

EX FABBRICA TRIESTE

circulating
not preserving



DIPLOMARBEIT
(Diploma Thesis)

EX FABBRICA TRIESTE

circulating
not preserving

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ABSTRACT

Where once industrial prosperity and economic wealth characterised districts and entire cities, these places are now often characterised by ruins, vacancy, emigration and an ageing population. This is particularly evident in the former imperial and royal harbour city of Trieste. As a melting point of different cultures, the cityscape is characterised by abandoned architectural relics of various scales. To what extent former factories and their infrastructures as remnants of former industrial cities represent future resources and what impact they can have on an entire city and its population will be addressed in this work. The factory as a symbol of production and energy is to be further developed architecturally, ecologically and socially and respond to current climate and resource debates. The interdisciplinary approach of this work is based on theoretical analyses of past and current conversion discourses, ecological methods, and considerations on energy production, as well as philosophical and artistic concepts of sustainability.

The existing potential of the genius loci with its specific conditions serves as a starting point for energy considerations and architectural developments.

Where local herbs and plants were once harvested, processed and prepared, the former factory buildings of Küchler & Co are intended to revive the original idea of regional production, but integrate it into a cycle that will continue. Just as the existing buildings themselves will be integrated back into a cycle of future functions and benefits, agricultural waste products from the factory will also be processed into biogas and transferred into a cycle as renewable energy. Irrigation systems as a visible link between urban planning discrepancies illustrate the symbiosis between man and nature and his built environment, and the cultivation and processing of agricultural products from a permaculture in community networks is intended to strengthen neighbourhoods and promote integration projects. Just as the factory produces an energy cycle, it also produces human, neighbourly, social and sustainable cycles.

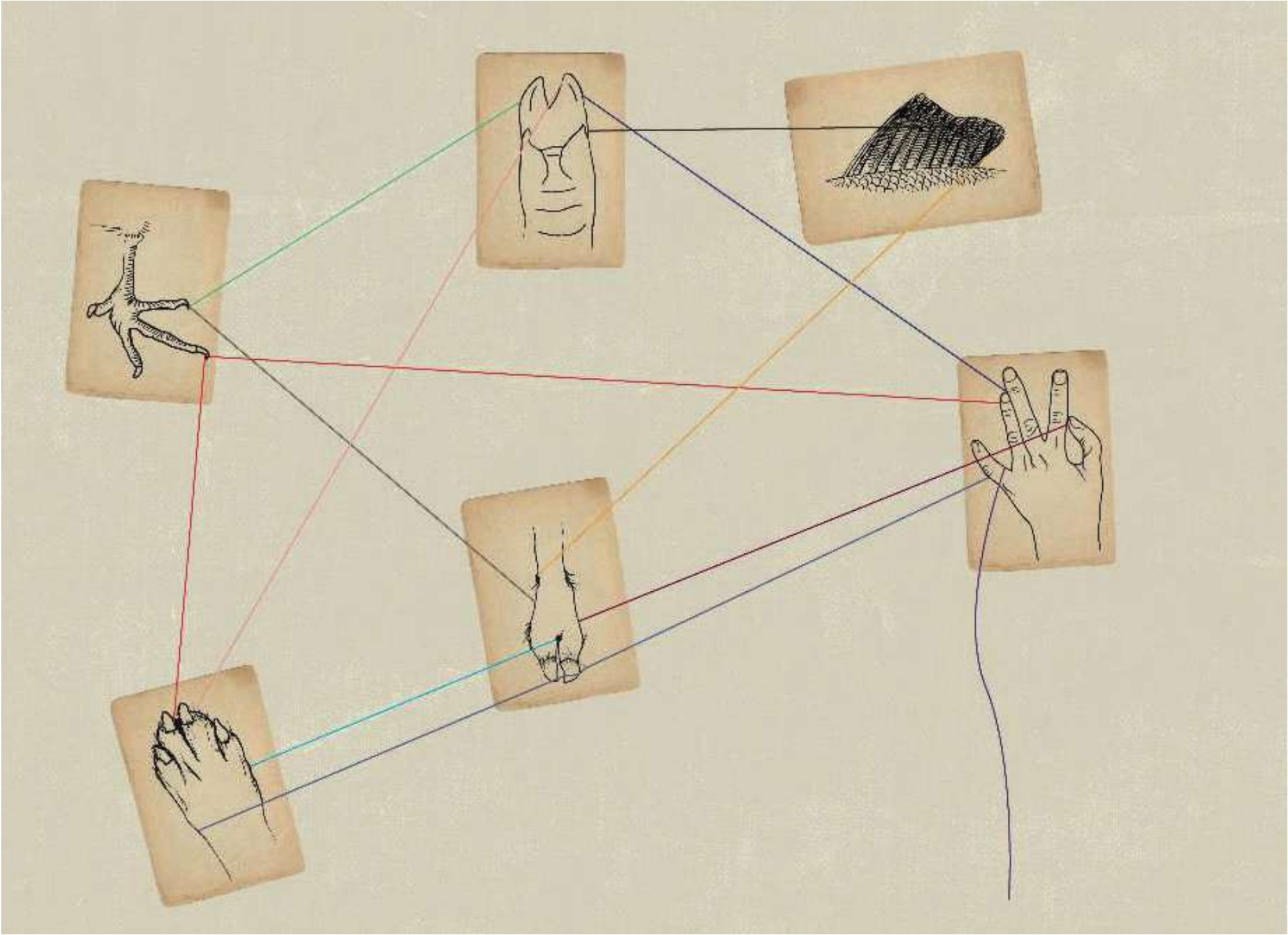
ABSTRACT

Wo einst industrieller Aufschwung und wirtschaftlicher Reichtum Stadtviertel und ganze Städte prägten, kennzeichnen jene Orte heute oftmals Ruinen, Leerstand, Abwanderung und einer Überalterung der Bevölkerung. Besonders sichtbar wird dies in der ehemaligen k.u.k. Hafenstadt Triest. Als Schmelzpunkt verschiedenster Kulturen, prägen verwaiste bauliche Relikte unterschiedlicher Maßstäbe das Stadtbild.

Inwiefern ehemalige Fabriken und deren Infrastrukturen als Überbleibsel ehemaliger Industriestädte zukünftige Ressourcen darstellen und welchen Einfluss diese für eine gesamte Stadt und ihre Bevölkerung mit sich bringen können, soll in der Arbeit behandelt werden. Die Fabrik als Symbol für Produktion und Energie wird architektonisch, ökologisch und sozial weitergedacht und reagiert auf aktuelle Klima- und Ressourcendebatten. Der interdisziplinäre Ansatz dieser Arbeit wird anhand theoretischer Auseinandersetzungen mit vergangenen, und aktuellen Umbaudiskursen, ökologischen Methoden und Überlegungen zur Energiegewinnung, sowie philosophisch, künstlerischen Auffassungen von Nachhaltigkeit behandelt.

Die vorhandenen Potentiale des Genius Loci mit seinen spezifischen Gegebenheiten dienen als Ausgangspunkt energetischer Überlegungen und architektonischer Entwicklungen im Entwurf. Wo einst heimische Kräuter geerntet, verarbeitet und aufbereitet wurden, sollen die ehemaligen Fabriksgebäude der Firma Küchler & Co die ursprüngliche Idee der regionalen Produktion wieder aufleben lassen, diese aber in einen weiterlebenden Kreislauf integrieren. So wie die bestehenden Gebäude selbst wieder in einen Kreislauf zukünftiger Funktionen und Nutzen eingebunden werden, werden auch landwirtschaftlichen Abfallprodukte der Fabrik zu Biogas verarbeitet und als erneuerbare Energie in einen Kreislauf überführt. Bewässerungsanlagen als sichtbares Bindeglied städtebaulicher Diskrepanzen verbildlichen die Symbiose von Mensch und Natur zu seiner gebauten Umwelt. Der Anbau und die Verarbeitung von landwirtschaftlichen Produkten einer Permakultur in gemeinschaftlichen Netzwerken soll Nachbarschaften stärken und Integrationsprojekte fördern. Just as the factory produces an energy cycle, it also produces human, neighbourly, social and sustainable cycles.

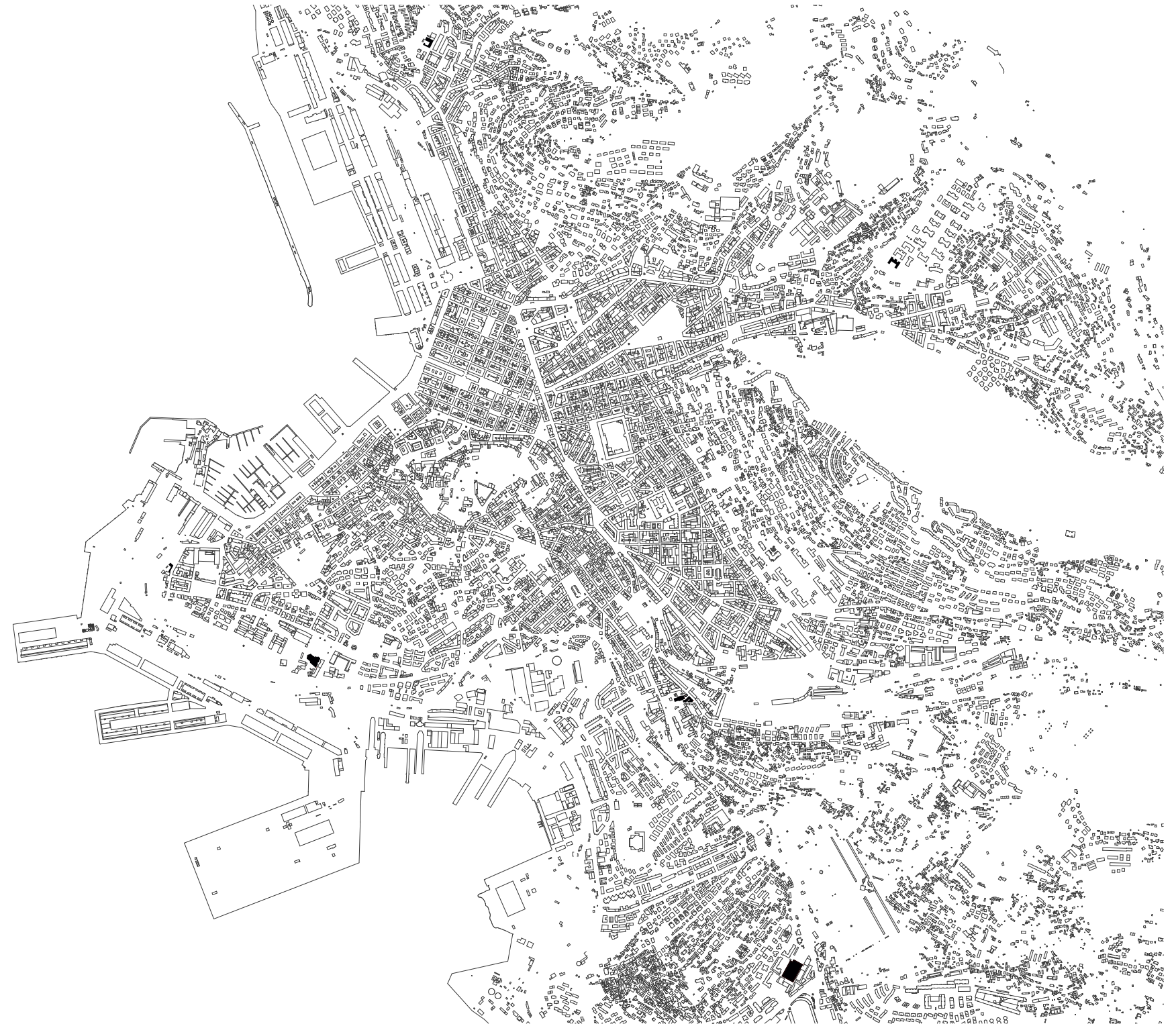
Fig. 1





M 1: 25 000

-  Ex Fabricca
Liselotte Bilak
-  Ex Mensa
Andrea Huber
-  Ex Irfop
Marcin Jatczak
-  Ex Stabilimento di Disinfezione Maddalena
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I TRIESTE

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Liselotte Bilak
Andrea Huber
Marcin Jatczak
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¹ Dínca, Chiara, La Trieste Dei Buchi Neri: La Parte Decadente Dell'urbanistica Cittadina, <https://www.triesteallnews.it/2020/02/la-trieste-dei-buchi-neri-la-partedecadente-del-lurbanistica-cittadina/>

INTENTION

This diploma thesis is the outcome of a collaborative project by a group of six students focused on systematically exploring the wide range of vacant buildings and derelict spaces in Trieste. Through shared research, field excursions, and direct engagement with the local community, key issues and challenges facing the city were identified. This collaborative analysis provided the foundation for the development of six individual design projects, each targeting specific neighbourhoods. The collective goal is to achieve a sustainable reactivation of urban spaces through precise interventions.

Trieste was particularly interesting for this work due to several factors. The city presents a compelling case for the study of adaptive reuse, driven by its shrinking population and an excess of vacant building volumes. While much attention has been focused on the city's historic harbour as a symbol of its quiet decline, it is far from the only area illustrating this trend. A walk through Trieste's streets reveals numerous abandoned buildings—old palazzi, former factories, and empty residential properties—each a testament to a bygone era. These forgotten spaces, scattered throughout the city, also tell the story of Trieste's crumbling urban fabric.

“Zone d’ombra dimenticate, immobilizzate in un limbo urbanistico colmo di contraddizioni.”

„Forgotten grey areas, immobilised in an urban limbo full of contradiction.”¹

The initial impulse for the current project came from the work „Buchi Neri - Indagine sui luoghi incompiuti o abbandonati della città di Trieste” by the architect Roberto Dambrosi.

This work documents the unfinished and abandoned places of Trieste, which visualise the gradual decay of the urban landscape. Dambrosi maps and classifies these so-called “black holes”, which have been created by unfinished construction projects, political instability and demographic changes. More than 90 such places have been identified, including important buildings such as the Palazzo Parisi, the Rotonda Pancera and the Palazzo Kalister, as well as large areas such as the former refugee camp in Padriciano or Piazzale Greta. These abandoned spaces cover a total of more than 850,000 square metres. D’Ambrosi is analysing the causes of the vacancies and developing proposals for reactivating these sites in collaboration with the local population.²

The following part of this thesis presents a collective investigation of Trieste through a series of urban walks, so-called “passaggiata urbana.” These explorations offer a comprehensive overview of the city’s historical, urban, and social development, providing insight into its evolution and current condition. By examining its architectural heritage and the key forces that have shaped its urban landscape, this section seeks to capture the essence of Trieste.

*Then I climbed a steep slope,
crowded at first, deserted further up,
closed by a low wall:
a nook where I sit
alone; and it seems to me that where it ends
the town ends too.*

*Trieste has a surly
grace. If one likes it,
it is like a rascal, harsh and voracious,*

*with blue eyes and hands too big
to offer a flower;
like a love
with jealousy.*

*Up from this slope every church, any street
I discover, whether it takes to the huddled beach,
or to the hill where,
onto the rocky
top, a house, the last one, clings.
All around
circles all things
a strange air, a tormented air,
the native air.*

*My town that is in every of its part alive,
has a nook made just for me and my life,
pensive and reserved.³*

*Ho attraversato tutta la città.
Poi ho salita un’erta,
popolosa in principio, in là deserta,
chiusa da un muricciolo:
un cantuccio in cui solo
siedo; e mi pare che dove esso termina
termini la città.*

*Trieste ha una scontrosa
grazia. Se piace,
è come un ragazaccio aspro e vorace,*

*con gli occhi azzurri e mani troppo grandi
per regalare un fiore;
come un amore
con gelosia.*

*Da quest’erta ogni chiesa, ogni sua via
scopro, se mena all’ingombrata spiaggia,
o alla collina cui,
sulla sassosa
cima, una casa, l’ultima, s’aggrappa.
Intorno
circola ad ogni cosa
un’aria strana, un’aria tormentosa,
l’aria natia.*

*La mia città che in ogni parte è viva,
ha il cantuccio a me fatto, alla mia vita
pensosa e schiva.*

– Saba Umberto, 1910-12³

² L. Rossi, A.L. Govoni, D. Legovini, R. Dambrosi, Bucchi Neri – Indagine Sui Luoghi Incompiuti o Abbandonati Della Città Di Trieste, (Trieste: Un’altra città-portovecchioimpressacollettiva)

³ Umberto Saba, Trieste. In: Trieste e una donna. 1910-12. In: Il Canzoniere, Einaudi tascabili. Torino (2004).



Fig. 2



Fig. 3



There are various ways to get to Trieste: via bus, train, or car. Upon arriving, the view of a city unfolds, characterised by its special geographical position. Wedged between the Karst plateau and the Adriatic Sea, Trieste stretches amphitheatrical from the harbour up to the hills, with the various districts reflecting the diverse and historical development of the city. The city is located in the northernmost point of the Adriatic Sea, the Gulf of Trieste, close after the border of Slovenia and is part of the Friuli-Venezia Giulia region.

The Gulf of Trieste covers around 20-25 km² from Grado to Piran and reaches a maximum depth of 25 m. The shallow and semi-enclosed basin has a notable and important influence for the region. It causes significant variations in temperature, salinity and the associated water density. In Trieste in particular, this leads to frequent outbreaks of the katabatic north-easterly to easterly wind, the so-called Bora or Burj in Slovenian. The Bora is a dominant meteorological phenomenon, especially during winter, where it induces coastal upwelling and intense air-sea heat fluxes. It typically persists for two to five days, with wind speeds reaching up to 100-120 km/h. The Scirocco, a southeasterly wind originating from the sea, is the second most prevalent wind, though considerably less intense. It is usually associated with rainfall. The alternating presence of these winds defines the region's winter climate.⁴

Looking up the hill, behind the city of Trieste, a unique landform emerges: the Trieste Karst, a limestone plateau known for its weathered landscapes. This rough terrain is defined by sinkholes, caves, and underground rivers, caused by the slow erosion of limestone. Because of its transitional nature between the Mediterranean and continental climates, the karst region provides a unique climatic feature to Trieste. The draughty soil and continuous dry breezes keep humidity at a low of 65%. The average yearly temperature is 12.6 °C. Winter is harsh and persistent, summer starts suddenly after a short and stormy spring, is quite hot and often extends into autumn. These climatic peculiarities are clearly visible in the cityscape.⁵

⁴ F. Raicich and F. Crisciani, Time Variability of Atmospheric and Marine Parameters over the Adriatic Region, vol. 22, (1999).

⁵ Livio Poldini, Übersicht über die Vegetation des Karstes von Triest und Görz (NO-ITALIEN) (1980).

Klima Trieste Daten Und Graphen, Zum Klima Und Wetter in Trieste, <https://de.climate-data.org/europa/italien/friaul-julisch-venetien/triest-1130>

Descending the hill and heading towards the centre, the view of the city gradually clarifies. The diversity of Trieste's neighbourhoods underlines the city's layered and complex history. The districts tell the stories of the different cultures and empires that shaped it over the years. The Borgo Medievale, the oldest quarter, has kept its medieval urban fabric, while Borgo Teresiano and Borgo Giuseppino, shaped by Habsburg influence, exhibit neoclassical architecture from the 18th and 19th centuries. Borgo Franceschino, centred around Piazza Oberdan, showcases a blend of historical and modern elements. Further out, in the periphery, different typologies and neighbourhoods characterise the cityscape.

Continuing the way, the old harbour, 'Porto Vecchio', is not to be missed going through the city. Empty and derelict for years, this large area, once a vibrant centre of trade, is now a symbol for the development of the city. It symbolises the demographic development of the city, the steady decline in population since the middle of the 20th century due to the loss of its strategic importance and economic role after the Second World War. Here, the endless warehouses and abandoned buildings are shut down, as they are frequently brought up in discussions about the challenges of a shrinking city.

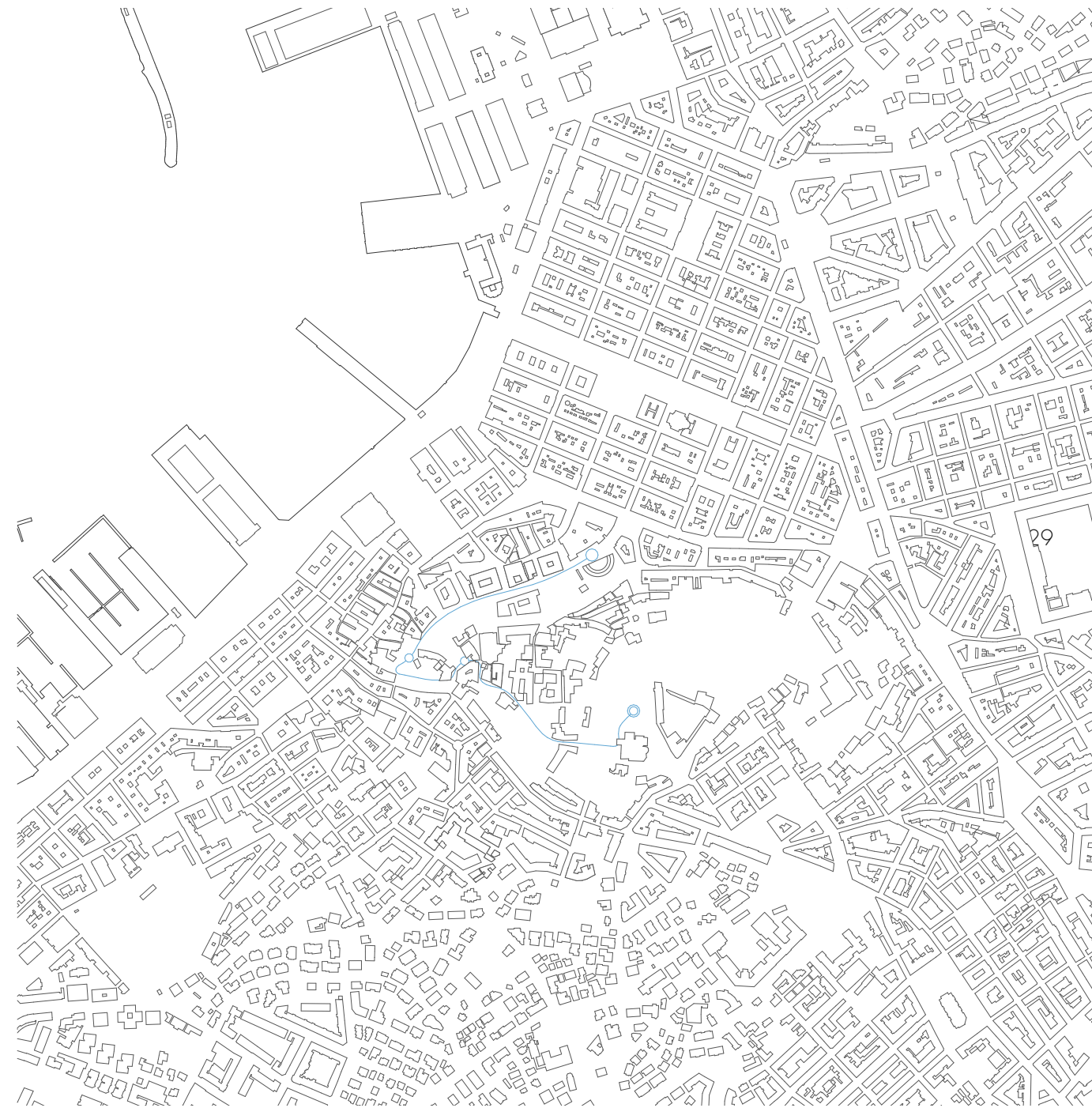


Fig. 4

Fig. 4 | Trieste, view from the north

Marcin Jatzak

BORGO MEDIEVALE



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Fig. 5

Fig. 5 | Trieste antica

Fig. 6 | Il foro romano

⁶ Istituto regionale per la storia della Resistenza e dell'Età Contemporanea nel Friuli Venezia Giulia 'Trieste. Città', <https://www.regionestoriafvg.eu/tematiche/tema/414/trieste>

⁷ Comune di Trieste. Catalogo dei Beni Culturali Fabbricato di Via Venezian 27, Rotonda Pancera, https://beniculturali.comune.trieste.it/architettura/?s_id=366320

Standing on the hill of 'San Giusto' – the place of Trieste's origin, the historical past and former importance of the city are clearly legible. The architectural ensemble, constructed on its top, represents a true mosaic of different periods – roman ruins, monumental medieval cathedral and fortress walls, dominating over the urban landscape. Although visible traces of the presence of initial creators have not survived until today, this area has been inhabited long before the Romans arrived. Located on the hill settlement lived from maritime trade, profiting from its access to the Adriatic Sea. To keep control over the Gulf, the inhabitants raised a castle, called 'Castelliere', which was situated at the same place as the today existing fortress. It endured until the roman times, when the landscape of the colony changed significantly.⁶

Il Foro

Located throughout the whole city centre remains witness of the Roman presence. On the hill, the few preserved pieces of the walls and columns mark the floor plan of the ancient forum – antique most important political and social public space. One might think, the roman remains were always a part of the landscape of 'San Giusto'. However, they have been excavated barely 100 years ago, on behalf of the fascist authorities and partially reconstructed with bricks to make them easier recognisable as such. This act was predominantly a part of Italian propaganda to underline Trieste's roman heritage and in consequence, 'justify' its belonging to Italian State. For the same reason, after the excavations, directly next to it, was placed the monumental statue to the Fallen Soldiers of Trieste during the 'liberation war' against Austro-Hungarian Empire.⁷

Castello di San Giusto

Not as old, but how characteristic for the city landscape is the 'Castello di San Giusto'. It's a common work of previous rivals for hegemony on this territory – Venetians and Habsburgs. Firstly, at the end of 14th century, the Habsburgs constructed a fortified tower, simultaneously, as a residence and for control and protection of the city. During a conflict in the 16th century,



Fig. 6



Fig. 7

Fig. 7 | Rotonda Pancera

⁸ Civico Museo del Castello di San Giusto-Armeria, Castello di San Giusto, visit brochure

⁹ Società Friulana di Archeologia, Trieste. La Basilica di San Giusto, <https://www.archeocartafvg.it/portfolio-articoli/trieste-la-basilica-di-san-giusto/>

¹⁰ Società Friulana di Archeologia, Trieste. Arco di Riccardo, <https://www.archeocartafvg.it/portfolio-articoli/trieste-arco-di-riccardo/>

¹¹ Comune di Trieste, Catalogo dei Beni Culturali, Fabbriato di Via Venezian 27, Rotonda Pancera, https://beniculturali.comune.trieste.it/architettura/?s_id=366320, 2005

Venetians developed an extension project to create a fortress. They managed to finish only one tower, before they had to retreat from the city. Nevertheless, the construction of further two towers and fortifications was continued under the Austrian rule. In this state, the building survived up to the present moment.⁸

Cathedral San Giusto

The cathedral of San Giusto completes the landscape of monuments of the hill. Formerly serving the ancient polytheistic cult, today it's the most important Christian temple of Trieste. The building presents itself as an architectural patchwork. The outer walls are an assembly of stones from different ages. Beginning with the propylon columns of the Roman temple, that are included in the campanile built in 3rd and 4th century, built by the Romans. The church's building itself is a compound of two independent medieval structures, united in the late Middle Ages.⁹

Right in front of the cathedral a wide stair leads towards rest of the 'Città vecchia' and the harbour. Following the steep via della Cattedrale, the landscape changes gradually. The far view over the red tile roofs, green hills and the blue sea turns into a narrow and crooked urban street. At the end of the way, at a square, there is another Roman relic embedded partially in the wall of a house - the Arch of Riccardo, marking the former entry to a sanctuary of 'Magna Mater'.¹⁰ This little polygonal square is usually filled with people eating during the day, or enjoying a drink during the night.

Only few steps behind the arch, on the corner of Piazza del Barbican and via Felice Venezian, there is a building distinguishing itself from others by the form and detail. A neoclassical palace, that resembles through its rounded corner and ionic columns, a Roman temple. The designed by Matteo Pertsch and named after its founder 'Rotonda Pancera' hides on the inside rich and unique for the city interiors, decorated with elaborate frescoes.¹¹ But there is no one, that inhabits this urban palace. All windows are shuttered, it seems to stand abandoned since many years. The plaster has fallen off from the façades. The downpipe at the wall is broken and the

running down water has left moss and mould traces. On the balcony in the first floor, the nature has inhabited the façade, manifesting it with grass growing on stone balustrade.

Going down via delle Mura and passing through an arch, unexpectedly, a jungle appears. A wild urban jungle fills the space of the square. Trees, ivy and voluminous bushes emerge, dominating the view. But there is no entry to this green space in the dense city centre. It's enclosed by a high, falling apart wall, that used to be a façade of a house, viewed the bricked up window and door openings. With the vegetation growing and putting pressure on the walls, it seems to be only a question of time, before it degrades entirely and opens up.

Teatro Romano and Casa del fascio



Fig. 8

Fig. 8 | Palazzo della Questura

¹² IRSREC FVG, Trieste. Città, <https://www.regionestoriefvg.eu/tematiche/tema/414/trieste>

¹³ Società Friulana di Archeologia, Trieste. Teatro Romano, <https://www.archeocartafvg.it/portfolio-articoli/trieste-la-basilica-di-san-giusto/>, 2018

The via del Teatro Romano being today in the middle of the city centre, used to be at the sea border. Throughout the centuries, the coast line has moved around 250m, revealing new ground. In this street, as the name indicates, stand the ruins of the Roman theatre. Initially, facing the sea, the rounded and inclined cavea was built in the hill of 'San Giusto'.¹² On the other side, the scaenae frons was giving a scenographic background for the plays. In the course of time, the meaning of this, once culturally crucial, structure has been forgotten, and step by step, new housings have covered the Roman remains. First, in the 19th century the theatre was identified by an Austro-Hungarian architect Pietro Nobile. However, the excavation and reconstruction works were initiated only in the 20th century by the fascists as part of the urban renewal, including demolitions of all the housings in this area.¹³ Streets, so crooked and narrow, that only pedestrians could pass vanished and gave place to unused reconstructed ruins, that can be seen only from behind a fence. Just in front of the theatre stands the building of 'Palazzo della Questura' - massive volume from fascist time, in its architectonic principles, looking similar to the 'Castello di San Giusto'. Originally, it housed the local headquarter of the Mussolini's party and was an architectonic and political statement in the city centre with cosmopolitan tradition.¹⁴ Since the Middle Ages in these area lived the Jewish community, until the project of reorganisation

of the 'Città vecchia' implied the removal of the whole Jewish quarter and replacing it with new constructions, representing the dominance of fascist Italy over the city.¹⁵ Nevertheless, due to the lack of economic resources and change of power, the masterplan could not be realised entirely.

The 'borgo medievale' may be described as a complex of contradictions.

On one hand, the long and continuous architectural activity in the Trieste's old town presents itself in an organic continuity of the urban development, but on the other hand, the vast interventions in the fascist period interrupt this picture and introduce contrasts, that are not easy to comprehend in this urban context, but at the same time these contradictions are undeniable part of Trieste's cultural identity.



Fig. 9

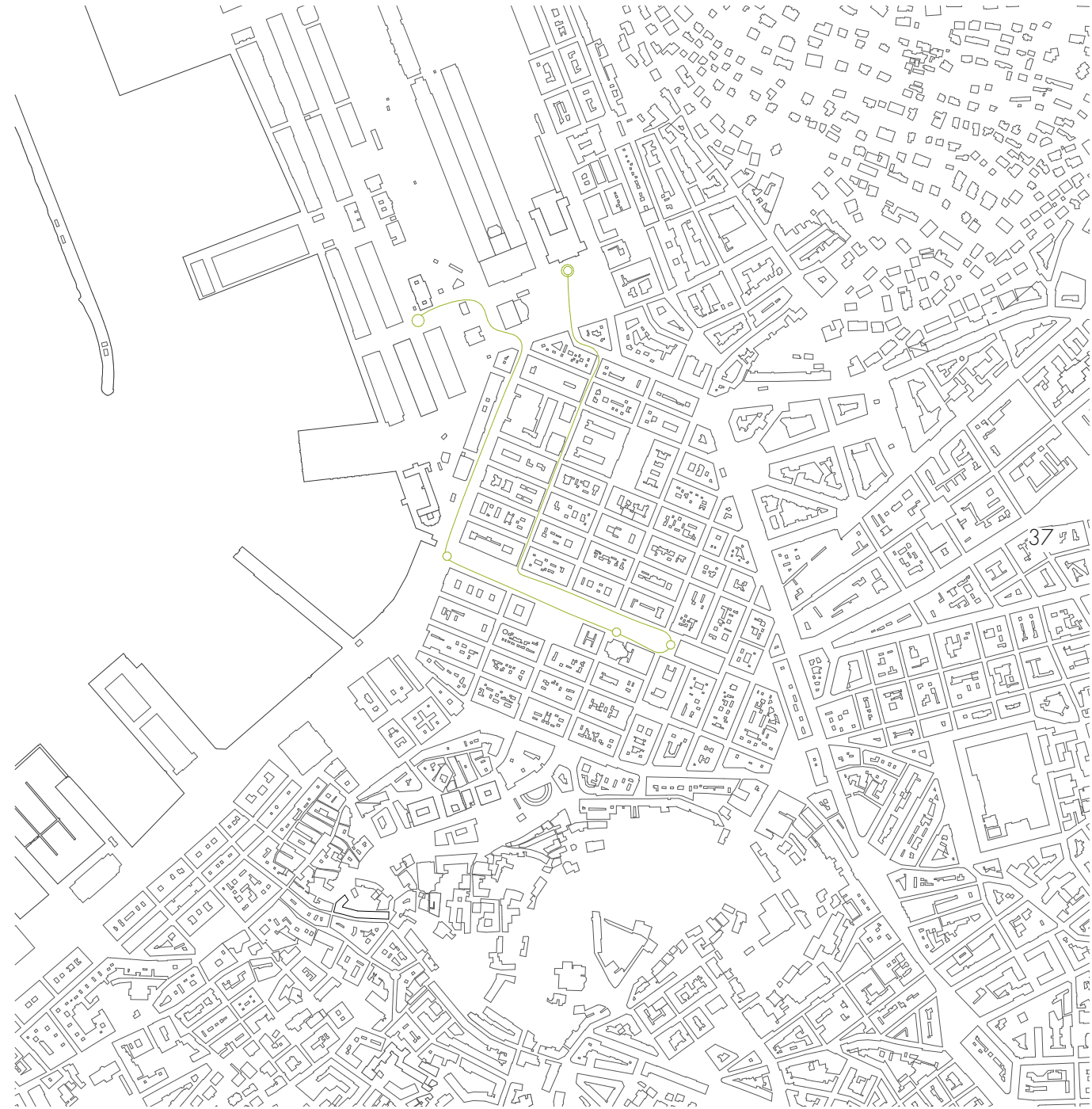
Fig. 9 | Teatro romano

¹⁴ PromoTurismoFVG, Palazzo della Questura, <https://www.turismoFVG.it/it/65422/palazzo-della-questura>

¹⁵ Alessandra Marin, PROGETTI, CITTÀ, IDENTITÀ. SPAZI URBANI E IDEOLOGIE NAZIONALI A TRIESTE TRA XIX E XX SECOLO (2012) 6-9.

Liselotte Bilak

BORGO TERESIANO



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Fig. 10

Fig. 10 | Trieste Centrale

Fig. 11 | southern railway line 1857

¹⁶ Wikipedia, Bahnhof Trieste Centrale, https://de.wikipedia.org/wiki/Bahnhof_Trieste_Centrale (21.09.2024).

¹⁷ Kerstin Ogris, Der Bahnhof der Südbahn in Triest - Teil 1, <https://www.suedbahnmuseum.at/at/blog/der-bahnhof-der-suedbahn-triest>.

¹⁸ Wikipedia, Bahnstrecke Spielfeld, https://de.wikipedia.org/wiki/Bahnstrecke_Spielfeld-Stra%C3%9F%E2%80%93Trieste_Centrale.

¹⁹ Christian Rapp, Nadia Rapp-Wimberger, Astrid Götliche, Alexandra Hönigmann-Tempelmayr, Österreichische Riviera, https://www.wienmuseum.at/oesterreichische_riviera.

²⁰ Regio Augsburg Tourismus GmbH, Triest, <https://www.sisi-strasse.info/de/triest.html>.

Trieste Centrale

After a journey of two hours, the train arrives in Trieste Centrale from Venice. The imposing-looking but manageable station concourse through which one reaches the station exit acts as a buffer zone between the train and the city. It was designed by the German-Austrian architect and construction director of the Südbahn-Gesellschaft, Wilhelm von Flattich, and opened on 19 June 1878.¹⁶

In 1857, the first train arrived in Trieste at a provisional railway station. However, the beautiful landscape visible from the window upon arrival posed challenges during the construction of the railway network. Extensive interventions in the topography were necessary.

As the city is encircled between the sea and the mountains, the station buildings and parts of the railway network had to be built on a total of 145,000m³ of sea bed. This caused problems during the foundation work for the buildings. In addition, parts of the mountain on the opposite side of the sea were removed to enable a rail network into the city, and torrents flowing from the mountains towards the sea were channelled into the sea in widely arched canals under the station.¹⁷

The railway station as built urban history, as the starting and final destination of the southern railway line between Vienna and Trieste. The line ran through the crown lands of Styria, Carniola and the coastal region, opening up areas that had previously been off the main transport routes.¹⁸

The completion of the southern railway led to the establishment of a significant trade route to the Orient, while also boosting tourism. This marked the rise of the 'Austrian Riviera'¹⁹. Initially known as a health resort and vacation spot for Empress Elisabeth of Austria²⁰, Trieste evolved into a popular family-friendly tourist destination.

The influence of Trieste's former affiliation to the Austro-Hungarian Empire is still noticeable as walking through the station concourse and into the open air. The square in front of the station is marked by grand, Wilhelminian-style buildings, giving it a Viennese character. It's no wonder Italians call the city 'il piccolo Vienna' (the little Vienna).



Fig. 11



Fig. 12



Fig. 13

Fig. 12 | Palac Panfilli

Fig. 13 | Map of Borgo Teresiano
approx. 1800

²¹ Wikipedia, Reichsunmittelbare Stadt Triest und ihr Gebiet, https://de.wikipedia.org/wiki/Reichsunmittelbare_Stadt_Triest_und_ihr_Gebiet

²² Wikipedia, Borgo Teresiano, https://de.wikipedia.org/wiki/Borgo_Teresiano

²³ Wikipedia, Triest - Demographische Entwicklung, https://de.wikipedia.org/wiki/Triest#Demographische_Entwicklung d=F3597D671BC284504258F48325752323?sequence=1

²⁴ based January 2024, Citypopulation.de, https://www.citypopulation.de/de/italy/admin/friuli_venezia_giulia/032__trieste/

Although the reality is completely different. Some of the buildings are surrounded by construction scaffolding and draped in billowing sheeting, while others appear abandoned and uninhabited.

Borgo Teresiano

It is the border to Borgo Teresiano, also known as citta nuova. This 'new city quarter' also dates back to the rule and urban planning of the Habsburgs. As early as 1382, Trieste was incorporated into the Holy Roman Empire of the German Nation and remained under Habsburg rule until its fall.²¹ In 1719, Emperor Charles IV declared Trieste a free port and ordered the construction of a naval harbour in 1734. This led to a significant economic boom, causing the city to expand and the population to increase. Emperor Charles' daughter, Maria Theresa, took further steps by expropriating the salt fields outside the old city walls and initiating the construction of a new city district to serve as a commercial centre. However, the construction of this new district was delayed due to a shortage of labour for draining the newly dedicated fields and shore areas.

Building commissions laid down precise guidelines for newly constructed buildings, which defined two building types: Residential and commercial buildings. The clients, who were mostly wealthy merchants, commissioned renowned artists and architects to design their buildings.²² The splendidly designed facades of the palaces catch the eye as one walks towards the city centre. Some of the window openings on the buildings are boarded up with wooden slats, indicating vacancy. This emptiness is noticeable not only near the train station but also in the centre of the Teresian borough.

Comparing the population figures of the last few centuries, this does not seem surprising. Trieste's population has been shrinking continuously since the 1960s. Back then, the population was just under 280,000²³, but today the city only has 228,000²⁴ inhabitants.



Fig. 14

Realising the strictly orthogonal street network of the 'new city' with every step one takes, as every alley one walks down runs in a straight line of sight to the next intersection. In contrast to Vienna, but also to the 'old town' in Trieste, where it can often happen getting lost in the narrow, winding alleyways, here one is having no problems finding the way. Getting the feeling that everything follows a strictly organised, gridded logic. At the end of an alley, a canal is crossing. It is the Canale Grande. A visible aisle between the city and the sea. From here, goods were transported directly from the harbour to the city.²⁵ Whereas in the 18th century, merchants and traders bustled about in the lively market, this is now a canal promenade characterised by bars, cafés and restaurants. Tourists and locals alike linger over an aperitivo in the outdoor cafés.

However, the canal as a connection between the city and the sea also marks two defining parts of the new city with its start and end points. If one looks towards the end of the canal, towards Piazza Sant'Antonio Nuovo, as the name suggests, the imposing 'Sant' Antonio Nuovo'²⁶ church catches the eye. Built by the Ticino architect Pietro Nobile, it was consecrated in 1842 and is the largest Catholic church in Trieste. Built in the neoclassical style, the interior contains numerous paintings by Venetian painters of the 18th and 19th centuries.

Built religious freedom

The fact that Trieste, then as now, was characterised by a multitude of different cultures can also be seen in the churches of various religions. With Trieste's appointment as a free harbour, a large number of traders from Herzegovina, Bosnia, Montenegro and Dalmatia, as well as Greece, also arrived in the city.²⁷ Maria Theresa's liberal attitude towards the freedom to practise religion prompted the various religious communities to build their own places of worship in the newly established quarter.²⁸

The Serbian Orthodox church of San Spiridione the Miracle Worker is located just a block away from the Catholic church. It was built in 1869 by the Trieste engineer Pietro Palese, with decorative elements executed by the Milanese Antonio Caremni.



Fig. 15

Fig. 14 | Canal Grande approx. 1900

Fig. 15 | Canal Grande today

²⁵ Borgo Teresiano s.r.l., <http://www.palazzoteresiano.com/location/?lang=it>

²⁶ Wikipedia, Sant' Antonio Taumaturgo, https://de.wikipedia.org/wiki/Sant%E2%80%99Antonio_Taumaturgo

²⁷ Comunità Religiosa Serbo Ortodossa, <http://www.comunitaserba.org/comunita/>

²⁸ Borgo Teresiano s.r.l.



Fig. 16

Fig. 16 | Porto Vecchio today

²⁹ Comunità Religiosa Serbo Ortodossa, <http://www.comunitaserba.org/comunita/>

³⁰ Comunità Greco Orientale di Trieste, Chi siamo?, http://www.com-grecotrieste.it/vw_Page.php?tp=VW

³¹ AZW, Porto Vecchio, https://past.azw.at/Sonntags_Triest_Gangart/Trieste/Porto.html

³² Dirk Schubert, Trieste Porto Vecchio. Neue Hoffnung für Erhalt und Umgestaltung? In: RaumPlanung 176 / 5 (2014) 61-62.

The intention was to construct a building inspired by Byzantine architecture, representing monumentality and splendour. The exterior of the temple was covered with stones from the quarries of Santa Croce in the Karst and Brioni in Istria, while the interior is adorned with mosaics and frescoes. The mosaics and frescoes are depicted in large formats, and the gold of the mosaic surfaces is reproduced in the paintings.²⁹

Due to differences in customs and languages, the Serbian and Greek religions, which initially worshipped together, separated in 1770. In 1784, the construction of the 'San Nicolò and the Holy Trinity' temple of the Greek Orthodox religious community began, which is located not far from the canal, directly on the promenade.³⁰

Porto Vecchio

Looking to the starting point of the canal, the point where the waterway runs into the sea, one can see the old harbour of Trieste for the first time. Although parts of the Porto Vecchio could already be seen from the train, the enormous size of the area and the ruins, some of which are now in ruins, are only now becoming apparent due to the current location and the line of sight.

Countless buildings, built between 1860 and the beginning of the 20th century³¹, can be found on the site directly next to the railway station, the arrival point for the journey to Trieste. After the completion of the southern railway, the city was developed into a transit port, and in 1861 the expansion of the harbour as the most important Austrian seaport, the Punt-Franco, began. The site consisted of storage facilities, functional buildings, warehouses, hanger-like transit sheds, office buildings, a canteen and buildings for customs clearance, as well as a hydrodynamic power station.³²

Looking closer at the individual buildings, it's not easy at first. Walls, barriers, and a multitude of car parks and cars that now use parts of the former harbour area initially block the way. When arriving between parked coaches and wasteland, the sight of the dilapidated buildings and ruins gives the

feeling of being in a ghost town. Some of the balconies of the administrative buildings are adorned with scattered items of clothing and food packaging.

The decline of the harbour began with the loss of Austria's connection to Trieste after the First World War. With the reunification of Italy in 1918, the border town was finally isolated due to its peripheral location and lost its economic importance.³³ Due to the expansion of the new harbour in the south of the city, the Porto Nuovo, the old harbour was increasingly relocated and finally ceased operations in 1983.³⁴ Although a large number of competitions and reutilisation concepts have been dedicated to the site in recent years, none of them has been realised.

Shouts from a distance attract attention. It is a group of young men on the roof of one of the old silos. They are trying to remove wooden slats from the roof to hand them to their colleagues on the ground, who are using the material as firewood. It is an image that will remain etched in the memory. Although the issue has been published in newspapers and television reports for some time, it is only from this perspective that now realising the extent of what is happening. Thousands of migrants are stranded every year in Trieste, the end point of the Balkan route. Too few facilities, but also no clear strategies on the part of the city government for the reception or integration of these refugees, force those arriving to spend the night in the old silos of the railway station and be left to their own devices..



Fig. 17

Fig. 17 | sleeping area of refugees at the silos

³³ Maria von Hartmann, No se pol? Der Porto Franco Vecchio. In: Bauwelt 4 (2007) 7.

³⁴ AZW, Porto Vecchio, https://past.azw.at/Sonntags_Triest_Gangart/Trieste/Porto.html

Keti Beka

BORGO GIUSEPPINO





Fig. 18

Fig. 18 | Trieste Map 1858

³⁵ Fabio Zubini, Borgo Giuseppino (2002).

³⁶ Umberto Saba, Trieste, Tre Vie. Mimesis (2019).

Original: "C'è a Trieste una via dove mi specchio nei lunghi giorni di chiusa tristezza; si chiama Via del Lazzaretto Vecchio."

Translation "There is a road in Trieste called the Lazzaretto Vecchio that I used to walk on long days of despair"

Leaving the Piazza Unita d'Italia means leaving the Teresiano district and entering Borgo Giuseppino. Its name comes from Emperor Joseph II of Habsburg-Lorraine, the son of Empress Maria Theresa of Austria, who continued the legacy that was initiated by his mother in Trieste.

Like the previous one, this area follows a fixed grid system with the planning and expertise of the architect Domenico Corti, a street named in his honour in the neighbourhood.³⁵

Compared to the Teresiano district, the grid is stretched more into longitudinal rectangles than a fixed blocks-grid. It mainly consists of residential buildings overlooking the seafront in two rows along two parallel streets: Riva Grumula and Via del Lazzaretto, the latter also mentioned by Umberto Saba in one of his poems:

"There is a road in Trieste called the Lazzaretto Vecchio that I used to walk on long days of despair"

"C'è a Trieste una via dove mi specchio nei lunghi giorni di chiusa tristezza; si chiama Via del Lazzaretto Vecchio."

- Tre Vie, Umberto Saba ³⁶

Cavana district - Old Town

The route continues from the piazza down Via di Cavana, where the urban noise gradually diminishes. This is where the small old city buildings meet the bigger Giuseppino blocks. The narrow street is lined with colourful facades, featuring a variety of pastel yellows, deep ochres, and soft terracottas, all of which have been weathered over time but remain in good condition. Above, shutters are open, allowing light to enter, and from the upper floors of the old buildings, one can hear the soft clatter of dishes or see laundry flapping in the wind. The historic Cavana district is now a thriving commercial hub, with a vibrant local community and a rich cultural heritage. Many popular streets are lined with bars and cafés, which extend onto the pavement and are occupied by locals sipping

espresso and going about their day. The narrow alleyways are characterised by their winding routes and cobbled surfaces, creating an ambience conducive to a slower pace and offering insight into Trieste's maritime history. Here and there, abandoned houses falling apart and being taken back from nature, await their end by demolition.

Following along Via della Pescheria, where once the centre of the city's fish market was - hence the name, it is now filled with the sounds of conversation, laughter, cutlery and the steady rhythm of Trieste's daily routine filling the air.

Another small square takes place in between the blocks, Piazza Attilio Hortis, where the city noise appears to exhale. A market is held here each morning, offering fresh products from local farmers, and still, the square is less populated than the surrounding streets. It helps that it is lined with tall trees that sway gently in the breeze, casting long shadows against the pale stone buildings.

Piazza Venezia

A small, intimate square follows - Piazza Venezia, also known as Piazza Giuseppino, sharing the Emperor's name together with the Pier in front of it. The mild breeze, carrying the salty aroma of the sea and the sounds of gulls overhead, lightly shakes the heads of the surrounding trees of the piazza. While the gaze is lost on the blue water, the gulls try to steal the lunch of the bystanders out of their hands, sometimes successfully.

Highlighting the Habsburg presence, in the middle of the square, a statue of Emperor Maximilian of Mexico from 1875, (brother of Franz-Joseph of Austria-Hungary) was built to commemorate him, dressed in his uniform as an Austrian fleet Admiral with his arm stretched into the direction of the sea and his former castle, Miramare.³⁷ The water stretches out behind his arm and various white sailboats bob gently in the harbour. Some fishermen are fixing their nets while residents stroll along the harbour, as time seems to stand still in the warm spring sun.



Fig. 19

Fig.19 | Piazza Venezia

³⁷ MisterKappa.it., MisterKappa, Ieri e oggi - Il borgo Giuseppino, <https://web.archive.org/web/20080526225004/http://www.misterkappa.it/sto-ieo03.html>

Museo Revoltella

In the afternoon, the sun casts a soft glow over the neoclassical facade of the Museo Revoltella, illuminating it with a subtle radiance. This monument belonged to Baron Pasquale Revoltella, who after his death left his house and all the possessions in it to the Municipality of Trieste with the condition of making them accessible to the public, which later became one of the most prestigious modern art galleries in the country.³⁸

The museum is made up of three buildings from the second half of the nineteenth century, namely the Palazzo Revoltella by architect Hitzig, the Palazzo Brunner, and the modest Palazzo Basevi.

The architect Carlo Scarpa was given authorisation for renovating the museum in 1963. The Brunner underwent extensive measures, whilst the Revoltella was almost entirely saved and is also maintained in the museum as a memory of the Baron Revoltella and Pinakothek of the 19th century. A reinforced concrete skeleton was inserted into the empty shell, highlighting it and turning it into an ornament that shielded the inside (which was lined with stone walls) from the outside. In order to establish a formal distinction and a substantial comparison with the light-filled entrance situation from the roof, Scarpa employs the Palazzo Revoltella as the motif of the inner courtyard for the vertical orientation. This space and the theatre on the ground floor are those parts of the museum which were most obviously realised in the context of Scarpa's planning.³⁹

Coastal strip

Josefsvorstadt (as it was known in the Austrian-Hungary Empire) - or Borgo Giuseppino - was broken down into two areas parallel to one another: the internal zone - with more representative and residential buildings; and the coastal strip - composed of a linear chain of buildings that were more linked to the port activity.⁴⁰



Fig. 20

Fig. 20 | Palazzo Neogotico

⁴¹ MisterKappa.it., MisterKappa, ieri e oggi - Il borgo Giuseppino

⁴² Comune Di Trieste. Al via l'abbattimento della "collassata" ex piscina terapeutica acquamarina in "Sacchetta" a Trieste, <https://www.comune.trieste.it/it/comunicati-stampa-14829/al-via-labbattimento-della-collassata-ex-piscinaterapeutica-acquamarina-in-sacchetta-a-trieste-205433>

The previous residential villas and palaces belonging to the city's wealthy residents have been transformed due to its advantageous location on the seafront. It now consists mostly of hotels, offices and various shops, which have been constructed on the site of the former residences.

In the direction of the hilly area situated farthest from the sea, there were several villas belonging to the wealthiest families back then. These Villas are characterised by a simple and dry style, which were not designed as seasonal vacation spots; rather, they were intended for use as Sunday retreats, which is why they were located near the city centre.⁴¹

Sachetta

Continuing at the end of one of the two parallel roads to the shorelines, and exiting the Borgo Giuseppino, the area remains predominantly residential, with newer buildings from different decades situated at the foot of Sant'Andrea Hill. Despite the variety of architectural styles, almost every building features a long balcony, a typical characteristic of a warmer climate with more generous weather conditions.

There is a twenty-plus-storey building, difficult to miss as it's one of the tallest in the neighbourhood, extending its neck as if reaching for the sea, almost like making a statement for the area.

While the waterfront is visible from the balconies, direct access to the beach within the city is highly restricted (if one excludes the possibility of jumping headfirst from the pier into the sailing water). The seashore extends from the Old Port to the numerous piers, which accommodate a multitude of sailing vessels. Still, only a narrow strip of beach remains to the public throughout the entire area of the inner city. On the other side of the beach strip, the therapeutic swimming pool "Aquamarina" was previously in operation. However, it was subsequently abandoned and demolished, making way for new construction and a significant change to the appearance of the neighbourhood with the name of Sachetta.⁴²

³⁸ Architectuul, Revoltella Museum, <https://architectuul.com/architecture/revoltella-museum>

³⁹ Architectuul, Revoltella Museum

⁴⁰ MOVIO, Trieste nell'800, <https://movio.beniculturali.it/pmfvg/vivere-elottocentoatrieste/it/9/introduzione>



Fig. 21

Fig. 21 | ex piscina Acquamarina

⁴³ Autorità Portuale Trieste, Porto Franco, https://web.archive.org/web/20070217172853/http://www.porto.trieste.it/site/sez_cms.php?menu_id=743278

⁴⁴ Ansa, A. „Trieste e i 300 anni Maria Teresa d’Asburgo - Friuli Venezia Giulia - Ansa.it. Agenzia ANSA, https://www.ansa.it/canale_viaggi/regione/friuli-veneziagiulia/2017/04/15/trieste-e-i-300-anni-maria-teresadasburgo_f4c12ba5-67f7-421d-bf32-f9fa8e7022c1.html#:~:text=Visito%20il%20grande%20afflusso%20di,tutti%20gli%20abitanti%20di%20Trieste

Campo Marzio

On the other side of the street lies a former industrial area with the Campo Marzio Station. This station was the second most important railway station in Trieste, previously known as Trieste Sant’Andrea, commenced operations as the terminus of the railway Opicina and was linked to the Central Station via a dedicated track, the Linea delle Rive. Furthermore, it facilitated connections to Pula and Rovinj. After the First World War, the station was incorporated into the operational framework of the Italian State Railways (FS), subsequently undergoing a renaming to Trieste Campo Marzio. Since 1960, the station has been closed to passenger traffic and is now used for the operation of historical trains.¹ The station also houses the railway museum, which bears the same name. Some of the wings are currently undergoing renovation, while the northern side has been demolished recently, whereas the rest of the industrial area remains an empty, abandoned space.⁴³

New Port

The start of this industrial area leads to the beginning of the New Port, Il Punto Franco Nuovo, also known as the Free Port of Trieste. Starting from the Campo Marzio Area and stretching further south until the Servola neighbourhood, the whole coastline is in service of the port.

The view of white sailing boats has been replaced with that of containers and big yellow cranes operating daily shipments from all over the world.

One of the initial measures implemented by Maria Theresa upon assuming control was to expand the boundaries of the Free Port region to encompass the outskirts of the town, effectively integrating the emporium, the port, the newly established city, and the existing one. As previously mentioned, the enactment of the law of “Editto di Tolleranza” which guaranteed the freedom of worship, the ability to engage in commercial transactions without interference, and the right to possess personal property, attracted a diverse population from various countries and a range of socioeconomic backgrounds.⁴⁴



Fig. 22



Fig. 23

Fig. 22 | Campo Marzio Station

Fig. 23 | view from up the hill into the new port

Sant'Andrea

Because of the railway, and the importance of the port, the whole area around Sant'Andrea developed rather quickly. The residential blocks took over the industrial areas, and the remainder of a whole factory quarter is just a forgotten abandoned structure of the Mensa from the famous architect Marcello D'Olivio.

A lot of these blocks, around the neighbourhood, were built to house the railway workers, like the ones opposite the Ricreatorio Edmondo De Amicis, that have now been empty for some time, and for sale as a whole unit.. Similar to the Gründerzeit-Viennese ones, these four-to-six-storey buildings had shared bathrooms in the hallways, and laundry in the basement and were divided into one-to-two-room apartments with small kitchens. With fewer renovations made, bathrooms being moved inside the apartments and the ones in the hallways used as storage or laundry rooms for example, the structure remains the same still to this day. Even the ground floor remains taller and is mainly used for storage or many other functions rather than apartments. In the wealthier blocks, the courtyard hides their private green areas, with high trees casting shadows in the harsh summers, while the others have given up their gardens for more parking space.

Walking further away into the neighbourhood, the typology of the building changes. Now, two three-storey Villas with small gardens in front of them take the place of the blocks. Although the buildings are of different typologies and were constructed at various points in time, the residents exhibit a consistent pace of life.

The entire area becomes noticeably quieter, almost as if it is standing still, and the salty breeze is now barely perceptible. From a distance, it is easier to catch a glimpse of the vast expanse of blue water, with the contrasting yellow cranes in the distance emerging their metal masts from the port.

Orsolaya Nyulas

BORGIO FRANCESCHINO



M 1 : 10 000

In the northwest inland area of the city, Borgo Franceschino took shape. Built in 1796 with a primarily residential character, thanks to a concession from Emperor Francis II, it was designed similarly to Borgo Teresiano, although with larger block sizes. In the district, between 1817 and 1827, the new city theatres (the Mauroner and the open-air Arena) were established beside the promenade along the Aqueduct (constructed on the initiative of Domenico Rossetti) and numerous cafés.⁴⁵

Borgo Franceschino is a historic district in Trieste. Its development was facilitated by a concession from Emperor Francis II (Franz II), the first Emperor of Austria. Similar in design to the nearby Borgo Teresiano, Borgo Franceschino featured larger block sizes and was built during a period of significant urban development in Trieste, which reflected the growing importance of the city within the Austro-Hungarian Empire.⁴⁶

The area developed significantly during the Habsburg period (from 1382 to 1918) when Trieste was the main seaport of the Austro-Hungarian Empire. This expansion was part of a broader effort to modernise Trieste and support its growing role as a crucial hub for trade and commerce in the empire. Under Habsburg rule, Trieste underwent well-planned urban development that included the creation of new districts like Borgo Franceschino. The planning reflected the need for orderly expansion, efficient infrastructure, and attractive architecture to showcase the city's prosperity.

Like other parts of Trieste developed during the Habsburg era, (like Borgo Giuseppino or Piazza della Borsa) the district follows a structured grid layout. The plan was intended to facilitate easy navigation and efficient movement of people and goods, which is crucial for a growing port city. The district's streets are relatively broad, reflecting the urban planning principles of the time, which prioritised accessibility, ventilation, and light. These streets allowed for smooth traffic flow and provided large spaces for pedestrians.⁴⁷

As Trieste grew, Borgo Franceschino became a vibrant district, home to merchants, artisans, and officials who were integral to the city's economy. The district reflects the diverse social fabric of Trieste under Habsburg rule, with a mix of Italian,

Austrian, Slovenian, and other communities. This diversity was further enhanced by the district's proximity to Piazza Oberdan, one of the critical squares in Trieste. Located near Borgo Franceschino (in the northeastern part of the city, near the city centre), Piazza Oberdan acts as a central transport hub and a symbolic site in the city's history, linking the district to other parts of Trieste and serving as a gateway for movement in the town. The square's strategic position facilitated the flow of people and goods. The square is named after Guglielmo Oberdan, an Italian irredentist martyr, symbolizing the complex nationalistic tensions in Trieste during the late 19th and early 20th centuries. The Piazza has historically been a focal point for mobility, featuring tram lines, buses, and other forms of public transportation. It connects Borgo Franceschino to essential transit routes, from historical view the Opicina tramway, or nowadays several public transportation lines, which are strengthening the district's accessibility and integration with the rest of the city.⁴⁸

The area around Piazza Oberdan includes several significant buildings (Palazzo Panfilli, Palazzo Vianello, Tempio Israelitico di Trieste, Casa di Cura Triestina) that embody the influences of Habsburg architecture and modern architectural styles. As an example Palazzo Panfilli and Palazzo Vianello, both located near the Piazza, exhibit features typical of the neoclassical and historicist architectural styles. These buildings reflect the glory and elegance favoured by the Habsburg Empire, characterised by symmetrical facades, detailed cornices, and arched windows. The use of neoclassical elements like columns and decorative sculptures reflects the Austro-Hungarian influence, with a focus on monumental urban development.⁴⁹

Borgo Franceschino, alongside Piazza Oberdan, represents a crucial part of Trieste's urban history, particularly under the influence of Emperor Francis II and the broader Habsburg Empire. The district's urban expansion under Habsburg rule, reflects a structured city planning, neoclassical architecture, and a blend of modernist influences that began to emerge in the so called "Otto Wagner Areal", deeply intertwined with the empire's legacy and the evolving needs of a modern European port city.



Fig. 24

Fig. 24 | Piazza Oberdan

⁴⁸ Wikipedia, Piazza Oberdan (Trieste), [https://it.wikipedia.org/wiki/Piazza_Oberdan_\(Trieste\)](https://it.wikipedia.org/wiki/Piazza_Oberdan_(Trieste))

⁴⁹ Maura Hametz, Presnitz in the Piazza. Habsburg Nostalgia in Trieste, https://elearning.unite.it/pluginfile.php/273198/mod_resource/content/0/presnitz_piazza_nostalgia_trieste.pdf

⁴⁵ MOVIO, Trieste nell'800, <https://movio.beniculturali.it/pmfvg/viverelottocentoatrieste/it/9/introduzione>

⁴⁶ MOVIO, Trieste nell'800.

⁴⁷ Urbanismo Barcelona. 4/1986. <https://upcommons.upc.edu/bitstream/handle/2099/3931/annex.pdf;jsessionid=>



Fig. 25

Fig. 25 | Parco di San Giovanni 1908

⁵⁰ MOVIO, Trieste nell'800.

Otto Wagner Areal

The Otto Wagner Areal refers to an area of Trieste influenced by Otto Wagner's designs. Although Wagner did not directly design buildings in Trieste, his architectural philosophy and urban planning principles significantly influenced the city's development during the late 19th and early 20th centuries.

Wagner, a professor at the Vienna Academy of Fine Arts, mentored several architects who later brought his ideas to Trieste, including Max Fabiani. Fabiani played a significant role in Trieste's urban transformation and was directly influenced by Wagner's modernist approach, emphasizing functionality, simplicity, and integrating new materials.

"Max Fabiani introduced the elegant and rational style of his master Otto Wagner to Trieste, and Giorgio Zaninovich (also a student of the Wagnerschule in Vienna) embellished certain residential buildings on Via Commerciale with an imaginative and, at times, surprising interpretation of the Secession Style. A Wagnerian play of solids and voids and exterior shells that seem to disintegrate into large windows on the ground and mezzanine floors (which were intended for commercial activities) are just two of the features that characterize some of Trieste's most beautiful Art Nouveau buildings."⁵⁰

Fabiani's buildings often feature straightforward, practical designs with restrained decoration, embodying Wagner's belief that architecture should serve its purpose while remaining beautiful. Inspired by Wagner, Fabiani was among the early adopters of materials such as reinforced concrete, steel, and glass in his designs in Trieste, pushing the boundaries of traditional construction methods. His approach to blending buildings with urban context ensures that each project contributes to the city's broader visual and functional coherence.

Max Fabiani's work around Piazza Oberdan shows his approach to modernist architecture and urban planning. His contributions to the district helped shape Trieste's urban character, blending functionality with a modern aesthetic. Fabiani's projects (for example, Casa Bartoli or Narodni Dom) are emblematic of the rapidly changing cultural and

architectural shifts Trieste underwent during the early 20th century.⁵¹

The Parco di San Giovanni in Trieste plays a significant role in the broader narrative of the „Otto Wagner Areal“ and the city’s architectural transformation during the late 19th and early 20th centuries. Originally, the area was the site of the psychiatric hospital complex (Ospedale Psichiatrico di Trieste), which was designed in the late 19th century and remained in use until the late 20th century. The hospital complex reflects Otto Wagner’s philosophy, which emphasised functionality, rationality, and the harmonious integration of buildings within their natural surroundings. The park itself represents a blend of historical and modern architectural elements, embodying the city’s transition from its imperial past to its modern identity. The area has been repurposed in recent decades, transforming the former hospital grounds into a public park and cultural hub. This reimagining of space ties into the broader modernist principles of adaptive reuse and the integration of old structures into new, functional urban landscapes. In line with the architectural values of Otto Wagner and his disciples like Max Fabiani, the park is now an area where history and modern use intersect, demonstrating how public spaces can evolve while maintaining respect for their original design and function.⁵²

Fig. 26 | pavillon today

⁵¹ Richard Bassett The Imperial Riviera Trieste, Ljubljana and the Istrian Peninsula, <https://martinrandall.ontigerbay.co.uk/content/files/ITTheImperialRiviera-1.pdf>

Toujours etre ailleurs, Trieste art nouveau, <https://www.toujoursetreailleurs.com/2017/09/trieste-art-nouveau-liberty.html>

⁵² Victor Caneva, Freedom and Flowers. Lessons from Parco San Giovanni, <https://www.intrieste.com/2022/06/24/freedom-and-flowers-lessons-from-parco-san-giovanni/>

John Foot, The Man Who Closed the Asylums. Franco Basaglia and the Revolution in Mental Health Care.



Fig. 26

Andrea Huber

THE PERIPHERY



Leaving the center of Trieste and heading northeast, you reach the coastal suburb of Barcolas. Here, the noise of the city gradually fades away and is replaced by the sound of the sea. While the surrounding area is characterized by hilly vegetation in the middle of the Karst and small detached houses and blocks of flats, there are some striking landmarks. These have cultural and historical significance, create a sense of identity, and serve as landmarks. On the pine-tree-lined promenade of Barcola, high up on the hill, stands one of the town's landmarks, the Sanctuary of Monte Grisa.

The Sanctuary of Monte Grisa

The Sanctuary of Monte Grisa, commonly known as Cheese Corner, is one of the most remarkable Brutalist buildings in Europe. Antonio Santin, former mayor of Trieste and Koper, promised in 1945 to build a church if the city was not completely destroyed in the Second World War. The sanctuary was built between 1963 and 1965. Since then, it has become a symbol of peace and unity among all people. The Sanctuary was designed by Antonio Guacci, who used triangular modules to symbolize the letter M for the Holy Mary. The triangular shape also recalls the Trinity in biblical symbolism. The building is 40 meters high and is made of reinforced concrete, modular, and self-bearing.⁵³ The Sanctuary of Monte Grisa is undoubtedly part of the legacy of Brutalism, which sought to offer a new beginning to a society wounded by war.⁵⁴

Excourse Brutalism

Brutalist architecture sought to free itself from rigid modernism and reduce it to its essentials. In the 1960s and 1970s, Team 10 promoted structuralism and brutalism with theoretical contributions.⁵⁵ In Europe, brutalism was influenced by Le Corbusier. One of the most important Brutalist buildings is the Unité d'Habitation in Marseille, which was built in France and Germany between 1947 and 1965. The aim was to alleviate the housing shortage after the Second World War.⁵⁶ The idea was to create housing for the masses, a classless society.



Fig. 27

Fig. 27 | Monte Grisa

⁵³ Architectuul, Temple of Monte Grisa, <https://architectuul.com/architecture/temple-of-monte-grisa>

⁵⁴ Domus, 20 Brutalist Works in Italy, <https://www.domusweb.it/en/architecture/gallery/2023/05/18/20-brutalist-works-in-italy.html>

⁵⁵ Brutalismus.com, Brutalism. Architecture of Everyday Culture, Poetry and Theory, <http://brutalismus.com/>

⁵⁶ Domus, 20 Brutalist Works in Italy.

⁵⁷ Katharina Schmidt, Rozzol Melara Transformation, Zukunftsfähiges Wohnquartier im Haus, (Master's Thesis at Leopold-Franzens University of Innsbruck 2018).

⁵⁸ Schmidt, Rozzol Melara Transformation 14-17.

⁵⁹ Ministry of Culture, Chiesa Parrocchiale di San Giuseppe Lavoratore, National Census of Second Twentieth Century Architecture, <https://censimentoarchitetturacontemporanea.cultura.gov.it/scheda-opera?id=4539>

⁶⁰ Schmidt, Rozzol Melara Transformation 14-17.

The purpose of building for everyday use came to the fore. The English architectural theorist Christopher Beanland argued that the style was characterized by aggression against the city, not against people. Brutalism emphasizes the right to the city and to housing and reflects the desire and belief in a society based on justice and solidarity.⁵⁷

Heading south from the Sanctuary towards the Slovenian border, another of the city's landmarks rises from the hilly vegetation: the Rozzol Melara social housing complex. The Brutalist building was built in the 1970s and, due to its geographical location, offers a panoramic view over the city as far as the Adriatic Sea.

Rozzol Melara

The Rozzol Melara social housing complex, which resembles a fortress, stands out visually from the rest of the city. Also known as quadrilatero, it consists of two L-shaped volumes facing each other, 200 meters long and over 40 meters high. The volumes rest on massive concrete supports designed to represent tree trunks. The building was designed and built between 1969 and 1983 by the Triestine architects Celli and Tognon. At the time, it was one of the first to be built on the outskirts of the city, which was gradually being urbanised.⁵⁸ The idea was to create an independent city within the city for 2500 inhabitants.⁵⁹

The lower floor is open to the outside with large portholes, while the other floors are subject to a strict façade grid. In the centre of the building is a big courtyard, which makes the vast dimensions of the complex tangible. The interior of the building is divided into private and public areas. The uses are fixed and therefore severely restrict flexibility. As a result, many common areas are empty and subject to vandalism. Human appropriation of the spaces is difficult to discern, and the lives of the residents seem closed off. The housing complex thus demonstrates the complex relationship between Brutalist architecture and the needs of a socially disadvantaged society.⁶⁰



Fig. 28

Fig. 28 | Rozzoli Melara

Excursion Demography

The great housing shortage after the Second World War was due to the influx of Italians from Istria, Dalmatia, and other areas that came under the control of socialist Yugoslavia after the Paris Peace Treaty. The migration was partly voluntary and partly forced. Many Italians moved to Trieste because of discrimination and communist rule, which led to a sharp increase in the city's population.⁶¹ However, in 2023, the population increased again due to migration from abroad. The population on 31 December 2023 was 199.400⁶², including the influx of 16,052 refugees from the Balkan route (as of 2023). To sum up, the city of Trieste has always been living from migration and its cultural diversity.⁶³

The traffic signs in Italian and Slovenian point to the city center, and the way back passes two empty Buchi Neri. A final view of the city reveals landmarks such as the Castle of San Giusto, the University, and the Cattinara Hospital.

Ex Fiera

The Ex Fiera in Via Rossetti is made up of several buildings that once housed the Trieste Trade Fair Centre. The area played an important role as a venue for local and international fairs, events, and exhibitions. However, with the passage of time and changes in the use of exhibition centers, the importance of the site diminished, and it was eventually closed.⁶⁴ Since then, the buildings have stood empty and derelict. In recent years, the former Fiera site has been the subject of public debate. The site is now being transformed into a multifunctional shopping center. It will include areas for leisure, sports, shopping, children's play, restaurants, and gyms. The mayor of Trieste, Roberto Dipiazza, said the project would boost the local economy and create a new leisure center.⁶⁵

⁶¹ Gustavo Corni, The Exodus of Italians from Istria and Dalmatia 1945–1956. In: The Disentanglement of Populations (2011) 71-72.

⁶² Trieste Prima, Trieste. Popolazione Cresciuta Grazie agli Stranieri, <https://www.triesteprema.it/cronaca/trieste-popolazione-cresciuta-stranieri.html>.

⁶³ "Analisi degli arrivi nel corso del 2023. In: Comunità di San Martino al Campo ODV, Consorzio Italiano di Solidarietà (ICS), Diaconia Valdese (CSD), DONK - Humanitarian Medicine ODV, International Rescue Committee Italia (IRC), Linea d'Ombra ODV, Vite abbandonate (2024) 16.

⁶⁴ Roberto Dambrosi, Ex Gasometro. In: Buchi Neri, indagine sui luoghi incompiuti o abbandonati della città di Trieste (Trieste 2020).

⁶⁵ Nicolò Giraldi, Fiera di Trieste: al via i lavori per il nuovo centro congressi, In: TriestePrima, March 22, 2024, <https://www.triesteprema.it/cronaca/fiera-trieste-lavori.html>

Ex Gasometro

The ex-gasometer of Trieste, in via Barolomeo d'Alviano, is a remarkable industrial monument that was once part of the city's gas supply system. The building dates back to the end of the 19th century and is characterized by its cylindrical shape, with a diameter of 45 meters and a height of 35 meters. The gasometer held around 20,000 m³ of gas and was decommissioned in 1952⁶⁶. Since then, the building has stood empty, and it has architectural resemblances to the Viennese Gasometer and is a listed monument.⁶⁷

Finally, the peripherality has been left behind, and the dynamism of the city has been regained. The green spaces are disappearing, and the dense buildings and narrow alleys are closing in. In short, Trieste combines the vibrancy of a historic port city with the rural, nature-loving periphery—an interplay between urban and rural diversity.

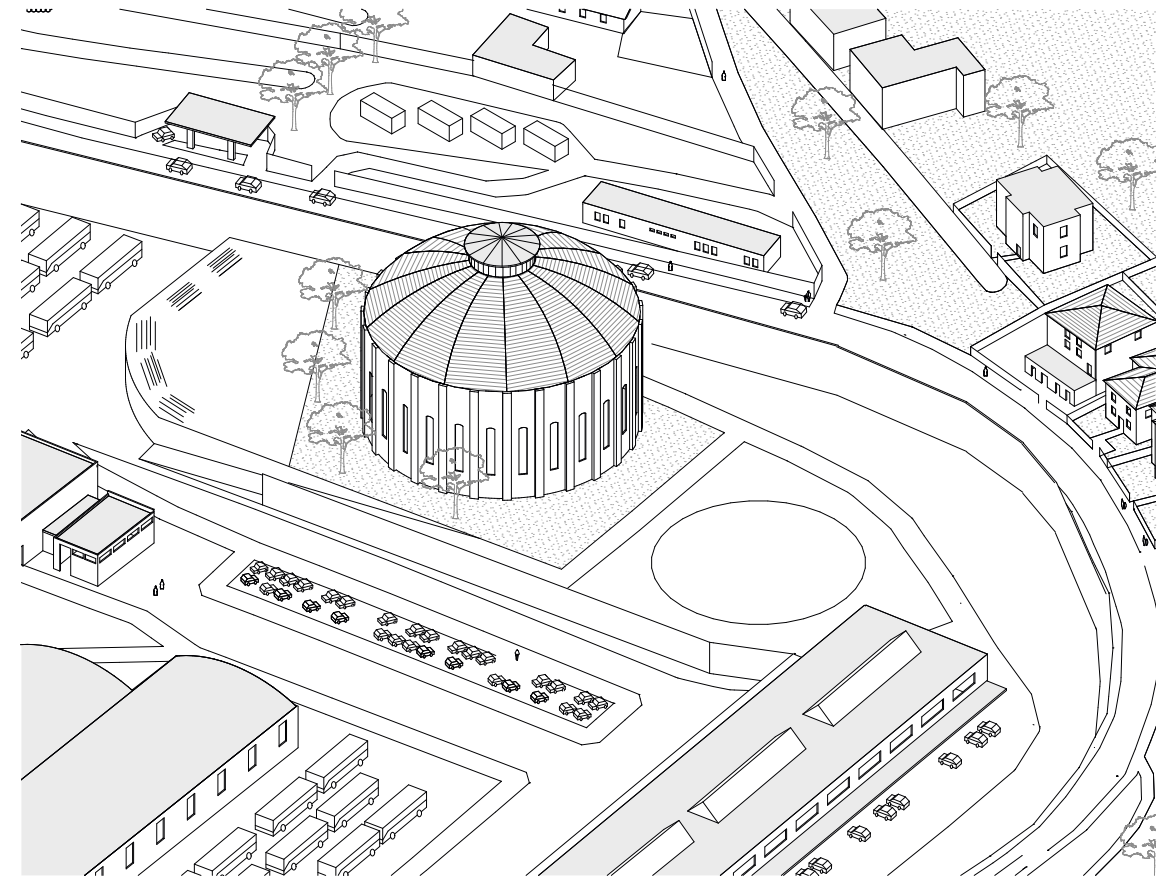


Fig. 29

Fig. 29 | Ex Gasometro 2024

⁶⁶ Italy for Movies, Former Gasometro of Broletto, Trieste, <https://www.italyformovies.com/location/detail/18035/former-gasometro-of-broletto-trieste>

⁶⁷ D'Ambrosi, Ex Gasometro.

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EXPERIENCE REPORT: LEARNING FROM TRIESTE

As part of our master's thesis, we had the opportunity to work in a group setting in Trieste. This collaborative experience proved to be an invaluable component of our final academic journey, both in terms of the information gathered and the insights gained through teamwork.

One of the key benefits of working in a group was the richness of the exchange among us. Each member brought their own perspective, expertise, and approach, which allowed us to collectively gather more information than any of us could have managed individually. We were able to share resources, insights, and ideas, ultimately broadening the scope and depth of our research.

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A particularly enriching aspect of our time in Trieste was the interaction with key individuals such as Roberto Dambrosi and Giulio Polita. Their knowledge of the city, as well as specific buildings and urban contexts, was instrumental in deepening our understanding of the subject matter. These discussions helped contextualise our research within the unique social and historical fabric of Trieste.

However, the collaborative process was not without its challenges. One of the primary difficulties was arriving at a shared conceptual framework for our work. With six people, each bringing their own ideas and priorities, it was challenging to settle on a unified direction. As a result, we decided to focus on individual projects while maintaining a thematic connection across our work. This approach allowed us to maintain creative independence while still contributing to a cohesive body of research.

Despite the eventual shift to individual projects, the group work was immensely helpful and rewarding. The collaborative brainstorming sessions, shared discoveries, and collective problem solving enriched each of our individual efforts. The support and input from our peers added layers of complexity and depth to our own work, which we might not have achieved on our own.

In conclusion, working in Trieste as a group was an inspiring experience. It highlighted the power of collaboration and the value of diverse perspectives in academic research. While the transition to individual projects allowed for personal focus, the initial group efforts laid a strong foundation that significantly enhanced the quality of our final thesis.



Fig. 30

„Renovation is always more about evolution than preservation“¹

Gong Dong

¹ Gong Dong, quote: Vladimir Belogolovsky, Renovation is always more evolution than preservation. In: Sergei Tchoban (Hg.) speech: postindustrial (Moscow 2019) 173.

² Vittorio Gregotti, Von der modifikation. In: Österreichische Gesellschaft für Architektur - ÖGFA (Hg.) Umbau 29. Umbau. Theorien zum Bauen im Bestand (Basel 2017) 26.

³ Österreichische Gesellschaft für Architektur - ÖGFA, Umbau 29. Umbau. Theorien zum Bauen im Bestand (Basel 2017) 7.

II MODIFICATION TREND?

Looking at current architectural discourses, you will inevitably encounter the terms remodeling, transforming, and building on existing structures. This is not surprising when you consider current developments such as the increase in the world population, cities, and villages marked by war, climate change, environmental disasters, and resource scarcity. Dealing with existing structures, with what already exists, can therefore be seen as a logical conclusion and reaction to current changes to which architecture must also respond. Dealing with existing structures and their transformation processes is nothing new, however, and this becomes clear when you take a closer look at architectural theories and practices of the last few centuries.

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FROM THEORY TO PRACTICE? FROM PRACTICE TO THEORY?

Vittorio Gregotti spoke of modification as early as the 1980s, the concept of which can even be regarded as the “most continuous and sustainable element within the changes in architectural theory of the last thirty years”². Modification as a theoretical but also project-related approach that aims not only at a model but also at a method.³

In 1989, Hermann Czech also argued that existing structures should not be seen as a background but as a starting point for architectural considerations and shared his thoughts in “Der Umbau,” which are still valid today: Architecture as a



Fig. 1

Fig. 1 | Temple Antoninus Pius and Faustina/ church San Lorenzo di Miranda

⁴ Andreas Vasss, Zu Hermann Czechs Text „Der Umbau“. In: Österreichische Gesellschaft für Architektur - ÖGFA (Hg.) Umbau 29. Umbau. Theorien zum Bauen im Bestand (Basel 2017) 14.

⁵ Nina Frolova, A difficult shift in identity. In: Sergei Tchoban (Hg.) speech: postindustrial (Moscow 2019) 49.

⁶ Historic England Foundation, The story, <https://www.shrewsburyflax-millmaltings.org.uk/story/>

⁷ Staatliche Museen zu Berlin – Preussischer Kulturbesitz, Profil des Hamburger Bahnhof – Nationalgalerie der Gegenwart, <https://www.smb.museum/museen-einrichtungen/hamburger-bahnhof/ueber-uns/profil/>

transformation of what is found.⁴

Looking even further back in time, Roman and Greek temples were converted into cathedrals, and Christian monasteries were subsequently transformed into prisons, educational institutions, and hospitals. As secularization progressed in Europe at the end of the 18th century, churches that were no longer needed were converted into warehouses, workshops, or theaters.

If we look at factories, they too were rebuilt and their function changed from the beginning of the industrial revolution.⁵

The Ditherington Mill in Shrewsbury, for example, was considered the first flax mill in the world from 1797 onwards, was converted into a malthouse from 1897 to 1987, and served temporarily as a military barracks during the Second World War.⁶ The Hamburger Bahnhof in Berlin, an important monument in the history of the railway, was converted into a residential and office building just forty years after it was built in 1846 and was designed as an exhibition hall for transport and construction museums from 1904 onwards.⁷

These are just examples of a large number of buildings that have adapted to new circumstances and changes and have been used as a resource. They are pragmatic projects that are not based on concepts of a “second life” of industrial structures.

Eugene Viollet le Duc can be seen as the first theoretician to deal with the architectural analysis of existing buildings. He began to talk about “restoration” in the middle of the 19th century. He advocated the concepts and design of the original architect if one wanted to achieve new functions and conversions in buildings.

At the turn of the century, however, Alois Riegl considered the utility value of a building, aside from its sentimental value, when converting a building. He advocated a clear distinction between old, existing structures and newly added ones.

These concepts of preservation and reconstruction influenced and shaped the fundamental charts of the 20th century with regard to dealing with existing buildings.

While questions about how to preserve things were answered, the question of *what we should actually preserve* was still unanswered.

After the Second World War and its losses, the term „heritage“ was expanded to include functional buildings from relatively recent times. Now, it was no longer just „masterpieces“ and antiques that were valued but also relatively modern, utilitarian buildings that needed to be preserved.

The post-war years also brought with them the term lofts, which originated in New York. Abandoned factory buildings in the Soho district that had originally been used for industrial purposes were rented out to artists at low prices, who used the rooms as living quarters, studios, and workshops. This was followed by the opening of numerous cafes, bars, and clubs, which led to an improvement in the district. Gentrification was the result. Due to the spacious rooms and their lighting, the high-quality construction, and their durability, these buildings represented a practical resource that allowed for a wide variety of subsequent uses.

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Fig. 2

Fig. 2 | Warehouse Soho, Atelier of artist Donald Judd, The exterior of 101 Spring Street, 1972

The economic changes in the 1960s and 1970s, which were accompanied by the oil crisis, also meant that the construction of new buildings was often seen as too expensive. In addition, the first environmental movements, which called for sustainable use of existing buildings, among other things, gained more and more attention.

Parallel to these pragmatic developments and appropriations of empty buildings, new discourses also became noticeable in architectural philosophy. Modernism, with its ideal of a new life and the dawn of a new, more progressive era, was replaced by postmodernism. Tradition, history, and „the spirit of the place“ once again became the focus of attention. Former production facilities, power plants, gas storage facilities, and warehouses from the 19th and 20th centuries were seen as valuable and worthy of preservation, and the concept of „industrial heritage“ gained more and more attention.

While buildings from more distant periods were relatively often considered worthy of preservation and protection, this was rarely the case for buildings from more recent eras.

Empty buildings from the last 50 years are gaining increasing attention in the current debate about reuse. Buildings that are simply considered unattractive, but also building materials that are difficult to recycle, reuse, or even toxic, often make it difficult for such buildings to find a suitable subsequent use.⁸

Reconstruction and reuse, appropriation of what already exists, transformation, modification, change and adaptation have been common practice in the history of architecture for centuries. Theories and attitudes developed alongside pragmatic practices, in close relation to social and economic changes in society and its built environment.

The existing material artifacts, as well as social structures and ecological systems, serve as starting points that are subject to a constant transformation of values and identities. The term repair can be understood as the restoration of a useful value that needs to be contextualized and further thought through in today's reconstruction discourse. This is not only an ecological or substance-related task but also a social one that is gradually becoming more and more of a part of our society's consciousness. Working with the existing structure no longer necessarily means monument preservation but rather substance maintenance.⁹ Understanding the built environment as a resource on various levels can mean both preserving an entire building but also allowing it to be demolished and integrating its building materials completely or partially into a reusable material cycle.



Fig 3

Fig. 3 | „Haus der Statistik“, Berlin

⁸ Frolova, A difficult shift in identity 48-64.

⁹ Florian Hertweck, Christian Hiller, Felix Hofmann, Markus Krieger, Marija Maric, Alex Nehmer, Anh-Linh Ngo, Milica Topalovic, Nazli Tümerdem, The Great Repair, Praktiken des interstitiellen Wandels. In: Arch+ (Hg.) The Great Repair - Praktiken der Reparatur (Leipzig 2023) 1-4.

III HERITAGE OF INDUSTRIAL BUILDINGS

RETROSPECTIVE

Sustainable urban development requires sustainable use of resources. If you look at the majority of cities, these are abandoned factories and industrial areas. The establishment of factories since the beginning of industrialization has changed cities, their infrastructure, architecture, and their inhabitants all over the world¹⁰, but factories themselves have also been subject to rapidly changing technologies, production processes, and working conditions.¹¹ Industrialization brought with it a legacy of cultural monuments but also landscapes characterized by ruins and abandoned communities.¹²

The emergence of factories is based on the development of spaces in which products were manufactured outside of the home for the first time.¹³ With the invention of the steam engine, mechanical production of goods became possible, which thus drove economic growth¹⁴, but also required corresponding space and infrastructure. Increasingly specific factories with special requirements were created.¹⁵ Since the beginning of the industrial revolution in the 18th century, multi-storey factory buildings have enabled an automated, fluid organization of production processes, as well as their entire monitoring under one roof.¹⁶ Factories have always been seen not only as spaces for the production of goods but also as communication spaces in which social networks were created.¹⁷ From the late 18th century onward, specific industrial sectors developed

¹⁰ Martina Baum, Kees Christiaanse, city as loft. Adaptive Reuse as a Resource for Sustainable Urban Development (Zürich 2012) 10.

¹¹ Nina Rappaport, Vertical Urban Factory (New York 2020) 6-11.

¹² Neil Cossons, Industriekultur: ein globales Phänomen. In: Joseph Hoppe, Heike Oevermann (Hg.) Metropole Berlin. Die Wiederentdeckung der Industriekultur (Berlin 2020) 13-17.

¹³ Rappaport, Vertical Urban Factory 6-11.

¹⁴ Joel Behne, Thomas Tippach, Industrialisierung, <https://www.uni-muenster.de/Staedtegeschichte/portal/einfuehrung/geschichte/industrialisierung.html>

¹⁵ Rappaport, Vertical Urban Factory 6-11.

¹⁶ Rappaport, Vertical Urban Factory 40-41.

¹⁷ Rappaport, Vertical Urban Factory 8.



Fig. 4

Fig. 4 | Clusters of multistory factories in Eibar, Spain in the 1950s

¹⁸ Rappaport, Vertical Urban Factory 62-72.

¹⁹ Cossons, Industriekultur 13-17.

²⁰ Rappaport, Vertical Urban Factory 62-72.

in cities. Infrastructures were expanded, and more and more people moved from the countryside to the city to produce, trade, work, and live. There was a rapid increase in population, for which resources had to be made available, clearly illustrating the symbiotic connection between cities and factories.¹⁸

Monument protection can be seen as a counter-concept to industrialization, and its origins are rooted in criticism of industrialization. Industrialization was held responsible for the destruction of rural structures and communities, as well as their traditions and values, which needed to be protected. The state of the pre-industrial age should be preserved. An example of this is the „National Trust“ organization, founded in Great Britain in 1895, which set itself the task of preserving buildings and landscapes from pre-industrial times. At the same time, however, measures were also taken to promote the protection of smaller-scale industrial monuments. Above all, there were the museums whose task were to preserve and conserve traditions from the heroic era of industrialization.¹⁹

Production processes from small piecework to assembly line work also brought about a change in land use. Large building complexes were built near energy and transport sources. At the end of the 19th century, electrification, steel production, and new transport and telecommunications networks occurred, and thus a rise in large-scale industries led to a second industrial revolution. These industries exported to the world markets and, with increased production, influenced the development and expansion of factory buildings in the cities. However, due to the increase in population, cities became denser and land became more expensive, which meant that factory buildings were built ever higher.²⁰

Due to changes in production patterns and changes in the import and export markets, the requirements for factories and industrial sites also changed.²¹

While factories of the past were often located directly in the city, or the city began to expand around it, today we find factory sites mostly on the outskirts or in the periphery.²² The post-industrial age brought with it serious economic and social consequences. Existing facilities could often no longer keep up with the demands of the rapidly growing markets; industrial

centers were relocated, factories closed, and workers lost their jobs.²³ From the 20th century onwards, new development plans and the rezoning of building land ensured that factories, with all their negative side effects such as noise, dirt, and smell, were pushed out of city life. The result was empty factories in the city.²⁴

²¹ Behne, Tippach, Industrialisierung.

²² Rappaport, Vertical Urban Factory 62-72.

²³ Behne, Tippach, Industrialisierung.

²⁴ Rappaport, Vertical Urban Factory 62-72.

POTENTIALS OF AN INDUSTRIAL ECOLOGY

Due to the constantly increasing pollution of land, water, and air, a rethinking in our current society has begun in recent decades with regard to vacant factory sites but also future sustainable factories. A sustainable factory can be seen not only as a factory that integrates into the landscape or leaves a minimal ecological footprint, but also as one that contributes symbiotically to an ecological system, becoming an industrial organism that influences both social and ecological sustainability. An ecologically sustainable factory must address not only how things are made in a factory but also how the factory itself is made and which resources are used.

To maximize a factory's performance while minimizing its environmental impact, it is important to focus more on its environment, using natural resources and minimizing waste by integrating them into an energy-efficient cycle. Despite the inevitability of industrial pollution and waste, there are ways to promote a new „industrial ecology“.²⁵

The term „industrial ecology“ was first coined by Robert Frosch and Nicholas Gallopoulos, who in 1989 focused on the way in which materials and things move in production processes. These flows should be viewed as ecosystems that are constantly interwoven with one another and can be modeled on natural circulatory systems.

Possibilities for this include, on the one hand, seeing existing factory buildings as a resource, using and transforming them, but also generating energy from waste and making new buildings energy efficient and CO₂ neutral: reuse, recycle, and reduce.

Another way to rethink a sustainable factory is to see it as a living machine in which the organism of the product, as a metabolic production machine, relates to and responds to its natural and man-made environment.²⁶

Industrial symbiosis can manifest itself both at the level of individual buildings and at the urban level, creating added value for an entire city and its inhabitants.²⁷

„Both nature and industry can prevail. Emulating the metaphor of organic machine systems, industrialists (somewhat reluctantly) and environmentalists can sketch out how manufacturers can clean up their messes, just as biological systems can clean up themselves. For instance, nature has no garbage problem because nothing becomes waste. An industry imitating this and other organic principles would be more compatible with the organic domain around it“²⁸.

Just as past factories represented architecture of the industrial age, today's new technologies of energy production, but also circular concepts at various levels, can influence future architectures.

²⁸ Kevin Kelly, Out of Control. The new biology of machines, social systems and economic world (New York 1994) 177.

²⁵ Rappaport, Vertical Urban Factory 370/369-376.

²⁶ Robert A. Frosch, Nicholas E. Gallopoulos, Strategies for Manufacturing. In: Scientific American 261, H.3 (1989) 144-152.

EXAMPLES OF DEALING WITH INDUSTRIAL HERITAGE

Energetic conversion

The Plant
Chicago US, 2010

The former pork processing plant in Chicago is considered an example of a conversion into a vertical urban farm.

The factory site, built in 1925 by the company Peer Foods, is located in Chicago's Back of the Yards district²⁹, which was named after the cattle farms in the area at the turn of the century. The farms and stables, as well as run-down workers' housing estates, characterized a square mile of the city, which was considered the capital of meat processing.³⁰

After nearly 85 years, the company was closed and acquired by Bubbly Dynamics in 2010. Contrary to the district's expectations to demolish the building, the company recognized the structure as a resource, as many of the functional foundations, such as infrastructure and food-grade surfaces, were left behind and can be recycled in a new concept of vertical urban farms.

This concept included the establishment of small local food producers who would supply the previously neglected district with fresh products and create urgently needed jobs.

The plant has thus developed into a collaborative community of small food businesses that house indoor and outdoor farms, kombucha and beer breweries, a bakery, a cheese distributor, a coffee roaster³¹, as well as a beekeeping, aquaponic and algae farm. The teaching, research, but also socially networking basic idea of the project is also reflected in the creation of laboratories, seminar rooms and event spaces, creating a symbiosis of public and private functions.

Where freezers once stood on the ground floor, a brewery now produces. Wastewater, yeast, grain, and heat used in the production steps are recycled and integrated into an energy cycle. The brewery uses its waste heat to heat the building in winter, used grain is used as compost for the farms on site,

and the carbon dioxide released during the fermentation of the beer is piped to the upper floors to fertilise an algae farm.³² The building's mechanical and organic circuits thus form a self-contained circulating system.³³

The building contains a variety of resources that were created for food production. These include, for example, extremely resilient ceilings that can withstand the loads of machines, numerous drains and connections, but also different surface finishes that ensure hygienic standards for food production, which has enabled a renewed, but newly interpreted use as a food factory.

The heart of the building was to be a fermenter that would convert the factory's food waste into biogas and heat the boilers inside the building. Due to a lack of financial resources, the project is currently waiting to begin. In the meantime, however, research is being carried out in laboratories in the factory to determine whether valuable molecules, antioxidants, or, for example, vanilla could be extracted from the fermenter's waste.

The circular economy concept of the project can help to make agriculture, its energy, and its water cycle more sustainable.³⁴

²⁹ Bubbly dynamics, About The Plant, <https://www.insidetheplant.com/aboutthe-plant>

³⁰ Morgan McFall-Johnsen, The Plant Chicago. In: GROZINE, 11.08.2023, <https://www.grozi-ne.com/2023/08/11/the-plant-chicago/>

³¹ Bubbly dynamics, About The Plant.

³² McFall-Johnsen, The Plant Chicago.

³³ Irina Vinnitskaya, The Plant: An Old Chicago Factory is Converted into a No-Waste Food Factory. In: ArchDaily, 07.05.2012, <https://www.archdaily.com/231844/the-plant-an-old-chicago-factory-is-converted-in-to-a-no-waste-food-factory>

³⁴ Morgan McFall-Johnsen, The Plant Chicago.



Fig. 5



Fig. 7



Fig. 6



Fig. 8

Fig. 5 | The factory after closure

Fig. 6 | Agriculture behind the building

Fig. 7 | Algae bioreactor blinds

Fig. 8 | Aquaponics system

„There’s wastewater, there’s grains, there’s yeasts, there’s heat. All of those things can be salvaged”³⁵



Fig. 9



Fig. 11



Fig. 10



Fig. 12

Fig. 9 | coffeeshop

Fig. 10 | Studio Work on display in the lobby of the Plant

Fig. 11 | Old smokehouses have been converted into bathrooms throughout the building

Fig. 12 | beekeeping at the rooftop

³⁵ John Edel, quote: Morgan McFall-Johnsen, Small businesses turned an old Chicago meatpacking plant into a living experiment in sustainable food, and they are thriving In: BUSINESS INSIDER, 10.08.2023, <https://www.businessinsider.com/inside-the-plant-chicago-closed-loop-urban-food-production-experiment-2023-8>

Social conversion

Granby4streets, Assemble
Liverpool UK, 2011

The site of granbys four streets is located in the district of Toxteth in Liverpool, UK. It developed in the 19th century mainly as residential area for the increasing working class community following the industrial revolution. The district is characterized through a high number of victorian terraced houses in different sizes and accomodate Liverpools most racially and ethnically diverse community. Toxteth was badly hit by economic stagnation and unemployment in the late 1970s, culminating in riots in July 1981. From the 1980s on the government started a "regeneration" program to restructure the district. The population were partially forced to leave their houses and move to other districts. The results were abandoned and dilapidated houses which were supposed to be torn down.

In 2011 Granby residents started an innovative form of community land ownership (CLT) to bring empty homes back into a use of affordable housing. Together with the architecture collective Assemble they refurbished ten terraced houses into housing, public and community spaces³⁶.

The approach was characterised by celebrating the value of the area's architectural and cultural heritage, supporting public involvement and partnership working, offering local training and employment opportunities and nurturing the resourcefulness and DIY spirit that defines the four streets³⁷.

The Granbys wintergarden was created as a place for neighbourhood gatherings, resulting from the merging and transformation of the two houses at numbers 37 and 39 in Cairns Street. It offers space for neighborhood gatherings and exchanges between the surrounding residents, but also serves as an event and workshop space and offers accommodation for artists' residencies.

Typical of terraced houses of their age, they have solid uninsulated brick walls with timber framed roofs originally clad in slate.

te. The houses are built with two primary materials – brick for walls, and timber for floors, roofs and non-load bearing walls. The collapsed ceilings of the two existing houses exposed three-story interior spaces, which Assemble retained and allowed for the planting of floor-to-ceiling trees and plants. Together with engineers, blue steel rings and beams were inserted into the existing walls to ensure the bracing of the walls and to preserve the existing building fabric.

Walls and floors were partially taken away, small interventions like new windows, doors and beams were added. Together with the neighbourhood the collective started Granbys workshop in which products like tiles or dishes are produced out of recycled materials. Each house is furnished by handmade elements³⁸.

The project of Assemble operates at different layers. At the level of an urban development, at the layer of historical victorian terraced house structures as far as on small detailed interventions to create a social and architectural impact.

³⁶ Granby4streetsCLT, History of Granby Four Streets, <https://www.granby4streetsclt.co.uk/history-of-the-four-streets>

³⁷ ASSEMBLE, Granby Four Streets 2013, <https://assemblestudio.co.uk/projects/granby-four-streets-2>

³⁸ ASSEMBLE, Granby Winter Garden 2019, <https://assemblestudio.co.uk/projects/granby-winter-gardens>



Fig. 13



Fig. 15

„What the Winter Garden and the Granby Four Streets exhibit is architecture as a form of activism.“³⁹



Fig. 14



Fig. 16

Fig. 13 | ruined houses in the district, 2012

Fig. 14 | transformation in the beginning

Fig. 15,16 | Wintergarden

³⁹ Aaron Betsky, Assemble's Winter Garden Grows Activism in Liverpool, In: Architect, 11.08.2022, https://www.architectmagazine.com/design/assembles-winter-garden-grows-activism-in-liverpool_o



Fig. 17



Fig. 18

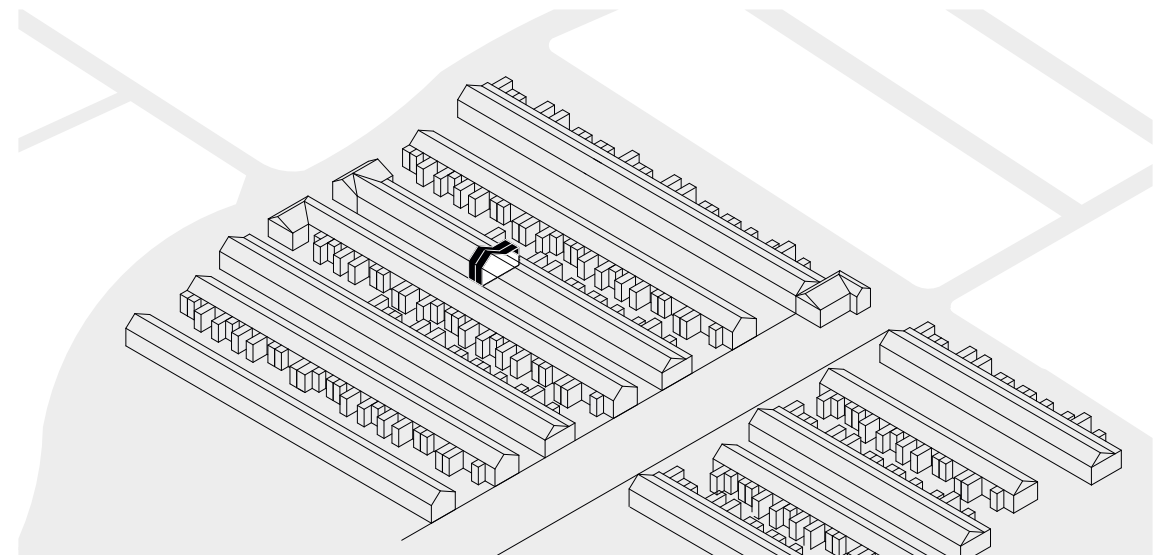
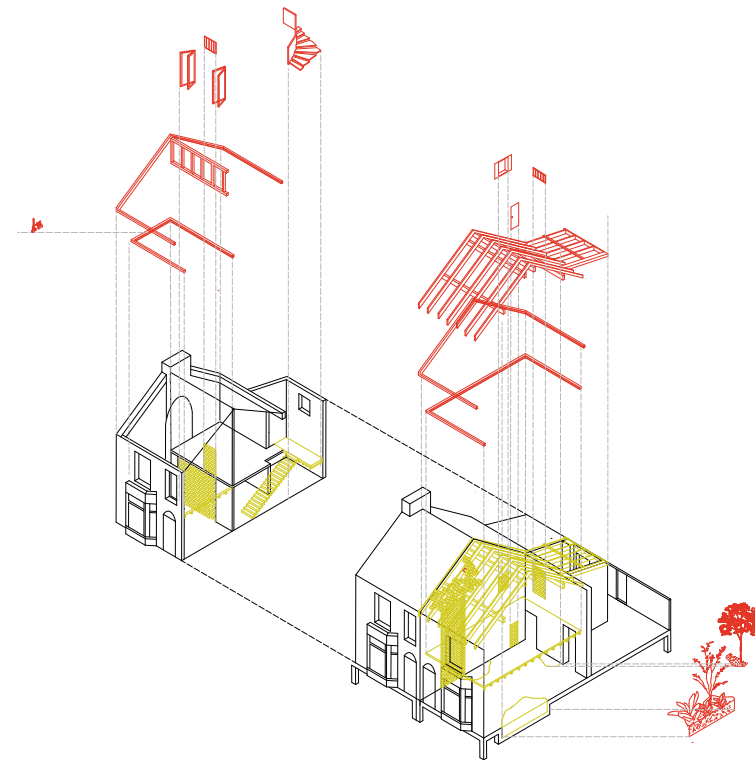


Fig. 19

Fig. 17 | Wintergarten

Fig. 18 | Workshop space

Fig. 19 | acting on different scales

Landscape conversion

Factory De Porre, Vandriessche Architecten
Ghent Belgium, 2014

The old textile factory De Porre in Ghent was considered the center of the textile industry in the 1930s. After bombings in the Second World War, the factory was rebuilt but had to declare bankruptcy and closed in 1980. The consequences of the years of vacancy that followed were very dilapidated, vandalized buildings that were a nuisance to the neighborhood.

The Ghent Urban Development Company then initiated an urban renewal project, which, among other things, addressed the area of the former factory.

The aim was to create a city park that would strengthen the community life of the district and create a pleasant place for residents for recreation.

The orthogonal floor plan of the factory served as a guide for the strict zoning of the area, which includes paths and organic green spaces. The former cooling tower of the factory, in the center of today's park, was renovated and now, as a remnant of its industrial past, shapes the city park as an identity-forming sculpture.

Across from the tower, a new pavilion made of light steel and glass was built, which houses the former decommissioned steam turbine, of which there are now only 5 examples, and functions as a kind of conservation showcase. The cooling water basin opposite was converted into a purification pond, from which water flows into a shallow play pond for children.⁴⁰

The characteristic construction elements of the building structure were partially exposed, allowing views and new spatial qualities. The central corridor, which once connected warehouses, was retained and now serves as a buffer and zoning element between the parking areas. The school adjacent to the site with its gymnasium was incorporated into the design by creating a sports field with adjacent seating under the old factory trusses. From here, an adventure playground extends with climbing courses and play equipment attached to the walls and under the metal supports.⁴¹ The planting of the com-

dow, which was, however, carefully planned together with shady fruit trees.

Together with the factory's structural artifacts, the park embodies an architectural landscape whose walls and structures create space for new communal activities and qualities of stay. Through citizen participation initiatives, the neighborhoods were included in the design process, whose exchange and integration had a positive effect on the entire district. The architectural landscape now offers space for intergenerational networking and serves as a meeting point for the entire district.⁴²

⁴⁰ Divisare srl, VANDRIESSCHE ARCHITECTEN.CONVERSION OF OLD FACTORY DE PORRE TO CITY PARK, GHENT, <https://divisare.com/projects/316066-vandriessche-architecten-conversion-of-old-factory-de-porre-to-city-park-ghent>

⁴¹ Vandriesschearchitecten, wijkpark De Porre, https://www.vandriessche-architecten.be/042_pub.html

⁴² Divisare srl, VANDRIESSCHE ARCHITECTEN.



Fig. 20



Fig. 22



Fig. 21



Fig. 23

Fig. 20 | before

Fig. 21 | meeting
place for the neigh-
bourhood

Fig. 22 | workable
zoning of the park's
functions

Fig. 23 | central cor-
ridor



Fig. 24



Fig. 26



Fig. 25



Fig. 27

Permanent conversion

La Laguna, Productora
Mexico City 2019

The Doctores district in Mexico City has neither monuments nor architecture that might be considered particularly valuable. The district, which is characterized by a large number of government buildings, district courts and hospitals, is not a typically industrial district, but the textile and lace factory La Laguna settled on the 4,500m² site in the 1920s. Due to economic changes in the clothing industry, the company's sales stagnated after the turn of the millennium.

The family's developer developed the concept of a „factory of workshops“ that would reactivate the area without losing its original use as a space of production. He believed that it was necessary to understand the economic cycles that affect cities in order to understand and anticipate changes.

„This new vision, called Laguna México, would require a strategy of adaptive reuse, not just an architectural intervention, but a broader project of community creation and economic transformation.“

The strategy was to bring creative professions to the city, establish production chains closer to consumers, and create spaces that, although privately owned, are open to the public.

An earthquake that struck the city in 2017 was seen as a catalyst for the consolidation of the factory as a craft workshop. Companies located in the earthquake area were provided with low-cost space on the condition that they create a community that promotes events and neighborhood networking. As a result, architectural firms, a gallery, a felt and textile workshop, a library, a school, as well as a film company in addition to the coffee production company, the furniture workshop and a ceramics production company that had already been established there.

One of the architectural firms located there, Productora, dedicated itself architecturally to the adaptive reuse project.

The focus of the conversion strategy was the creation of a connecting open space, which was achieved through minimalist interventions in the factory's inner courtyard. New elements deliberately stand out from the existing exposed concrete with an olive green color but refer to the patina of the former looms. The existing factory was understood as a series of rooms that had been created over the years but could not be read as a unified element.

Newly created horizontal and vertical access in the form of surrounding arcades, passageways, and balconies ensure the perception of a unified spatial structure.⁴³

The project does not see itself as a finished product but as an ongoing transformation. The renovation work on the rooms was gradual and went through different phases, which continuously adapted to the needs and requirements of the uses.⁴³

“More than architects, they must behave like gardeners, looking closely at how their actions grow—which ones take root and must be cultivated, which ones fail and must be replaced by a different species.”⁴⁵

⁴³ Juan Carlos Cano, Laguna México in Mexico City by Productora. In: The Architectural Review, 14.07.2023, <https://www.architectural-review.com/buildings/laguna-mexico-in-mexico-city-by-productora>

⁴⁴ Mrinmayee Bhoot, Architecture as process: retrofitting a former factory in Mexico City, La Laguna, In: stirworld, 08.11.2013, <https://www.stirworld.com/see-features-architecture-as-process-retrofitting-a-former-factory-in-mexico-city-la-laguna>

⁴⁵ Cano, Laguna México.

„We soon realised this place is not static; every day has a new surprise that changes everything.”⁴⁶



Fig. 28



Fig. 30



Fig. 29



Fig. 31

Fig. 28 | existing structure before conversion was started

Fig. 29 | New staircase tower

Fig. 30 | connecting development

Fig. 31 | courtyard

⁴⁶ Carlos Bedoya, quote: Cano, Laguna México.



Fig. 31



Fig. 33



Fig. 32



Fig. 34

Fig. 31 | recreation area

Fig. 32 | co working space

Fig. 33 | new steel structures

Fig. 34 | office spaces

PERSPECTIVES

The extent to which industrial sectors influenced not only the production facilities themselves, but also the surrounding residential buildings and neighborhoods, is made clear by the exemplary examples.

Many of the current conversion projects of former industrial buildings or entire industrial districts show that previously monofunctional uses have been abandoned and replaced or expanded by mixed-use functions that include the residents of the surrounding buildings.

In their publication „City as Loft“, Martina Baum and Kees Christiaanse analyze a large number of adaptive reuse projects in Europe, Asia, North America, and South America and investigate the question of what characterizes successful reuse concepts for former industrial sites and what benefits they can bring away from the construction site. Their findings are also confirmed by the four projects presented here as examples.

The users play a major role in the transformation of the existing buildings. The areas are usually characterized by a duality of closed and open functions, which encourage users to actively participate in the projects and help shape them. The architectural structure is preserved, but not in a museum-like, conservational sense, but allows for transformations and changes in use in everyday life. In addition to the availability of space at affordable prices, factors such as atmosphere, communication options and „the sense of well-being in a location“ are crucial for users to settle there. The exchange of information and goods between different users and user groups enriches synergies and networks. Spaces for mutual exchange, but also for relaxation and staying, such as bars or cafes, connect local users, but also „outside“ visitors. Open spaces such as squares, streets, courtyards or green spaces, as they were originally used for industrial purposes, are legally mostly privately owned, but now often have a public use that has a direct impact on the neighborhoods of the building sites.

Where the industrial functions of the buildings once influenced the immediate population and the workers and their families shaped the city districts, the shutdown of the factories usually led to the decay and neglect of the surrounding buildings, unemployment, and interrupted value chains.

New reuse concepts and conversion strategies thus create new publics and living spaces that also have a positive aspect for people away from the converted buildings themselves. A new identity of the place can thus be created.⁴⁷

⁴⁷ Baum, Christiaanse, city as loft 355-365.

IV ECONOMICALLY ECOLOGICAL BUILDING

ECONOMICAL VS. ECOLOGICAL

Ecology and economics are often seen as opposites. However, the extent to which these terms are intertwined is explained below.

Ecology is the study of the relationship between the living environment and the inanimate environment and its factors. It is dedicated to the economic system of nature, also known as the natural habitat. 113

Economics, as the study of the economic system of people among themselves, can be seen as a sub-area of ecology, since we humans form part of the ecological system, the living environment. Nevertheless, ecology is more sustainable than „our“ economy, since it does not bring about a „self-destructive“ change in our living space. Since construction changes our environment sustainably and in the long term, it must use the economic rules of natural cycles as a model in order to remain efficient and economical in the long term.⁴⁸

“Every self-contained community of life (ecosystem) of a place (biotope) will, in the sequence of its composition (succession), come to a constellation of species whose material turnover leaves no residues that lead to the change of the place and thus to the change of this final constellation of the community of life (climax).”⁴⁹

⁴⁸ Dirk Althaus, Fibel zum Ökologischen Bauen. Kreislaufwirtschaft und Energieeffizienz im Bauwesen (Berlin 2000) 10.

⁴⁹ Althaus, Fibel zum Ökologischen Bauen 10.

THINKING IN CYCLES

In the natural balance of every ecosystem, species appropriate resources and give up their remains that are no longer needed. We humans therefore behave „naturally“ in our economic activity.

However, over the last few centuries, particularly since industrialization and the development of a consumer society, technologies have been developed that produce an enormous amount of waste that is no longer seen as a welcome resource by most of the world. The enormous mass of waste can no longer be processed, and its deposition changes the habitat so much that potential processors can no longer exist in it.⁵⁰

Waste as an Energy Source

Composting concepts have long shown that waste products do not have to be seen as end products and can be integrated into a sustainable energy cycle. Here, organic waste is broken down in the presence of air and used as fertilizer on fields or arable land.⁵¹

Aside from composting, the conversion of animal excrement and plant residues into biogas is becoming increasingly important, especially in agricultural operations. The production of biogas is a natural process that also occurs in nature when organic substances are separated from the air/ atmosphere, in contrast to composting. The decomposition of organic matter, anaerobic fermentation, occurs, for example, in moors or swamps but also in human digestion.⁵²

The energy cycle of a biogas plant

In a biogas plant, organic residues are initially stored in a pre-pit and, if necessary, shredded and processed. They are then filled into an airtight digester, the fermenter, where the fermentation process starts.⁵³ The biochemical conversion of fermentation is divided into three stages.

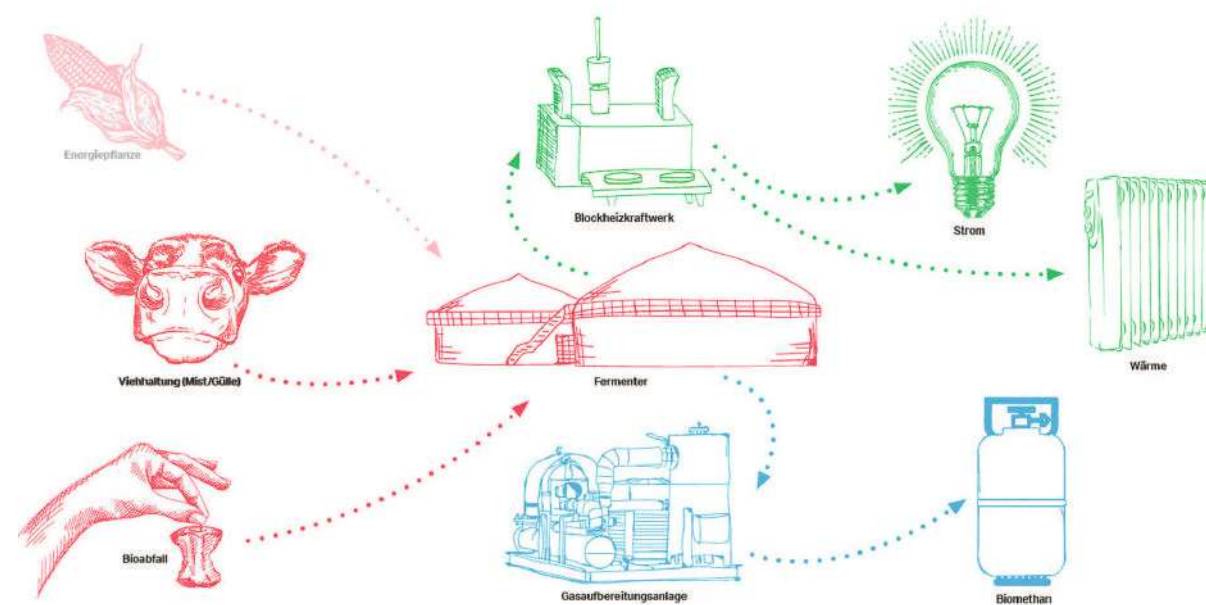


Fig. 35

⁵⁰ Althaus, Fibel zum Ökologischen Bauen 16-17.

⁵¹ Kompost-Biogas Verband, Die Biogasentstehung, <https://www.kompost-biogas.info/biogas/die-biogas-entstehung/>

⁵² Althaus, Fibel zum Ökologischen Bauen 104-105.

⁵³ BayWa AG München, E-Commerce, Biogasanlagen im Überblick – Aufbau, Funktion, Kosten, <https://www.baywa.de/i/bhkw/biogasanlagen/biogasanlagen-aufbau-funktion-kosten/>

First, the organic material is broken down by enzymes and bacteria, which is then converted by acid-forming bacteria into alcohol, carbon dioxide and organic acids. These substances are then converted by methane-forming bacteria into methane, hydrogen and hydrogen sulphide. This fermentation process is highly sensitive, as a constant and regulated supply of „material“, a constant room climate with temperature, darkness, pH value, alkalinity and exclusion of air must be guaranteed. The smallest changes can slow down the process.

In total, it takes around 30 days for complete fermentation to be achieved. The biogas is then stored in a gas storage facility and can be further processed.⁵⁴

Recycling

On the one hand, the biogas obtained can be fed into the gas network as bio-natural gas and used for heating or cooking. On the other hand, a combined heat and power plant in the form of an engine can burn biogas, which in turn drives a generator that produces electricity for feeding into the grid. Aside from biogas, another residual product is created, the fermentation residue, which in turn can be used as fertilizer for agriculture. The fermentation residue with its enriched nutrients is returned to the soil, which leads to an improvement in the soil structure and an increase in the humus content. This ensures a drastic improvement in the water storage capacity of the soil, which can prevent up to 70% of crop failures in dry periods.⁵⁵

Heat cycles

Biogas fermenters must ensure a constant room temperature for the fermentation material. This room temperature depends on the respective fermentation substrate, but can be considered to be in a mesophilic range between 37 and 42 degrees. The reactions of the fermentation process are slightly exothermic, but do not provide all the heat required for the process. They must therefore be heated externally. However, these heat sources can in turn be obtained from an energy cycle.⁵⁶ Heat pumps, which are powered by the electricity generated by the combined heat and power plant, are able to transport

energy from a low-temperature state to a higher one. Another example of this is the refrigerator. A liquid medium is slightly heated in a heat exchanger at the energy source and evaporates. The heated gas is then compressed by a compressor, the constriction of which causes the friction of the vibrating molecules to increase and the temperature to rise. This heated and compressed gas gives off its heat to the user in a heat exchanger while it cools down itself.⁵⁷ For example, heat can be obtained from the waste heat of factory machines and thus used to heat the fermenter.

An energy source can be electricity from a generator produced by a biogas plant. This creates an energy cycle.

Another option is to install a heat exchanger at the point where the fermentation substrate is removed. When removed, this substrate is as warm as the interior of the fermenter and can raise its temperature up to 90 degrees using a gas heat pump. Even the heat from the fermentation residue can thus be incorporated into an energy cycle.⁵⁸

⁵⁶ Michael Wild, Muriel Siegwart, Nicolas Stocker, Jürg Rohrer, Nachhaltiges Energiekonzept für Biogasanlagen Fallstudie Wittenbach. Technischer Bericht, Februar 2024, https://digitalcollection.zhaw.ch/bitstream/11475/29887/4/2024_Wild-et-al_BiogasReport_EDGE_ZHAW_DE.pdf

⁵⁷ Althaus, Fibel zum Ökologischen Bauen 157.

⁵⁸ ASUE. Arbeitsgemeinschaft für sparsamen und umweltfreundlichen Energieverbrauch e.V., Neues Einsatzfeld für Gaswärmepumpen: Energetische Optimierung von Biogasanlagen, 29.04.2020, https://asue.de/aktuelles_presse/gaswaermepumpen-einsatz_in_biogasanlagen

⁵⁴ Althaus, Fibel zum Ökologischen Bauen 105-106.

⁵⁵ Renergon International AG, Wie funktioniert eine Biogasanlage?, <https://www.renergon-biogas.com/wie-funktioniert-eine-biogasanlage/>

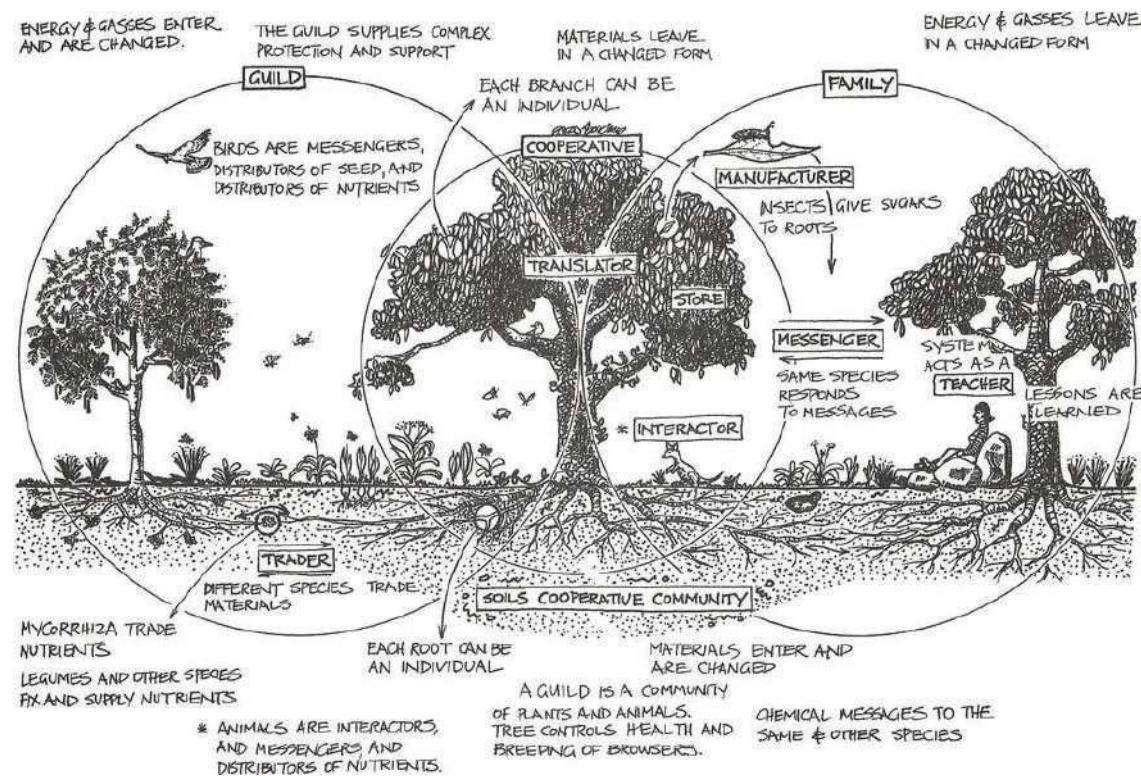


Fig. 36

Circular-based culture
- Permaculture as an energy source

It is not just buildings themselves that need to be thought of in a circular manner. If we want to think of them in an „ecologically economical“ way, we also need to further develop architectural landscapes in the context of their surroundings and also deal with agricultural, circular-based concepts. Permaculture is an important source of energy-based cycles.

„The level of complexity we can bring into this energy flow, how much energy we can channel into useful storage, where it is stored until we use it and thus devalue it, that determines how good we are as designers.“⁵⁹

Conventional and industrial agriculture in the last century resulted in the cultivation of monocultures and, as a result, in a loss of soil fertility.⁶⁰ Overbred crops in modern agriculture achieve high fruit yields, ripen very quickly, and their monocultural cultivation simplifies logistical processes. In the long term, however, not only ecological but also economic deficits become apparent in such cultivation methods. Due to the rapid ripening of the fruit, all of the plant's energy is put into this process, while the plant's root growth remains weak and cannot supply the soil with sufficient nutrients, and valuable topsoil can be lost.⁶¹ In the long term, this not only has negative ecological consequences, such as soil erosion, but the soil is so heavily stressed and damaged in the long term that it can lead to yield losses and severe deficits in quality and quantity. The initial maximum economic yields have the opposite effect.

To counteract this, Bill Mollison and David Holmgren in the 1970s explored concepts of agriculture based on the model of natural, resilient, and self-regulating ecosystems and thus coined the term permaculture, permanent agriculture, an agriculture that can exist permanently. Their principles include concepts for stable, complex, and productive, as well as natural ecosystems that include people, plants, and animals.

⁵⁹ Bill Mollison, Permakultur konkret, Entwürfe für eine ökologische Zukunft, 3. revised edition, translation from the original version: Dr. Peter Henningsen (Darmstadt 2009) 25ff.

⁶⁰ Bill Mollison, Permakultur konkret, 10ff.

⁶¹ Katy Fox, Permakultur. Die Kunst des Möglichen, In: forum. für Politik, Gesellschaft und Kultur (Hg.), Nr 297, (Juni 2010), 43-46.

Not only farms but also the people who live in a place and how their social life is organized are included in how permaculture is viewed and thus describe the vision of a permanent culture.⁶²

The principle of permaculture is to observe systems and processes and to exchange energies and resources in a reciprocal way. Permaculture can therefore be applied to all areas of human activity: in agriculture, in one's garden, in companies and schools, in personal lifestyles, in cities and politics.⁶³

The three ethnic principles are considered a starting point and should not be weighed against each other, but brought into balance:

Mindfulness towards people

Mindfulness towards nature

Fair participation and limited consumption

Relocation of our lifestyle through increased energy and resource self-sufficiency, as well as a simultaneous moderation of our resource consumption, is necessary to be able to maintain our livelihood in the future. The way in which our living spaces can be designed sustainably, both in the city and in the country, regardless of which culture we belong to.

Just as cities, villages, regions, and even buildings change, permaculture is also in a constant process of change. It is a constantly evolving perspective that includes old and „new“ processes.⁶⁴

Slow, natural processes, without artificial overfertilization, as well as cultivation with various companion plants in symbiotic networks, enrich each other with their different nutrients and functions. Plants and animals, but also we humans, benefit from this in the long term. The mutual exchange of knowledge, the mutual „fertilization“ of different disciplines, but also cultures, in symbiotic networks can help creating and maintaining a sustainable, livable environment.

⁶² Fox, Permakultur 43–46.

⁶³ Permakultur Institut e.V., Was ist Permakultur?, <https://www.permakultur.de/was-ist-permakultur> (12.09.2024).

⁶⁴ Fox, Permakultur 43–46.

⁶⁵ Delinat GmbH, Der Weinberg ist der Heilige Gral des Winzers. Wie gut der Wein wird, hängt entscheidend von ihm ab, <https://www.delinat.com/weinberg.html#MehrDiversitaetnachderDelinatMethode>

⁶⁶ Hans Peter Schmidt, Biodiversität im Weinberg. In: Die Winzer Zeitschrift, Jänner 2011, 29–31.

⁶⁷ Delinat, Der Weinberg.

⁶⁸ Schmidt, Biodiversität.

⁶⁹ Delinat, Der Weinberg.

EXKURSUS VINEYARD

Biodiversity in the vineyard

In view of climate change, vineyards must also be thought of and planned differently in order to protect soils from drying out and erosion and to maintain their fertility.

Just as buildings follow ecological concepts, the vineyard must also be understood as an ecological system whose balance depends on the symbiosis of a wide variety of biological compositions. The development of the terroir and the resilience of the vine are directly related to the biodiversity of the soil. Fungi and plants exchange nutrients using their roots, the mycorrhiza.⁶⁵

In order to promote soil activity in the vineyard, a large number of companion plants are required, the different ingredients of which provide the vines with nutrients throughout the year⁶⁶ and ensure balanced mineralization of the soil.⁶⁷ The larger and more diverse the number of species and functional groups (e.g. parasites, decomposers), the lower the chance that pests will spread on the vines and the need for the use of plant protection products.⁶⁸

The so-called „Delinat“ method provides for various greenings, gentle soil cultivation, the regular supply of organic substances, a well-thought-out water management, as well as agroforestry systems (mixing the vineyards with hedges, crops, trees) in the form of permaculture.⁶⁹

The Delinat method

A prerequisite for biodiverse planting of the vineyard are legumes with different root depths and growth strength. Examples of these are red clover, bird's-foot trefoil, vetch or broad beans. Nitrogen-oxidizing nodules settle on their roots, which cover the entire nitrogen supply of the vines and thus nitrogen-containing fertilizers are no longer necessary. The deeply rooted legumes direct microorganisms into the soil, thus ensuring stable aeration and humus buildup.



Fig. 37

Fig. 37 | permaculture between the rows of vines

⁷⁰ Schmidt, Biodiversität.

**„Plants are the link between the habitats
below and above the earth’s surface“⁷⁰**

In addition, the water storage capacity of the soil improves, which means that rainfall yields can be used much more efficiently and the water balance for the vines improves even in dry summers.

In addition to legumes, nectar-flowering plants are also of crucial importance. These attract insects such as butterflies and bees, which enrich the soil diversity with secondary plant substances.⁷¹ The presence of bees, beetles, butterflies, and birds, for example, is a visible sign of a functioning, balanced ecosystem. A high level of biodiversity means greater competition, which regulates each other.⁷²

Trees and vines have been closely linked for a long time. The vine, as a wild liana, uses the trunk of the tree to climb. However, industrialisation and its mechanisation have given rise to a large number of monocultures, which have had a negative impact on soil fertility and made vines more susceptible to drying out and disease.⁷³ A traditional example of this is the vineyard peach, which has fallen victim to rationalisation in most places today.⁷⁴ Trees and bushes in the immediate vicinity of vines have a positive effect on the vines' water and nutrient supply, and can also act as windbreaks.

Due to its root system, the tree absorbs water from deep below, "which it releases into the soil via its superficial root system and into the atmosphere through evapotranspiration. Conversely, it can absorb atmospheric water and release it back into the soil. In this way, it can supply the atmosphere and soil with moisture during dry periods, which benefits the plants in its immediate vicinity."⁷⁵

The placement of trees and bushes must always be done depending on the location and its orientation. Low planting towards the sunrise is preferable, as this shortens the dew period and helps prevent fungal infections. Tree and bush species growing near vines should be chosen so that they can form symbioses with endomycorrhiza. This means that fast-growing trees, such as mulberries, should be chosen so that they have a similar life cycle to the vines.⁷⁶

⁷¹ Schmidt, Biodiversität.

⁷² Delinat GmbH, Sekundärkulturen im Weinberg, <https://www.delinat.com/sekundaerkulturen.html>

⁷³ Schmidt, Biodiversität.

⁷⁴ Delinat, Sekundärkulturen.

⁷⁵ Schmidt, Biodiversität.

⁷⁶ Delinat GmbH, Agroforst im Weinbau – ein Schritt zur Resilienz, <https://www.delinat.com/delinat-methode/agroforst.html>

Biodiversity measures

- the planting of native shrubs at the ends of the vine rows to enable an undisturbed workflow. These should primarily serve as an attraction for insects but also as a nesting place for other animals.
- planting hedges as an intermediate line in the vines as biological hotspots are suitable as networking areas for different ecological areas
- planting fruit trees creates vertical diversity. These can serve as cultivated areas for birds, insects, and other animal species and „promote the permanent repopulation of the ecological habitat“. Due to the trees' function as spore catchers, they also take care of the spread of natural yeasts that act in competition with harmful fungi.
- compensation areas in which species-rich wild flowers and aromatic herbs grow should be planted both within the vineyard plots and on the edges.
- placing structural elements such as piles of stones or wood serve as hiding places for reptiles. Perches for birds of prey can be used to reduce rodents.⁷⁷

⁷⁷ Schmidt, Biodiversität.

Fruit residues as an energy source

When cultivating vineyards, a large number of by-products are produced that can represent a valuable raw material in the energy cycle. Pomace, pomace compost, lees, and yeast contain various ingredients that can be added to the vines as fertilizer, meaning that a large proportion of the nutrients carried away with the grapes are returned to the vineyard. In contrast to some other humus fertilizers, these contain only minimal or no pollutants.⁷⁸

The feeding of pomace as a substrate for biogas plants can also be observed in some agricultural companies. One example of this is the German energy company Badenova, which in 2012 purchased a total of 3,500 tonnes of grape pomace and 900 tonnes of apple pomace from winegrowers in the Breisgau region to feed it into its biogas plant.⁷⁹

During wine production, approximately 25 kg of pomace⁸⁰ is produced per 100 l of mash.⁸¹ One tonne of this pomace can be transformed into just over 500 kWh of biogas. 30 tonnes are needed to supply an average household with biogas annually.⁸² This shows that several farms are needed to feed in the substrate in order to ensure the economic benefit of a biogas plant.

Storage is also an important prerequisite for the utilization of the pomace as well as the further production of biogas. To enable year-round cultivation and a smaller plant, this must take place in an airtight manner (due to the formation of mold). However, generally applicable utilization concepts for vineyards cannot be made, as these depend very strongly on regional factors and the specific types of wine.⁸³

Organic ingredients are reductively degraded by microorganisms under anaerobic conditions and deposited into low-molecular substances (fermentation).

This process turns organic substances into gaseous substances. Sufficiently high starting temperatures (28-30 degrees) ensure the process. Fruit pomace is considered the most suitable form of substrate because it is sufficiently chopped and therefore

⁷⁸ Bernd Ziegler, Trester. Wertvoller Rebendünger. In: Das deutsche Weinmagazin, 4th October 2008, 8-9.

⁷⁹ STROBEL VERLAG GmbH & Co. KG, Biogas aus Trauben- und Apfeltrester, in: IKZ. Sanitär.Heizung. Klima, Planung, Bau und Betrieb, 2nd November, 2011, <https://www.ikz.de/detail/news/detail/biogas-aus-trauben-und-apfeltrester/>

⁸⁰ The mixture's name, created after the wine press process, consists of berries, juice, skins, and seeds

⁸¹ mainly solid components; consists of shells and kernels

⁸² STROBEL, Biogas aus Trauben- und Apfeltrester

⁸³ B. Hollauf, Forschungsprojekt Montanuniversität Leoben. Weintrester als Energiequelle? In: Der Winzer. Das Fachblatt, 11. 2010, 33-35.

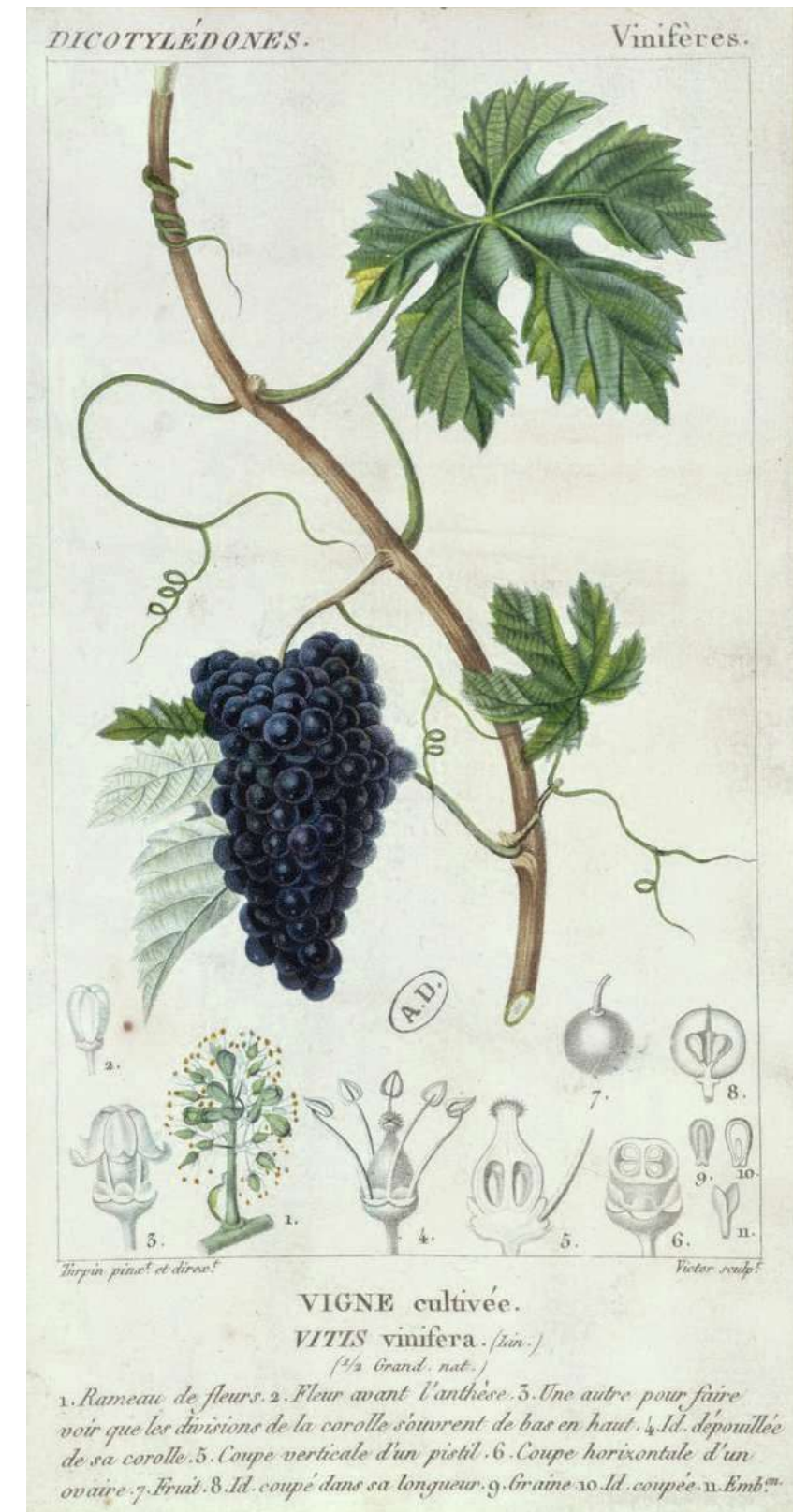


Fig. 38

does not cause any problems with stirring or flow processes.

An important factor for the production of biogas is a regular, as even as possible, feed of substrate. By adding apple pomace, biogas plants work much more actively, which is also shown by the remaining residues, which have significantly higher fertiliser values. If liquid manure is usually processed in biogas plants, the gas yield from apple pomace is around 20 times higher than from liquid manure or dung, for example, while odour emissions are significantly reduced.⁸⁴

The feeding of fruit pomace into biogas plants has gained increasing attention, especially in recent years. Although it has not yet become common practice among energy companies, there are a number of current research projects that recognize the potential of such residues and waste materials from vineyards and develop technologies to promote ecologically economical energy cycles.

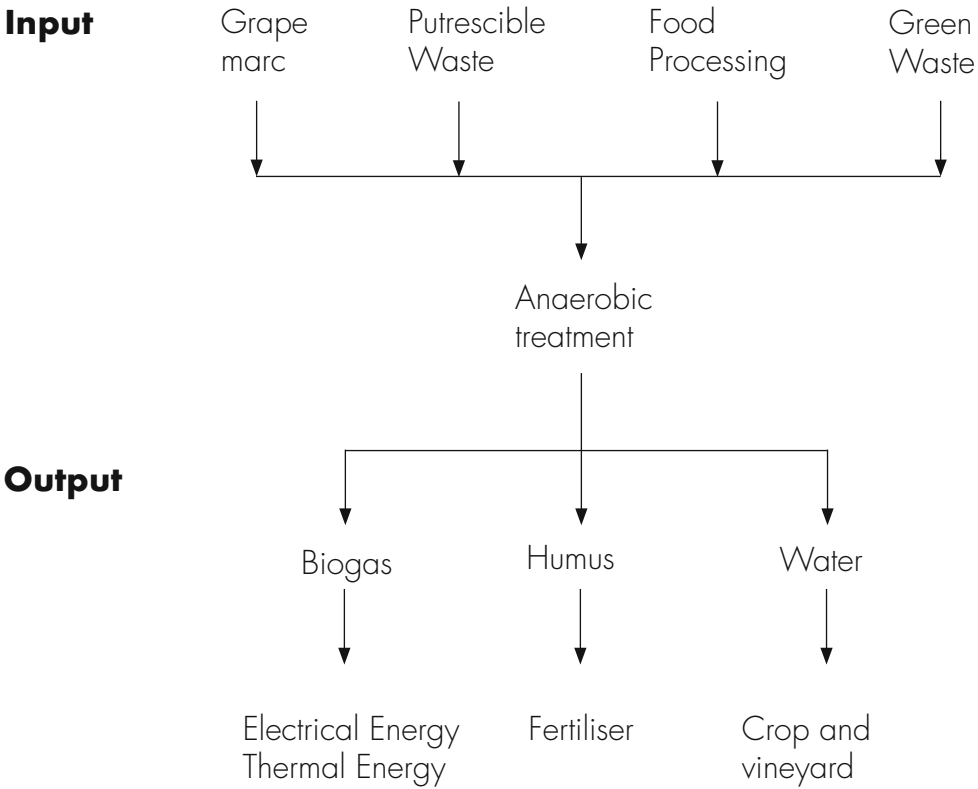


Fig. 39

Fig. 39 | based on: Laurence Marie Pierre Palmowsky, Making Energy from grapemark. In: Grapegrower and winemakermagazin, December 2004, 50.

⁸⁴ Thorsten Pollatz, Biogas aus Reststoffen. In: Das deutsche Weinmagazin, 8th May 2004, 110-114.

**„Without the process of conversion,
urban life would be unthinkable.“⁸⁵**

⁸⁵ quote: Hermann Czech, Der Umbau. In: Österreichische Gesellschaft für Architektur - ÖGFA (Hg.) Umbau 29. Umbau. Theorien zum Bauen im Bestand (Basel 2017) 29.

⁸⁶ Althaus, Fibel zum Ökologischen Bauen 30.

⁸⁷ Czech, Der Umbau 29.

⁸⁸ Althaus, Fibel zum Ökologischen Bauen 30.

V SYMBIOGENESIS

GENIUS MUNDI

Every ecosystem, regardless of scale, is part of a larger structure, which in turn is part of an even larger one. For this reason, they cannot be thought of in isolation but are always part of an even larger perspective (Genius mundi).

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When we think about ecological construction, it is imperative to include larger spatial perspectives and to place constantly evolving information, energy, and material flows in global events.⁸⁶

The same applies to building on existing structures. This should not only be seen as building on an existing building but also applies at the urban planning level. When we build, be it a new building or a conversion, we always build in existing urban, socio-cultural structures that interact with each other. If you look at Vienna, for example, you will notice Otto Wagner's large-scale urban redevelopment of the Wilhelminian period, the city railway, „Loos had already found the result and reasoned criticized the failures of the Ringstrasse with a hypothetical city plan“⁸⁷.

Historically, the 'settlement' of spaces and their functions has been primarily oriented towards local conditions, their economic and transport-related situation.⁸⁸

Through its own architecture, history and identity, each place is shaped by its own significance. It is a reminder of the past and is anchored in the collective memory of its inhabitants.⁸⁹ However, the design of places is also a continuous process of change that develops continuously through generations and adapts to political, socio-cultural and climatic conditions. If we think about cities of the future, we must first look at the cities of the present.

Each location is characterized by a specific range of resources. However, due to current climatic changes, this range is changing; resources must be used more efficiently and economically, and spaces must adapt.

However, these existing resources do not only consist of buildings, building materials or architectural spaces, but also of networks, traditions and the inhabitants of a region.⁹⁰

SOCIAL SUSTAINABILITY

If we look at the last few centuries, it becomes clear that the consumption and exhaustion of our earth's range of resources is not just a phenomenon of the last century.

As early as 1713, Hans Carl von Carlowitz wrote his work „Sylvicultura oeconomica oder hauswirtschaftliche Meldung und Naturgemäße Anleitung zur wilden Baumzucht“ and explained the connection between valuable raw materials and the desire to maximize profits concerning metal mining and its ecological consequences in the Ore Mountains.

The Black Forest was also almost completely cleared towards the end of the 18th century, and its wood was exported as a resource. As a result, laws were passed to regulate the amount of felling, which have not lost their validity to this day. This makes it clear that to ensure sustainable construction, in addition to the links and interdependent relationships between economic goals and ecological resources, the social and societal framework conditions must also be taken into account.

⁸⁹ Baum, Christiaan, city as loft 8.

⁹⁰ Baum, Christiaan, city as loft 67.

The American biologist Rachel Carson published her book „Silent Spring“ in 1962, creating a manifesto for the environmental movement that is anchored in society. The non-fiction book describes the consequences of toxic substances such as pesticides and herbicides for humans and animals within the food chain. The ecological balance of a society is interwoven between the human social perspective and the death of a bald eagle, the heraldic animal of the USA, as a symbol of American society. The question of a society's collective responsibility thus came into focus in sustainable approaches. In addition to the dimensions of ecology and economics that were familiar up to that point, Carson raised the question of the ethical responsibility of a socially oriented society.

These three dimensions now form the recognized pillars of sustainability: ecology, economics and sociology.⁹¹

“As in a system of communicating tubes, it is always necessary to bring these three aspects into harmony and overlap and to weigh them against each other.”⁹²

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For this reason, sustainable urban development and spatial planning does not require the pursuit of architectural and urban planning theoretical ideologies, as was often the case in the previous century, but the creation of values in a society, the strengthening of networks and connections of all kinds.

⁹¹ Dirk E. Hebel, Felix Heisel, Besser - Weniger - Anders Bauen. Kreislaufgerechtes Bauen und Kreislaufwirtschaft. Grundlagen - Fallbeispiele - Strategien (Basel 2022) 10-21.

⁹² Hebel, Heisel, Besser - Weniger - anders Bauen.

„The task is to make kin in lines of inventive connection as a practice of learning to live and die well with each other in a thick present.“⁹³

⁹³ Donna Haraway, *Unruhig bleiben. Die Verwandtschaft der Arten im Chthuluzän*. Aus dem Englischen von Karin Harrasser (Frankfurt/ New York 2016/2018) 9.

⁹⁴ Donna Haraway, *Staying with the trouble. Making Kin in the Chthulucene* (London 2016) 40/ 55.

OF SOCIAL SCULPTURE AND MAKING KINSHIP

Just as societies are networked and cities and places must be understood as networks, architecture must also be understood as an interdisciplinary structure that must be read from a variety of different disciplines. Dealing with architecture means entering into symbioses with different disciplines. Ecology, economics, natural sciences, sociology, but also art make important contributions to designing the spaces in which we live sustainably.

The role that humans play in their damaged environment and how future societies must be organized and networked is the subject of research by both the historian of natural sciences and women's studies scholar Donna Haraway and the performance artist Joseph Beuys. Although their two professions appear different at first glance, they both focus on very similar topics and theories, convey them in different ways and stimulate thought.

Both philosophies place nature as the starting point of their theories and describe the connections between humans and nature, in which, however, humans are not above nature.

Donna Haraway redefined the terms of the geological eras into three eras. For her, the Anthropocene describes the past. It is the era in which humans intervene in the global ecological system and the earth is subject to human violence. Urbanization, resource scarcity, species extinction, ocean acidification, soil erosion are the consequences.

The Capitalocene describes the extension of the Anthropocene, in which production processes are increased in order to maximize profits, resulting in an enormous surplus of production and goods.

The third geological era she addresses is the one that needs to be achieved. In the Chthulucene, humans are no longer the focus of the earth, but rather all species and creatures. It is the age of progressive thinking and learning. For Haraway, the word Homos is derived from humus, the component of soil that is made up of supposedly „dead“ organic substances. We humans are therefore compost, „compositites“. ⁹⁴



Fig. 40

Fig. 40 | Endosymbiosis. Homage to Lynn Margulis, illustration



Fig. 41

Fig. 41 | Joseph Beuys, „Honigpumpe am Arbeitsplatz“ 1977

⁹⁵ Friederike Nussbaum, Eine tentakuläre Lovestory. Zwischen Donna Haraway und Joseph Beuys (2020), <https://www.frednussbaum.de/love-story>

⁹⁶ Haraway, Unruhig bleiben 85.

⁹⁷ Adams, David: Joseph Beuys: Pioneer of a radical ecology, in: Art Journal 51, 2 (1992), 26–34.

“Be related, not children” means dealing with what already exists and looking at how a good life together can work. Haraway understands the term “kinship” to mean genealogical and biological family derivations and thus raises the socially critical question of who we are actually responsible to and how lines of kinship are determined, connected and dissolved.⁹⁵

Her approach follows the theory that every state we find ourselves in, which has been created, is made up of a multitude of connections and relationships to one another that come together to form a whole.

She uses the term “sympoiesis” to mean “taking part”. Because “nothing makes itself, nothing is really autopoietic or self-organizing.” It serves as a suitable term for complex, dynamic, responsive, situated, historically specific systems.⁹⁶ Our cities, our spaces, our society can also be seen under this term.

The artist Joseph Beuys also described the developments in our society as a great but never-ending ecological work of art. Creativity is at the heart of his considerations. In his opinion, every citizen can make a contribution to society as an artist.⁹⁷

He coined the theory of „social plasticity,“ which describes the transition of all processes from disordered chaos to ordered states (order). Plasticity is the phase between chaos and order. For Joseph Beuys, plasticity represents the basic evolutionary principle of mankind, as a process of movement. His „plastic principle“ refers to all processes and areas of life. Such chaotic, non-linear processes symbolize the creativity of nature. By contrasting the creativity of nature with the creativity of mankind, Beuys encourages us to tell a new story about mankind. For him, creativity is a living, dynamic, and never-ending process. The focus for him is chaos, which represents a very complex, interconnected energy.

Beuys also devotes his work to natural cycles and organisms. However, he illustrates his theory of chaos in connection with an iconography of bees. The bee colony, as a heat organization, represents the human organism. Just as honey flows, circulating bloodstreams also flow as entire life cycles.

Wax, as a heat balance, symbolizes form-giving processes and plastic forms. The bee, like humans, is seen as a sculptor and sculptor who works towards form, but at the same time lives in a warm, chaotic state. The social warmth of a bee colony, a society, is seen as warmth.

The end product is honey, which is created from a multitude of interwoven processes.

For Beuys, every person should see themselves as an active part of society and use their creativity to create new ways of thinking.⁹⁸

Both Beuys and Harraway attempt to tell a „new“ story of humanity in their theories. In both cases, humanity in its harmful environment is the starting point for further considerations. While Beuys asks how humanity as an emotional being can be defined in a scientific world, the scientist Harraway presents utopian explanations and speculative fiction as a prerequisite for scientific facts to be able to tell new stories.

Harraway's networks and interrelations can be compared to Beuys' social sculptures. While Beuys sees social sculpture as the interaction of people in a society, Harraway expands her theory to the networking and „relatedness“ of all living things. Both assume that the earth was in a chaotic, primordial state, which is created by dynamic processes between people and all living things. Only by networking living things with each other new stories can be told; through social sculpture, people can help shape society through their new understanding of art.

Both see thinking as a dynamic process in which everything is influenced by the environment, but we can also influence the environment.⁹⁹

⁹⁸ Kunstsammlung Nordrhein Westfalen, Everyone Is an Artist Cosmopolitical Exercises with Joseph Beuys 27.3. – 15.8.2021, Exhibition guide (Bonn 2021).

⁹⁹ Nussbaum, Eine tentakuläre Love-story.



Fig. 42

VI EX FABBRICA

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GENIUS LOCI

The former factory site is located in the Rojano district of Trieste in the north of the city, nestled in a valley of the surrounding hills of Greta and Scorcola, Monte Radio and the foothills of the Opicina karst ridge, whose area is characterised by vineyards, meadows and forests¹⁰⁰ and serves as the start and end point of numerous hiking trails.

Immediately adjacent to the property is the Greta hill, which acts as both a territorial and social boundary between the districts of Rojano at the foot and Greta at the top, and the architectural structure of the surrounding buildings reveals a clear distinction in scale, which accommodate different social groups and inhabitants. While until the middle of the 20th century, the hill was characterised mainly by small huts, gardens and cultivated landscapes, the 1980s saw the construction of smaller villas and detached houses with sea views.¹⁰¹ In contrast, the townscape of Rojano today is characterised by former factories and workers' housing.

¹⁰⁰ Roiano, <https://it.wikipedia.org/wiki/Roiano>

¹⁰¹ Trieszti Ingatlanok. Minden Jog Fenntartva, Greta, <https://immobilienpunktitalien.eu/trieszti-varosreszek/#:~:text=Das%20Roiano%2DViertel%20liegt%20in,H%C3%BCgel%20von%20Greta%20und%20Scorcola./>



Fig. 43

Fig. 43 | Rojano at the beginning of the 20th century

Memories

„Three times in the past few days I have seen in Il Picco the photo of the now long-abandoned power plant of Roiano, once connected with a 50 thousand volt line to the Opicina power plant. I must confess that this photo brought me back with emotion to the years of my childhood, spent in the area of the power plant, once surrounded by the Carbonara stream that flowed down from Terstenico, also called patoc Martesin, open-air and bordering the property of the Armenian Kutsukian, a Ford dealer who in the twenties had an assembly plant for cars, trucks and tractors in Punto Franco: at the entrance to his property he displayed a large sign on the gate: Truck and Tractor Appliance. The land of Kurzukian, as we kids called it, was overlooked by the slopes of the Gretta hill, which in summer was completely covered with flowering broom and absinth plants that we went to collect on behalf of the century-old firm Kuchler & Co. Drugstores, colonial shops and herbalists on Via dei Gelsomini corner of via Valmartinaga.

Here are some of my memories of the power plant that today means nothing to the people of Roiano. My father Carlo worked in various roles for many years in the power plant, first for the Officine Elettriche dell'Isonzo and then for Selveg-Società Elettrica della Venezia Giulia, until the nationalization of Enel. On the ground floor of the power plant, in the back of the photo, there was a garage for the two cars of the company, which was accessed by two doors.

It was January 1, 1926 when in the morning my padre entered the garage: in fact one of the two doors was open because inside his colleague Guido Sollazzi, the father of a large family who lived in the employees' house next to the power plant, was busy with one of the two cars. My father in turn began to work on tuning the engine of the other car entrusted to him. He did not notice that his colleague, having finished his work, had left the closed garage locking his door.

My father usually had the key to the other door in his pocket, but that morning he hadn't taken it. Suddenly a strong earthquake shook the large power plant building and my father, terrified, rushed to the door to get out, but his door was locked.

He punched it until his colleague made him go outside. Why was my father so nervous? In the house next door was my mother, six months pregnant. There were no other noticeable tremors and I was born exactly one month later. The tremor of January 1st was particularly noticeable in Piazza Goldoni and in Via Silvio Pellico, where at no. 6 the English Jackson-Royle Institute was located: a curious detail is the fact that an earthquake was simultaneously recorded in England. In the following days there were articles in the Piccolo by Prof. Luigi Carnera, director of the Astronomical Observatory, where the two existing seismographs were out of order, who reassured the population worried about possible new tremors, and by Prof. Francesco Vercelli of the Thalassographic Institute, who hoped for the seismographs to be put back into operation.

When I was two and a half years old, for the first time I went alone to the house of the central manager, which existed in the body of the power plant and where I usually went to be cuddled by one of his daughters, but, having gone to the wrong door, I went up to the top floor of the plant, wandering around the high voltage switches. I was unable to find the exit and my desperate crying, amplified by the large rooms, was heard by the central manager's wife who, understanding the situation, ran up the stairs and took me to safety.

A few years later a tragic accident occurred. A worker during a routine maintenance operation emptied the oil of a large 50 to 25 Kv transformer and, before filling it with fresh oil, he noticed a leak from a small hole as big as the tip of a pin, and thought it best to close it with an oxyacetylene flame: as soon as he brought the torch closer, a tremendous explosion, caused by the gas inside the transformer, killed him. He was a good man, his name was Cubi, and we kids admired him when he worked on irons at the forge, he put on a show: with his bare hands he grabbed the incandescent irons, leaving us speechless.

I could tell many other stories about this forgotten corner of Rojano, once the undisputed dominion of a terrible gang of enterprising kids, where the old power station has returned to the limelight, now destined to disappear to make way for huge apartment blocks with no greenery." - Fulvio Zubini¹⁰²



Fig. 44

Fig. 44 | Karst Plateau above Triest

¹⁰² Fulvio Zubini, Rojano: La centrale elettrica ormai destinata a sparire In: Il Piccolo 23.01.2006, 22.

- 1 Gretta
- 2 Roiano Sud
- 3 Roiano Nord
- 4 Galleria di Gretta - Roiano

- 5 Rio Carbonara
- 6 Rio Montorsino
- 7 Rio Rosani

- 8 Acegas
- 9 Linello Stock factory
- 10 ICASA
- 11 EX Factory Küchler

- District
- - - River
- M 1: 5000



Valmartinaga

The identity of the factory's location becomes clear when you take a closer look at the address of the former factory *Via Valmartinaga*. The valley where the watercourses of the four rivers Rio Montorsino, Rio Rosani, Rio Scalze and Rio Carbonara (today Rio Martesin) of the surrounding hilly landscape meet was once called *Val Martinaga*.¹⁰³ While these rivers were once channelled as open streams on the surface, in the urban area they now flow underground into the sea in the old Punto Franco (harbour).

Due to flooding, these streams were gradually moved below ground level. Outside the city centre, however, they are important local recreation areas and feature many hiking trails.

„During a flood in 1931, the Carbonara came out of its bed and flooded the crops of the flower grower Bandel, the 'Weiss oil factory', located between Via dei Giacinti and Via dei Gelsomini, and finally the Cravos barrel factory: its waters dragged dozens of empty metal and wooden barrels to the railway station and the Grand Canal.“¹⁰⁴

The memoirs of Trieste author Fabio Zubini reveal not only a flooding event, but also the establishment of several important factories in the Rojano district.



Fig. 45

Fig. 45 | Rio Rosani in Via di moreri, Rojano

¹⁰³ Trieszti Ingatlanok, Gretta.

¹⁰⁴ Fabio Zubini, Roiano (Trieste 2003), <https://www.atrieste.eu/Forum3/viewtopic.php?t=273>; <http://www.zubinifabio.it/index.php/biografia/>

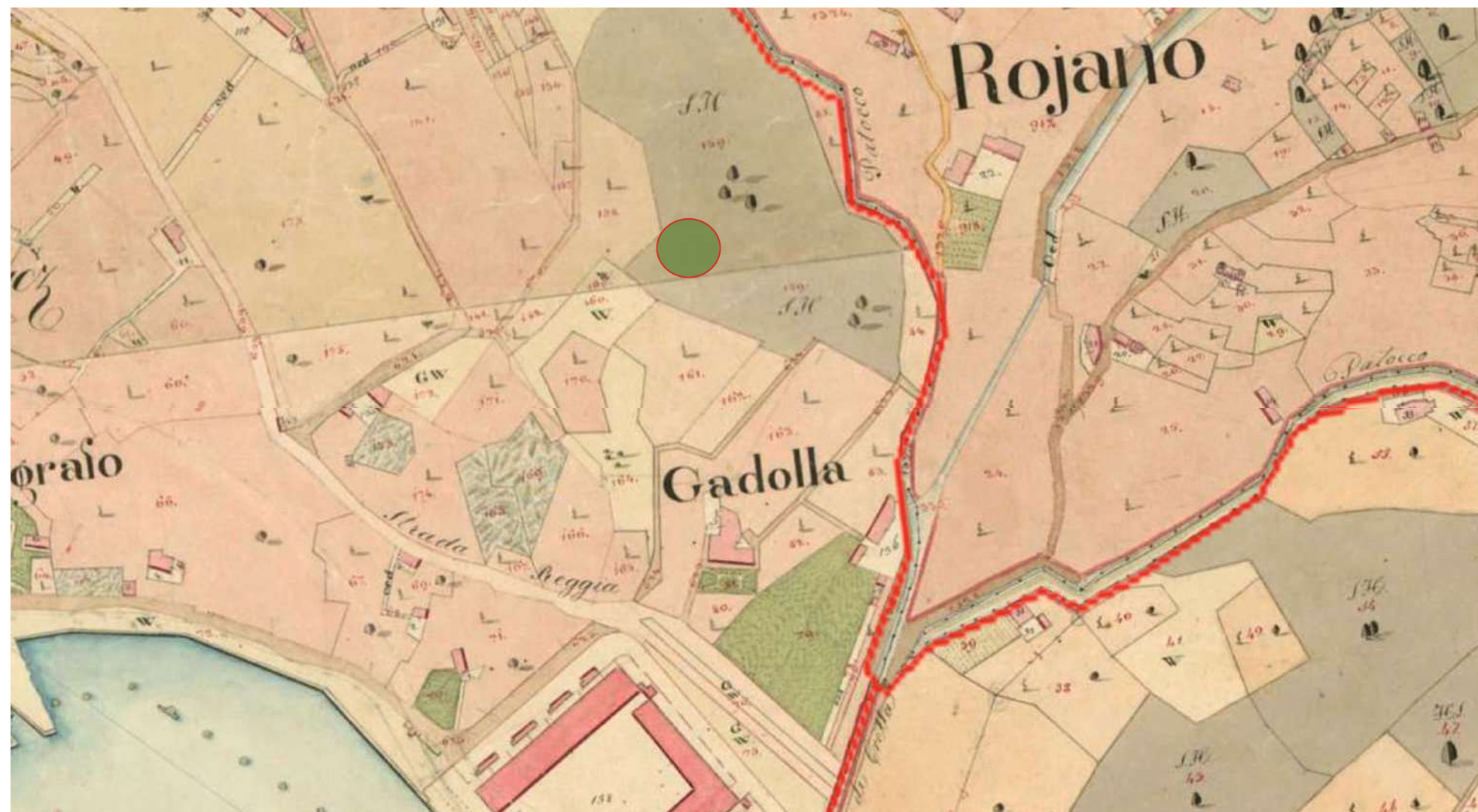


Fig. 46



site

Fig. 46 | Franziszeischer Kataster 1822
shows vine cultivation and agriculture
in the area around Grotta and Rojano



Fig. 47

Lionello Stock Factory

One of the most visible factories in the district today is the Lionello Stock factory, also known as the Rojano factory. It was founded in 1884 by Lionello Stock and Carlo Camis as the 'Distilleria a vapore Camis & Stock' steam wine distillery in the Barcola district. The main product produced was the 'Medicinal' cognac.¹⁰⁵

The Dalmatian wine destined for export from the port of Trieste and its barrels made of high-quality wood (oak) gave the business partners the idea of producing French-style liqueurs from these two components. As the standard of living of the population improved, habits that were once only typical of the private classes also developed among the middle classes. These included, for example, the consumption of non-essential goods such as chocolate, coffee and liqueurs, which brought the factory great success in a short space of time. The factory moved to Rojano in 1924.

In the 1950s, new markets were opened up, advertising campaigns were launched and updated, and production capacities were increased and expanded according to a vertical logic from the vineyard to the finished product".¹⁰⁶

In 1974, the factory moved its production to the Zaule Canal in Muggia, where wine bottling and storage took place from then on. The relocation of the factory meant that the old site became vacant and the question of its future use arose. In 1988, work began to restore the complex as an example of industrial archaeology, restoring the red brick walls in the Anglo-Saxon style and the glazed warehouses from the early years of the factory.

The rezoning from an industrial site to a commercial and residential area in 1993 marked a turning point in the urban development of the neighbourhood and brought new opportunities for the reuse of the Lionello Stock factory, but also provided for a more comprehensive global restructuring plan for other industrial sites. The creation of a 'citadel of the future' envisaged the creation of services, commercial space, a restaurant, a bar, a supermarket, a bank, a community centre, a clinic, a library and over 700 parking spaces, which still exist today.¹⁰⁷

¹⁰⁵ Stock Spirits Group, *Unsere Geschichte*, <https://www.stockspirits.com/de/ueber-uns/erbe>

¹⁰⁶ Archivio di stato trieste, *La Stock di Trieste: testimonianze di archivio*. Dettagli della mostra, <https://archiviodistatotrieste.it/mostre/la-stock-di-trieste-testimonianze-di-archivio/>

¹⁰⁷ Fabio Zubini, *Roiano (Trieste 1994)*, <https://trieste-di-ieri-e-di-oggi.it/2018/01/24/distilleria-stock-spa-lionello-stock/>



Fig. 48

Fig. 48 | Lionello stock factory, 1929
Greta hill in the background



Fig. 49

Fig. 49 | Storage facility of Lionello Stock
factory in Roiano, 1929



Fig. 50

Fig. 50 | Loading of barrels, date unknown



Fig. 51

Fig. 51 | Female workers in the factory, 1929

ICASA Industrie Chimiche Adriatiche SpA

The company for the production of industrial paints and cleaning agents was founded in 1925 at Via Valmartinaga 1. In 1969, the company relocated its headquarters to the industrial zone at the harbor, and the original building was demolished.¹⁰⁸ A residential complex was constructed in its place, which still stands today.

Other factories

In the area, there were several other factories, including Officine Meccaniche Luigi Schromek, which specialized in producing tanks for the Italian colonies in Africa and carpentry work. There was also the Nairz cork and cap factory, the Fischer shutter factory, the first power-driven turner's workshop Dorotea Antonio, the Baker distillery, and the Rosenfeld sponge factory.¹⁰⁹

In the 20th century, companies that were originally located near the 'Old Harbour' in Trieste, producing goods for export or processed goods that were brought to Trieste on merchant ships from overseas, relocated to the south of the city due to the new harbour area being established. This led to the abandonment of factories, with some being demolished or repurposed as warehouses, residential buildings or auto repair shops.



Fig. 52

¹⁰⁸ Fabio Zubini, Roiano.

¹⁰⁹ Hermann Hüller, Adressenverzeichnis umfassend Ämter, Firmen, Unternehmungen, Ärzte, Apotheken usw. Im Bereiche der Südbahnstrecke, Steinbrück, Laibach, Divaca, Triest und Cormons nebst abzweigenden Seitenlinien (Wien 1913).

Acegas

Another remnant of the former factory district is the waste separation center located on the opposite side of the street from the factory, the site of which underwent a series of changes of use over the 20th century.

The Roiano gasometer once stood on this site, which was built in 1908 under the first company name 'Usina Comunale del Gas' due to the ever-growing demand for gas, both for domestic and industrial purposes.¹¹⁰

The city's electricity supply underwent significant developments in the years that followed. The company's name changed to 'Officina Comunale Gas e Elettricità' in 1923 and to 'Azienda Comunale Elettricità e Gas' in 1925. The supply of water and the management of the municipal tramway were added, leading to several changes in the company's name

As the demand for the city's energy supply increased, a technologically modernized power station was built on the site in 1991 to provide water, electricity, and gas to the northern and eastern districts of the city (Fig.57).¹¹¹

Ten years later, the site was transformed into a bulky waste and recycling center, now known as AcegasApsAmga. The center specializes in collecting bulky waste such as electrical appliances, batteries, and wood. Acegas, the first multi-utility company in northern Italy, is involved in environmental and water services, as well as electricity and gas distribution. The company also undertakes nationwide energy renovation projects and manages the city's lighting networks.

Residents of the city have the option to either drop off waste or have the company collect bulky waste as part of its circularity concept.¹¹²



Fig. 53

Fig. 53 | ACEGAS area in Roiano today

¹¹⁰ Inheritage, Archivio AcegasApsAmga S.p.A., <https://www.inheritage.it/it/scheda/archivio-acegas-apsamga-spa.htm>

¹¹¹ Federica Clabot, Alta tensione fino in città. In: Il Piccolo, 10.12.1991, 16.

¹¹² AcegasApsAmga S.p.A., <https://www.acegasapsamga.it/>



Fig. 54

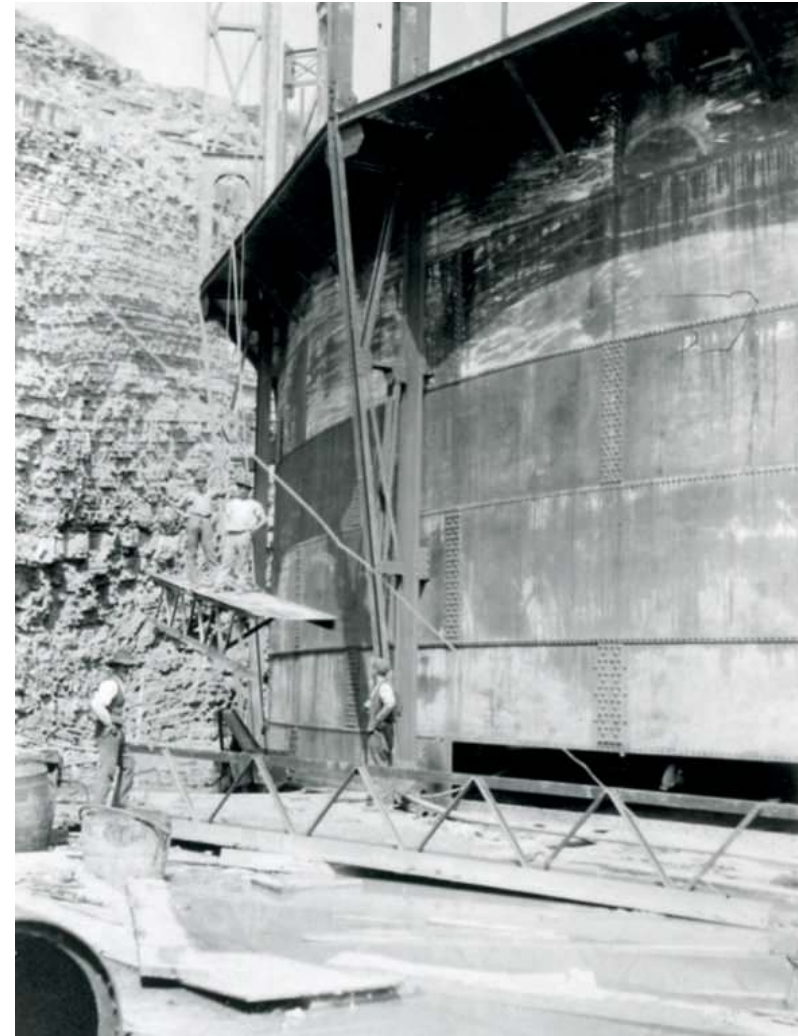


Fig. 55

Fig. 54, 55 | construction of the gasometer
of Rojano, 1908



Fig. 56

Fig. 56 | workers inside the gasometer
1908

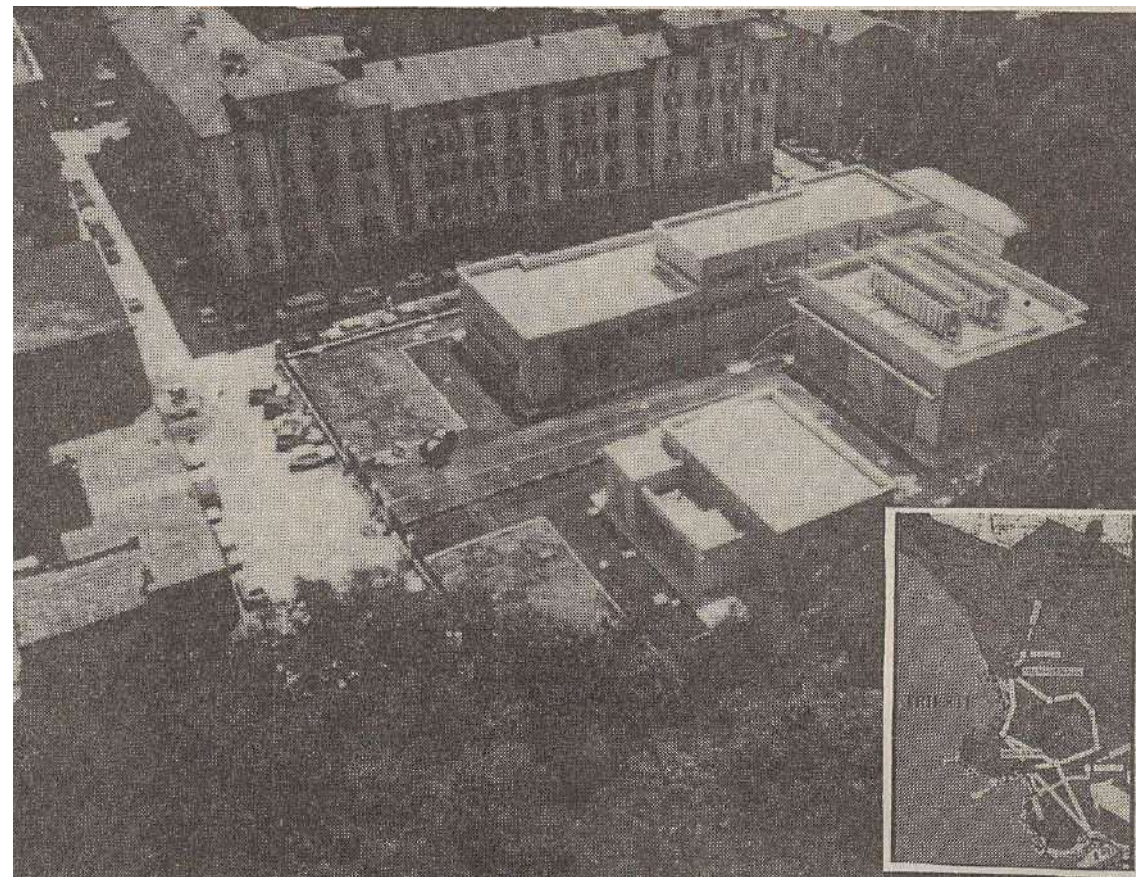


Fig. 57

Fig. 57 | newly built power station of
Rojano, 1991

Galleria di Grotta-Roiano

In addition to the legacy of an industrial history, the Rojano and Grotta districts are also characterised by a hilly landscape that is home to a large number of tunnel portals. This is also the case at the end of Via Valmartinaga, at the foot of Grotta.

The tunnel portal narrates the history of the Lazaretto of Santa Teresa, constructed on this site in 1769 (Fig.59). Originally serving as a hospital for individuals and ships afflicted with the plague, it was enclosed by a 7-meter high wall that divided two basins. One basin was used for connecting with the outside world and transporting goods, while the other was for ships suspected of being infected. The streams from the hills provided the necessary water supply. Additionally, the complex, acting as a „sea fortress,” was equipped with a cannon battery, and the tunnel functioned as a powder depot.¹¹³

In 1988, speleologists discovered the only surviving Austrian gunboat, the ‚Santa Barbara’, dating back to 1841, in the tunnel (Fig.60). Due to its high construction quality and bunker characteristics, the tunnel was used by the Germans as an air defense tunnel during the Second World War.¹¹⁴

The 660 metre long tunnel is accessed via two portals located in Via Valmartinaga and Viale Regina Elena, near the Rossoni football pitch. A side branch leads to a portal in Viale Miramare 51¹¹⁵ an Austrian military installation. In old documents, this branch was called ‚Galleria Ricovero FF.SS.’.¹¹⁶



Fig. 58

¹¹³ Zeno Saracino, Per accogliere i sospetti di peste” I Lazaretti di Trieste (1731-1769). In: Triestenews 7th March 2020, <https://www.trieste-allnews.it/2020/03/per-accogliere-i-sospetti-di-pesti-i-lazaretti-di-trieste-1731-1769/>

¹¹⁴ Scoperta „Santa Barbara” di un secolo e mezzo, Il Piccolo 18th December 1988, 5.

¹¹⁵ Sergio Ollivier, Gallerie e Rifugi Antiaerei a Trieste <https://documentiollivier.blogspot.com/2011/06/gallerie-e-rifugi-antiaerei-trieste.html>

¹¹⁶ Paolo Guglia, Armando Halupca, Enrico Halupca, Sotterranei della città di Trieste (Triest 2002).



Fig. 59

Fig. 59 | Lazaretto Santa Teresa 1870



Fig. 60

Fig. 60 | Discovery of the Santa Barbara
1988



Fig. 61

Conclusio

The historical view of the immediate surroundings of the building site shows that it was a heavily industrialised neighbourhood, of which a few built contemporary witnesses can still be seen today. The relocation of the harbour to the south of the city therefore not only brought about changes to the porto vecchio itself, the subject of numerous observations and reuse strategies, but also to the neighbouring districts and their buildings. One of these Bucchi Neri is the former Küchler & Co. factory.



Fig. 62

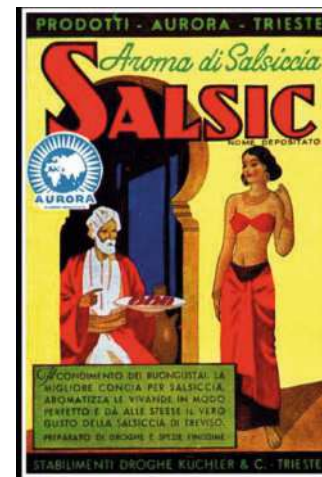


Fig. 63

Fig. 63 | Advertising „Salsic” aroma, illustrated catalog for the 100th anniversary (1836-1936).

¹¹⁷ Fabio Zubini, Roiano.

¹¹⁸ Fulvio Zubini, Roiano.

THE EXISTING

Küchler und Co factory

The former factory of the company Küchler & Co was founded in 1836 and specialized in the import and export of „colonial drugs” and „herbal medicines”. Some of the plants and spices were imported from abroad, arriving in the nearby harbor on ships from distant countries, processed in their factory and produced spice mixtures, but also finished products. These preserved foods bore the brand name „Aurora”.

On the occasion of the company’s 100th anniversary, the company published a catalogue of its product range, accompanied by a certificate of analysis issued by the Commodity Chemical Laboratory of the Provincial Council for Enterprise Economy of Trieste. These products include:

*Spices and remedies for sausages – Naples-style pesto seasoning – Veronese seasoning – Cloves – Allspice – Ceylon and Goan cinnamon – White and black pepper “Pepal” – Sausage flavoring “Salsic” – Cooking spice “Salsita” – Vanilla yeast “Alba” – Vanilla sugar – Vanillin – Liquid and powdered pyrethrum insecticides*¹¹⁷

Due to their close proximity to the Grotta Hill, these hills were also part of the company’s property and were used to grow herbs and plants that were further processed, preserved and prepared for sale in the factory.¹¹⁸



Fig. 64

SPEZIA ROSSA TIPO PIEMONTE		LIRE
Speciale extra pura al sandalo	il Kg.	
Speciale mista extra al sandalo	„	
Speciale mista corrente al sandalo	„	
Legno sandalo macinato puro	„	
Legno sandalo misto	„	
SPEZIA TIPO TOSCANA		
Extra pura	il Kg.	
Mista extra	„	
Mista l.a	„	
Confezionatura: Tipi superiori alle Lire 10,- per Kg. in latte da Kg. 5 e Kg. 10 oppure cartoni litografati da Kg. 1; gli altri tipi in pacchi da Kg. 5, 3, 2 e 1		

Fig. 65

Fig. 64, 65 | catalogue with content for the 100th anniversary of the factory (1836-1936).



Fig. 66

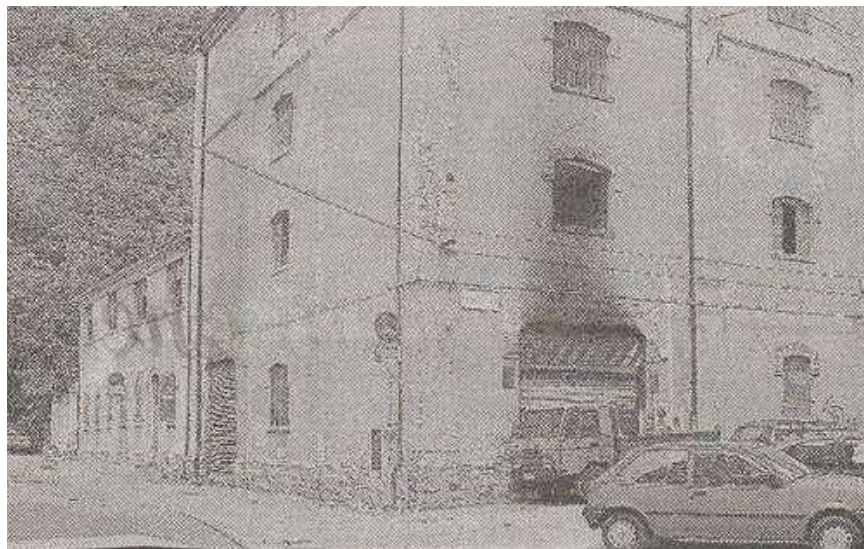


Fig. 67

Current situation

The company was closed in 1983. In the following years, no company headquarters or evidence of subsequent use can be found in the former factory building.

In 2004, a fire broke out through a parking car in front of the main building, and damage was noted to the warehouse of the plumbing company Edil Rojano. Currently, parts of the building are used as storage areas, the ground floor area of the main building and parts of the halls are used as a car repair shop for the company Autocarrozzeria Top Car Di Sperti Antonio E Scuka Loris S.n.c., which will continue to be taken into account in the design, but offer the possibility of further development and integration into the conversion concept.

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Fig. 66 | the courtyard of the factory which is used as a parking area for the car repair shop

Fig. 67 | photo of the burned corner of the building

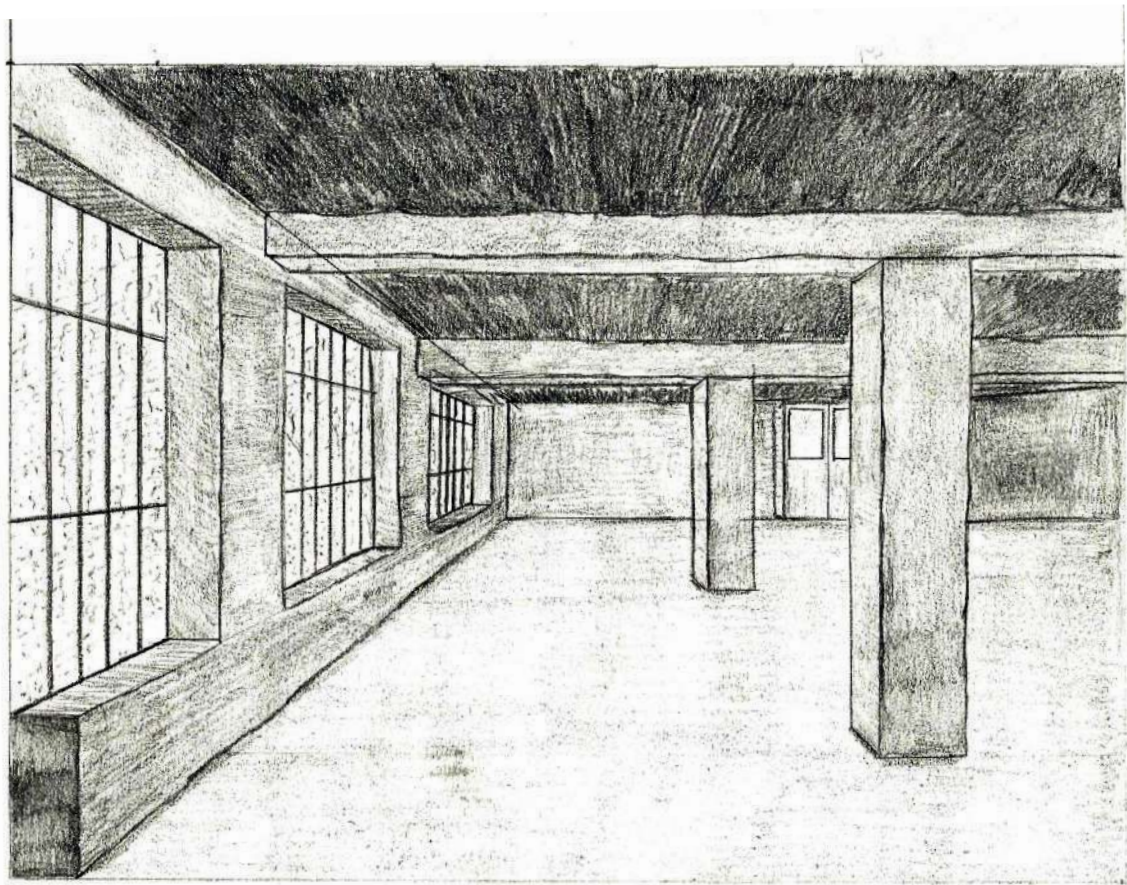


Fig. 68

Transformations of the existing

The building ensemble of the former factory is characterized by the gradual construction of individual buildings and a large number of additions and conversions. The first surviving plans were dated 1911, but they already noted a renovation and an extension to the main building on the corner. This suggests that one of the neighboring buildings had already been built before that. Each plan was marked with a site plan that shows the structural and infrastructural changes to the surrounding area, as well as a renaming of the house numbers of the individual buildings. If you compare the plans, however, you can see that the surrounding buildings have different dimensions in the respective plans, which is why it is assumed that the author of the respective plan noted the urban environment partly conceptually (attachment).

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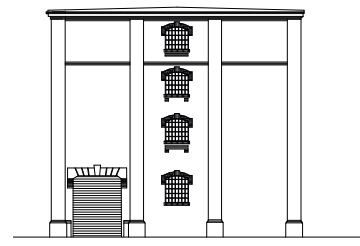
While the renovations to the main building were relatively well documented, there is little to no documentation of the two storage buildings in the courtyard. However, their construction can be roughly placed into a certain period of time based on the site plan documentation and the note „reconstruction project“ on one of the halls. However, due to the incomplete documentation of the various renovations and the heterogeneous statements in the plan material, it can be assumed that not all of the planned structural changes actually took place and that perhaps only projects were documented. Consequently, the structural chronology of the individual buildings, as well as their most significant renovations and finally their current state, are presented.



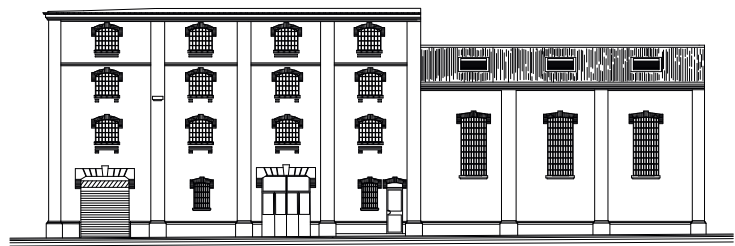
Fig. 69



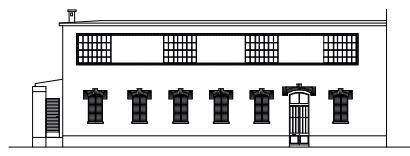
M 1: 1500



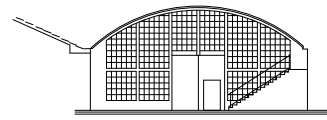
M 1: 200 1.1



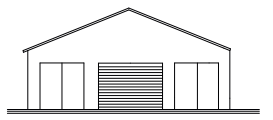
1.1 1.2



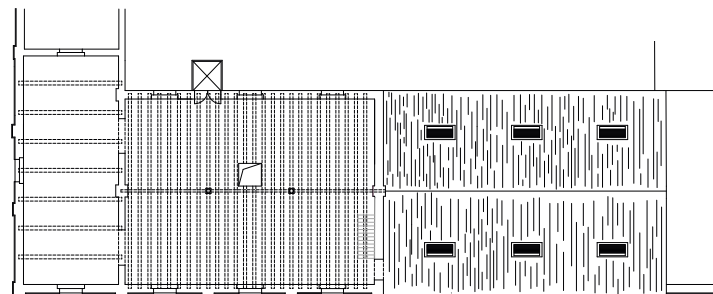
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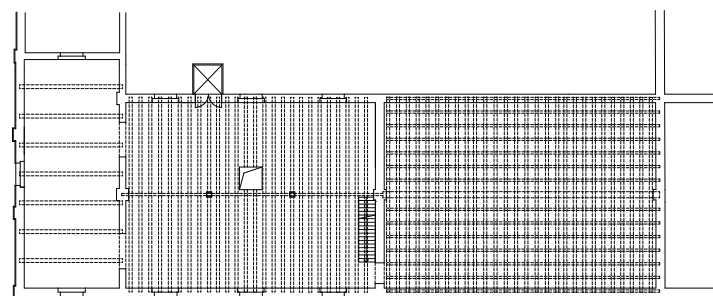
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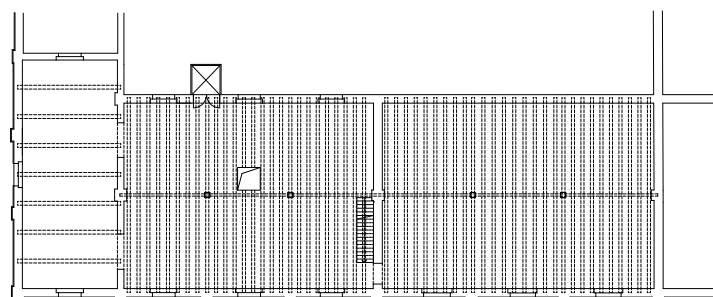
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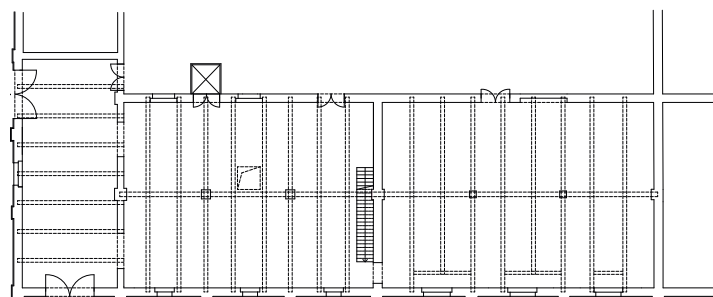
Third floor



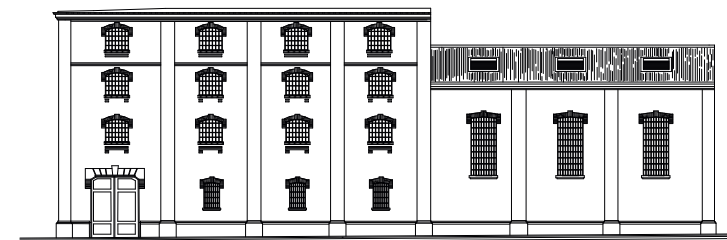
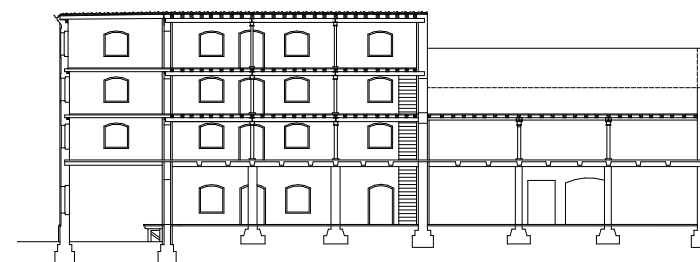
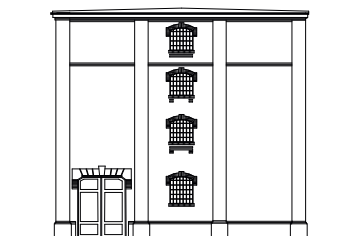
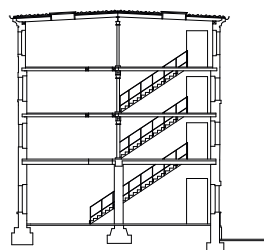
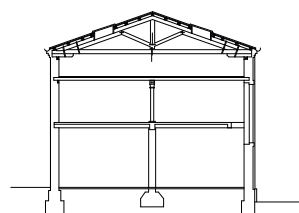
Second floor



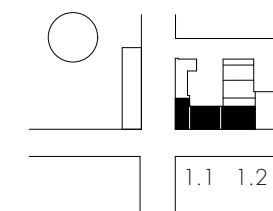
First floor



Ground floor



M 1.200



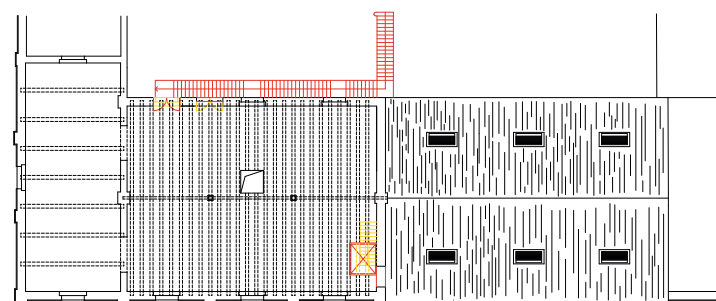
1911 1912 1936 1952 2024

Reform and extension project

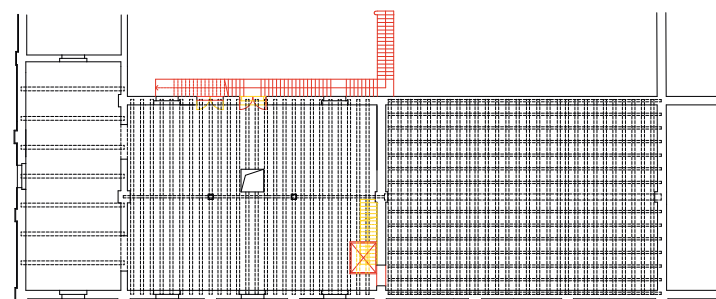
1911

The first buildings of the ensemble appear in the archived plans from 1911 as the corner building at Via Gelsomini No. 2 and the adjacent building at Via Gelsomini No. 4. The note "Reform and extension project" refers to the previously constructed building No. 4, to which a new building is attached at the corner.

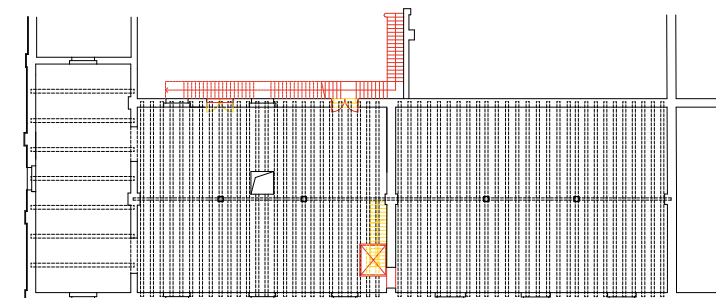
The solid brick buildings are structured by a clear grid of steel columns and wooden beams on the upper floors, as well as concrete columns and a concrete composite ceiling on the ground floor. Openings on the upper floor mark an intended connection between the two buildings. The main entrances are in the corner building, which, due to the topographical conditions, has a different floor level to the rest of the building.



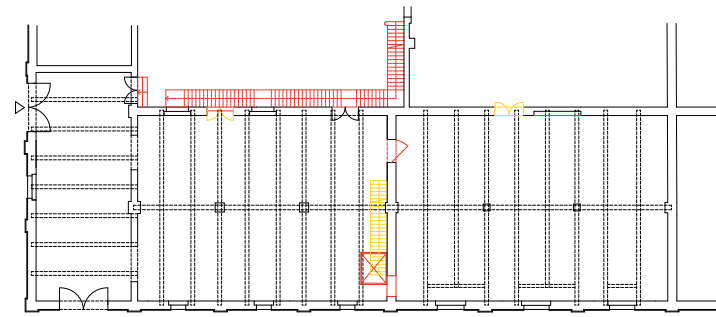
Third floor



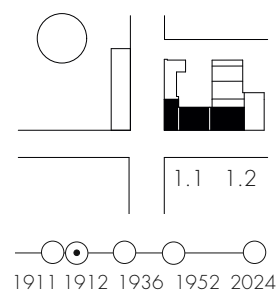
Second floor



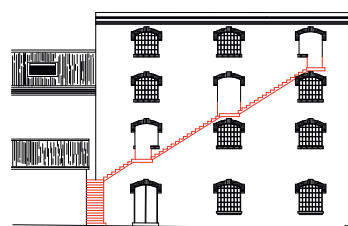
First floor



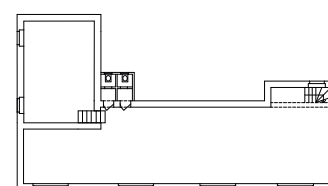
Ground floor



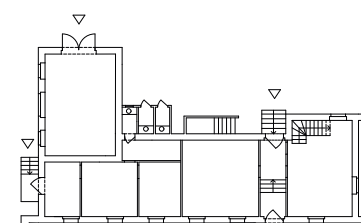
extension of external access
and elevator



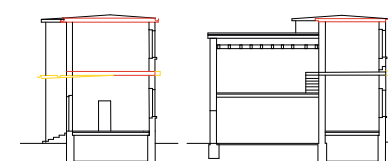
M 1.200



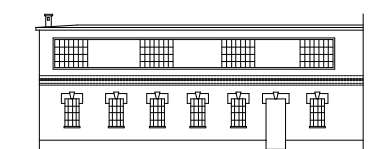
Second floor



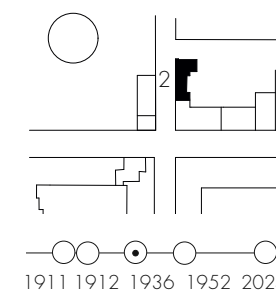
First floor



M 1.200



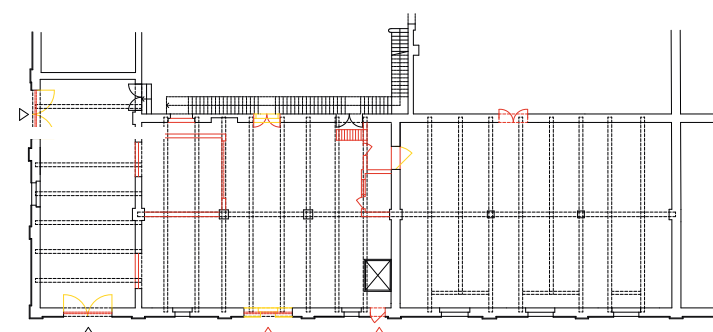
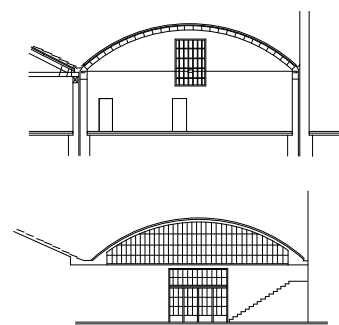
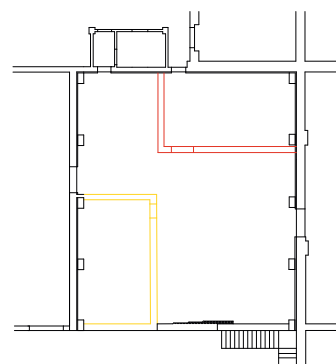
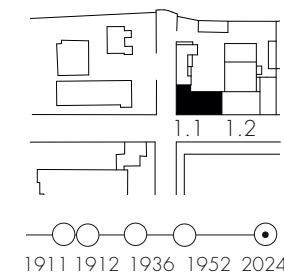
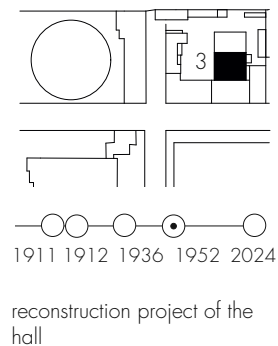
M 1.200



raising of a ceiling

1936

The first plans for the building at Via Valmartinaga No. 3 date from 1936 and mention its use as a warehouse by the company Küchler and Co. The two-storey brick building is characterized by different levels and floors that can be reached through different access routes.



Today

The current condition of the building suggests that structural changes have been made since the last documented plans from 1912. These are reflected primarily in the entrance areas on the facades, as well as installations on the ground floor and wall openings and closures due to the current use as a car repair shop.

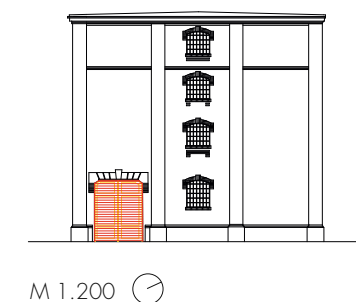
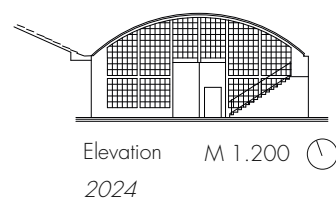
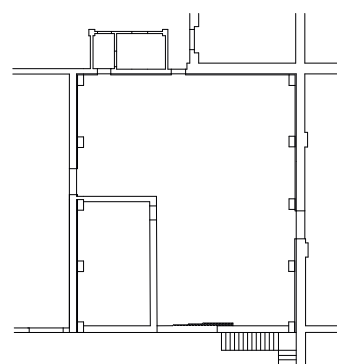
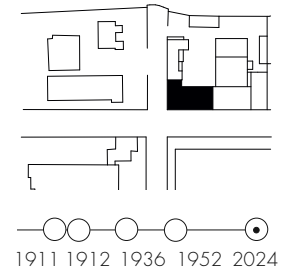




Fig. 70



Fig. 71



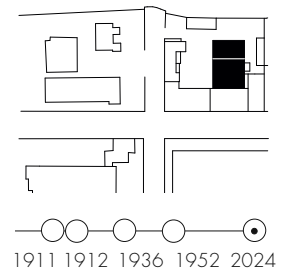


Fig. 72

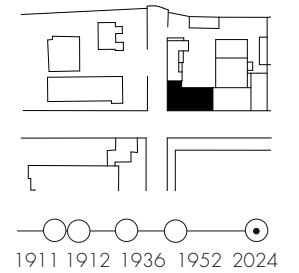


Fig. 73

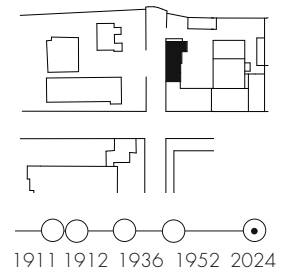


Fig. 74

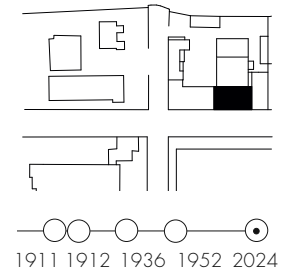


Fig. 75

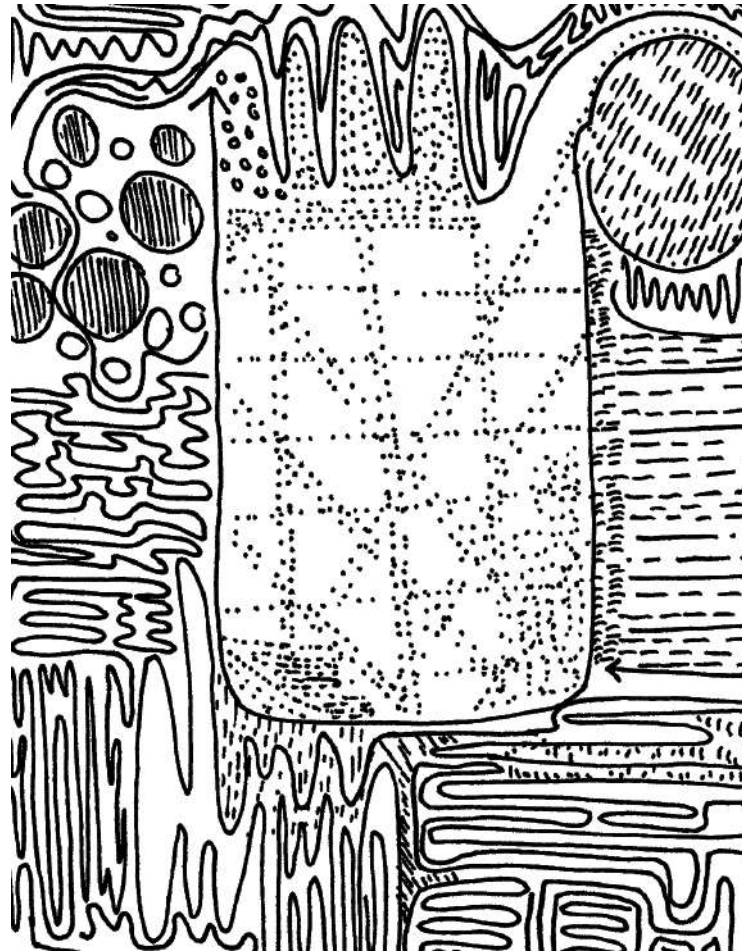


Fig. 76

THE DESIGN

The analysis of the area where the former factory is located shows that it was a very industrial district, traces of which are still visible today. On the other hand, fertile hilly landscapes, the foothills of the Karst mountains, where wine and fruit are grown and serve as a local recreation area, form the surrounding landscape. The confluence of the four streams in the Valmartinaga Valley can also be seen as symbolic of the confluence of industry and nature, different neighborhoods, existing and added. The place as a melting pot of various energies.

The transformation of the former factory takes up the special features of the place but places them in a future-oriented context and includes urban planning, social, architectural, and ecologically sustainable energy concepts. Thus, the need for interdisciplinarity in architecture is made clear.

Where local herbs and plants were once harvested, processed, and prepared, the former factory buildings of the Kuchler & Co company are intended to revive the original idea of regional production but to integrate it into a continuing cycle. Just as the existing buildings themselves are being integrated into a cycle of future functions and uses, the factory's agricultural waste products are also being processed into biogas and fed into a cycle of renewable energy. Irrigation systems, as a visible link between urban planning discrepancies, illustrate

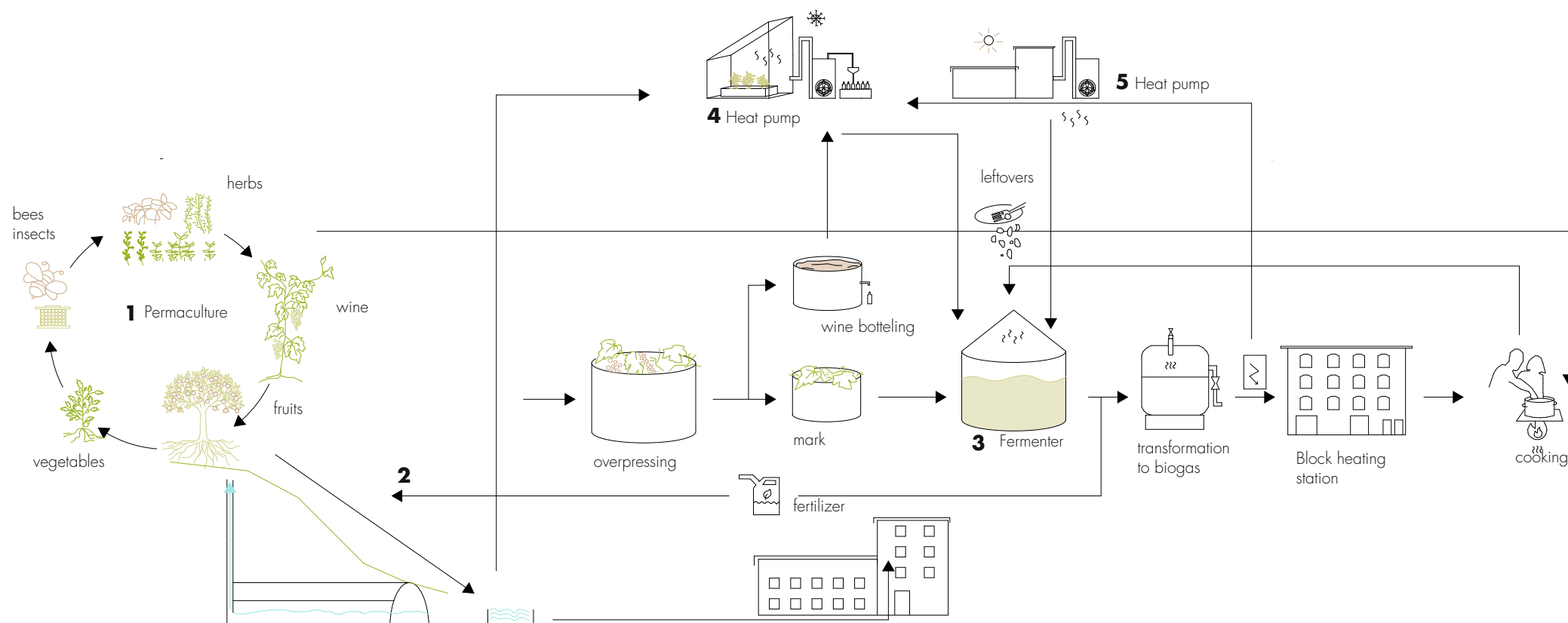
the symbiosis of humans, technologies and nature in their built environment.

The cultivation and processing of agricultural products of permaculture in community networks is intended to strengthen neighborhoods and promote integration projects.

The analysis of the existing buildings was essential for developing effective reuse and conversion concepts. All buildings are interconnected and serve specific functions. Care was taken to recognize the inherent qualities and resources of the structures to incorporate them effectively into the new factory's design. The materials used in addition to the existing ones are limited to steel and local limestone.

The post-and-beam facades, which feature steel profiles through which warm water circulates, serve a dual purpose: they not only irrigate the greenhouses but also help prevent condensation. Water flows through round tubular steel supports to irrigate plant troughs and basins, while the integrated steel profiles support the weight of the newly added ceilings

The factory as a place of production is intended to create an architectural space through structural transformation processes that, on the one hand, manages functional production processes. On the other hand, atmospheres are created for the people working in the factory, but also for neighborly gatherings, thus creating a space that connects.



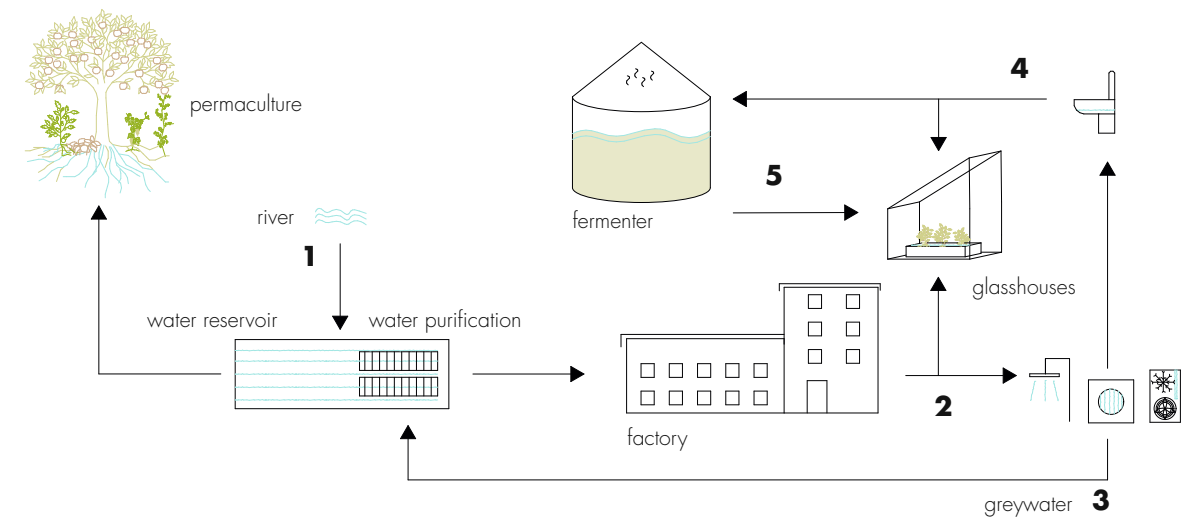
1 Agricultural management of the hills through permaculture serves as the foundation for the energy concept. In this system, plants and animals support one another through their unique characteristics and engage in cross-fertilization within symbiotic networks. The food produced in this way is processed in factories and subsequently enters the human energy cycle. The leftovers from this process are then fermented, contributing to the building's energy cycle.

2 Water from the river is stored and partially purified in the former air raid tunnel. Unfiltered water is pumped up to irrigate the hill. Filtered water is used to supply the factory and all production steps.

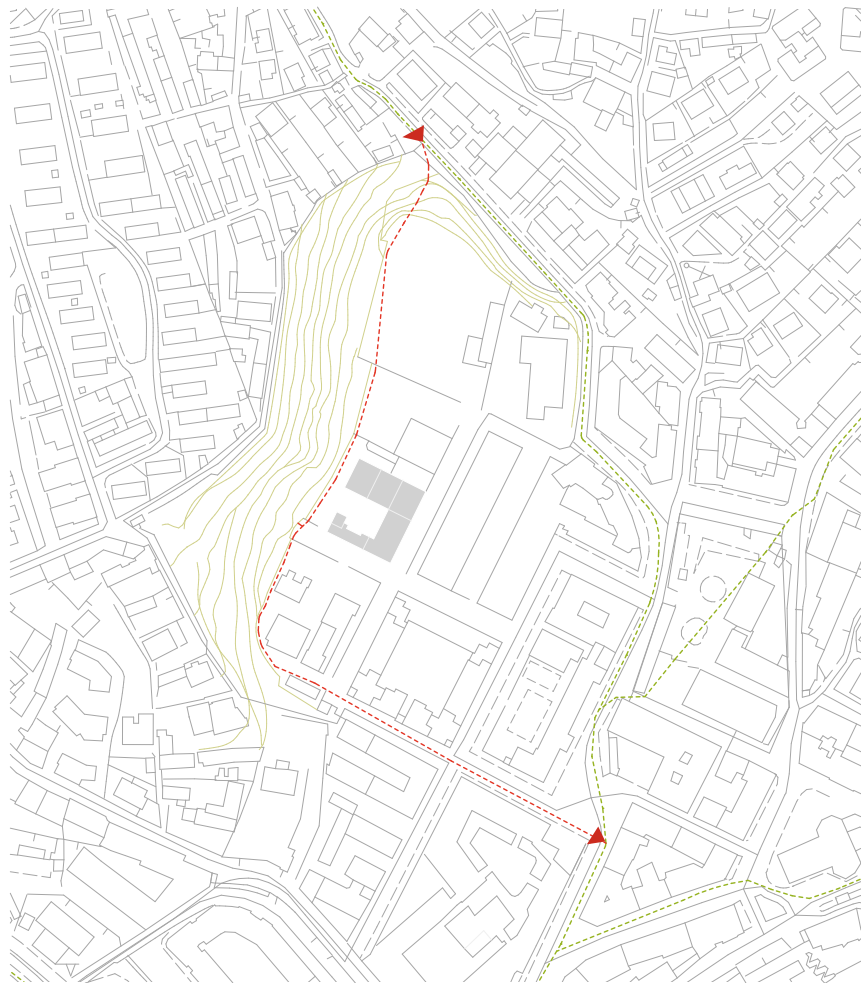
3 The agricultural residues ferment in a fermenter in the absence of oxygen. Biomethane is created. The gas can be used for cooking and heating. In a combined heat and power plant, biogas is burned into electricity by an internal combustion engine.

4 Heat pumps draw their heat from the waste heat of the factory machines and heat the building, the glass houses and the fermenter. They are powered by electricity from the combined heat and power plant.

5 Heat pumps whose heating circuit is reversed are created cooling. The indoor air is supplied via the heating system using a compressor actively extracts heat and sends it outside derived or introduced into the biogas plant.



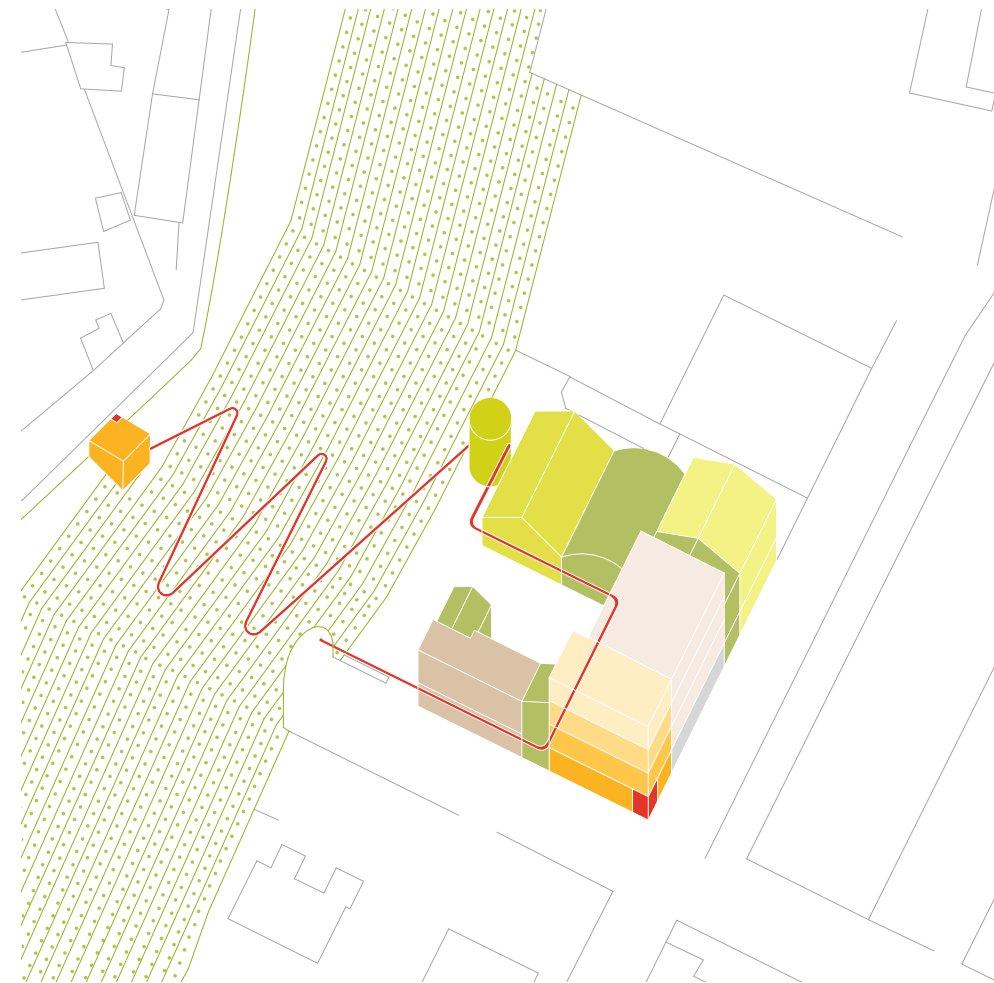
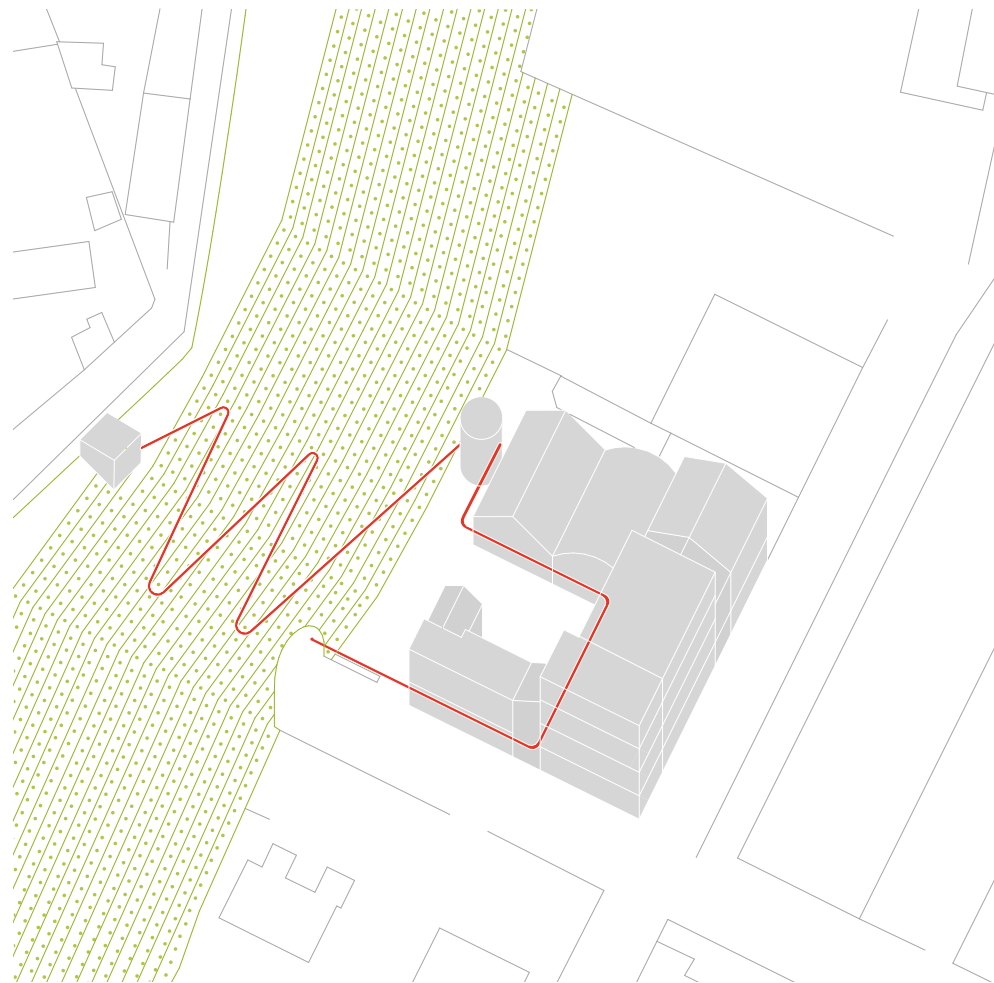
Route diversion of the river rio Carbonara
 M 1.4000



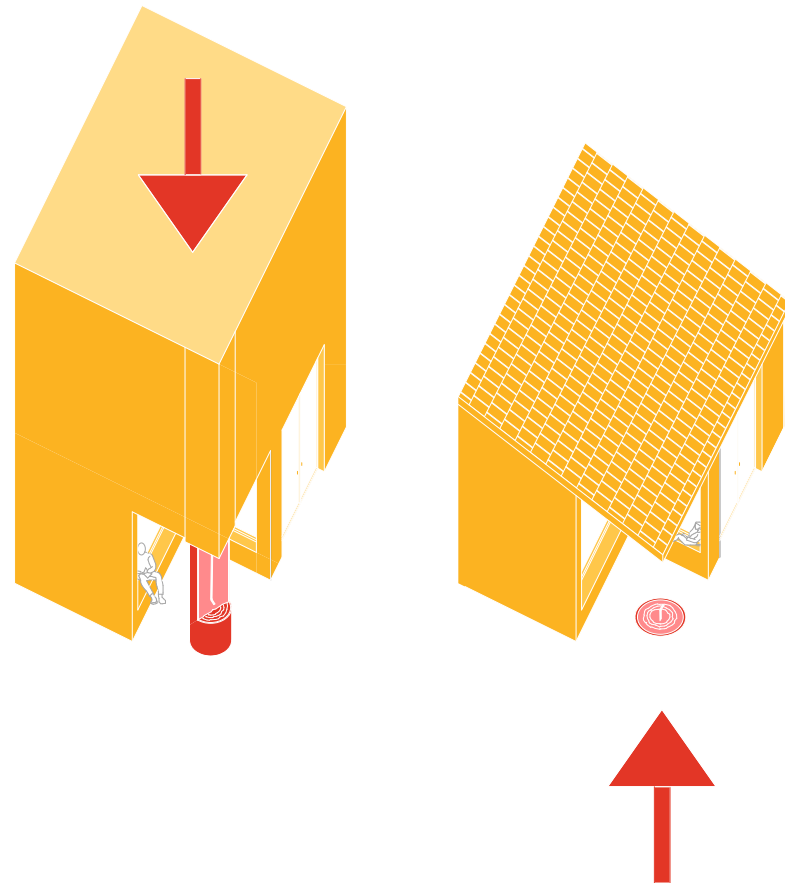
Water cycle

-  existing subterranean water pipeline
-  new subterranean water pipeline
-  new overground water pipeline
-  fountain
-  new infrastructure





- | | | |
|--|---|--|
| ■ Water | ■ Farm shop/ winebar | ■ wine production |
| ■ Glasshouses | ■ Restaurant | ■ Food science and biotechnology |
| ■ Fermenter and Storage | ■ Event/Seminar space | ■ car repair shop |
| ■ Block heating station | ■ Administration | |

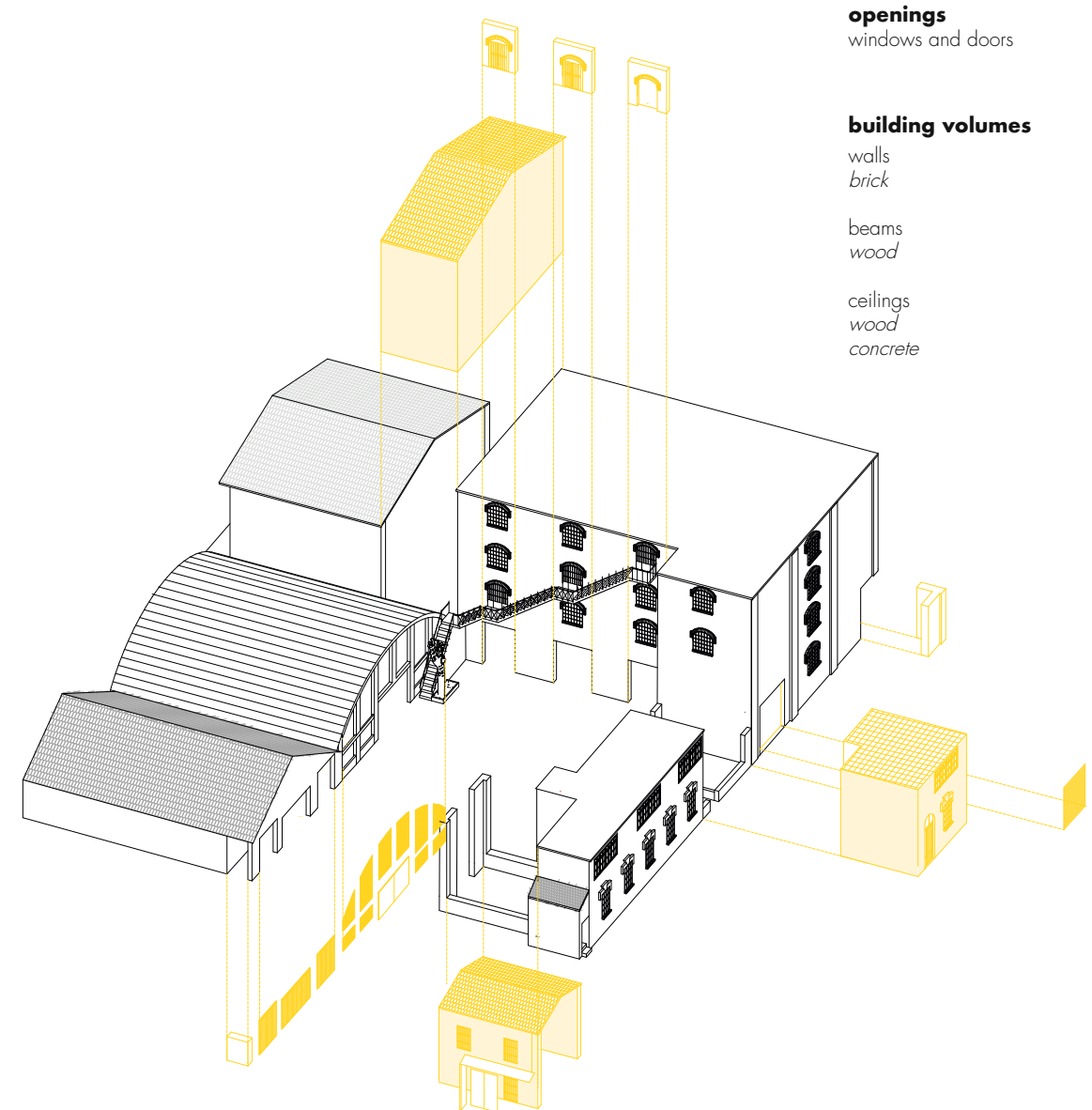


At the corners of the area, which are also the most public ones, two fountains symbolize the water cycles und act as a visible landmark. Just as the water gets into the buildings, it also comes out.



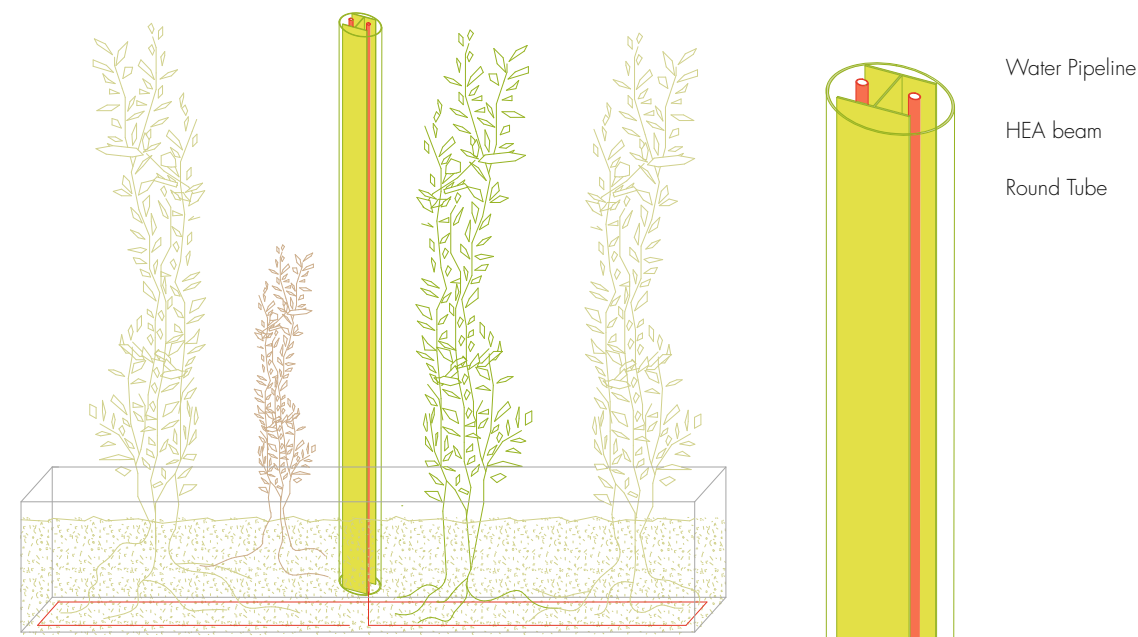
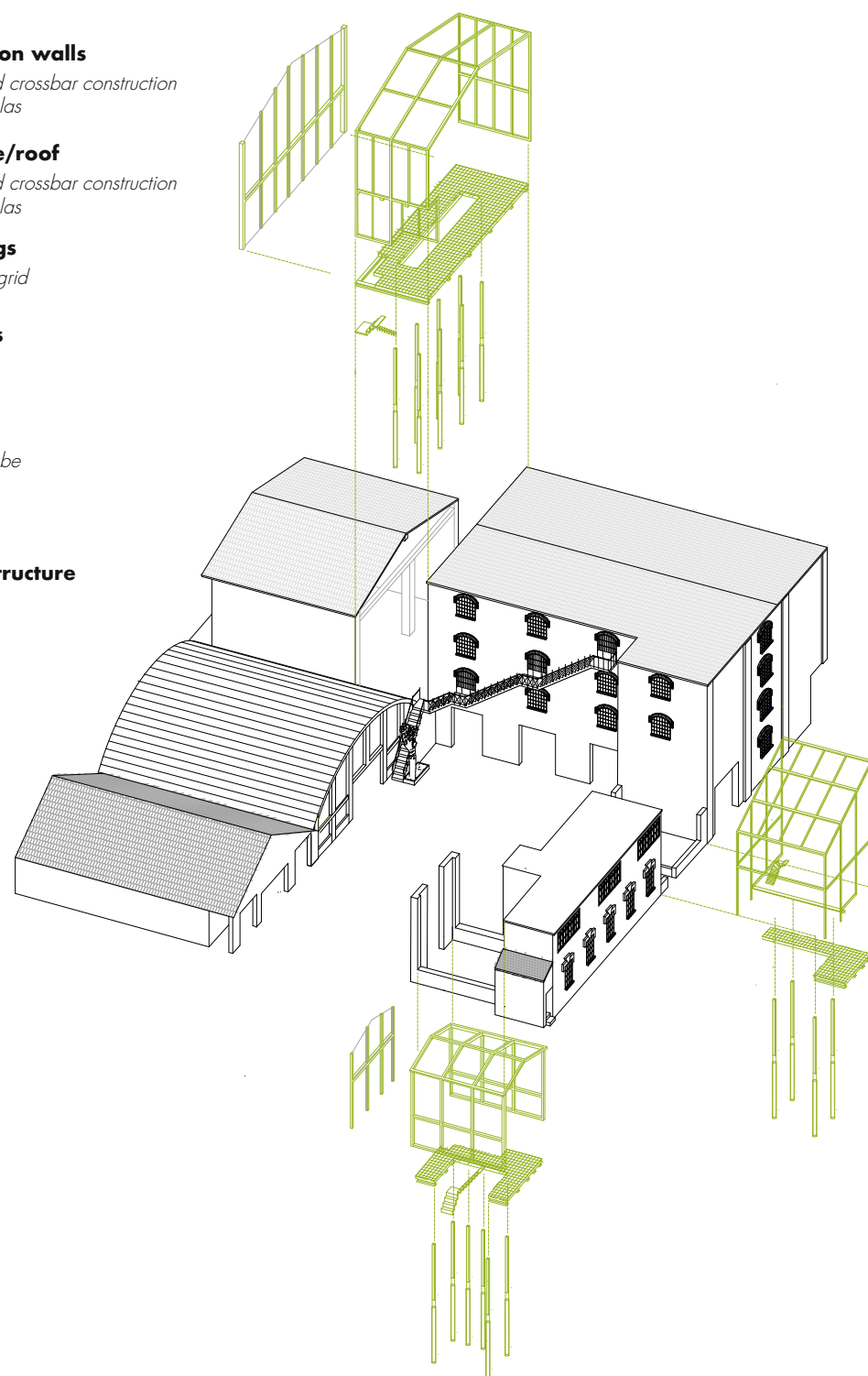
The factory as a connecting element in urban development

Transformation concept
Step 1 Reduce



M 1.500

Transformation concept
Step 2 Add Glasshouses



Concept of the Pillars

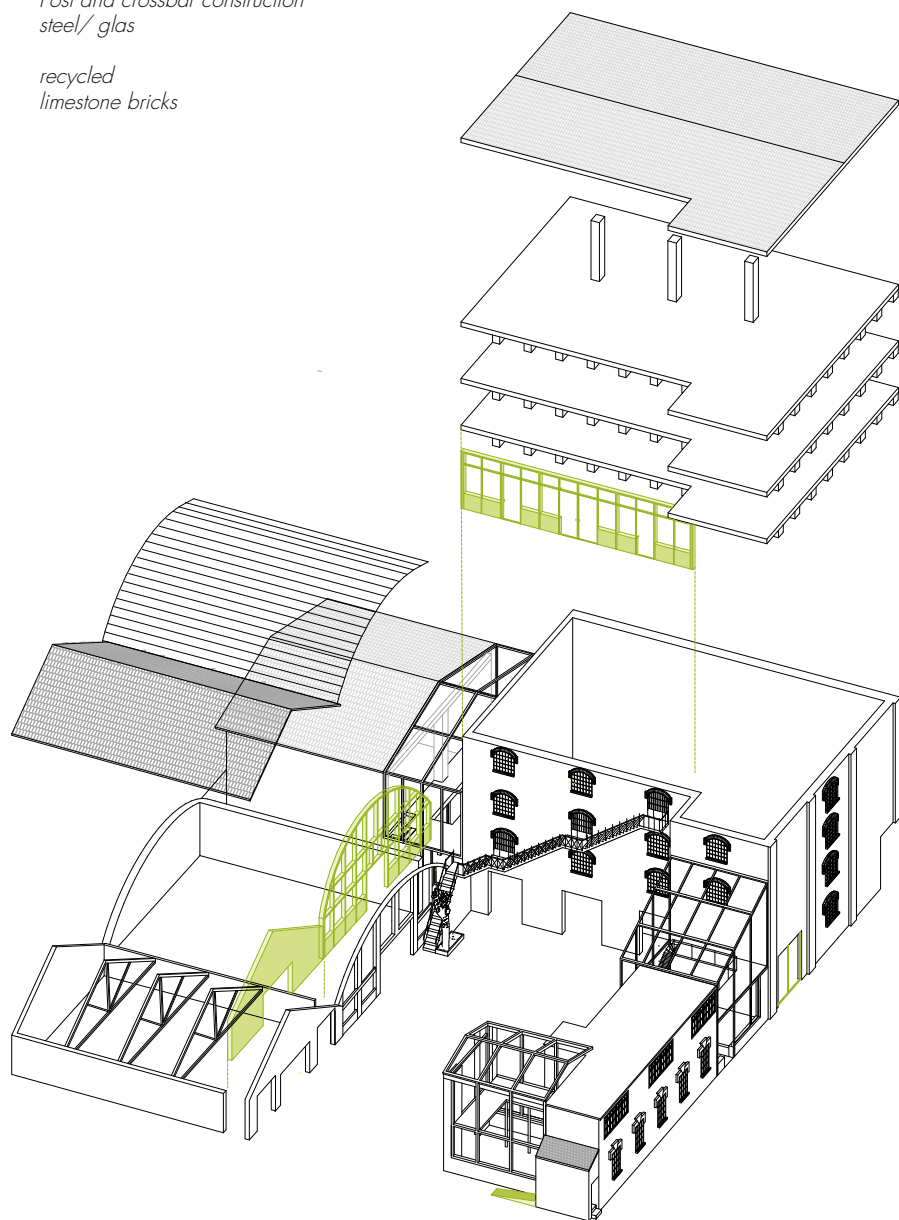
To enhance the load-bearing capacity, the round tubes are supported of steel HEA beams which have been installed to support the new ceilings. The space between these supports functions as a channel for water pipes, which serves a dual purpose: it is used for irrigating the plants and heating the greenhouses.

Transformation concept
Step 3 Add Bufferzone

facade

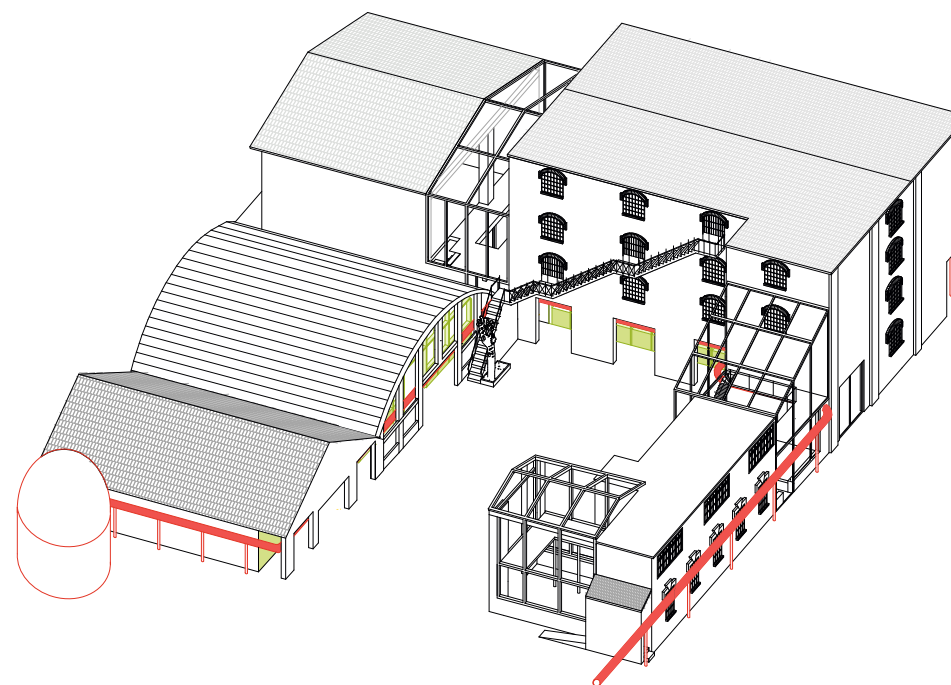
*Post and crossbar construction
steel/ glas*

*recycled
limestone bricks*



M 1.500

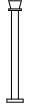
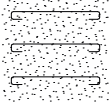
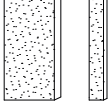
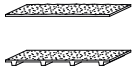
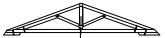
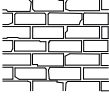
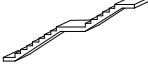
Transformation concept
Step 4 Add Waterinfrastructure + Fermenter



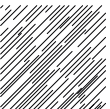
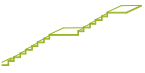
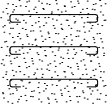
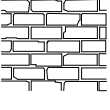
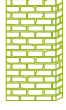
M 1.500



Material Concept Existing Materials

		Walls Pillars	Ceilings	Roof Construction	Windows/ Doors	Infrastructure
Steel						
Reinforced Concrete						
Wood						
Limestone Bricks						

Material Concept New Materials

	Walls Pillars	Ceilings	Roof Construction	Windows/ Doors	Infrastructure
					
					
					
					





Production

- 1 wine production
- 2 wine storage

Neighbourhoodcenter

- 3 farm shop/coffeshop
- 4 fountain
- 5 market place

Workshop

- 6 car repair shop

Glasshouses

- 7 plant cultivation
- 8 algae cultivation

Plant

- 9 block heating station
- 10 storage
- 11 fermenter

Satellite

- 12 winebar
- 13 fountain

Permaculture

- 14 bees
- 15 wild flowery meadow
- 16 vegetables beds
- 17 fruit trees
- 18 viticulture
- 19 herbs/bushes

Water infrastructure

- 20 water purification
- 21 water reservoir
- 22 pump
- 23 pipeline
- 24 water utility room

Ground floor





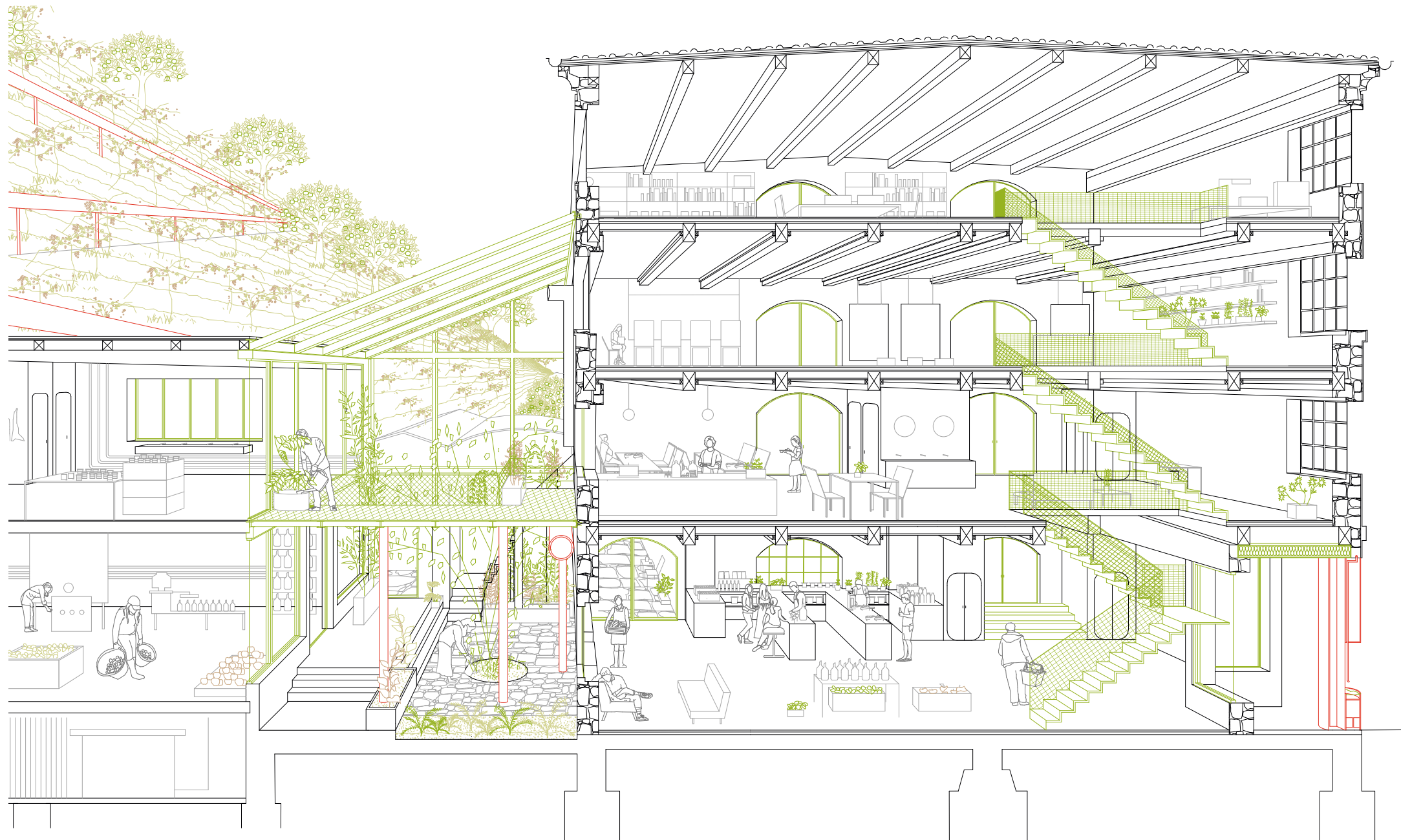
- Production**
24 wine production
- Neighbourhoodcenter**
25 Canteen
- Workshop**
26 food science and bio-technology
- Glasshouses**
7 plant cultivation
28 plant processing
- Plant**
9 block heating station

First floor

0 2.5

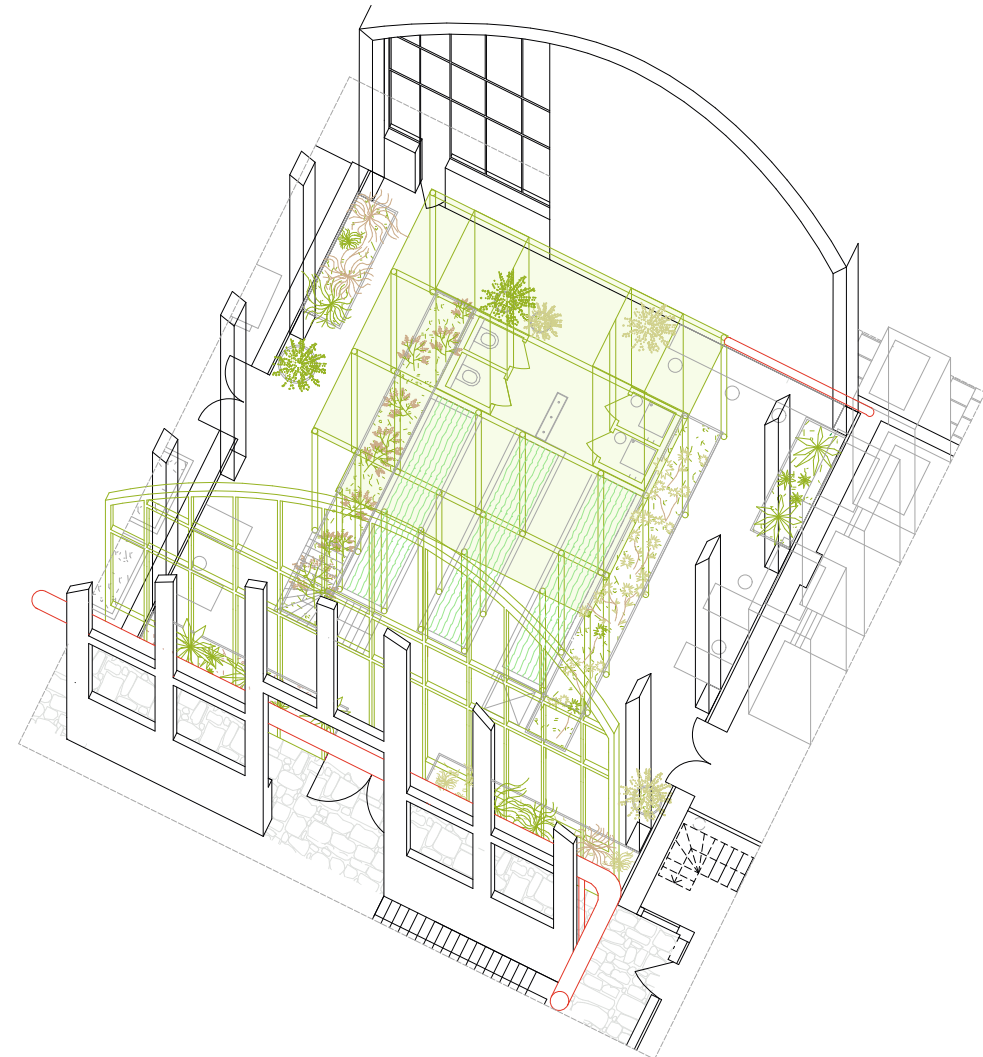
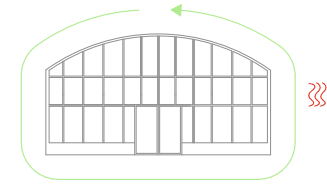






Section a
M 1:100

The Hangar

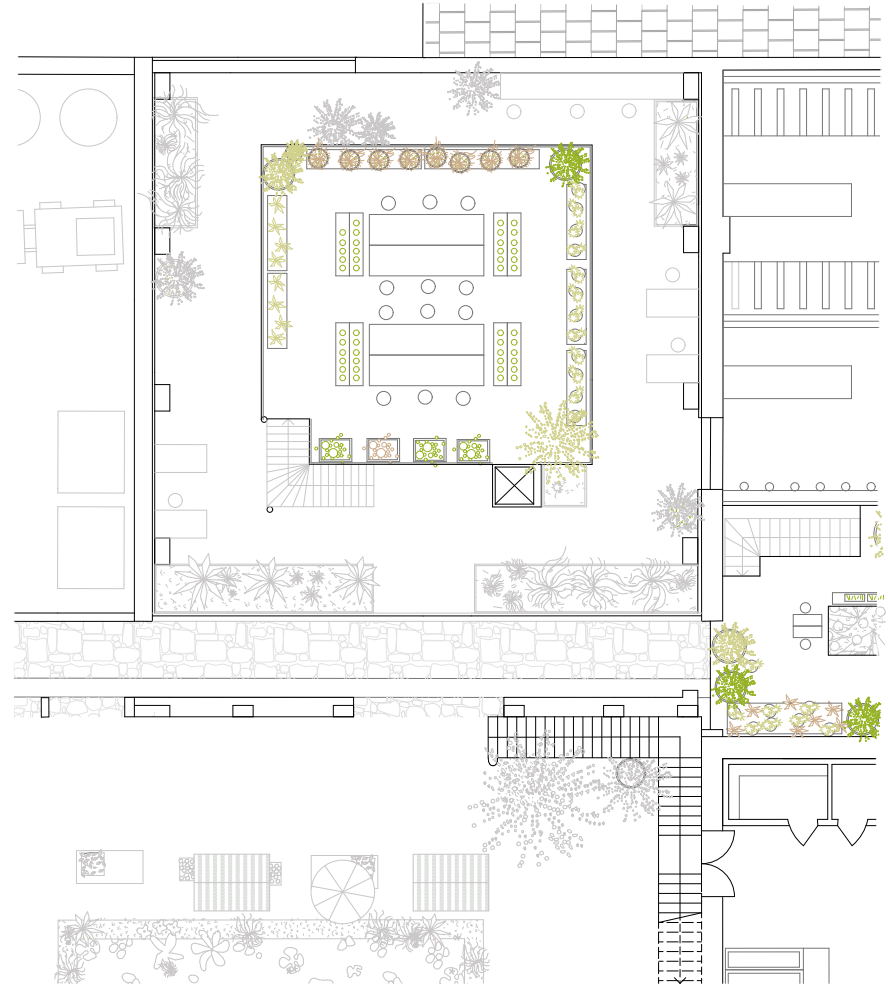
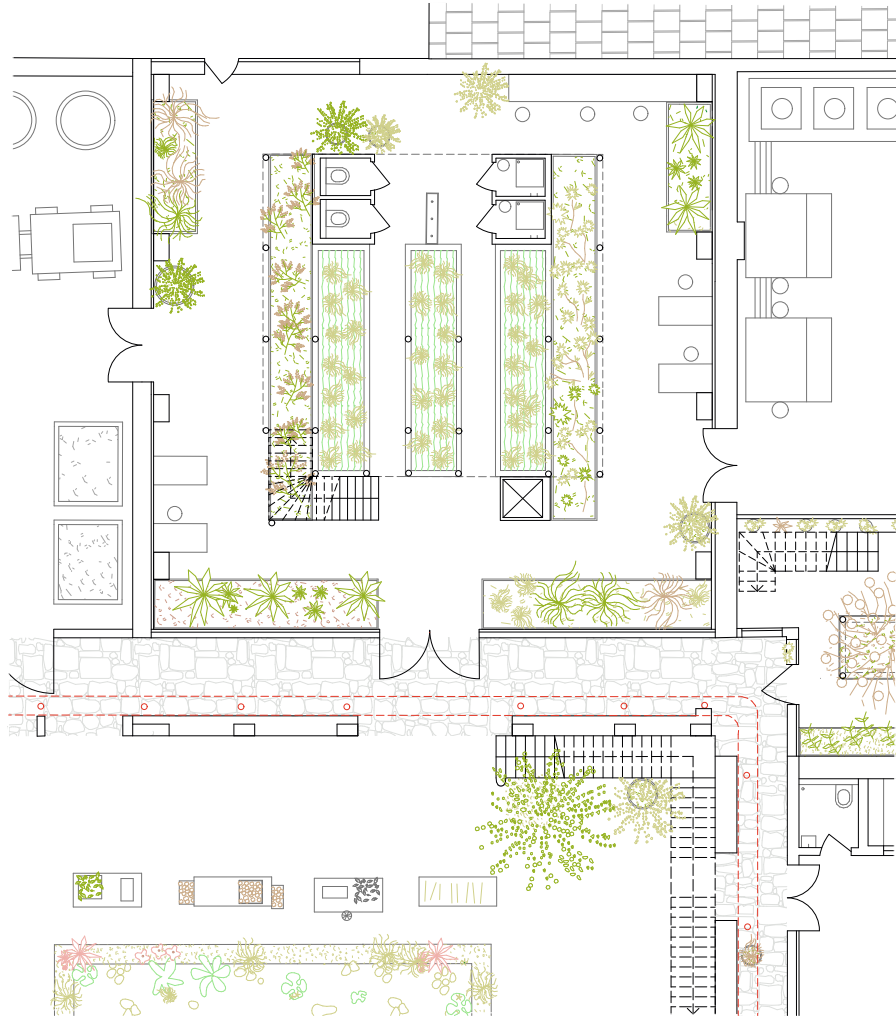


The former warehouse is used as a greenhouse for growing and researching algae and aquatic plants to be purified.

The suspended ceiling in the middle of the hall provides a second level for processing the plants. It is supported by a steel structure that irrigates the basin below. The sanitary rooms adjacent to the basins interact with them and form a symbiosis in the water cycle to be cleaned.

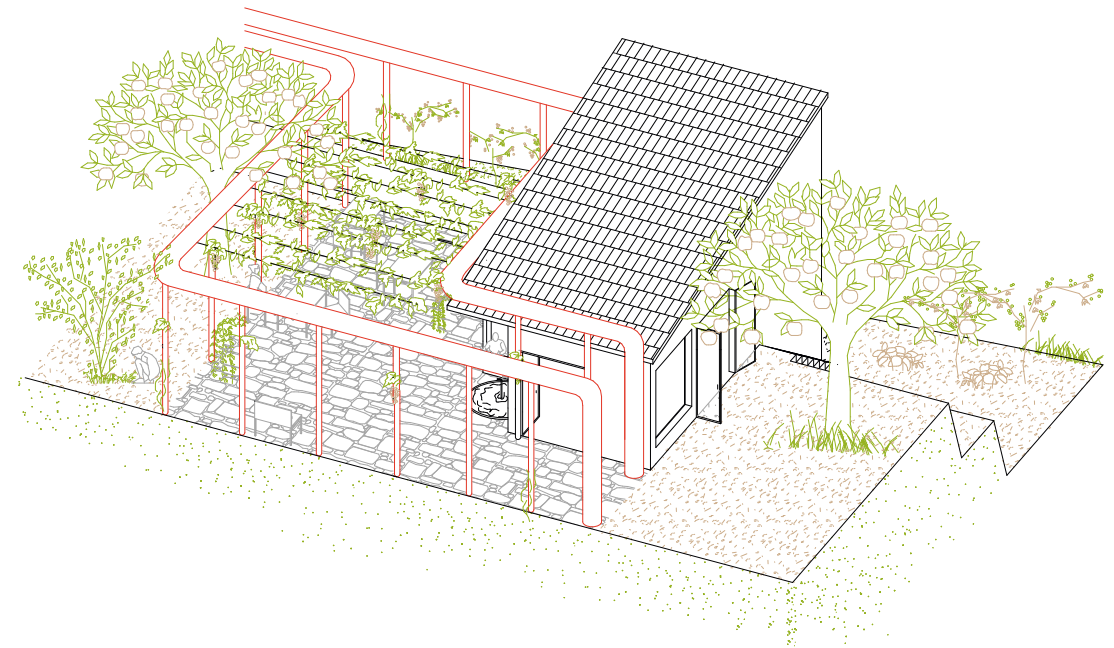
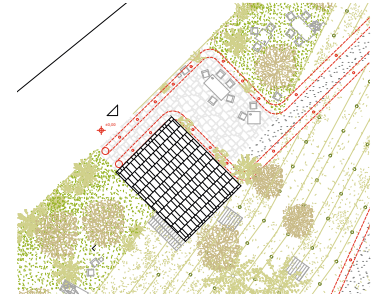
The warm water circulating in the newly constructed façade is used to irrigate the plants and prevent condensation.

M 1.200

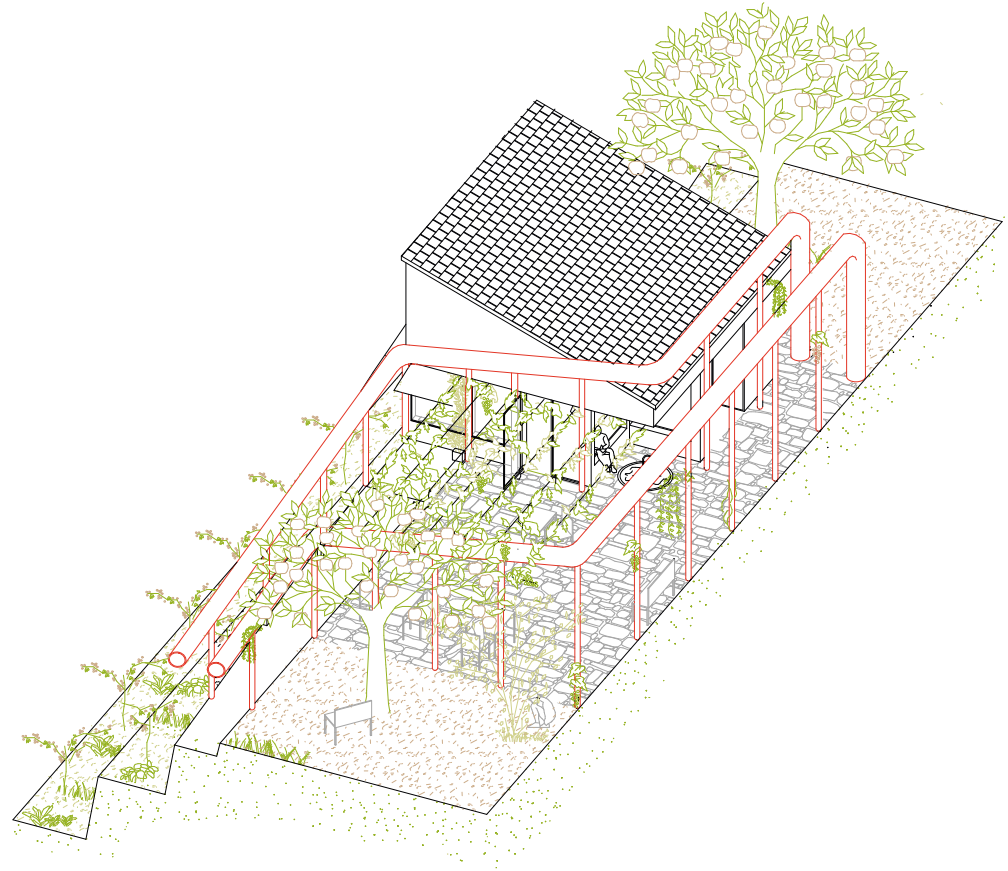


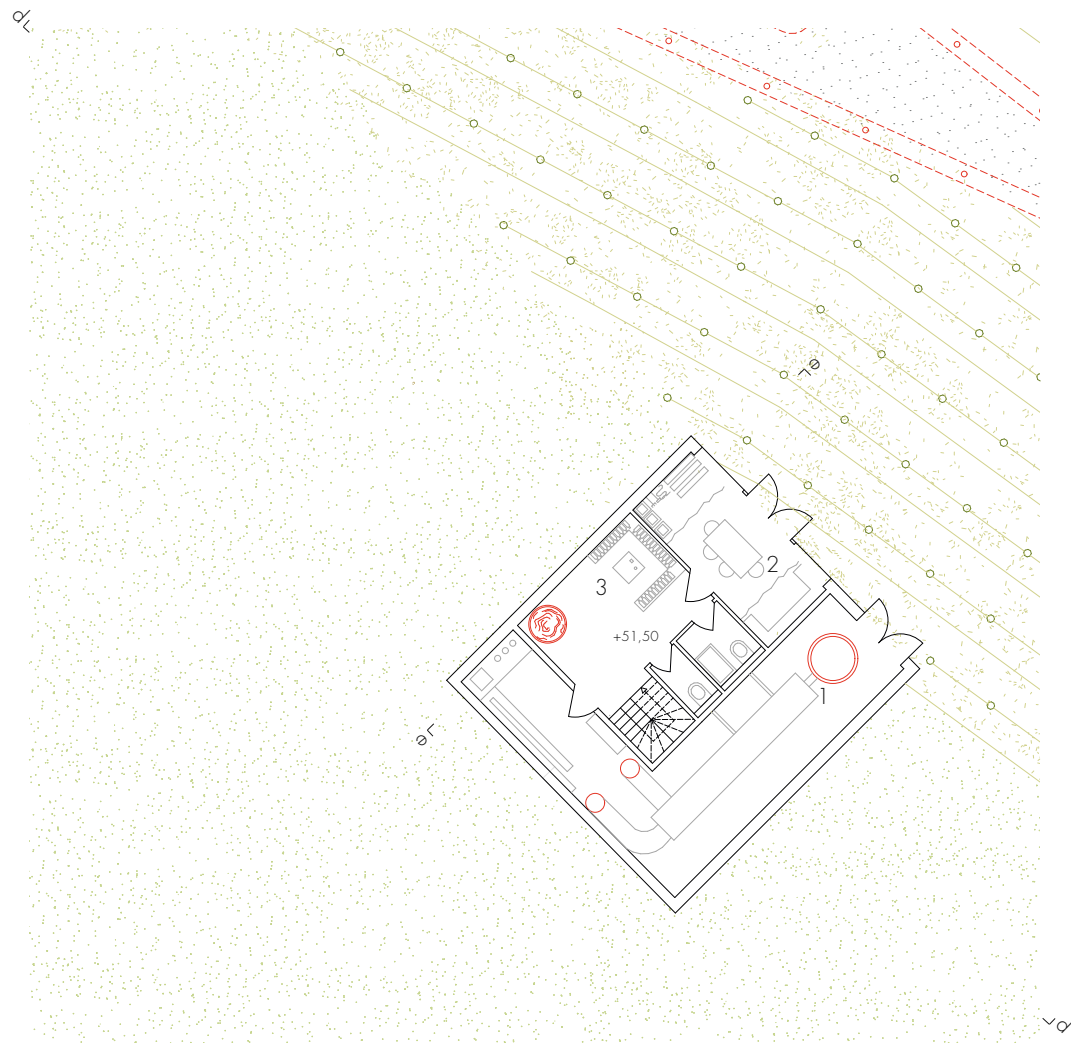


The Satellite



On the plateau of the vineyard, a newly constructed satellite in the form of a water pumping station, which pumps the water from the tunnelreservoir below up and supplies the vines and permacultures with water, represents a connecting element between the bottom and the top. This is reinforced by the use of recycled limestone from the demolition of parts of the factory. Inside it houses a wine bar, which on the one hand connects the neighborhoods at the foot, but also on the plateau, creates a pleasant atmosphere for walkers and passers-by, and offers space for workshops and seminars.



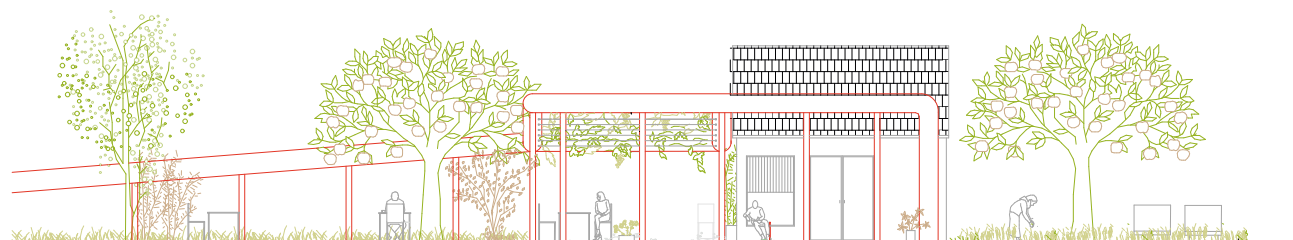
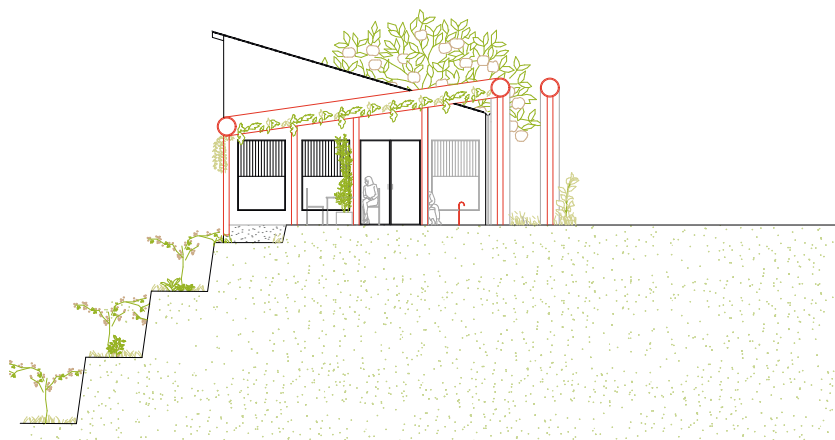


- 1 water pumping station
- 2 workshop
- 3 wine storage

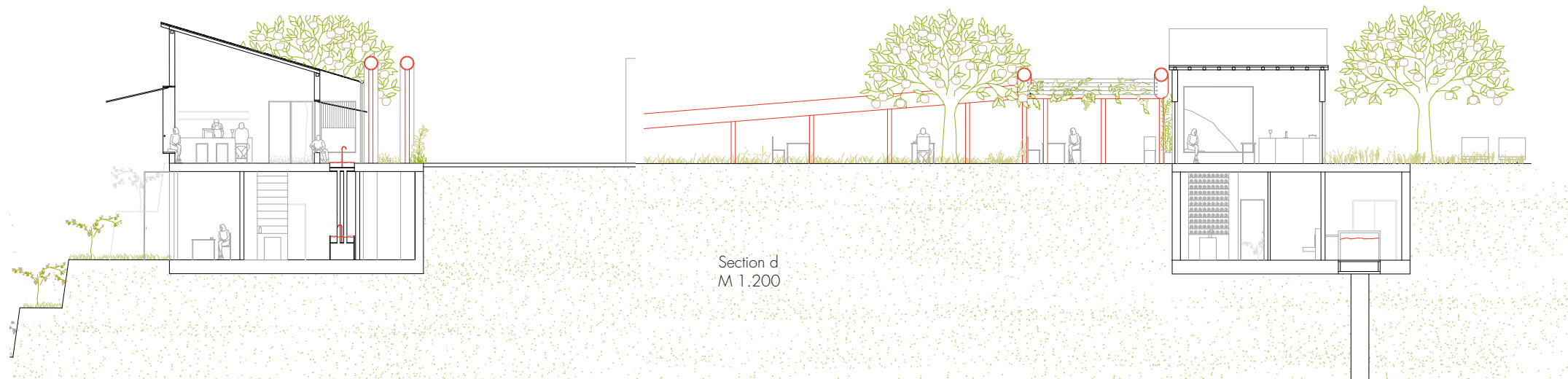
<



- 4 bar
- 5 terrace
- 6 fountain
- 7 fruit trees
- 8 flower meadow



Section e
M 1:200





A newly created terracing on the steep hill enables the cultivation of vines. At the upper and lower boundaries of the vineyard, as well as at the beginnings and ends of the vine rows, fruit trees provide shelter for birds, and their deep roots ensure balanced water management without shading the vines too much. They also act as spore catchers.

Between the vines, herb islands ensure aromatic vines and protect the soil against erosion. These also attract microorganisms that act as opponents to pests and fungi.

With their dense roots, legumes supply the vines' entire nitrogen requirements.

The Hill

Trees

peaches
apples
olives
almonds

flower meadows

nectar flowers

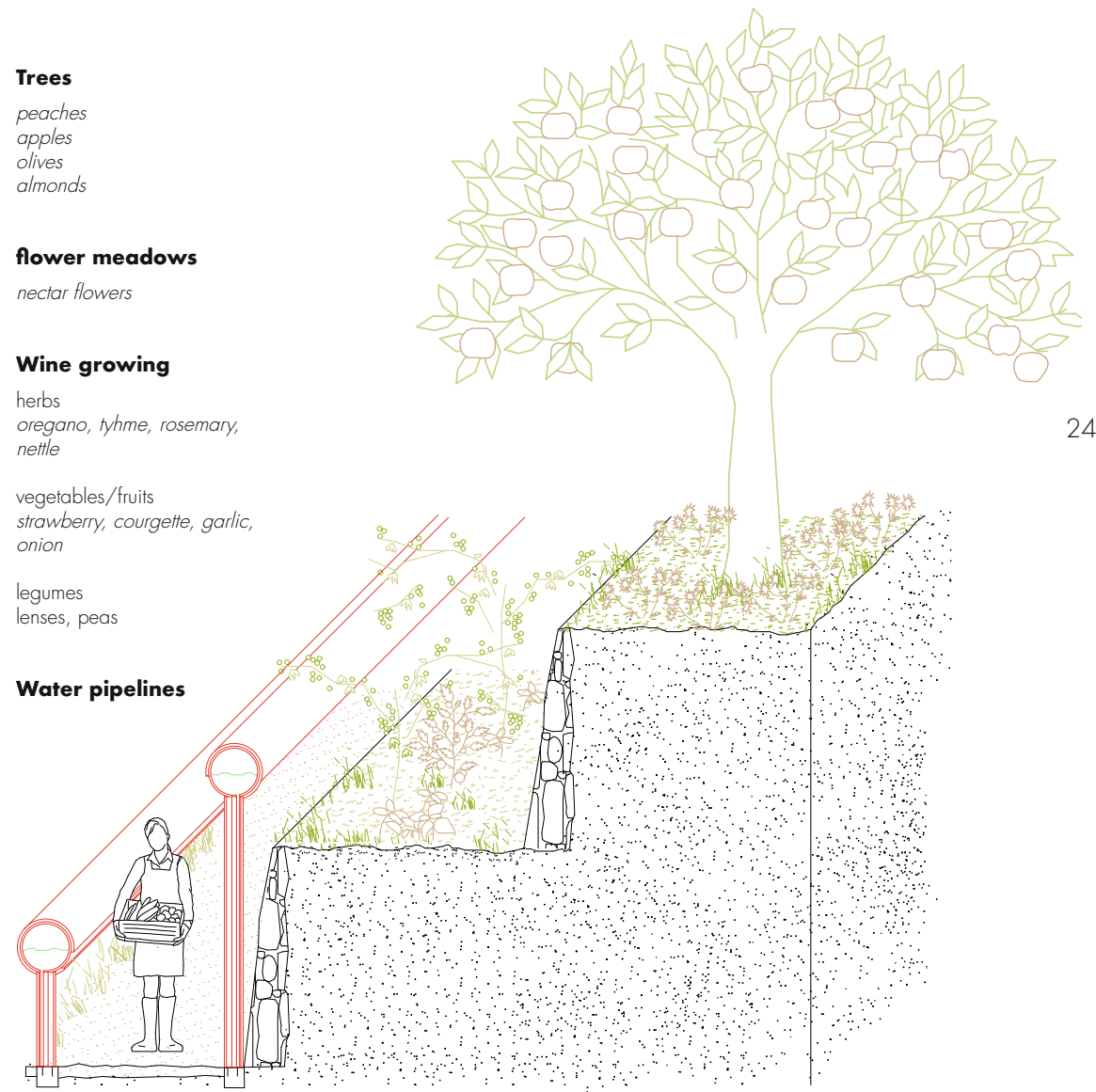
Wine growing

herbs
oregano, thyme, rosemary,
nettle

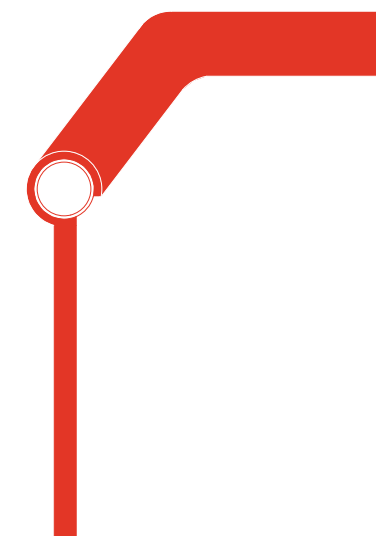
vegetables/fruits
strawberry, courgette, garlic,
onion

legumes
lenses, peas

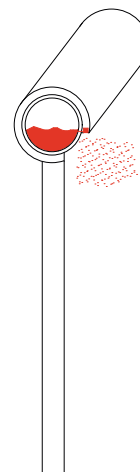
Water pipelines



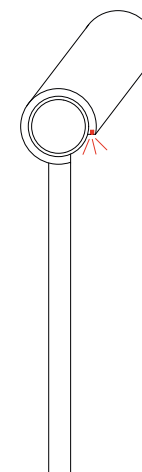
Permaculture at the vineyard
M 1.55



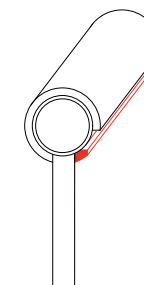
Guidance



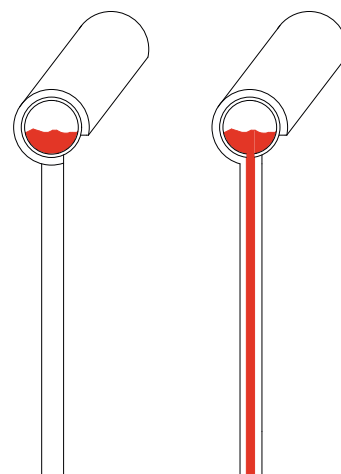
Humidification



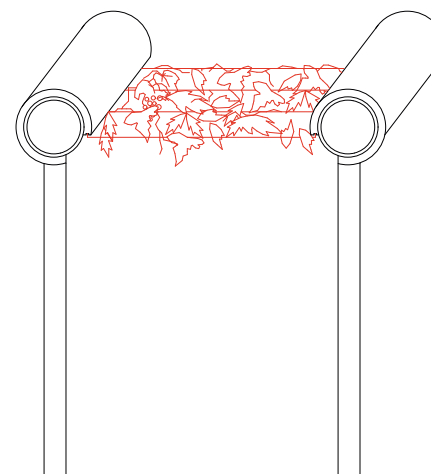
Lighting



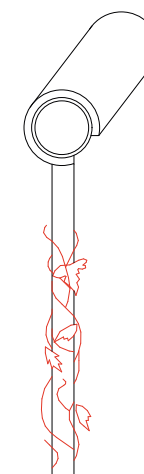
Handrail



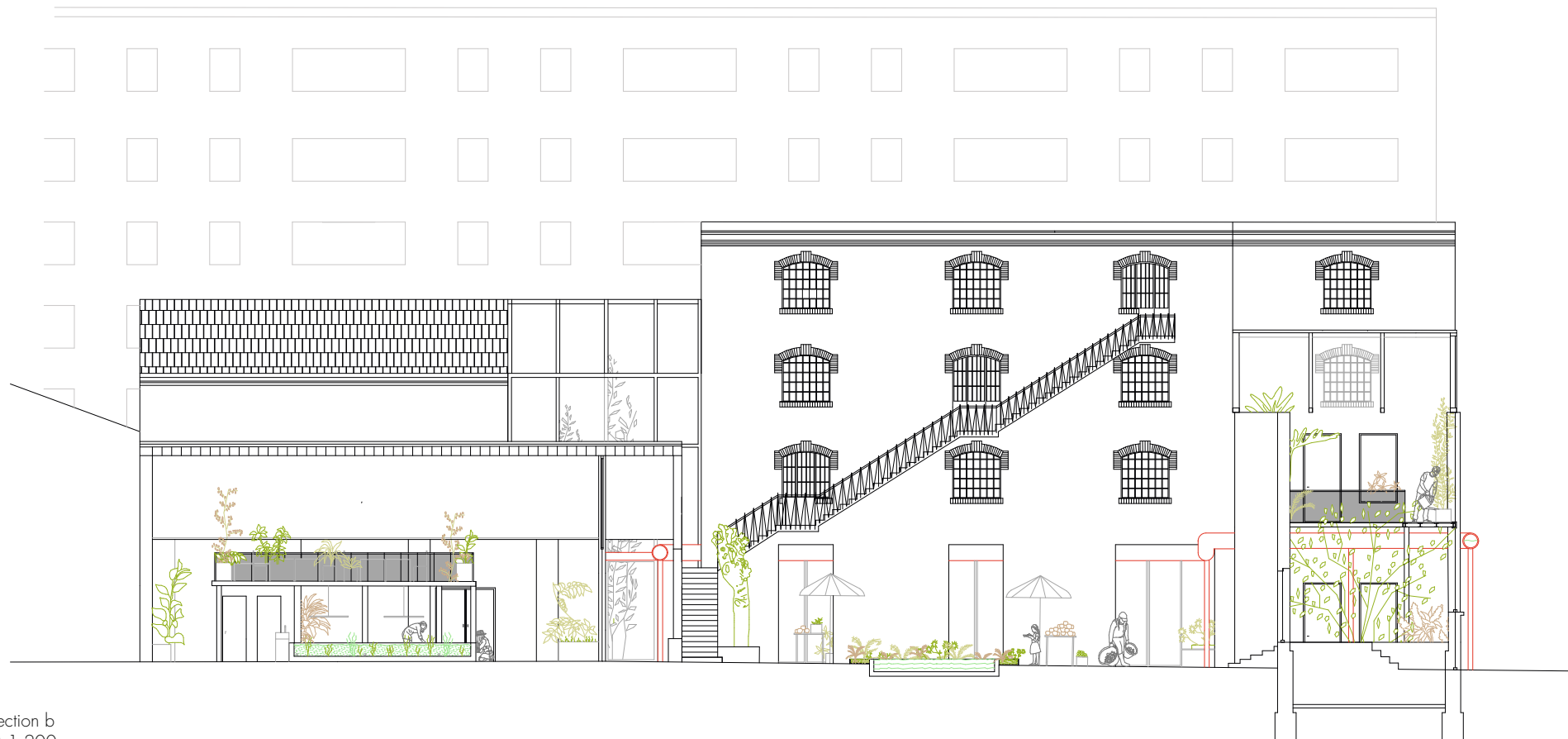
Irrigation



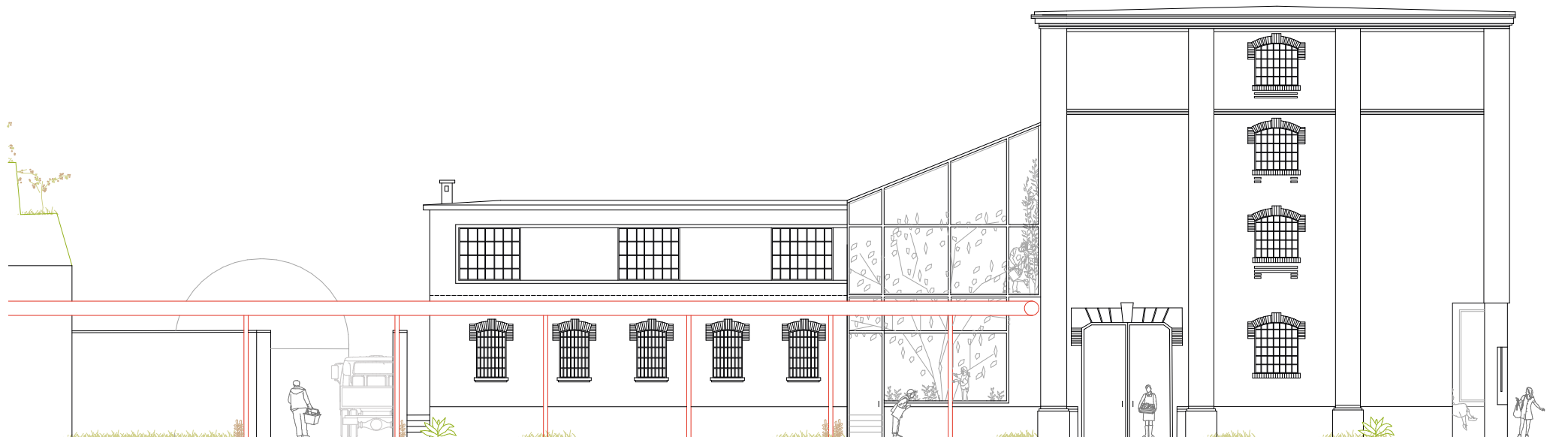
Shading



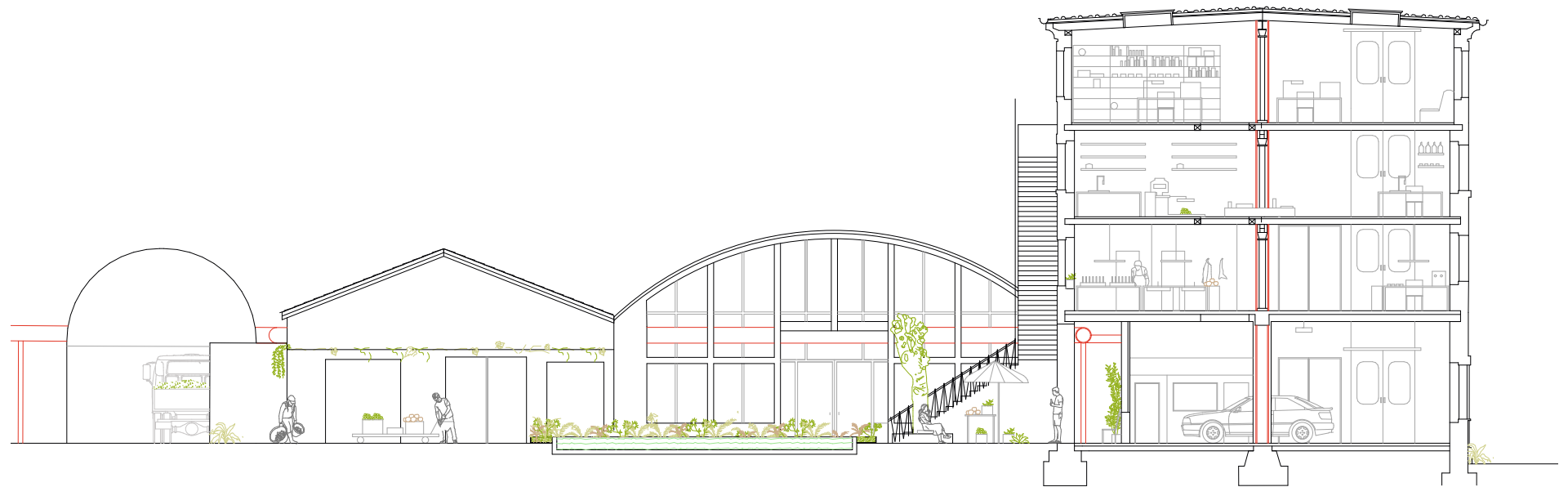
Trellis



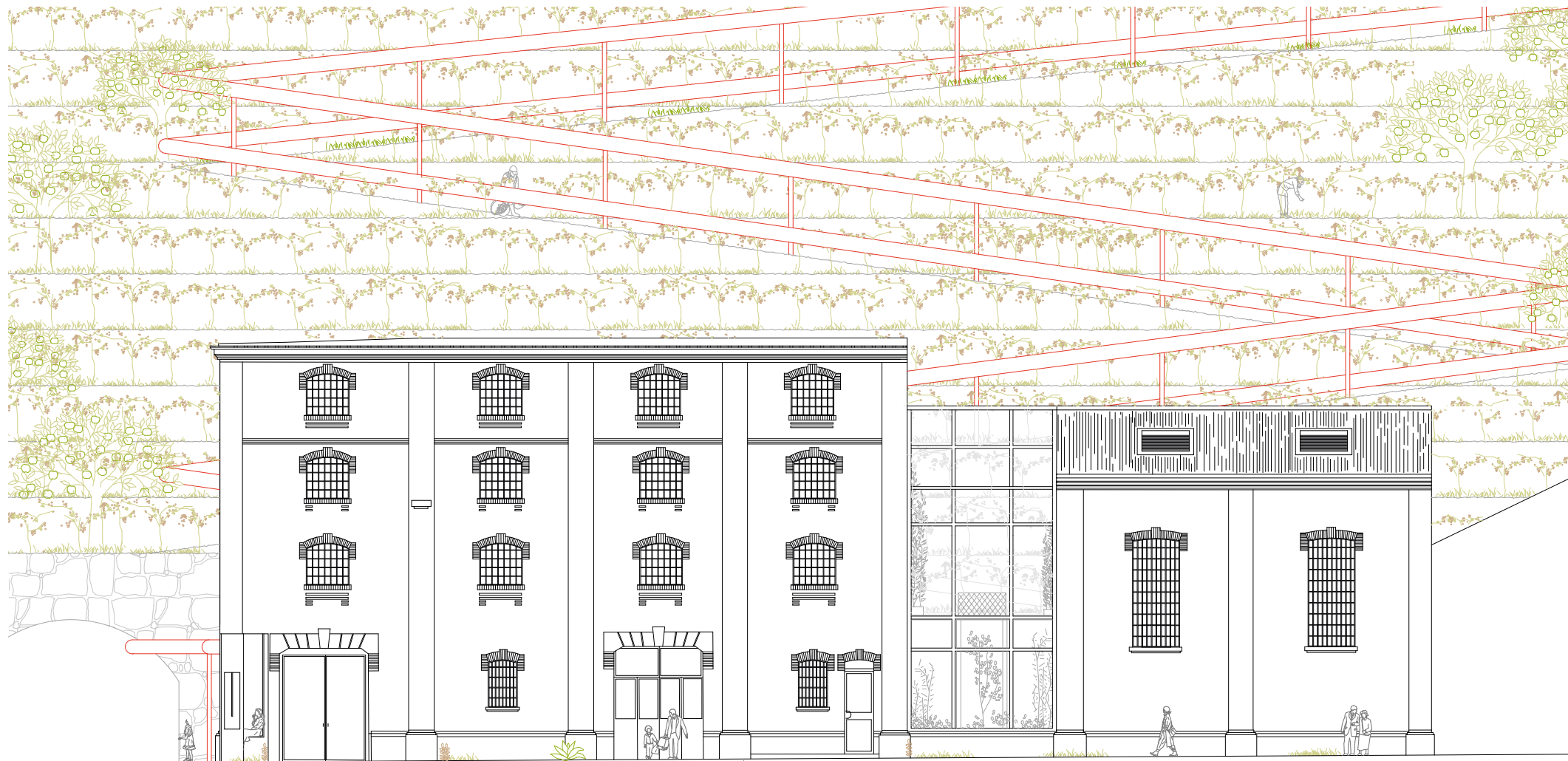
Section b
M 1.200



Elevation
M 1.200



Section c
M 1.200



CONCLUSIO

This work demonstrates the transformation potential of former industrial buildings through interdisciplinary approaches. It combines theoretical concepts with practical examples, showcasing the ongoing interaction between theory and practice, which cannot be separated. The traditional divide between theory and practice, as understood in earlier times, has been overcome in the design of the former Küchler factory.

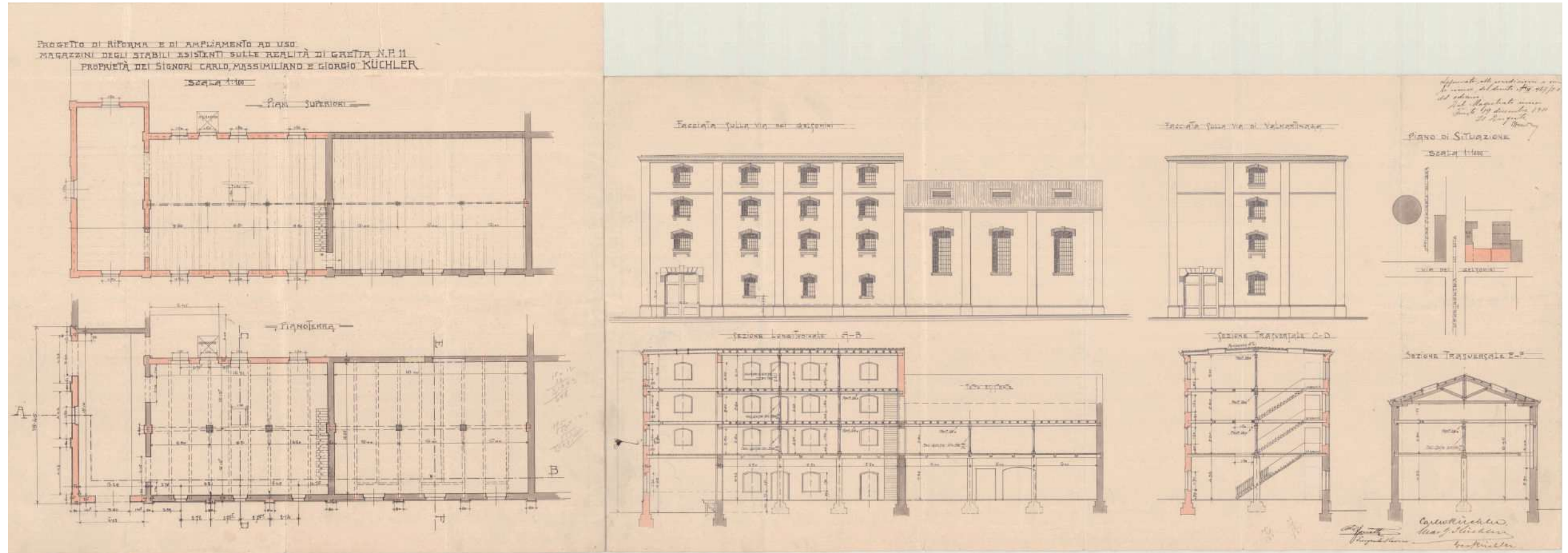
The factory demonstrates that while the location's potential and the specific structures of the building play a crucial role in its architectural transformation, the concepts and approaches developed here can also be applied to other industrial buildings. The energy strategies involving biogas, water, and permaculture have emerged in response to current resource scarcity and climate change. Therefore, these strategies should be incorporated into further transformation concepts for conversion projects.

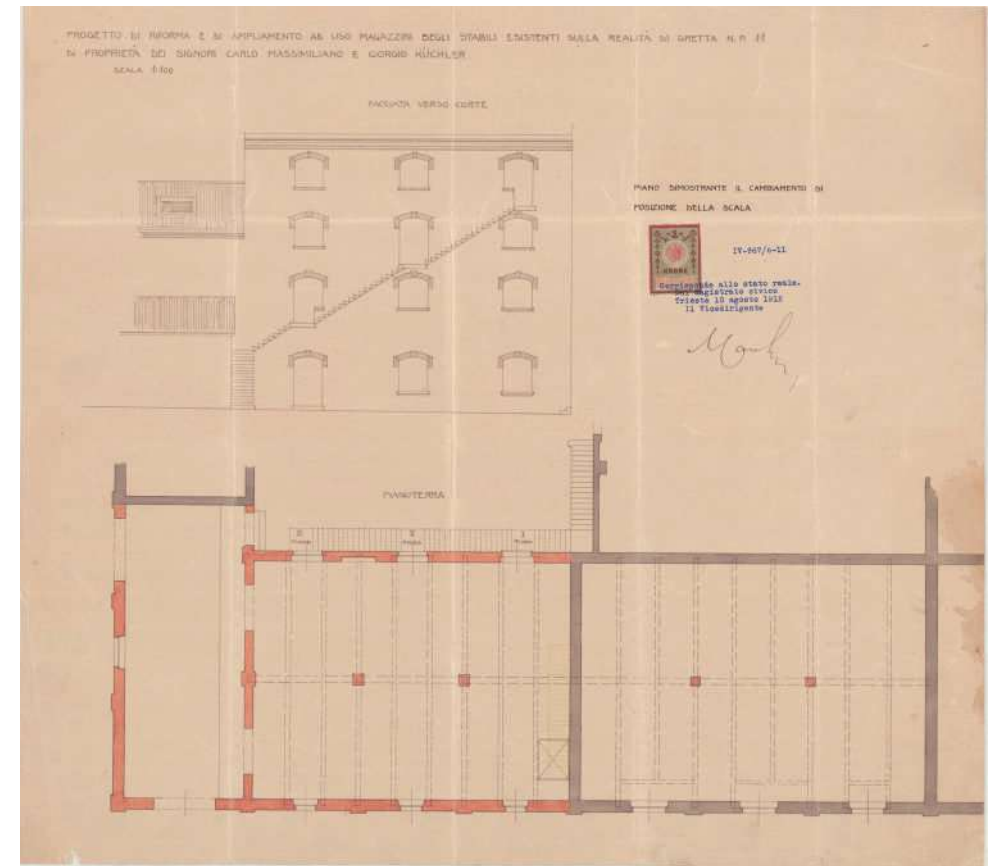
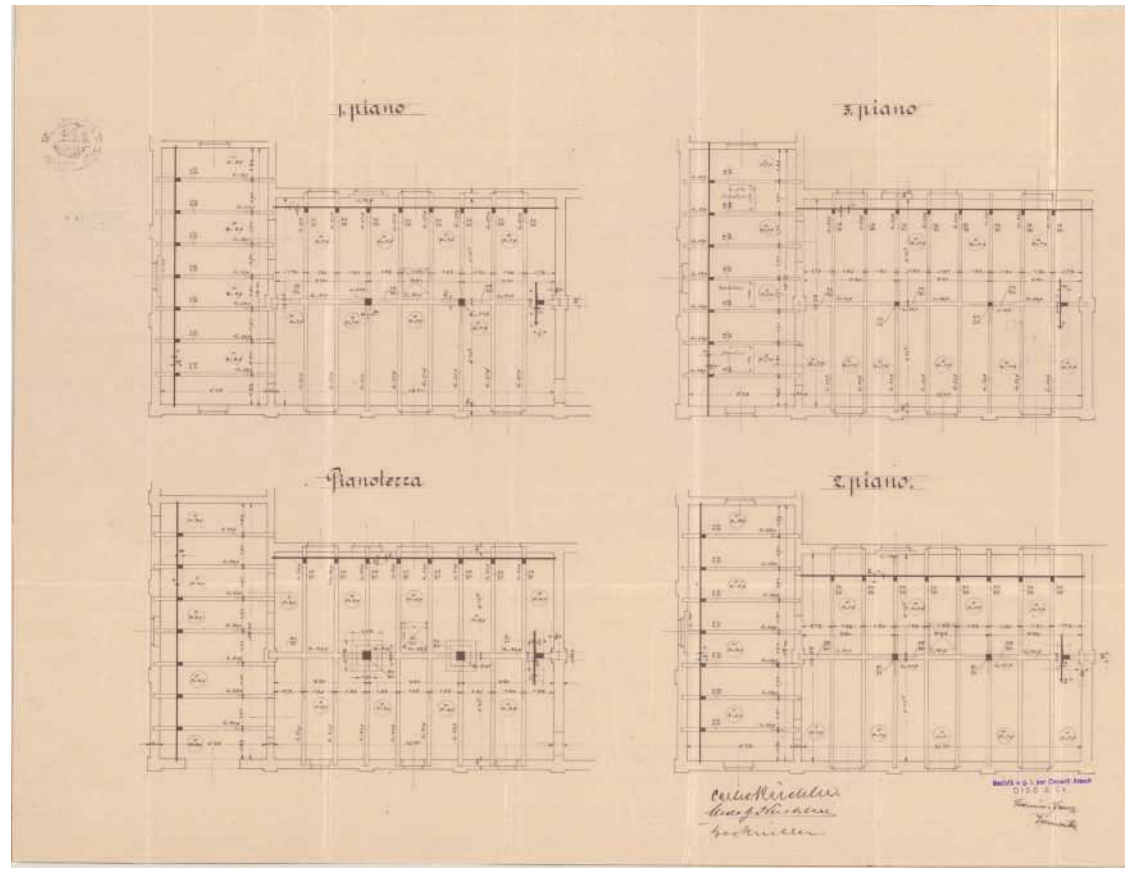
Dealing with existing factory buildings and areas does not require a purely preservative, conservational approach, but rather circulating concepts that allow changes to the existing substance, but value it and regard its specific features as a resource. This was practically illustrated in the design.

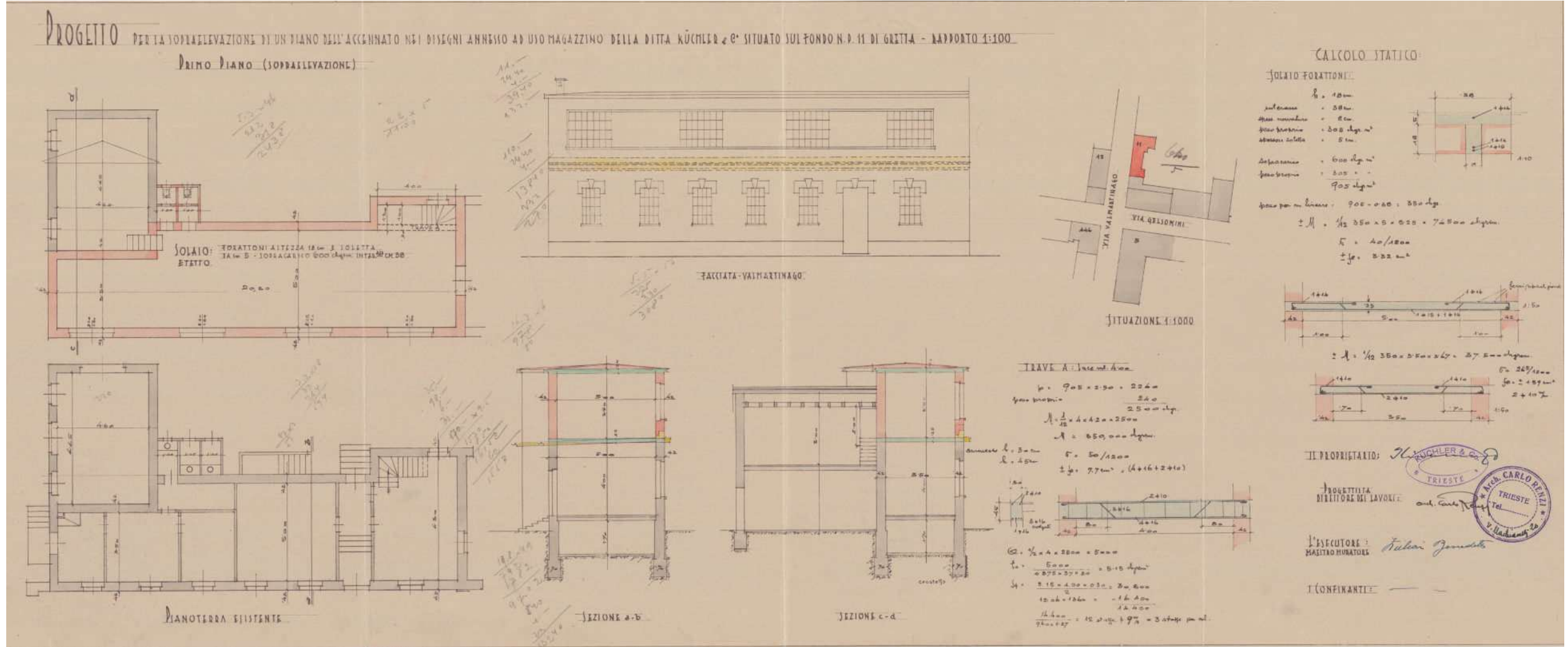
The concepts of transformation should encompass not only the architecture and urban structures of Trieste and other cities but also the people and their environment. Just as architectural discussions evolve continuously across different continents, societies and nature are also in a state of constant change. This is particularly evident in the interdisciplinary approaches to Trieste.

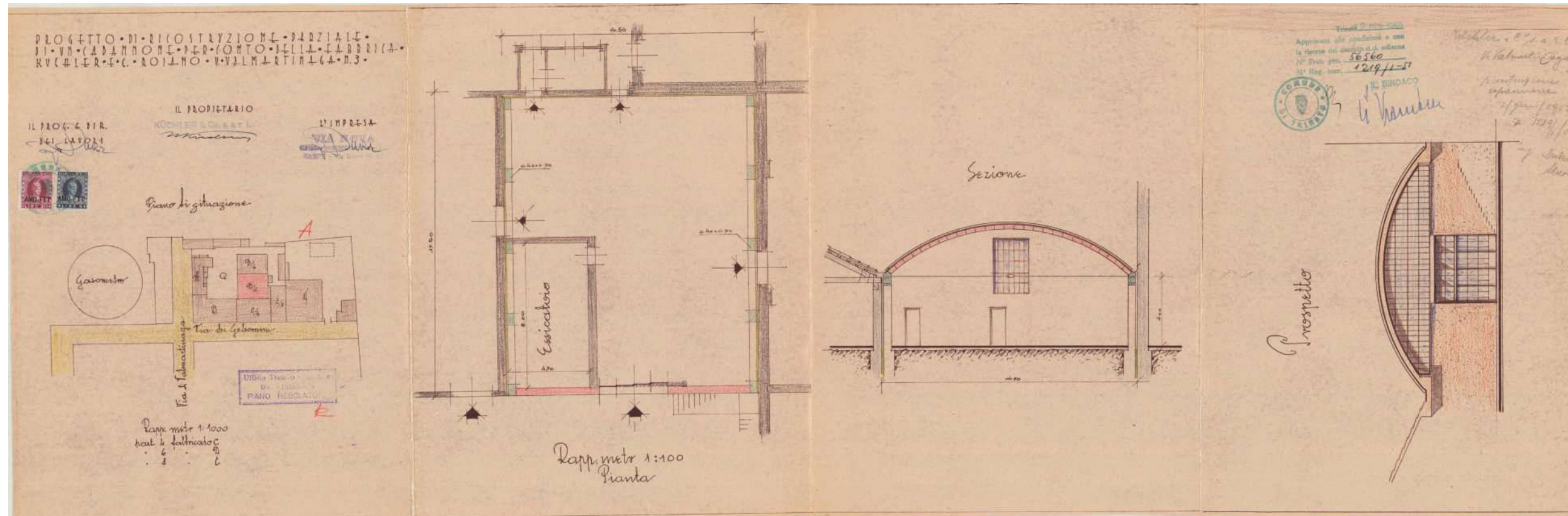
The transformation of the built environment necessitates a strategy that is interdisciplinary in nature. This strategy should not be viewed as universal, but rather be adaptable to change and transformation. At the same time, it must acknowledge the unique characteristics of buildings, people, and nature.

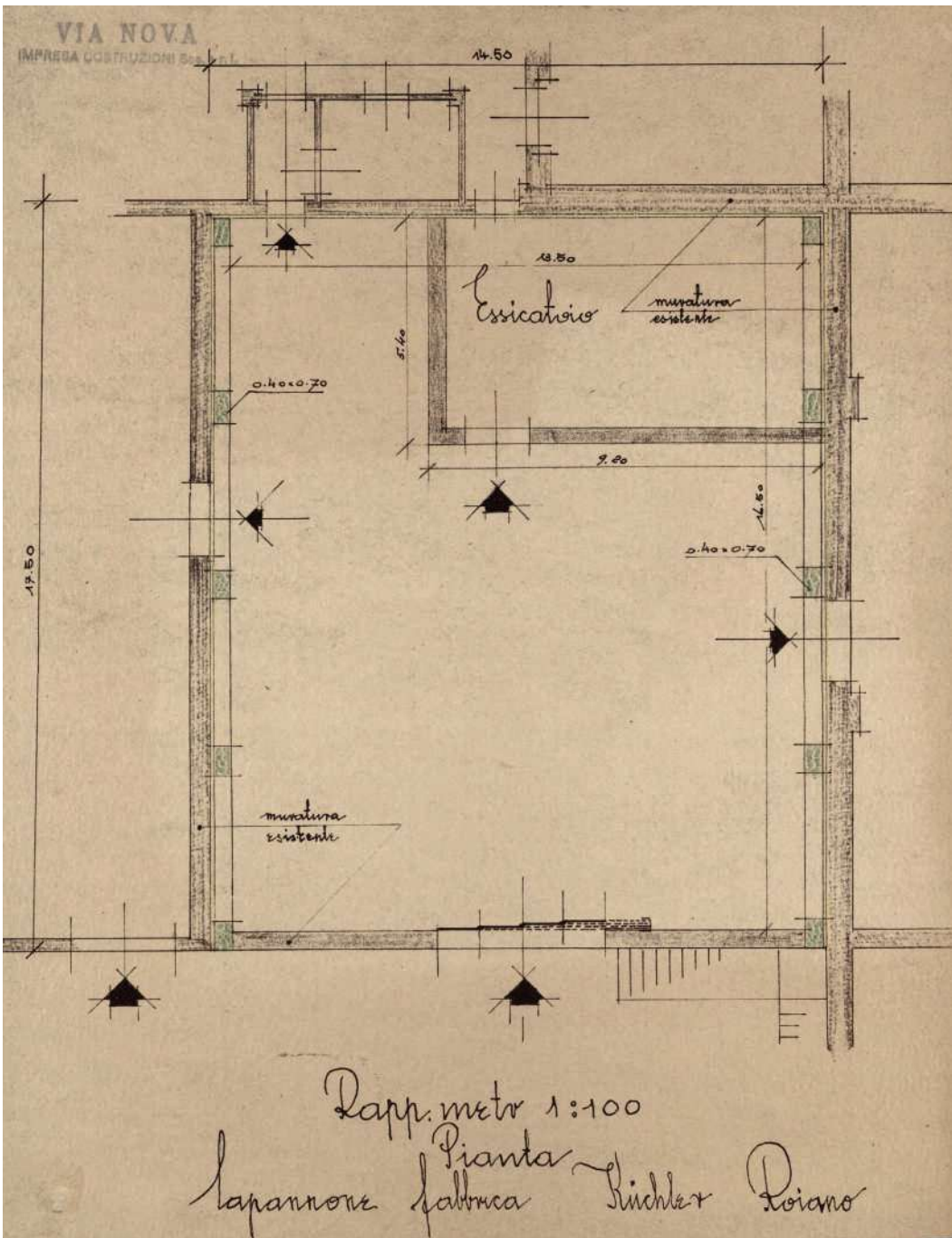
ATTACHMENT











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The concepts of transformation should encompass not only the architecture and urban structures of Trieste and other cities but also the people and their environment. Just as architectural discussions evolve continuously across different continents, societies and nature are also in a state of constant change. The transformation of the built environment necessitates a strategy that is interdisciplinary in nature. This strategy should not be viewed as universal, but rather be adaptable to change and transformation. At the same time, it must acknowledge the unique characteristics of buildings, people, and nature.