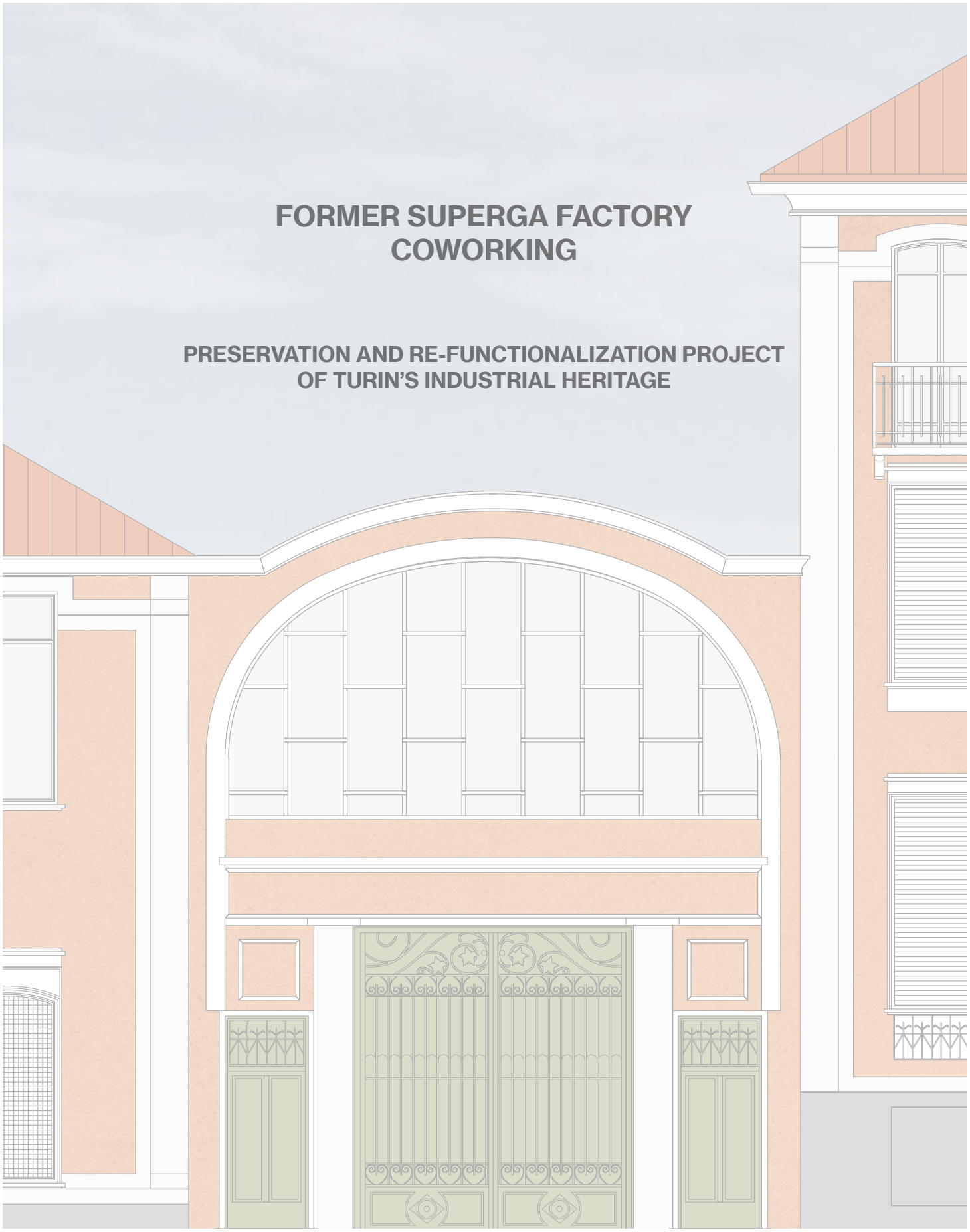
FORMER SUPERGA FACTORY
COWORKING

PRESERVATION AND RE-FUNCTIONALIZATION PROJECT OF TURIN'S INDUSTRIAL HERITAGE



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Master's Degree programme in Architecture Construction City
Politecnico di Torino
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A.A 2023/2024

CONTENTS

ABSTRACT

The project “Former Superga Factory Coworking - Preservation and re-functionalization project of Turin’s Industrial Heritage” presents a detailed proposal for transforming a historic industrial complex in Turin, Italy, within the framework of urban regeneration. Located in the Spina 3 area, central to Turin’s industrial history and the broader “Spina Centrale” urban transformation project, the Superga Factory is an important example of early 20th-century industrial architecture. The proposal envisions converting the abandoned factory into a coworking space, with a focus on harmonizing historical preservation with modern functionality. The theoretical foundation of the project highlights the evolving approach to industrial heritage conservation, emphasizing the integration of contemporary uses while maintaining historical integrity. Through a comprehensive analysis of the factory’s architectural evolution, structural system, and current condition, the project identifies opportunities for adaptive reuse that preserve the building’s unique character. The proposed strategy emphasizes retaining key architectural features while incorporating new technologies and design elements to ensure the building’s relevance in a modern context. This approach supports the sustainable development of the area, enriching Turin’s cultural and social fabric while safeguarding its industrial heritage. The transformation of the Superga Factory into a coworking space is presented as a model for similar initiatives, illustrating how historical assets can be preserved while meeting the demands of modern urban development.

INTRODUCTION

The former Superga Factory building complex is an abandoned production center built in 1903. It consists of three main buildings: the central building has four floors and a basement, while the other two buildings have two floors each, without basement. The complex is located in Circoscrizione 5 of Turin, a significant part of the urban transformation program known as Spina 3 under the General Urban Plan (PRG - Piano Regolatore Generale). This program covers the areas between Via Verolengo, Corso Potenza, Corso Umbria, and Corso Principe Oddone[1].

[1] Citta' di Torino Servizio Telematico Pubblico "Lotto Unico - Compendio sito in Torino, Via Verolengo n.28," accessed July 7, 2024. http://www.comune.torino.it/comunevende/23_2023_verolengo28/lotto-unico-compendio-sito-in-torino-via-verolengo.shtml.

Fig. 1_ *Former Superga Factory.* Source: https://fondoambiente.it/luoghi/ex-fabbrica-superga?ldc

The original production facility, founded in 1903, has experienced substantial changes over time, evolving through successive additions primarily concentrated between the 1920s and 1930s. Between 1917 and 1920, plans were made to develop the plot adjacent to Verolengo Street by constructing a three-story building designated to house the factory's offices.

This composite building, marked by a functionalist design, incorporates eclectic features typical of early twentieth-century architecture[2]. In the subsequent decades, the manufacturing sector's crisis led to the gradual abandonment of production facilities, resulting in the demolition of most structures in the central part of the block and the northern section of the complex. The area also saw the start of residential developments with multi-story buildings. Today, the buildings on Via Verolengo and the original warehouse, constructed in reinforced concrete between 1903 and 1920, are still preserved. The complex covers a total area of 3,837 square meters, and its rear courtyard is considered a communal asset of the city. Since 2012, it has been declared a cultural asset by the Direzione Regionale per i Beni Culturali e Paesaggistici del Piemonte[1].

[2] Ministero della Cultura, "Palazzine e strutture produttive Ex Fabbrica Superga," accessed July 9, 2024. https://beniabbandonati.cultura.gov.it/beni/palazzina-e-strutture-produttive-ex-fabbrica-superga/

BUILDING TYPOLOGY

Starting from the late 19th century and particularly in the early 20th century, reinforced concrete technology increasingly influenced Italian architecture, it was initially used for horizontal elements, it later supported frame structures beyond the capabilities of masonry alone, primarily in industrial buildings without a specific style, also, the Industrial construction in Italy, developing later than in other European countries, featured unique characteristic since buildings were categorized as multi-story, often for textile factories with vertical masonry and horizontal metal structures, or single-story, for heavy industries, resembling rustic buildings with large windowed walls and roof trusses[3].

As technology evolved, larger industrial complexes integrated modular grids and skylights for lighting, with structures often combining iron, cast iron, wood, and reinforced concrete[3]. This period saw a shift from multi-nave brick factories with iron elements to buildings with reinforced concrete frames and masonry infills. Designers began to appreciate reinforced concrete for its structural and aesthetic versatility, allowing new arrangements and styles. This material offered advantages over iron, achieving better aesthetic results due to its similarity in dimensions to wood[3].Reinforced concrete began to form both the structure and style of factories, enabling aesthetic enhancements and the development of a unique architectural style. Initially concealed behind masonry, it eventually became a defining element of architecture[3].The early 20th century, influenced by the Art Nouveau or “Liberty” movement in Italy, saw reinforced concrete used not only structurally but also compositionally, with buildings featuring exposed reinforced concrete structures, masonry infills, and decorative elements[3].

THE LIBERTY STYLE IN TURIN

Liberty, also known as Art Nouveau, emerged in Turin around 1902, heavily influenced by the 1900 Paris Universal Exposition and other European movements. This decorative art and architecture style is defined by its emphasis on natural forms, floral and organic motifs, and the integration of various arts within architectural designs. Prominent figures such as Pietro Fenoglio, Giovanni Battista Benazzo, Enrico Bonelli, Enrico Bonicelli, Carlo Angelo Ceresa, Giovanni Gribodo, Eugenio Mollino, and Antonio Vandone di Cortemiglia played key roles in its proliferation[4]. They utilized traditional materials like brick, ceramics, glass, and wrought iron, as well as new materials like cement, to create both decorative and structural elements[4]. Liberty style was particularly favored for new bourgeois residences in expansion areas such as the neighborhoods Crocetta, Barriera di Francia, and Borgo San Paolo, and was also used to embellish industrial buildings[4]

This movement represented a blend of traditional and modern elements, leaving a lasting mark on Turin’s urban landscape and contributing to the city’s distinct architectural identity.[4]

At the beginning of the 20th century, Turin’s urban landscape was marked by two contrasting realities: the elegant, bourgeois core of the city, with its mid-19th century expansion and upscale residential buildings, and the worker-inhabited suburbs that developed at the end of the 19th century to support the growing industrial workforce[5].

[3] Manuela Mattone and Laura Amarilla, *Architettura in ferro e calcestruzzo armato : nuove tecnologie costruttive tra Ottocento e Novecento in Italia e in Argentina.* (Torino: Celid, 2011)

[4] “Torino Liberty,” Museo Torino accessed July 24, 2024. https://www.museotorino.it/view/s/4eb70153951d4e5a8f1032d2996b9cbd

Fig. 2_ *Palazzo Bellia.* Source:https://it.wikipedia.org/wiki/Palazzo_Bellia#/media/File:ViaPietroMicca_anni20.jpg

Fig. 3_ *Casa Fenoglio- La Fleur.* Source: https://agiroergosum.wordpress.com/tag/casa-fenoglio-la-fleur/

Fig. 4_ *Concierie Fiorio.* Source: https://www.torinoinsolita.it/sito_torinoinsolita/immagini/profilo.php?id_categoria=&id_utente=&id_immagine=1133

These new suburbs, located outside the 1853 customs barriers, featured less rigid building structures and housed low-income workers employed in the industrial complexes powered by electricity. The city's population grew significantly due to the demand for labor, prompting the municipality to implement a Comprehensive Regulatory and Expansion Plan in 1906 to manage urban growth integrating new developments with the existing city; companies like Lancia, Fiat, and other companies established their projects fostering an industrial tradition and contributing to the city's economic and social strength[5]. By the first half of the 20th century, Turin showcased two distinct identities: a sophisticated, bourgeois center with eclectic architecture , and a robust industrial sector with working-class suburbs, both of which contributed to its prestige and international reputation[5].

Observing the architecture built between the 19th and 20th centuries, a period of technological experimentation, it is easy to conclude that the decorative richness of Liberty architecture is achieved through the combination of traditional materials such as brick, ceramics, glass, and wrought iron, with the use of cement for decorative elements, or combined with iron for structural uses[5].

The examination focused on six elements that strongly characterize the individuality of Art Nouveau architecture in Piedmont and particularly in Turin. These elements were diffused as long as their construction methods in both big scaled architecture and ordinary residential buildings forming distinctive urban areas and neighborhoods with their own architectural characteristics[5].

[5] Simona Santoleri, "Torino Capitale Del Liberty - Lineamenti per La Redazione Di Un Atlante Degli Autori Delle Opere, Dei Magisteri e Delle Committenze per La Candidatura a Città UNESCO Dell'Art Nouveau"

Fig. 5_ *Palazzina Raby.* Source: https://www.museotorino.it/view/s/8dcd748e248b42029fca9250f0dc90a0

Fig. 6_ *Casa tasca.* Source: https://www.museotorino.it/images/11/2d/56/c2/112d56c29abc-49b6802a14af4a0ac993-1.jpg?VSCL=100

ARTIFICIAL STONE

The first of these invariants is artificial stone, already used with refined techniques in the second half of the 19th century, employed in Turin's Liberty style in a bold manner, from decorated balconies to bay windows, from decorative roof elements to facade embellishments made on site or often in prefabricated elements[5].

FORGED IRON

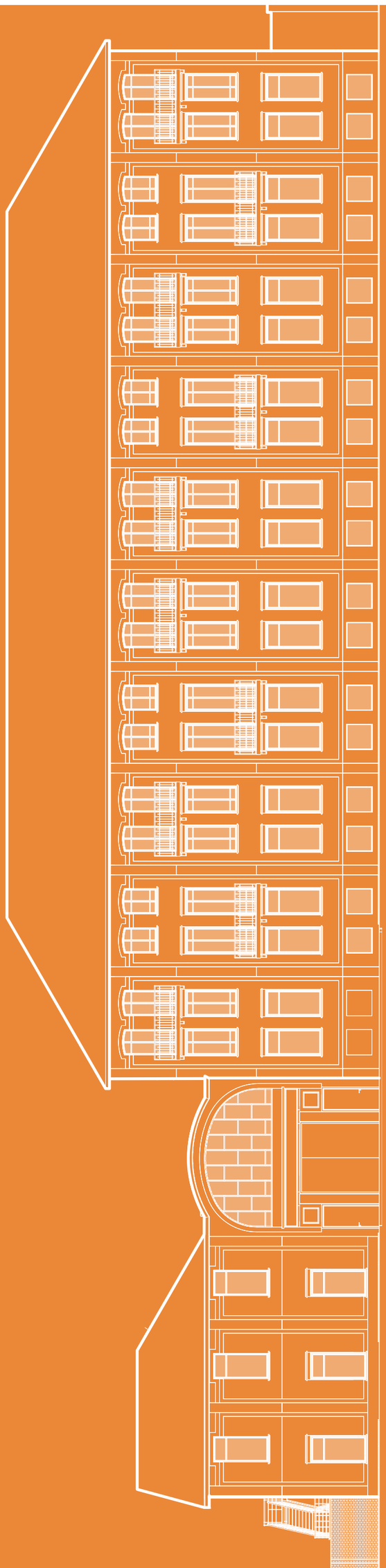
The second is wrought and forged iron obtained from industrially produced profiles and sheets, skillfully worked with techniques derived from ancient traditions, leading to new interpretations of iron use in construction[5].

DECORATIVE GLASS

The third is again a material, decorative glass, which exploits polychromatic effects and its combination with wrought iron to create decorative motifs on windows, entrance doors in hallways, canopies, and sometimes internal railings of buildings[5].

These three materials are extensively used and variously combined to decorate the most significative characteristic identified in thestudy: the bay window. It consists of a true building system, being a significant volumetric articulation that protrudes from the facade, either centrally or at an angle with significant overhangs onto the street. These structures required particular construction and technical solutions, utilizing reinforced concrete structures, initially used to solve static problems and later employed for exposed decorative and functional elements[5].

PART 1
HISTORICAL FRAMEWORK



THE HISTORICAL VILLAGES

The area where the building is located encompasses neighborhoods in the northern and northwestern parts of Turin, bounded by: Corso Regina Margherita thatmarks the border with Collegno and Venaria; the Stura di Lanzo river, the Turin-Milan railway, Corso Mortara, Via Nole, and Corso Potenza[6].

This zone includes six main territories that originally were small feuds or settlements: Lucento, Madonna di Campagna, Borgata Ceronda, Borgata Vittoria, Borgata Lanzo, and Vallette[6], the building lot used to be part of the Borgata Vittoria hisrotical village. Two of the main territories, Lucento and Madonna di Campagna, were founded between the 14th and 16th centuries, while the other four territories, Borgata Ceronda, Borgata Vittoria, Borgata Lanzo, and Vallette, were established at the end of the 18th and during the 19th centuries.[6]

[6] Museo Torino "Circoscrizione 5 - Borgo Vittoria, Madonna di Campagna, Lucento, Vallette," accessed July 24, 2024. https://www.museotorino.it/view/s/e841c-6b17a4d4db3ac8883e1fd12cb21#:~:text=La%20quinta%20Circoscrizione%20comprende%20quartieri

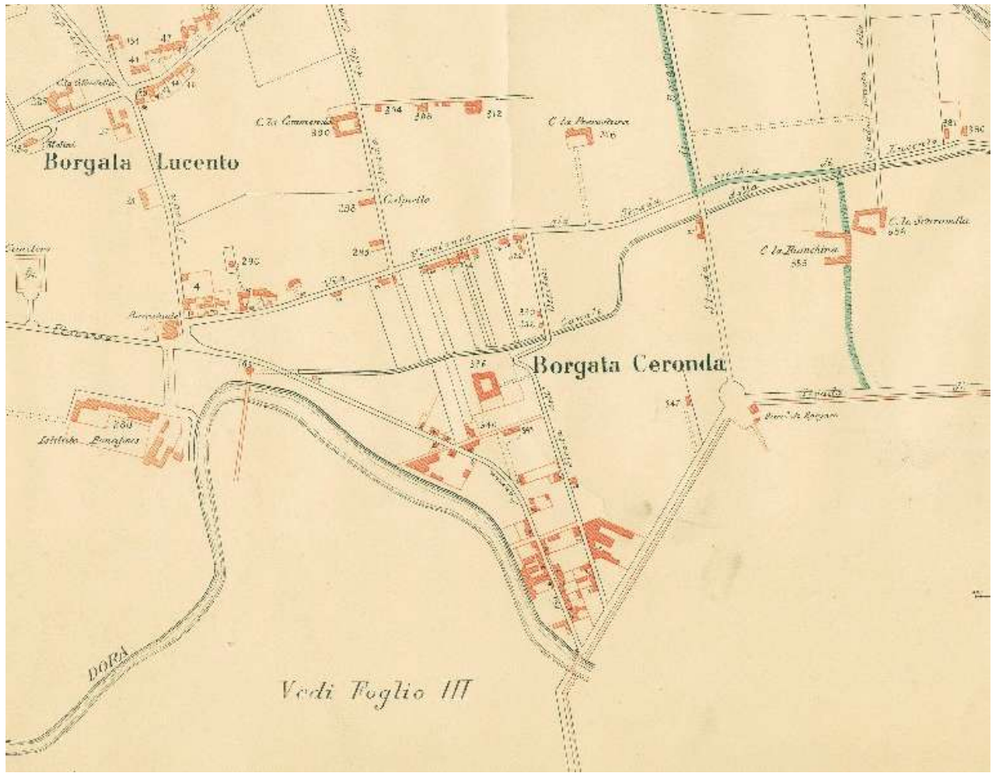


Fig. 7_ *Borgata Lucento and Borgata Ceronda.* Source: https://www.atlanteditorino.it/quartieri/Vallette.html

LUCENTO

Lucento was the first community settlement in the area, beginning its consolidation in 1397 due to its proximity to the Lucento Castle, built in 13356. The village experienced significant growth with the irrigation and cultivation of the land, leading to the creation of feuds in the 14th century[6]. However, in 1954, the construction of a hunting park for the duke Emmanuele Filiberto dispersed the existing farming settlements towards the periphery, interrupting the creation of a centralized city center[6].

In 1977, the relocation of one of the main farmhouses, the *Cascina della Commenda di Malta*, led to the establishment of a second city center, which was demolished at the end of the 1960[6]. The territory remained relatively isolated until 1884, and after the construction of the Pianezza road and the opening of railroads connecting Turin with Pianezza, Druento, and Venaria, there were created of new settlements, including Borgata Ceronda and the Vallette neighborhood which bordered Collegno during the 1950s[6].

MADONNA DI CAMPAGNA

This territory was originally consisted of settlements located on the border of Lucento, its main road Lanzo Lungo, connected the village with the other surrounding settlements. In 1540, the Capuchin religious order established their first settlement in this village with the construction of the Santa Maria di Loreto Church; the adjacent main street, after a short period of time, was transformed into a hub for commerce, services, and manufacturing settlements[7].

The area was subdivided in 1877, creating the villages of Barriera di Milano, Borgata Lanzo, and Borgata Vittoria, it is important to highlight that these areas contributed significantly to the demographic and industrial growth at the end of the 18th century. By 1934, the Capuchin's church became the main parish headquarters with additional educational activities, followed by the building expansion in 1950, consolidaing the New Lanzo Village.[7]

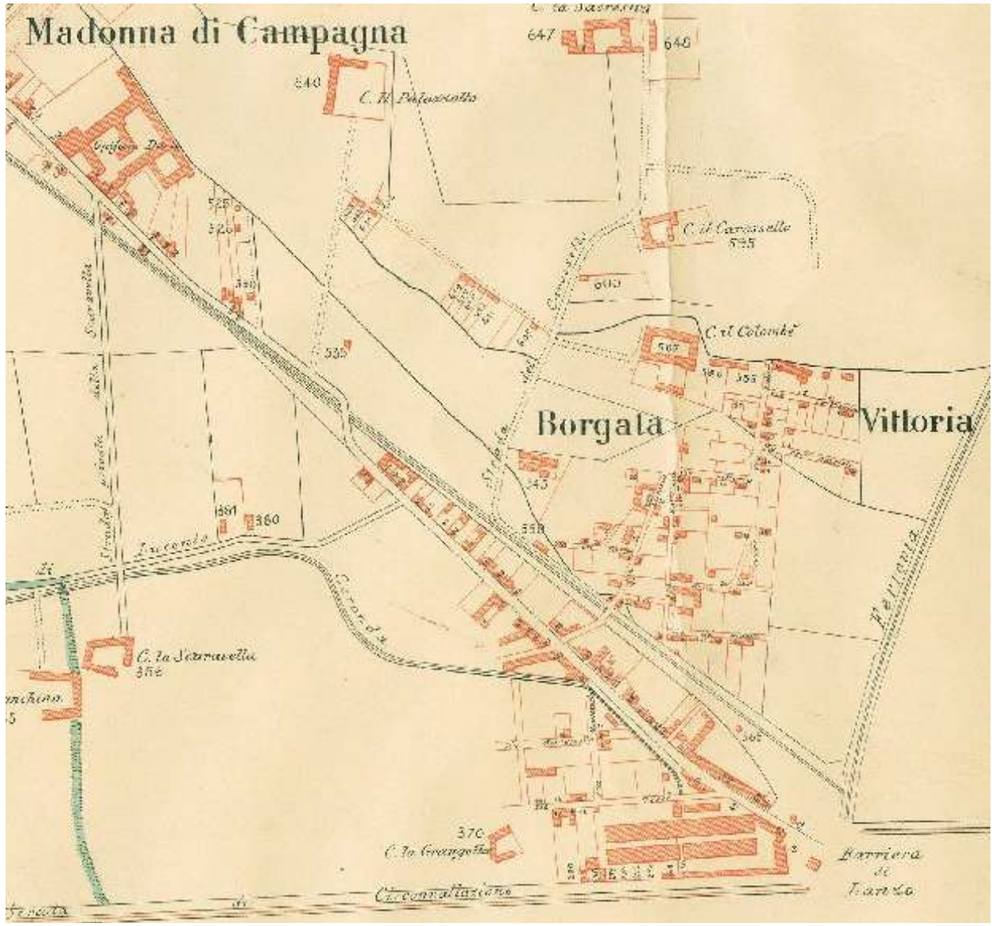


Fig. 8_ *Madonna di Campagna and Borgata Vittoria.* Source: https://www.museoarteurbana.it/en/borgata-tesso-torino/

BORGATA VITTORIA

Borgata Vittoria emerged following the construction of the Turin-Novara railway, now known as the Turin-Milan railway, afterwards in 1969, the Ceronda canal was built to generate energy for the textile factories and support community facilities.[7]

BORGATA CERONDA

Borgata Ceronda began its consolidation in 1853, while its most significant expansion occured in 1862 after the construction of the Dora Bridge and the establishment of the Cotonificio Italiano and Cotonificio Mazzonis textile industries. These factories attracted workers from other urban centers, leading to the construction of new housing facilities close to the workplaces. By 1961, Borgata Ceronda had developed most of its commercial, industrial, and artisanal activities, with 60% of Lucento's population living and working in the village. In 1929, the Margherita di Savoia elementary school was built.; however, during the 1960s and 1970s, the area experienced a crisis due to the closure and relocation of many productive activities, leading to its abandonment.[7]

VALLETTE

The name "Vallette" derives from the medieval Roman site "Vallette di Aviglio," owned by the Aviglia family. The area was consolidated as the Aviglia family's village, and it were under their administration until 1958; after this year, the village was divided because of economic and political struggles, followed by the creation of a new farming community. The neighborhood mainly consisted of social housing projects promoted by various associations and funds, but unfortunately, most of the projects were not completed on time, some of them, took at least a decade.[7]

The original urban plan went under significant changes, besides the unfinished husing facilities, the planned sports, health, and sanitary facilities were not built, and nurseries and primary schools were constructed instead. The absence of service facilities was partially covered because of the presence of the Sacra Famiglia religious community association. After the initial settlements, a significant amount of the housing buildings were used as the international village for reporters and athletes during the celebration of Italy's 100th anniversary of the unification in 1961. By the end of that year, people started to rent the houses, and in les than ten years, at least 2.600 families used to live in this sector, fora total of 13.000 people, and in the 1970s, a General Register Office (Anagrafe Centrale), a counseling center, and a meeting place were added to the area.[7]

BORGATA LANZO

Since the Middle Ages, Borgata Lanzo has had three main streets connecting with strategical areas: one to Altessano Superiore, another to Venaria Reale and the territories of Altessano Inferiore, and the last one aleading towards the Stura river from Borgaro and the Lanzo valleys. In 1397 the Lanzo village was still a small part of Lucento Village, the settlement started with the construction of a farmhouse followed by the construction of the Capuchins' church and a bridge crossing the Stura river, with the aim of connecting the new Lanzo village with Borgaro and the Lanzo valleys.[7]

At the beginning of the 20th century, the area was trasformed to be part of the city's industrial sector, in which Gnome-Rhone was the main factory, with the production of car and airplane engines[7]

[7] Museo Torino "Circoscrizione 5," accessed July 24, 2024.

THE URBAN REGULATORY PLAN
LA SPINA CENRALE

After the abandonment and closure of industrial facilities in Turin during the 1970s, the city and its urban fabric experienced significant degradation due to the lack of economic activities and the migration of people who had previously moved to northern Italy in search of work and opportunities[8]. The railroad leading to Porta Susa Station was identified as a major area of concern before the formulation of the PRIU (Programma di Riqualificazione Urbana) regulatory plan[9]. This plan focused on recovering the degraded and unused areas in the city, especially the industrial ones. The primary objective was the requalification of the zones adjacent to the railroads with the creation of a 13-kilometer boulevard to reconnect the urban fabric[8]. This urban regeneration plan, called La Spina Centrale, was approved in 2000 following a public contest and was planned as a coordinated project between the public and private sectors[8]. The urban transformation plan encompassed all the former industrial areas of Turin. As illustrated in the map, the transformation included not only the four Spines but also the Lingotto complex in the southern part of Turin (1982), the Mirafiori Complex (2006), areas of Variante 200, and the industrial zones in the northern periphery of Turin near Settimo and San Mauro that continued their manufacturing and industrial activities[8].

[8] IRES Piemonte, “Metamorfosi della ciita’ Torino e la Spina 3,”(2012).

[9] Francesca Neonato, “Nuove trame per la citta,” *ACER Il verde editoriale Milano* (2005). https://atlas.landscapefor.eu/content/uploads/media/3/2016-01-13-2015-09-14-spina-3-acer.pdf

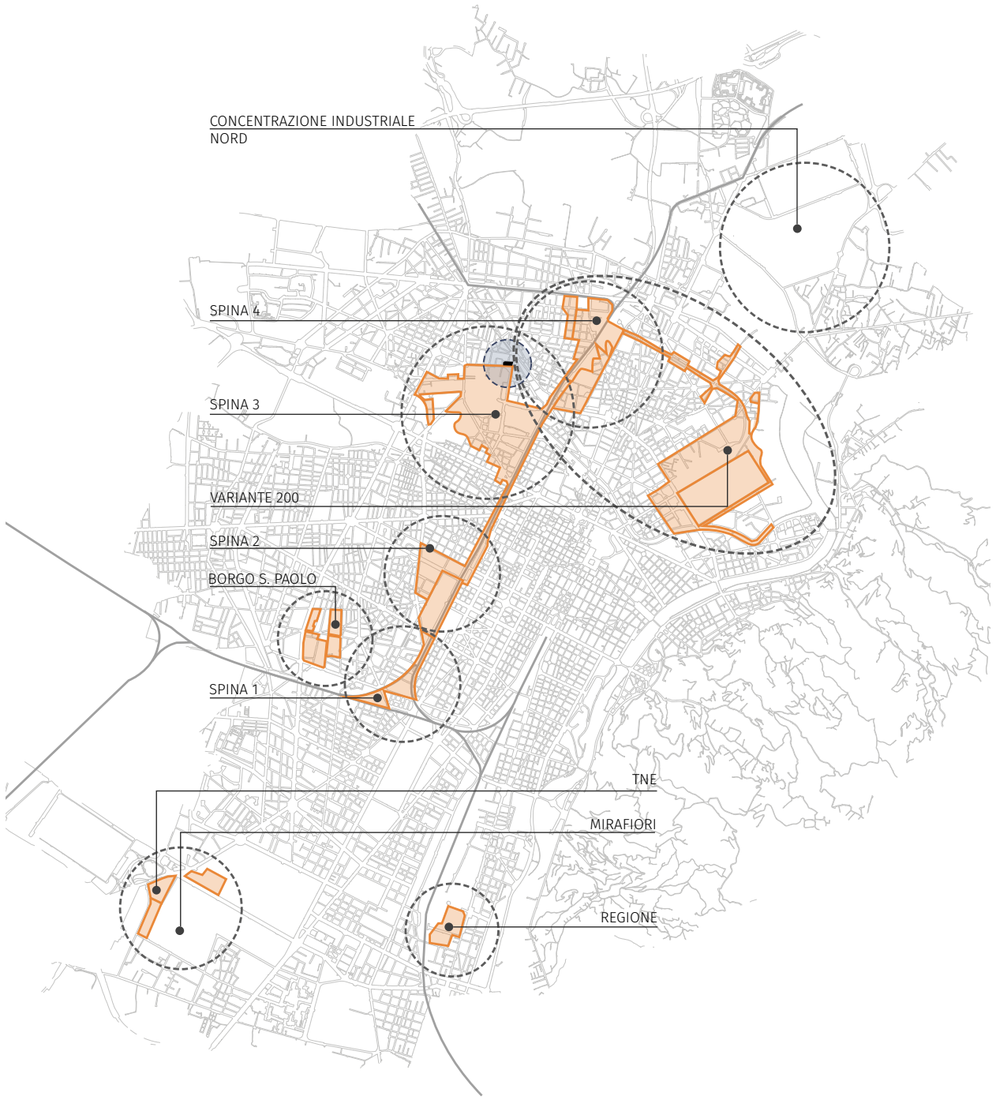


Fig. 9_ *Urban Regulatory plan of Turin “La Spina Centrale”.*

MAIN TRANSFORMATION AREAS

THE 4 SPINE

SPINA 1 (2000)

Spina 1 encompasses the area between Corso Roselli and Corso Peschiera, developed between 1995 and 2000. The urban renovation plan for this Spina focused primarily on improving the quality of life for residents in this existing neighborhood. The proposal included creating an underground railroad, adding greenery and vegetation along the main roads, new parking lots, cycling areas, new urban residences, and small-scale gardens.[10]

SPINA 2

Spina 2 was planned primarily as a cultural area, featuring the OGR (Officine Grandi Riparazioni), the Modern Art Gallery, and the expansion of the Politecnico di Torino's main campus (Neonato, 2005). It encompasses the zone between Corso Peschiera, Piazza Statuto, and Porta Susa train station; the main interventions included the requalification and repurposing of existing buildings, such as the Civic Library and the new Palace of Justice "Palagiustizia". These interventions were complemented by adding cycling routes connected to existing historical gardens like Parco Lamarmora (19th Century) and Giuseppe Penone's gardens.[10]

SPINA 3

Spina 3 covers the area where the railroad passes under the Dora River. This area was planned to have commercial and technological productive functions compatible with residential uses, while also maintaining green spaces, including an additional green core known as Parco Dora.[10]

SPINA 4

Spina 4 is part of the future Rebaudengo station area, primarily designated for residential use. Its extension will reach Settimo Torinese and will be connected to an additional Spina (Spina Reale), which aims to link Spina 3 and Spina 4, enhancing connectivity and continuity in urban development.[10]

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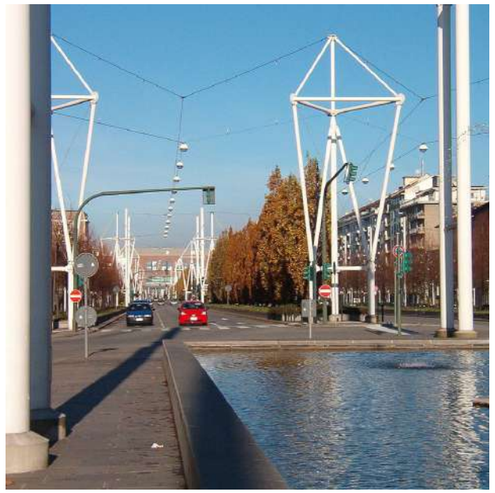
[10] IRES Piemonte (2012).



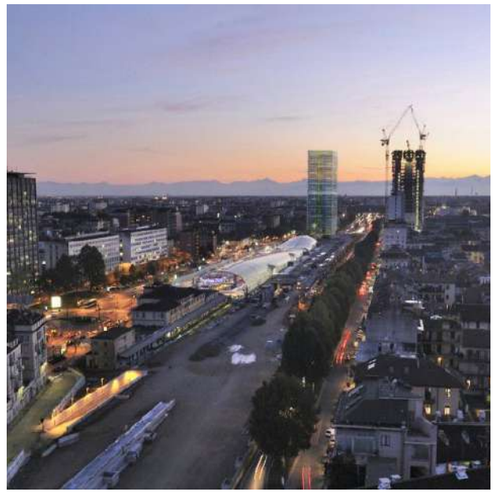


Fig. 10_ *Boulevard "spina centrale".* Source: https://it.m.wikipedia.org/wiki/File:Boulevard_Spina_Centrale_Torino.JPG
Fig. 11_ *Corso Brunelleschi Torino.* Source: https://torino.mobilita.org/tag/corso-brunelleschi/
Fig. 12_*Urban regeneration Politecnico zone.* Source: https://www.teknoring.com/news/riqualificazione-urbana/auroralab-didattica-polito-rigenerazione-urbana/
Fig. 13_ *Spina 3.* Source: https://www.teknoring.com/news/restauro/rigenerazione-urbana-il-nuovo-parco-dora-a-torino/

INDUSTRIAL PAST

The area undergoing urban transformation, commonly referred to as Spina 3, has historically been the industrial hub of the city since the 17th century. This area was chosen for the development of industrial activities because of its proximity to the Dora: the presence of the river gave a diference of the elevation to the sorrounding lands, which facilitated the generation of the necessary electrical energy for machinery operations.[11]

ORIGINS

The area now known as Spina 3 has a long industrial history dating back to the 1600s, when silk mills first settled along the Ceronda stream. These mills, essential for silk production, were attracted to the area due to its access to water, which powered their machinery. However, it wasn't until the latter half of the 19th century that heavy industry began to establish itself in what is now Spina 3.[11]

This industrial growth dramatically changed the city's landscape, both economically and physically. By 1894, nearly half of all industrial workers were located in the northern and northeastern parts of the city, with significant energy being harnessed from the Dora, Pellerina, and Stura rivers. Craftsmanship, including tailoring and carpentry, also thrived, particularly in the central area. As industrialization progressed, new factories sprouted near railways and customs areas.[11]
The old city center was characterized by traditional artisanal activities, hosting over half of the city's clothing and printing workers. In the northern area with proximity to the city center neighborhoods like Vanchiglia and Aurora became hubs of industrial activity, employing a significant portion of the city's workforce.[11]
These areas developed a mix of traditional crafts and modern industries, including the renowned Michelin factory. By the turn of the 20th century, industrial employment declined, with a shift towards commercial and service sectors. Nowadays, the Spina 3 is still a place that makes reference to Turin's industrial past, with the presence of former factory sites like Ingest and Michelin serving as reminders of Turin's industrial heritage.[11]

The factories mentioned in the following chapters are just a few of the major industrial sites that defined the area's past. Many others, such as Elli Zerboni, Borgognan, Superga, Fiat Acciaierie, Fiat Grandi Motori, Nebiolo, and Conceria Fiorio, were located nearby. As mentioned earlier, most of these ceased operations in the early 1980s, left behind vast spaces initially abandoned but later repurposed under the new PRG (General Regulatory Plan) for new functions.[11]

[11] IRES Piemonte (2012).

INDUSTRIAL DEVELOPMENT THROUGH THE YEARS

THE 1970s

Despite a slight decline in industrial activity in the early 1970s, the heavy industry still dominated the workforce, comprising almost two-thirds of the employement activity in Tutin. However, there was a noticeable shift towards commerce and services, accompanied by an increase in self-employment and administrative roles within the industry[12]. In 1971, the manufacturing sector employed 163,000 manual workers (69.2%), 56,000 employees and executives (23.8%), 2,000 entrepreneurs (0.8%), and 13,000 self-employed workers (5.6%). Looking at the entire active population, manual wage workers totaled 243,700 (53.9%), while employees and executives numbered 140,700 (31.1%). Entrepreneurs and professionals amounted to 9,500 (2.1%), and self-employed workers and family assistants reached 58,500 (12.9%).[12]

THE 1980s

Industrial reorganization during the 1980s and 1990s led to a significant decrease in employment in large industries, a trend that started during the decentralization of the industrial processes in the 1970s. Between 1971 and 1981, in the province of Turin, the percentage of employees in establishments with over 1,000 workers dropped from 47.8% to 39.5%. From 1971 to 1996, the proportion of employees in manufacturing activities in companies with 500 or more workers fell from 66% to 47%, benefiting smaller-sized enterprises.[12]

Micro-enterprises with up to 9 employees and small businesses with 10 to 49 employees doubled their share, from 6.5% to 13% and from 9% to 18%, respectively (IRES Piemonte, 2012). Similarly, companies with 50 to 249 employees saw their share increase from 12% to 16%, while those with 250 to 499 employees remained relatively stable (with a slight decline from 6.4% to 5.8%).[12] The decline in employment in large industries paralleled the overall decline in the industrial sector across the active population. Between 1971 and 1996, the number of manufacturing employees in the province decreased from 476,300 to 281,400, representing a decline of over 40%. Conversely, employment in the construction sector increased from 33,500 to 50,000, while the service sector experienced significant growth, rising from 218,000 to 310,000 employees.[12]

THE 2000s

In the 2000s, Turin's employment landscape was diverse. The 2001 census showed that 14.7% of the workforce was employed. Finance, insurance, and IT sectors each accounted for around 4-7% of the workforce. The manufacturing sector, including steel, metalworking, electronics, and transport manufacturing, remained strong at 16.2%, surpassing both Milan and Genova.[12]

Although Turin lagged in tourism infrastructure at 3.6%, its education and healthcare sectors were comparable to other cities; employment patterns shifted, with a decrease in employee roles from 85% in 1971 to 76.1% in 2001, while entrepreneurs and self-employed professionals increased from 2.1% to 7.5%. Additionally, the proportion of self-employed workers rose slightly from 12.9% to 14.5%. Despite these changes, the workforce along the Dora River declined significantly, from an estimated 20,000-25,000 workers in the 1970s to around 7,500 residents in the area, with a lower proportion now being workers compared to employees.[12]

FORMER FACTORIES

Fig. 14_ *Ferrere FIAT.* Source: https://atlas.landscapefor.eu/category/parco-naturale/poi/7115-area-valdocco/

FERRERE FIAT

Originally named "Ferriere Piemontesi" and part of the French company Vandel & C., the enterprise was founded in Avigliana in 1891. In 1917, FIAT acquired the group, integrating it into their vertical growth business strategy. Following World War I, the primary goal of these industrial establishments was their expansion and modernization. By around 1920, the company occupied a total area of 4,000 square meters and employed more than 3,000 workers. This expansion continued in subsequent years with the creation of four separate production groups, which increased the workforce significantly, especially after Italy joined World War II.[12]

By 1945, FIAT's factories employed 4,800 workers. The number of employees continued to grow even after the war, reaching up to 11,500 in the 1970s. This workforce included not only steelworkers but also masonry workers, electricians, and carpenters, who were also needed in the worksites. With the growth of the automotive sector, there was a rising demand for technically and professionally skilled workers in the industrial areas. To address this need, the company took charge of the professional training of workers, as they acquired new skills and abilities with specialized machines, they became more efficient and advanced to a higher range. This system continued until 1978, when Teksid was created to consolidate all of FIAT's metallurgical and steelwork activities. Eventually, FIAT was absorbed by Finsider, the leader of the State Holdings, as a consequence the establishment located in Corso Mortara ceased all activities, right after that, the Vitali and Valdocco establishments began the process of closing their factories in 1986 and 1989, respectively.[12]

[12] IRES Piemonte (2012).

Fig. 15_ *Michelin establishments.* Source: https://www.ironvalleytorino.it/lo-stabilimento-michelin/

THE MICHELIN

The Michelin factories in Turin were established in 1906 by Adolphe Daubreè, and continued under his family's administration for three generations. These factories were the second largest michelin factories besides the main stablishment located in Clermont Ferrand, France, and the bigest one in Italy. The Dora area was chosen for its water supply and proximity to the Martinetto power station, with the Mihelin as their very first customer. By 1939, Michelin employed about a thousand workers, providing amenities like sports centers and housing facilities.[13]
During the post war period, the factory was expanded, acquiring the Valle Susa Cotton Mill building in 1951, after that, the workforce grew from around a thousand to 5,000 in the 1960s, with three shifts employing about 5,500 workers. In the 1960s, the roles of the working people in the facilities included various professionals beyond rubber processing specialists, there were needed carpenters, tilers, mechanics, security workers and firefighters. Around 80% of the workers used to live nearby the area, while the other 20% came from the valleys thanks to the existent railways and tram lines.[13]

In the 1960s, migration from Southern Italy diversified the workforce, the neighborhoods surrounding the factories became more lively with businesses, markets, and community activities. Michelin provided employee amenities like sports clubs, kindergardens, and shelters; professional schools were established to train specialized workers, offering both general and technical education. Cultural activities, libraries, and dance schools were also part of the community life. During the war, employees received food rations and bicycle tires as part of their salaries. The Dora factory ceased operations in 1996, with the production of scooter tires as their last process.[13]

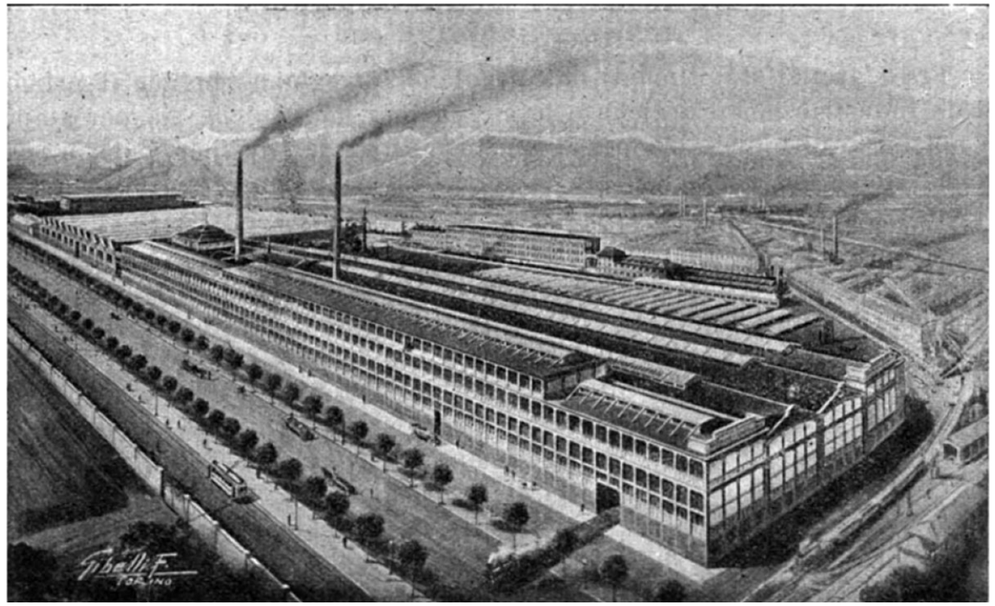


Fig. 16_ *Savigliano establishments.* Source: https://www.ironvalleytorino.it/lo-stabilimento-delle-officine-savigliano-snos/

SAVIGLIANO

The National Society of Savigliano Workshops was established in Turin in 1880 for the manufacture and repairment of the railway equipment. It quickly expanded, employing 640 workers and producing 60 wagons per month due to the high demand of their services. Then, the company merged with the Belgian-capital Italian Anonymous Society, creating the Mortara Road facilities, spanning 30,000 square meters and employing 700 workers. Between the two World Wars, boosted by railway expansion and the Ethiopian War, production and the workforce steadily increased, with 300 employees and 1,300 workers in the Turin plant by 1932.[13]

Despite severe damage from Allied bombings, the Mortara Road facilities resumed operations after the immediate post-war period. During this time, Fiat began acquiring shares, until eventually gaining total control of the Savigliano company. The 1960s was a very challenging year for this industry, leading in 1970 the split of the Turin and Savigliano plants, with the latter becoming Fiat Ferroviaria Savigliano. The Savigliano factory was then acquired by a consortium of major electromechanical companies, led by General Electric, with Ercole Marelli and Ansaldo as shareholders. In the 1980s, Savigliano regained its position as a leader in the electromechanical sector in Italy and the Mediterranean. After changing proprietary several times at the end of the 20th century, it became Savigliano SpA, undergoing divestments and downsizing.[13]

[13] IRES Piemonte (2012).

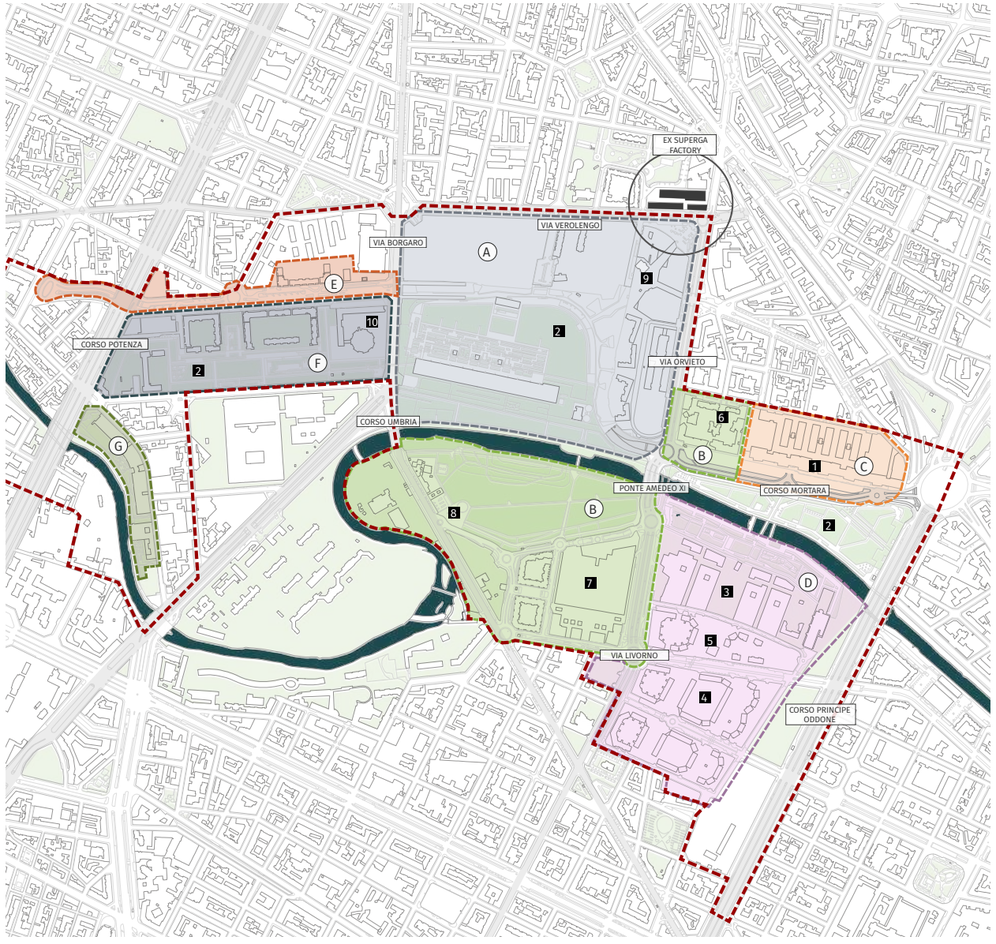
SPINA 3
MAIN INTERVENTIONS

The “Spina 3” transformation area is a complex urban redevelopment project involving significant environmental cleanup and multiple stakeholders. Initiated before Turin’s PRGC approval in 1994, the project received financial support from the Ministry of Public Works through the Urban Redevelopment Programs (PRiU), aiming to improve urban areas with coordinated proposals for urbanization and construction, requiring both private and public resources.[14]

A Program Agreement was signed in January 1998 between the Ministry, Piedmont Region, and City of Turin, leading to its approval in January 1999. This agreement, covering over one million square meters of privately and municipally owned land, amended the General Urban Plan.[14]

The project includes demolishing industrial buildings to create residential areas, tertiary activities, retail and craft spaces (ASPI), a shopping center, and services. The large area was divided into sectors named after historical industrial properties like Ingest, Michelin, Paracchi, and Savigliano.[14] The interventions preserved some of the existent structures and building elements considered as landmarks.

[14] IRES Piemonte (2012).



Districts' areas and interventions

- Superga former factory
- Spina 3
- (A) Vitalli area
- (B) Michelin area
- (C) Savigliano area
- (D) Valdocco area
- (E) Valdelatorre area
- (F) Ingest area
- (G) Paracchi area
- 1 Savigliano offices
- 2 Parco Dora
- 3 Environmental park
- 4 Isole nel parco residential complex
- 5 La torre residences
- 6 Olympic village 2006
- 7 Dora mall
- 8 Michelin evaporation tower
- 9 Vitalipark
- 10 Chiesa del santo Volto

Fig. 17_ *Former district areas and main interventions*

THE DISTRICTS' MAIN INTERVENTIONS

THE MICHELIN DISTRICT

The Michelin district, named after the historic tire factory, is divided into three sub-districts, from which two of them are located in the southern riverside of the Dora. Every district has its own land use, architectural value, and social characteristics.[15]

MICHELIN SUB DISTRICT 1

This area is entirely occupied by a commercial and tertiary sector complex, the Dora commercial center, including a multiplex cinema, shopping center, offices, and shops. It sets architectural standards for the entire district and serves as a major urban attraction[15] Project by Latz + Partner LandschaftsArchitekten[16].

MICHELIN SUB DISTRICT 2

West of the tertiary complex lies a residential complex with buildings surrounding two internal courtyards used as communal gardens. The residential area comprises 350 units of diverse sizes, characterized by medium-high architectural and finishing quality. There is no affordable housing in this complex, as it was concentrated in Michelin Sub-district 3 to the north of the Dora River.[15] Units here are sold at an average price of €2,700 per square meter, one of the highest in the Spina 3 area. Its construction lasted from 2000 to 2008, with sales starting in 2002 and peaking until 2005. Recent sales have faced challenges due to a few unsold units. Purchases were facilitated by payment plans linked to construction progress, with full payment upon delivery.[15]

MICHELIN SUB DISTRICT 3

In the Michelin Sub-district 3, a Minimum Unit of Project Coordination (UMCP) has been identified, covering a total land area of 14,287 square meters. It features high building density, incorporating part of the SLP transferred from the Valdocco district, along with a concentration of public and subsidized housing, including the entire allocation from Michelin Sub-district 2.[15]
The area underwent changes due to the second amendment to the Program Agreement in 2003, which designated it for most of the residences for journalists during the 2006 Winter Olympics, later transformed into public or subsidized housing.[15] The project was delivered by Di Vittorio and San Pancrazio housing cooperatives, the Deiro company and Pianel real estate company.[17]
Initially serving as the Media Village, it accommodated 1,464 beds during the Olympics, and after the games, construction resumed to convert the facilities into 426 residences. The sub-district comprises three 21-story towers centrally located parallel to Corso Mortara, surrounded by six six-to-seven-story buildings. All structures rest on a common platform, compensating the elevation difference between the lower part towards the river and the northern part towards Via Tesso. This platform was designed as a unifying element that served as a meeting place and service area for journalists during the Olympics; currently, some commercial premises and underground garages are located there.[15]
Some of these interventions were eligible for regional funding aimed at constructing rental properties, according to the Operational Plan called "20,000 rental housing units," established by Regional Council Resolution 4-8482 of February 24, 2003.[15]

[15] IRES Piemonte (2012).

[16] ArchiTonic, "Parco Dora by Latz + Partner" Architonic, accessed July 26, 2024

[17] Archi magazine, "Inaugurato Il Villaggio Olimpico Media Mortara," www.archimagazine.com, September 29, 2005, https://www.archimagazine.com/avillaggio.htm.

Fig. 18, Fig. 19_ *Centro commerciale Parco Dora.* Source:http://www.zeroundicipiu.it/2010/06/28/
Fig. 20, Fig.21_ *North Michelin towers.* Source: https://www.flickr.com/photos/ikimuled/15892429117/in/photostream/

THE VALDOCCO DISTRICT

Together with the Vitali district, it is one of the largest areas of the Spina 3 zone, covering a territorial surface of nearly 290,000 square meters. It generates a considerable amount of SLP (Gross Floor Area) which, due to the extensive allocation to parks and infrastructure, is partly transferred (for a quota of 14,629 square meters) to the Vitali district. The Valdocco district has been divided into four sub-districts, each one with a different character and function.

SUB DISTRICT D1- CORSO MORTARA AREA

This represents the only portion of the district located north of the Dora River, entirely designated for green spaces and roads, due to the building restrictions imposed since it belongs to the the riverside protected areas.

SUB DISTRICT D2- ENVIRONMENT PARK

The area is characterized by the presence of the “Environment Park” a technological park, which hosts 30,000 square meters of SLP allocated to Eurotorino for research, production, conferences and university activities. The conversion of the area for the creation of the Technological Park began in 1992 and has driven the transformation of the entire Spina 3 zone.

SUB DISTRICT D3- VALDOCCO SOUTH RESIDENTIAL AREA

This sub-district includes roads and public services and features residential developments spread across eight Minimum Intervention Units (UMI), or “residential islands,” designed by Isola Architetti. These are grouped into three Minimum Project Coordination Units (UMCP). Buildings height have a range from five to twelve stories, with their highest tower reaching up to eighteen stories. Development rights allowed for about 114,000 square meters of residential Gross Floor Area, resulting in approximately 1,350 high-quality apartments priced at an average of €1,800 per square meter, with higher prices for upper floors of the tower. Apartments vary in size to meet different family needs; the proximity to the city center, south of the Dora River and near Corso Regina Margherita, made these apartments highly attractive, leading to rapid market uptake. As required by PRiU regulations, about one-third of the residential Gross Floor Area (nearly 40,000 square meters) was allocated to affordable housing, but no public housing was included. However, social mix was not fully achieved as affordable housing units were grouped in specific buildings, particularly to the north along Corso Rosai, rather than integrated with market-rate units.

SUB DISTRICT D4- VIA CEVA

The planned intervention in this sub-district is yet to be realized. It covers a limited area of about 2,200 square meters, generating development rights for residential purposes, ASPI, and Eurotorino. The realizable residential Gross Floor Area (SLP) ranges from a minimum of 500 square meters to a maximum of 2,900 square meters, considering that 500 square meters of SLP have been transferred from the Valdocco South sub-district. The area is currently occupied by a low building, and the implementation regulations of the PRiU do not exclude its partial retention through an architectural redevelopment intervention.[18]

[18] IRES Piemonte (2012).

Fig. 22_ *Parco Dora gardens.* Source:http://www.comune.torino.it/verdepubblico/parchi-e-giardini/parco-dora-aperti-al-pubblico-il-lotto-valdocco-nord-e-iron-valley/
Fig. 23_ *Le isole del parco.* Source: https://www.flickr.com/photos/ikimuled/15455902654

Fig. 24_ *Envipark campus.* Source: https://www.envipark.com/campus/
Fig. 25_ *Envipark.* Source: https://www.ironvalleytorino.it/environment-park/

THE VITALLI DISTRICT

The Vitali district is the largest in Spina 3, covering a total territorial surface of 303,649 square meters, and is located in the northern part of Spina 3. Commonly, it is referred to as Vitali 1 and Vitali 2, referring to two specific areas with different completion timelines: Vitali 1 was completed in 2006 and also includes a portion designated for the Media Village, while Vitali 2 is still under construction. In reality, the PRiU distinguishes five sub-districts.[19]

SUB DISTRICTS 1 AND 2

Commonly referred to as Vitali 2, this area is still under construction and is being developed through three Minimum Project Coordination Units. The construction is managed by a consortium of three builders (Impresa Rosso, Zoppoli&Pulcher, and Codelfa) and two service partners handling marketing and other services (Thecnimont and Immobiliare Lombarda). The area is mainly designated for residential use, with smaller portions allocated to Eurotorino and ASPI. There are no affordable housing quotas, and the residential units are aimed at the mid-to-high market, benefiting from favorable locations overlooking the park. The project has been affected by changing market conditions. While other sub-districts benefited from a favorable real estate market between 2004 and 2006, selling out before construction ended, this project, despite starting a year and a half ago, has only sold 12% of its units. The target price is around €2,700 per square meter, higher than in other high-quality districts, while construction costs have risen to €2,400 per square meter due to inflation and costly design choices. A positive aspect of this project, one of the last in Spina3, is its compliance with recent energy-saving regulations, resulting in buildings and units rated for energy efficiency, appealing to more discerning buyers.[19]

SUB DISTRICTS 3 AND 4

The buildings in sub-districts 3 and 4, initially used for the Media Village and later converted to regular residences, were developed by Rosso Costruzioni, DE-GA, and Zoppoli & Pulcher. The development includes 81 apartments in a linear complex over eight floors and a 14-floor tower with 51 apartments above office spaces. Apartment sizes range from 40-50 sqm and 80-90 sqm, to larger units over 250 sqm.[19]

Sales were completed quickly by 2006, with the Olympic history boosting appeal. Prices averaged €1,800/sqm for the linear apartments and €2,100/sqm for the tower, reaching €2,600/sqm for penthouses. Most linear apartments and all but two tower offices were sold. Buyers were mostly newly formed families from across the city and metropolitan area. [19]

SUB DISTRICT 5

The development rights for this sub-district are owned by the Municipality of Turin and the state, as it houses apartments for former employees of the Ministry of Justice. The project is organized into two lots.

LOT 1

With a total Gross Floor Area of 15,161 square meters, is entirely designated for Eurotorino and is under a public housing agreement.

LOT 2

Has a total of 13,258 square meters (including 300 square meters from the Paracchi district) and is entirely designated for public residential use, both municipal and state-owned.[19]

[19] IRES Piemonte (2012).

INGEST DISTRICT

The Ingest district, spanning 87,000 square meters, is primarily a residential use area with a small portion for ASPI and Eurotorino. Its development was overseen by Minimal Units of Project Coordination using simple building permits. It comprises two blocks, one by Franco costruzioni and the other split between ICEP and Di Vittorio.[19]

Two types of agreements were used: traditional acquisition and a “rental/purchase” option. Despite swift occupancy, there were concerns about delaying ownership agreements. The residential units vary in size, priced at an average of 1,800 €/sqm. Selling park-facing units is challenging due to their higher price and park completion delays.[19]

Fig. 26_ *Parco Dora Vitalli area.* Source: https://es.m.wikipedia.org/wiki/Archivo:Parco_Dora_lotto_Vitali,_Torino_-_panoramio.jpg
Fig. 27_ *Pardo Dora.* Source: https://www.lab27.it/progetti/editoria-e-paesaggio-la-fotografia-contemporanea-come-ricerca-2-la-terra-di-sotto/
Fig. 28_ *Chiesa del Santo Volto church and complex.* Source: https://www.botta.ch/it/SPAZIO%20DEL%20SACRO?idx=2

PARACCHI DISTRICT

The Paracchi district, located on the outskirts of the Spina 3 complex near the Dora River, faced construction delays due to hydrological conditions, leading to the adoption of a Hydrogeological Layout Plan in May 2001. This plan, which delayed building permits until 2004, restricted ground floor usage to non-commercial purposes. The development, covering 28,658 square meters, required a simple building permit and was managed by four Minimum Project Coordination Units (UMCP).[20]

UNIT 1

The development at the northern edge of the district, constructed by Rosso Costruzioni, consists of buildings between five and nine stories tall. Out of 124 apartments, 16 were given to landowners for their land, and 108 were sold. Of these, 58 were sold at market rates, and 49 were affordable housing units, mainly on lower floors to promote socioeconomic diversity. All units were sold by 2006 despite initial delays, with market-rate apartments priced at €1,900/sqm and affordable units at €1,687/sqm, influenced by floor level. The apartments varied in size to cater to different family needs, including smaller units in the affordable segment and larger units, including duplexes.[20]

UNIT 2

Centrally located within the district, is a redevelopment project of the former Paracchi factory, now consisting mainly of offices (Eurotorino) and residences, with a total Gross Floor Area (SLP) of 6,000 square meters. The project is divided between two condominiums on Via Pianezza. The residential portion is smaller, while the Eurotorino offices are more prominent, with some office units exceeding 1,000 square meters.[20]

UNITS 3 AND 4

These are lots yet to be developed, where a portion of 1,680 square meters of Gross Floor Area (SLP) owned by ATC is planned.[20]

SAVIGLIANO DISTRICT

The Savigliano district is undergoing industrial redevelopment centered on the historic Officine Savigliano, with its preserved facade on Corso Mortara. The project, led by SNOS through a building permit, involves a collaboration between Finpiemonte and Impresa Rosso, who acquired the municipal share. The complex is primarily tertiary, featuring Eurotorino, commercial spaces, and ASPI facilities, with a small residential component of 39 high-priced lofts on the top floor due to their uniqueness and quality. Sales have been slow, with three units remaining unsold, initially retained by the company for rental purposes.[20]

VALDELATORRE DISTRICT

Located north of the Ingest district, this small area (28,008 square meters) is managed by a single Minimum Project Coordination Unit and developed through a building permit. Except for a small section for ASPI, all development rights were used to construct residences (15,805 square meters), with one-third (5,602 square meters) designated as affordable housing.[20]

[20] IRES Piemonte (2012).

Fig. 29_ *Paracchi.* Source: https://www.museotorino.it
Fig. 30_ *Savigliano offices.* Source: https://policentro.it/progetto/officine-s/
Fig. 31_ *Valdelatorre.* Source: https://www.museotorino.it/view/s/1169dc2efad049909d46ed950622518c

THE SUPERGA COMPANY

The Superga Company was founded in 1913 by entrepreneur Walter Martiny. The brand's name was inspired by the Basilica di Superga, a prominent landmark in Turin. However, it was only after 1915, following the construction of the first industrial building complex between Via Verolengo and Via Orvieto, that the company joined the FRIGT Foundation (Fabbriche Riunite Industria Gomma Torinese), producing waterproof boots for rice plantation workers in northern Italy.[21]

The complex included an administration and commercial offices building, with the worksite and factory adjacent to it. By 1925, the brand had gained fame in Italy and recognition in other countries with the creation of the 2750 shoe model, the first sports shoes with vulcanized rubber designed for female tennis players.[22]

With the growing number of workers and dependents, in 1939, the company established a nursery *Scuola Materna Superga* for the children of the predominantly female workforce. Located at Via Assisi 45, this building underwent conservation and restoration in 1979 while maintaining its original function.[21]

During World War I, the Superga Factory became part of the auxiliary industry, producing gas masks and other supplies. The building suffered severe damage from bombings on July 12th and 13th, 1943. In 1944, strikes in the city halted war equipment production, leading the company to join the CLN Aziendale (Comitato di Liberazione Nazionale), a political and military organization formed by various companies to oppose fascism. In 1945, Superga workers defended the factory against the German army during the insurrection.[21] By 1949, the factory underwent significant modernization to repair the extensive damage, including rebuilding the roof. In 1951, Superga was acquired by Pirelli, a company specializing in tire production (MuseoTorino, n.d.).Post-war, Superga resumed significant production, incorporating new manufacturing techniques and expanding its workforce to at least 1,380 employees.However, the Via Verolengo complex could no longer accommodate the main production center. From 1962 to 1990, with a rebranding and exclusive focus on sports shoe production, the number of workers at the Turin production center decreased to 761, and primary production moved to Asia. Consequently, the Via Verolengo factory was closed, partially demolished, and replaced with residential buildings. The remaining buildings on Via Verolengo and the warehouse on Via Orvieto were preserved and repurposed according to the Urban Regulatory Plan.[21] In 1992, the building was sold to Sopaf S.P.A (Società Partecipazione Finanziarie) and again in 2004 to BasicNet, a company that acquired the exclusive worldwide license for the Superga brand. BasicNet became the new owner in 2007, reestablishing Superga in the international market through high-impact advertising campaigns and collaborations with other brands. In 2011, during the celebration of the 150th anniversary of Italy's unification, the Superga brand was recognized as one of the 50 objects that made history in Italy. Today, Superga is one of the most prestigious brands in Italian shoe manufacturing, with distribution in more than 55 countries.[22]

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[21] Museo Torino "Ex Stabilimento della Superga, gia' FRIGT, gia' Martiny," accessed July 26, 2024. https://www.museotorino.it/view/s/7822d2f7c2f24db4b2e0fd4778c9fafa.

[22] BasicNet S.p.A., "La Storia Di Superga," accessed July 26, 2024. https://www.superga.com/it/pages/story.

COMPANY

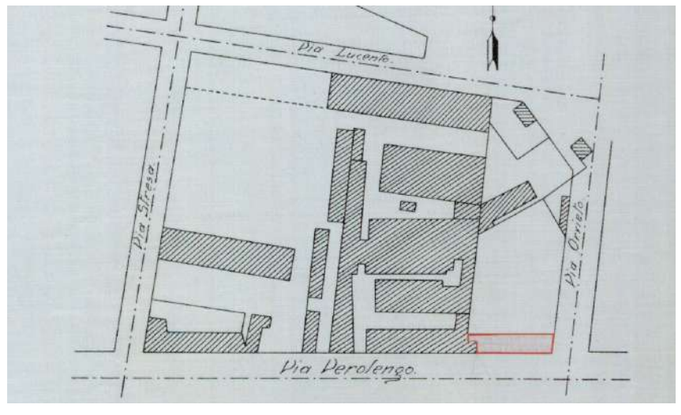
INDUSTRIAL COMPLEX

1913

Foundation of the superga company by Walter Martiny. The name of the brand takes inspiration on the Basilica of Superga, a landmark of the city of Turin.

1915 - 1920

Construction of the industrial complex between via verolengo (administrative part and commercial offices) and Via Orvierto (worksite and offices).



1916

The Superga starts to make part of the FRIGT with the production of waterproof boots for the workers in the rice plantations.

1925

Creation of the 2750 shoe model that made the brand became famous in Italy and recognized in the exterior. The were the first sportive shoes with vulcanized rubber, designed for female tennis players.

1939

Construction of the “Scuola materna superga” for the children of the working women in Via assisi 45.

II W.W

Production of auxiliar industry products and anti gas masks.

1943

The factory suffers several damages after the bombings of the 12th and 13th of july of 1943.

Fig. 32_ *Martini society.* Source: https://archiviostorico.fondazionefiera.it/oggetti/40985-pubblicita-walter-martiny-industria-gomma
Fig. 33_ *Shoe factory Superga.* Source: Universal Images Group North America LLC / Alamy Stock Photo
Fig. 34_ *Industrial complex.* Source: Pratica edilizia PE 1920_0248_PRAT 01 recovered from Turin’s storical archive

Fig. 35_ *Tennis shoes.* Source: https://co.pinterest.com/pin/113012271883867252/
Fig. 36_ *Asilo nido Superga.* Source: https://www.museotorino.it/view/s/80605dece5b1416ea9fb2582ba345cb8
Fig. 37_ *Bombing damages.* Source: https://www.museotorino.it view/s/7822d2f7c2f24db4b2e0fd4778c9fafa

1944

The strikes in the city blocked the war equipment production. Creation of the CLZ Aziendale.

1945

The workers of the Superga defended the factory against the german army during the insurrection

1949

Modernization of the building complex

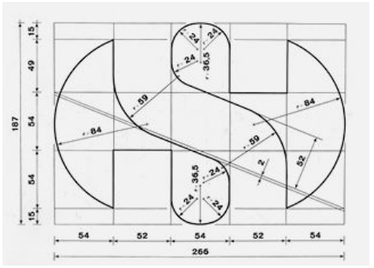
1960

The establishment counts with at least 1380 workers, most of them women. The Verolengo factory is not the main production center anymore.

Fig. 38_ *Factory workers.* Source: https://www.museotorino.it/view/s/7822d2f7c2f24db4b2e0fd4778c9fafa
Fig. 39_ *Superga building complex.* Source: https://areeweb.polito.it/imgdc/schede/MC08.html

1962

Logo and publicity campaigns by the designer Albe Steiner, still in use today.



1970

Exclusive dedication of the production of sports shoes

1975 - 1976

With only 761 workers, the production was moved to asia. Progressive abandonement of the building

1979

Conservation of the Scuola Materna Superga building while keeping its original function

Fig. 40_ *Superga logo.* Source: https://co.pinterest.com/pin/832954893550964337/
Fig. 41_ *Albert steine publicity.* Source: https://x.com/chiaralessi/status/1353250994767978498/photo/1
Fig. 42_ *Superga building.* Source: https://areeweb.polito.it/imgdc/schede/MC08.html

1992 - 1997

Change of proprietary: Sopaf S.P.A - The property located in Via verolengo was sold.

2004 - 2009

BasicNet became the new proprietary of the company, repositioning it in the international market

2011

During the celebration on the 150th aniversary of the Unity of Italy, the Superga brand was recognized as one of the 50 objects that made history in Italy.

2023

Superga is one of the most prestigious brands in the history of Italian shoe manufacturing, currently the brand is distributed in more than 55 countries.

2024

The complex is currently abandoned and make part of the Urban Regolatory plan

1990

Closing of the production factory in Turin. Part of the building was demolished and substituted with residential constructions. The Via Verolengo building and the via Orvieto warehouse were preserved and destined to other uses

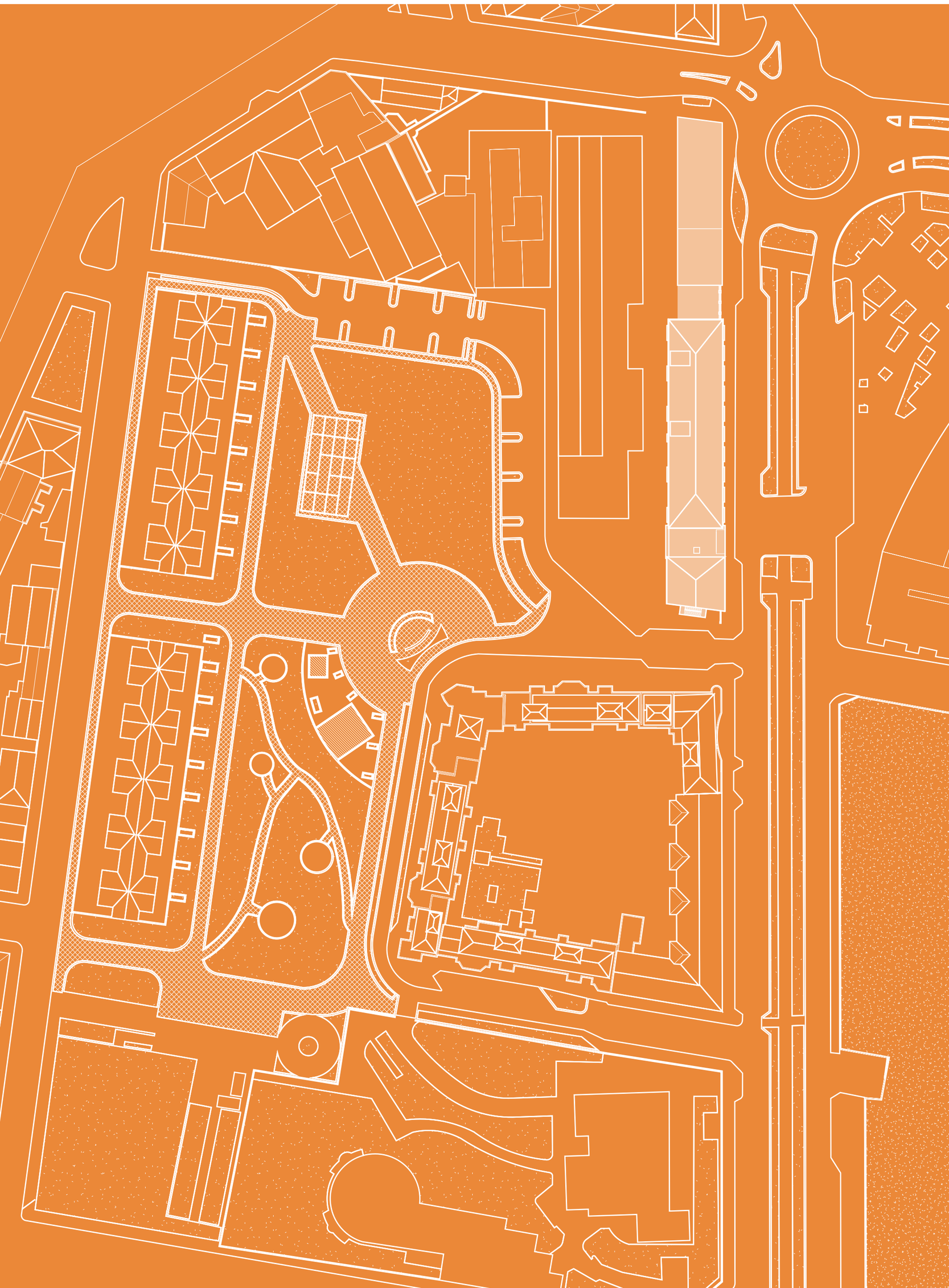
2012

The building was declared cultural asset by the *Direzione Regionale per i Beni Culturali e Paesaggistici del Piemonte.*

Fig. 43_ *Superga shoe.* Source: https://www.modalizer.com/superga-scarpe-150-anni-unita-ditalia/
Fig. 44_ *Ortofoto.* Source: https://areeweb.polito.it/imgdc/schede/MC08.html

Fig. 45, Fig. 46_ *Publicity campaigns.* Source:https://www.design-is-fine.org/post/54826322680/walter-martiny-industria-gomma-sneakers-superga
Fig. 47_ *Current building.* Source: https://fondoambiente.it/luoghi/ex-fabbrica-superga?ldc

PART 2
TERRITORIAL FRAMEWORK



For the analysis conducted by IRES Piemonte, several variables were taken into consideration: age, family composition, citizenship, educational qualifications, non-active population, and working population, with a focus on their activity sector and profession.

Additionally, the study included an intra-urban and extra-urban analysis to account for the origins of the area's residents. Beyond examining the primary social, economic, and educational characteristics, it was essential to compare these findings with data from the city of Turin to characterize the inhabitants of the sector and their possible needs.

PROVENIENCES AND MOBILITY

INTRA-URBAN MOBILITY

With intra-urban mobility, the analysis is focused on people who moved to Spina 3 from other areas of the city. These residents total 6,692 people, representing 53% of the population of Turin. They predominantly come from the adjacent Circoscrizioni 4 and 5, as well as from the northeastern parts of the city, Circoscrizioni 6 and 7, which together account for only 19% of the city's total inhabitants.

EXTRA-URBAN MOBILITY

This analysis considers people who transferred from other provinces of Torino and Piemonte, Italian regions, and other countries. The most significant regions of provenance are Sicilia, Lombardia, and Puglia, accounting for 14%, followed by Campania, Lazio, Calabria, and Liguria. Preliminary observations reveal that only 8% of the resident population comes from other regions of Italy and other countries. Meanwhile, 15% of the residents are from the Piemontese region, and 76% come from Turin's province: over 50% come from Circoscrizioni 4 and 5, and 20% from the northeastern part of the city. Additionally, it is notable that Spina 3 has a lower proportion of foreign population compared to the total in Turin. This indicates an interesting residential dynamic, as people from the outer areas of Turin are increasingly moving closer to more urbanized, central areas, contrary to the de-urbanization trend observed over the past 20 years.[23]

ORIGINS OF THE ENROLLED

Origins	Enrolled number	Value %
Foreigners and unknown	416	4,75
Another regions	383	4,37
Rest of Piemonte region	1.237	14,53
Torino	6.692	76,36
Total of the enrolled	**8.764**	**100,00**

Fig.48_ *Origins of the enrolled.* Source: Elaboration by IRES Piemonte on data from the Population Registry of the City of Turin as of December 31, 2011, extracted from CSI Piemonte.

[23] IRES Piemonte (2012).

PROVENIENCE FROM OTHER REGIONS OF ITALY AND FOREIGNERS

Region	Enrolled number	Value %
Abruzzo	8	2,09
Basilicata	9	2,35
Calabria	30	7,83
Campania	36	9,40
Emilia Romagna	14	3,66
Lazio	33	8,62
Liguria	30	7,83
Lombardia	56	14,62
Marche	4	1,04
Molise	5	1,31
Puglia	50	13,05
Sardegna	18	4,70
Sicilia	57	14,88
Toscana	14	3,66
Umbria	2	0,52
Valle d'aosta	5	1,31
Veneto	12	3,13
Total enrolled Italy	**383**	**100,00**
Foreigners	387	48,44
Unknown	29	3,63
Foreigners and unknown	**799**	**100,00**

Fig.49_ *Proveniences.* Source: IRES Piemonte, extracted from CSI Piemonte.

INTRA-URBAN MOBLITY FROM PROVENIENCE ZONE

Zone	Enrolled number	Value %
1 - Centro, Crocetta	423	
2 - Santa Rita, Mirafiori Nord	301	
3 - San Paolo, Cenisia, Pozzo Strada	736	
4 - Parella, San Donato	1.719	
5 - Borgo Vittoria, Madonna di Campagna, Lucento	1.832	
6 - B. Milano, Regio Parco, B. Bertolla, Falchera	630	
7 - Aurora, Vanchiglia, M. del Pilone	668	
8 - S. Salvario, Cavoretto, Borgo Po	150	
9 - Nizza, Lingotto	174	
10 - Mirafiori Sud	59	
Total of the enrolled	**6.692**	

Fig.50_ *Proveniences.* Source: IRES Piemonte, extracted from CSI Piemonte.

AGES AND FAMILY COMPOSITION

In Spina 3, there is a significant concentration of a young population compared to Turin. Specifically, 19% of the population is aged 0 to 14 years, compared to 12% in Turin, indicating more young families in the area. Additionally, the percentage of young people aged 15 to 34 years is 23% in Spina 3, higher than Turin's 20%. The working-age population (35-59 years old) is also more prominent in Spina 3 at 44%, compared to 37% in the city. In contrast, the elderly population is lower, with those over 60 years old accounting for 8% in Spina 3 and 12% in Turin, and those over 70 years old making up 6% in Spina 3 versus 19% in the city. Family composition in Spina 3 further supports this trend, showing a higher presence of families with 3 or 4 members (18% and 12%, respectively) compared to Turin (16% and 10%).[24]

COMPOSITION BY AGE GROUP OF THE RESIDENT POPULATION IN SPINA3 AND TURIN (2011)

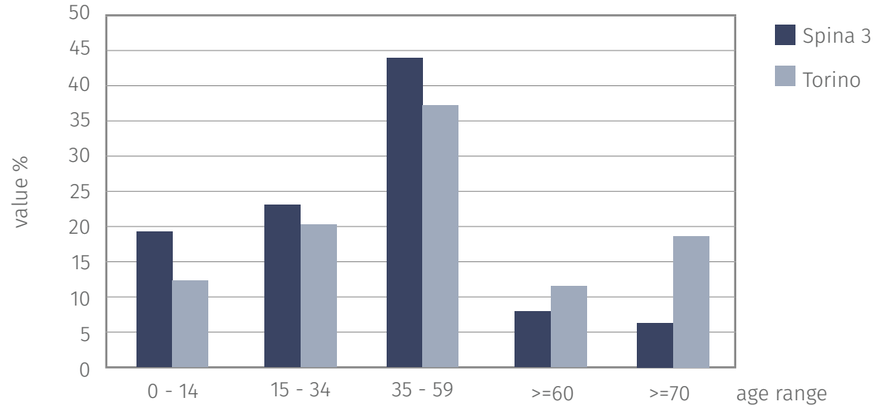


Fig.51_ *Age composition.* Source: IRES Piemonte, extracted from CSI Piemonte.

NUMBER OF MEMBERS OF RESIDENT FAMILIES IN SPINA3 AND TURIN (2011)

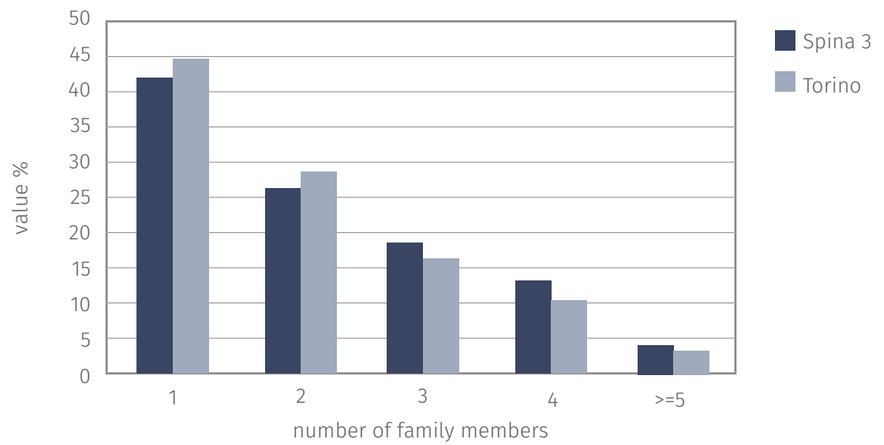


Fig.52_ *Family members.* Source: IRES Piemonte, extracted from CSI Piemonte.

[24] IRES Piemonte (2012).

STUDIES AND OCCUPATION

STUDY TITLES

Residents in Spina 3 tend to have higher educational qualifications than those in Turin, with 9% holding a university degree or doctorate and 15% having a high school diploma, compared to 7% and 13% in Turin, respectively. Additionally, only 10% of Spina 3 residents have an elementary school education, compared to 18% in Turin. The area also has a higher proportion of preschool-aged children (18% versus 14% in Turin), highlighting its younger demographic. This data suggests that Spina 3 not only has a more active and educated population but also indicates better educational outcomes and a vibrant, growing community.[25]

EDUCATIONAL QUALIFICATIONS OF THE RESIDENT POPULATION IN SPINA3 AND TURIN (2011)

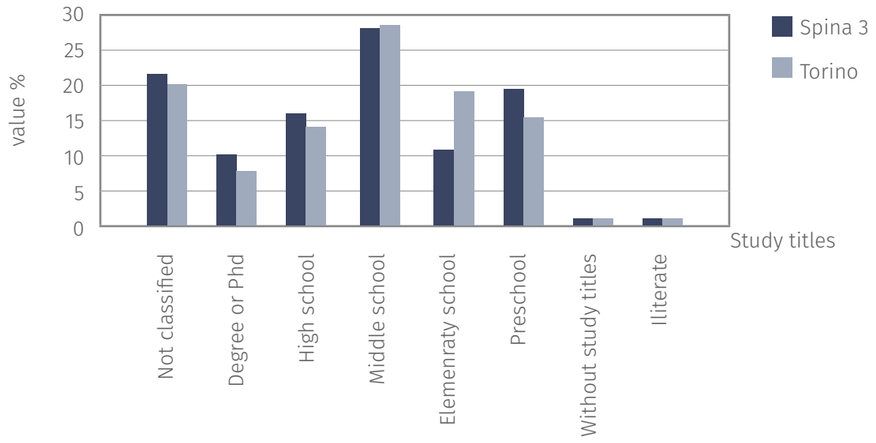


Fig.53_*Education level*. Source: IRES Piemonte, extracted from CSI Piemonte.

PROFESSIONAL CONDITIONS

The first observation regarding Spina 3 is the higher presence of the active population (72%) compared to the total for Turin (61%). The non-active population is smaller in the Spina 3 (28%) compared to the total for the city (39%). The term "active population" refers to all those who are employed in various sectors of activity and the unemployed who are seeking work or have lost a job; the term "inactive population" refers to those not directly connected to the workforce, such as students, homemakers, retirees, and others.[25]

The analysis of the inactive population reiterates the characteristics of the population previously highlighted. There is a significantly higher presence of students in Spina 3 (47%) compared to the corresponding values for the city of Turin (30%). The concentration of retirees is lower (23%) compared to the city total (37%). The data on homemakers is also interesting, with a lower presence in Spina 3 (29%) compared to the city (33%).[25]

PROFESSIONAL CONDITIONS OF THE RESIDENT POPULATION IN SPINA 3 AND TURIN (2011)

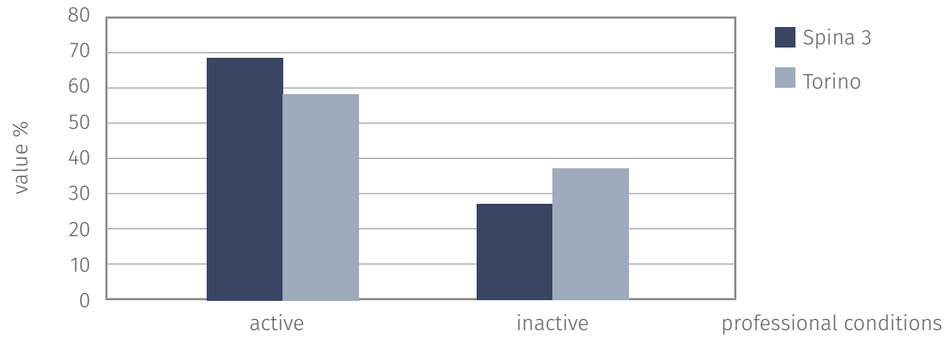


Fig.54_*Professional conditions*. Source: IRES Piemonte, extracted from CSI Piemonte.

INACTIVE PREOFESSIONAL CONDITIONS OF THE RESIDENT POPULATION IN SPINA 3 AND TURIN (2011)

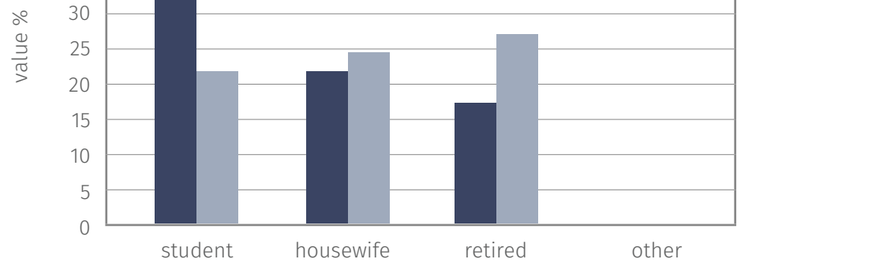


Fig.55_*Inactive conditions*. Source: IRES Piemonte, extracted from CSI Piemonte.

ACTIVE POPULATION BY TYPES OF EMPLOYEMENT

The proportion of self-employed workers in Spina 3 (17%) is slightly lower compared to Turin (20%). Conversely, the presence of employees is higher (53% compared to 48% in the city), and the share of other types of employment is also more represented: 30% in Spina 3 versus 26% in the entire city. The rate of unemployed individuals is almost the same, standing at around 6%. These figures suggest that Spina 3 has a more diversified employment structure, with a greater reliance on traditional employment and other types of work compared to the broader Turin area. The employment structure in Spina 3 reflects a robust and diverse economic environment. The higher proportion of employees and the greater representation of various types of employment indicate a dynamic job market. [25]

[25]IRES Piemonte (2012).

PROFESSIONAL POSITION OF THE EMPLOYEES

In Spina 3, office workers make up 66% of the employed population, while manual workers constitute 30%. At the city level, clerical workers represent 55%, and manual workers account for 40%. The proportion of managers is slightly lower in Spina 3 (3%) compared to Turin (4%).These differences highlight distinct characteristics in professional roles and job distribution between Spina 3 and Turin, suggesting potential variations in economic activities.
The higher proportion of manual labor workers and lower representation of manual workers in Spina 3 suggest a unique workforce composition compared to the broader city. The slightly lower presence of managers further suggests a distinctive organizational structure in Spina 3. These findings underscore the diversity and specialization within Spina 3's workforce, contributing to an understanding of its economic landscape relative to the broader Turin region.[26]

ACTIVE PROFESSIONAL CONDITIONS OF THE RESIDENT POPULATION IN SPINA 3 AND TURIN (2011)

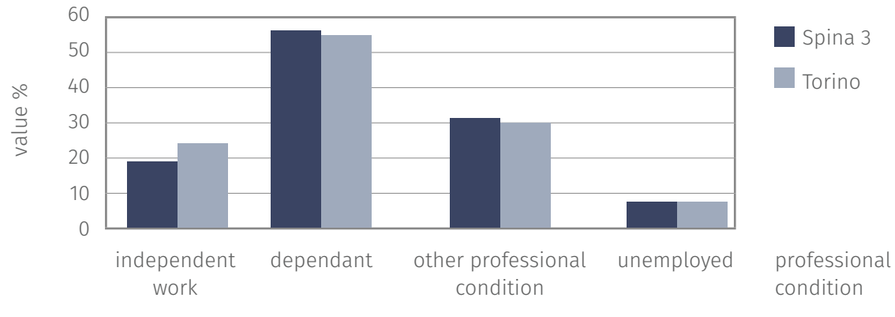


Fig.56_*Professional conditions.* Source: IRES Piemonte, extracted from CSI Piemonte.

DEPENDANT WORK CONDITIONS OF THE RESIDENT POPULATION IN SPINA 3 AND TURIN (2011)

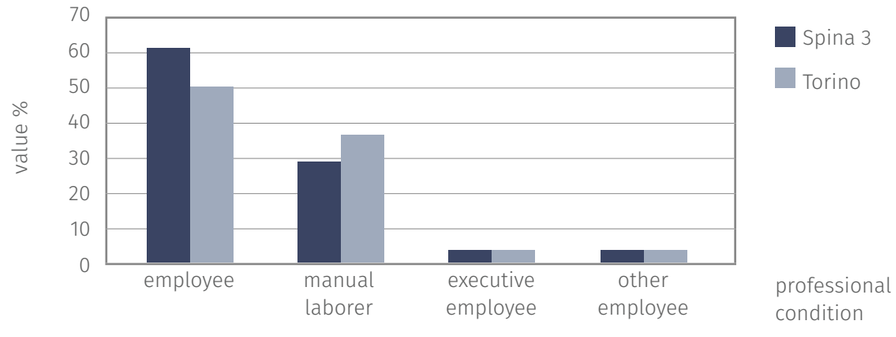


Fig.57_*Dependant work conditions.* Source: IRES Piemonte, extracted from CSI Piemonte.

[26] IRES Piemonte (2012).

CONCLUSIONS

Spina 3 is an area in Turin that shows a fascinating mix of residents. Many people from the outer parts of Turin are moving to this more central and urbanized region. This movement is creating a dynamic and evolving community. Compared to the rest of Turin, Spina 3 has a larger number of young people and individuals of working age, making it a vibrant and active part of the city.

Families in Spina 3 are typically made up of three or four members. This family size is quite common, contributing to the neighborhood's lively atmosphere. Additionally, many of the residents in Spina 3 have higher educational qualifications, such as university degrees. This high level of education is attracting a significant number of students and professionals to the area. The large presence of students is especially notable, further emphasizing the trend towards a younger, more educated population.

In terms of employment, most people in Spina 3 work as employees for various companies, meaning they are dependent workers. This makes up a large portion of the workforce. However, about 30% of the residents are engaged in other types of work. This percentage is higher than the average for the entire city of Turin, indicating a shift towards diverse forms of employment. This trend highlights the increasing need for flexible and adaptive spaces that can accommodate both traditional jobs and emerging new work styles.

POPULATION PROFILE OF SPINA 3

1. AGE AND DEMOGRAPHICS

Higher proportion of young people and working-age individuals. Families commonly consist of three to four members.

2. EDUCATION

Significant number of residents with higher educational qualifications. High presence of students, contributing to the youthful and educated demographic.

3. EMPLOYMENT

Majority of residents work as dependent employees for various companies. Approximately 30% of the population is involved in other types of work, indicating a trend towards diverse employment options.

4. COMMUNITY NEEDS

Growing demand for spaces that support both traditional and new forms of work. The evolving employment landscape requires adaptive infrastructure to meet the needs of a diverse workforce.

Spina 3 is becoming a vibrant and attractive part of Turin, characterized by its young, educated, and dynamically employed population. This profile highlights the area's potential for continued growth and development as it adapts to the changing needs of its residents.

According to the PRG (Piano Regolatore Generale) The ex superga factory building is surrounded by several urban transformation areas that, according to the zoning plan, have four main scopes: road conditions, services, sports facilities and requalification works. In the interest sector it is possible to see the prevalence of service designated areas, with service facilities for the people and companies, residential, and innovation uses (Eurotorino - parco tecnologico).[27]

When speaking about Eurotorino - parco tecnologico, the PRG makes reference of an area destinated to a mix of uses, such as: research centers focused on scientific, technological and industrial activities; production and innovation activities: production of technological information and communication systems development; deposit and innovative research facilities; hospitality activities: hotels, touristic residences, and residences for students and elderly population; tertiary activities: public and private offices, administrative and finance centers; Expositive and congress activities and universities.[27]

[27] Direzione urbanistica e Territorio Citta' di Torino, "Piano Regolatore Generale Di Torino," Citta' Di Torino Geoportale E Governo Del Territorio (Torino: Area Urbanistica Citta' di Torino, December 31, 2020), http://geoportale.comune.torino.it/web/sites/default/files/mediafiles/01_nuea_volume_i_1_1.pdf.

LAND USE ACCORDING TO THE URBAN REGOLATORY PLAN

PUBLIC ZONAL SERVICES

First, concerning the public zonal services it is possible to count with 24 primary schools, 17 common interest facilities complemented by public parks with playgrounds and sports destinations, parking lots and a local market; second, and referring to social services and general interest facilities, in the zone there are 2 high schools, 6 technological installation facilities and 3 social, sanitary and hospital infrastructures.

PRIVATE SERVICES

On the other hand, there are a total of 10 areas dedicated to private services regarding instruction services, social and welfare installations, collective residences, sanitary, sports and cultural facilities.

EXISTING NORMATIVE AREAS

RESIDENTIAL AREAS

In terms of the existing normative areas, as we can see in the chart, we have two main categories of residential areas considering their land use: first, referring to the category comprehended by R1, R2 and R3, their land use allows commercial activities such as public establishments, services, and public and private offices authorized in the basement, ground, and first floor, this the last one with the possibility of settling professional studios activities. On the second category, R6 and R7, in which the residential buildings are inserted in an environmental context characterized by the presence of gardens and green areas, only residential and public establishments are allowed on the ground floor.

MIXED USE

On the other hand, there are two types of mixed use areas: the first one, M1, are mixed use blocks with predominantly residential use: this means that commercial activities, public establishments, bank agencies and productive and research innovative activities can be placed in the basement, ground floor and first floor. From the first floor in advance it is possible to develop professional studio activities. The second mixed use area, MP, is the normative area that belongs to the case study building, considering it a building complex with mixed productive destinations as service and production craftsmanship, research activities educational, commercial and cultural services, and general interest facilities. All of the functions mentioned before are allowed even in the presence of residential activities, and new constructions can be developed if the functions of the area comprehend professional studios, banks, and residences. Regarding the tertiary areas, their programmed use comprehends exposition and congress activities and touristic residences, such as hotels and hostels, also admitting residential use.

PARTICULAR HISTORIC INTEREST BUILDINGS

In addition, in the zone there is the presence of four types of buildings of particular historical interest with the categories 1 to 4: buildings of great prestige, buildings with a relevant historical value, buildings with an historical and environmental value, and buildings with a documentary value.[28]

[28] Direzione urbanistica e Territorio Citta' di Torino, "Piano Regolatore Generale Di Torino,"

LEGEND

Normative zones

- Mixed residential consolidated urban areas
- 1.35 — 1,35 mq SLP/mq SF
- 1.00 — 1,00 mq SLP/mq SF
- TE a — Tertiary activities services (letter corresponding to the classification)
- 1.1 — Urban transformation areas
- Circulation areas
- Services
- Sports facilities
- Requalification
- Residential
- Tertiary activities and service facilities
- Residential - Tertiary activities
- Productive activities
- General interest facilities (Universities)
- Hospitality activities
- Large-scale commerce distributions
- Eurotorino - tecnologic park

Normative areas

- Residential R1
- Residential R2
- Residential R3
- Residential R6
- Residential R7
- Mixed M1
- Mixed MP
- Circulation area VI existent
- Circulation area VI in project
- Circulation area VI in project: underground circulation
- Area for railway facilities

Buildings of historical interest

- Buildings of particular historical interest

1. Highly prestigious buildings
2. Buildings of significant historical value
3. Buildings of historical and environmental value
4. Buildings of documentary value
5. Special buildings and artefacts of documentary value

- Historical pertinence
- Buildings characterizing the historical fabric

Another prescriptions

- Dividing
- Unitary project of public soil
- Pedestrian routes
- Bridge stations

Areas by services

Public services S

Zonal services (art.21 LUR)

- i — Inferior instruction
- a — Common interest facilities
- v — Public spaces: park, playground and sports
- p — Parking lots
- am — Market and public commercial centers

Social services and general interest facilities (art. 22 LUR)

- s — Superior instruction
- h — Social, sanitary and hospital facilities
- v — Urban and zonal public parks

Another general interest facilities

- t — Technological equipment and facilities
- z — Other general interest facilities

Private services SP

- a — Services for the instruction, social and assistential facilities, collective residences, sanitary, cultural and sports activities
- 1.a — **Services transformation areas**
- Circulation
- Services
- Residential
- Services for the people and companies
- Eurotorino - Technological park

Fig.57_*Legend Urban Regolatory plan.* Source: http://geoportale.comune.torino.it/web/sites/default/files/mediafiles/prg_1bis_legenda_5000.pdf

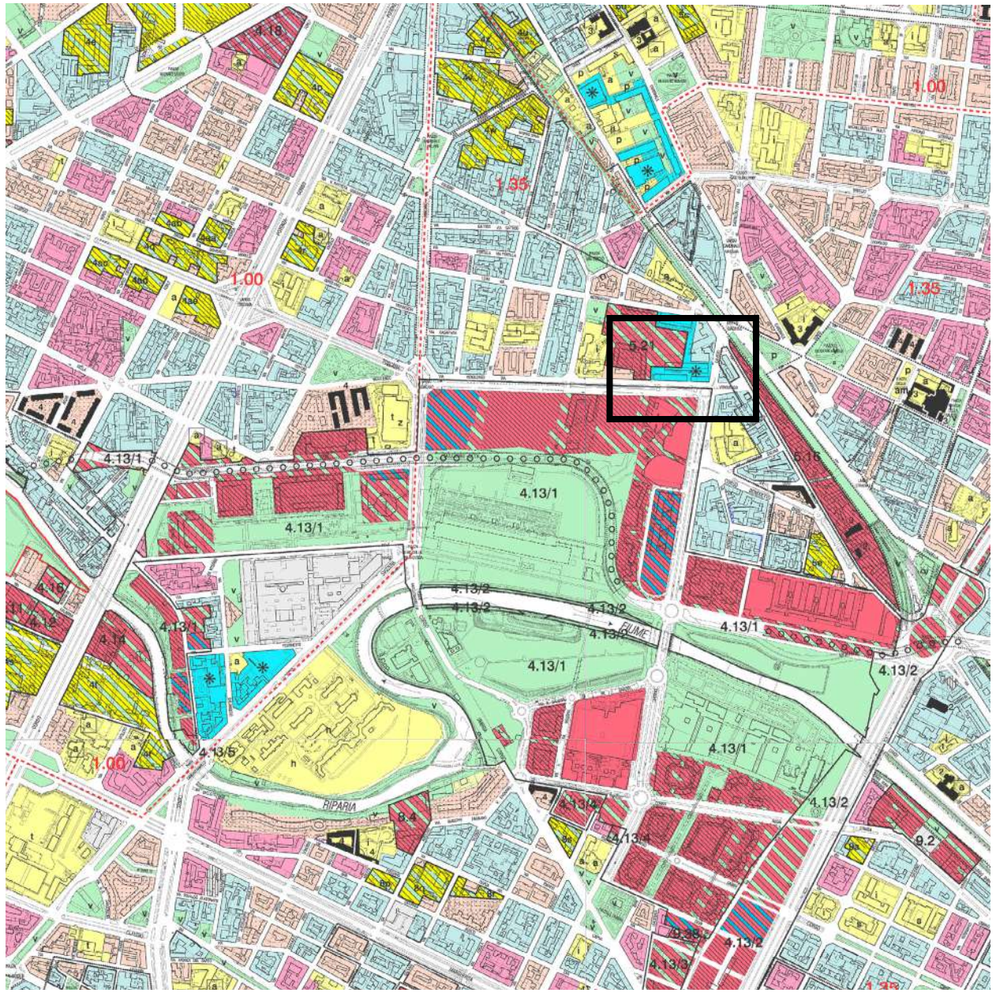


Fig.57_*Land use.* Source: Geoportale Comune di Torino. PRG Fogli 1:5000. Citta' di Torino Nuovo Piano Regolatore Generale. Azzonamento / Aree normative e destinazione d'uso. Fogli 5A, 4B, 8B,9A

As a conclusion, it is possible to say that the urban area where the case study building is located belongs to one of the four main urban transformation areas in the city of Turin. The zone is already provided with residential areas and public and private services facilities with an special focus on the educational sector, on the other hand, the presence of Parco Dora, one of the main interventions in the spina 3 plan, defines the urban transformation areas which are mainly the buildings and blocks that are adjacent to it, developing a mix of new uses with the scope of creating a new creative district, balancing the residential existing functions with new technological and innovative areas with a public use destination. The proposed use for the building of the Ex Superga factory, being located in between the urban transformation areas, should be allowed to provide services to the people that will work and live in these zones according to their different needs, and to respond in a positive way to its dynamic context.

LAND USE ACCORDING TO THE PRG

URBAN PLANNING DATA

The Lot has been the focus of the "SUPERGA" Urban Redevelopment Program, proposed to redevelop the industrial area near the "SPINA 3" transformation zone, between Via Verolengo, Via Assisi, Via Luini, and Via Orvieto. The plan was approved on May 15, 1998, adopted on July 23, 1998, and published on August 5, 1998. It was later modified with a new Program Agreement on June 27, 2001, ratified on July 24, 2001.[29]

The City Administration saw an opportunity to acquire the property at Via Verolengo No. 28 for public services, addressing a shortage in the area. Located in District 5 and near "Spina 3," the site is designated for Public Services in the PRIU "Superga" plan[29]. According to the urban plan and acoustic zoning regulations , the activities included in the following groups are considered compatible:

GROUP 1
i. Areas for primary education
s. Areas for higher education
a. Areas for facilities of common interest
e. Areas for collective residences

GROUP 2
u. University education areas
cr. Areas for research centers

GROUP 3
u. University education
e. Areas for collective residences

GROUP 4
f. Areas for public offices
z. Areas for other facilities of general interest

In accordance with Article 8, paragraph 65 bis, and subject to compliance with higher-level plans and acoustic zoning, the following activities are considered compatible, provided they involve the construction of works by the municipality or public companies and entities on properties they own[29]. These activities must fall within the following service groups:

ZONAL AND MUNICIPAL SERVICES
i. Areas for primary education
a. Areas for facilities of common interest
v. Areas for public parks for play and sports
p. Areas for parking (including multi-story and underground structures)

SOCIAL SERVICES AND FACILITIES OF GENERAL INTEREST (OPTION 1)
s. Areas for higher education
h. Areas for social and hospital healthcare facilities
v. Areas for urban and regional public parks

SOCIAL SERVICES AND FACILITIES OF GENERAL INTEREST (OPTION 2)
u. University education
cr. Areas for research centers
e. Areas for collective residences
f. Areas for public offices
z. Areas for other facilities of general interest
o. Facilities for entertainment: cinemas, theaters, etc.

[29] Citta' di Torino Servizio Telematico Pubblico "Lotto Unico - Compendio sito in Torino, Via Verolengo n.28," accessed July 7, 2024.

CONCLUSIONS - CREATION OF A COWORKING SPACE

The area is well-served with primary education facilities, so there is no need to add more. Despite the presence of students, the building complex is not close to the universities, making it unsuitable for student residences. Creating a university is also not an option, as the area lacks a metro station and is not close to existing universities, making mobility more effective on a local-zonal scale than on an urban scale. Additionally, the area already has sufficient hospital and healthcare facilities. Given the high number of working-age residents and diverse employment types, the proposal will focus on providing a coworking space, which is considered a facility of common interest. There is a growing demand for spaces that support both traditional and new forms of work, and the evolving employment landscape requires adaptive infrastructure to meet the needs of a diverse workforce. Creating a coworking space in the area is a good idea for several reasons. The area has a high number of working-age residents and diverse employment types, indicating a strong demand for flexible workspaces, it benefits a wide range of people, from freelancers and entrepreneurs to small businesses and remote workers. It can provide the infrastructure needed for various work styles, from collaborative projects to independent tasks, and can be easily adjusted to meet the changing needs of a diverse workforce, offering different types of work environments and amenities. Coworking spaces foster a sense of community and collaboration, leading to increased innovation and business growth within the area. By attracting freelancers, startups, and small businesses, a coworking space can contribute to the economic growth and vibrancy of the area. Given the area's limited need for additional educational or healthcare facilities, a coworking space is a practical and efficient use of available real estate.

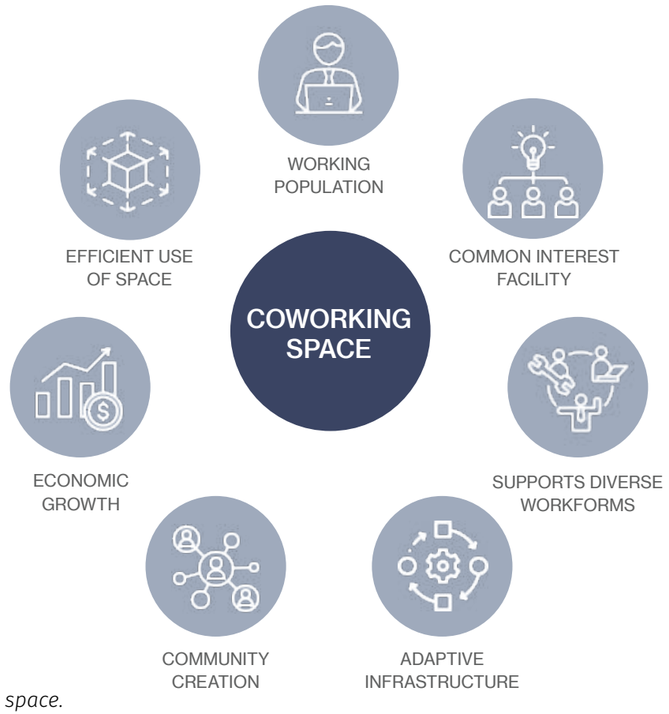


Fig.57_*Coworking space.*

URBAN ANALYSIS

Following the definition of a new function that better suits the building complex, considering the population profile and adhering to the Urban Regulatory Plan, a comprehensive urban analysis was conducted on two scales to provide detailed insights for its implementation.

The first part involved a city-scale analysis, focusing on the area's accessibility from various parts of the city and the presence and availability of other coworking spaces. The second part concentrated on the blocks surrounding the building complex, examining their accessibility, green spaces, building heights, and compatible functions. By adhering to the Urban Regulatory Plan, it guarantees compliance with local regulations, promoting sustainable and orderly development. On a city scale, understanding accessibility and the availability of similar functions helps identify gaps and opportunities, ensuring integration within the broader urban context, leading to improved connectivity, resource allocation, and user convenience. Focusing on the immediate vicinity allows for a detailed examination of local factors, fostering a harmonious and functional environment that addresses specific community needs.

MOBILITY AND PUBLIC TRANSPORT

The former Superga factory building is located in the northwestern part of the city, 2 kilometers from the nearest metro station (a 30-minute walk). It is well-connected by public buses and has direct transport links to Porta Susa and Porta Nuova train stations, the city center, and other areas outside the city. Despite the metro station's distance being a minor inconvenience, the excellent bus connections and access to major train stations and the city center make the location strategically advantageous.

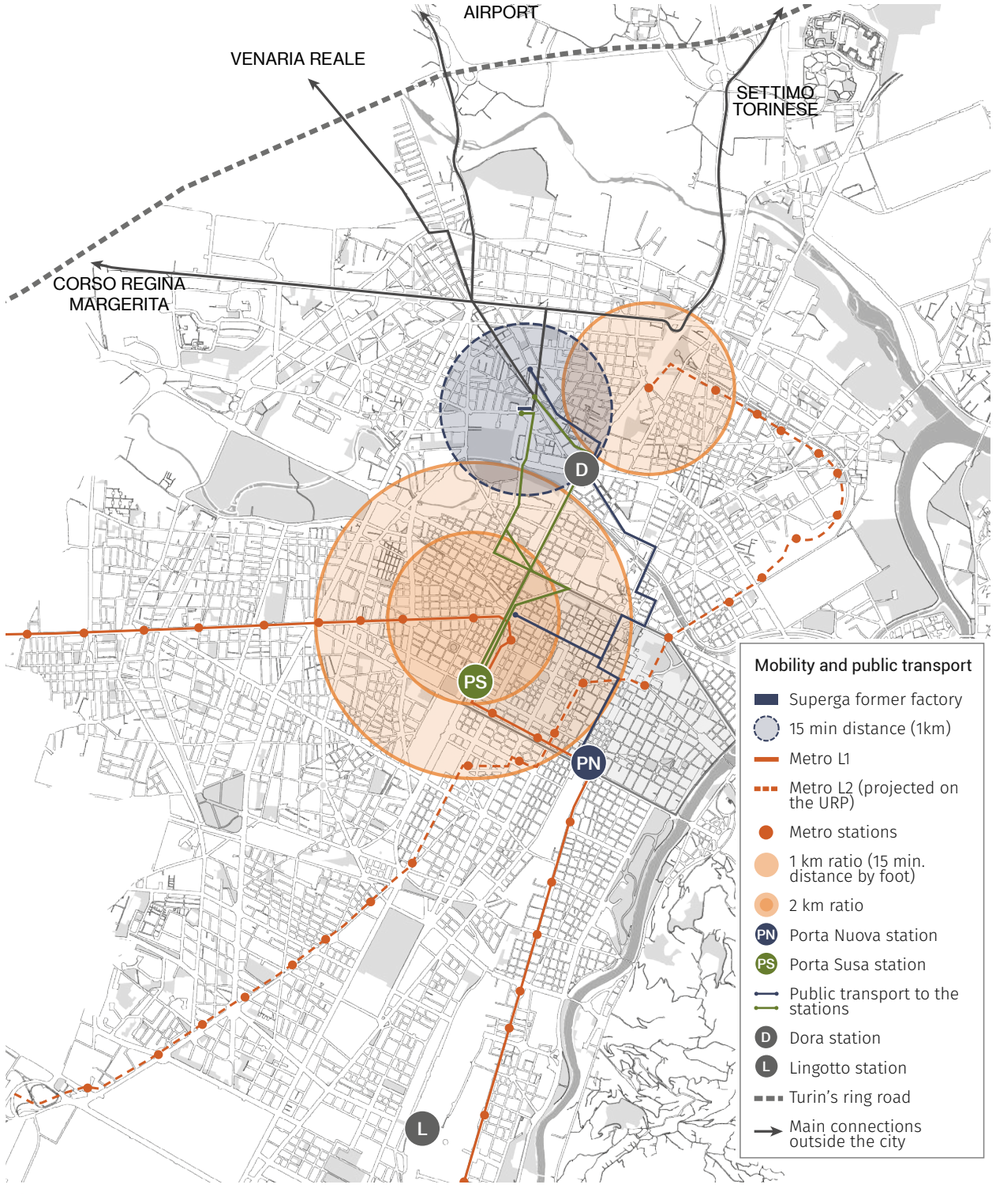


Fig.58_*Urban mobility.*

COWORKING FACILITIES

As illustrated in the following image, Turin hosts 42 coworking spaces. These spaces are unevenly distributed, with a majority concentrated in the city center and along the Po River. Furthermore, there is a significant presence of coworking spaces in the northeastern and western zones of the city. Notably, half of the mixed-function coworking spaces are situated near the former Superga factory area.

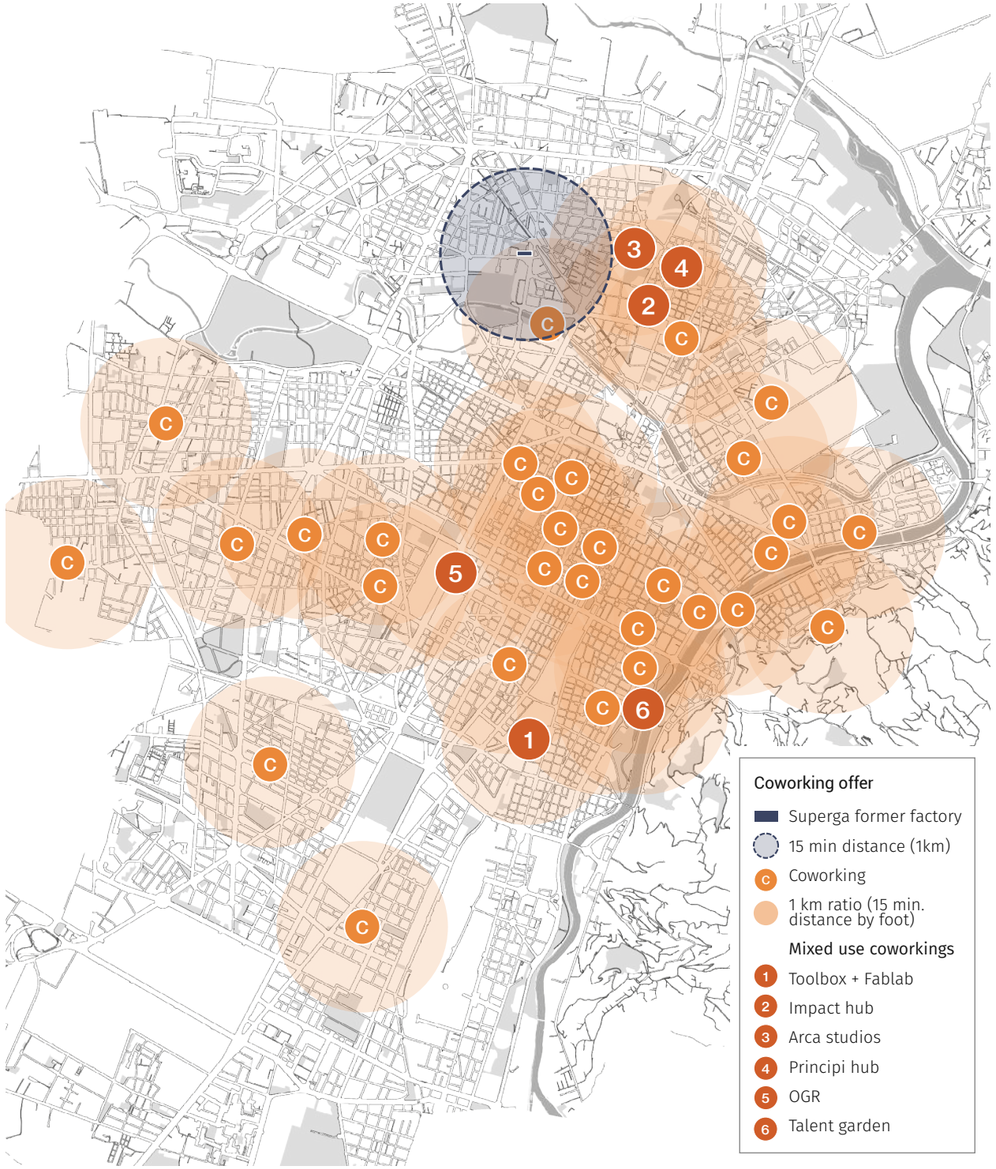


Fig.59_*Coworking facilities in Turin.*

MIXED USE COWORKING FACILITIES

These types of coworking spaces offer a variety of internal amenities such as cafeterias, restaurants, kitchen areas, and relaxation spaces. They are more comprehensive and complex because they are integrated into buildings or complexes that house a mix of complementary activities. This integration helps define the user profile, enhancing the overall experience, meeting service demands, and fostering community creation.

1
TOOLBOX AND FABLAB

Toolbox is a hybrid coworking space in an early 20th-century industrial building, serving students, freelancers, startups, and innovation entities. It has grown into a community of 800 members occupying the entire complex[30]. Fablab Torino, a cultural association, digital fabrication lab, and makerspace, is permanently housed within Toolbox Coworking.[31]

2
IMPACT HUB TORINO

Part of the INCET (Industria Nazionale Cavi Elettrici Torino) former factory facilities, this building complex has been redeveloped since 2009.[32]
The program includes an area for a multifunctional center offering integrated services for the community, a space for youth entrepreneurship, and a venue for events and concerts.[33]

3
ARCA STUDIOS

Located in Docks Dora complex, built in 1912, they served as warehouses for goods arriving in the city, they were transformed in 1990 into venues, maintaining the same appearance, hosting a center of culture and entertainment.[34]
Arca Studios is a coworking space tailored for creatives, featuring shooting and filming facilities. It provides 40 m² of rental spaces for professionals, productions, and agencies to create video and photographic sets of various sizes. The locations are flexible and well-equipped for developing complex scenographies and soundtrack productions.[35]

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[30] Open House Torino, “Toolbox - Da Una Scatola Vuota, Uno Spazio Strumento Di Collaborazione,” accessed July 27, 2024. https://www.openhousetorino.it/edifici/toolbox/.

[31] Associazione Fablab Torino, “Fablab Torino | History,” accessed July 27, 2024. https://fablabtorino.org/history.

[32] Torino Giovani, “Ex Fabbrica Incet,” Citta’ di Torino - TorinoGiovani, accesed July 25, 2022, http://www.comune.torino.it/torinogiovani/luoghi/ex-fabbrica-incet.

[33] Impact Hub S.r.l. SB, “Tutti Gli Spazi Di Impact Hub Torino,” TorinoGiovani, accesed July 25, 2024. https://torino.impacthub.net/spazi-coworking-torino/.

[34] Fondo per L’ambiente Italiano, “Docks Dora via VALPRATO 68 | I Luoghi Del Cuore - FAI,” fondoambiente.it (Fondo per L’ambiente Italiano), accessed July 27, 2024, https://fondoambiente.it/luoghi/docks-dora-via-valprato-68?ldc&_x_tr_hist=true.

[35] Arca Studios. “STUDIO A.” Accessed July 27, 2024. https://arcastudios.it/spazio/noleggio-sala-pose-tori-

4
PRINCIPI HUB

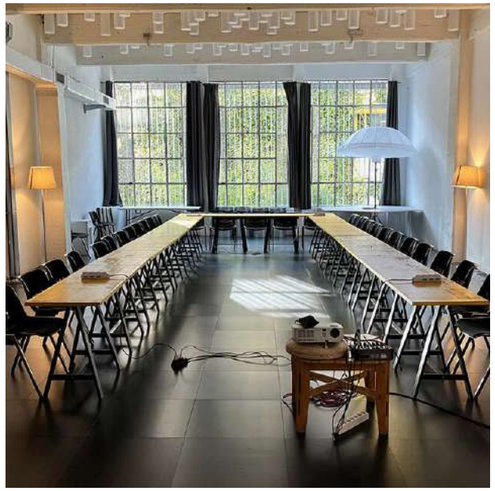
The Principi Hub coworking space, operated by the Principi ADV communication and publicity company, offers a specialized environment for professionals in communication and interior design. It promotes collaboration and creativity among its members.
Situated in a complex with an art gallery, the MEF museum, cultural associations, architecture studios, and event facilities, the hub provides an enriched professional and cultural experience.[36]

5
OGR

The Officine Grandi Riparazioni (OGR) are one of the city's most significant examples of 19th-century industrial architecture. Originally used for railway vehicle maintenance until the early 1990s, they cover 35,000 square meters.[37]
Revitalized by the Fondazione CRT, the new OGR building now hosts exhibitions, performances, concerts, theater and dance events, workshops, a coworking space for startups, and virtual reality experiences. They uniquely merge artistic and technological research, serving as workshops of culture, ideas, and innovation[38].

6
TALENT GARDEN

Talent Garden is part of the new Agnelli Foundation headquarters on Via Giacosa. Defined as a center dedicated to education, innovation, and innovative enterprises, it will host a space open to the city and schools, focusing on innovation, new enterprises, experimentation, and technology. In the renovated building; the Foundation will develop its research and educational programs, with activities in the fields of robotics, programming, science, and innovative manufacturing. Additionally, there will be a coworking and events space covering approximately 2,000 square meters for startups and innovative enterprises.[39]



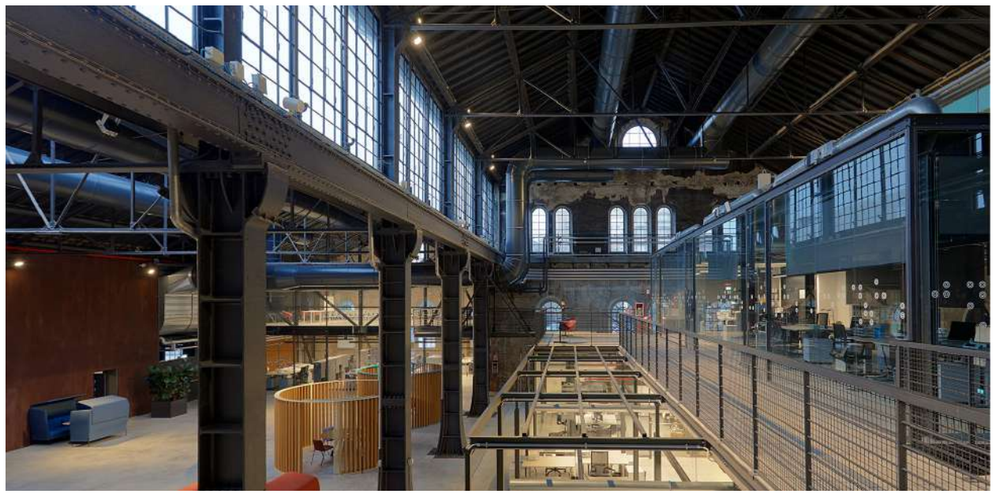


Fig.60_ *Toolbox coworking.* Source: https://toolboxcoworking.com/soluzioni-e-prezzi/spazi-per-eventi-e-meeting
Fig.61_ *EDIT Garden.* Source: https://www.scabdesign.com/index.php?route=opextensions/article&blogid=1189#gallery-1
Fig.62_ *Arca studios.* Source: https://arcastudios.it/spazio/noleggio-sala-pose-torino/
Fig.63_ *Principi hub.* Source: https://www.principihub.it/wp-content/uploads/2024/02/01-1-1536x1025.jpg
Fig.64_ *OGR coworking space.* Source: https://www.cappellidesign.com/es/news/nueva-sede-ogr-torino-design/

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no/.

[36] Principi Group, "Principi HUB - Spazio Coworking Torino," accessed July 27, 2024, https://www.principi-hub.it/.

[37] Building.it, "OGR: Il Progetto Architettonico," BU/LDING, March 6, 2017, accessed July 27, 2024, https://building.it/ogr-il-progetto-architettonico/.

[38] Zumaglini & Gallina , "OGR – Officine Grandi Riparazioni Risanamento Conservativo E Realizzazione Nuove Opere Edificio Ad H," Zumaglini & Gallina , accessed July 27, 2024, https://www.zumagliniegallina.it/portfolio_page/ogr-officine-grandi-riparazioni/.

[39] Talent Garden, "Talent Garden Fondazione Agnelli, Il nuovo centro per l'Innovazione a Torino," August 9, 2023, accessed July 27, 2024,

MOBILITY AND PUBLIC TRANSPORT

The building complex is located in the southeastern corner of the block, near the roundabout where Via Verolengo (east-west) intersects with Via Orvieto (north-south). These roads, along with Via Stradella, are key thoroughfares in the city's public transport system. The complex benefits from 9 bus stops within a 15-minute walk: 2 on Via Verolengo, 3 on Via Orvieto, and 4 on Via Stradella. Additionally, bike lanes on these main roads enhance connectivity and accessibility. Despite being near major roads, the presence of bike lanes and vegetation makes pedestrian access convenient and pleasant.

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Fig.65_ *Via Verolengo.* Source: Google Earth

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Fig.66_ *Via Orvieto.* Source: Google Maps.

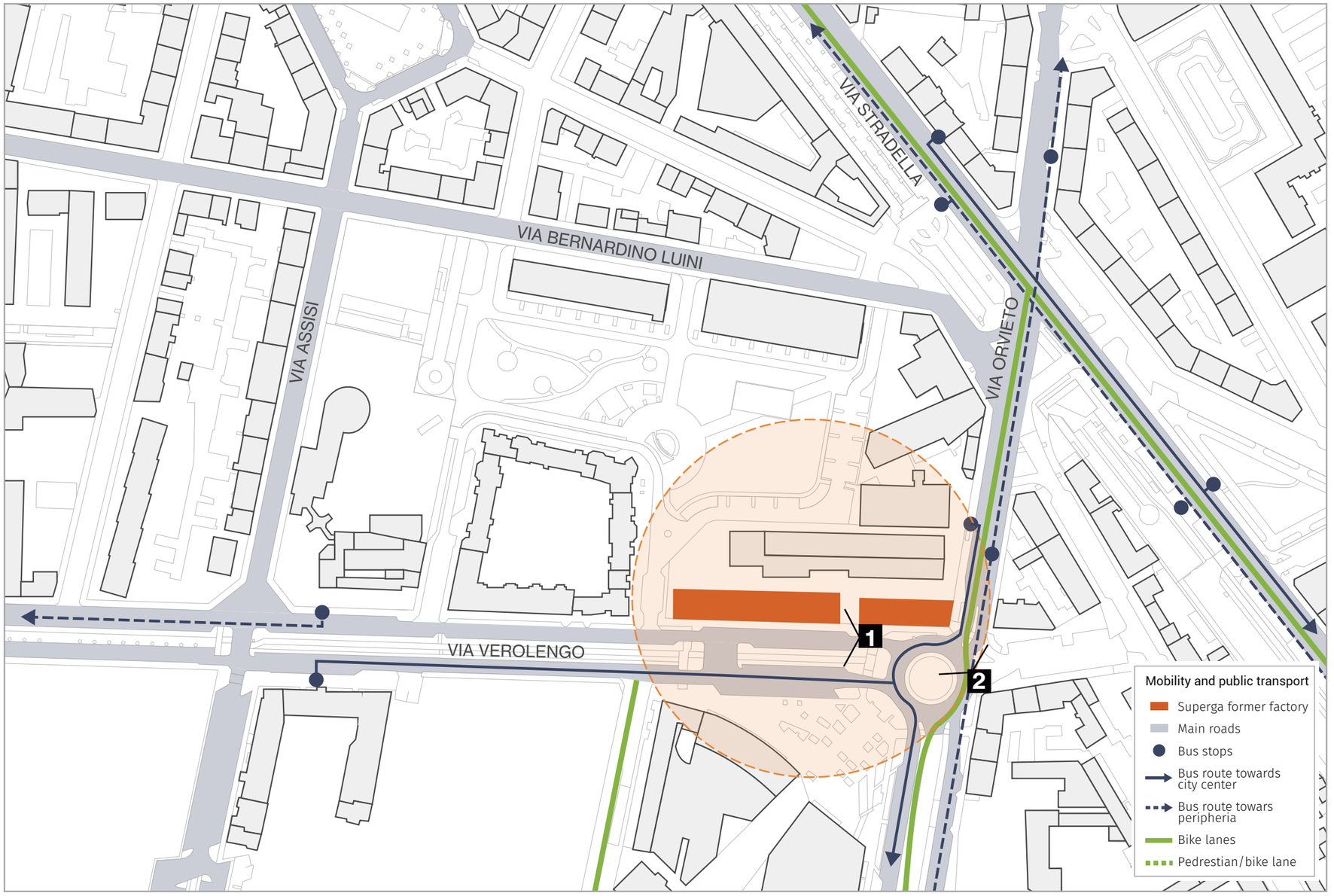


Fig.67_ *Mobility and public transport.*

PARKS AND GREEN AREAS

The building area features small public parks and gardens, abundant with greenery and vegetation. Additionally, there are two plazas nearby: one across Via Verolengo, serving as an entrance plaza for the buildings included in the renovation plan, and the other, Piazza Luigi Matarolo, located in the adjacent blocks to the northeast. Notably, there is a park adjacent to the building blocks, named in 2015 as the *Giardino Operaie della fabbrica superga,* dedicated to the memory of the women workers of the Superga Factory and serving as a tribute from the city to their contributions.

In conclusion, the building area is enriched by its proximity to green spaces and plazas, offering residents both recreational and historical value, making it a well-rounded and appealing environment.

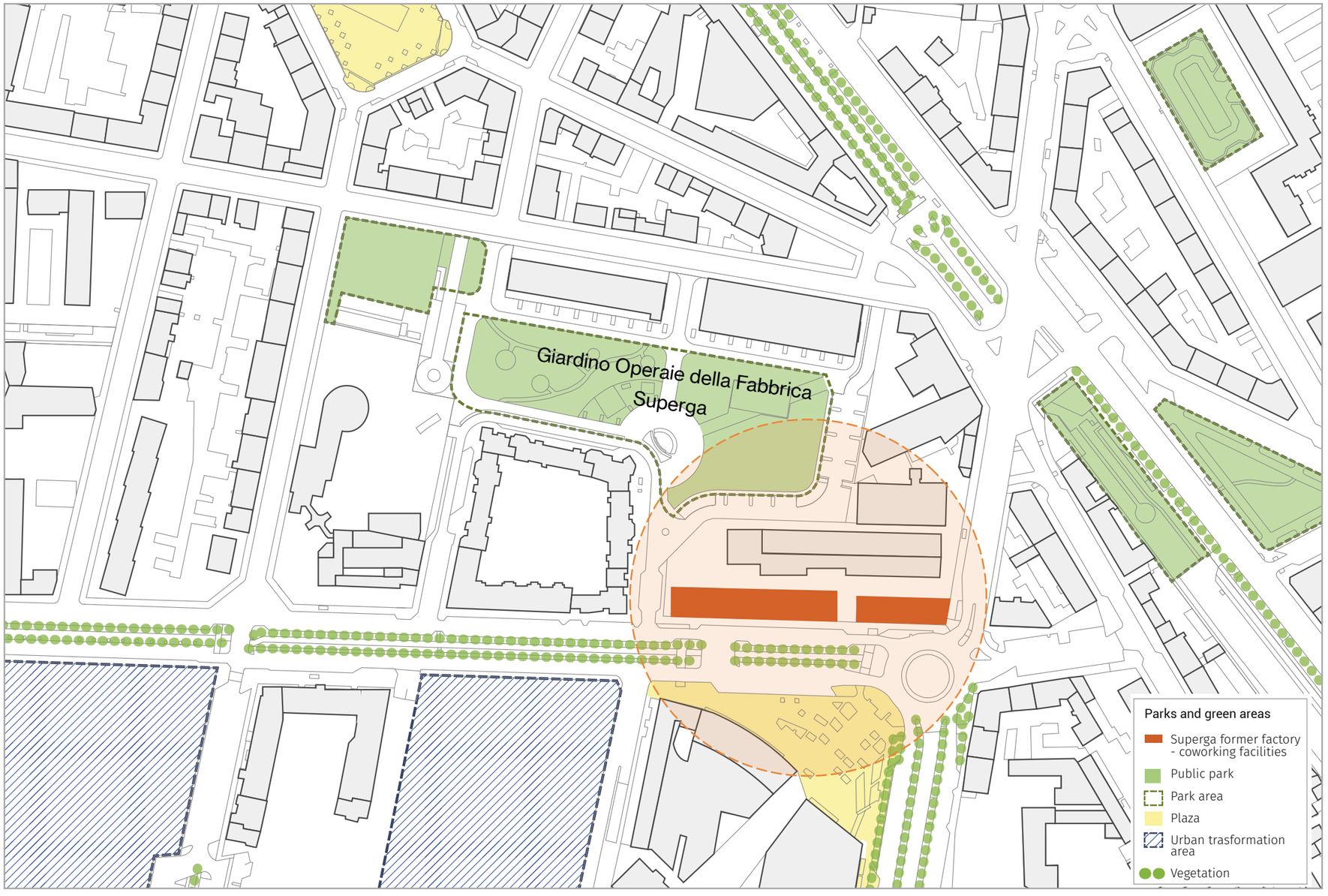


Fig.68_ *Parks and green areas.*

BUILDING HEIGHTS

The buildings in the area vary significantly in height, contributing to a dense urban landscape. Those facing Via Orvieto are notably lower compared to others, while buildings along Via Verolengo range from over ten floors to just two floors, with the lower ones situated on the north side. Adjacent to the Superga Garden, the buildings are substantially taller, typically six floors or more. This variation in building heights characterizes the area as densely populated with high-rise structures.

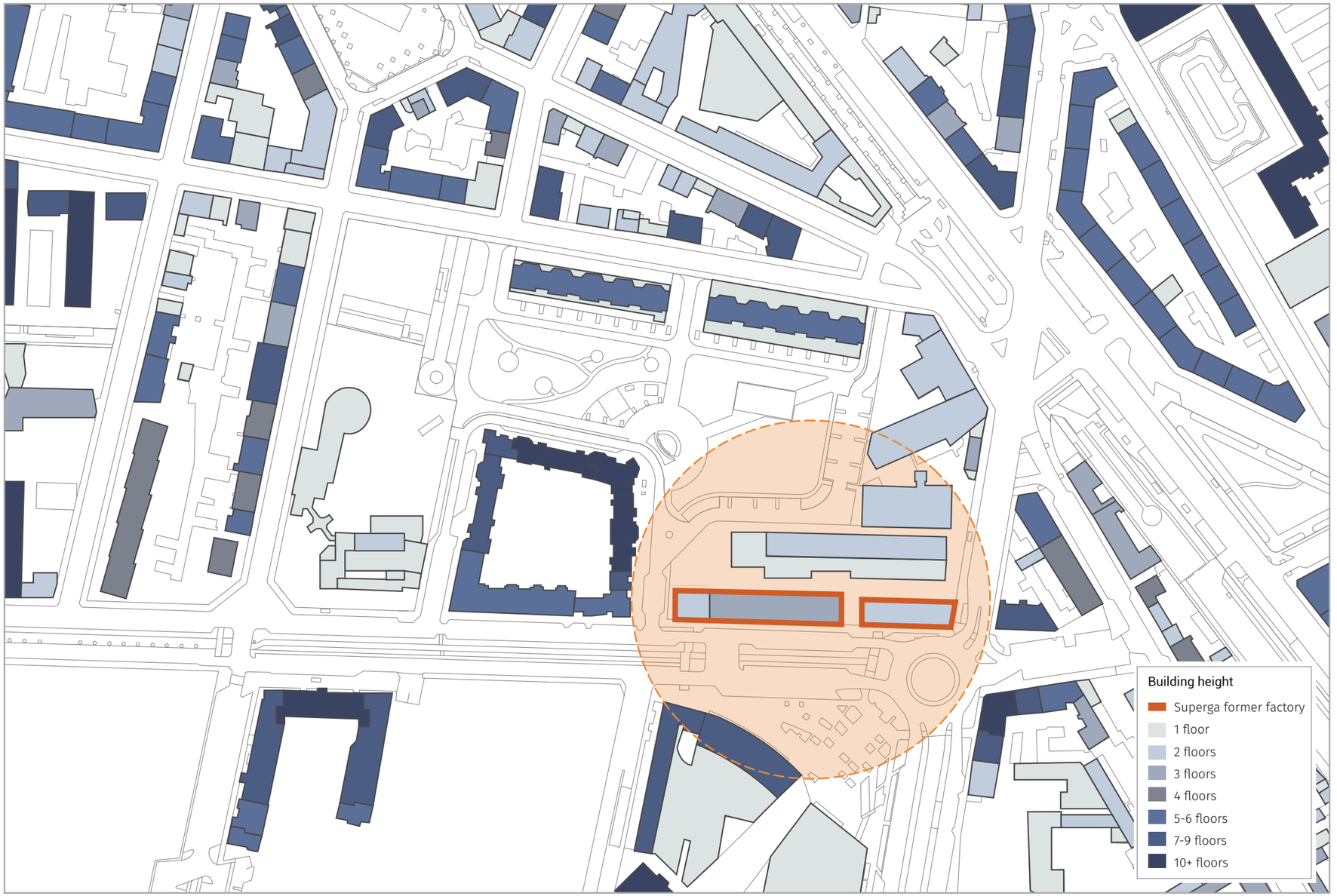


Fig.69_ *Building heights.*

COMPATIBLE FUNCTIONS

Creating a coworking space in this area is a great idea due to its numerous advantages. The map indicates several compatible uses that can support a coworking function. The area is well-served by a robust infrastructure, featuring numerous community and healthcare facilities, which ensure convenience and accessibility for professionals.

Additionally, the presence of a nursery originally designed for the factory's working women and an elementary school on the west side makes the area family-friendly, catering to working parents. The proximity of two malls and a nearby hotel can attract more people to the coworking space, offering convenient spots for breaks, meetings, and networking events.

The high concentration of mixed-use buildings that combine residential and office spaces further enhances the area's suitability for coworking. This diverse range of amenities and services can attract a steady flow of people, fostering a vibrant and dynamic coworking environment.

In conclusion, the area's robust infrastructure, family-friendly amenities, and high concentration of mixed-use buildings make it highly compatible with and supportive of a coworking function. This combination creates an ideal setting for a productive and vibrant coworking space.

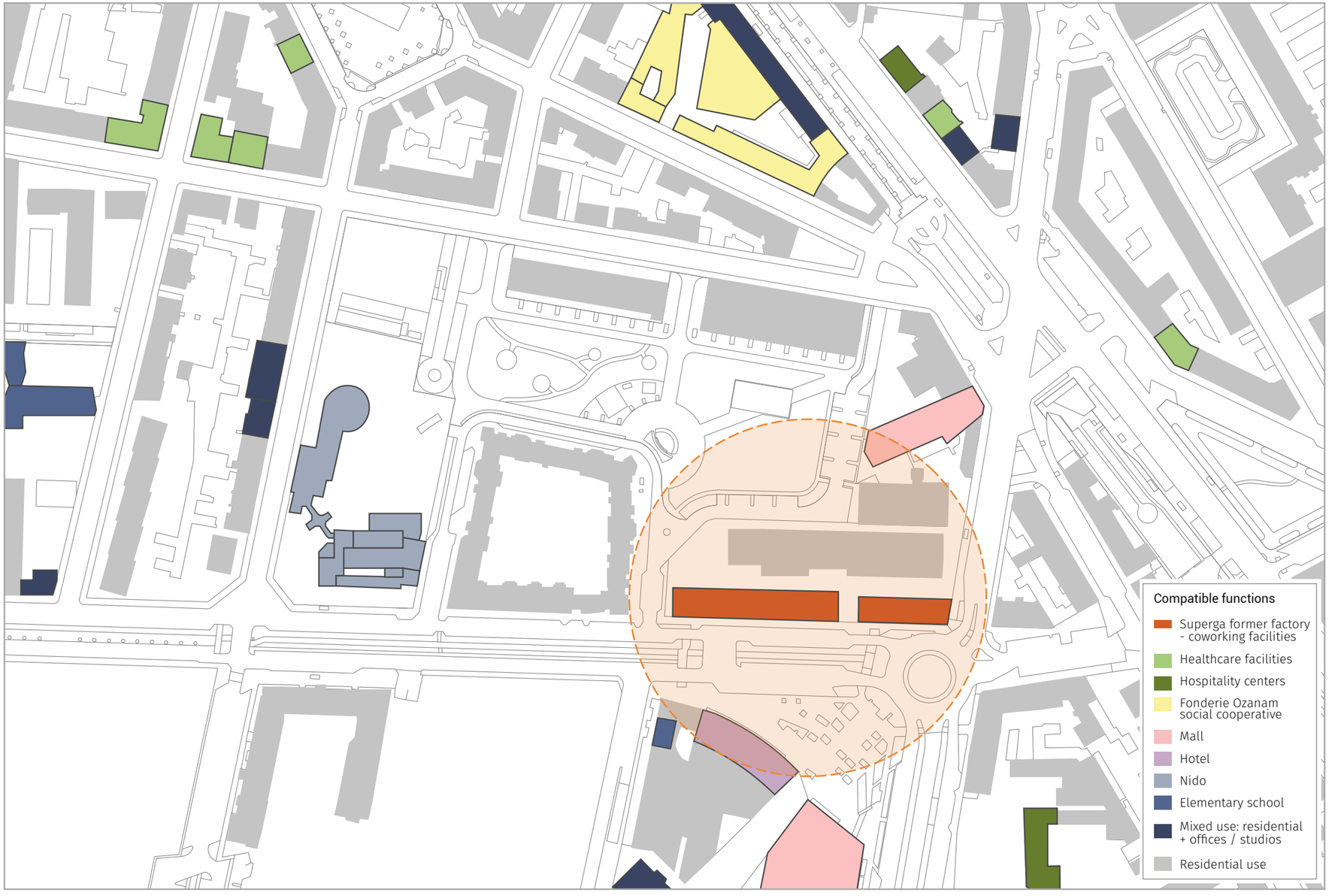


Fig.70_ *Compatible functions.*

COMPATIBLE FUNCTIONS - OZANAM FOUNDRIES

The Ozanam Foundries, located in Via Foligno 14,is a non-profit social cooperative based in Turin, Italy. Since its establishment in 1988, it has been actively involved in the catering industry. The primary mission of the cooperative is to provide training and employment opportunities for young people who come from challenging backgrounds. Over the years, Ozanam Foundries has managed various venues and conducted numerous catering operations. The cooperative emphasizes social inclusion, focusing on integrating disadvantaged youth into the workforce, particularly in the restaurant industry. Many of the cooperative's current worker members were initially trained through its programs, reflecting the organization's commitment to fostering personal and professional growth among its beneficiaries.[40]

THE HISTORY OF THE FOUNDRIES

The Ozanam Foundries, originally named Meeting Service, is a social cooperative in Turin that has been operating since 1988. It was founded by middle school teachers to help at-risk youths from disadvantaged areas, such as Vallette, by offering professional cooking and service courses. The cooperative's goal was to integrate these youths into the workforce through practical, on-the-job training. Over time, it expanded its activities to include catering, which provided financial support and real-world work experience for participants. The cooperative grew to accommodate long-term unemployed individuals, disabled people, and psychiatric patients, helping them learn trades and find employment. Today, it collaborates with a network of ethical restaurants and establishments that offer job opportunities to its trainees.[40]

THE PROJECTS

ORTOALTO

The Ortoalto project, initiated by the non-profit association OrtiAlti, transforms unused tar roofs into rooftop gardens. Implemented on the roof of the Ozanam Foundries' restaurant, this garden grows fresh vegetables, herbs, and spices for the restaurant's use and serves as a social space for the neighborhood. The project provides therapeutic benefits for participants, reduces the restaurant's energy consumption, and improves environmental quality, addressing the severe air pollution in Turin.[40]

URBAN BEEKEEPING

The urban beekeeping project at the Ozanam Foundries maintains three rooftop beehives housing over 100,000 bees, producing over 100 kg of honey annually. This project transforms the roof into a vibrant community space, fostering engagement, interaction, and participation in beekeeping activities. It supports local biodiversity and honey production while promoting socialization and intergenerational bonding within the neighborhood.[40]

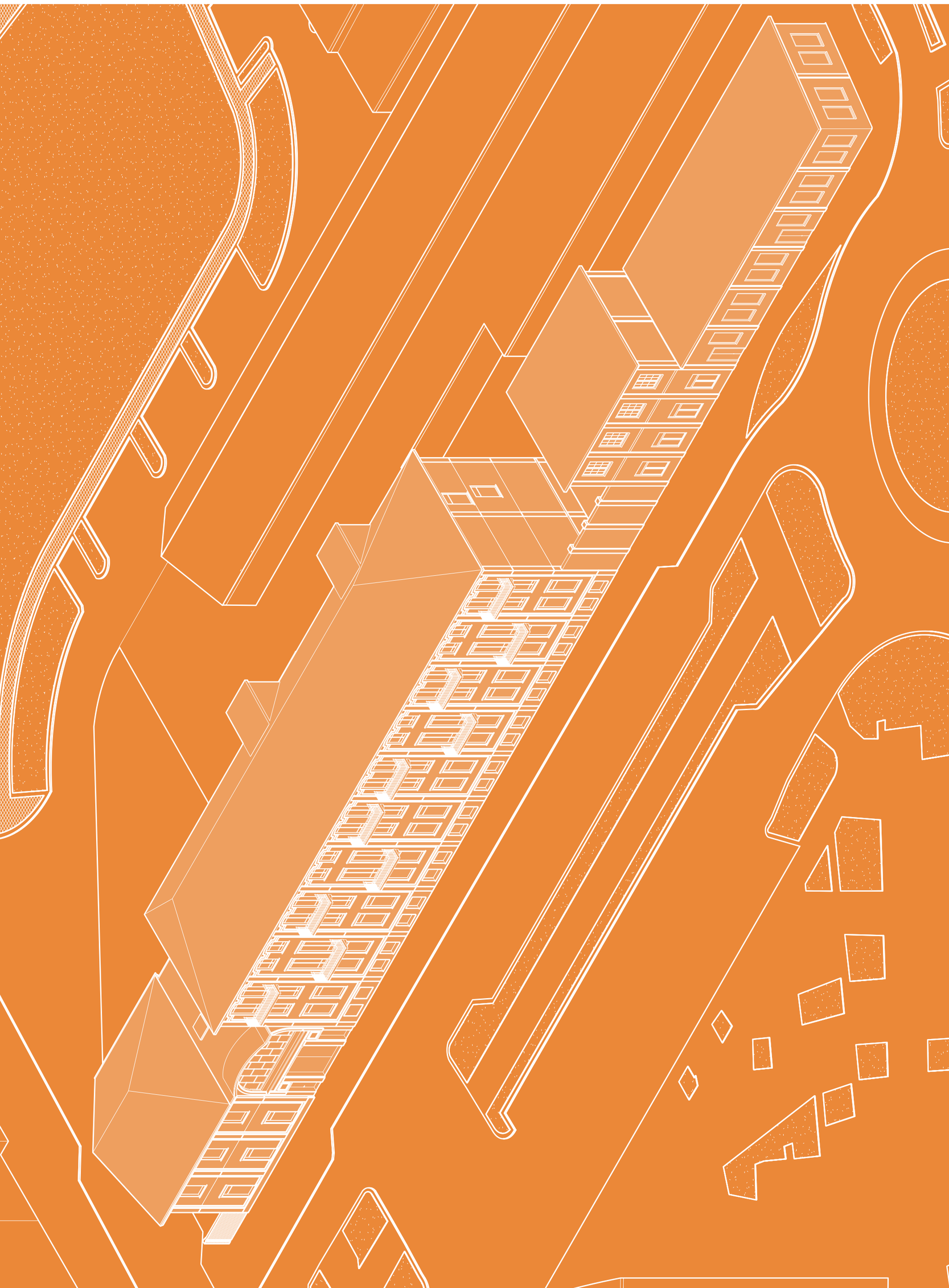
THE "INVASI" PROJECT

The InVasi project by Ozanam Foundries combats food waste and promotes inclusivity by transforming unsold market produce into preserved products like jams and traditional dishes. It involves cooking classes for young people from different countries, allowing them to prepare and share their cultural dishes. The project's name playfully references the phrase "we are invaded," highlighting the positive "invasion" of diverse flavors. The products are distributed to needy families and sold to fund cooperative activities, embodying a circular economy and fostering cultural exchange and inclusivity. It is possible to conclude that, the Ozanam Foundries focus on inclusivity and social impact through cooking and service courses that help individuals find employment and rediscover themselves. Their Youth&Food initiative, in partnership with Slow Food, successfully trains and integrates unaccompanied foreign minors into the workforce, with a 70% employment rate for participants. Despite financial challenges from the pandemic, the cooperative remains resilient and dedicated, offering hope, rebirth, and redemption to many. Their ongoing efforts continue to create meaningful connections and lasting social change.[40]

Fig.71_ *Ortoalto project.* Source: https://www.ilgiornaledelcibo.it/fonderie-ozanam/

[40] Rossi, Alessia "Piu' di un ristorante solidale: Tutto il buono che c'e dietro alle fonderie Ozanam Torino" Il Giornale del Cibo, March 26, 2024, https://www.ilgiornaledelcibo.it/fonderie-ozanam/.

PART 3
ANALYSIS OF THE BUILDING



BUILDING COMPLEX CONSOLIDATION

The consolidation of the Superga building complex occurred in several phases, beginning in 1903 when the Walter Martiny Company acquired the initial portion of the lot[41], which already contained some existing buildings. Subsequently, the lot and buildings were expanded at various times to accommodate the company's growth, providing workers with additional infrastructure and complementary services as needed.
The expansion continued into an adjacent block, for the creation of complementary welfare and service buildings in 1938.

Following this period, the company experienced decline due to external political, social, and economic factors stemming from World War I and subsequent economic crises. This led to a progressive abandonment of the complex, with some buildings left vacant, others demolished, and repurposed in line with the city's Urban Regulatory Plan with the objective of revitalizing the area.[41] The few remaining buildings today are included in this plan, having been designated cultural assets by regional authorities[42] for their potential reuse and functionalization, due to their strategic location and cultural architectural value.

[41] Museo Torino "Ex Stabilimento della Superga" accessed July 26, 2024.

[42] Ministero della Cultura, "Palazzine e strutture produttive Ex Fabbrica Superga"

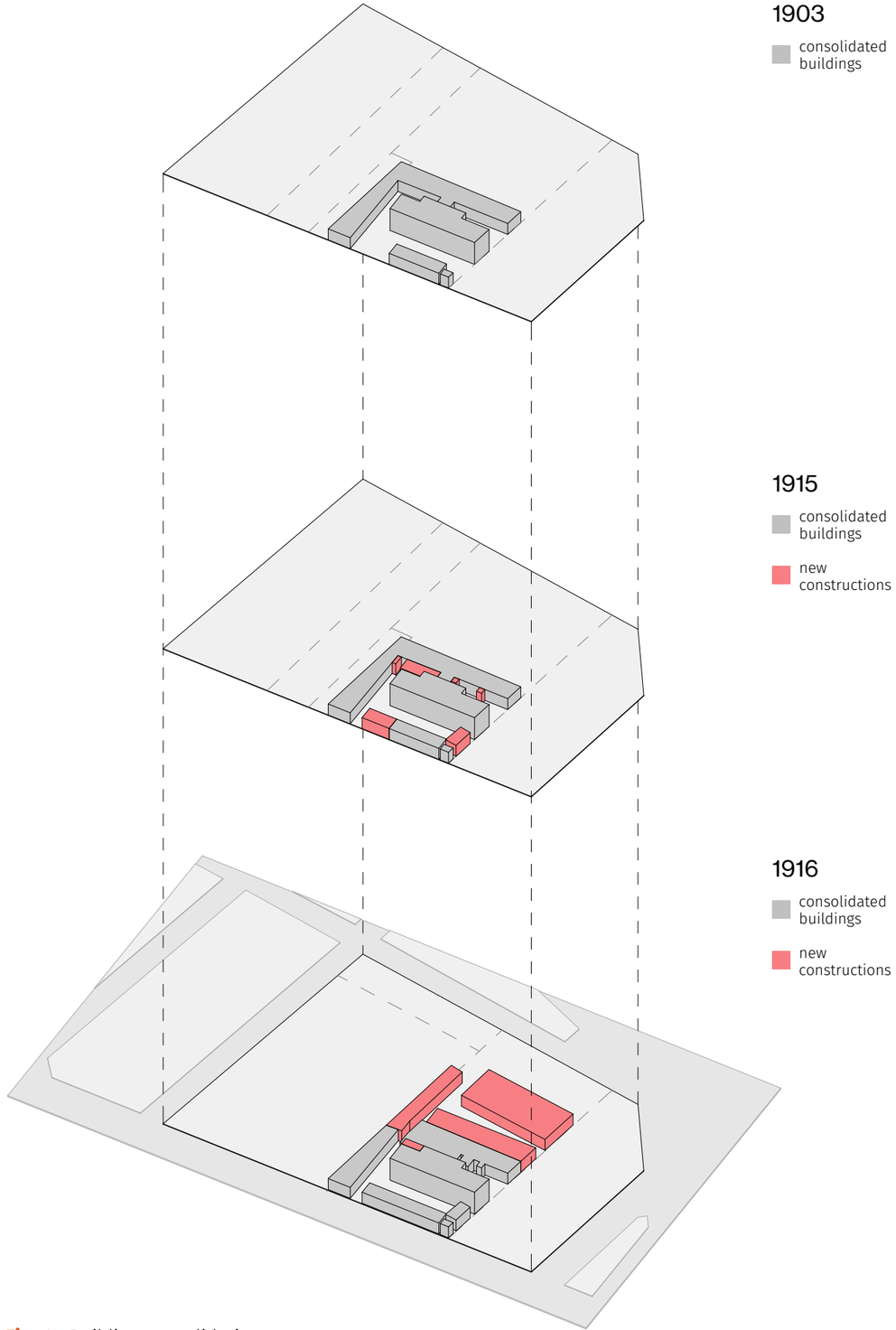


Fig.72_ *Building consolidation 1903 - 1916.*

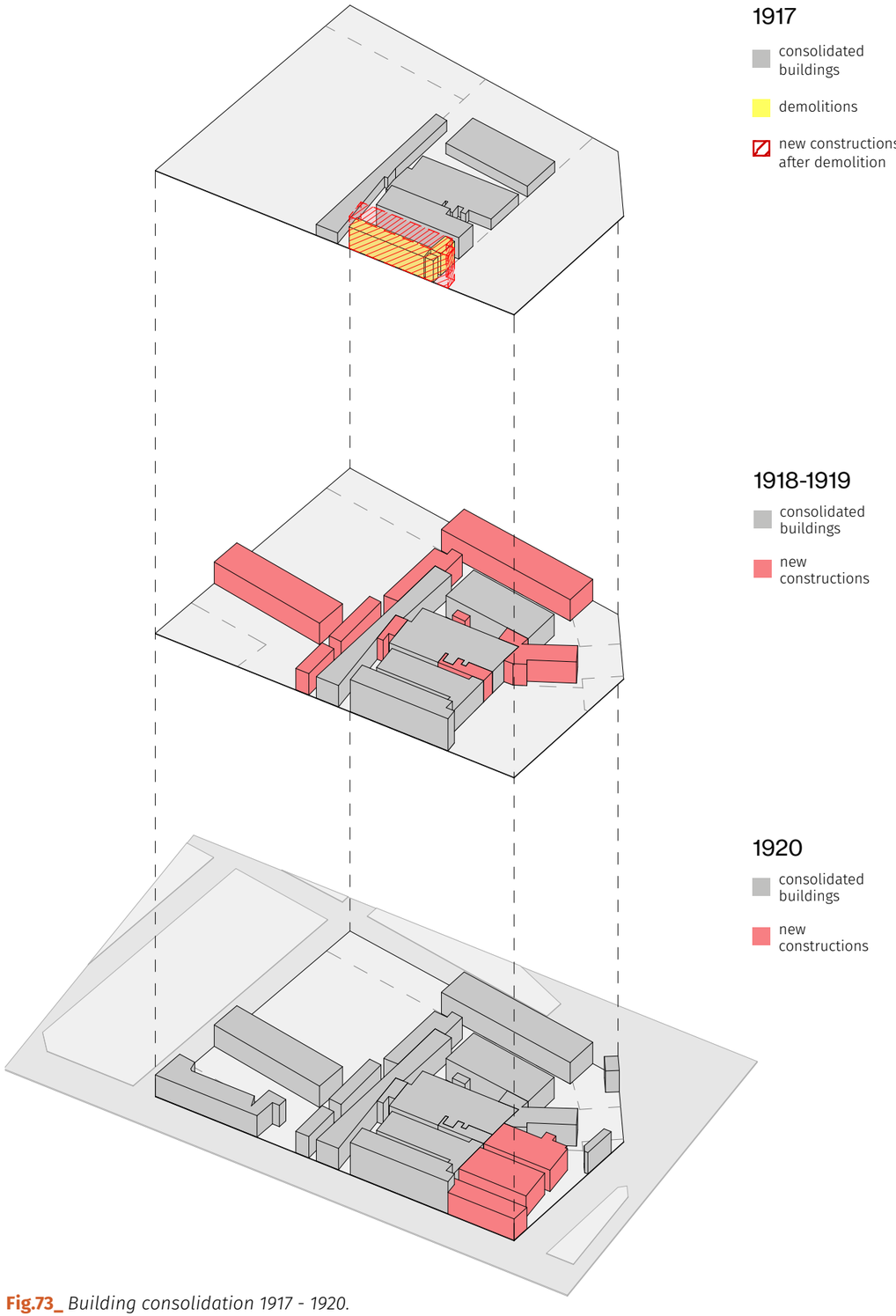


Fig.73_ *Building consolidation 1917 - 1920.*

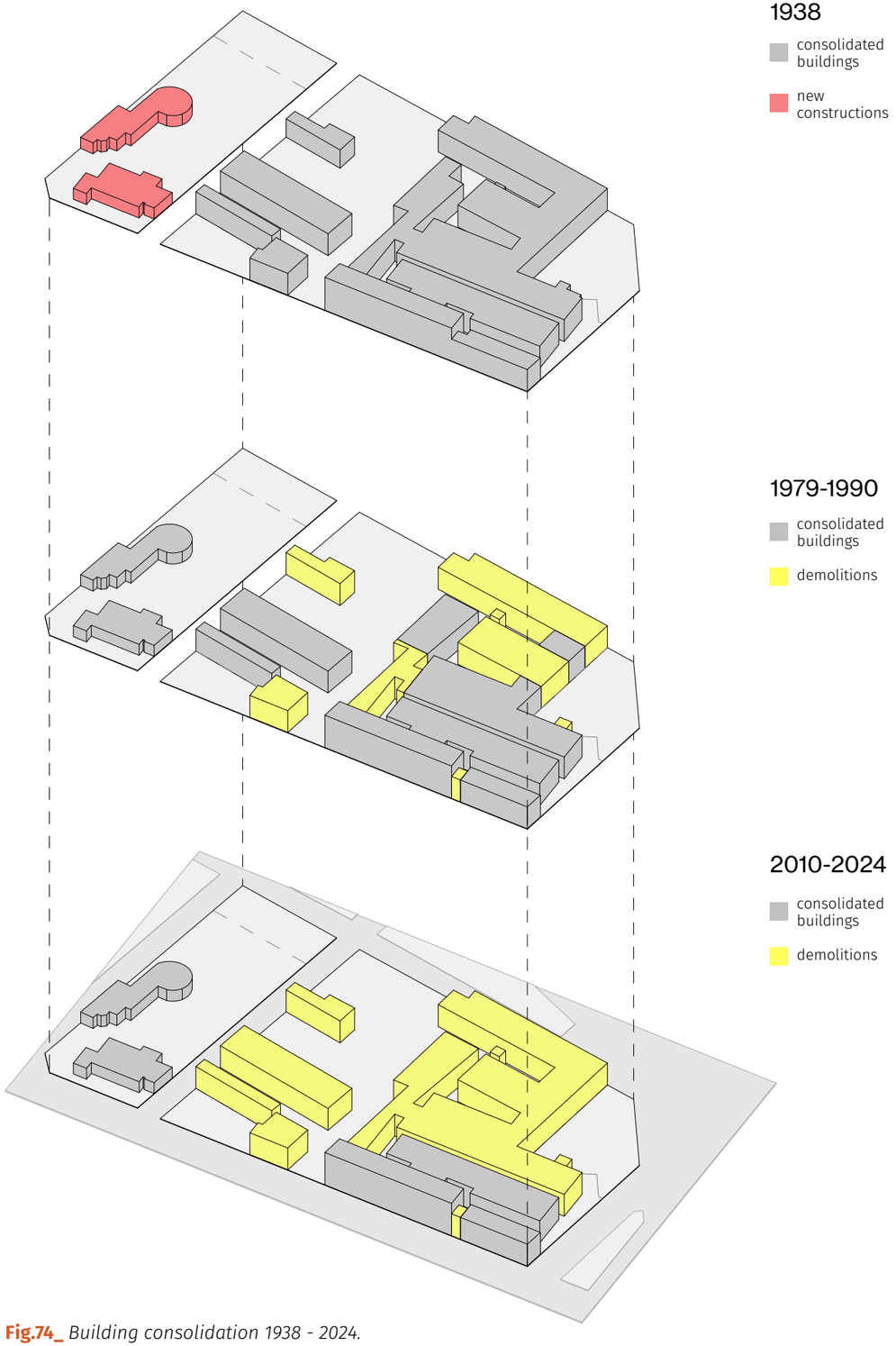


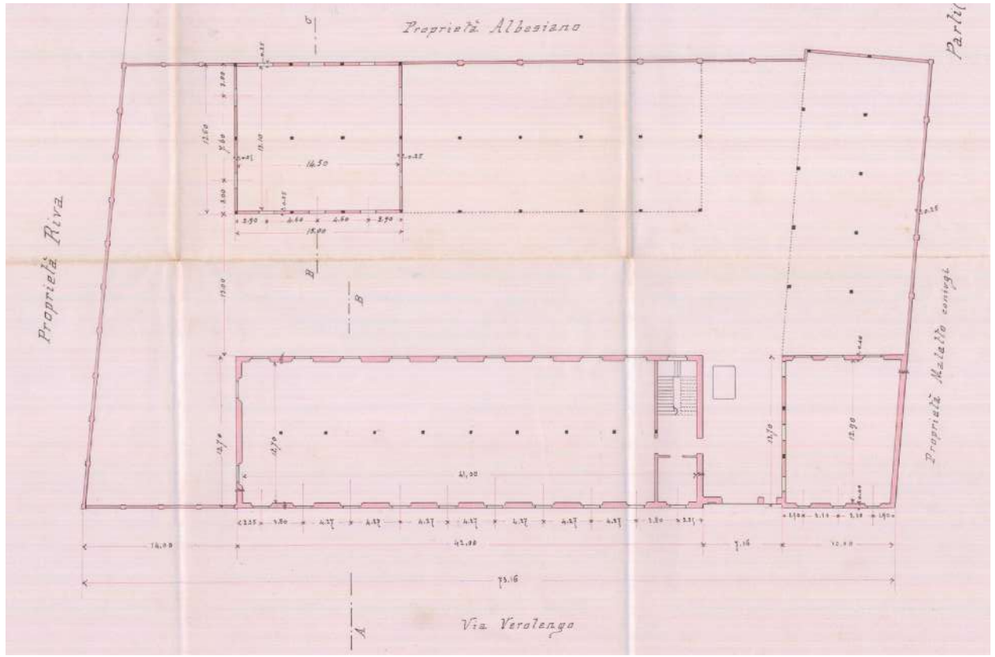
Fig.74_ *Building consolidation 1938 - 2024.*

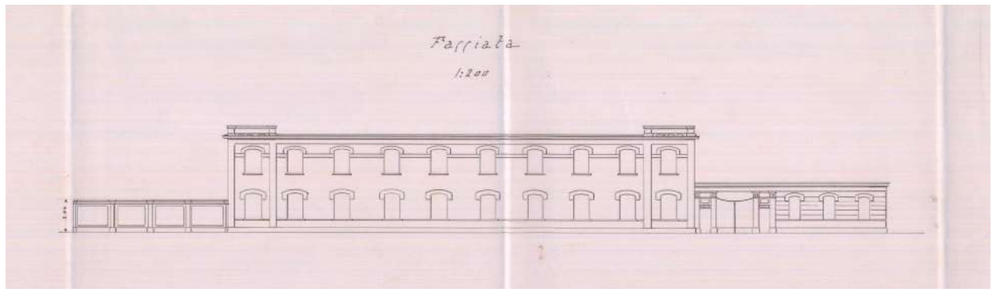
1903
MODIFICATION OF THE BUILDING'S EXISTENT ROOFS

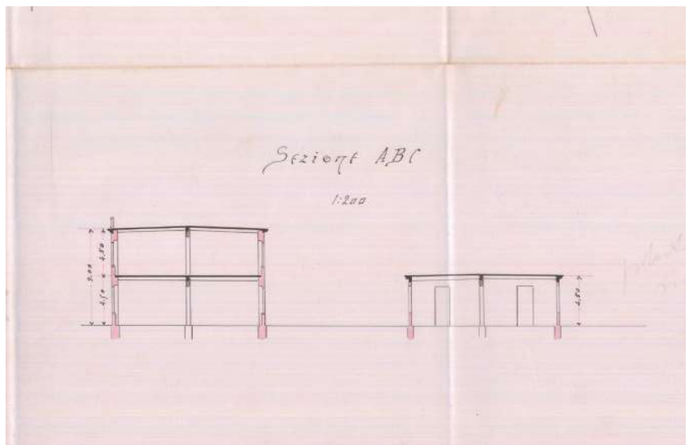
Fig.75_ *Existent building (1903).*

In the year 1903, according to the historical archive of the city of Turin,[43] occured the first intervention of the buildings located in via Verolengo 28. Walter Martiny was already the owner of the property, located in between on of the Riva, Maletto and Albesiano properties, delimiting the east, west, and north sides of the lot, respectvely, with its main facade facing via Verolengo. The registered building practice corrisponds to the roof replacement of the two existing buildings with reinforced concrete roofs. As shown in the plans, the main facade facing via Verolengo was 73,17 meters long, with a 14 meter courtyard, a one storey building that occupied 42 meters of the facade, the main entrance 7,16 meters long and an 18 meter stogare rooms with one floor only. The total height of the one floored building was 9 meters, 4,5 meters of height per floor.
The modifications consisted in a concrete reinforced roof with a slight pendance, supported by a structural system of pillars and beams, with bearing walls on the via Verolengo facade. The small building in the back of the lot counted with a pillars and beams structural system as well, but without the additional bearing walls. In the plans, it is possible to see a facade detail showing the arched window openings, a building characteristic that was kept in all the further modifications.

[43] Archivio Storico citta' di Torino, "Pratica Edilizia: PE1903_0335_TAV_01, PE1903_0335_PRAT_01," 1903.







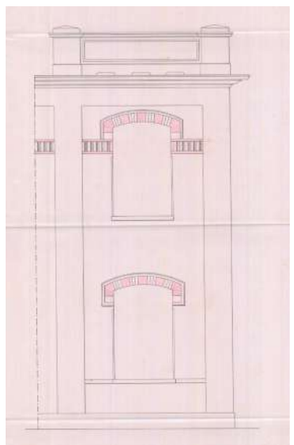


Fig.76-79_ *Pratica edilizia 1903.* Source: Archivio storico citta' di Torino.

1915
CONSTRUCTION OF ADDITIONAL ROOMS

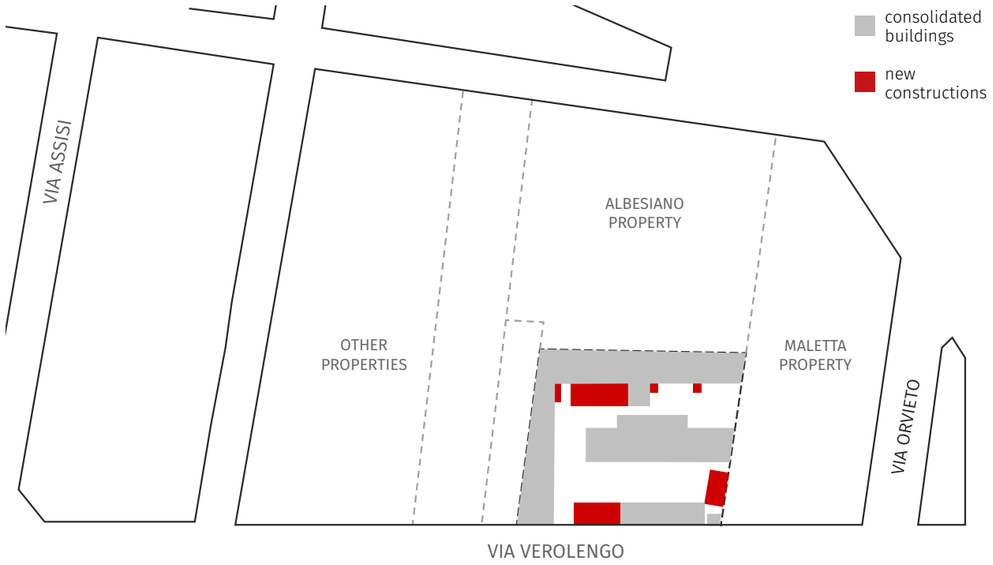


Fig.80_ *Construction of additional roofs (1915).*

The building practice corresponding to the year 1915, shows the ampliation of the building complex with the consolidation of five new service buildings with complementary additional: a bathroom, a mixing room, two water tanks, a garage and a changing room that worked also as a deposit were proposed by this year.[44] The lot belonging to the Martiny society, was still located on the middle of the block, adjacent to other properties wih one main facade facing via verolengo. The changing room and deposit were located adjacently to the existent building that faced the main street, via verolengo with the aim of providing the workers a place to prepare themselves before starting their labors in the factory.
For the creation of this building, it is possible to see that the existent walls that delimited the property were kept, while adding other walls towards the courtyard, its structure was made with pillars and beams, and in the section it is possible to see the previous flat roof being replaced by a fireproof roof with a pendance. The mixing room, located at the opposite side of via verolengo, was an ampliation of the existing building, keeping one of the facade walls and adding other three fo the creation of the 5 meter height mixing room.
The garage was located on the side wall thet divided the Martiy property with the Maletta one, following the same strategy used for the consolidation of the other rooms: to keep the delimitating wall and adding others for the building consolidation.

[44] Archivio Storico citta' di Torino, "Pratica edilizia: PE1915_0433_TAV_01, PE1915_0433_PRAT_01" 1915.

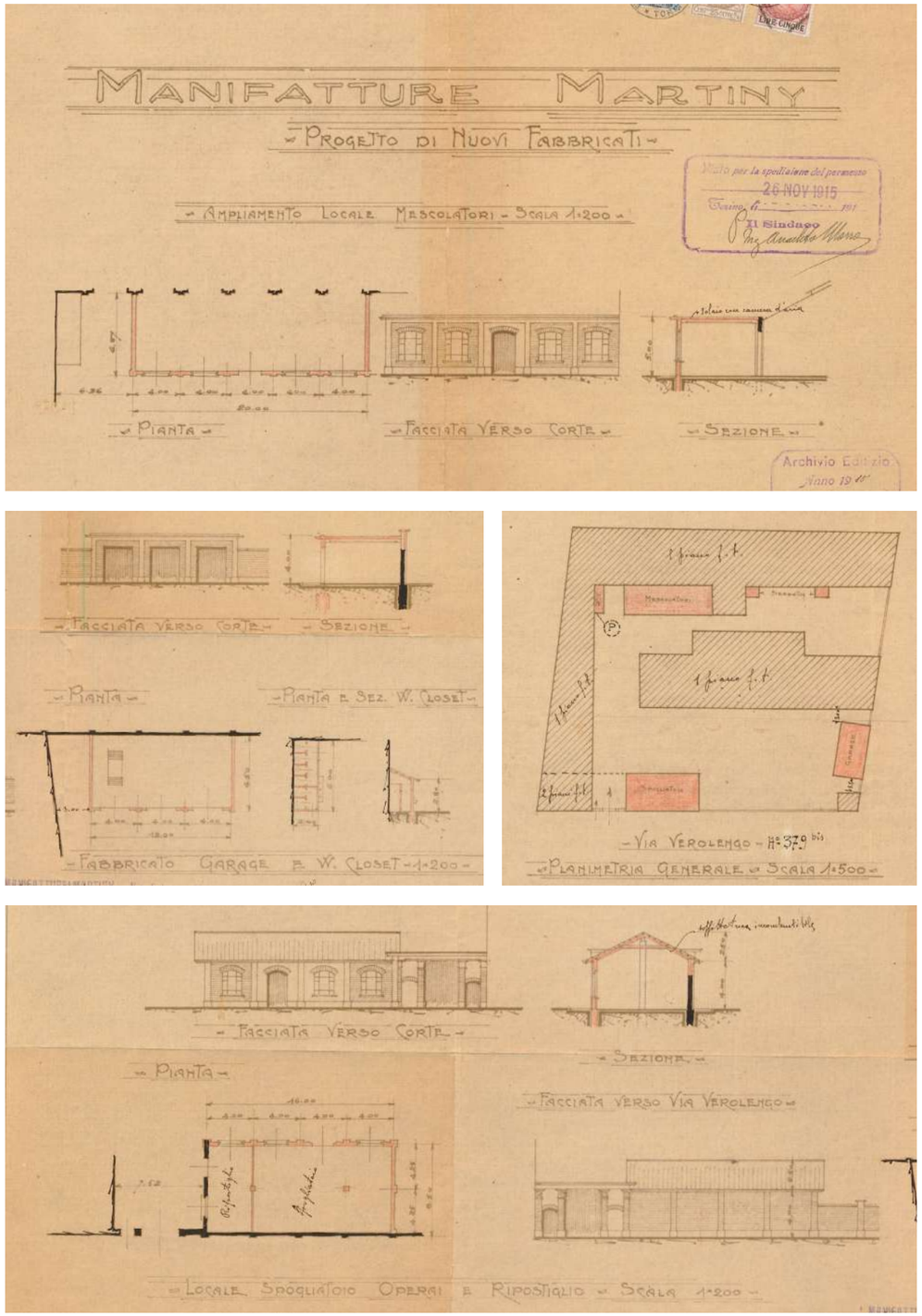


Fig.81-84_ *Pratica edilizia 1915.* Source: Archivio storico citta' di Torino.

1917
LOT AMPLIATION AND FIRST DEMOLITIONS

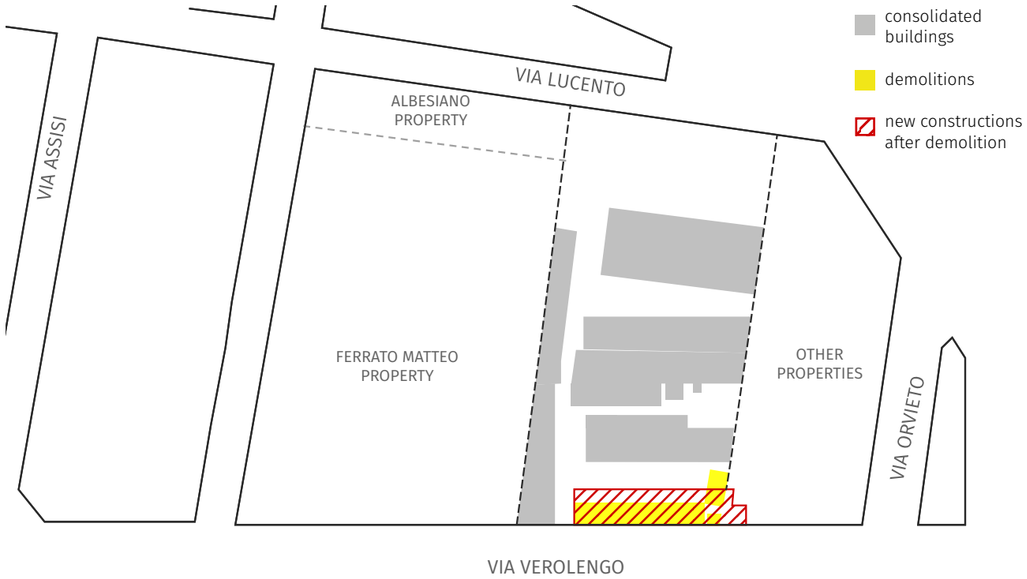


Fig.85_ *Lot ampliation and first demolitions (1917).*

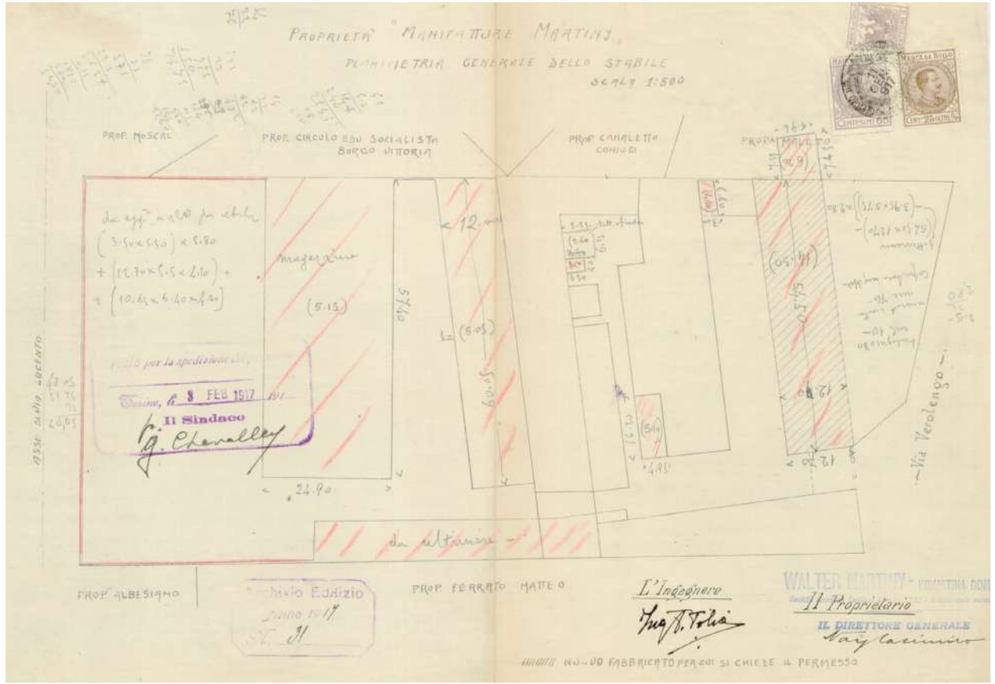


Fig.86_ *Pratica edilizia 1917.* Source: Archivio storico citta' di Torino.

In the year 1917 ocurred one of the most important transformations regarding the building complex because of two main reasons: the first one, was the ampliation of the lot, and the second one was the first demolition of few existent buildings and their replacement with another building, way larger in scale. [45]The lot ampliaton happened after the adquisition of a portion of the Albesiano property, the one that delimited the northern part of the lot. This, brought a lot of advantages for the buildng complex in matters of circulation, with the creation of an exit point towards via Lucento, the existent entrance facing via verolengo was used as the main entrance only, allowing a linear, more efficient circulation for the workers, machinery and heavy equipment.

The buildings facing via verolengo were demolished with the objective of creating a more significative "facade building" considering that the existent constructions in the middle of the lot were bigger an higher. Two of the demolished buildings corresponded to the first constructions, and the other ones, the garage and the changing room made part of the recent ampliations consolidated in the 1915's building practice. It is important to highlight that, the building consolidated in 1917, is one of the three constructions that are still remaining fro the former superga complex, and will be taken as the main case study for the conservation and re-functionalization proposal.

Most of the elements of the building composition remained the same, and some additional modifications were made in posterior years regarding the roof and the internal circulation points.

[45] Archivio Storico citta' di Torino, "Pratica edilizia: PE1917_0031_PRAT_01, PE1917_0031_TAV_02" 1917.

BUILDING CHARACTERISTICS

The existent buildings were replaced with a three storey building with a basement, with a main facade of 52 meters facing via verolengo, and a back facade facing the internal courtyard with a total of 54 meters. The west facade has a measure of 12,5 meters and the east facade has a diagonal wall that follows the lot delimiting perimeter. The visible height of the building, from the ground floor level to the roof had a total of 44,30 meters, without considering the excavations made for the creation of the basement. The basement level is located 2,70 meters under the ground level, and has a total free heigh of 4,10 meters; this, generates a raised "ground floor" level, raised more than a meter from the actual ground floor level, as it is possible to see in the sections in the following images.

The free heights on the other floors have different values, and they are not as high as the basement; the ground floor, first floor and second floor count with a 3.90, 3.60, and 2.75 meters free heights, making the baeemnt floor the highest of them all, this, was made with the intention of adding windows in the wall portion between between the actual ground floor level and the start of the raised ground floor, allowing the entrance of air and natural light to the underground rooms and spaces.

CIRCULATON ANALYSIS

The entrance of the building is located in the west facade, facing the driveway, the entrance leads directly towards the main staircase that allows the vertical circulation inside the building; it is important to notice that the original staircase is still existing.

STRUCTURAL SYSTEM

The structural composition is conformed by structural concrete pillars and beams. The 3 pillars located in the horizontal axis have a 6,25 meters distance between them, with a variation in the western part of the building because of the presence of the staircase, instead of three pillars, there are four of them following a 3.50, 5.50 and 3.50 distances between them, with the longest distance for the stairs placement. In the basement, it is possible to see the presence of additional structural walls with a 55cm thickness, alternating with and 13cm curved walls.

From the ground floor in above, the walls are 23cm thick and in both the longitudinal facades, the pillars are embedded in masonry walls leaving an intermediate space for ventilation, reaching a total thicknes of 40 cm. The structure also counts with concrete beams of aproximately 30 cm that supports the concrete floors. The roof was flat and made out of 20 cm alligerated concrete.

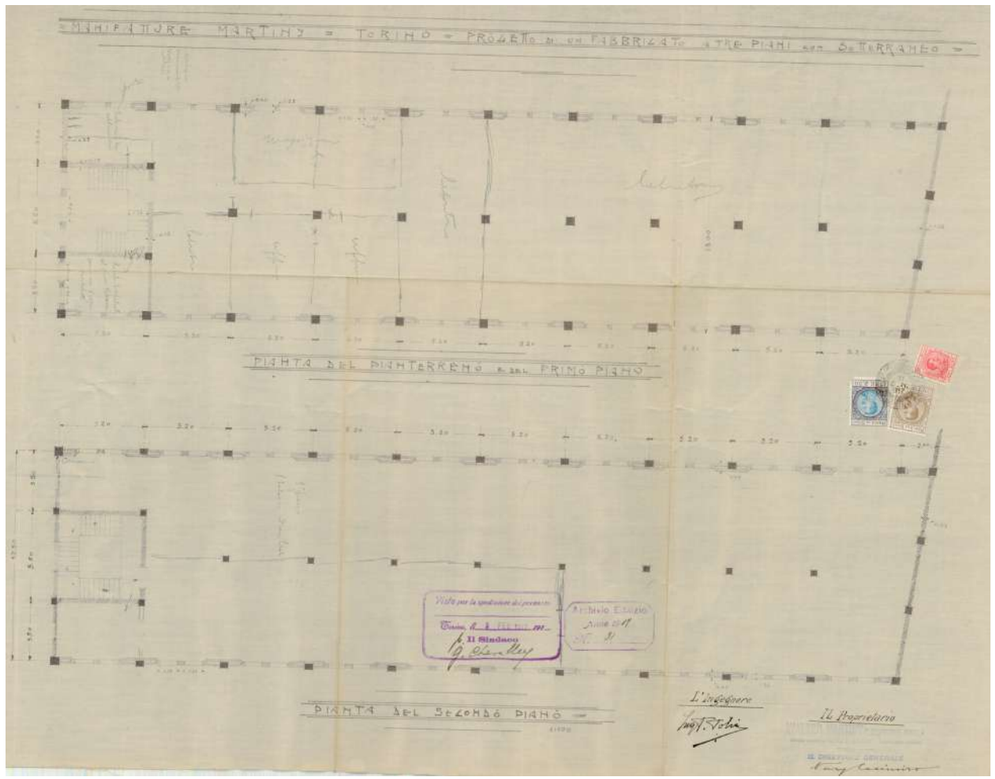


Fig.87_ *Pratica edilizia 1917.* Source: Archivio storico citta' di Torino.

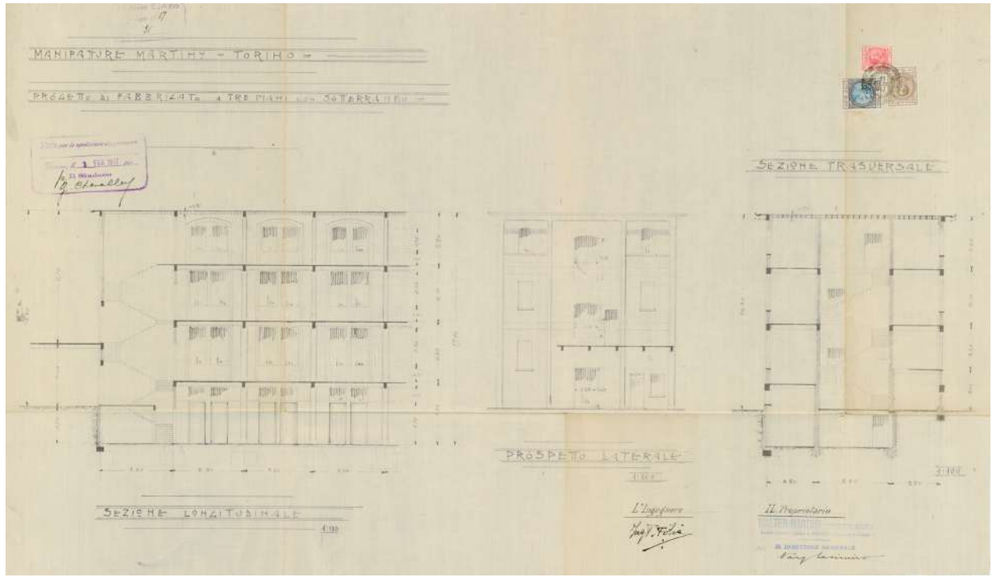


Fig.88_ *Pratica edilizia 1917.* Source: Archivio storico citta' di Torino.

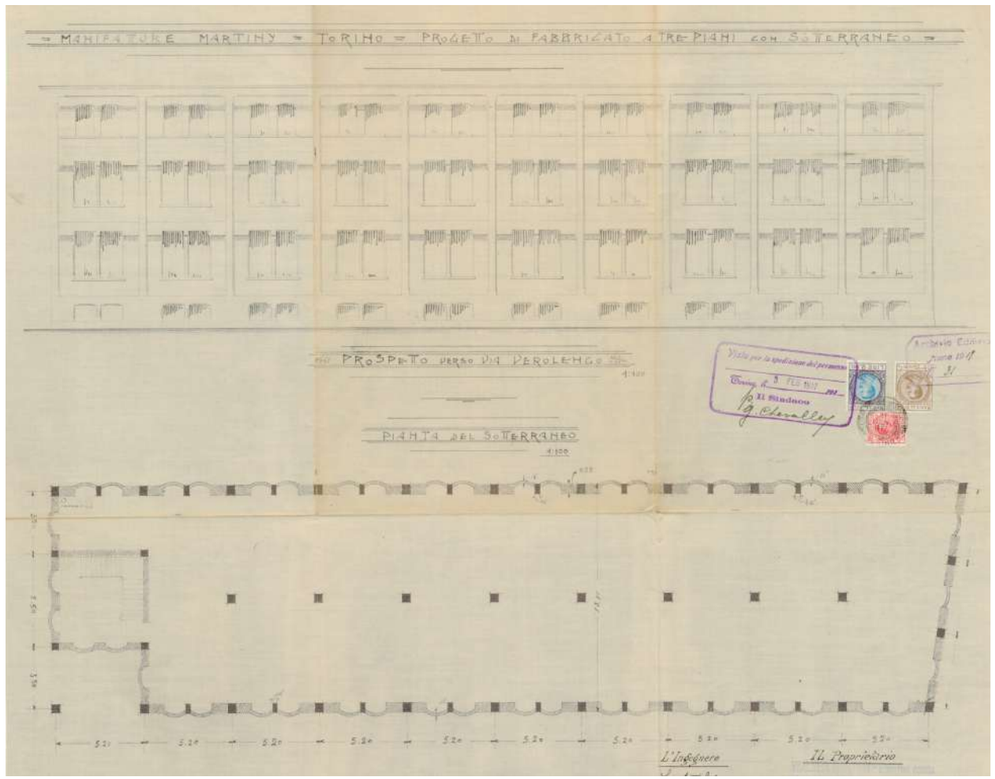


Fig.89_ *Pratica edilizia 1917.* Source: Archivio storico citta' di Torino.

1918 - 1919
BIGGEST EXPANSION AND PARTIAL CONSOLIDATION

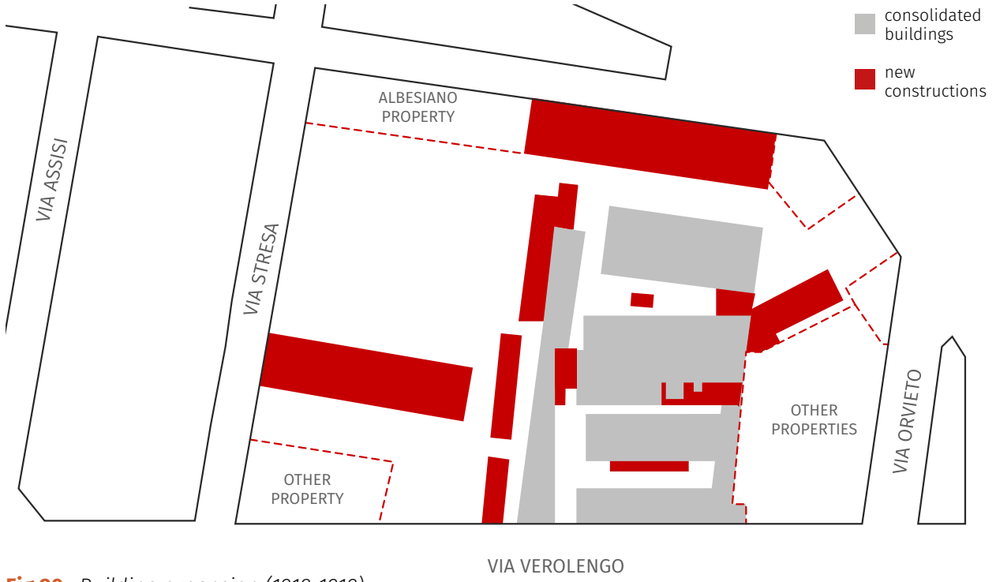


Fig.90_ *Building expansion (1918-1919).*

1920
FINAL COMPLEX CONSOLIDATON

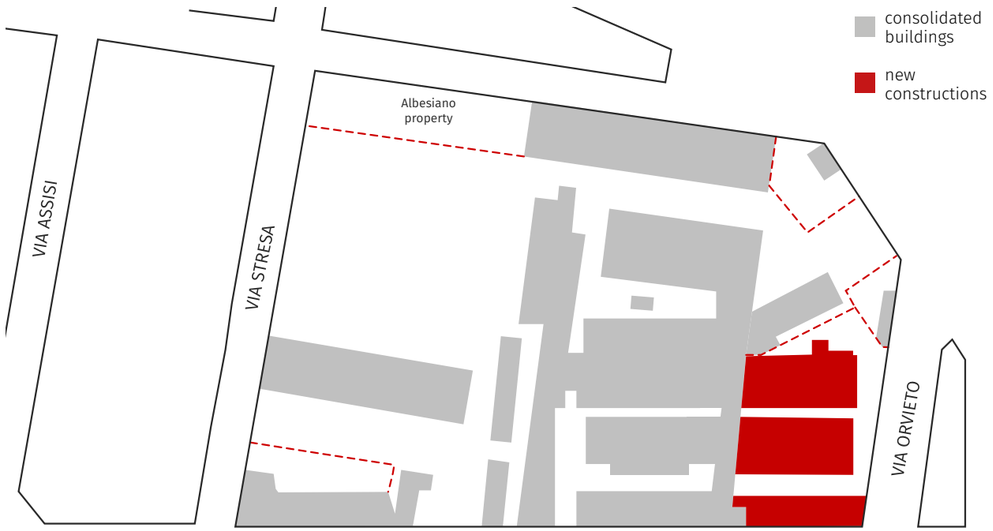


Fig.90_ *Complex consolidation (1920).*

Between 1918 and 1920 happened the whole complex consolidation after the adquisition of almost the totality of the block surface by the Superga company, with an exception of some small lots in the southwest and northeastern corners, and the remaining part of the Albesiano property facing via Lucento. The adquisition of the area facing via Orvieto allowed the completion of the building complex wit the expansion of three of the existent buildings. In this year, they were registered two building practices, the first one referring to the creation of a new transformation cabin and electrical lab,[46] and the second one for the ampliation of the preparation rooms and the compression machines salon.[47]

TRANSFORMATION CABIN AND ELECTRICAL LAB

The construction of this building allowed the consolidation of the block's main facade facing via Verolengo, The building has a two storey part adjacent to the existent construction, and after 7,55 meters of distance becomes a single storey building. The entrances are located in the back of the building, facing the internal courtyard, and a new entrance was opened towards via Orvieto. The ground floor is 5,75 meter high, and the first floor is only 4,5 meters giving a total height of 10,25 meters. The structure follows the other building's structural system with concrete pillars with distances between 3 to 4,5 meters aproximately, followed by structural beams. Even if the functions provided initally for this building changed throughout the years, the construction is still present today.

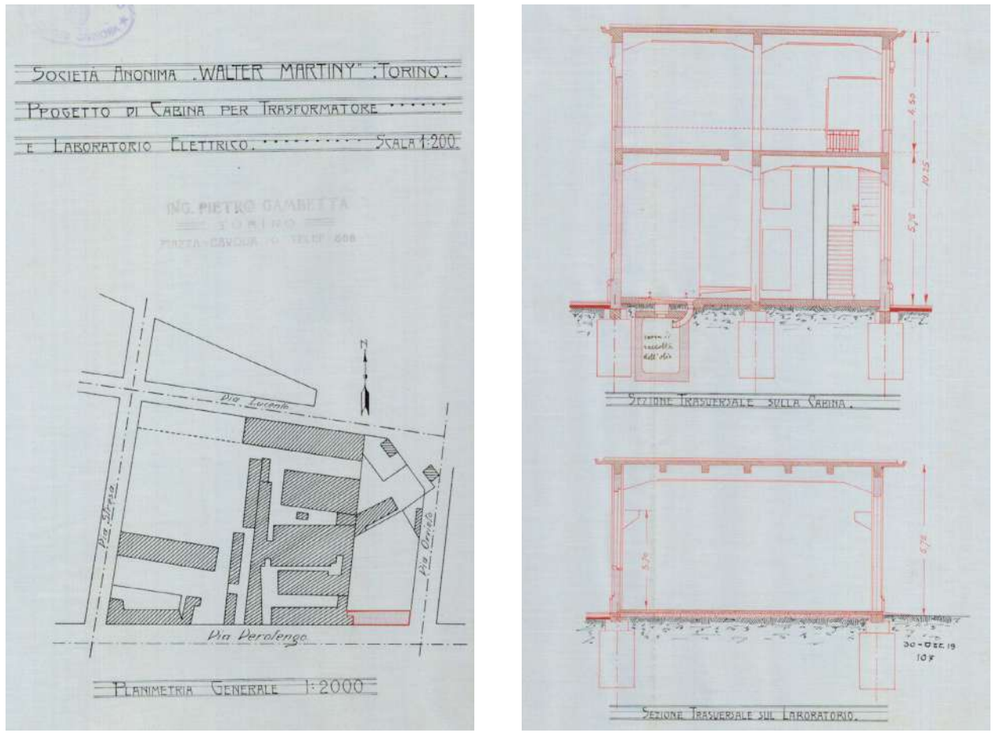


Fig.91,92_ *Pratica edilizia 1920.* Source: Archivio storico citta' di Torino.

[46] Archivio Storico citta' di Torino, "Pratica edilizia: PE1920_0019_PRAT_01, PE1920_0019_TAV_01" 1920.
[47] Archivio Storico citta' di Torino, "Pratica edilizia: PE1920_0248_PRAT_01, PE1920_0248_TAV_01"1920.

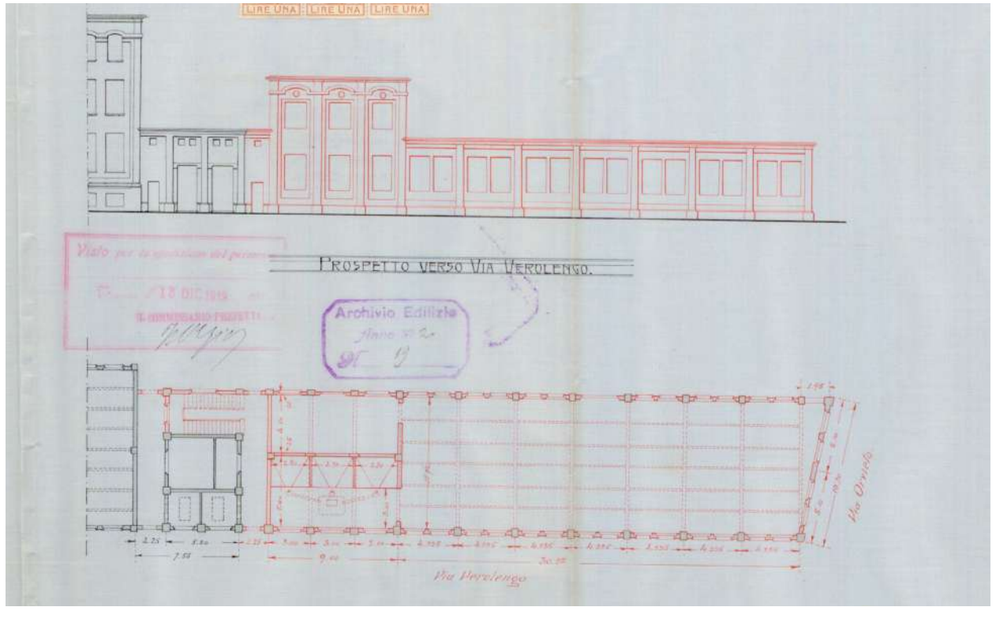


Fig.93_ *Pratica edilizia 1920.* Source: Archivio storico citta' di Torino.

BUILDING AMPLIATIONS: COMPRESSORS ROOM AND PREPARATION SALON

The second part of the interventions that occured in the 1920 is regarding the buildings located in the center of the courtyard for the creation of the compressors room and the preparation salon. Both of the constructions followed the structural system and the distance between pillars of their adjacent existent buildings.

The compressors extension continued with the facade and roof typology of the ampliated building, while the preparation room facade had two storeys and a flat roof, making it different to its adjacent building.
The former compressors building is still present today, even after suffering several damages from the bombings during the Second World War.[48]

[48] Museo Torino "Ex Stabilimento della Superga" accessed July 26, 2024.

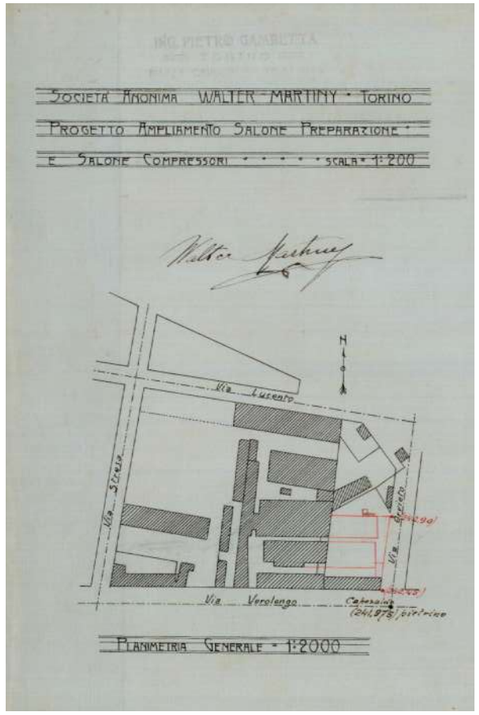


Fig.94_ *Pratica edilizia 1920.* Source: Archivio storico citta' di Torino.

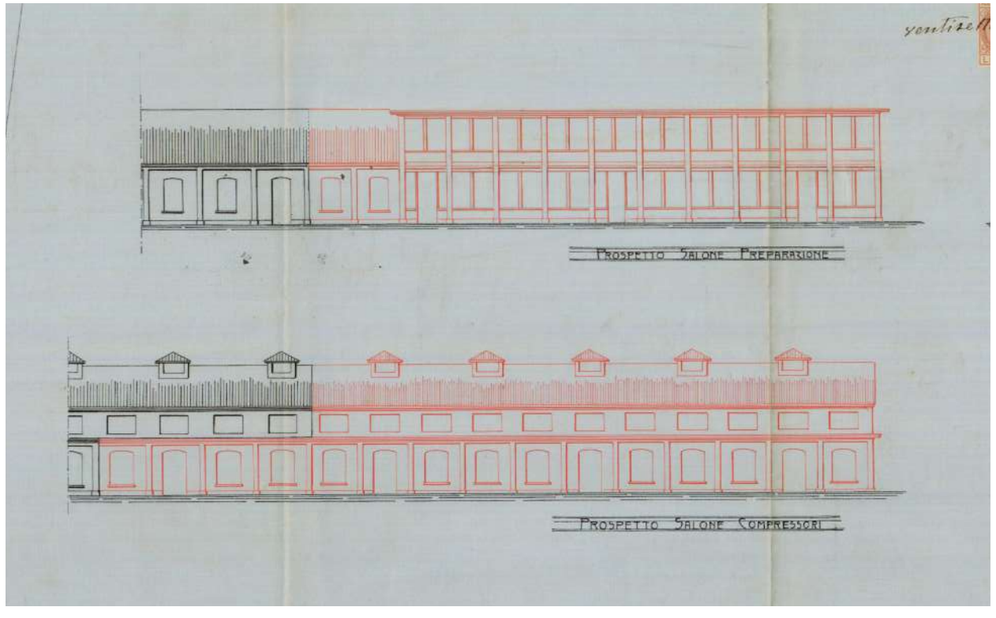


Fig.95_ *Pratica edilizia 1920.* Source: Archivio storico citta' di Torino.

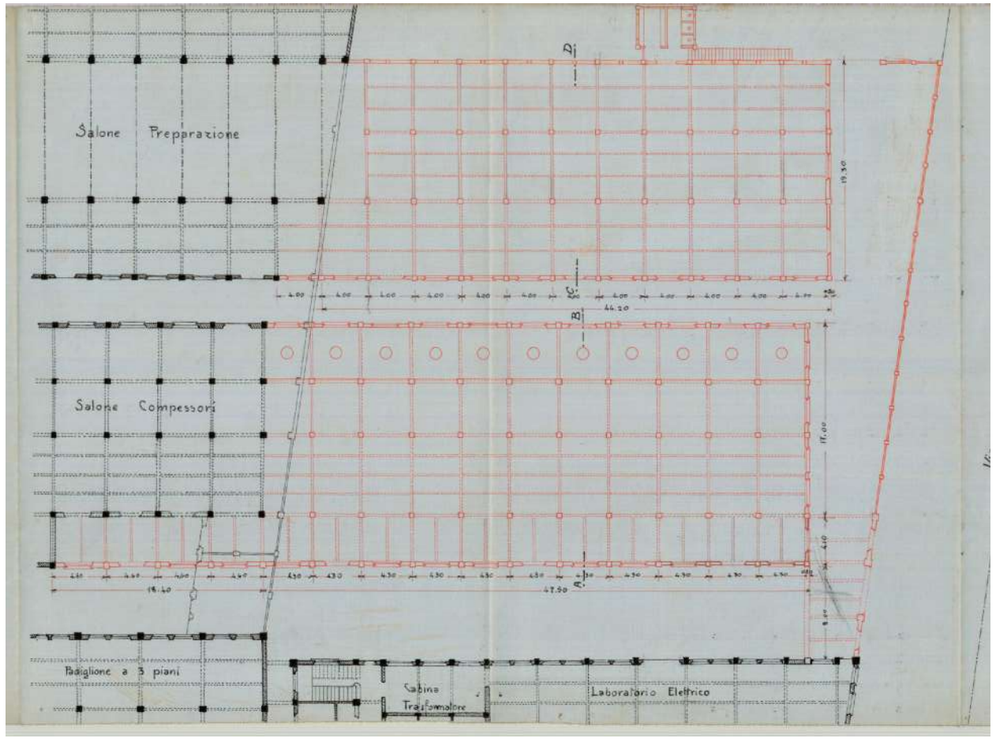


Fig.96_ *Pratica edilizia 1920.* Source: Archivio storico citta' di Torino.

1938
ADDITIONAL SERVICE BUILDINGS: NURSERY AND RECREATIONAL CENTER

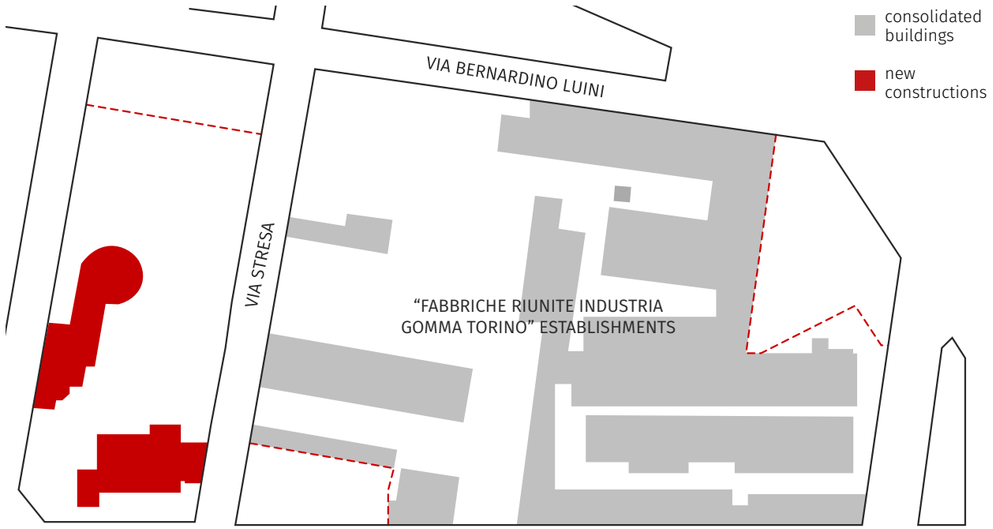


Fig.97_ *Nido aziendale superga (1938).*

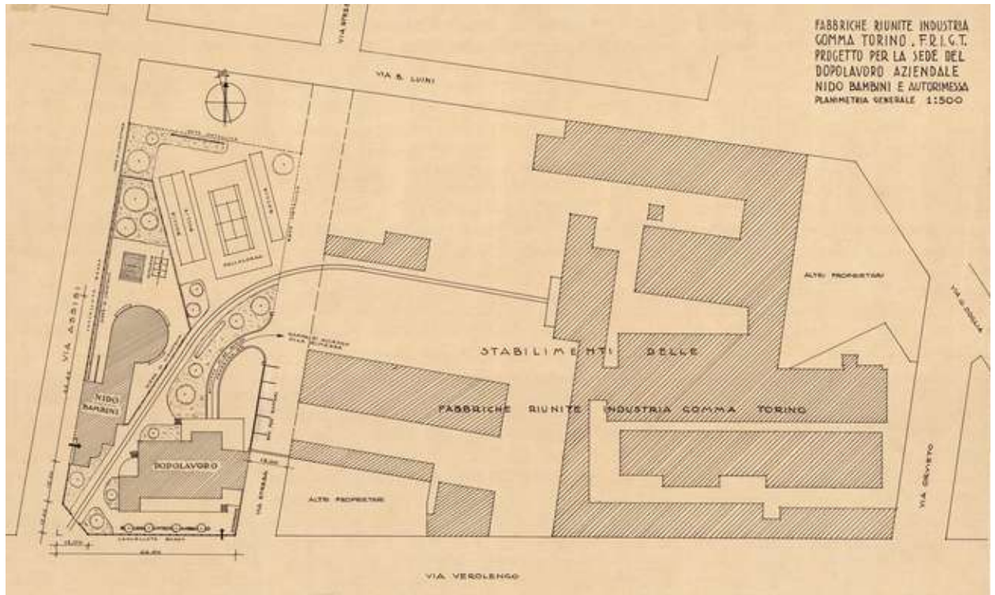


Fig.98_ *Dopolavoro aziendale e nido superga.* Source: https://archivi.polodel900.it/scheda/oai:polito it:1027_f-r-i-g-t-fabbriche-riunite-industrie-gomma-poi-superga-torino

NURSERY "*NIDO AZIENDALE SUPERGA*"

By 1938, after the completion of the building complex occupying almost the entire block, the company acquired the adjacent block situated next to Via Stresa, with the aim of providing the workers with complementary service spaces. The proposed buildings included a recreational after-work center and a nursery for the children of the company's working women.[49] The structure, built next to the production plant and the recreational center, was inaugurated in 1939 as the company nursery of FRIGT (Fabbriche Riunite Industria Gomma), later renamed Superga, being the first factory to build a nursery. The inauguration was attended by the Podestà of Turin, and this nursery was talked about for a long time as an example of rationalist architecture and enlightened social entrepreneurship.[49] The project was carried out by the architect Armando Melis de Villa with the aim of taking care of the children of employees, since female labor was predominant. The architectural peculiarity is particularly evident in the "Ricreatorio," a hall intended for children's games and distinguished by its rounded lines: the roof rests on a single pillar placed in the center of a space made bright by large windows.All the rooms were adorned with wall paintings by the well-known Turin artist, Teonesto Deabate (Turin 1898-1981). On a wall that has maintained its original appearance, it is still possible to admire an example of his work.[49]

Subsequently, following the deinstitutionalization movements of personal services, Law 1044 of 1971 established municipal nurseries, giving a decisive turn to the management of private nurseries, as in the case of the Superga nursery, which was not only provided for working mothers but also gave space to educational services for the staff working there, making it more integrated with local services. In September 1981, the company nursery transitioned to a municipal nursery. In December 1982, with the recruitment of educators, an experimental self-management project with constant supervision and evaluation was launched. Over the next three years, the team was monitored by external experts, fostering a continuous research atmosphere in daily life and programming.[49] Two key aspects were group insertion of children (to facilitate familiarity between existing and new families) and space setup (creating smaller areas for specific activities). In 1987, a group of educators, with architect Ballarini's consultation, prepared a project that balanced methodological and architectural needs. Today, the nursery remains in use, maintaining its original function[49].

Fig.99- *Nido aziendale Superga.* Source: https://www.museotorino.it/view/s/80605dece5b1416ea9fb2582ba345cb8

[49] Citta' di Torino, and Musei Scuola. "Museo Scolastico Nido via Assisi (Ex Nido Aziendale Superga)." Accessed July 28, 2024. http://www.comune.torino.it/museiscuola/propostemusei/toeprov/asilo-nido-2.shtml.

1979-1990
ABANDONEMENT AND FIRST DEMOLITIONS

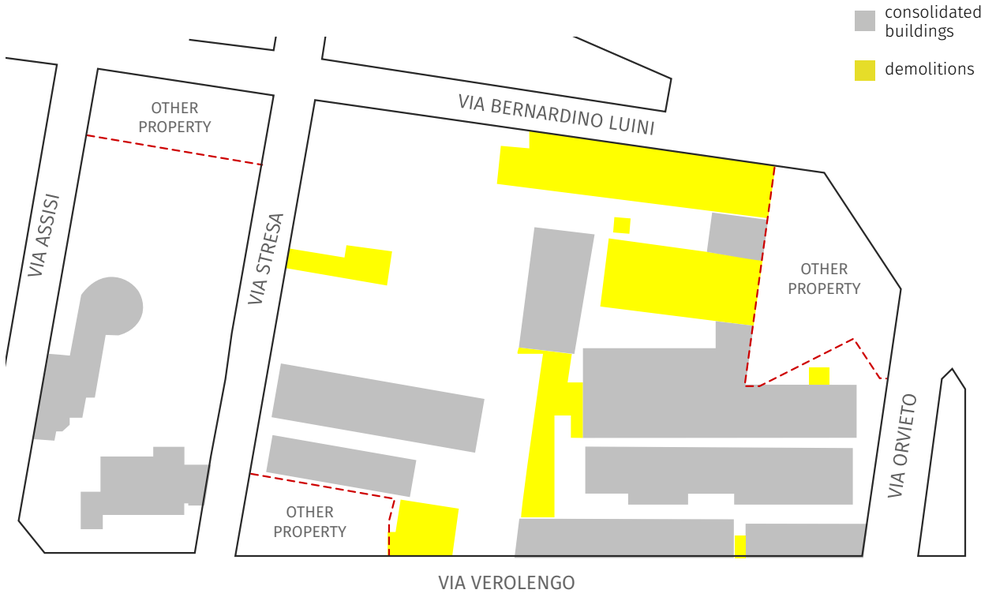


Fig.100_ *Abandonement of the complex (1979-1990).*

2010-2024
AFTER THE URBAN REGOLATORY PLAN

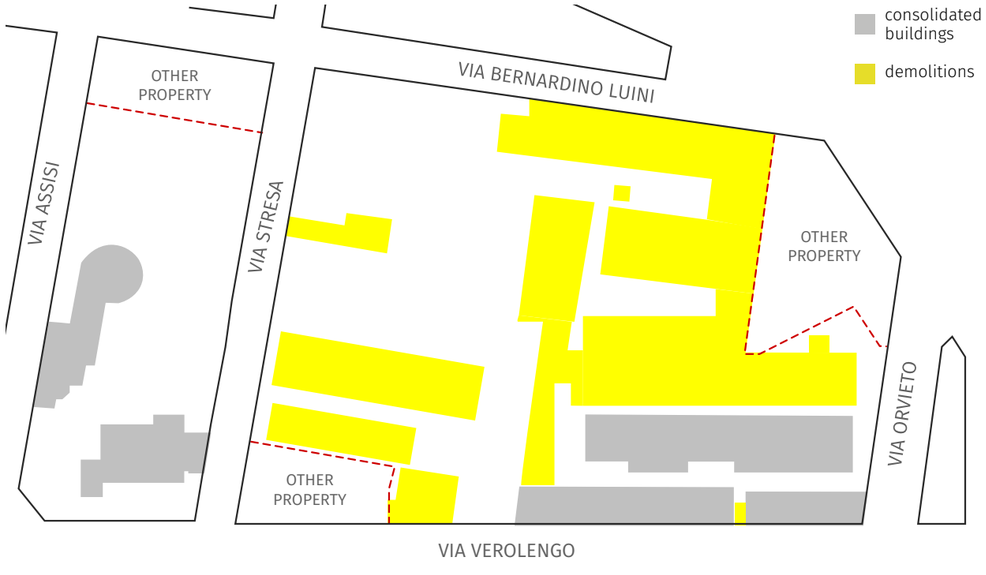


Fig.101_ *Building complex after the PRG (2010-2024).*

The two last phases of the building complex correspond to the periods between 1979-1990 and 2010-2024. During the 1979-1990 phase, it is possible to see how the completed building complex started to be demolished after the abandonment and disuse of some of its largest buildings. Other constructions were built with different functions, and the block ceased to be an industrial complex. In the 2010-2024 phase, it is possible to see the almost complete demolition of the building complex. The remaining demolitions were part of the urban regulatory plan transformation. As seen in the following picture, residential units were built around the block, leaving a central empty space for the creation of a park. Internal pathways were created to ensure access for people and transport into the area, considering the block's dimensions. The Lot underwent the "SUPERGA" Urban Redevelopment Program proposed by the company of the same name, aiming to revitalize the industrial area near the "SPINA 3" urban transformation zone, spanning Via Verolengo, Via Assisi, Via Luini, and Via Orvieto. Initially approved in a Program Agreement signed on May 15, 1998, and ratified by the City Council on June 12, 1998, it was later modified with a new Agreement on June 27, 2001, ratified on July 24, 2001. This initiative allowed the city administration to acquire property for public services. Located at Via Verolengo No. 28 within District 5, it is part of the PRIU "Superga" with an urban designation for Public Services[50]. Additionally, the building located at Via Orvieto 57 will be restored and undergo maintenance work to become a library deposit. The warehouses of the former Superga factory will house some of the documents currently stored in the "torre libraia" of the Central Civic Library, thereby improving the network for preserving the city's book heritage.[51]

Fig.102_ *Ortofoto.* Source: Geoportale Comune di Torino http://geoportale.comune.torino.it/geocatalogo-coto/?sezione=mappa

[50] Citta' di Torino Servizio Telematico Pubblico "Lotto Unico - Compendio sito in Torino, Via Verolengo n.28," accessed July 7, 2024.

[51] Citta' di Torino. "Manutenzione Straordinaria per La Biblioteca Calvino e I Magazzini Dell'ex Fabbrica Superga" Torino Click - Agenzia quotidiana della citta' di Torino, December 20, 2023. https://www.torino-click.it/torinocambia/manutenzione-straordinaria-per-la-biblioteca-calvino-e-i-magazzini-dellex-fabbrica-superga/.

THE HENNEBIQUE SYSTEM

Patented in 1892, the Hennebique construction system enabled the creation of horizontal, vertical, and foundation structures made of reinforced concrete, integrated into a monolithic whole. These systems could cover large spaces with slender, aesthetic elements. Hennebique developed “an absolutely scientific skeleton construction system,”[52] providing a standard easily adaptable to various construction types. Hennebique simplified the complex static organization of constructions into a load-bearing system by combining simple structural elements, drawing on wooden carpentry methods. This technique, adopted for its fireproof nature, was crucial given the frequent collapses from fires in large metal constructions. By the end of the 19th century, it was clear that “iron constructions were inferior to wooden ones in terms of fire resistance”[52].

Reinforced concrete structures were proposed as a fire-resistant solution for warehouses, docks, and industrial plants. Hennebique promoted his patent by highlighting “small and large catastrophes”[52] caused by fires. He “worked to spread a ‘heterogeneous’ system whose existence was realized only in on-site craftsmanship”[52] and implemented a global commercial strategy to identify market needs and execute orders.

[52] Mattone, Manuela, and Laura Amarilla, *Architettura in ferro e calcestruzzo armato : nuove tecnologie costruttive tra Ottocento e Novecento in Italia e in Argentina.* (Torino: Celid, 2011)

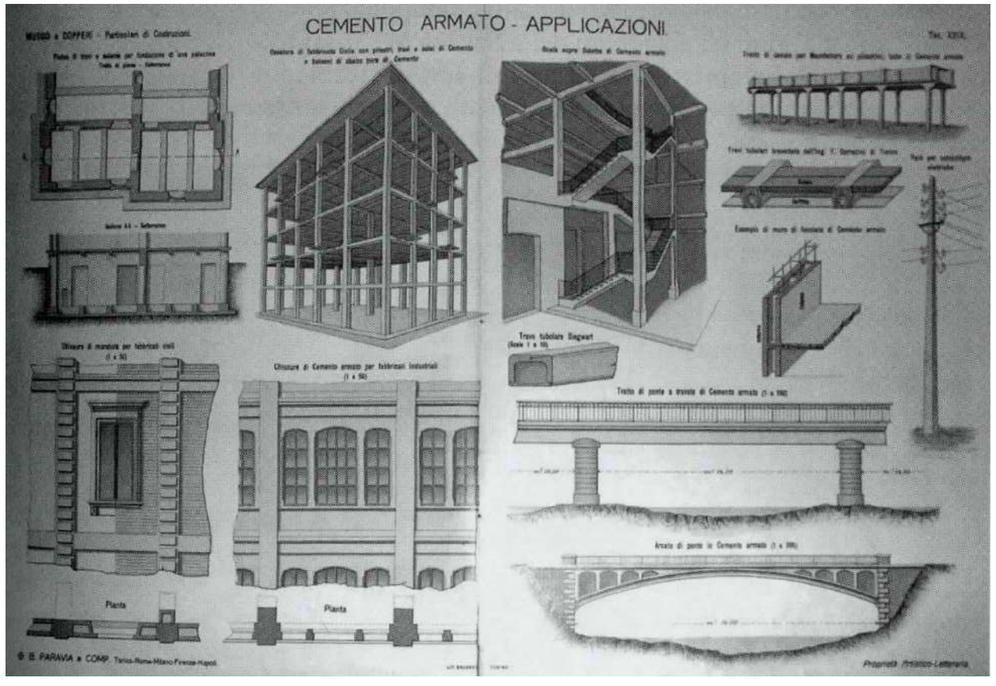


Fig.103_ *Constructive detail of reinforced concrete structures.* Source: G. MUSSO, G. COPPERI, Particolari di costruzione murali e finimenti di fabbricati.

During a lecture at the Politecnico di Torino, Camillo Guidi described the Hennebique system: “The reinforcement consists of two series of round bars, situated in parallel planes; the straight ones lie near the lower face of the slab, while the others, alternating with the first series, are located in the central part of the span of the slab at the same level as the first but are bent upwards towards the ends, so that at the points of support they are near the upper face of the slab. The bent bars are primarily meant to resist the bending moment at the supports and also, according to the inventor’s idea, to resist shear; however, for this second purpose, the stirrups, which are characteristic of this system, serve primarily. These stirrups consist of flat iron straps that wrap around the straight bars from underneath and extend vertically with their two arms up to the upper face of the slab, ending with a small angular bend”[52].

SYSTEM'S CHARACTERISTICS AND CALCULATION METHOD

The Hennebique system allowed for the construction of a complete monolithic load-bearing skeleton made of reinforced concrete, including foundation footings, columns, beams, and slabs. Columns typically had square, rectangular, or polygonal sections with longitudinal metal reinforcements held by wire ties and metal bands. Beams, connected to slabs, formed "T" section structures reinforced with round bars, both straight and bent, distributed equally and anchored with hooks.[53]

A distinctive feature was the use of stirrups to counteract shear forces. The system used iron appropriately for its tensile properties, fundamental to reinforced concrete. Calculations were based on simple, empirical formulas derived from experience, similar to modern ultimate strength verification methods.
For simple compression, the load-bearing capacity was the sum of concrete and iron contributions. For bending, the external moment was divided equally between concrete and iron. The necessary concrete area was determined first, followed by the iron reinforcement area, adopting specific stresses. However, this did not fully satisfy the equilibrium condition of equal internal forces from concrete and iron.[53]

The design proportions were based on experience, making the dimensions repeatable and similar to those obtained with standard methods. Although initially satisfactory, scientific advancements in calculation theories later questioned the system's applicability. Nonetheless, the empirical dimensions often matched those from usual design methods, with structures performing well over time.[53]

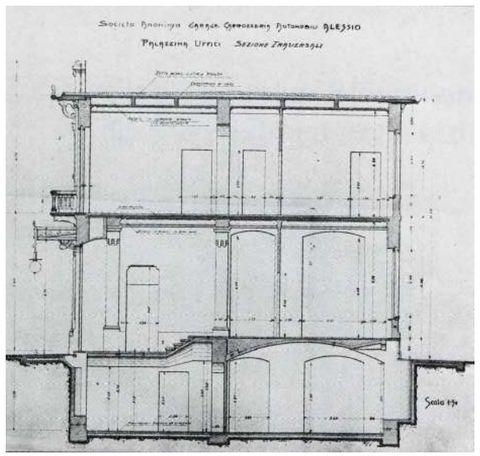


Fig.104-106_ *The hennebique system.* Source: Nelva, Riccardo, and Bruno Signorelli *Avvento Ed Evoluzione Del Calcestruzzo Armato in Italia.*

[53] Nelva, Riccardo, and Bruno Signorelli. *Avvento Ed Evoluzione Del Calcestruzzo Armato in Italia: Il Sistema Hennebique.* Milano: Edizioni di scienza e tecnica, 1990.

BUILDING APPLICATIONS

REINFORCED CONCRETE SLABS

For the building construction as it was possible to see in the previous plans provided by the historical archive, beam and slab structures (either single or double layer) were used. The beams were often aligned with the position of partition walls, making them hidden.[53]

RIBBED STRUCTURES

These utilized special hollow clay or concrete blocks, derived from traditional hollow clay blocks, which were aligned and spaced appropriately. These blocks became embedded in the structure after the concrete was poured.[53]

PREFABRICATED BEAMS

Placed side by side and supported by walls to create floor systems after pouring a top reinforcement layer. They could be used with hollow blocks or clay tiles, following experiments with iron profiles, achieving significant structural lightening.[53]

Fig.107_ *Hennebique system applications.* Source: Nelva, Riccardo, and Bruno Signorelli *Avvento Ed Evoluzione Del Calcestruzzo Armato in Italia: Il sistema Hennebique.* Edizione di scienza e tecnica (Milano 1930).

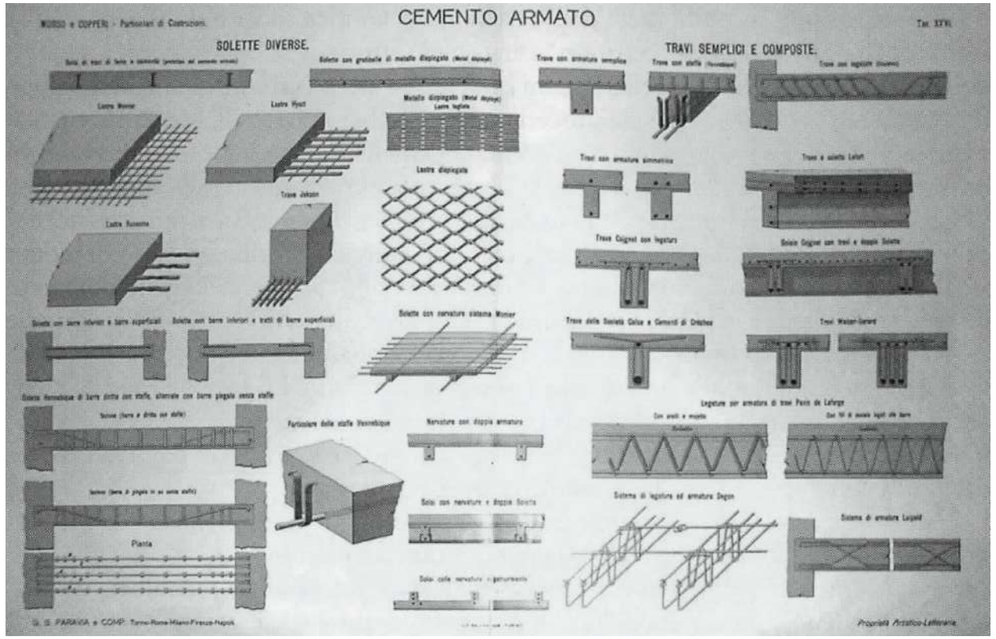


Fig.108_ *The hennebique system constructive detail.* Source: Nelva, Riccardo, and Bruno Signorelli *Avvento Ed Evoluzione Del Calcestruzzo Armato in Italia: Il sistema Hennebique.* Edizione di scienza e tecnica (Milano 1930).

ANALYSIS OF THE STATE OF CONSERVATION

For the analysis of the state of conservation of the elements and materials of the Former Superga Factory building, the ICOMOS Illustrated Glossary on Stone Deterioration Patterns was taken into consideration[54]. After studying the building and analyzing its deterioration and damages, appropriate measures must be proposed to remove the causes of decay and stop its consequences. The identification phases are divided into the building's structural elements, the correct identification and analysis of materials, and the survey with their respective interventions. The procedures follow six main categories of intervention: cleaning, consolidation, reintegration and repair, integration, protection, and replacement [55]**.** It is important to highlight that the cleaning of the facade must be understood as a response to the need to preserve the materials and their correct interpretation, as well as the removal of surface sediments that are not part of the work itself but rather an accumulation of harmful and aggressive substances [56]

The general cause of the deterioration of materials is the imbalance between the environment and the material itself through the alteration of physical, chemical, and biological conditions. Physical damage is caused by solar radiation, wind, and temperature variations. Chemical damage is caused by the presence of dust, gases, and suspended substances in the atmosphere that react with the material's surface. Biological damage occurs with the presence of bacteria and microorganisms that colonize the surfaces of the materials[55].

Considering that the former Superga Factory building complex has been completely abandoned since the 1990s[57], its main causes of decay are due to this abandonment. Externally, the building shows typical damage from neglect and lack of maintenance, such as vandalism, spoliation, humidity, and plaster decay. Additionally, there is physical damage, including the oxidation of balcony railings and external humidity caused by rain. Internally, the structure remains functional, but due to its abandoned state, it has suffered damage from lack of maintenance and the absence of windows on the main facades. This has allowed humidity and water infiltration to penetrate the building, exacerbating its deterioration.

Degradation caused by atmospheric agents varies mainly by material and cause. Factories made out of reinforced concrete show greater durability due to the iron being protected from rust, fire, and flexion. Reinforced concrete resists pressure, adheres well to iron, and remains intact during temperature variations. The main causes of degradation include high atmospheric pollution. Reinforced concrete typically degrades through surface disintegration, reinforcement deformation or oxidation, and cracks, which can lead to structural detachment.[58]

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[54] ICOMOS International Scientific Committee for Stone (ISCS). *Illustrated Glossary on Stone Deterioration Patterns = Glossaire Illustré Sur Les Formes d'Altération de La Pierre.* Champigny/Marne, France: Ateliers 30 Impression, 2008.

[55] Mamino, P. " Progetto Di Restauro E Rifunzionalizzazione Di Palazzo Audifreddi a Cuneo = Restoration and Re-Use Project of Palazzo Audifreddi in Cuneo." Thesis, 2022.

[56] Torsello, B. P. (1995). *La "pulitura delle superfici": alcune domande e una riflessione, in Biscontin, G. e Driussi, G. (a cura di), La pulitura delle superfici dell'architettura: atti del convegno di studi: Bressanone 3-6 Luglio 1995*, Padova, Libreria Progetto.

[57] Museo Torino "Ex Stabilimento della Superga" accessed July 26, 2024.

[58] Mattone, Manuela, and Laura Amarilla, *Architettura in ferro e calcestruzzo armato : nuove tecnologie costruttive tra Ottocento e Novecento in Italia e in Argentina.* (Torino: Celid, 2011)

PHOTOGRAPHIC SURVEY

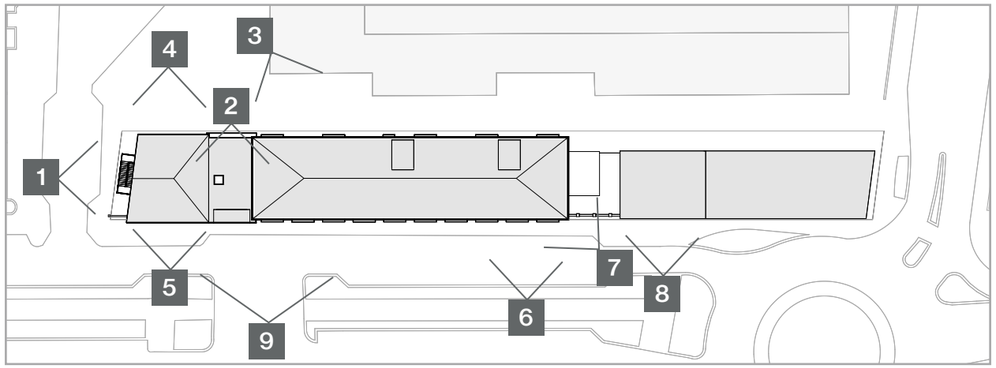
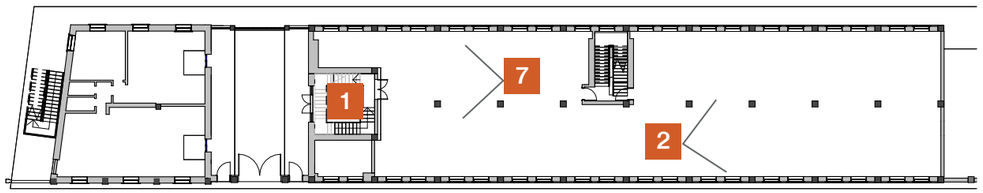


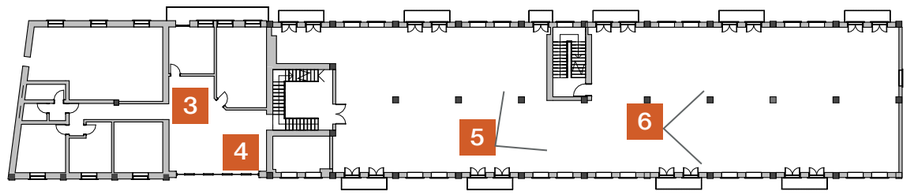
Fig.109_ *Photographic survey - Exterior.*

PHOTOGRAPHIC SURVEY

Ground floor plan
Out of scale



First floor plan
Out of scale



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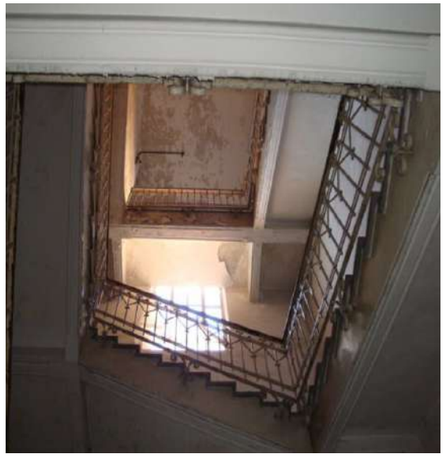

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Fig.110_ *Photographic survey - interior.*

STATE OF DECAY - FRONT FACADE OF THE BUILDING

ELEMENT

- WA Wall
- WN Window
- DR Door
- CO Cornice
- BL Balcony
- BA Basement
- PI Pillar

MATERIAL

- CR Concrete
- MT Metal
- WD Wood
- GL Glass
- MO Mortar
- BR Brick

FINISH

- PL Plaster
- PA Painting

DECAY

- Crack - Splitting
- Detachment
- Detachment - Chipping
- Detachment - Blistering
- Missing part
- Erosion - Brick loss
- Discolouration - Moist area
- Discolouration - Staining
- Graffiti
- Biological colonization - Plant
- Biological colonization - Algue

CLEANING

- Polutice
- Soft brushing
- Water misting
- Mechanical removal by hand
- Solvent based cleaner
- Rinsing

PROTECTION

- Breathable waterproof protective coat

REMOVAL

- Injection of lime based mortar
- Reintegration of the bricks and mortar bed
- Biocide application
- Herbicide application
- Replacement
- Plaster reintegration
- Painting finish
- Reintegration of cement mortar base

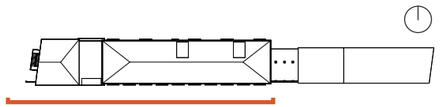


Fig.111_ *Analysis of the state of decay - front facade*

TYPE OF DECAY: CRACK
SUB-TYPE: FRACTURE

DEFINITION
Individual fissure, clearly visible by the naked eye, resulting from separation of one part from another, more specifically, it is intended for fracture a crack that crosses completely the stone piece.[59]

ELEMENT Basement
MATERIAL Stone

SUGGESTED INTERVENTIONS
The treatment for cracks and splitting in stone involves several steps and techniques to ensure the structural integrity and aesthetic preservation of the stone, the following interventions are suggested:

CLEANING
Removal of loose surface deposits with a soft brush.
Washing with water for the removal of partially adhering surface deposits.

REINTEGRATION
Consolidation and repair through the injection of lime based mortar.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[59] ICOMOS International Scientific Committee for Stone (ISCS), Illustrated Glossary on Stone Deterioration Patterns = Glossaire Illustré Sur Les Formes d'Altération de La Pierre (Champigny/Marne, France: Ateliers 30 Impression, 2008), p. 10, https://www.icomos.org/public/publications/monuments_and_sites/15/pdf/Monuments_and_Sites_15_ISCS_Glossary_Stone.pdf.

TYPE OF DECAY: PLASTER DETACHMENT

DEFINITION
Discontinuity between layers of plaster, either among themselves or relative to the substrate, generally leading to the layers falling off. Discontinuity between the coating and the base material or between two coatings.[60]

ELEMENT Wall
MATERIAL Brick
FINISH Plaster and painting

SUGGESTED INTERVENTIONS
The proposed interventions for addressing the plaster detachment on the main facade of the buildings include the following steps:

REMOVAL
Preliminary removal of detached plaster from the walls.

CLEANING
Dusting off the efflorescence and localized removal of loose material using broom brushes. Desalination process through cycles of absorbent compresses made with distilled water.

PLASTER REINTEGRATION
Application of a scratch coat of cement mortar resistant to sulfates an plaster application.

PAINTING
The entire affected facade will be painted using a color that is compatible with the historical plaster original painting.

PROTECTION
Application of a water repellent breathable protective coat.

[60] UNI. "Norma Italiana - Beni Culturali Materiali Lapidei Naturali Ed Artificiali." Milano, Italia: UNI Ente Italiano Nazionale di Unificazione, April 2006, p.16
https://www.unirc.it/documentazione/materiale_didattico/1463_2016_426_26713.pdf.

TYPE OF DECAY: FRAGMENTATION
SUB-TYPE: CHIPPING

DEFINITION
Fragmentation is the complete or partial breaking up into portions of variable dimensions that are irregular in form, thickness and volume. Chipping, is a sub-type of fragmentation in which it is possible to see breaking off of pieces, called chips, from the edges of a block.[61]

ELEMENT	Pillar
MATERIAL	Concrete
FINISH	Plaster

SUGGESTED INTERVENTIONS
The treatment suggested for plaster fragmentation follows the next steps:

REMOVAL
Preliminary removal of detached plaster from the walls.

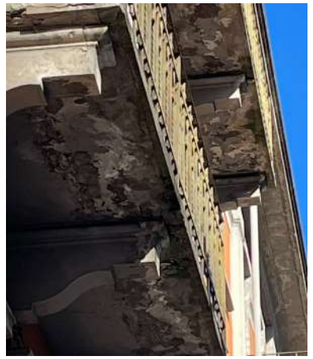
CLEANING
Removal of loose surface deposits with a soft brush.
Washing with water for the removal of partially adhering surface deposits.

REINTEGRATION
Reconstruction of the plaster through the application of a scratch coat with mortar resistant to sulfates, in order to completely cover the existing support, and application of the finishing plaster based on natural hydraulic lime with high breathability.[62]

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[61] ICOMOS International Scientific Committee for Stone (ISCS), Illustrated Glossary on Stone Deterioration Patterns (2008), p. 22.
[62] Mamino, P. " Palazzo Audifreddi - Progetto Di Restauro E Rifunzionalizzazione." Thesis, (2022) p. 187 https://webthesis.biblio.polito.it/23992/.

TYPE OF DECAY: PLASTER DETACHMENT
SUB-TYPE: BLISTERING



DEFINITION
Separated, air-filled, raised hemispherical elevations on the face of the material resulting from the detachment of an outer layer. This detachment is not related to the structure.[63]

ELEMENT	Balconies floor and cornice
MATERIAL	Concrete
FINISH	Plaster

SUGGESTED INTERVENTIONS
The decay caused by blistering should be treated with the following steps:

CLEANING
Removal of any loose or detached material using gentle brushing and washing with water for the removal of partially adhering surface deposits.

REINTEGRATION
Plaster reintegration on top of the clean surface.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

PREVENTIVE MEASURES
Addressing moisture sources is essential and may include improving drainage, controlling humidity, and implementing measures to prevent water infiltration.

[63] ICOMOS International Scientific Committee for Stone (ISCS). p.14

TYPE OF DECAY: MATERIAL LOSS
SUB-TYPE: MISSING PART

DEFINITION
Intended as the loss of three-dimensional elements[64], or empty space, obviously located in the place of some formerly existing part.[65]

ELEMENT Window
MATERIAL Glass

SUGGESTED INTERVENTIONS
This type of intervention should start with the assessment of the window and its surrounding area, documenting the current state, including any remaining fragments and details of the missing parts. Additionally, appropriate materials that closely match the original ones should be selected, involving the identification and sourcing of materials similar to those used in the original construction.[66]

REMOVAL
Careful removal of the broken glass by hand, using protective gloves.

INTEGRATION
The new part is carefully integrated into the existing structure. This process involves precise fitting and securing of the new piece to ensure stability and seamless blending with the original window.

[64] UNI. “Norma Italiana - Beni Culturali Materiali Lapidei Naturali Ed Artificiali.” Milano, Italia: UNI Ente Italiano Nazionale di Unificazione, April 2006, p.24
[65] ICOMOS International Scientific Committee for Stone (ISCS). p.14
[66] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: EROSION
SUB-TYPE: LOSS OF COMPONENTS

DEFINITION
As erosion, it is intended the loss of original surface, leading to smoothed shapes. The loss of components is a sub-type of erosion, in which is presented a Partial or selective elimination of soft or compact components.[67]

ELEMENT Basement
MATERIAL Brick
FINISH Mortar

SUGGESTED INTERVENTIONS
CLEANING
Cleaning with broom brushes and misted water of the affected portion.

REMOVAL
Removal of heavily detached mortar using small spatulas. [68]

REINTEGRATION
Reintegrating degraded or missing bricks and compatible mortar bed.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[67] ICOMOS International Scientific Committee for Stone (ISCS). p.30
[68] Mamino, P. “ Palazzo Audifreddi - Progetto Di Restauro E Rifunzionalizzazione.” Thesis, (2022) p. 181
https://webthesis.biblio.polito.it/23992/.

TYPE OF DECAY: DISCOLOURATION
SUB-TYPE: MOIST AREA

DEFINITION
Discolouration, or chromatic alteration is intended as the change of the stone colour, while the moist area sub-type corresponds to the darkening (lower hue) of a surface due to dampness. The denomination moist area is preferred to moist spot, moist zone or visible damp area.[69]

ELEMENT	Pillars
MATERIAL	Concrete
FINISH	Plaster

SUGGESTED INTERVENTIONS
According to "Stone Conservation: An Overview of Current Research,"[70] the treatment for discoloration, specifically stains on stone surfaces, involves several key steps:

CLEANING
Carefully clean the discolored areas using a soft brush and water mist.
Apply a chemical biocide to eliminate the presence of possible biological growth such as moss, algae, and lichen.
For desalination treatment, use a poultice to extract salts from the stone. This process typically involves applying and removing poultices, which absorb the salts from the stone's surface and pores.

PROTECTION
Finishing plaster application.
Apply a breathable water repellent protective coat on the surface.

[69] ICOMOS International Scientific Committee for Stone (ISCS). p.46
[70] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: DISCOLOURATION
SUB-TYPE: STAINING

DEFINITION
According to the UNI[71], a stain is a localized color variation of the surface, related both to the presence of certain natural components of the material (concentration of pyrite in marbles) and to the presence of foreign materials (water, oxidation products of metallic materials, organic substances, paints, microorganisms, for example).

ELEMENT	Facade pillars
MATERIAL	Concrete
FINISH	Plaster

SUGGESTED INTERVENTIONS
According to "Stone Conservation: An Overview of Current Research,"[72] the treatment for discoloration, specifically stains on stone surfaces, involves several key steps:

CLEANING
Carefully clean the stained areas using a soft brush and water mist.
For organic stains use a poultice made with a solvent like acetone or hydrogen peroxide, the polutice helps with the desalination process, absorbing the salts from the stone's surface and pores.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[71] UNI. "Norma Italiana - Beni Culturali Materiali Lapidei Naturali Ed Artificiali." Milano, Italia: UNI Ente Italiano Nazionale di Unificazione, April 2006, p.22
[72] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research.

TYPE OF DECAY: GRAFFITTI

DEFINITION
Engraving, scratching, cutting or application of paint, ink or similar matter on the stone surface, generally the result of an act of vandalism.[73]

ELEMENT	Basement, pilars and walls
MATERIAL	Mortar, concrete and brick (respectively)
FINISH	Painting and plaster (on brick walls only)

SUGGESTED INTERVENTION
According to "Stone Conservation: An Overview of Current Research," [74]the treatment for graffiti for the effective removal without damaging the surface suggests:

CLEANING
This includes using soft brushes or low-pressure water spray.
Application of chemical solvent-based cleaners or gels to dissolve graffiti paints. These should be selected based on the type of paint and stone to ensure compatibility and effectiveness.
Application of polutice for deeper celaning: poultices that draw out the graffiti from the stone pores can be applied. These are often used in combination with solvents to enhance removal.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[73] ICOMOS International Scientific Committee for Stone (ISCS). p.56
[74] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: BIOLOGICAL COLONIZATION
SUB-TYPE: ALGUE

DEFINITION
Biological colonization is intented for the colonization of the stone by plants and micro-organisms. Algae are microscopic vegetal organisms which can be seen outdoors and indoors, as powdery or viscous deposits. Algae form green, red, brown, or black veil like zones and can be found mainly in situations where the substrate remains moistened for long periods of time.[75]

ELEMENT	Basement and pillars
MATERIAL	Mortar and concrete

SUGGESTED INTERVENTION
According to "Stone Conservation: An Overview of Current Research".[76]

CLEANING
Mechanical cleaning to remove loose growth using soft brushes or water sprays. Avoid high-pressure washing, which can damage the stone.
Apply biocides that are specifically designed for use on stone to kill the biological growth. Common biocides include quaternary ammonium compounds, hydrogen peroxide, and sodium hypochlorite. It's essential to follow the manufacturer's instructions and conduct a patch test to ensure the biocide does not damage the stone.
For stubborn growth, poultices can be applied. These are mixtures that help draw out and absorb the biological material from the stone's pores.
After the biocide has taken effect, thoroughly rinse the stone surface with clean water to remove any residues. This step is crucial to ensure that no biocide remains that could potentially damage the stone or the environment.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[75] ICOMOS International Scientific Committee for Stone (ISCS). p.64-66
[76] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: BIOLOGICAL COLONIZATION
SUB-TYPE: PLANT

DEFINITION:
Vegetal living being,consisting sometimes only of a single leafy expansion If buildings are not maintained, plants will eventually colonise places where water is accessible, extending roots into joints and break the stone. They may also contribute to keep areas damp exacerbates other processes such as salt deterioration.[77]

ELEMENT Basement
MATERIAL Mortar

SUGGESTED INTERVENTION

According to “Stone Conservation: An Overview of Current Research”[78] before any intervention it is important to identify the type of plants growing on or near the stone. This helps in understanding their root structure and potential damage.

REMOVAL

Carefully remove plants by hand, ensuring to extract as much of the root system as possible to prevent regrowth with small trowels or tweezers for precision.

CLEANING

Apply appropriate herbicides to kill remaining roots and inhibit regrowth. Ensure that the herbicide is safe for use on stone surfaces and does not cause additional damage.
Clean the stone surface with water and soft brushes to remove any remaining debris and dead plant material. Avoid high-pressure washing as it can damage the stone.
Apply poultices to draw out deep-seated root fragments or residual organic material. Poultices can also help remove stains caused by plant growth.

PROTECTION

Apply a breathable water repellent protective coat on the surface.

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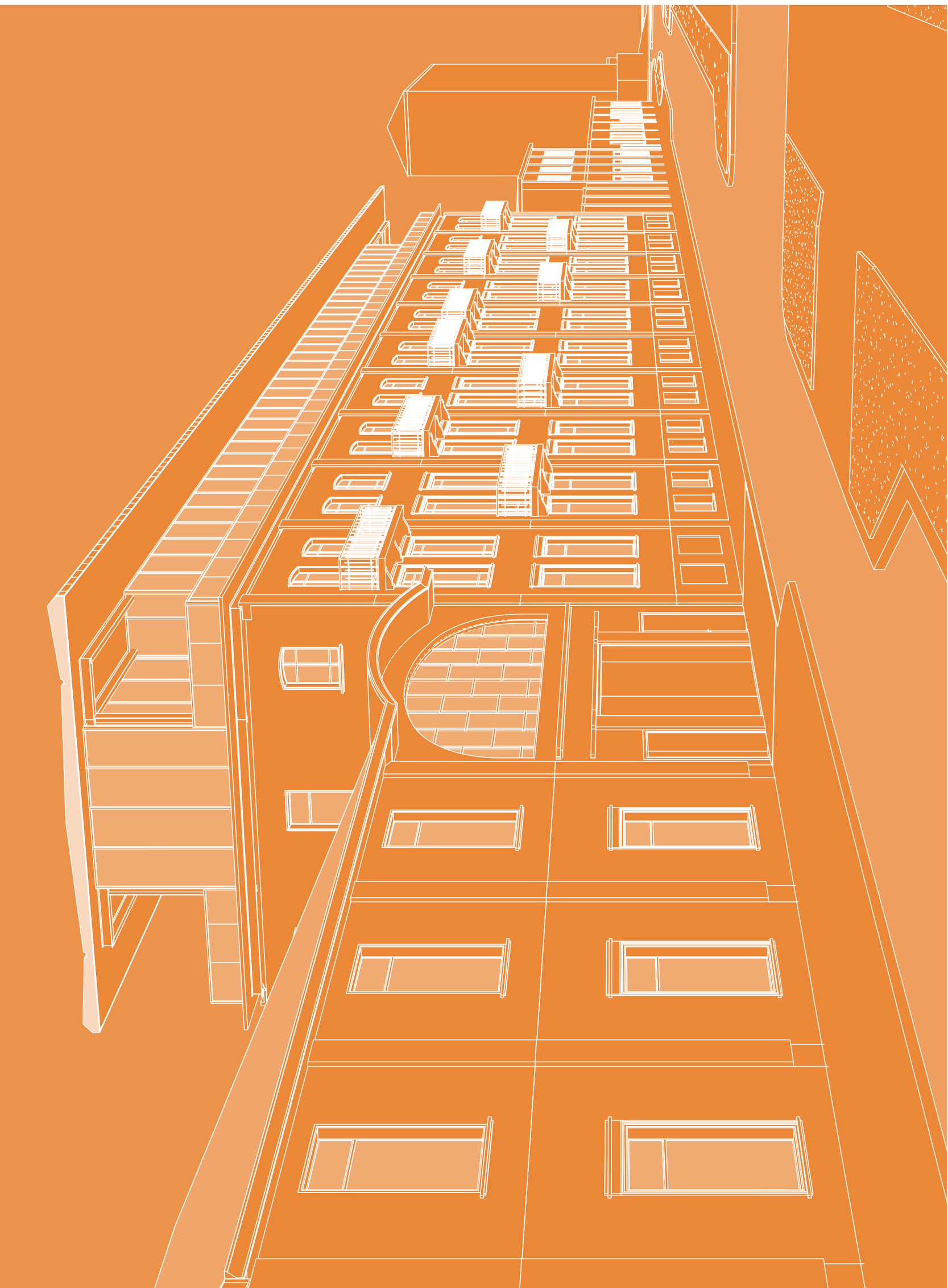
[77] ICOMOS International Scientific Committee for Stone (ISCS). p.74

[78] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research.

PART 4
ADAPTIVE REUSE OF THE INDUSTRIAL HERITAGE



HOW TO PRESERVE THE INDUSTRIAL HERITAGE

Preserving industrial heritage requires interventions to ensure proper use, particularly when the original functions of the buildings have ended. These interventions, along with recognition of their cultural value, enable the development of suitable preservation methods. In this chapter, we will examine two approaches to preserving industrial heritage. Beginning with the definition of post-industrial cities, the first approach we will explore is adaptive reuse, which is recognized as an effective strategy for protecting industrial heritage within post-industrial cities. This strategy involves repurposing abandoned or underutilized industrial buildings for new uses while preserving their historical and architectural value. The following chapter will delve into the “Adaptive Reuse Toolkit”[79] an eight-step method emphasizing maximum conservation and minimal transformation.
The second approach covered in this chapter focuses on the conservation and repurposing of industrial heritage.[80] This approach highlights the importance of a comprehensive strategy for the conservation and repurposing of industrial heritage buildings, prioritizing their cultural and historical significance. Through careful repurposing interventions, these structures can be adapted to meet contemporary needs while maintaining their integrity and avoiding unnecessary demolition. Ultimately, the goal is to integrate these historic structures into the urban landscape and modern life, ensuring their continued relevance and appreciation for future generations.

[79] Robiglio, Matteo. RE-USA 20 American Stories of Adaptive Reuse: A Toolkit for Post-Industrial Cities. Berlin: Jovis , 2017.
[80] Manuela Mattone and Laura Amarilla, *Architettura in ferro e calcestruzzo armato : nuove tecnologie costruttive tra Ottocento e Novecento in Italia e in Argentina.* (Torino: Celid, 2011)

THE POST INDUSTRIAL CITY

In the book Handbook of Urban Studies[81] , the ‘post-industrial’ city is described as an emerging set of urban forms and functions that differs significantly from the industrial city of the past two centuries, warranting a distinct definition. Although the post-industrial city in many ways continues the legacy of the industrial city, it is beneficial to begin by reviewing aspects of earlier urban development that illuminate the ongoing transitions. Much of the context of the post-industrial city can be traced back to its predecessors.

Cities have typically been classified by their primary functions, and for the past 6,000 years of human settlement, commerce and exchange have been the dominant activities in most cities. During the Late Middle Ages and Early Modern period, production methods gradually improved across various manufacturing sectors, leading to better quantity and quality of available goods. While most basic production, except for fine craftsmanship, occurred outside cities, urban areas continued to serve their traditional commercial roles, often enhanced by increased production and economic activity.[82] By the late eighteenth century, production methods underwent a marked acceleration, and with the introduction of power sources such as coal and steam, the nature of manufacturing labor also transformed.[83] These new factories, requiring large and coordinated workforces, became catalysts for unprecedented urban growth and significantly altered the fundamental functions of both established and newly formed cities. The most successful of these ‘post-commercial’ cities expanded rapidly, driving wealth creation through control of industrial development at a pace that amazed contemporary witnesses.[84]

In the final third of the twentieth century, the driving force of economic growth—heavy industry, symbolized by iron and steel—began to decline in both absolute and relative importance in the economies of developed countries[85]. Various types of services replaced heavy industry as centers of growth, ranging from highly specialized producer services such as corporate law, banking, and accounting, to low-wage consumer services. The prototypical post-industrial city is therefore one where traditional industry, while still significant, holds a decreasing share of economic activity[86]. This sector has been replaced as the primary engine of economic growth by the service industry, encompassing everything from producer services to medical, educational, governmental, and consumer services. None of these service sectors were entirely new, but

[81] Paddison, Ronan. *Handbook of Urban Studies.* London: Sage, 2001. p.284-294
[82] Chudacoff, Howard and Smith, Judith (1994) *The Evolution of American Urban Society*, 4th edn. Englewood Cliffs, NJ: Prentice Hall, p.78–107.
[83] Cowen, Alexander (1998) *Urban Europe*, 1500–1700. London: Arnold, p.3–31.
[84] Hohenberg, Paul and Lees, Lynn (1985) *The Making of Urban Europe*, 1000–1950. Cambridge, MA: Harvard University Press, p.179–214.
[85] Bluestone, Barry and Harrison, Bennett (1982) *the Deindustrialization of America: Plant Closings, Community Abandonment, and the Dismantling of Basic Industry.* New York: Basic Books.
[86] Drennan, Matthew (1991) *‘The decline and rise of the New York economy’, in John Mollenkopf and Manuel Castells (eds), Dual City: Restructuring New York.* New York: Russell Sage Foundation.

as primary beneficiaries of the twentieth-century knowledge revolution, they expanded and became more specialized. As traditional industry declined, growth in these service sectors not only persisted but accelerated, rapidly increasing both their relative and absolute shares in the evolving urban economies.[87]

The term “post-industrial” was first introduced in 1919 by Indian cultural reformer A.K. Coomaraswamy[88] but it did not become widely used until Harvard sociologist Daniel Bell popularized it in his seminal work *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (1973). Bell argued that the concept of a post-industrial society is a broad generalization best understood through five key dimensions: the shift from a goods-producing to a service-oriented economy, the rise in prominence of the professional and technical class, the centrality of theoretical knowledge as the primary driver of innovation and policy-making, the emphasis on technological control and assessment, and the development of a new “ intellectual technology”[89] for managing societal issues. Bell highlighted a pivotal moment in U.S. labor history in 1956, when, “for the first time in the history of industrial civilization,” the number of white-collar workers surpassed that of blue-collar workers. He observed that during the 1950s and 1960s, the most significant growth among white-collar workers occurred in professional and technical fields, which typically required post-secondary education, with scientists and engineers being the fastest-growing subgroups.
Bell predicted that this shift would lead to a society increasingly structured around the expertise and knowledge of technocrats. To emphasize the transformation, Bell drew a sharp distinction between industrial and post-industrial societies, noting that while industrial society is characterized by the coordination of machines and human labor for the production of goods, post-industrial society is organized around knowledge, aimed at social control and the direction of innovation and change. This transition, he argued, would give rise to new social relationships and structures that would require careful political management [90].

[87] Hall, Peter (1996) *Cities of Tomorrow.* Oxford: Basil Blackwell. p.402–22

[88] Gappert, Gary (1979) *Post-Affluent America: The Social Economy of the Future.* New York: Franklin Watts, p.31

[89] Bell, Daniel (1973) *The Coming of Post-Industrial Society: A Venture in Social Forecasting.* New York: Basic Books, p.14

[90] Bell, Daniel (1973) The Coming of Post-Industrial Society: A Venture in Social Forecasting. p.20

THE ADAPTIVE REUSE TOOLKIT

The adaptive reuse toolkit is designed for post-industrial cities and their citizens to adaptively reuse industrial infrastructure, recognizing the significant physical and economic legacy of past industrial activities. Adaptive reuse repurposes industrial spaces for new uses such as culture, leisure, and housing.

A
“EXPLORE POSSIBILITIES”

Deindustrialization presents cities with numerous opportunities. “To minimize required resources and budget, an adaptive reuse project starts with the selection of the appropriate infrastructure or building to reuse.”[91]This phase is key to building community awareness through structured exploration .Cities should keep updated records of assets to prevent blight and promote reuse. Pittsburgh’s Urban Redevelopment Authority and Detroit’s Blight Removal Task Force exemplify effective strategies, using online maps and community contributions to track vacant properties. These tools blend public data with local experience, enhancing transparency and bridging the gap between planners and citizens. Mapping can also unite community efforts around reuse projects, as urban explorers share findings on social media, and tools like urban transect walks raise awareness and promote local commitment.

B
“ASESS POTENTIAL”

Any abandoned industrial area or building has unique features that must be understood before committing to a reuse project. Before investing large amounts of time and energy in a reuse project it is important to understand what it’s specific positive and negative features are and how they can influence the reuse process. Successful projects are based on a thorough understanding of market reality and strategic choices. Choosing the right location is crucial, considering accessibility, services, neighboring areas, and other factors that might influence the reuse positively or negatively. Determining the appropriate scale of intervention is essential, with strategies ranging from urban acupuncture for fragmented properties to comprehensive master plans for large-scale projects. Maximizing the potential of existing structures involves leveraging their unique qualities, such as load-bearing capacity, high ceilings, and large spans, to accommodate new uses. Linking contemporary stories to powerful industrial memories helps sustain new narratives and connect the future to the past. In most industrial cities, civic identity has been shaped through and by industrialization, and this legacy can support new narratives. It is also important to reconnect the community with the site’s history. This collection of local knowledge is also an opportunity to reconnect to the history and culture of a place. However, potential negative aspects like pollution must be considered. Inexpensive space is key, but regulatory burdens can discourage the reuse of contaminated sites. Incorporating decontamination into the reuse process can help.[92]

[91] Robiglio, Matteo. RE-USA 20 American Stories of Adaptive Reuse

[92] Robiglio, Matteo. RE-USA 20 American Stories of Adaptive Reuse

C

“ENVISION THE FUTURE”

A compelling vision of the future rooted in the past attracts users, residents, entrepreneurs, innovators, and investors to reuse projects. “This positive projection of legacy into the future is not exclusive to post-industrial cities: it is inherent to physical permanence and the living continuity of all cities and urban communities.”[93] Industrial cities, often marked by decline and unemployment, highlight this process. Despite high clean-up and demolition costs, cities like Detroit have shown that reviving industrial legacy can be valuable. Building a vision involves connecting existing infrastructure to local and global trends, such as renewed urban life and new family structures. Understanding people’s desires, fears, and dreams, rooted in local legacy and supported by research, helps create a vision that projects the future onto the past.

D

“INVOLVE PARTNERS”

Successful reuse projects often experience a snowball effect, gaining momentum and attracting more participants over time. This can occur naturally, as seen in Pittsburgh’s Strip District and the Russell Industrial Center, or be intentionally designed, as in the Packard redevelopment. These projects must appeal to early adopters, such as start-ups and artists, and also attract established entities like big firms and universities.Involving partners at all levels is essential for reuse projects, which differ from greenfield developments because they occur in existing urban spaces surrounded by communities. The future of these places attracts interest from leaders, investors, and media. Abandoned areas can support multiple uses, enhancing the project’s vitality and resilience. Community design tools and on-site activities promote deeper understanding and creativity, demonstrating that reuse is already happening.

E

“COLONIZE THE PLACE”

Bring people to your space as soon as possible. Adaptive reuse began with marginalized communities squatting in abandoned spaces in the 1970s in cities like London and New York. Early activities such as street art and temporary events can initiate the reuse process. Informal use encourages experimentation, and winning back iconic spaces can mobilize communities. In Detroit, street art helped revive Eastern Market into a cultural district. In Washington D.C., old warehouses are repurposed for the food industry. Developers use tactics to create value and attract interest, with initial efforts often lacking economic value but relying on visionary early adopters. New experiments will always find space in post-industrial cities.

F

“DESIGN TO REUSE”

Once the reuse process has begun with site exploration, vision sharing, and early adopters initiating colonization, a comprehensive design approach is necessary. Unlike new planning, reuse starts with the site’s existing conditions and infrastructure. An open concept with flexible goals can attract new participants and allow for incremental development. Planning becomes crucial after reuse begins, to sustain, scale, and integrate the project into a new urban vision. Previously seen as obstacles, industrial infrastructures now form the frame for reuse, requiring mutual adaptation between use, users, and spaces.

[93] Robiglio, Matteo. RE-USA 20 American Stories of Adaptive Reuse

The site’s potential, including its location, existing buildings, and assets, is central to the concept. Effective reuse distributes activities and spaces efficiently within the existing structures. Three design strategies are sugested: first, the creation of common spaces by using the large scale of industrial spaces to design impressive internal streets, squares, walkways, and ramps, providing multiple access points and shared facilities. Second, to accomodate new functions by inserting sub-volumes within the primary structure to meet the needs of new uses, enhancing each use’s unique character. And third, to preserve flexibility: to save areas for future growth and unexpected activities, maintaining adaptability and avoiding saturation. Many sites exhibit an adaptive reuse aesthetic and smart design tactics. This approach revives industrial structures, achieving high energy performance and comfort by integrating exposed elements like pipes and cables. Layering styles creates a vintage look, avoiding unnecessary finishes, while large graphics provide bold, affordable branding. The industrial appearance adds charm and supports low-cost construction techniques. Oversize buildings and infrastructure can be repurposed for leisure and open-air uses, enhancing the site’s functionality and appeal.

G

“PLACEMAKING AND FUNDING”

Funding for reuse projects benefits from their incremental structure, allowing existing infrastructure to be progressively activated with minimal initial investments. Community events, cultural festivals, art installations, and temporary markets can utilize existing assets at low costs, making the site accessible and safe. Early partial occupation generates positive micro-economies through rents, fees, crowdfunding, and sales, creating resources for future phases and drawing attention to the site. Public funding often supports the early phases of reuse with small seed grants to local players, adopting a holistic approach that includes cleanup as part of sustainable redevelopment. As projects progress, private-public partnerships and more extensive public funding become necessary, with support often provided as loans or tax credits. This approach ensures public support mitigates early risks, promoting sustainable development and creating a positive economic impact for future project phases.

H

“RUN AND EVOLVE”

Adaptive reuse projects need a dedicated leader or team to adapt and guide the process over time. This leader could be from the community, business, or a volunteer. These projects evolve over time, requiring ongoing adjustments to seize opportunities and manage uncertainties. The leader’s role includes creating and sharing a compelling story to engage others, with public events, media presence, and a strong digital footprint crucial for building a community around the project. Reuse processes often involve revising assumptions, adapting spaces, and redefining uses as new participants join. Industrial sites, with their abundant space and solid construction, allow for future expansion and adaptation. These projects, which intertwine infrastructure, community, and place, offer early outputs and lasting benefits to cities. Successful adaptive reuse relies on leadership, flexibility, and community engagement. Creating a compelling narrative and strong community presence are key. The flexibility of industrial spaces allows for ongoing expansion, making ambitious projects feasible. Adaptive reuse continuously adds value to cities, reclaiming space, welcoming new users, and re-adapting structures, ensuring long-term benefits and resilience for urban areas.

CONSERVATION AND REPURPOSING OF THE INDUSTRIAL HERITAGE

The conservation of the industrial heritage necessitates interventions aimed at ensuring their appropriate use, particularly when the original functions for which they were designed and built have ceased. Protecting these structures from the aggressive actions of natural and anthropic agents is essential This effort is complemented by a growing awareness of the value of this heritage, which serves as “material testimony with cultural significance”[94]underscoring the need to develop suitable intervention methodologies. These architectural works are significant records of technological and organizational transformations in building production and, as such, deserve to be protected and adequately preserved.

Effective safeguarding of this heritage requires a conceptual intervention preceding the architectural one, to prevent these buildings from being classified merely as objects for demolition and to promote suitable conservation efforts. Indeed, “an intellectual work, regardless of the generation it belongs to [...] and whatever sequence of infinite modernities awaits us, must always be vigorously defended when it carries strong messages, if only as a reflection of the society and culture that created and experienced it.”[97]

Thus, it is essential to undertake repurposin and adaptive reuse interventions that foster the integrated conservation of these structures, enabling the adaptation of the built environment to evolving needs. As these architectures are wholly or partially abandoned, their primary cause of ruin is the loss of their intended use. Consequently, the restoration intervention should necessarily include the introduction of new, suitably chosen and compatible functions. This strategy effectively constitutes “the only guarantee to replace restoration, a sporadic and somewhat traumatic act, with continuous conservative maintenance.”[97] As Gaetano Miarelli Mariani asserts, “repurposing finds its opportunity to achieve the goal of conservation in the compatibility of the new use.”[97]
Repurposing must be carefully designed to avoid distortions or alterations to the existing structures. It should also include a comprehensive technical and structural analysis of the buildings to evaluate the load-bearing capacity of the existing structures. If necessary, external supports should be employed due to increased static demands on the buildings. Additionally, new structures, indispensable for the new function, should be proposed for aggregation to the existing ones. These new additions will provide formal and material characterization, as well as functional meaning, to the differences introduced in the ancient context.

[94] Manuela Mattone and Laura Amarilla, *Architettura in ferro e calcestruzzo armato : nuove tecnologie costruttive tra Ottocento e Novecento in Italia e in Argentina.* (Torino: Celid, 2011)

Far from viewing these structures as abandoned areas subject to any kind of transformation, it is crucial to promote their compatible reuse, allowing for the complete autonomy of the new while fully respecting what remains. [61]Knowledge, an essential prerequisite for any intervention on existing structures, should include, among other things, the consultation and detailed analysis of graphical material such as drawings, projects, construction details, and structural calculations, which are often still available due to the relatively short period that separates us from the construction of the factories in need of intervention. This documentation can provide valuable support for the static and structural verification of the buildings and serve as a useful starting point for identifying necessary consolidation interventions.
Every decision should respect the status of the factory as a historical-cultural document, considering operations that promote the material preservation of the original documents and all stratifications from a constructional, structural, and distributional perspective that are integral to the life of the architectural work. The goal is to restore the building to the culture of the city, thanks to the new addition that represents an added value compared to the original asset and the implementation of appropriate maintenance policies.
Noteworthy examples of repurposing interventions include the Lingotto complex in Turin and the Montemartini Power Plant in Rome. In the first case, the intervention effectively safeguarded the factory and the Office Building, demonstrating “a close integration with the testimonial values of the preexistence.”[95] In the second case, converting the factory into a museum aimed to establish a balance between the exhibited works, the architecture, and the power plant’s machinery—between “container” and “content”—with the intent of ensuring their optimal usability and mutual enhancement.

In conclusion, the conservation of reinforced concrete constructions requires a comprehensive approach that prioritizes the preservation of their cultural and historical significance. By undertaking careful repurposing interventions, these structures can be adapted to meet contemporary needs while maintaining their integrity and avoiding unnecessary demolition. Detailed technical and structural analyses, combined with a deep understanding of the buildings’ historical contexts, are essential to ensure their stability and suitability for new uses. The successful examples of the Lingotto complex and the Montemartini Power Plant demonstrate the potential of such interventions to not only conserve but also enhance these architectural works, turning them into vibrant, functional spaces that honor their past. Ultimately, the goal is to integrate these historical structures into the fabric of modern life, ensuring their continued relevance and appreciation for future generations.

[95] Manuela Mattone and Laura Amarilla, *Architettura in ferro e calcestruzzo armato.*

THE ARCHITECTURAL APPROACH TOWARDS THE INDUSTRIAL HERITAGE

The first part of this chapter addresses the origins of the architectural approach to industrial heritage, which explains how the architectural approach towards industrial heritage starts with the need to separate the old from the new. This was the first conventional approach of architecture towards heritage; this first approach would change into a more innovative one, in which architectural heritage is conserved by integrating new elements into new structures hybridizing the new with the old. [96]

In the second part, the book Rust Remix: Architecture: Pittsburgh Versus Detroit[97] is examined. This book showcases various projects that engage with the post-industrial landscapes of these cities, with a focus on adaptive reuse. The adaptive reuse strategy involves repurposing abandoned industrial structures to create new spaces, uses, and forms. Through techniques such as preserving structural frameworks or incorporating modern design elements, these interventions tackle the challenges of post-industrial urban decay while fostering a sense of identity and continuity within the evolving urban fabric. The book emphasizes that architectural projects go beyond physical reconstruction; they also symbolically redefine urban spaces, demonstrating how refunctionalization projects can significantly enhance both urban environments and the quality of life for their residents.

[96] Robiglio, Matteo. RE-USA 20 American Stories of Adaptive Reuse: A Toolkit for Post-Industrial Cities. Berlin: Jovis , 2017.

[97] Ingaramo, Roberta. *Rust Remix. Architecture: Pittsburgh versus Detroit*. Lettera ventidue Edizione, 2018.

THE HISTORICAL APPROACH - THE SEPARATION OF THE NEW FROM THE OLD

The separation of old and new, essential to modernity, began in the Renaissance, which distanced itself from the Middle Ages to reconnect with the Classical Age. The modern idea of architectural restoration emerged here, valuing the scientific reconstruction of ancient forms over the reuse of materials, instead of repurposing ruins without concern for their original context. Classical artifacts were reused in new buildings, but this practice required interpretations that sometimes deviated from original intentions. [98]

The practice of reusing existing buildings for new functions is not a recent development; historically, structurally sound buildings have been adapted to meet changing needs or new purposes without much debate or theoretical consideration[99]. For instance, during the Renaissance, ancient monuments were repurposed for contemporary uses, and during the French Revolution, religious buildings were converted for industrial or military functions after being confiscated and sold [100]. These modifications were often pragmatic and driven by functional and financial needs, rather than any intention of heritage preservation [101].

Today, however, the architectural discipline embraces the repair and restoration of existing buildings as a creative and engaging challenge, often referred to as 'adaptive reuse'[102]. In modern conservation theory and practice, adaptive reusing is recognized as a crucial strategy for preserving cultural heritage[103].

A thorough review of scholarly literature on adaptive reuse from the 1970s onward reveals that the theoretical foundation for reusing industrial architectural heritage is largely based on case studies, rather than architectural theory as one might expect. [104] Although 19th- and 20th-century conservation and architectural theorists addressed the concept of adaptive reuse, their ideas

[98] Robiglio, Matteo. RE-USA.

[99] Linters, A. (2006) *'Réflechissez avant d'agir', Revue du Patrimoine Culturel Européen*, 2006/1: p. 4-12.

[100] Cunnington, P.(1988), *Change of Use: the Conversion of Old Buildings* (London: Alpha Books).

[101] Powell, K. (1999) *Architecture reborn. Converting old buildings for new uses* (New York: Rizzoli international publications, inc.)
Pérez de Arce, R.(1978) 'Urban Transformations & The Architecture of Additions', Architcetural Design, 1978/4: p. 237-266

[102] Brooker, G. and Stone, S. (2004) *Re-readings. Interior architecture and the design principles of remodelling existing buildings* (London: RIBA Enterprises)

[103] Machado, R. (1976) *'Old buildings as palimpsest. Towards a theory of remodeling', Progressive Architecture*, 1976/11: p. 46-49
Jessen, J. and Schneider, J. (2003) *'Conversions - the new normal', in Schttich, C. (ed.) Building in Existing Fabric - Refurbishment Extensions New Design* (Birkhäuser: Basel) p. 11 - 21.

[104] Plevoets, B. and Van Cleempoel,K. (2011) *'Adaptive Reuse as a Strategy towards Conservation of Cultural Heritage: a Literature Review'*, in *Brebbia, C. and Binda, L. (eds.), Structural Studies, Repairs and Maintenance of Heritage Architecture XII* (WITpress: Chianciano Terme, Italy) p. 155-164.

have seldom been engaged with by contemporary theorists in the field, with few exceptions[105]. This contribution aims to provide a critical analysis of these historical theories within the context of adaptive reuse of heritage sites.
As an example, Romantic aesthetics emerged from the appreciation of ruins' incomplete beauty, which highlighted the passage of time and nature's power. Post-war avant-garde architecture initially sought to break away from the eclectic styles of the past, favoring purity, technology, and novelty. However, by the 1950s, architects began to challenge this modernist approach, advocating for complexity, historical continuity, and social responsibility.[106]

Alois Riegl (1858-1905) discussed the conflict between opposing conservation theories and their views on adaptive reuse in his essay *"Der Moderne Denkmalkultus: Sein Wesen und seine Entstehung"* [107]. Riegl attributed this conflict to the differing values attributed to monuments, which he categorized into commemorative values—such as age-value, historical value, and intentional commemorative value—and present-day values, including use-value and art-value (newness-value, relative art-value). He pointed out that these values often clash within a single monument, with the central controversy being the contradiction between newness-value and age-value [108]. Supporters of the restoration movement, inspired by Viollet-Le-Duc, focused on blending newness-value with historic value to restore monuments into a unified, historically original state. In contrast, the conservation movement, led by Ruskin and Morris, valued monuments for their age-value, advocating for the preservation of their incomplete state as evidence of natural decay and historical authenticity. Riegl, though critical of 19th-century creative restorations, acknowledged the importance of use-value in modern conservation. He recognized that when a monument loses its use-value, age-value becomes the dominant focus in its preservation. However, for buildings still in use, practical considerations often override age-value, as safety and functionality are prioritized[109].
A few years before Riegl's essay on monuments, Camillo Boito (1836-1914) presented practical guidelines for the restoration of historic buildings in his paper *"Questioni pratiche di belle arti, restauri, concorsi, legislazione, professione, insegnamento"*[110]. Boito critically compared Viollet-le-Duc and Ruskin, expressing concerns over the loss of material authenticity in Viollet-le-Duc's approach and dismissing Ruskin's advocacy of decay over restoration[111]. He proposed that restoration methods should be tailored to the specific circumstances of each monument, distinguishing between 'archaeological restoration' for antique monuments, 'picturesque restoration' for medieval ones, and 'architectural restoration' for Renaissance and other monuments. Boito also introduced principles, such as consolidating rather than repairing a monument and ensuring modern interventions are clearly recognizable to avoid confusion about the building's historic and artistic value[112]. While Boito did not specifically address adaptive reuse, his ideas are highly relevant as they offer guidance on how to handle alterations and additions to historic buildings. Boito's influence on both Italian and international conservation practices was significant, contrasting with Riegl's more limited impact. His ideas formed the basis for the Athens Charter of 1931, the first international document promoting modern conservation policy[113] . The charter, developed by the International Museum Office post-World War I, advocated regular maintenance over stylistic restorations. It also supported adaptive reuse, recommending that buildings continue to be used in ways that respect their historical and artistic character[114].

In the post-war era, the conservation discipline expanded its focus beyond antique and medieval buildings to include a broader range of cultural heritage, such as vernacular architecture, industrial buildings, and entire historic cities, due to the widespread destruction caused by the two world wars. This broadened perspective sparked a growing interest in adaptive reuse as a method for conserving these newer forms of heritage. The Venice Charter of 1964 underscored the significance of adaptive reuse, asserting that "the conservation of monuments is always facilitated by making use of them for some socially useful purpose"[115]. At the same time, the architectural discipline witnessed a parallel shift. Initially focused on breaking away from traditional building methods, mid-20th-century architects began to recognize the value of engaging with historic structures. Architects like Carlo Scarpa, Raphaël Moneo, and Herzog & de Meuron embraced the challenge of working with old buildings, leading to a substantial body of scholarly literature on adaptive reuse from the 1970s onwards[116, 117]. During this same period, state and market-controlled production of space increasingly transformed housing into a welfare service or market sector, often stripping people of their building competence and personal involvement in their living environments. Yet, in spaces where individuals retained control, such as backyards and basements, the creativity of the bricoleur—those who adapt and repurpose existing materials—flourished. The adaptability of single-family houses persisted as a form of self-expression, even in the face of rising consumerism, highlighting the enduring value of industrial architecture as a flexible and participatory framework.

Reusing industrial sites not only preserves local community legacies but also blends past skills with new opportunities, reinforcing the practical and cultural significance of integrating new elements into old structures. This practice, which challenges the separation between past and present, advocates for a fluid and inclusive approach to space and design that honors history while embracing innovation. In fact, the adaptive reuse movement, which exemplifies this philosophy, can be traced back to 1953 in Manhattan, when Robert Rauschenberg found a loft at 61 Fulton Street, marking the beginning of a new era in architectural practice.[118] Artists at the time traded substandard living conditions for large, bright, and cheap spaces in 19th and early 20th-century industrial buildings. This trend peaked with Andy Warhol's Factory inMidtown,

[105] Scott, F., (2008) *On Altering Architecture.* (London: Routledge).
[106] Robiglio, Matteo. RE-USA 20 American Stories of Adaptive Reuse
[107] Riegl, A. (1928 [1903]) *'Der Moderne Denkmalkultus: Sein Wesen und seine Entstehung', in Gesammelte Aufsätze* (Dr. Benno Filser Verlag: Augsburg-Wien) p. 144-193.
[108] Riegl, A. (1982 [1903]) *'The Modern Cult of Monuments: Its Character and Its Origin'*, Oppositions, 25/ Fall 1982: p. 44
[109] Riegl, A. (1982 [1903]) *'The Modern Cult of Monuments: Its Character and Its Origin'*, p. 39- 44
[110] Boito, C. (1893), *Questioni pratiche di belle arti, restauri, concorsi, legislazione, professione, insegnamento* (Milan: Ulrico Hoepli).
[111] Jokilehto, J., (1999) *A History of Architectural Conservation* (Oxford: Elsevier)
[112] Boito, C. (2009 [1893]) *'Restoration in Architecture. First Dialogue',* Future Anterior, 6/1: p. 69-83
[113] Jokilehto, J., (1999) *A History of Architectural Conservation*
[114] International Museum Office (1931) *'The Athens Charter for the Restoration of Historic Monuments',* in Destrée, J. (ed.), Adopted at the First International Congress of Architects and Technicians of Historic Monuments (Athens).
[115] ICOMOS (1964) The Venice Charter. International charter for the conservation and restoration of monuments and sites (Venice). Article 5.
[116] Cantacuzino, S. (1975) *New uses for old buildings* (London: Architectural press).
[117] Choay, F.(2007) *L'allégorie du patrimoine* (Paris: Seuil).
[118] Robiglio, Matteo. RE-USA.

marking the beginning of the “Artistic Mode of Production”[119] (AMP), where real estate developers used art to reprice declined areas and meet new demands for authenticity and urbanity. The “loft lifestyle” transitioned from an avant-garde posture to a lucrative real estate business, eventually making space unaffordable for production and the creative community that had revitalized it. The energy crisis of 1973 undermined confidence in endless economic growth and technological progress. Environmental and social awareness began to critique an economy that rapidly turned natural resources into waste. The decline of industrial production left behind rusting ruins, which were soon rebranded as industrial archaeology, inviting reuse and inclusion into historical heritage.

In conclusion, the evolution of architecture and conservation has seen a significant shift from their early convergence to a more nuanced relationship. Until the 19th century, the fields were closely intertwined, with architects engaging in both new constructions and the adaptation of ancient structures, driven largely by practical needs and continued use[120] [4]. However, by the early 20th century, a rift emerged: modern conservation focused on ‘scientific restoration’ (cf. Boito) and ‘value-assessment’ (cf. Riegl), while modern architecture emphasized new techniques and future improvements, often viewing existing buildings as inadequate.

From the 1960s onwards, a realignment occurred, with architects increasingly interested in historic buildings and conservationists recognizing the value of adaptive reuse. Today, adaptive reuse is emerging as a distinct discipline within architectural conservation. This approach became especially relevant after the 2008 financial crisis, which highlighted the potential of repurposing existing industrial structures over clearing sites. Adaptive reuse leverages large, flexible spaces and community ties, attracting diverse users and leading to incremental value creation. Successful projects often combine new construction with preserved elements, demonstrating the commitment and vision required to revitalize legacy infrastructure.

Understanding adaptive reuse underscores its vital role in bridging architecture and society. It challenges traditional separations of old and new, promoting continuity, adaptability, and sustainability. By integrating new elements into existing frameworks, adaptive reuse offers a model for revitalizing neglected areas while honoring historical and community values. Rooted in historical practices and evolving through modern movements, this approach emphasizes minimal intervention and celebrates craftsmanship and community involvement, transforming rigid spaces into dynamic environments. Ultimately, adaptive reuse represents a harmonious blend of preservation and innovation, requiring collaborative efforts to create flexible, site-specific architecture that reflects both history and contemporary needs.

[119] Robiglio, Matteo. RE-USA.

[120] Pérez de Arce, R.(1978) ‘Urban Transformations & The Architecture of Additions’, Architcetural Design, 1978/4: p. 237-266.

A CHANGE OF APPROACH IN THE LAST 20 - 30 YEARS

THE PROJECT AS A TOOL

In recent years, one of the most significant shifts in architectural approaches to industrial heritage is the actual impact of architectural projects and interventions. In the book *Rust Remix*[121] author Roberta Ingaramo focuses on how architecture can reshape urban environments through various levels of intervention. The book highlights how repurposing abandoned industrial structures creates new spatialities, uses, and forms, emphasizing the importance of adaptive reuse in urban regeneration.

From preserving structural skeletons to incorporating new design elements, architectural interventions aim to address the unique challenges posed by post-industrial urban decay and to foster a sense of identity and continuity within these evolving urban fabrics. Architectural projects are not only about physical reconstruction but also about symbolically redefining urban spaces.
This evolving approach to industrial heritage demonstrates how refunctionalization projects can significantly improve urban life and enhance the quality of life for residents.

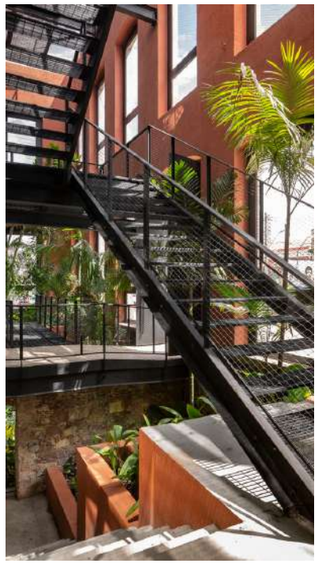
[121] Ingaramo, Roberta. *Rust Remix. Architecture: Pittsburgh versus Detroit.* Lettera ventidue Edizione, 2018.

Analyzing these projects and their effects leads to several conclusions regarding the role of architecture in areas still facing ongoing crises. Setting aside the issue of authorship, the real aim of a project is to tackle specific needs while offering solutions. So then, where is architecture? What is its role? And what are the projects we are discussing?

Firstly, the project serves as a tool for the spatial and architectural redefinition of post-industrial cities that have suffered severe urban crises. It highlights a pragmatic attitude, using projects to make spatial needs tangible and reconstruct an identity and symbolic urban system. Secondly, the project acts as an interpretation, reclaiming the industrial legacy of these cities and interpreting their cultural assets to build their future. Thirdly, the project serves as a guiding process, where the design of different uses of spaces guides the transformation process. By combining techniques and policies, architects design a vision of the transformation and coordinate the various actors involved (public, private, non-profit), becoming an integral part of the process while holding the reins. This is particularly evident in a preservationist approach. Fourthly, remodeling projects address the age-old issue of the authenticity of artifacts or places and their reinterpretation. Architects make choices and build proposals, resulting in formal outcomes that assume a new role in urban space. The additive approach promotes this remodeling, making projects the makers of change, even if temporary, with detailed designs that appeal to the teachings of the great masters. Lastly, the project functions as a reconstruction process, where the city is rebuilt through the new design of more or less consistent parts: abandoned or reclaimed areas and spaces. The project assumes a decisive role in building a local identity, recognizable in its forms. Architects act as authors and guides of the project construction process, which is then shared on web platforms for legitimization, transparency, and validation of the results.

In conclusion, the diverse roles of architectural projects in post-industrial urban environments underscore their significance beyond mere physical reconstruction. These projects symbolize a comprehensive approach to urban regeneration, blending historical preservation with innovative design. By addressing specific needs and fostering community involvement, architecture serves as a powerful force for redefining and revitalizing cities, ultimately enhancing the quality of urban life and contributing to a sustainable and inclusive future.

CASE STUDIES



CASSINA INNOVATION HOUSE

LAUREN TROOST

TATE MODERN

HERZOG & DEMEURON

TOOLBOX COWORKING

CATERINA TIAZZOLDI

During this phase, architectural projects were analyzed for their approaches to re-functionalization and adaptive reuse of industrial buildings.

Two notable examples include the Cassina Innovation House and Toolbox Coworking, which demonstrate the transformation of a historical building and an abandoned industrial building into coworking spaces. These two examples were particularly influential in the program areas assignation for the Former Superga Factory Coworking project, showcasing effective strategies for repurposing existing structures.

Another significant project is the Tate Modern by Herzog & De Meuron, which illustrates the potential for large-scale interventions on abandoned industrial buildings. This proposal retained the building's main facade and added a new volume on the roof to make the structure more suitable for its new functions. The careful balance between preserving historical elements and introducing contemporary additions highlights the versatility and creativity required in adaptive reuse projects. These case studies collectively underscore the importance of innovative design solutions in breathing new life into old industrial spaces, transforming them into vibrant, functional environments.

Fig.112_ *Cassina innovation house.* Source: https://www.archdaily.com/958199/cassina-innovation-house-laurent-troost-architectures
Fig.113_ *Tate modern.* Source: https://www.architonic.com/it/project/herzog-de-meuron-the-new-tate-modern/5103422
Fig.114_ *Toolbox coworking.* Source: https://digitalnomads.world/member-benefit/toolbox-coworking/

CASSINA INNOVATION HOUSE/ DIGITAL TECHNOLOGY CENTER
LAUREN TROOST ARCHITECTS

LOCATION: MANAUS, BRASIL
YEAR: 2020
AREA: 1586m2

The project shows the restoration and adaptive reuse of an abandoned builing located in the city center of of Manaus, Brazil, with the aim of enhance and highlight the historic architecture of the neighborhood while transforming its inner area into multi functional spaces for the development of a new digital pole. The aspects to higlight about this project and that will be taken into consideration for the architectural proposal are its circulation analysis, its functions, and the creation of a new volume inside the building without the alteration of the original facade[122] .

CIRCULATION ANALYSIS
1. All of the different levels are connected through a staircase in between of the front facade and the new proposed structure inside the building, this allows a vertical circulation all over the spaces from without disturbing people while developing their activities. Plus, the vertical garden placed in the void created by the stair, works as a sound barrier between the street and the work areas.
2. Creation of an elevator close to the main staircase, that connects in each floor with kichens and bathrooms areas.
3. The terrace's perimetral circulation has as an additional function to "hide" the new volume from the external facade.

MIXED FUNCTIONS
The house counts with coworking collaborative spaces, conference rooms, meeting areas with some services distributed all over the building, and relax and wellbeing areas placed strategically in the basement and the terrace.

FACADE TREATMENTS
Preservation of the "ruin conditions" of the facade in order to make the historic pigmented plaster with sandstone powder visible and tangible for the people.[67]
- Development of restoration works of cleaning, stabilization, consolidation, and protection to paralyze the facade's degradation without interveining its historic colors, characteristics and highlighting its historical value over time.[67]
- The inner space intervention of the bulding for the creation of the new spaces does not make a significative change in the main facades.

[122] ArchDaily "Cassina Innovation House / Laurent Troost Architectures" 09 Mar 2021. Accessed 30 Jul 2024. <https://www.archdaily.com/958199/cassina-innovation-house-laurent-troost-architectures> ISSN 0719-8884

Fig.115-117_ *Cassina Innovation House coworking.* Source: ArchDaily.

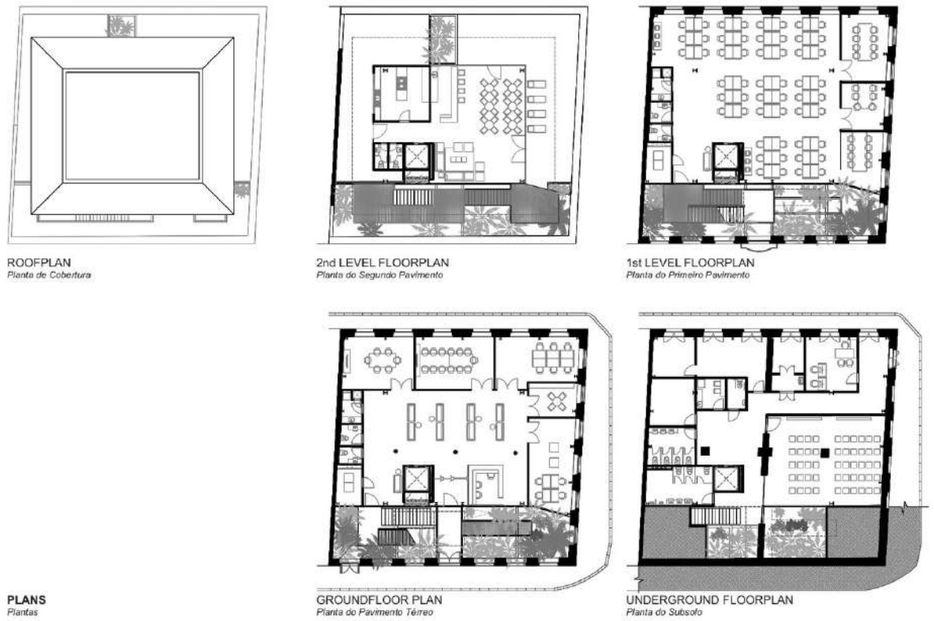


Fig.118_ *Cassina Innovation House - plans.* Source: ArchDaily.

Fig.119_ *Cassina Innovation House - elevations and sections.* Source: ArchDaily.

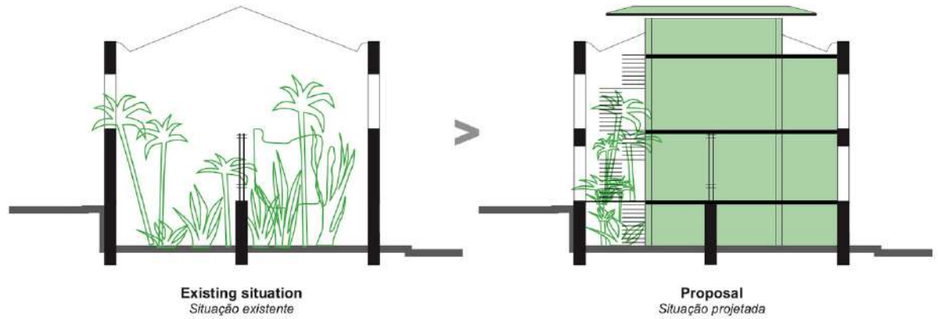


Fig.120_ *Cassina Innovation House - condeptual scheme.* Source: ArchDaily.

Fig.121-124_ *Cassina Innovation House spaces.* Source: ArchDaily.

TATE MODERN
HERZOG & DEMEURON

LOCATION: LONDON, UK
YEAR: 2020
AREA: 1586m2

The Tate Modern Museum, located in London, England, is an example of adaptive reuse of an industrial building. Originally built as a power plant by architect Giles Gilbert in two phases (1947 and 1963) following the destruction of the previous structure in World War II, it was abandoned in 1981 due to the pollution and other negative environmental impacts it caused. The building remained unused until 1996 when it underwent an adaptive reuse transformation by designers Herzog & de Meuron[123].

BEFORE AND AFTER THE RESTORATION

Before the restoration, the steam section adjacent to the turbine, standing 35 meters high and 152 meters long, along with the iconic chimney, were still intact. The structure remained isolated until the renovation processes began. A British partnership initiated the reuse project with an investment of £12 million. All later additions were demolished, restoring the building to its original steel and brick construction.[68] After the Herzog & de Meuron project, the turbine hall from the original structure was repurposed as a transitional and meeting space during the adaptation process. The structure's large volume and multiple stories positively influenced its selection for its new function as a museum. Herzog & de Meuron created a design dominated by geometric shapes in an Art-Deco style for the new version of the structure. The seven-story addition has a total area of 34,500 square meters. The outer layer of the structure remained untouched during the restoration, and the original chimney was preserved. A new pyramid-shaped addition, a concrete structure, was designed inspired by the brick façade of the original building. Additionally, a glass skylight, designed separately from the museum's original outer wall, is among the most significant interventions. This skylight allows the interior units, used as exhibition halls, to be fully illuminated.[68]

SUSTAINABLE FEATURES

During the adaptive reuse process, the design prioritized sustainable planning targets. Natural ventilation was implemented, and energy production was enhanced using solar panels, the new design emphasized creating green spaces and landscapes, aiming for ecological sustainability; new additions were designed to minimize energy consumption and carbon footprint.[68] The design focused on minimal destruction and the use of original materials[124]. The energy strategy aimed for low consumption, particularly in the design of the outer shell. The Tate Modern building has become an attraction point and an architectural icon, transformed by adaptive reuse and additions from two different periods.[68]

Fig.135-136_ *Tate Modern.* Source: https://www.architonic.com/it/project/herzog-de-meuron-the-new-tate-modern/5103422
Fig.137_ *Tate Modern.* Source: https://arqa.com/arquitectura/the-tate-modern-project.html

[123] Tabak, Pınar, and Ayşe Sirel. "Adaptive Reuse as a Tool for Sustainability: Tate Modern and Bilgi University Cases." *5th International Conference of Contemporary Affairs in Architecture and Urbanism*, May 2022, 554–66. https://doi.org/10.38027/iccaua2022en0031.
[124] URS. "Planning Application Submitted by the Board Trustees of the Tate Gallery. Environmental Stat-

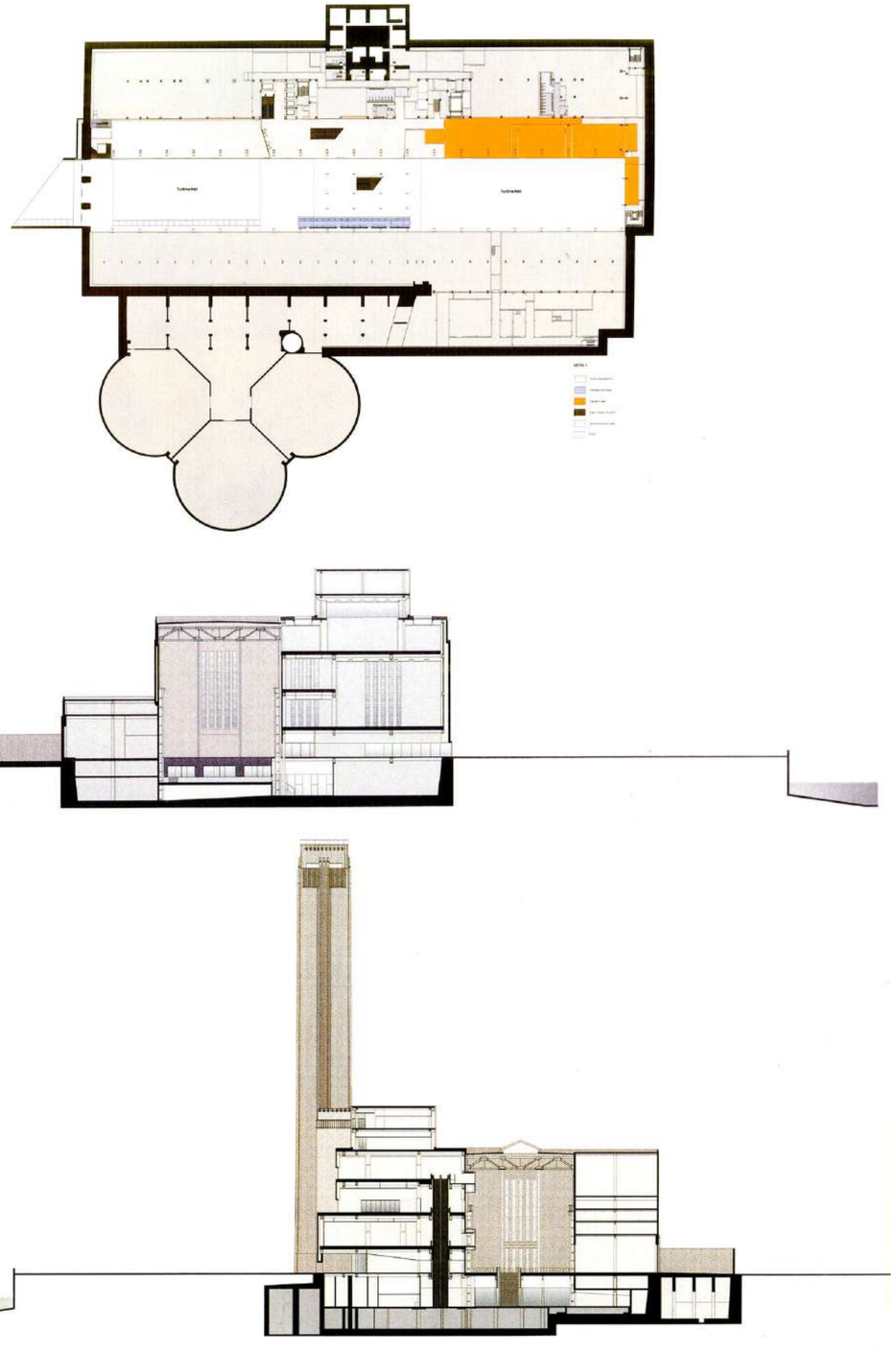
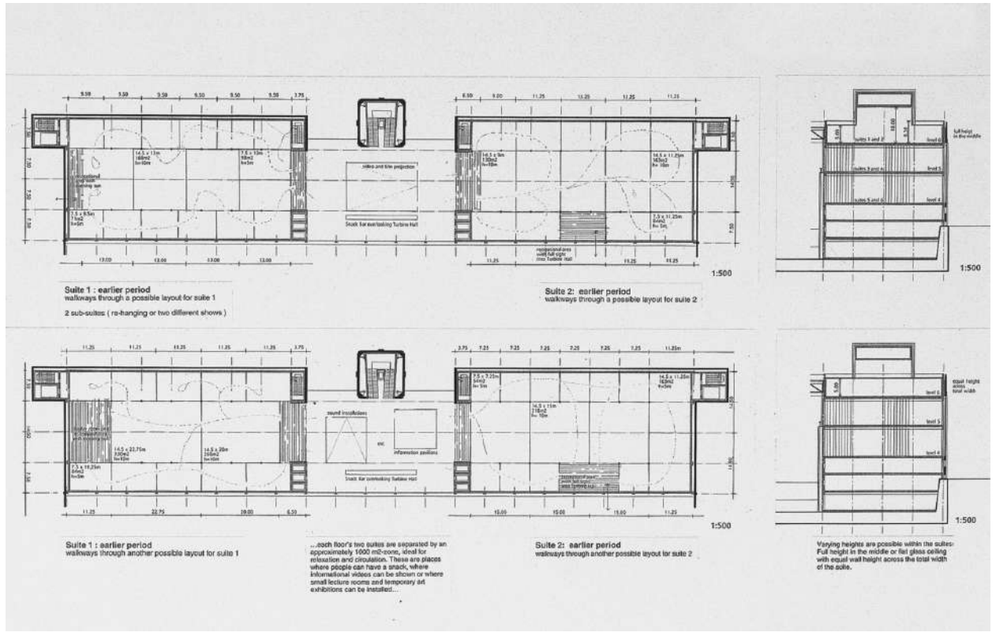


Fig. 138-140_ *Tate Modern plan and sections.* Source: ArchDaily.



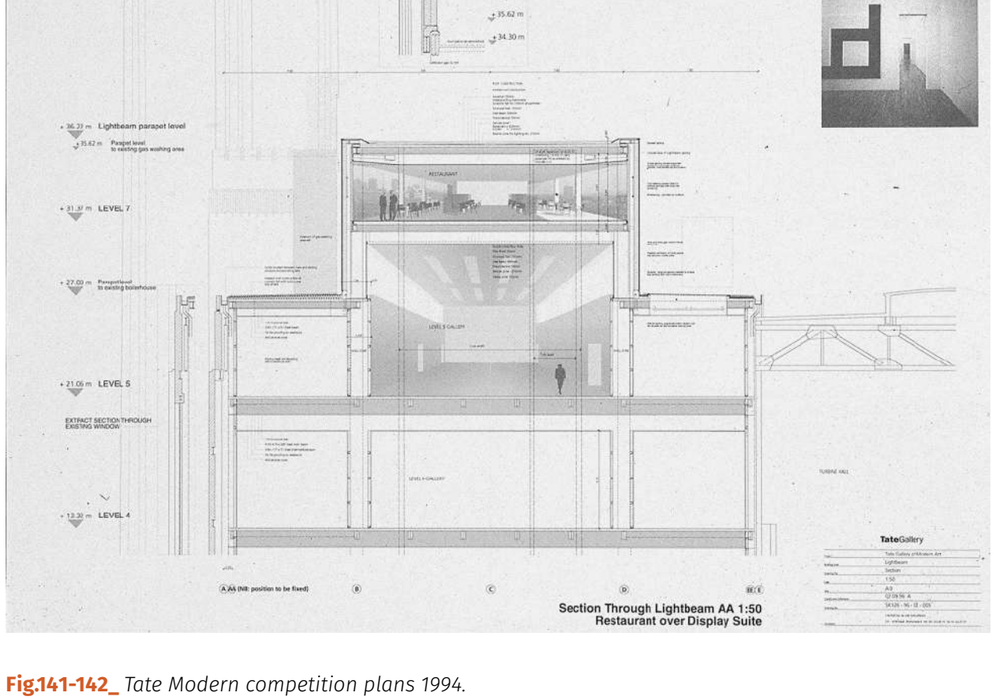


Fig.141-142_ *Tate Modern competition plans 1994.*
Source: https://www.herzogdemeuron.com/projects/126-tate-modern/

TOOLBOX COWORKING
CATERINA TIAZZOLDI

LOCATION: TURIN, ITALY
YEAR: 2010
AREA: 6000 m2

Toolbox Coworking is an innovation and coworking hub in Turin, offering flexible workspaces and professional services to over 300 people. It hosts around 150 activities including freelancers, startups, and professional communities focused on technological and social innovation. Key projects like Fablab Torino, Officine Arduino, Print Club Torino, Casa Jasmina, and DigifabTURINg contribute to its status as a leading creative hub in Europe. This achievement stems from a requalification process initiated in 2009, building on a long history of human and entrepreneurial efforts.[125]

SELECTIVE RENOVATION
Initially, only 1,000 square meters of the available 9,000 square meters were renovated to limit business risk and manage resources efficiently.
This cautious approach allowed for gradual expansion based on demand and success.

SPATIAL DIVISION
The large open space was divided into smaller volumes or “boxes,” each serving specific functions such as meeting rooms, printer rooms, coffee areas, and informal meeting corners. This modular approach allowed for flexibility and adaptability. The initial setup included a variety of amenities: a large open space with workstations, six meeting rooms, a kitchen, relaxation area, outdoor patio, lounge, printer room, reception, soundproofed pods, mail area, package room, and vending machine box. A game room with football and ping pong was also included for leisure. It is important to highlight that the areas of the Toolbox Coworking were used as a guideline for defining the area of the former Superga Factory coworking space.

FLEXIBLE WORKSTATIONS
Initially, 44 workstations were set up in “islands” of four desks each, providing generous space for users. Each workstation included a drawer unit, personal bookshelf, locker, and access to meeting rooms for 10 hours per month.

VISUAL DIFFERENTIATION
Different areas were visually distinct, identified by unique color schemes. The open space was kept white for personalization, while the lounge used orange and green, and meeting rooms had rubber floors in lilac, orange, green, blue, and red.

Fig. 125-127_ *Toolbox coworking*. Source: https://toolboxcoworking.com/en/

ment: Non-Technical Summary,” January 2009.
[125] Balestra, Aurelio, and Marco Ferrero. “Area OSI Ovest-Nord: Toolbox Coworking.” In *Postfordismo e Trasformazione Urbana. Casi di recupero dei Vuoti Industriali e indicazioni per le politiche nel territorio Torinese*, 241–66. Torino: IRES Piemonte, 2016.
https://www.regione.piemonte.it/web/temi/sviluppo/postfordismo-trasformazione-urbana-edizione-2016.

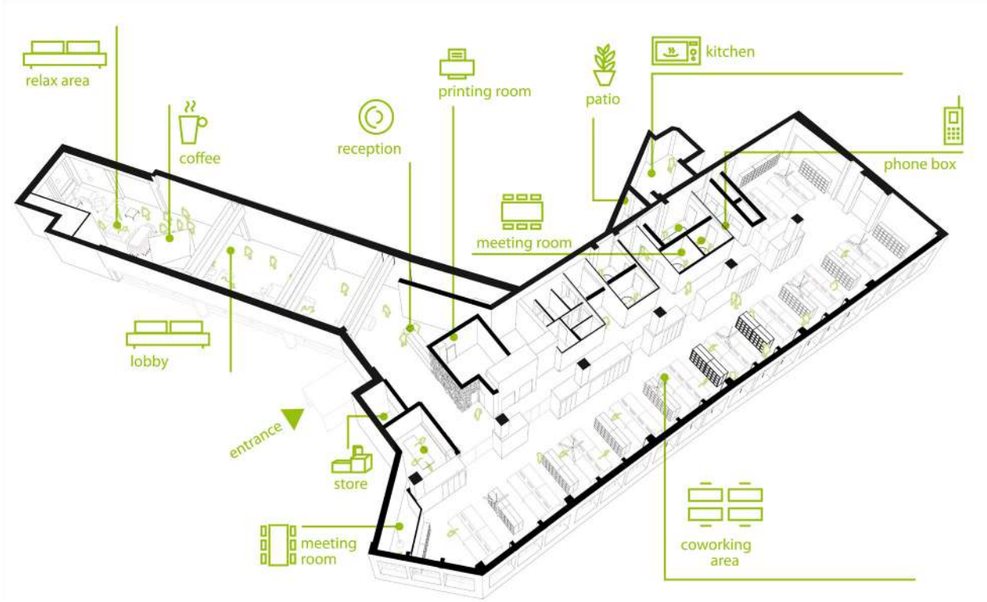


Fig.128_ *Toolbox coworking functions.* Source: https://archimag.de/vorgestellt/2010/toolbox-torino-office-lab-co-working/

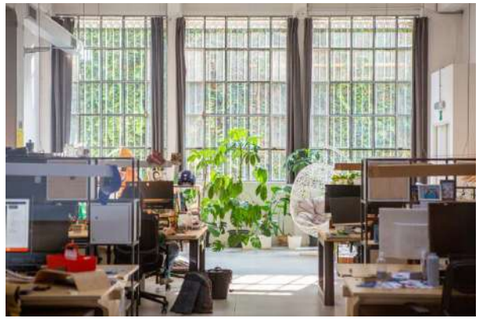


Fig.129-132_ *Toolbox spaces.* Source: https://toolboxcoworking.com/

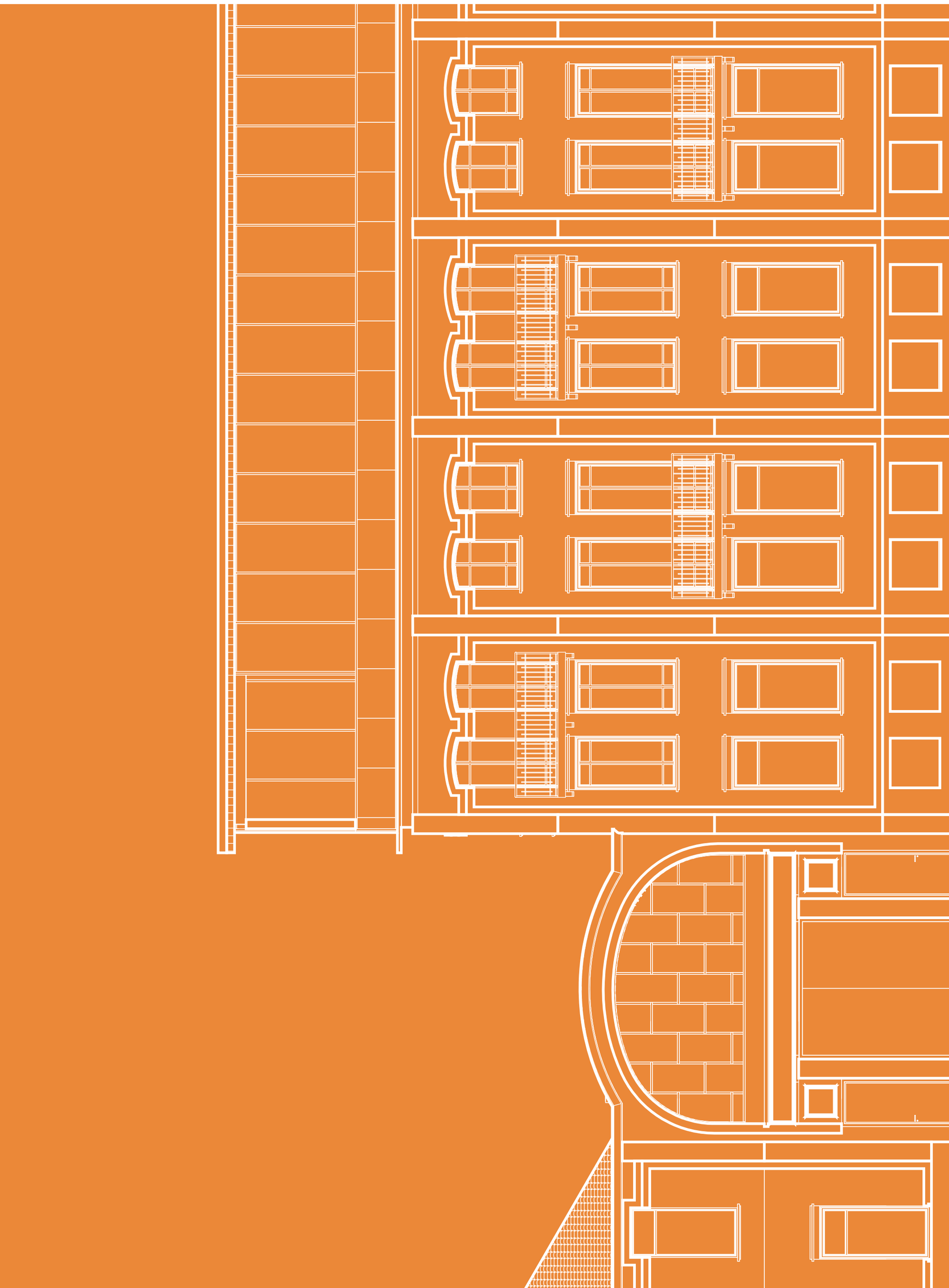
Fig. 133_ *Toolbox coworking plan.* Source: ArchDaily.

FUNCTION AND AREAS ANALYSIS

Space	Unit area (m²)	N.	Total area (m²)
Entrance	50	1	50
Reception	98	1	98
Informal meeting room	50	1	50
Lounge/ relax area	51	1	51
Printing room	10	1	10
Meeting room type 1	15	2	30
Meeting room type 2	9	4	36
Coworking space	419	1	419
Bathroom and services	32	1	32
Pod for private calls	1,65	3	4,95
Patio	8	1	8
Kitchen	30	1	30
Total area			**818,95**

Fig. 134_ *Functions and areas.*

PROPOSAL



FORMER SUPERGA FACTORY BUILDING COMPLEX

CURRENT STATE OF THE COMPLEX + ASSIGNED FUNCTIONS

1
MAIN PROJECT INTERVENTION - COWORKING SPACE

The coworking space, the project's primary function, will be located in the central building of the complex, which is well-suited due to its spacious interior. While the main driveway is shared with the west corner building, each has its own separate entrance.

2
RESTAURANTS AND FOOD COURT AREA

A restaurant and food court will be established in the western corner building of the former Superga factory, offering a complementary amenity for coworking space users and local residents. The building is connected to the central coworking space by a shared driveway, with separate entrances for each facility.

3
NURSERY AND DAYCARE CENTER

The eastern corner building will house a nursery and daycare, offering a complementary service for coworking space users. It has a separate entrance and is not directly connected to the central building.

THE SUPERGA FACTORY COWORKING
PROPOSAL AND MAIN INTERVENTIONS

MAIN ENTRANCE
The shared driveway entrance remains, providing access to the coworking spaces. The passage connecting to the rear road, once used by cars and pedestrians, will be converted to pedestrian-only use after the intervention.

ADDITIONAL FLOOR
The roof was replaced with a glass curtain wall on the top floor, enhancing natural light and making the space more suitable for its new intended use.

FACADE TREATMENT/ PRESERVATION
Following the decay analysis, preservation work was carried out on the building's façade, maintaining its original colors, features, and windows to preserve the building's original appearance as much as possible.

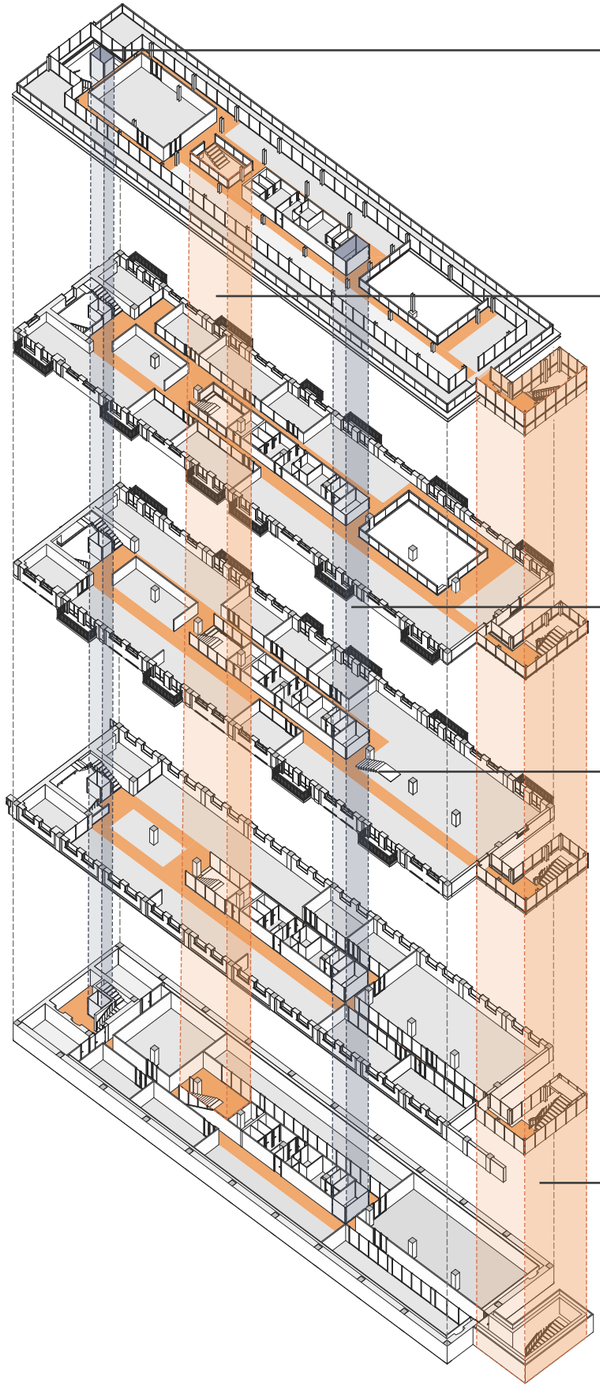
ROOF DESIGN
The roof design features a hidden pandance, giving it a flat appearance that evokes the building's original design. This approach is in contrast to the previous roof, which was added after World War II damage.

EXTERNAL STAIRCASE
An external emergency staircase was added between the coworking building and the nursery to ensure safety and efficient circulation, while preserving the existing floor surface and enhancing the usability of the interior spaces.

TERRACE
The top floor, dedicated to relaxation and wellbeing, features an accessible terrace that allows for a perimeter circulation around the building.

COWORKING PROGRAM AND AREAS

Circulation scheme



Elevator inside existent staircase
To improve accessibility, an elevator was installed within the existing staircase void, making it easier to move between floors.

New internal staircase
Centrally positioned within the building, the new staircase is part of the building's "core," where other service areas are also located.

Additional elevator
Situated in the central service area, between the new emergency staircases.

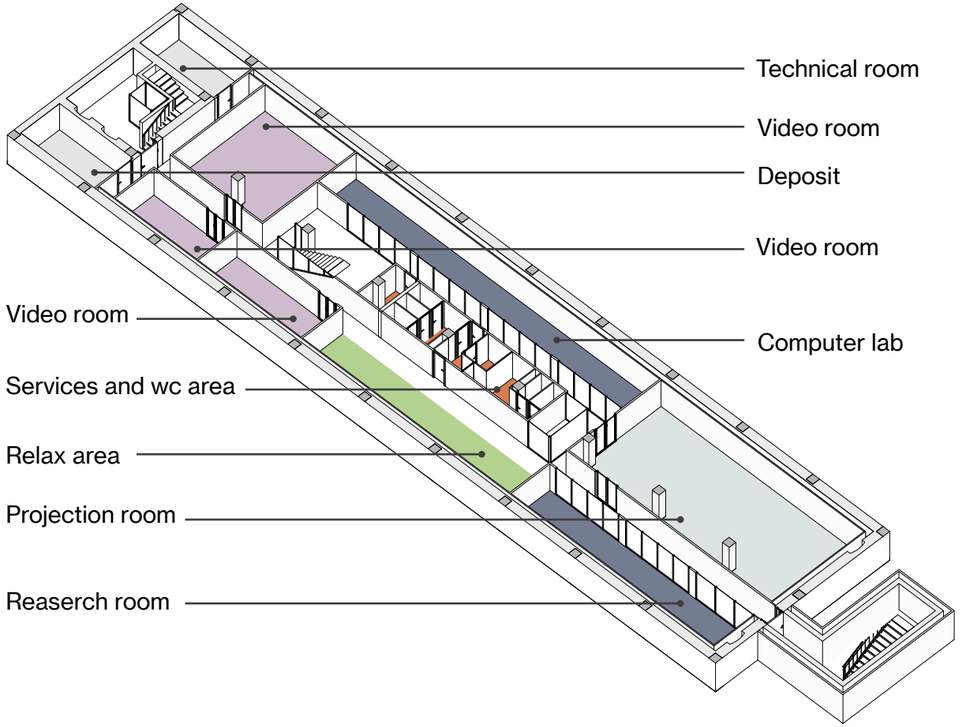
Coworking stairs
This staircase connects the coworking spaces on the first and second floors, creating a unified area that benefits from double-height ceilings and natural light.

External emergency stairs
Given the building's scale and dimensions, an external staircase was proposed to ensure the safety and efficient evacuation of occupants.

01

Basement program

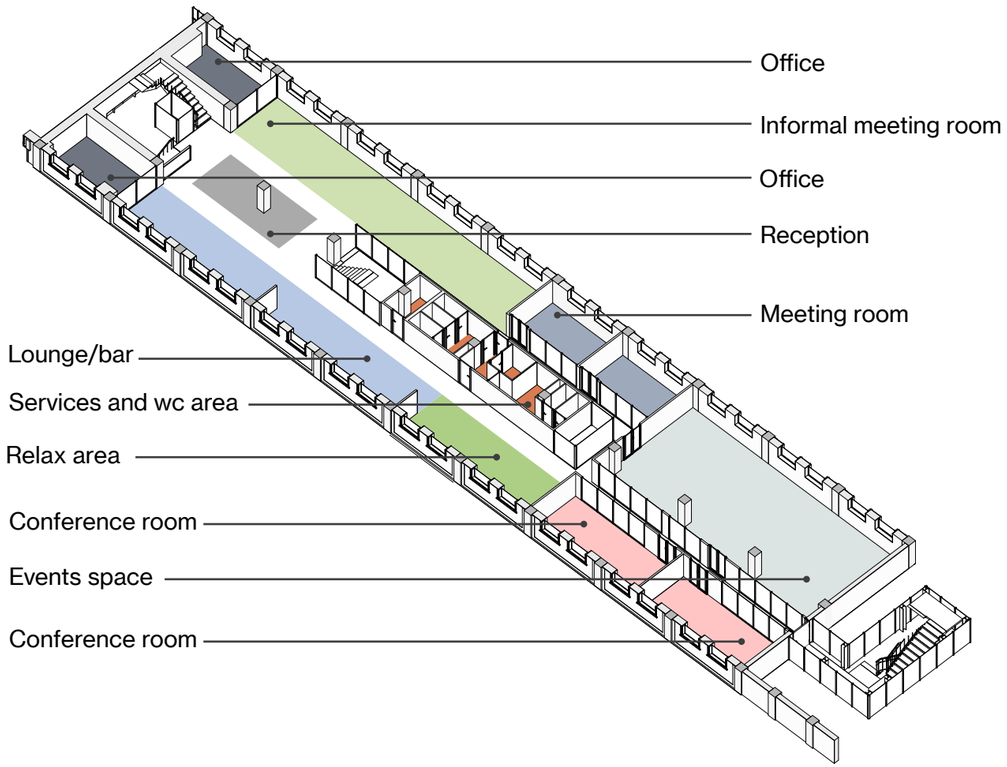
The basement floor of the building has been meticulously designed to take full advantage of the existing spaces and architectural characteristics. It will house video rooms, computer and research labs, and a primary projection room, creating a dynamic environment for multimedia and research activities.
The layout is thoughtfully organized, with bathrooms and service areas centrally located, allowing other functions to be efficiently arranged along the outer walls. This strategic placement not only maximizes the use of space but also ensures ease of access and circulation within the floor.
The proposed spaces are isolated by internal walls, providing the necessary separation and privacy for different activities. Additionally, some of the existing rooms have been repurposed as storage and technical rooms, ensuring that the infrastructure supports the building's new functions without compromising its original structure.



02

Ground floor program

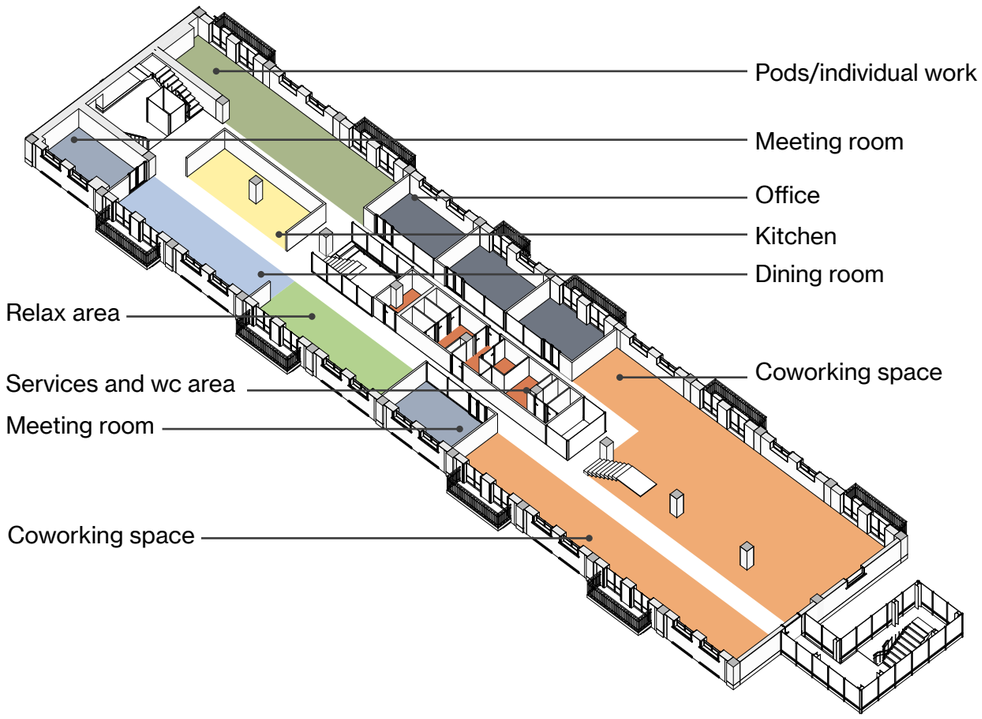
The ground floor serves as the main entrance to the coworking space, welcoming visitors and users into a vibrant and functional area. Immediately after entering, guests are greeted by a reception area, which serves as the hub for all initial interactions. Beyond the reception, the floor opens up into a series of flexible spaces designed to cater to various needs. These include informal meeting rooms, a bar, a lounge area, and a dedicated relaxation zone, all of which are present on every floor to promote comfort and collaboration.
Near the entrance, two offices have been strategically positioned to provide services to the public, further enhancing the ground floor's role as a communal and accessible space. The open nature of this floor is accentuated by the inclusion of a conference room and a main events space, making it an ideal setting for both professional gatherings and community events.



03

First floor program

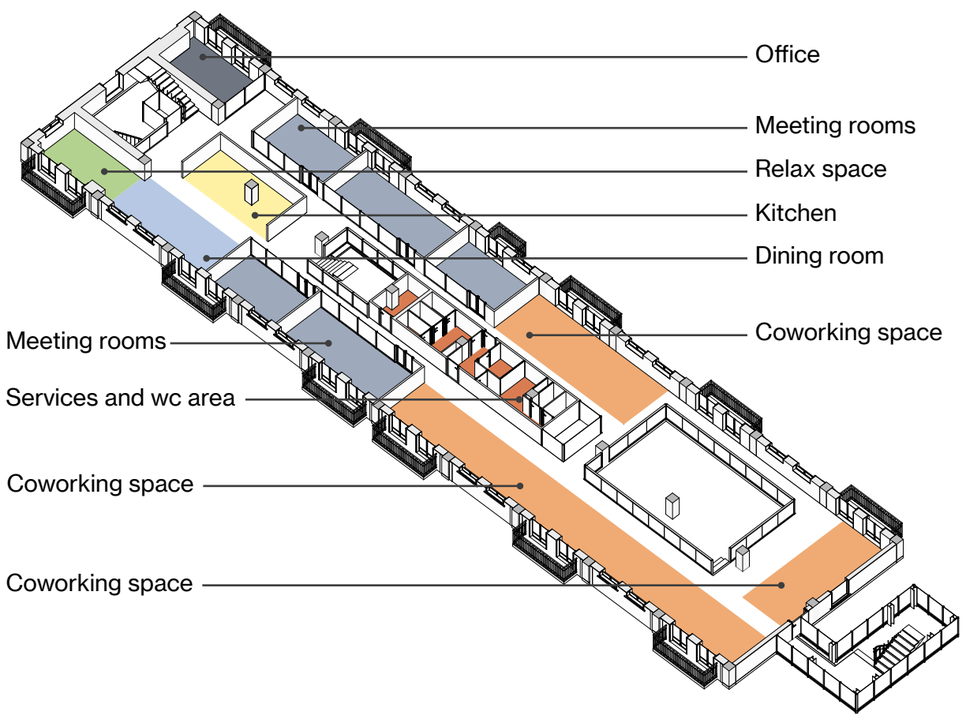
The first floor marks the introduction of the building's coworking spaces, designed to foster productivity and collaboration. This floor features a mix of individual workspaces and offices, catering to both solo workers and small teams. The coworking area is seamlessly connected to the second floor via a staircase, encouraging interaction and movement between the levels. The central area of this floor is dedicated to essential services, including bathrooms and utility spaces that support the day-to-day needs of workers. To enhance the overall work experience, the floor also includes a kitchen, a dining room, and a relaxation area. These amenities are intended to provide a dynamic and comfortable environment, promoting a sense of well-being and balance for everyone using the space.



04

Second floor program

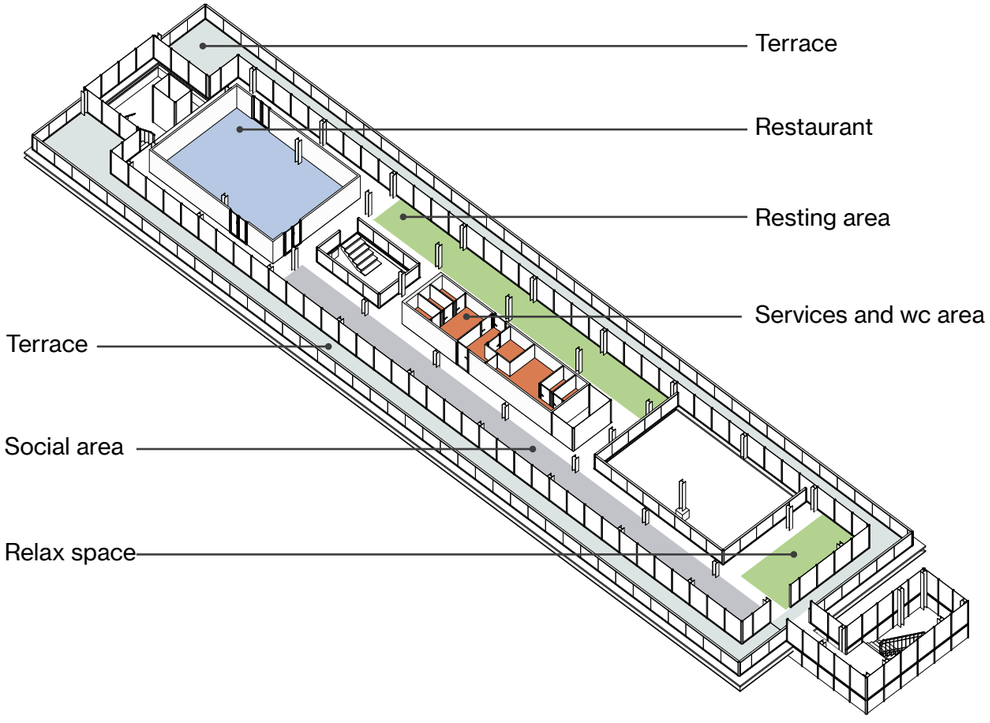
The second floor continues the coworking theme, but with a distinct focus on group work and collaboration. While it retains the essential services and well-being areas found on the first floor, this level is characterized by a more open layout designed to facilitate teamwork. It features several meeting rooms, which are essential for collaborative projects, and a reduced number of individual offices, emphasizing the floor's role as a hub for collective productivity. The design of this floor reflects the importance of versatility and interaction in a modern coworking environment, offering a variety of spaces that can be adapted to different working styles and group sizes.



05

Third floor program - additional floor

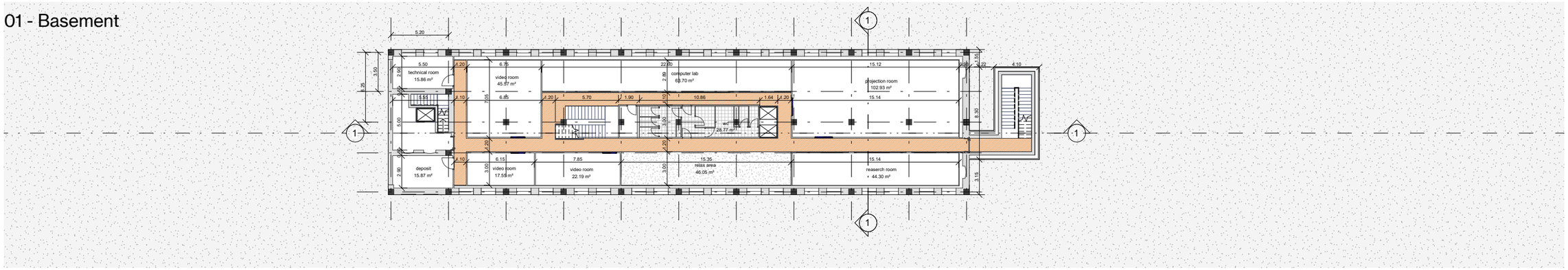
The third floor is envisioned as a dedicated relaxation and well-being area, providing a serene escape for those who frequent the coworking spaces. This floor includes a restaurant that is open to the public, offering a convenient dining option for both workers and visitors. Additionally, there are various relaxation spaces designed for activities such as meditation, ensuring that the environment supports both mental and physical well-being. The entire space has been thoughtfully designed to be luminous and flexible, creating a calming atmosphere that contrasts with the more active work areas below. This floor serves as a vital component of the building, reinforcing the importance of holistic well-being in the modern workplace.



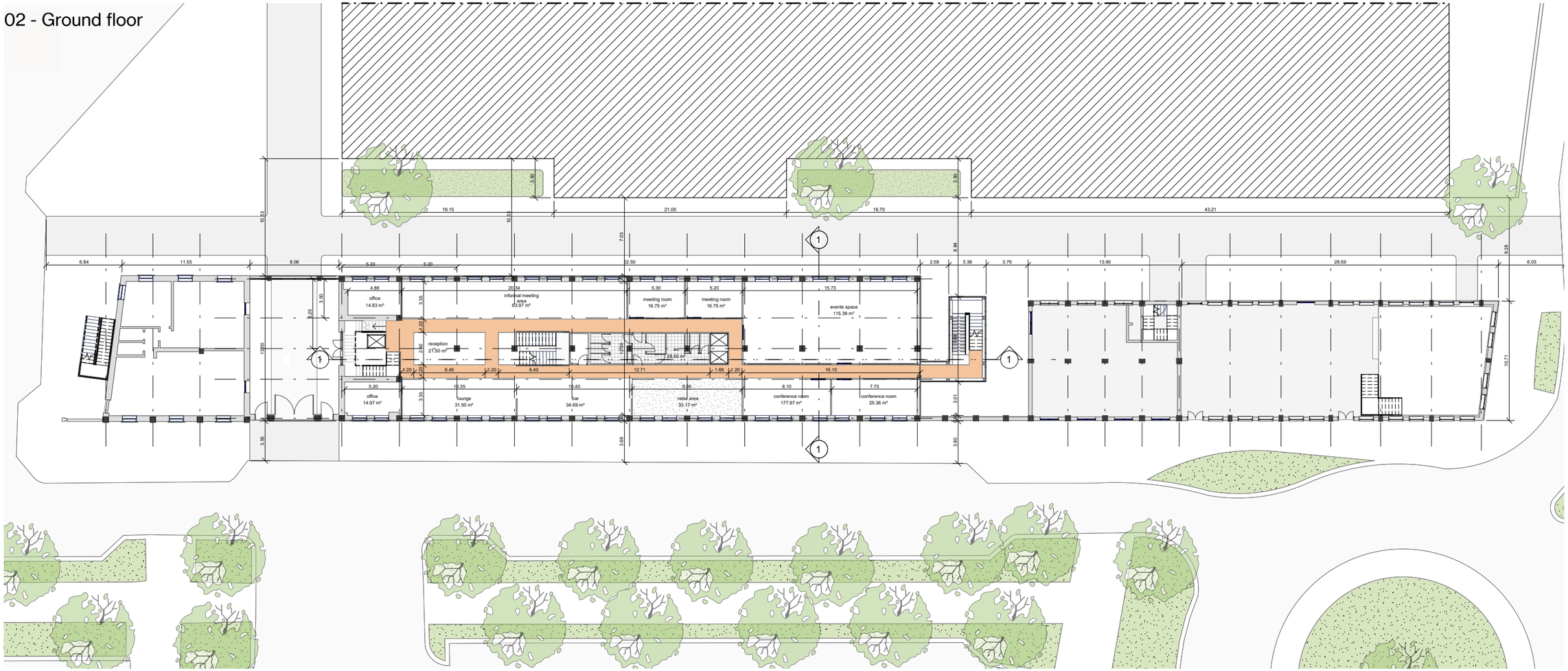
FORMER SUPERGA FACTORY COWORKING

Proposal Plans - Out of scale

01 - Basement



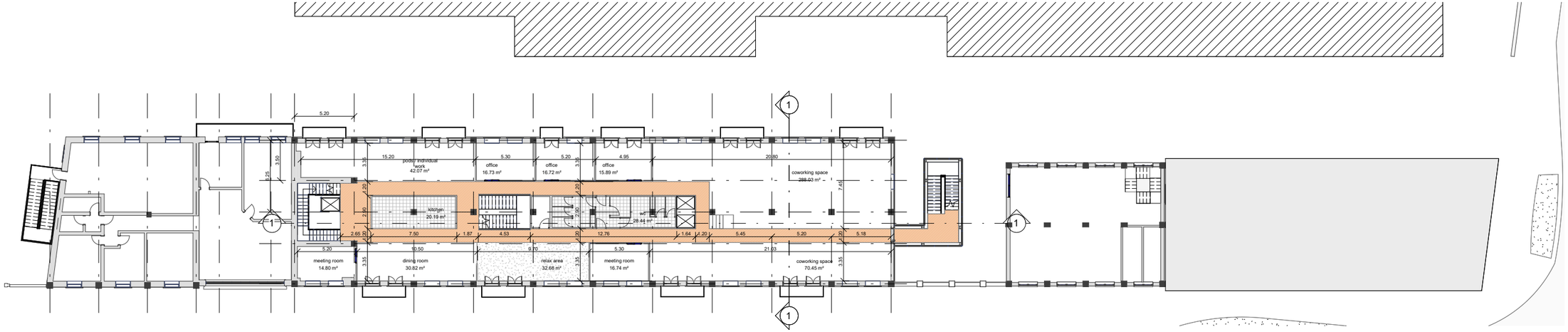
02 - Ground floor



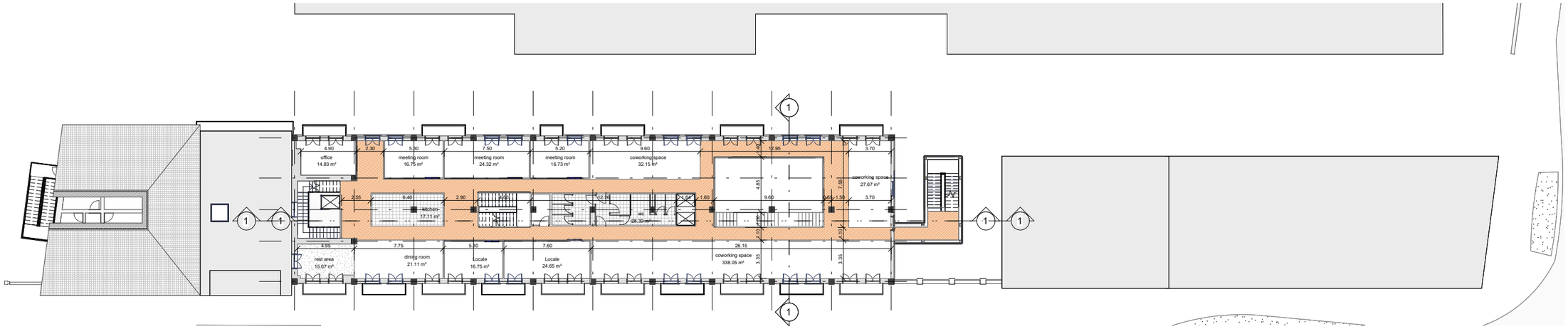
FORMER SUPERGA FACTORY COWORKING

Proposal Plans - Out of scale

03 - First floor



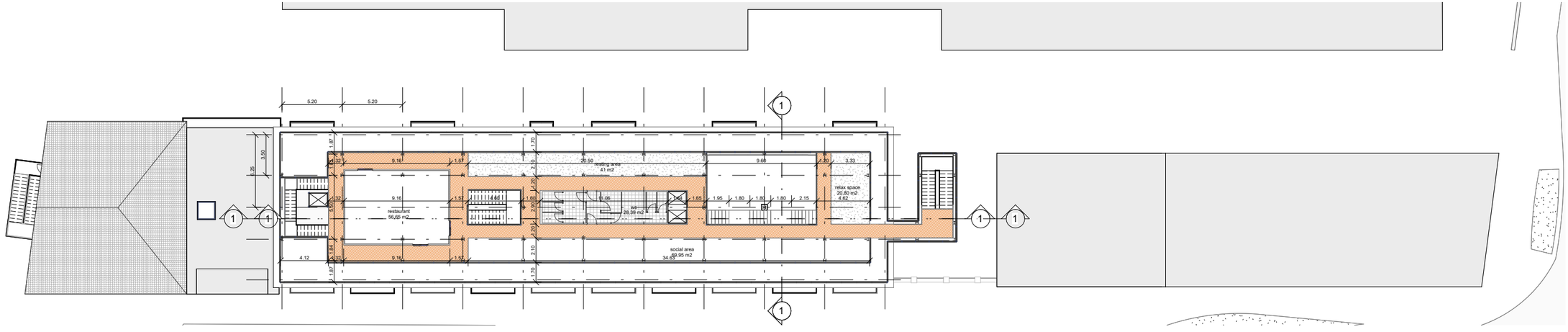
04 - Second floor



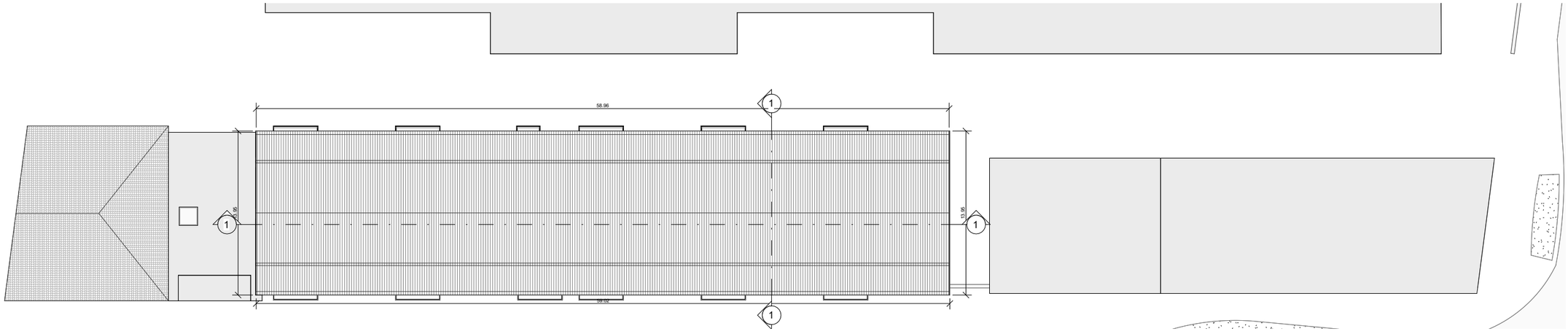
FORMER SUPERGA FACTORY COWORKING

Plans - Out of scale

05 - Third floor



06 - Roof plan

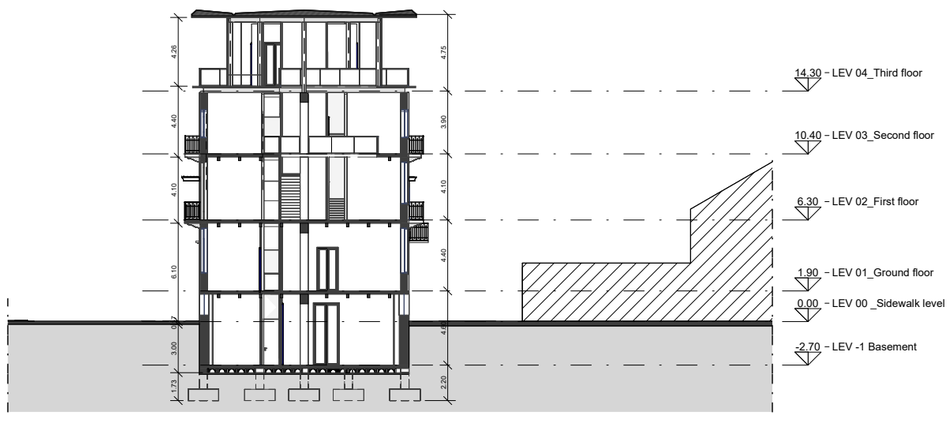


FORMER SUPERGA FACTORY COWORKING

Proposal Sections - Out of scale

07 - Longitudinal section

08 -Transversal section



FORMER SUPERGA FACTORY COWORKING
Proposal facades - Out of scale

09- South facade

10 - North facade

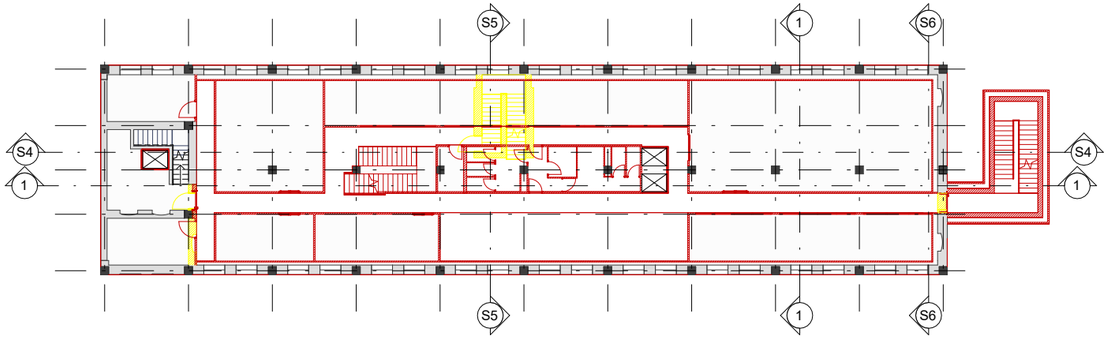
11 - West facade

12 - East facade

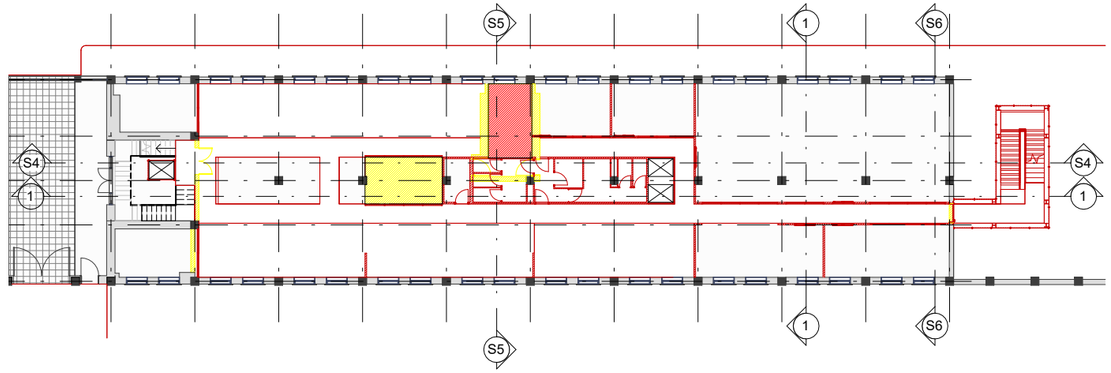
DEMOLITIONS AND NEW CONSTRUCTIONS

Plans - Out of scale

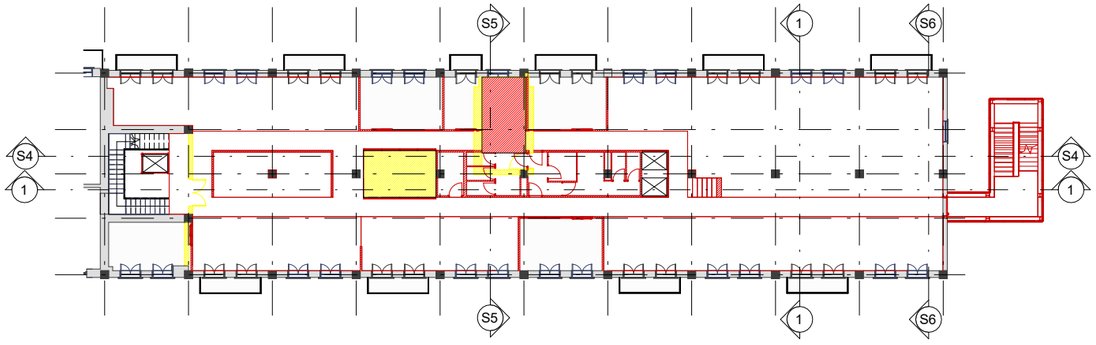
01 - Basement



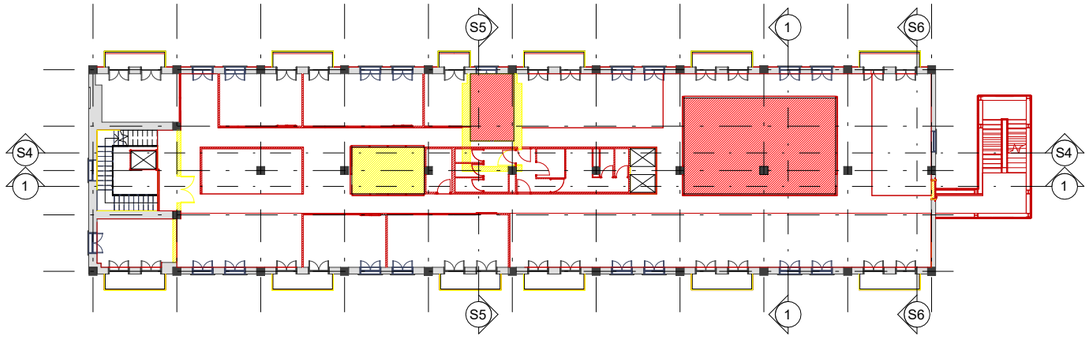
02 - Ground floor



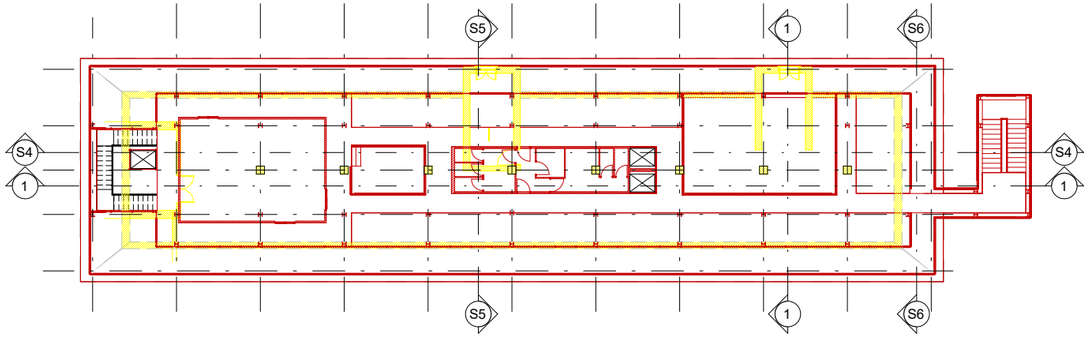
03 - First floor



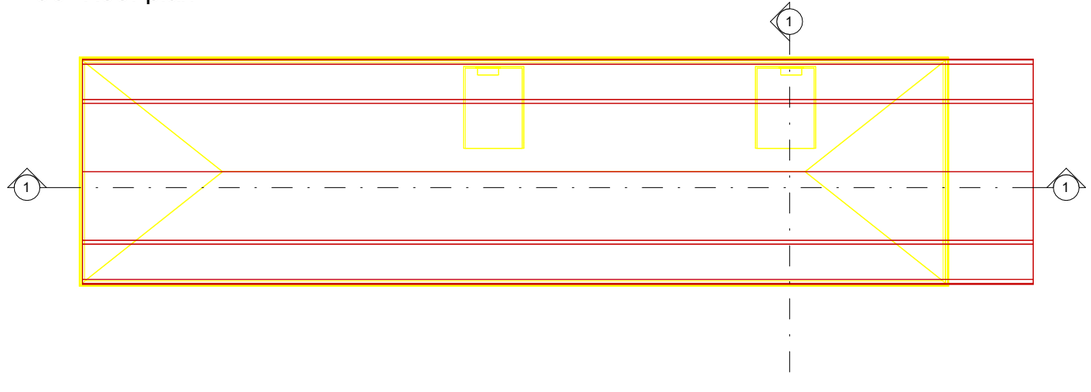
04 - Second floor



05 - Third floor

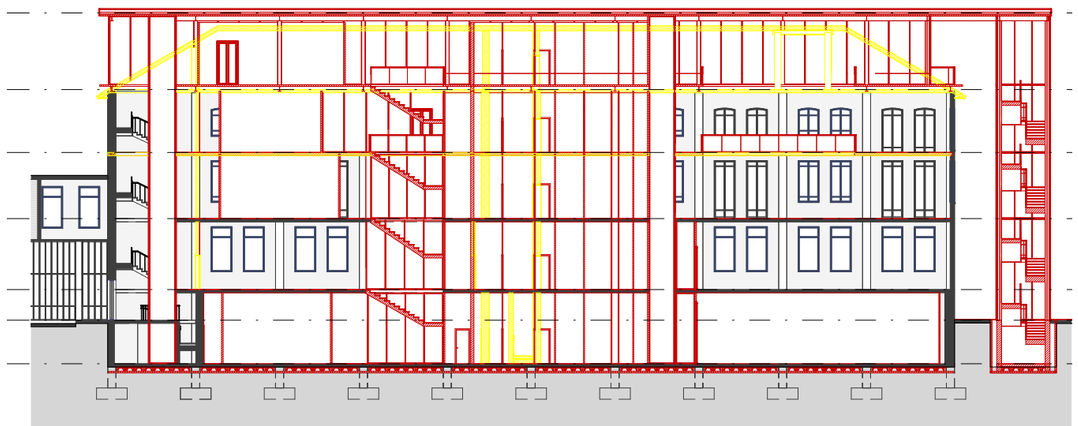


06 -Roof plan

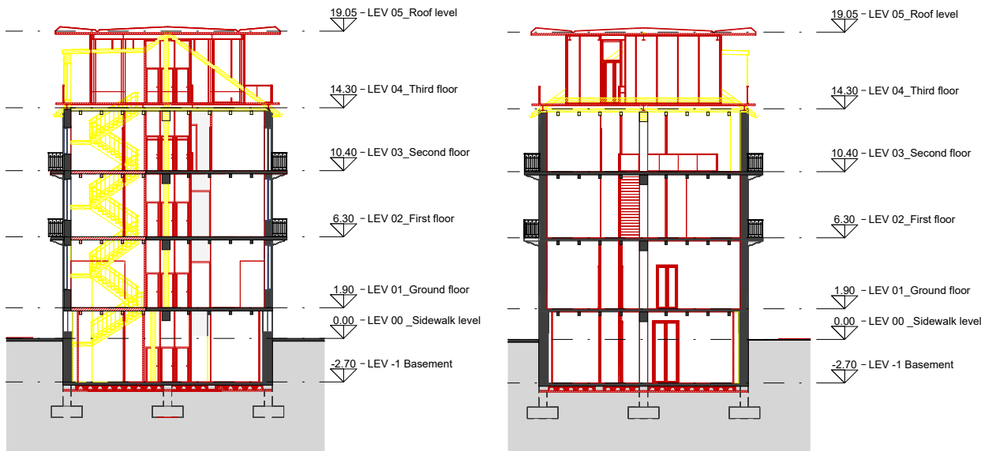


DEMOLITIONS AND NEW CONSTRUCTIONS
Sections and facades - Out of scale

07 - Longitudinal section



08 - Transversal sections

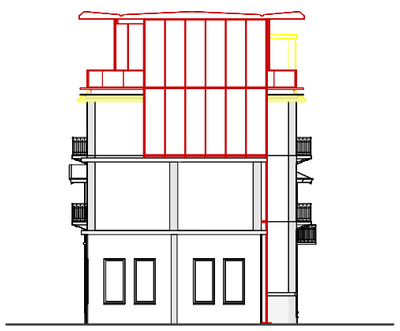


09 - South facade

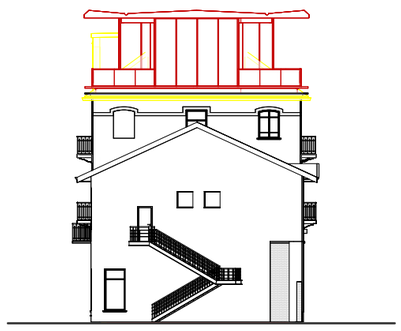
DEMOLITIONS AND NEW CONSTRUCTIONS
Facades - Out of scale

10 - South facade

11 - East facade



12 - West facade



CONCLUSIONS

The re-functionalization of the former Superga Factory into a coworking space offers a nuanced exploration of how industrial heritage can be preserved and adapted to meet contemporary needs. This project illustrates the potential of adaptive reuse as a strategy for maintaining the relevance and vitality of historical structures in modern urban contexts. Through careful analysis of the factory's architectural and structural characteristics, as well as an understanding of its historical significance, this thesis has demonstrated that industrial buildings, often seen as obsolete remnants of a bygone era, can be transformed into assets that contribute to the social, economic, and cultural fabric of a city.

The transformation of the Superga Factory is not just a technical achievement but also a symbolic act of preserving the collective memory of Turin's industrial past. By retaining the essential architectural elements of the factory, the project honors the legacy of the site while reimagining its role in a rapidly evolving urban landscape.
The design approach balances the preservation of historical integrity with the introduction of modern functionalities, ensuring that the building remains relevant and useful in its new incarnation as a coworking space. This project underscores the importance of adaptive reuse in sustainable urban development, offering a model for how cities can evolve while respecting their historical roots.

Furthermore, this thesis contributes to the broader discourse on industrial heritage preservation by highlighting the challenges and opportunities associated with such projects. The Superga Factory, once a hub of industrial activity and innovation, had fallen into disuse and disrepair, reflecting a broader trend of industrial decline in Turin. The decision to repurpose the factory as a coworking space not only revitalizes the building but also injects new life into the surrounding community. The coworking space serves as a focal point for creativity and collaboration, attracting a diverse group of users and fostering a sense of community in an area that had experienced significant social and economic shifts.

This project also emphasizes the role of industrial heritage sites in contributing to the cultural identity of a city. The preservation of such sites goes beyond mere conservation; it involves a thoughtful reinterpretation that allows these buildings to serve new functions while retaining their historical significance. By integrating the Superga Factory into the contemporary urban fabric, this project demonstrates how industrial heritage can be leveraged to enhance the character and appeal of a city, making it a more dynamic and layered environment. The success of this project suggests that similar strategies could be applied to other industrial heritage sites in Turin and beyond. The lessons learned from the Superga Factory can inform future projects, providing insights into how to navigate the complexities of preservation, adaptation, and modernization. The project shows that with careful planning and design, it is possible to honor the past while creating spaces that are responsive to present and future needs.

In conclusion, the re-functionalization of the former Superga Factory stands as a testament to the potential of adaptive reuse in preserving industrial heritage. It offers a blueprint for how historical buildings can be thoughtfully integrated into modern cities, contributing to both the preservation of cultural heritage and the creation of vibrant, functional urban spaces. This thesis has shown that the challenges of industrial heritage preservation are not insurmountable; rather, they present opportunities to innovate and to reimagine how we engage with the built environment. The Superga Factory's transformation into a coworking space is not only a victory for heritage conservation but also a significant step toward more sustainable and inclusive urban development.

ACKNOWLEDGMENTS

This thesis represents the culmination of seven years of architecture studies, and I am proud to say it marks the conclusion of an academic journey for which I am immensely grateful, especially to the people who have supported me throughout.

I extend my sincere thanks to Pontificia Universidad Javeriana for the opportunity to pursue this double degree program and for equipping me with the essential foundations for my professional path, both present and future. I am also deeply thankful to the professors who guided me and to my cherished friends. Meeting you has been one of the greatest rewards of this experience, and I will always be appreciative of the wonderful journey we shared. None of this would have been possible without your companionship and encouragement. My deepest appreciation goes to my family, particularly to my parents for their unwavering support, and especially to my sister for standing by me during the most challenging moments. Your love and support mean the world to me.

Lastly, I express my heartfelt gratitude to Politecnico di Torino for enabling this transformative professional and personal experience, and to my professors for guiding methroughout the process. To my friends in Turin, your presence has been vital on this journey. Thank you for your friendship, warmth, and support, and for making me feel at home while being miles away from mine.

To my friends and colleagues, I wish you all the very best in the bright future that lies ahead.

María Clara Castillo M.

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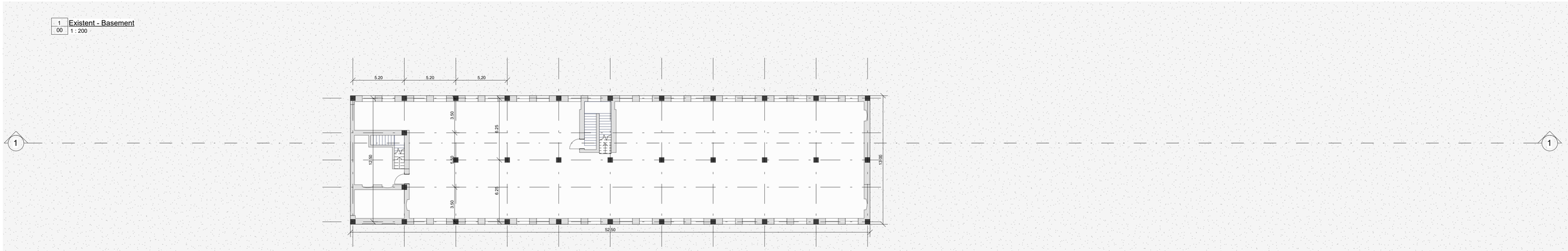
1 Existent - Basement
00 1 : 200



2 Existent - Ground floor
00 1 : 200

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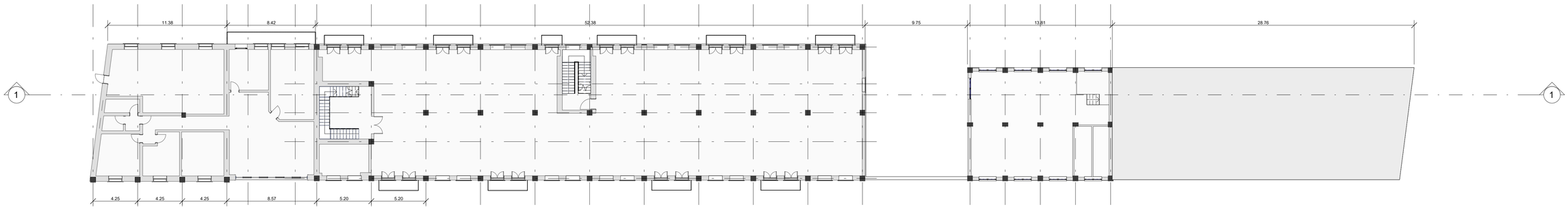
4 01 Existent - First floor
1 : 200



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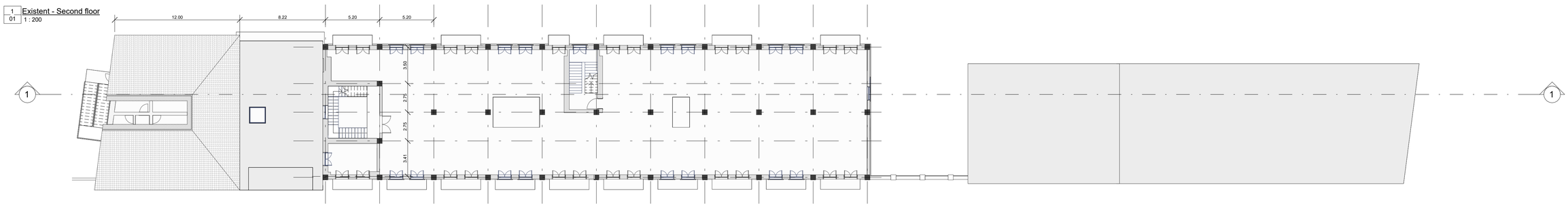

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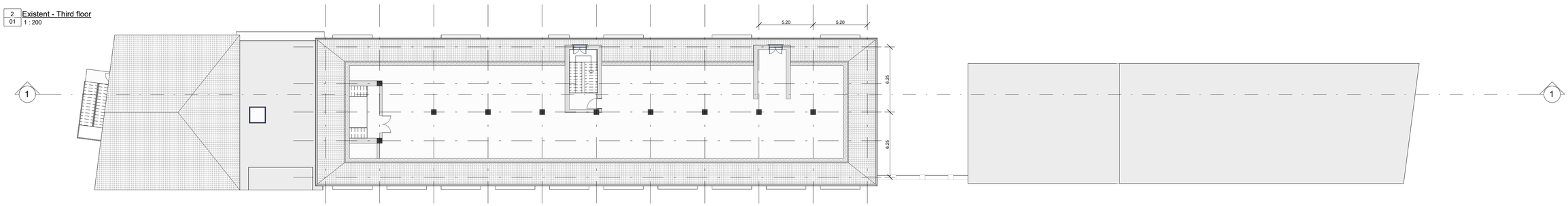
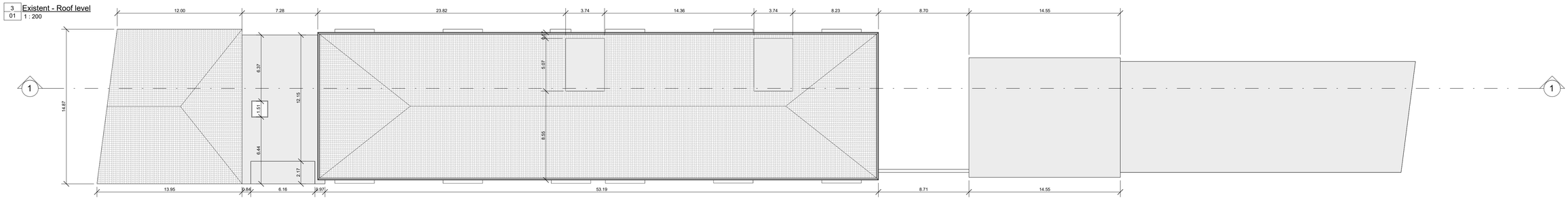


3 01 Existent - Roof level
1 : 200



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1 / 02 Existent - General section
1 : 200

2 / 02 Building complex - South facade

3 / 02 Building complex - North facade

4 / 02 Building complex - West facade

5 / 02 Building complex - East facade

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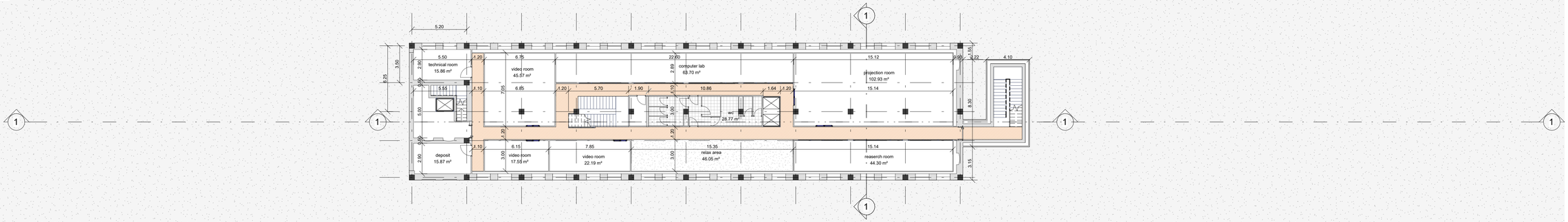
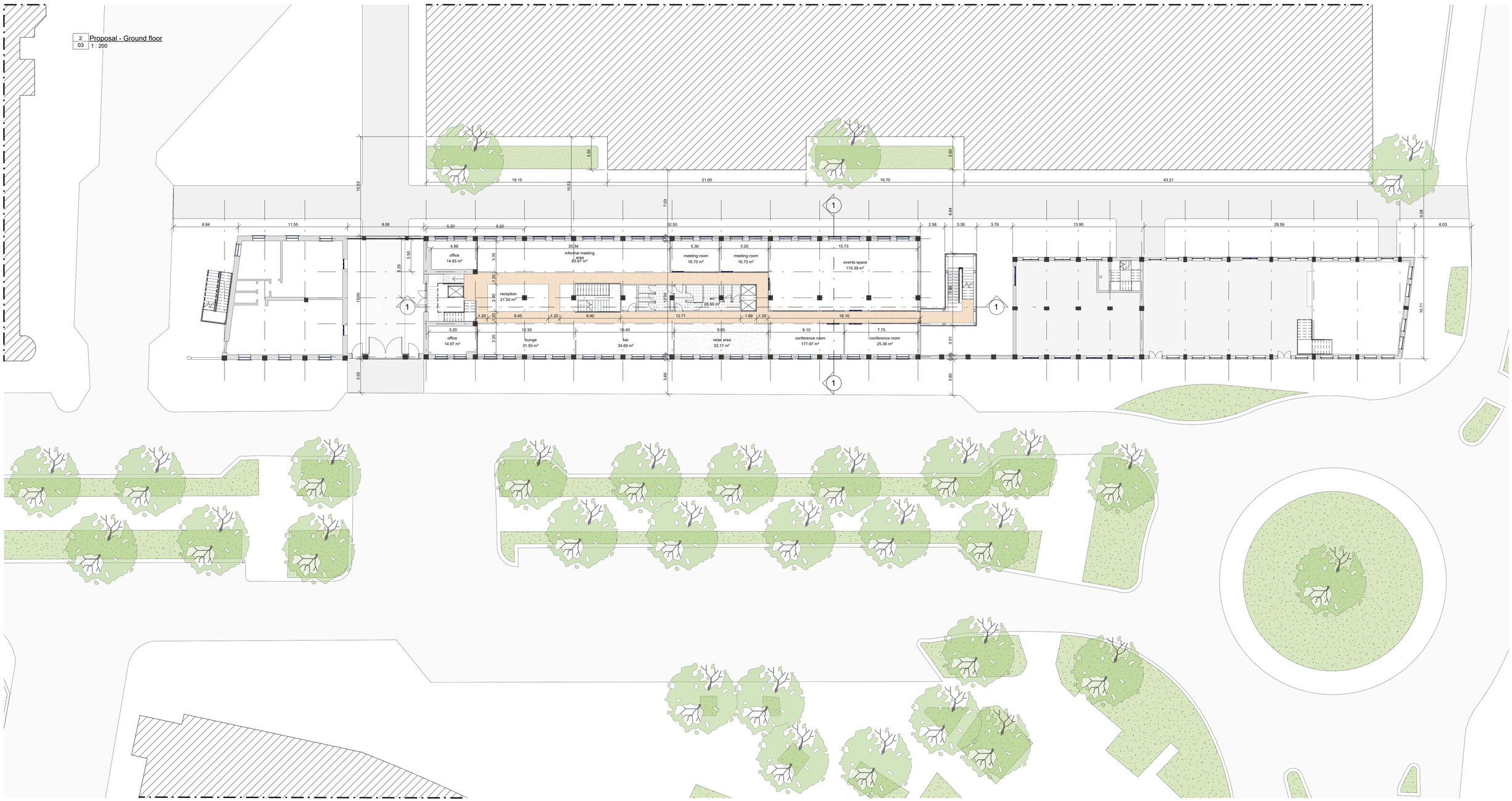
1 03 Proposal - Basement plan
1 : 200



2 03 Proposal - Ground floor
1 : 200



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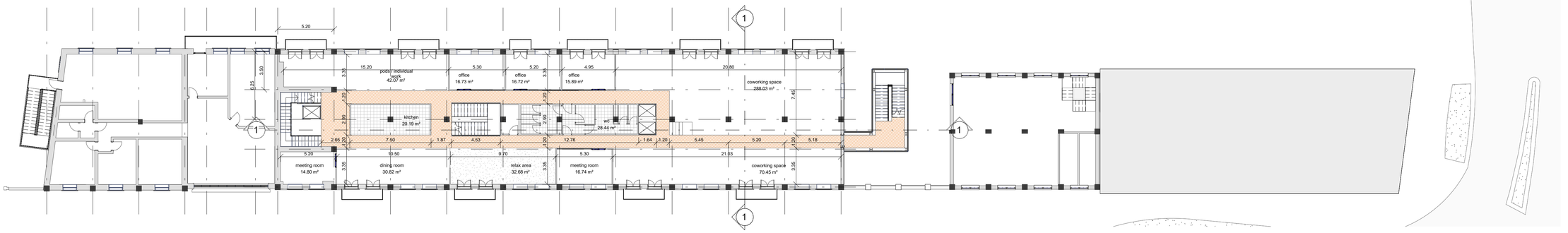
3 / 04 Proposal - First floor
1 : 200



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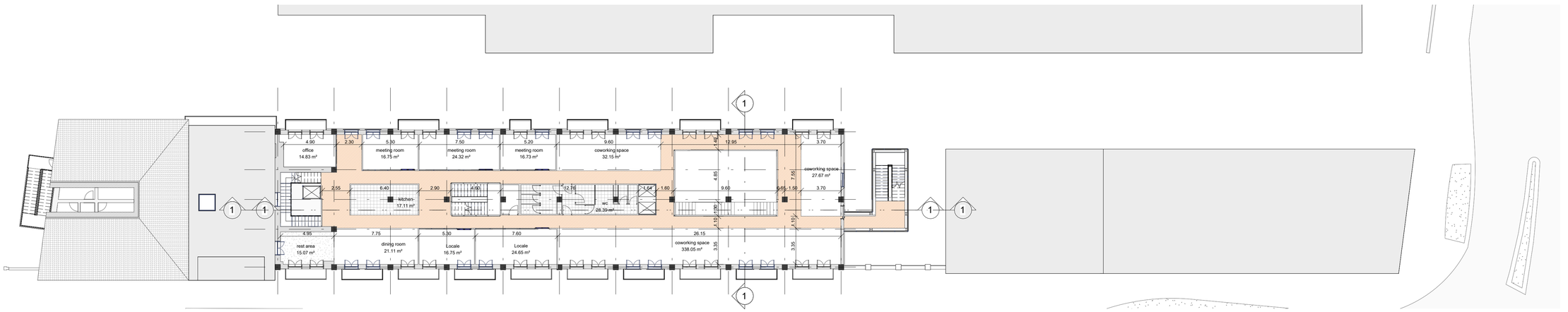
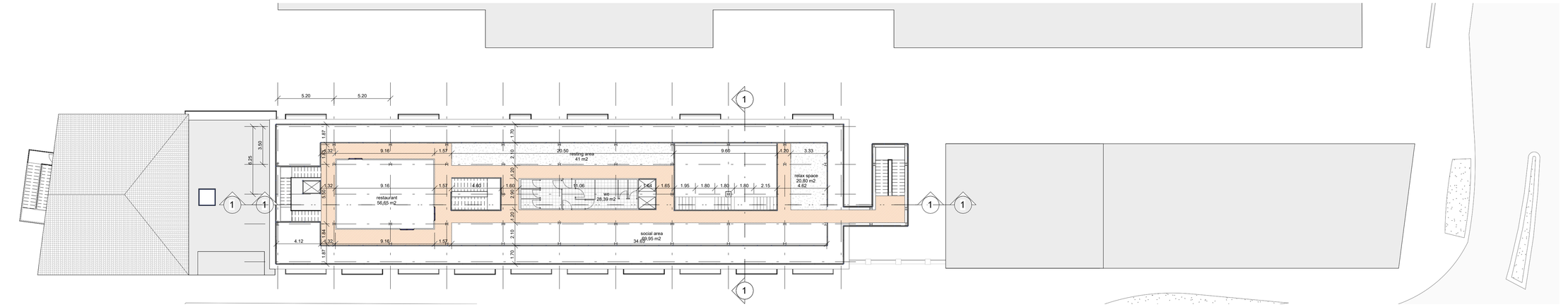
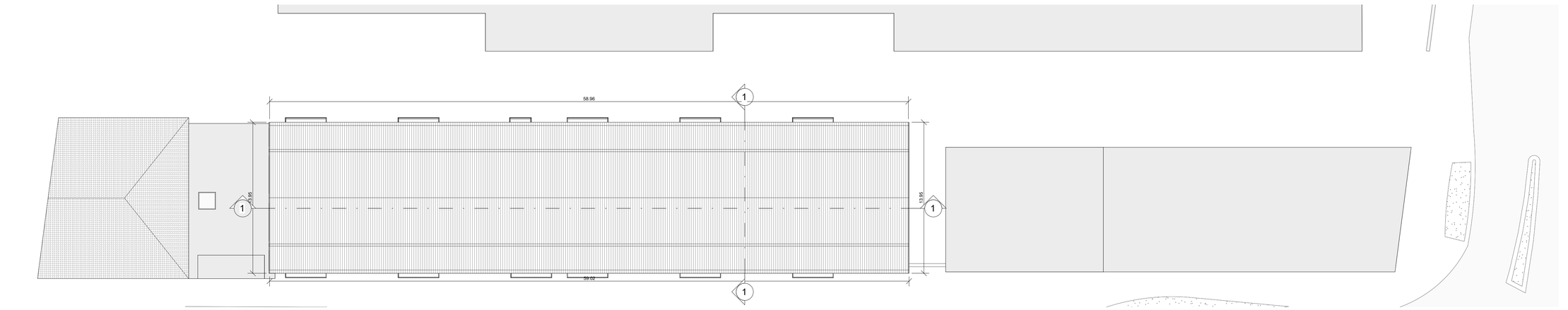


5 / 04 Proposal - Third floor
1 : 200



6 / 04 Proposal - Roof level
1 : 200



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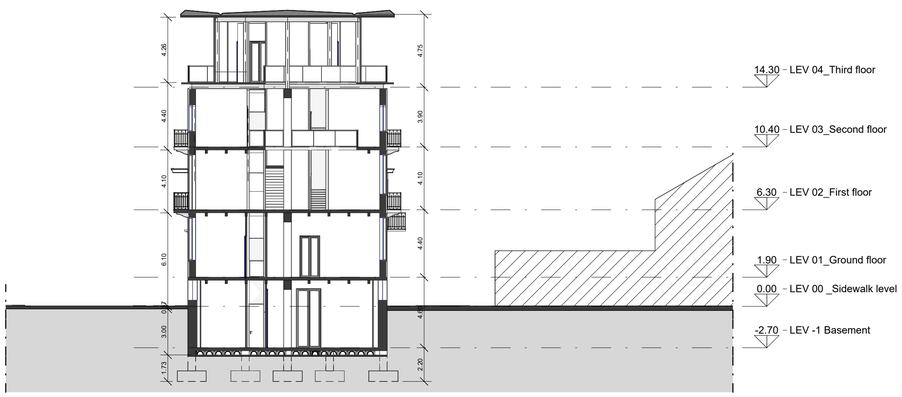
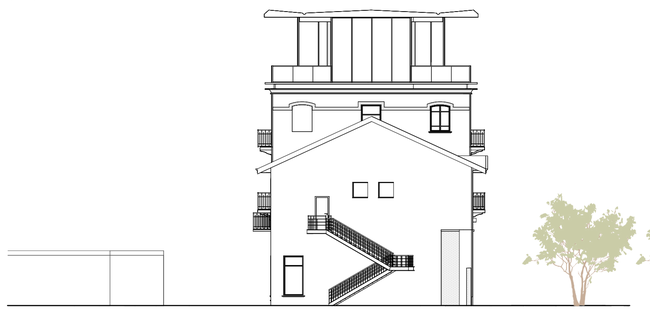
1 05 Proposal - Section 1
1 : 200

2 05 Proposal - Section 2
1 : 200



3 05 Proposal_West facade



4 05 Proposal_East facade

5 05 Proposal_South facade

6 05 Proposal_North facade

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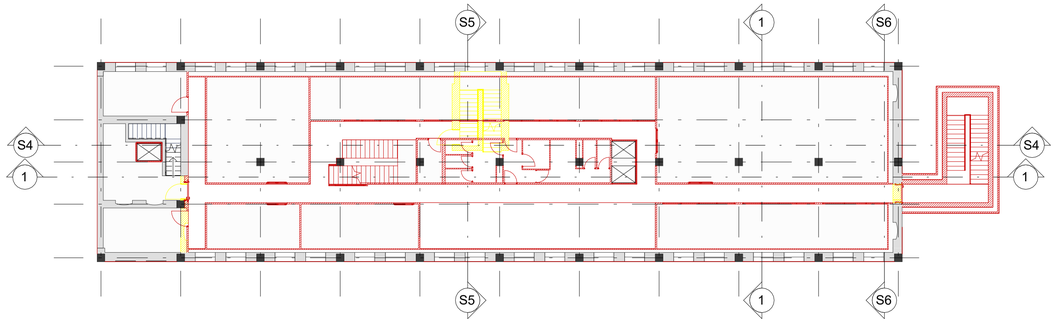
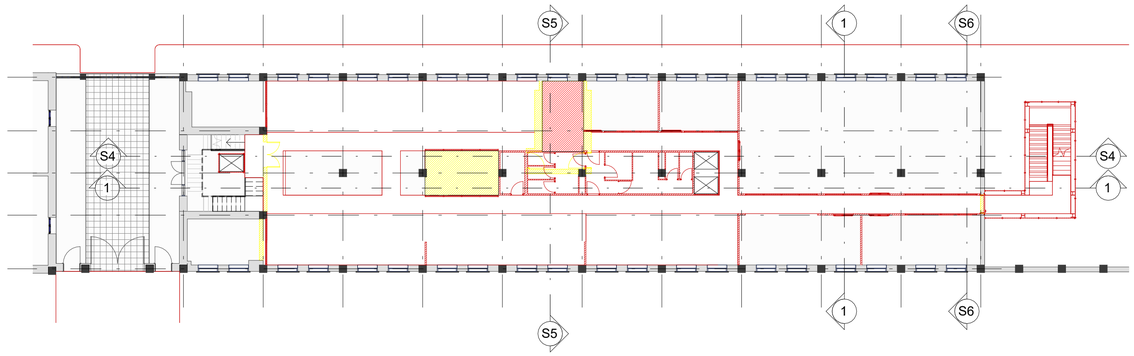
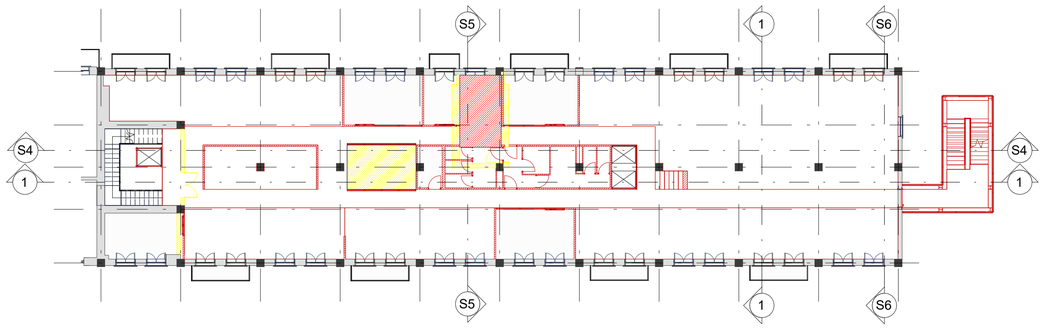
1 06 DEM/NC - Basement plan
1 : 200



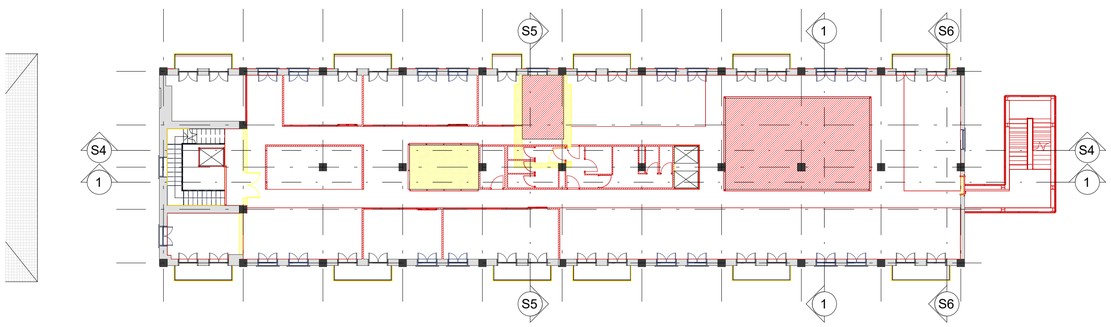
2 06 DEM/NC - Ground floor
1 : 200



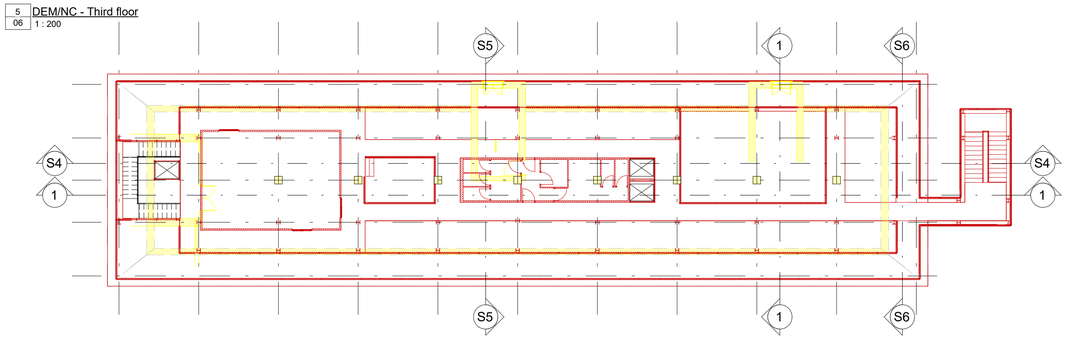
3 06 DEM/NC - First floor
1 : 200



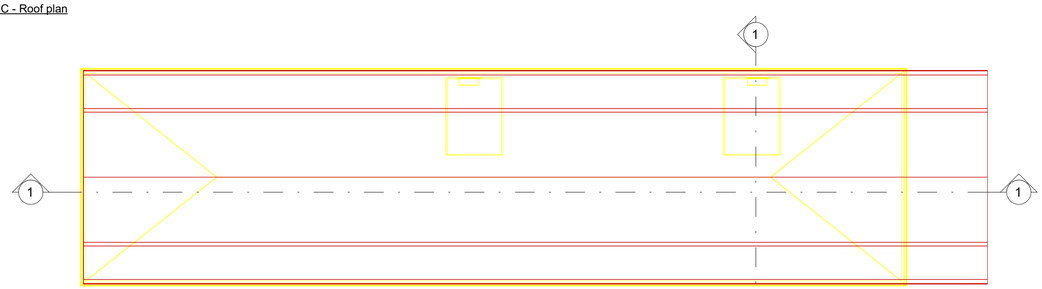
4 06 DEM/NC - Second floor
1 : 200



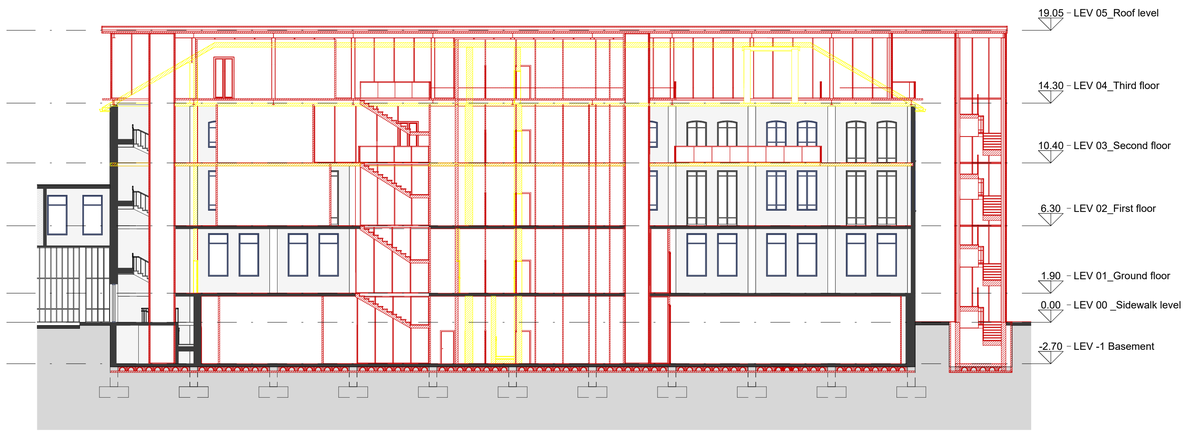
5 06 DEM/NC - Third floor
1 : 200



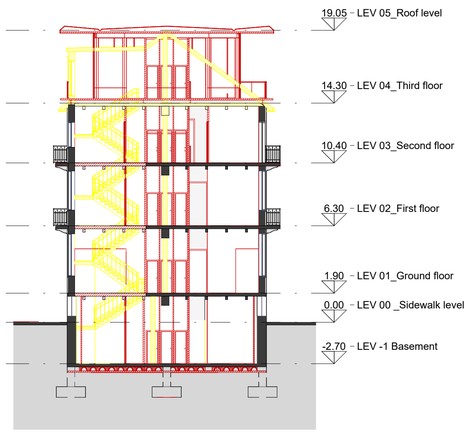
6 06 DEM/NC - Roof plan
1 : 200



S4 06 DEM/NC - Section 4
1 : 200



S5 06 DEM/NC - Section 5
1 : 200



S6 06 DEM/NC - Section 6
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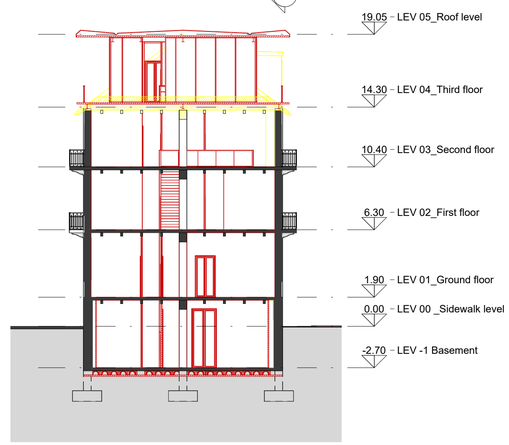

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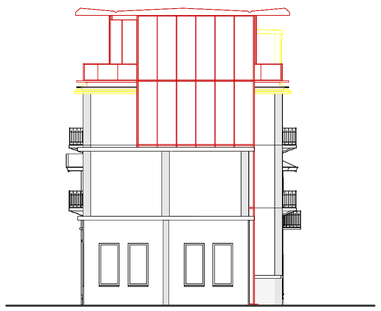
1
07
DEM/NC - South facade

2
07
DEM/NC - North facade

3
07
DEM/NC - East facade



4
07
DEM/NC - West facade

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STATE OF DECAY - FRONT FACADE OF THE BUILDING
Scale 1.200

ELEMENT
- WA Wall
- WN Window
- DR Door
- CO Cornice
- BL Balcony
- BA Basement
- PI Pillar

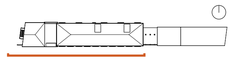
FINISH
- PL Plaster
- PA Painting

MATERIAL
- CR Concrete
- MT Metal
- WD Wood
- GL Glass
- MO Mortar
- BR Brick

DECAY
- Crack - Splitting
- Detachment
- Detachment - Chipping
- Detachment - Blistering
- Missing part
- Erosion - Brick loss
- Discolouration - Moist area
- Discolouration - Staining
- Graffiti
- Biological colonization - Plant
- Biological colonization - Algue

CLEANING
- Polutice
- Soft brushing
- Water misting
- Mechanical removal by hand
- Solvent based cleaner
- Rinsing

PROTECTION
- Breathable waterproof protective coat
- Injection of lime based mortar
- Reintegration of the bricks and mortar bed
- Biocide application
- Herbicide application
- Replacement
- Plaster reintegration
- Painting finish
- Reintegration of cement mortar base



TYPE OF DECAY: MATERIAL LOSS SUB-TYPE: MISSING PART

DEFINITION
Intended as the loss of three-dimensional elements[64], or empty space, obviously located in the place of some formerly existing part.[65]

ELEMENT Window
MATERIAL Glass

SUGGESTED INTERVENTIONS
This type of intervention should start with the assessment of the window and its surrounding area, documenting the current state, including any remaining fragments and details of the missing parts. Additionally, appropriate materials that closely match the original ones should be selected, involving the identification and sourcing of materials similar to those used in the original construction.[66]

REMOVAL
Careful removal of the broken glass by hand, using protective gloves.

INTEGRATION
The new part is carefully integrated into the existing structure. This process involves precise fitting and securing of the new piece to ensure stability and seamless blending with the original window.

[64] UNI. "Norma Italiana - Beni Culturali Materiali Lapidei Naturali Ed Artificiali." Milano, Italia: UNI Ente Italiano Nazionale di Unificazione, April 2006, p.24
[65] ICOMOS International Scientific Committee for Stone (ISCS). p.14
[66] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: EROSION SUB-TYPE: LOSS OF COMPONENTS

DEFINITION
As erosion, it is intended the loss of original surface, leading to smoothed shapes. The loss of components is a sub-type of erosion, in which is presented a Partial or selective elimination of soft or compact components.[67]

ELEMENT Basement
MATERIAL Brick
FINISH Mortar

SUGGESTED INTERVENTIONS
CLEANING
Cleaning with broom brushes and misted water of the affected portion.

REMOVAL
Removal of heavily detached mortar using small spatulas. [68]

REINTEGRATION
Reintegrating degraded or missing bricks and compatible mortar bed.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[67] ICOMOS International Scientific Committee for Stone (ISCS). p.30
[68] Mamino, P. " Palazzo Audifreddi - Progetto Di Restauro E Rifunzionalizzazione." Thesis, (2022) p. 181 https://webthesis.biblio.polito.it/23992/.

TYPE OF DECAY: DISCOLOURATION SUB-TYPE: MOIST AREA

DEFINITION
Discolouration, or chromatic alteration is intended as the change of the stone colour, while the moist area sub-type corresponds to the darkening (lower hue) of a surface due to dampness. The denomination moist area is preferred to moist spot, moist zone or visible damp area.[69]

ELEMENT Pillars
MATERIAL Concrete
FINISH Plaster

SUGGESTED INTERVENTIONS
According to "Stone Conservation: An Overview of Current Research,"[70] the treatment for discoloration, specifically stains on stone surfaces, involves several key steps:

CLEANING
Carefully clean the discolored areas using a soft brush and water mist.
Apply a chemical biocide to eliminate the presence of possible biological growth such as moss, algae, and lichen.
For desalination treatment, use a poultice to extract salts from the stone. This process typically involves applying and removing poultices, which absorb the salts from the stone's surface and pores.

PROTECTION
Finishing plaster application.
Apply a breathable water repellent protective coat on the surface.

[69] ICOMOS International Scientific Committee for Stone (ISCS). p.46
[70] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: DISCOLOURATION SUB-TYPE: STAINING

DEFINITION
According to the UNI[71], a stain is a localized color variation of the surface, related both to the presence of certain natural components of the material (concentration of pyrite in marbles) and to the presence of foreign materials (water, oxidation products of metallic materials, organic substances, paints, microorganisms, for example).

ELEMENT Facade pillars
MATERIAL Concrete
FINISH Plaster

SUGGESTED INTERVENTIONS
According to "Stone Conservation: An Overview of Current Research,"[72] the treatment for discoloration, specifically stains on stone surfaces, involves several key steps:

CLEANING
Carefully clean the stained areas using a soft brush and water mist.
For organic stains use a poultice made with a solvent like acetone or hydrogen peroxide, the polutice helps with the desalination process, absorbing the salts from the stone's surface and pores.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[71] UNI. "Norma Italiana - Beni Culturali Materiali Lapidei Naturali Ed Artificiali." Milano, Italia: UNI Ente Italiano Nazionale di Unificazione, April 2006, p.22
[72] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research.

TYPE OF DECAY: GRAFFITTI

DEFINITION
Engraving, scratching, cutting or application of paint, ink or similar matter on the stone surface, generally the result of an act of vandalism.[73]

ELEMENT Basement, pilars and walls
MATERIAL Mortar, concrete and brick (respectively)
FINISH Painting and plaster (on brick walls only)

SUGGESTED INTERVENTION
According to "Stone Conservation: An Overview of Current Research," [74]the treatment for graffiti for the effective removal without damaging the surface suggests:

CLEANING
This includes using soft brushes or low-pressure water spray.
Application of chemical solvent-based cleaners or gels to dissolve graffiti paints. These should be selected based on the type of paint and stone to ensure compatibility and effectiveness.
Application of polutice for deeper celaning: poultices that draw out the graffiti from the stone pores can be applied. These are often used in combination with solvents to enhance removal.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[73] ICOMOS International Scientific Committee for Stone (ISCS). p.56
[74] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: BIOLOGICAL COLONIZATION SUB-TYPE: ALGUE

DEFINITION
Biological colonization is intented for the colonization of the stone by plants and micro-organisms. Algae are microscopic vegetal organisms which can be seen outdoors and indoors, as powdery or viscous deposits. Algae form green, red, brown, or black veil like zones and can be found mainly in situations where the substrate remains moistened for long periods of time.[75]

ELEMENT Basement and pillars
MATERIAL Mortar and concrete

SUGGESTED INTERVENTION
According to "Stone Conservation: An Overview of Current Research".[76]

CLEANING
Mechanical cleaning to remove loose growth using soft brushes or water sprays. Avoid high-pressure washing, which can damage the stone.
Apply biocides that are specifically designed for use on stone to kill the biological growth. Common biocides include quaternary ammonium compounds, hydrogen peroxide, and sodium hypochlorite. It's essential to follow the manufacturer's instructions and conduct a patch test to ensure the biocide does not damage the stone.
For stubborn growth, poultices can be applied. These are mixtures that help draw out and absorb the biological material from the stone's pores.
After the biocide has taken effect, thoroughly rinse the stone surface with clean water to remove any residues. This step is crucial to ensure that no biocide remains that could potentially damage the stone or the environment.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[75] ICOMOS International Scientific Committee for Stone (ISCS). p.64-66
[76] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research. .

TYPE OF DECAY: BIOLOGICAL COLONIZATION SUB-TYPE: PLANT

DEFINITION:
Vegetal living being,consisting sometimes only of a single leafy expansion If buildings are not maintained, plants will eventually colonise places where water is accessible, extending roots into joints and break the stone. They may also contribute to keep areas damp exacerbates other processes such as salt deteriioration.[77]

ELEMENT Basement
MATERIAL Mortar

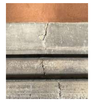
SUGGESTED INTERVENTION
According to "Stone Conservation: An Overview of Current Research"[78] before any intervention it is important to identify the type of plants growing on or near the stone. This helps in understanding their root structure and potential damage.

REMOVAL
Carefully remove plants by hand, ensuring to extract as much of the root system as possible to prevent regrowth with small trowels or tweezers for precision.

CLEANING
Apply appropriate herbicides to kill remaining roots and inhibit regrowth. Ensure that the herbicide is safe for use on stone surfaces and does not cause additional damage.
Clean the stone surface with water and soft brushes to remove any remaining debris and dead plant material. Avoid high-pressure washing as it can damage the stone.
Apply poultices to draw out deep-seated root fragments or residual organic material. Poultices can also help remove stains caused by plant growth.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[77] ICOMOS International Scientific Committee for Stone (ISCS). p.74
[78] Doehne, Eric, and Clifford A Price. Stone Conservation : An Overview of Current Research.



TYPE OF DECAY: CRACK SUB-TYPE: FRACTURE

DEFINITION
Individual fissure, clearly visible by the naked eye, resulting from separation of one part from another, more specifically, it is intended for fracture a crack that crosses completely the stone piece.[59]

ELEMENT Basement
MATERIAL Stone

SUGGESTED INTERVENTIONS
The treatment for cracks and splitting in stone involves several steps and techniques to ensure the structural integrity and aesthetic preservation of the stone, the following interventions are suggested:

CLEANING
Removal of loose surface deposits with a soft brush.
Washing with water for the removal of partially adhering surface deposits.

REINTEGRATION
Consolidation and repair through the injection of lime based mortar.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[59] ICOMOS International Scientific Committee for Stone (ISCS), Illustrated Glossary on Stone Deterioration Patterns = Glossaire Illustré Sur Les Formes d'Altération de La Pierre (Champigny/Marne, France: Ateliers 30 Impression, 2008), p. 10, https://www.icomos.org/public/publications/monuments_and_sites/15/pdf/Monuments_and_Sites_15_ISCS_Glossary_Stone.pdf.

TYPE OF DECAY: PLASTER DETACHMENT

DEFINITION
Discontinuity between layers of plaster, either among themselves or relative to the substrate, generally leading to the layers falling off. Discontinuity between the coating and the base material or between two coatings.[60]

ELEMENT Wall
MATERIAL Brick
FINISH Plaster and painting

SUGGESTED INTERVENTIONS
The proposed interventions for addressing the plaster detachment on the main facade of the buildings include the following steps:

REMOVAL
Preliminary removal of detached plaster from the walls.

CLEANING
Dusting off the efflorescence and localized removal of loose material using broom brushes. Desalination process through cycles of absorbent compresses made with distilled water.

PLASTER REINTEGRATION
Application of a scratch coat of cement mortar resistant to sulfates an plaster application.

PAINTING
The entire affected facade will be painted using a color that is compatible with the historical plaster original painting.

PROTECTION
Application of a water repellent breathable protective coat.

[60] UNI. "Norma Italiana - Beni Culturali Materiali Lapidei Naturali Ed Artificiali." Milano, Italia: UNI Ente Italiano Nazionale di Unificazione, April 2006, p.16 https://www.unirc.it/documentazione/materiale_didattico/1463_2016_426_26713.pdf.

TYPE OF DECAY: FRAGMENTATION SUB-TYPE: CHIPPING

DEFINITION
Fragmentation is the complete or partial breaking up into portions of variable dimensions that are irregular in form, thickness and volume. Chipping, is a sub-type of fragmentation in which it is possible to see breaking off of pieces, called chips, from the edges of a block.[61]

ELEMENT Pillar
MATERIAL Concrete
FINISH Plaster

SUGGESTED INTERVENTIONS
The treatment suggested for plaster fragmentation follows the next steps:

REMOVAL
Preliminary removal of detached plaster from the walls.

CLEANING
Removal of loose surface deposits with a soft brush.
Washing with water for the removal of partially adhering surface deposits.

REINTEGRATION
Reconstruction of the plaster through the application of a scratch coat with mortar resistant to sulfates, in order to completely cover the existing support, and application of the finishing plaster based on natural hydraulic lime with high breathability.[62]

PROTECTION
Apply a breathable water repellent protective coat on the surface.

[61] ICOMOS International Scientific Committee for Stone (ISCS), Illustrated Glossary on Stone Deterioration Patterns (2008), p. 22.
[62] Mamino, P. " Palazzo Audifreddi - Progetto Di Restauro E Rifunzionalizzazione." Thesis, (2022) p. 187 https://webthesis.biblio.polito.it/23992/.

TYPE OF DECAY: PLASTER DETACHMENT SUB-TYPE: BLISTERING

DEFINITION
Separated, air-filled, raised hemispherical elevations on the face of the material resulting from the detachment of an outer layer. This detachment is not related to the structure.[63]

ELEMENT Balconies floor and cornice
MATERIAL Concrete
FINISH Plaster

SUGGESTED INTERVENTIONS
The decay caused by blistering should be treated with the following steps:

CLEANING
Removal of any loose or detached material using gentle brushing and washing with water for the removal of partially adhering surface deposits.

REINTEGRATION
Plaster reintegration on top of the clean surface.

PROTECTION
Apply a breathable water repellent protective coat on the surface.

PREVENTIVE MEASURES
Addressing moisture sources is essential and may include improving drainage, controlling humidity, and implementing measures to prevent water infiltration.

[63] ICOMOS International Scientific Committee for Stone (ISCS). p.14

Politecnico di Torino
A.A. 2023-2024