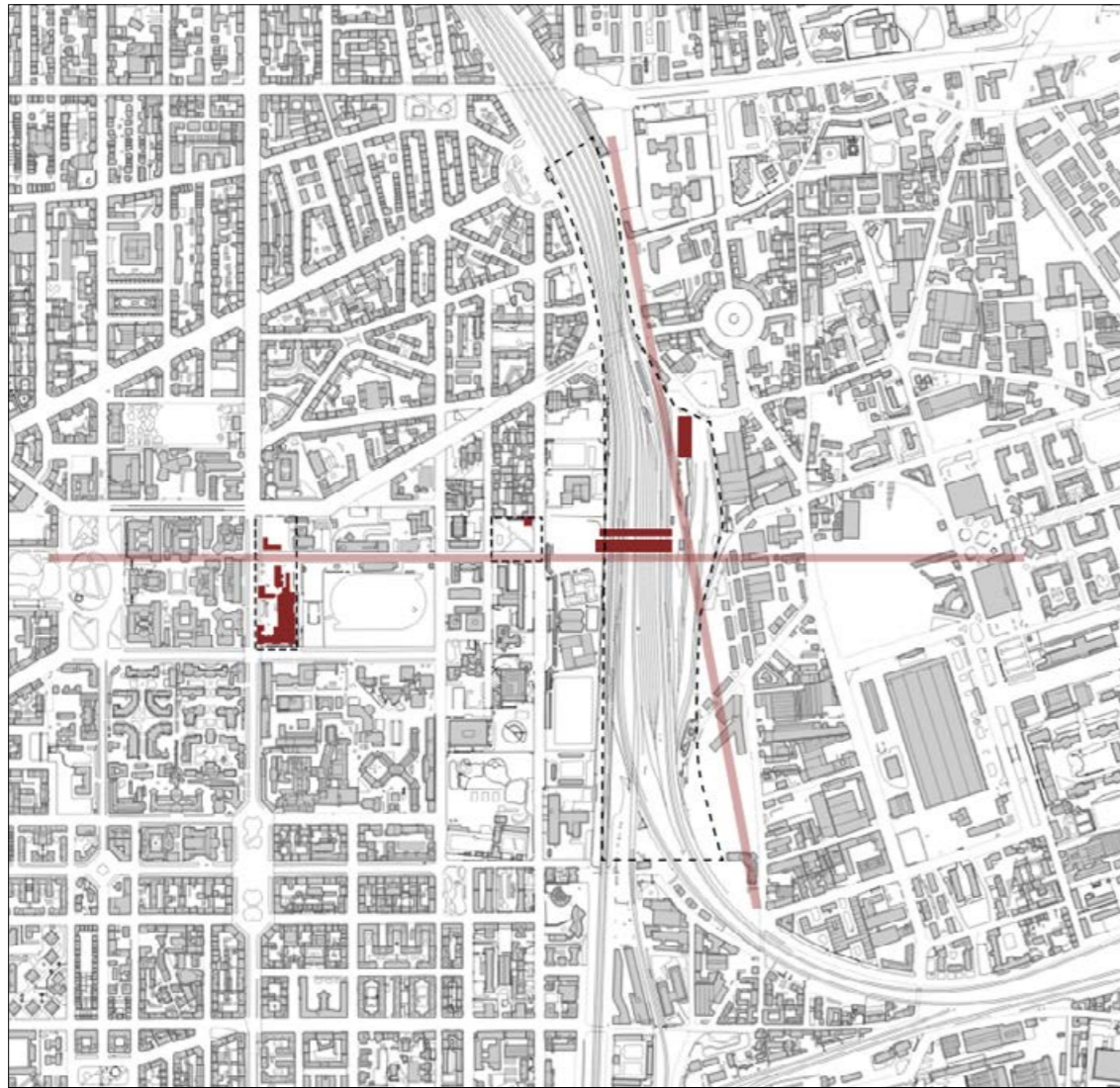


A physical barrier blocks the continuity of the axis. On the other hand, the railway takes much space and the space under it is wasted. In this way, the wall would be dug and the space created could be public-use to improve the life quality of the whole area and provide a variety of function along this axis. In addition, the wasted land along the railway (claaed Scoula) will be redesigned and reused as a park, which serves both sides of the wall.

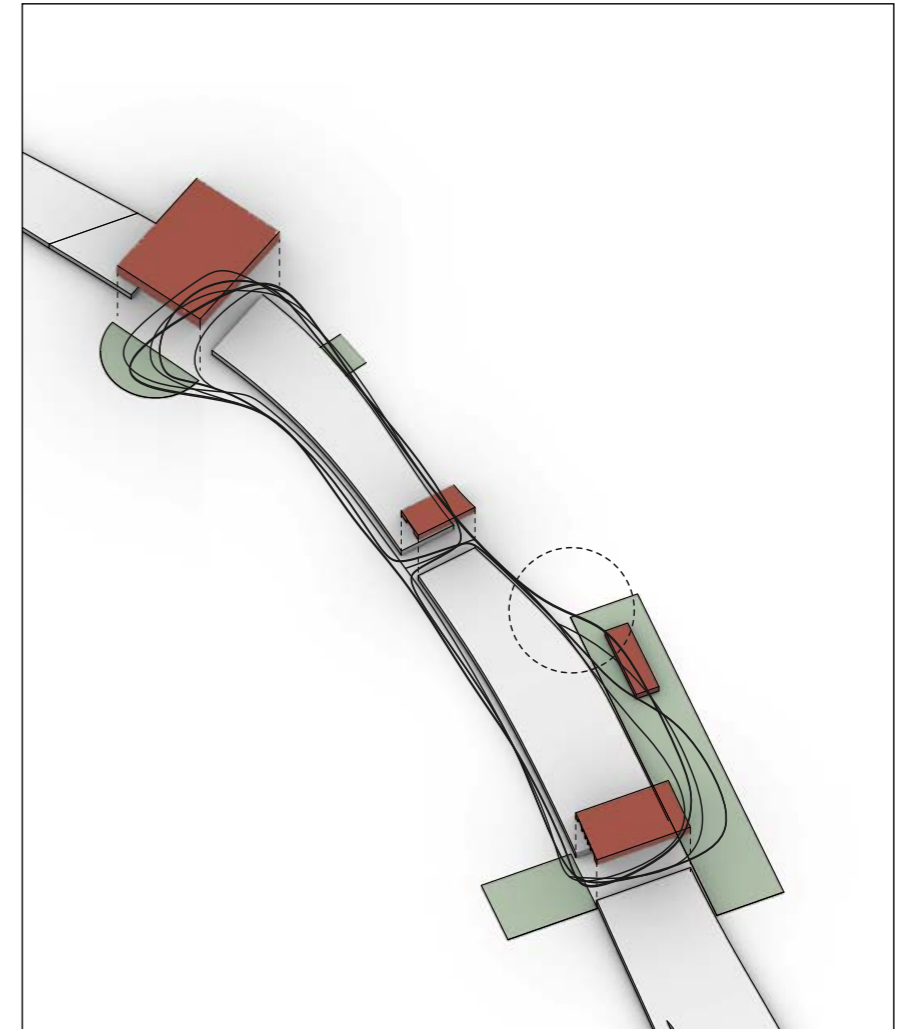




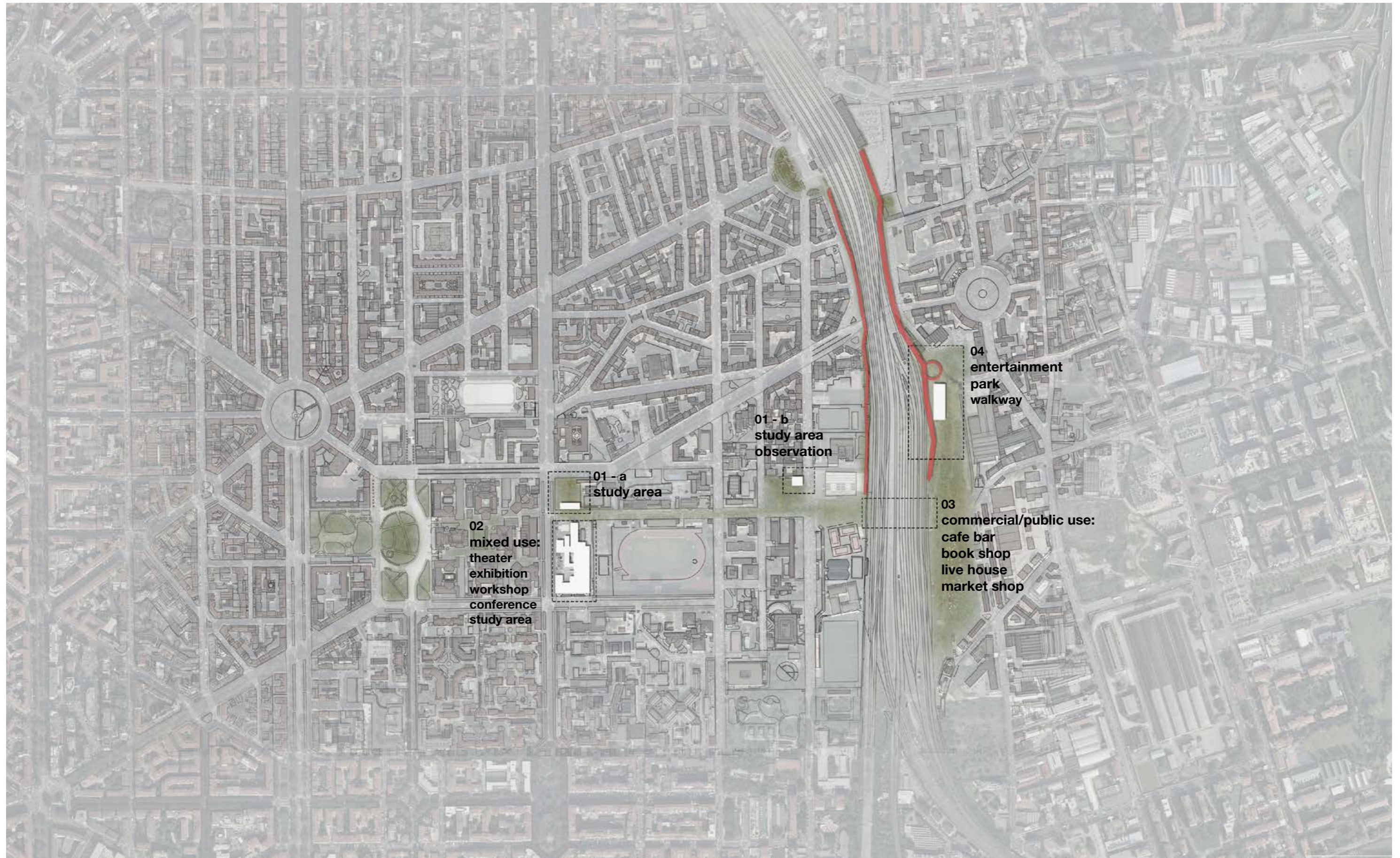
2037:  
railway edges pedestrian system



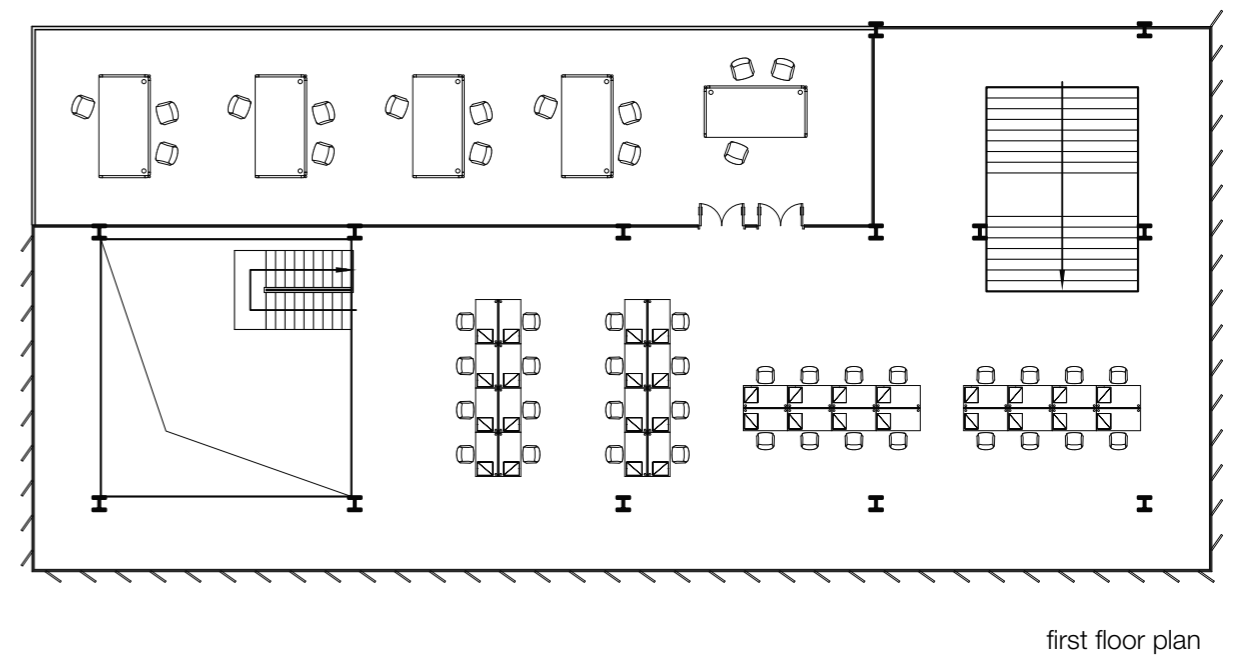
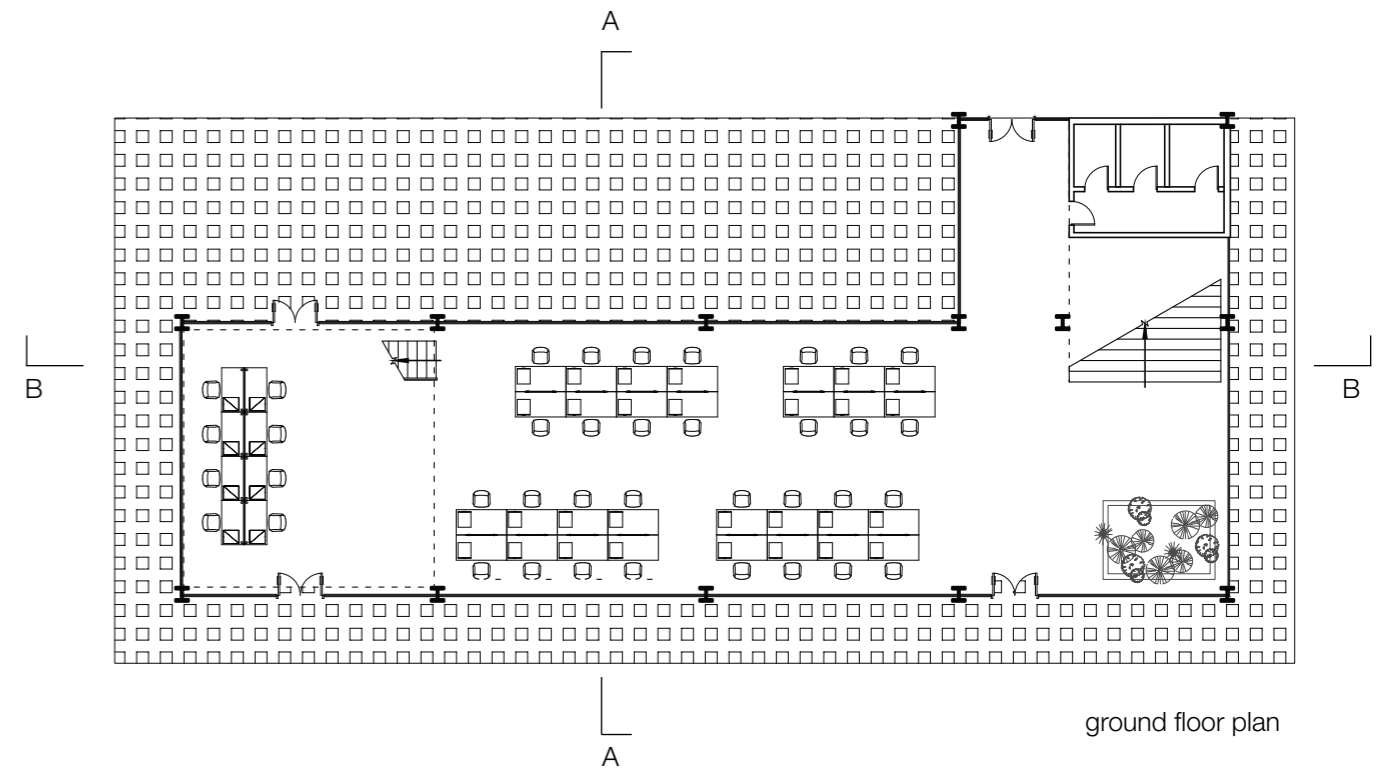
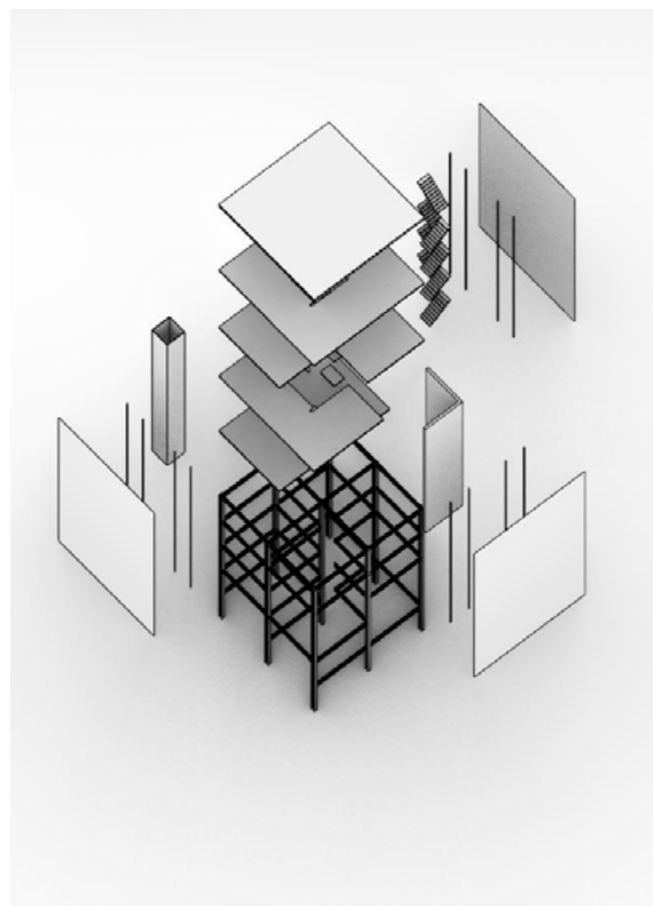
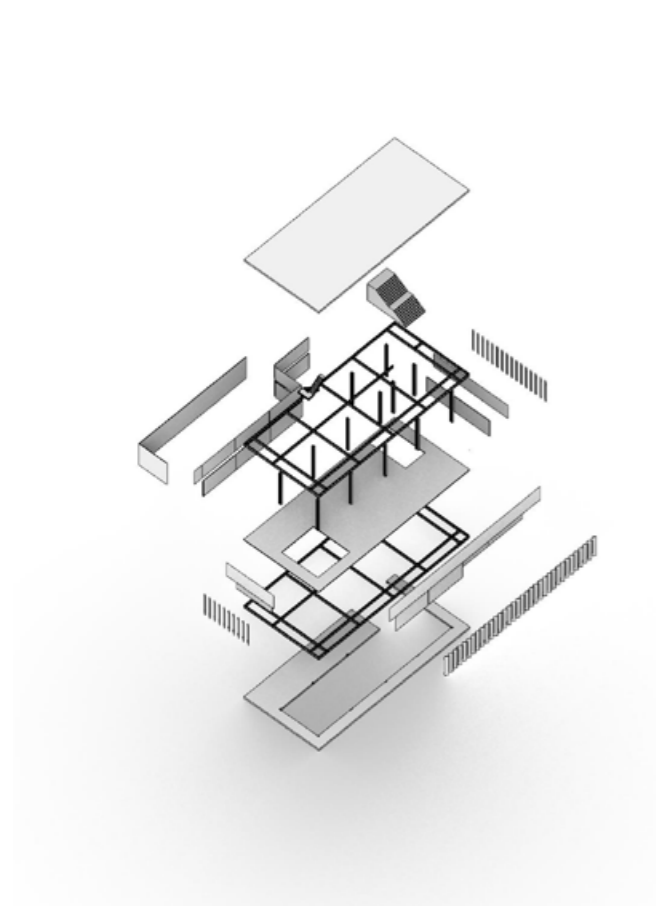
The space under railway, Scoula area, renovated warehouse and the space along railway would together contribute to a walkable pedestrian system, providing accessibility from Lambrate FS to site as a loop circulation. Walking experience and space quality could be improved.

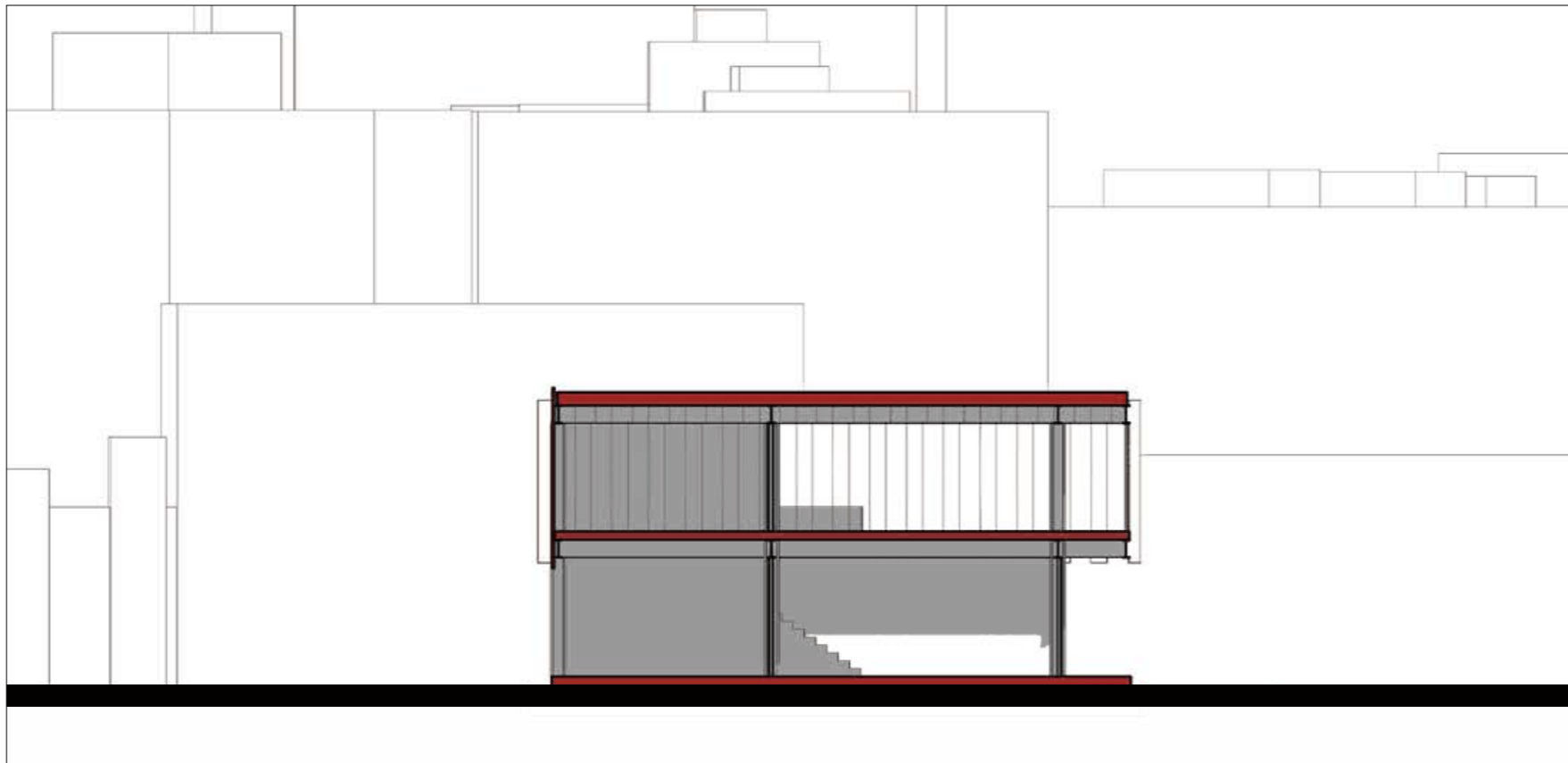


Presentation of project

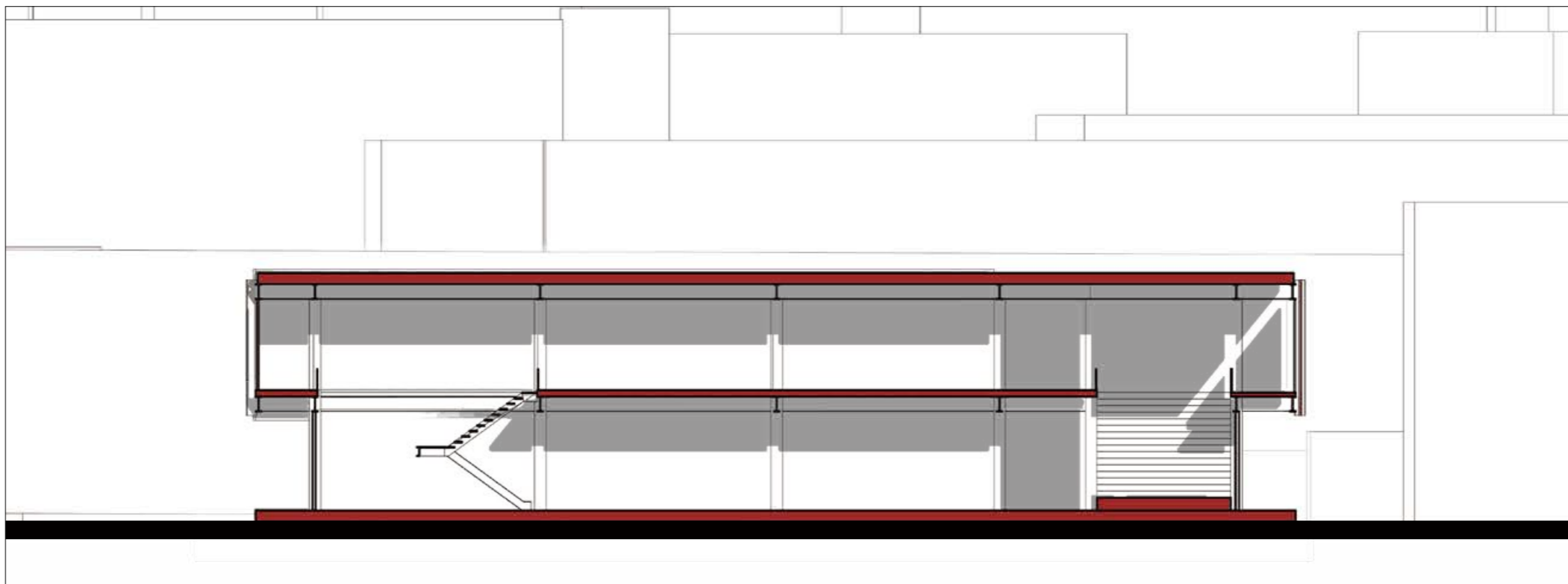


# 01 Study Area





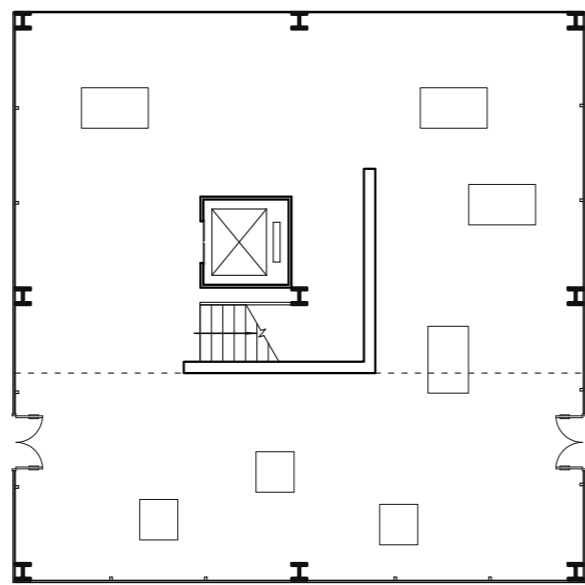
section AA



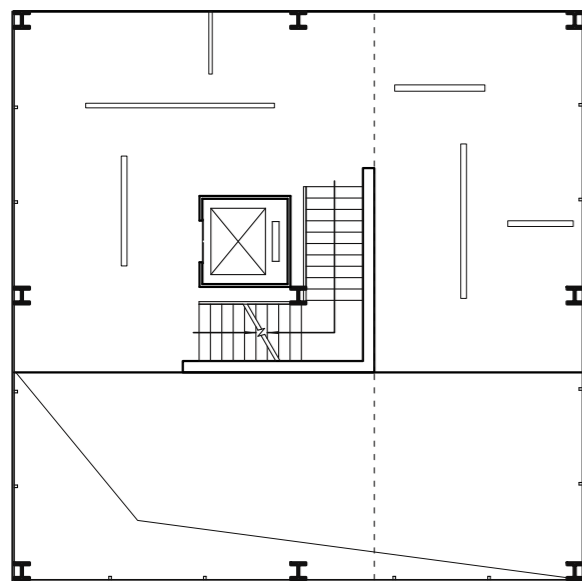
section BB

A

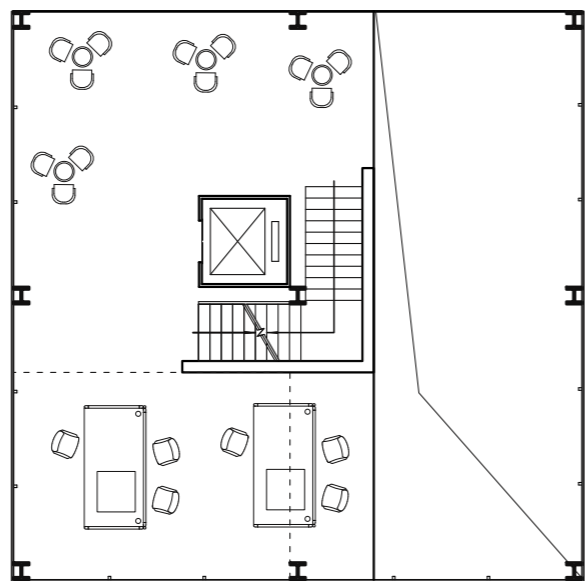
A



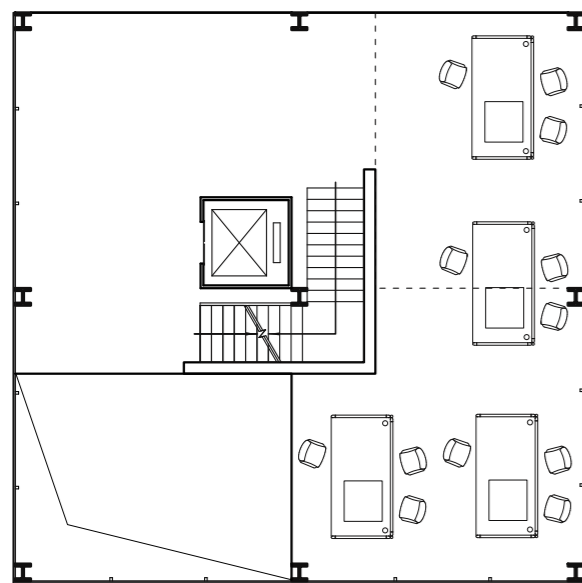
ground floor plan



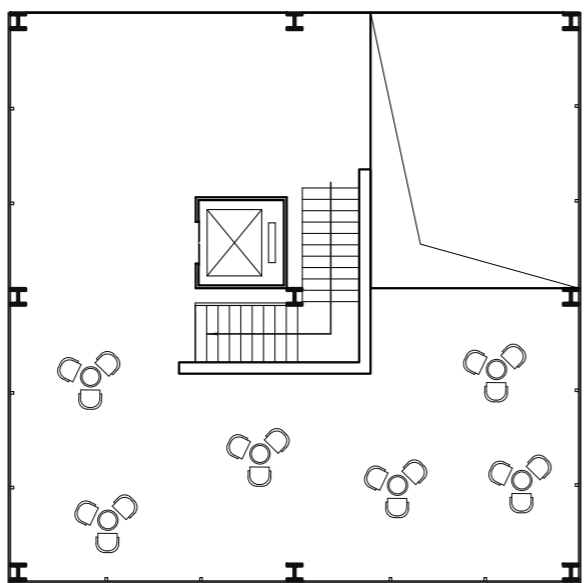
first floor plan



second floor plan



third floor plan

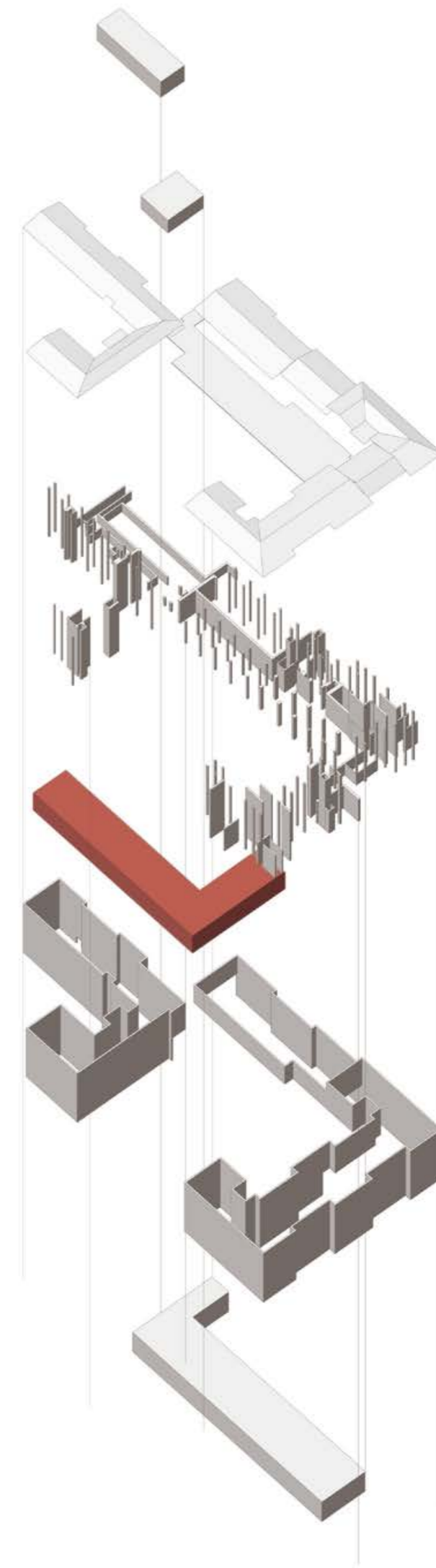


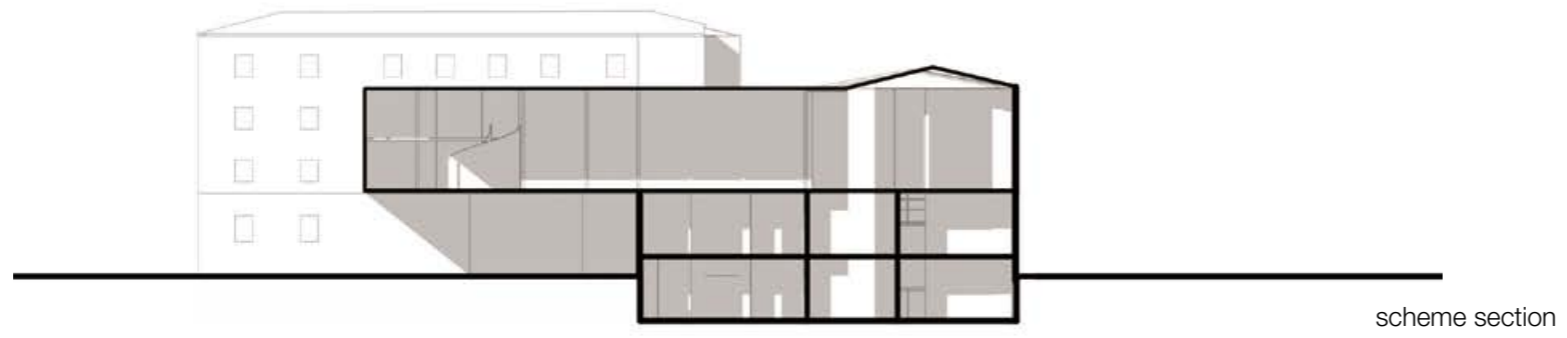
fourth floor plan



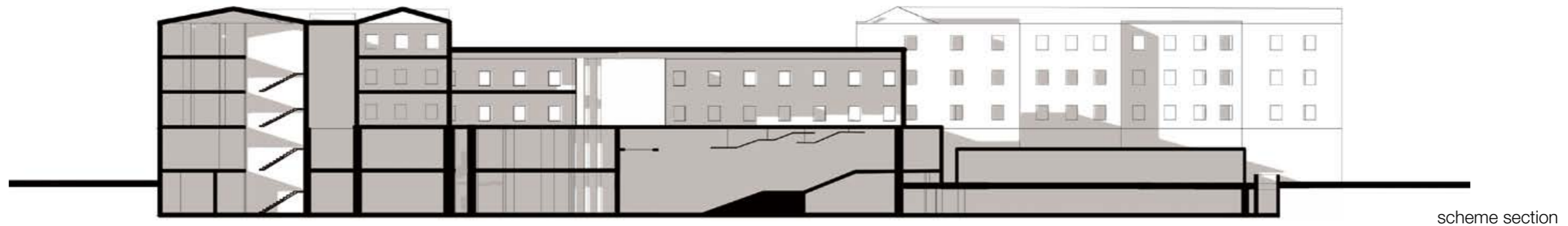
section AA

# 02 Besta Renovation



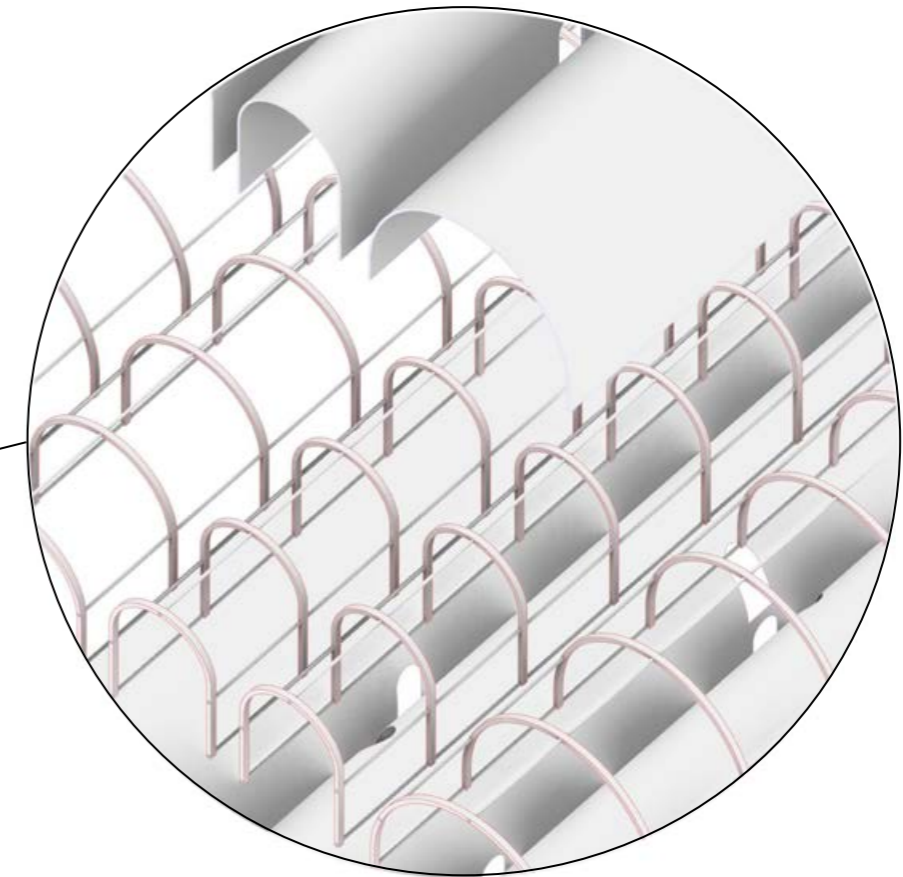
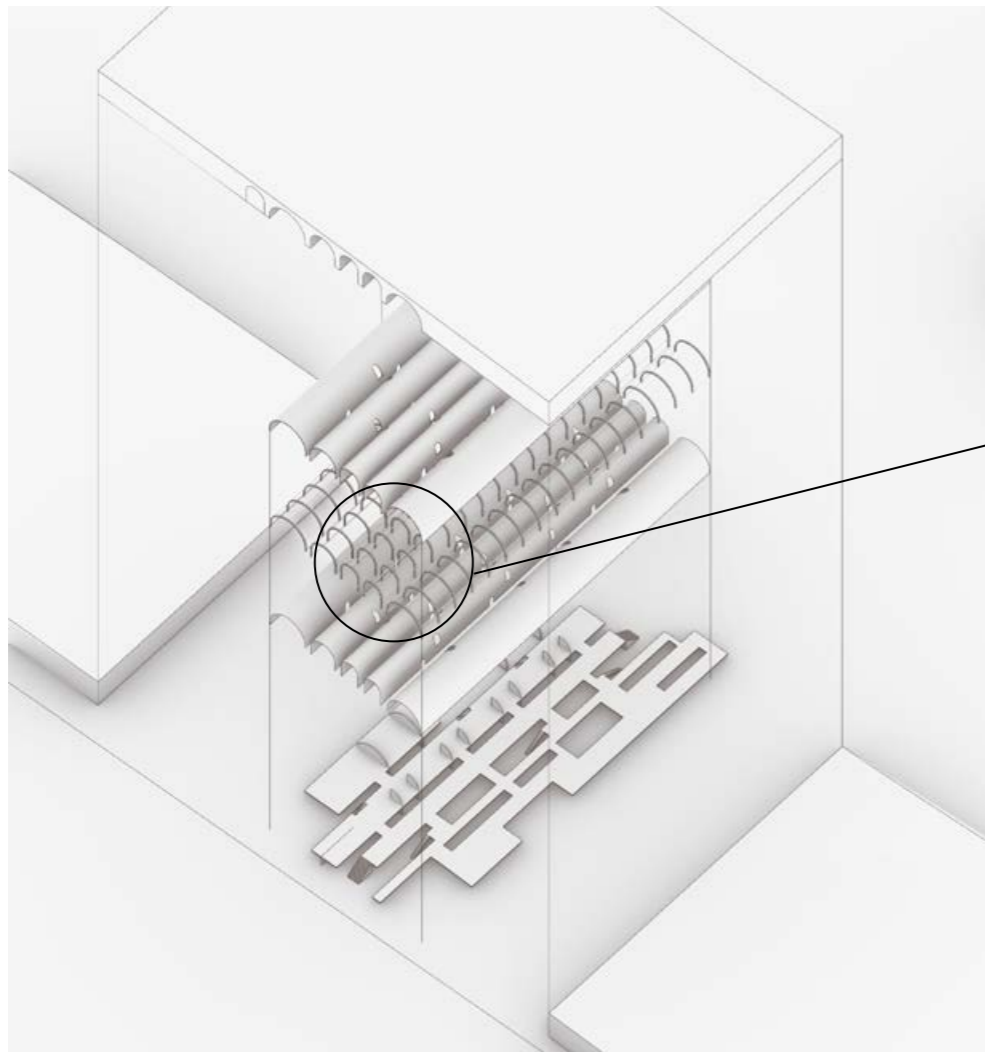


scheme section

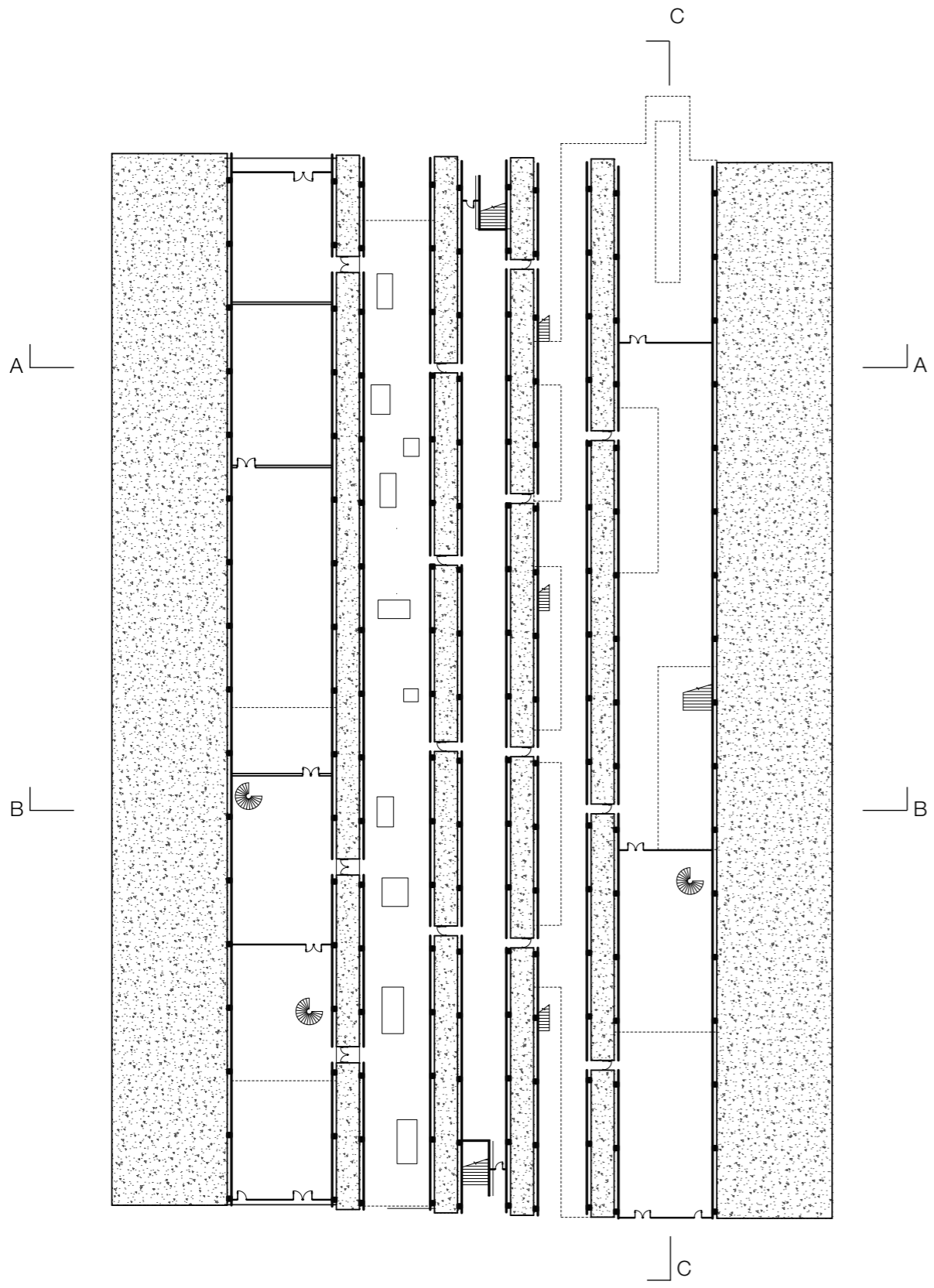


scheme section

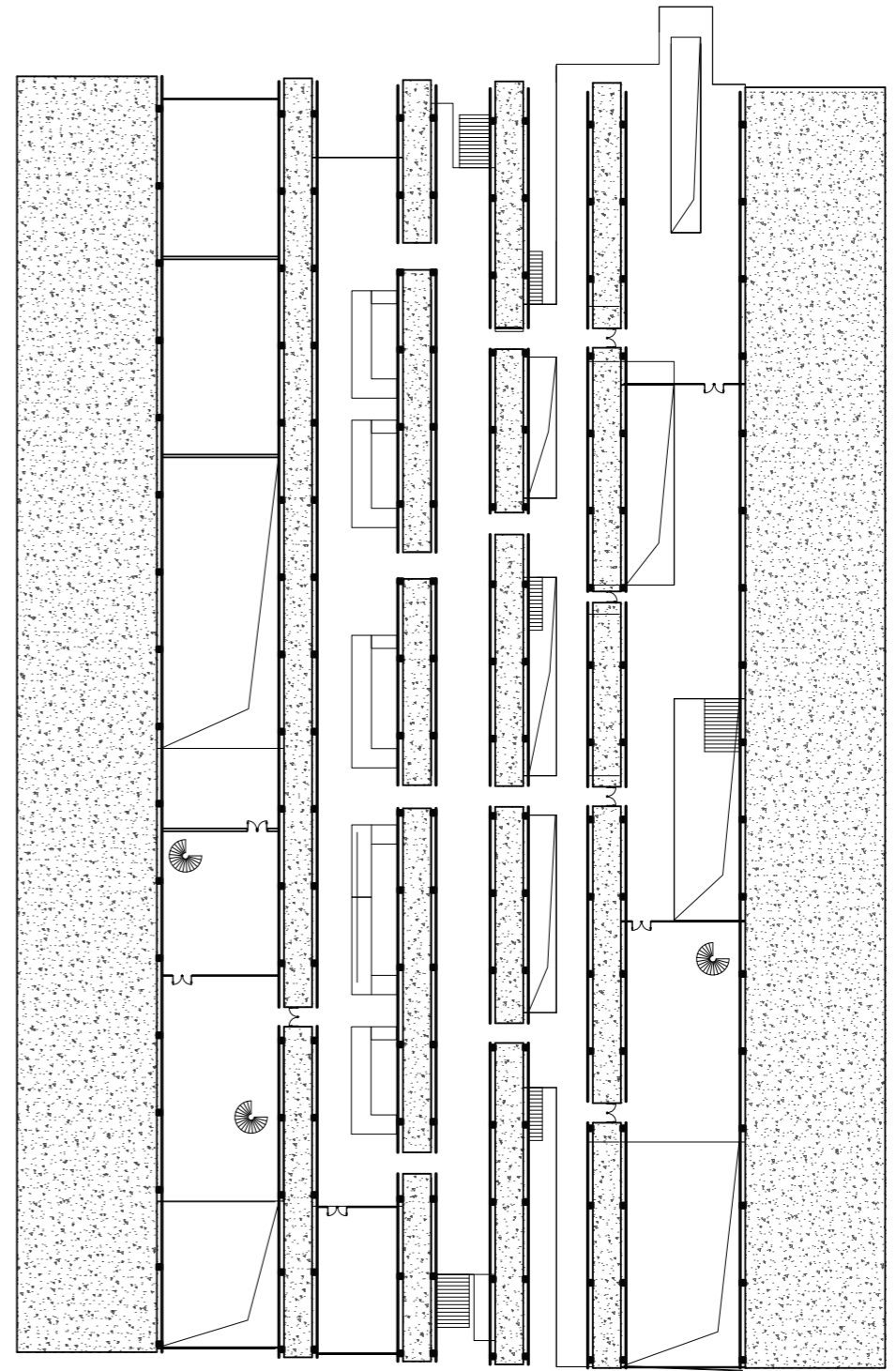
# 03 Linkage between in- and outside the wall



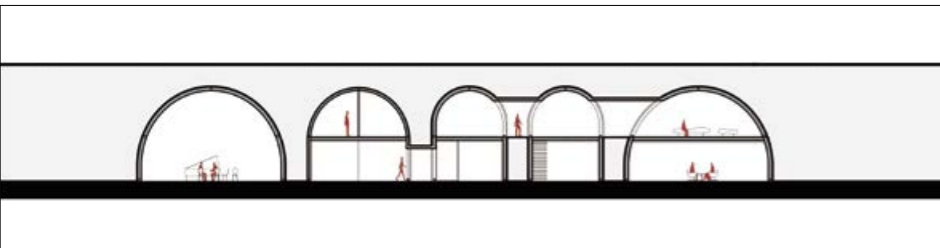




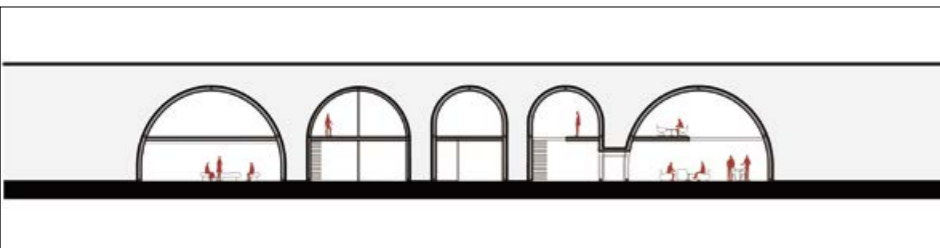
ground floor plan



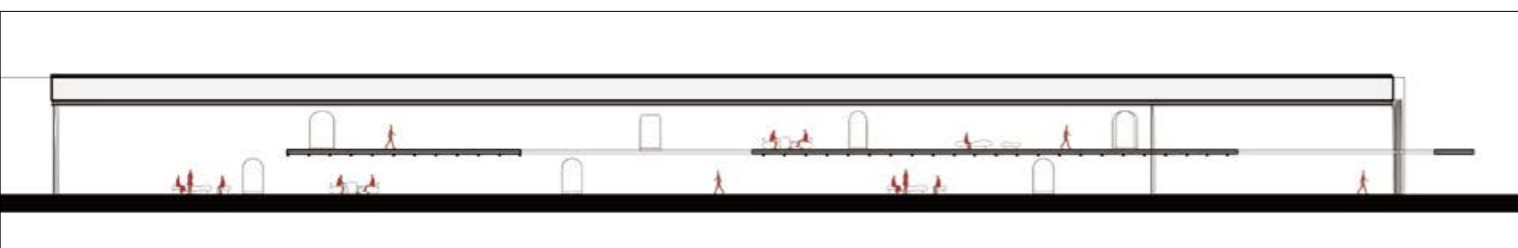
first floor plan



section AA



section BB



section CC

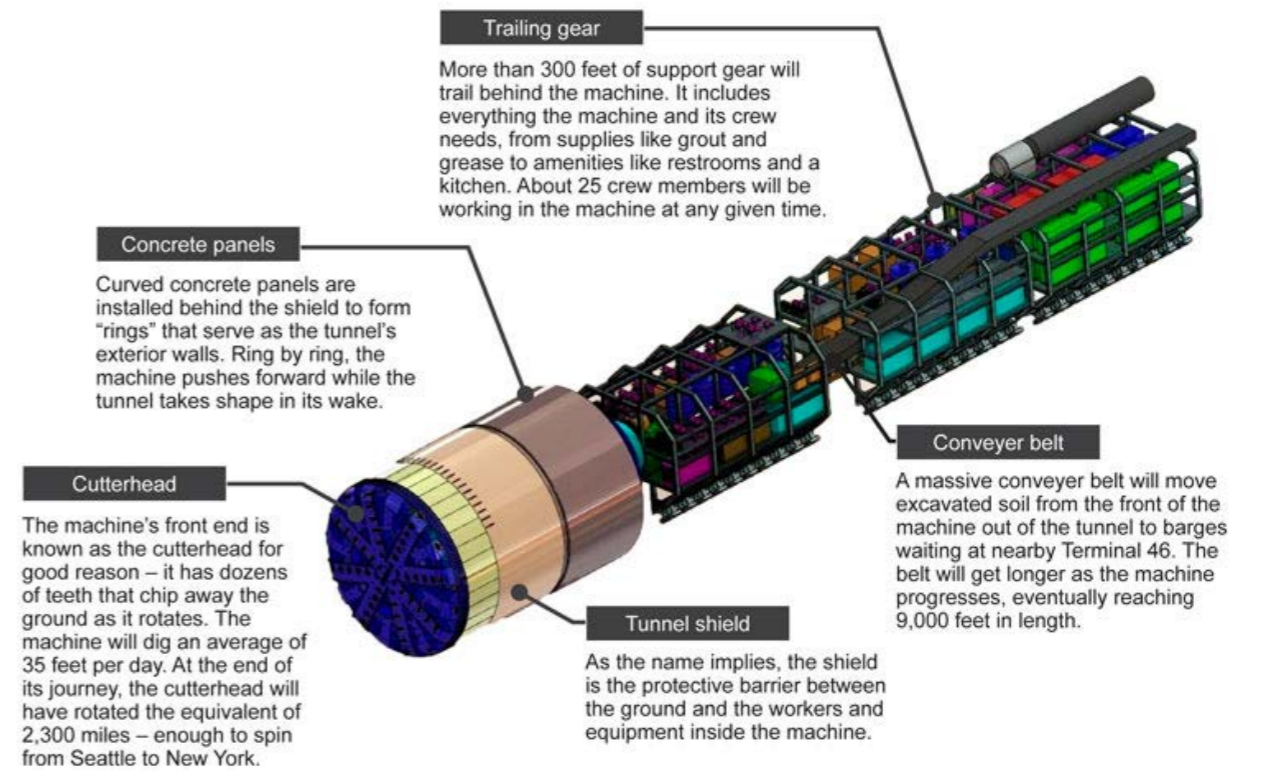
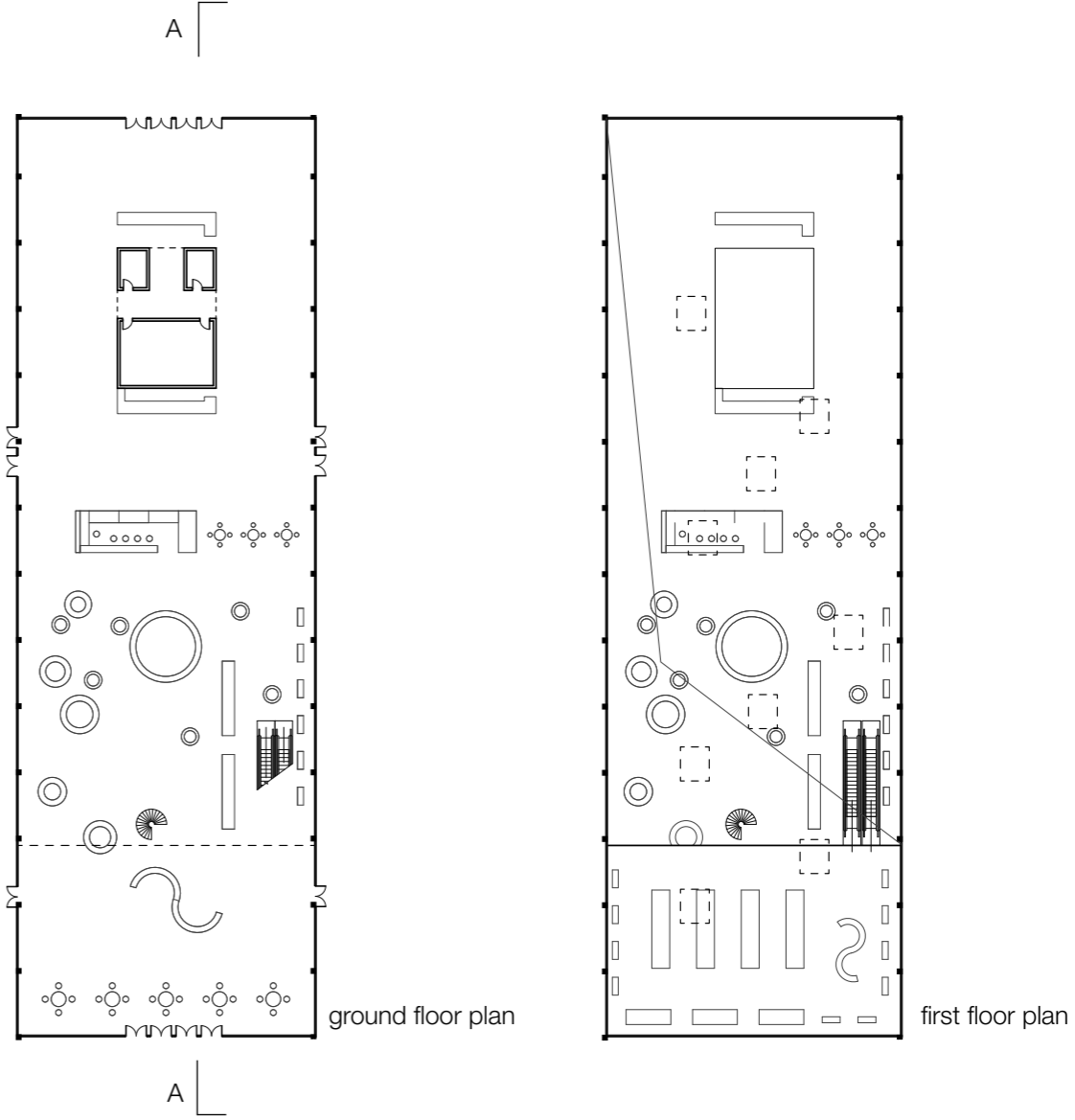


image available from:  
<https://www.slideshare.net/SouvikMondal22/english-channel-tunnel>

# 04 Pedestrian System along railway



section AA



$+ 5.00$  m

$\pm 0$  m

$+ 5.00$  m

$\pm 0$  m

