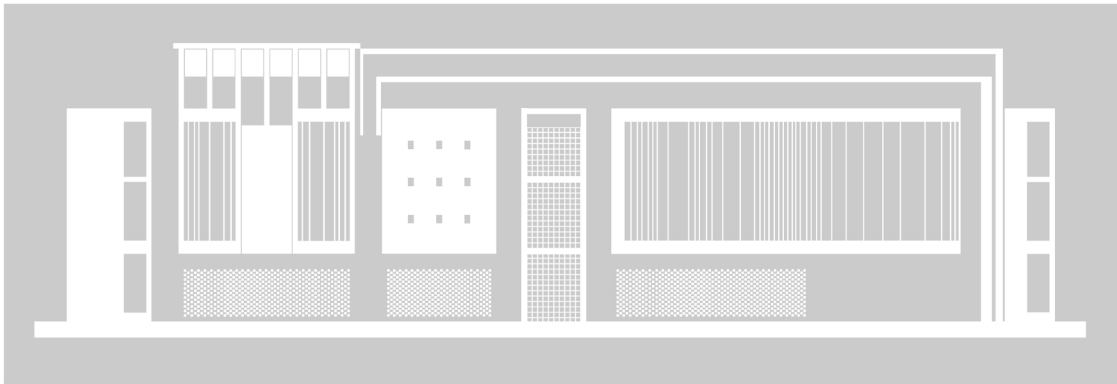# THE NEW CENTRAL PUBLIC LIBRARY OF MILAN

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CENTRAL PUBLIC LIBRARY OF MILAN

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POLITECNICO
MILANO 1863

INDEX

The Evolution Process of The City

From the origins to the Middle Ages

The birth of Milan happened in the III and II millennium with the primary intention as places of military command. Agriculture came to the second important role in the city. Then it changes from random organization to an open, hospitable Greek city. The real leap in quality, size, and scale of Milan, is made by Rome thanks to its elites of soldiers and administrators.

If you look at a current plan of the city of Milan it is very difficult to reconstruct its original layout, the aspects that Milan presents today is the result of a long development over time, consisting of expansions, folds and often reconstructions.[1]

The Roman city originated from the castrum with the chess-board plan of the cardo and decumano. However, the decline of the Roman Empire led as a direct consequence to a reorganization of the idea of city and a contraction of its development with relative loss of meaning of a large part of the huge building, bureaucratic, political, administrative imperial system (baths, temples, etc.).

The city of Milan on whose origin certainly grew around the urban core consisting of its ancient castrum arose after 222 BC which was the union of the ancient insubrico village with the new Roman structures. (Fig. 1)[2].

The conjunction between the insubric village and the Roman castrum, however, had caused a shift of the city's center's gravity in its subsequent development (in the Republican age) and, rather than tracing the new cardo coming from the south-east on the pre-

vious one, there was an approach to the northwest of a new primary system. Thus Milan assumed a polygonal or more precisely pentagonal form of city. (Fig 2)

The thistle and decumanus that generate the castrum intersected where today we can find the church of San Satiro, now incorporated into a dense and quality-free urban fabric.

The most correct interpretative key is already an important and almost constant indicator of the development of Milan: it is the trades and trades favored by the flat position and the centrality of Milan with respect to the European lines in formation.

The importance of this city, in the imperial age, increased considerably. The city passed from the pentagonal form reached to the hexagonal one and this happened immediately after the Via Emilia reached the urban nucleus.

Mediolanum had become the cornerstone of a great road system that wound between Venice, Gaul and Spain and consequently was the center of great traffic. The expansion of the city changed direction and developed north-east in the current area of the Duomo; the expansion of the imperial age recognizable by the dense network of perpendicular roads. Also in the Imperial age, under the rule of the Emperor Massimiano (286-305), there was an increase in the city wall "the extension of the walled city exceeded 100 hectares and the perimeter of the walls the 4,500 meters"[3] and an additional enlargement also occurred in the west (Fig3).

The great historical cities are aware of an internal transformation with the rehabilitation of large structures, which lose meaning, more modest urban functions, artifacts that constituted circuses, theaters, amphi-

1.Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p.21

2.Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p.21

3. AA.VV., Milano, Touring, Milano 2005, p. 25.

LEGENDA
1. Resti di mura romane
2. Chiesa di S. Maria presso S. Satiro (879 d.C.)
3. Resti cripta di S. Giovanni
4. Resti romani

BORGO INSUBRICO
CASTRUM ROMANO

Chiaravalle
Pantano
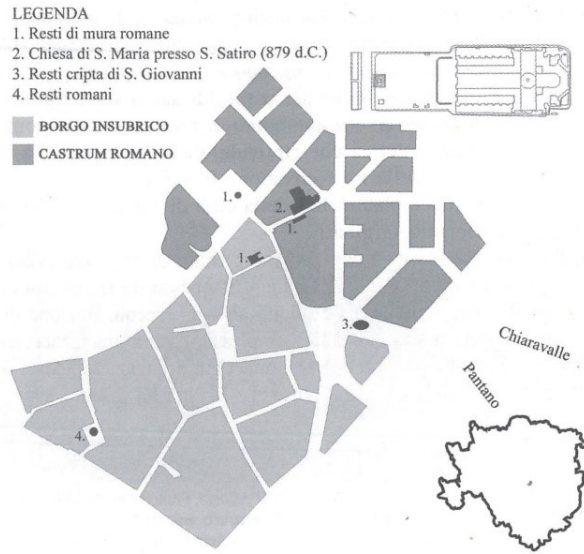
Fig1. Milan: 4th century, from the insubrico village to the Roman castrum.

CASTRUM ROMANO
CITTA' POLIGONALE

via Torino

LEGENDA
1. Torre di Ansperto
2. Resti di terme romane
3. Chiesa di S. Maria Podone (871)
4. Resti di torre romana
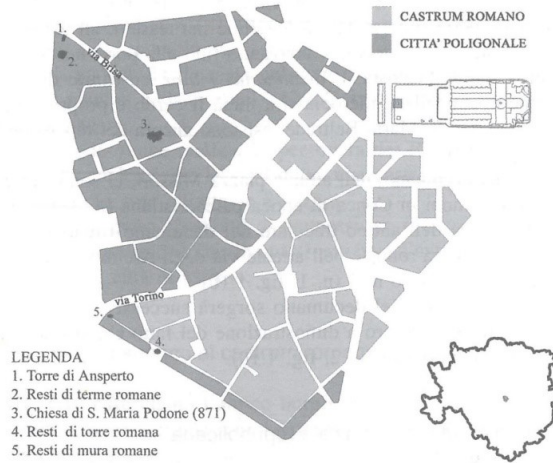5. Resti di mura romane

Fig 2. Milan: from the Roman castrum to the republican age (52 BC).
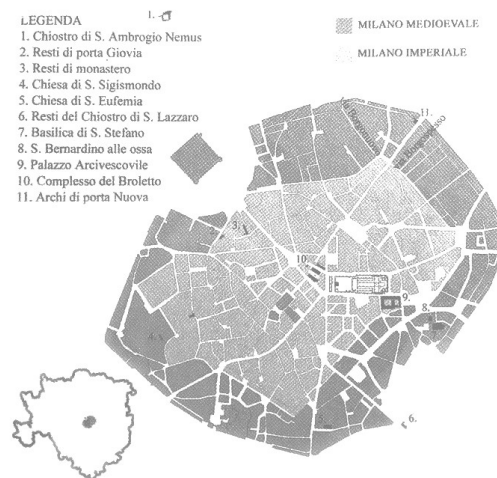
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Fig 4. Milan from the 5th century to 1450.

ones (via Borgonuovo, via Borgospesso).

The new urban fabric was closed in turn by a new city wall (Fig. 4), much larger than the previous one (it was 6 km), elliptical, closed to the north-west by the Castle's first plant, built in the Visconti era.

The new fortification developed along the route of the "circle of ships", which also developed in the late municipal period in Milan.

Along the perimeter of the walls a ditch was dug, fed by the waters of Seveso, Nirone and Olona, which began above Porta Trcinese and ended up in the current Via Vettabbia; this system was then added to the Great vessel, which carried the water of Ticino and Redefossi.

This network of waterways, initially built with a defensive purpose, then became fundamental for trade.

The main gates of the medieval system were six, including the Porta Nuova arches still visible (at the end of Via Manzoni, not to be confused with the nineteenth-century neoclassical Porta Nuova).

The new buildings of palaces and especially of religious buildings are multiplied: the church of S. Eufemia (489), the church of S. Celso (992), the church of the Holy Sepulcher, the Basilica of S. Stefano (1075), the Archbishop's Palace (1174) and the church and convent of S. Marco outside the walls (1254), to name a few. The liturgical arrangement of the churches (east-west) clashes with the mesh oriented from south-east to north-west, originating a new conflictual system with the previous one.

In 1300, due to pestilence and famine, there were no major transformations from an urban point of

Fig. 4), the - plexus of the Broletto (No. 10, Fig. 4), the Ospedale Maggiore and the Lazzaretto. [4]

The history of Milan particularly has already been marked by the desire to close itself in a small perimeter, becoming thickened and thickened since the High Middle Ages. In the Middle Ages delivered a very composite fabric of cities and towns to the history of humanity. In this panorama Milan presents itself as a fortress city that with its defense aims begins to deny itself the pleasures of the external area with territorial imbalances. The fortress is the castle that the Visconti wanted to erect in the north-west of the city in an isolated and dominated place that marked in a perennial way an indelible character of Milan. And this is also the epoch of the beginning of the construction of the Duomo, another strong symbol of the city, begun in 1368 and which will continue uninterruptedly navigating through fashions and styles for many centuries.[5]

4.Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p.26-27

5.Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p.11

From the Renaissance to the modern city

Spanish Milan (1500-1650)

Transformation of the cities from the late Middle Ages to the Renaissance was accompanied by the birth of the square. As we know the square is a deliberate collective meeting place, also, the symbolic representation of the city, that could be found through the main buildings with its religious, political and commercial bodies. The transition to the Renaissance square, increasingly linked to the court and therefore a place of spectacle, rather than a popular assembly. Also, it was used as a means of spatial control.

The great economic depression that goes from the first third of the fourteenth century to the middle of the fifteenth century interrupts the development of European cities and is accompanied by a conspicuous demographic decline because of the plague and other misfortune.

The important change took place in Milan during the fifty years of the Sforza period (from the mid-fifteenth century until the beginning of the sixteenth century). For example, Antonio Averulino Filarete created one of ambitious urban planning operation and that was the creation of the Maggiore Hospital in a large area then peripheral was bordered by the Naviglio through which the building materials arrived. So, one of the few episodes and not only then, in which Milan, as De Finetti says, was 'forerunner'.[1]

The most important urban planning intervention, carried out during the Spanish domination, was the new city walls (No. I, Fig. 5).

There remain many religious complexes that were incorporated by the new walls, the Renaissance churches of the historic core and the main civil buildings of the time.[2]

Austrian Milan (XVII-XIX century)

In the XVIIIth century, when the Austrian began to dominate the Spanish, the city presented itself with a dense construction within the circle of the canals and a sporadic presence of settlements, more than religious, between the center and the Spanish walls.[3]
Also a number of important projects were carried out including the redevelopment of the Pallazzo Reale and construction of the Scala Theatre (1778),the Arco della Pace (1807) and the Accademia di Brera was founded. Thanks to the improvement given by the Habsburg dynasty were changed all society fields such as: economic, public, cultural, artistic, administrative, scientific. [4]
In this century Milan is enriched by numerous monumental buildings such as palaces, churches, theaters and luxury villas in the periphery. All this happened without legible design and without declared order.
An important urban operation, which unfortunately did not find an overall conclusion, was a transformation of the Spanish bastions into tree-lined avenues that limited the creation of a single walk near public gardens. (Fig. 6)At the end of the century, just before Napoleon took over the city, Milan was shown as a sum of urban interventions unrelated to each other with a chaotic urban expansion still grouped on the

1. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p. 13

2. Stefano D'amico, Spanish Milan: A City within the Empire, 1535-1706, PALGRAVE MACMILLAV, 2012

3. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p. 28

4. http://www.aboutmilan.com/history-of-milan.html#es-at

Fig 5. Milan from 15th century to 17th century.

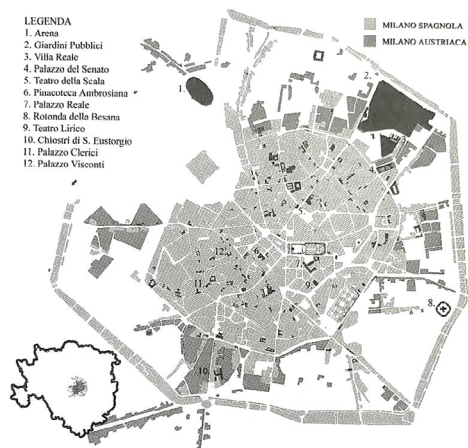**Fig. 1.15** *Milano dal XVIII alla fine del XIX secolo*

Fig 6. Milan from 16th to the end of 19 century.

14

radial axes.

The historical center was congested and closed by the circle of the Navigli and the extension spread disorderly in the territory.

In 1796, with the entry to Milan of Napoleone Bonaparte, a period of innovations not only political but also urbanistic, opens up for the city. A real plan for the reorganization and development of the city was drawn up which later took on the name of "Piano Napoleonico". [1]

Napoleon commissioned the project of a great forum surrounding the castle, shown to the right and completed by Giovanni Antolini and proposed a new center of the city. [2] Very little compared to what will happen in Paris with the Haussmann plan with the opening of the great system of avenues and squares. Still, most of the ideas proposed were never realized, however, it did leave its mark on the modern city (Figure 7).

Napoleone created the Commissione d' Ornato to complete the first master plan of the city (rettifili). The commision completed the design of the master plan for the city. Napolean's ideas for turning Milan into a European capital and creating a new modern city center, unfortunately, was not destined to be realized due to lack of time and finances. however, a number of the implementations were completed. [3]

The plan of 1807 substantially denying the Antolini's lighting system and designing the Piazza d'Armi to the north-west of the Castello, outlines the Arena Civica and the Arco della Pace and for the first time designed an organic system of utilitarian squares and

1. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p. 29

2. Corinna Morandi, Milan: the great urban transformation, Venezia: Marsilio, 2007, p. 24

3. Corinna Morandi, Milan: the great urban transformation, Venezia: Marsilio, 2007, p.21

representative including the Cordusio, Piazza Fontana, Piazza della Scala and Piazza Missori.[4] The same roads are distinguished for the first time in categories: the courses, the crosspieces, and the carriage roads.

The supporting element consisted of a new road axis that, recreating the ancient Roman Cardo, connected the city directly with France, uniting the ancient postal routes of Varese and Gallarate, now Corso Sempione and connected to the south-east in extension with Via Emilia, current Corso di Porta Romana (Fig. 8). Additionally, the construction of Corso Vittorio Emanuele from the Piazza Duomo to the church of San Babila was realized, which remains today as one of the major aspect in modern-day Milan.

The other major project of the plan concerned the Castello: it provided for the realization of a large circular square around it and the construction of public buildings along the circumference. The only interventions were limited to the Foro Bonaparte and the demolition of part of the fortifications.

With the fall of the Napoleonic empire, the plan was definitively interrupted, but construction activity did not stop for this. In the early years of the nineteenth century up to the unification of Italy, there were works of enlargement and alignment of various roads, sewers,constructions of available lands and resettlement of the Navigli.[5]

The growth was continuing rapidly, and the typology and morphology of the greater urban area had been defined.

4. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p. 17

5. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p. 30
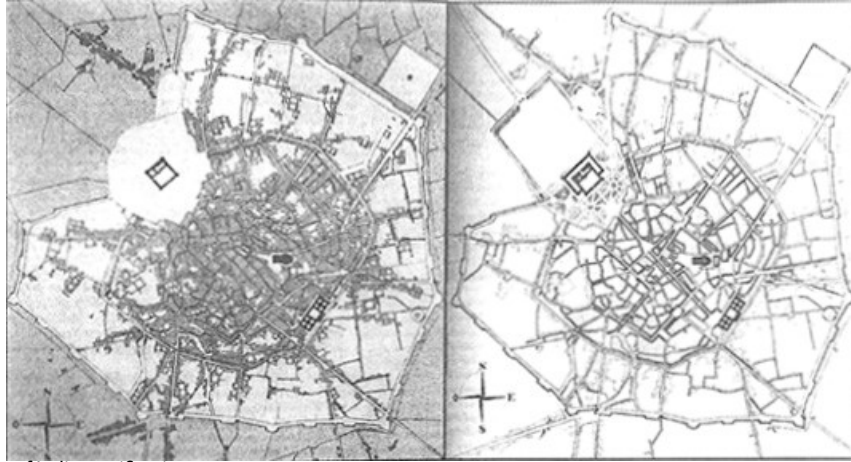
Fig 7. MIlan in the time of Italian unification.

Fig. 1.16 Milano all'Unità d'Italia

Fig.8 MIlan in the time of Italian unification.

From The First Urban Plans to The 1953 Plan

Milan After the Unification of Italy

Associated with ending of the Austria's domination over Milano, Milano had started a regeneration era. Starting from 1860, an urban transformation which can be assumed as a milestone laid the foundation today's Milan. During the following 20 years, the projects like organisation of Piazza della Scala, Monumental Cemetry and the San Vittore Prison or arrangement of some street districts like Corso Buenos Aires are executed. The whole projects were a part of the monocentric city which also includes a radiocentric road system between eachothers. One of the most important alteration in the city was the rearrangement of the Piazza del Duomo which is located in the heart of the city. After a competition for renewal of the piazza, the square was enlarged and the number of the buildings around Duomo was decreased. In addition to the renewal of the central area, another significant improvement for the growing of the city was the construction of railways and the train stations which are one of the biggest attraction points of a city. In 1840 the first railway was constructed in Northern Italy and linked Milan to Monza. Factories had begun to immerge outside of the city walls and tramways were being established throughout the medieval city center and moving out of the city to the suburbs forming the outer suburban ring of Milan to this day. The first Central Station of Milan was completed in 1864. The next year, a link was created connecting the station to the Public Gardens in the northeast quarter of the city that had been completed in 1858. [1]

After the unification of Italy, Milan had been seen as a development center. As a result of this, the population had inceased immediately, the city growth had gained speed. As a conclusion, a new town plan which focus on also the periphery was required. [2]

From the Beruto Plan to the Albertini Plan

Cesare Beruto was tasked to prepare the new plan which provide an organized city growth and meet the needs. The Beruto plan that can be assumed as the first masterplan of Milan, had two phases during the following five-year period. The first stage which developed in 1884, proposed a better and much more expropriation and an organic growing (Figure 9).
This stage was rejected because of the exaggerated size of the blocks. Beruto Plan version of 1885, the second draft of the plan, focused on identifying the major routes of the city, needed infrastructure, also, identifying and dividing some outer zones of the city (Figure 10). In addition to, the first introduction of converting the area behind the castle into public gardens. In the final scheme which was planned in 1889, the circular structure of city was improved and the city was expanded through the outside by means of railway route.The following 2 decades were the factors that formed the improvement of the city and the plan. In addition to these, the southwest part of Milano, was rearranged along with the canal district. [3]

1. Corinna Morandi, Milan: the great urban transformation, Venezia: Marsilio, 2007, p. 23-24

2. Alessandra Testa, Il Significato e L'importanza della Pianificazione Urbanistica Nello Sviluppo Della Citta, Liceo Classico Lanzone,2009, p.5

3. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p.

In the 20th century, as the expansion of the city and the rapid growth continued, the city has arrived to the political borders. This serious enlargement made the city need to much more and bigger infrastructures. In this direction, Pavia-Masera Plan was prepared after a competition. With this plan, a central station was projected while pulling the existing ones outside of the central circle and in 1931 the construction of Milano Centrale was started. The plan couldn't be implemented well because of some economic interests and lack of planning.

In 1926, another competition which focused on the expanding of the city from the center, was presented. In 1934, Albertini plan which crticised the expansion without any organisation and planning, offered a new street network and focused on Garibaldi-Repubblica areas, was approved. Despite of the fact that the plan couldn't be implemented, it was the major urban planning move of the post-war period.

From the AR Plan to the 1976 Plan

The explosion of the Second World War made dramatic physical changes on the city, the first massive bombardments are dated in October 1942. The bombardment followed one anotherwith greater intensity between February and August 1943 and left deep marks on the urban fabric. The areas most affected are those of Porta Volta, the surroundings of Corso Vittorio Emanuele, the entire district of Porta Genova and that between Porta Romana and Porta Vigentina. «... In order to weaken the morale of the public it has a particular meaning to destroy the symbols of the city and so the bombs hit the Ca'Granda, the bramante

portico of Sant 'Ambrogio, the cloister of the Graces, Brera, Palazzo Sormani, La Scala, Casterllo, Palazzo Marino, the Palazzo Reale and the church of San Carlo... » .[4]

The CNL (National Liberation Committee) responds to the war with the suspension of the validity of the Albertini plan of 1934 and with the concurrence of ideas banned in November 1945 for the drafting of the new master plan.

The proposals of the AR plan (Architects Reunion: Albini, Bottoni, Gardella, Mucchi, Peressutti, Pucci, Putelli, Rogers) «...were undoubtedly the clearest and most incisive of the projects presented...» [5] They refuse the tertiarization of the historic center and propose the establishment of the new management center in the area of the former railway stop Sempione and are already thinking of the need for an integrated railway underground network serving mainly the province.

The tripartite junta that governed Milan after the World War II, DC, PSI, PCI, entrust councilor Venanzi, a communist, the task of guiding the drafting of the new regulatory plan that will essentially incorporate many of the choices made by the AR plan, but will also introduce some important differences. The plan Venanzi, adopted March 5, 1948, introduced a substantial worsening change: the move of the new business center of the Sempione to the area between the Garibaldi station and the Centrale station and therefore the direct connection with the historical center now is completely outsourced.

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4. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p. 45

5. Antonello Boatti, Urbanistica a Milano: sviluppo urbano, pianificazione e ambiente tra passato e futuro, Novara: CittàStudi, 2007, p. 47

31-44

LEGENDA
1. Resti di torre romana
2. Resti di colonne romane
3. Chiesa di S. Ambrogio (fine IV sec.)
4. Resti del circo romano
5. Resti dell'Anfiteatro
6. Basilica palatina S. Lorenzo
7. Basilica Maggiore S. Nazaro
8. Resti di mura
9. Chiesa di S. Simpliciano

MILANO POLIGONALE
MILANO IMPERIALE

Fig 3. Milan: Imperial age (33 AD) and Massimanea (286 AD).

theaters, palaces, baths, temples are reused in the high Middle Ages to build small dwelling buildings and use the perimeter walls for defensive purposes.

The road network is an essential element of the dynamics of city development. Thus began the expansion along the radials and that is like wildfire, the rigid axiality of Greek and Roman origin gives way to the typical medieval winding structure.

The city assumes a new hierarchical meaning that differs according to the different political connotations, now civil (the Municipalities and the Lords), now religious (the confessional states), more often civil and religious.

In the new center dominates the emblematic representation of dominant political roles and externally, with progressive decreasing values, the residence of the nobles and then gradually the artisans, traders and the people.

The most typical scheme in this sense is constituted by the Gothic cathedral that rises in elevation from the late medieval fabric.

In the early Middle Ages Milan developed homogeneously around what were the "moenia massimiane" up to incorporate all those buildings that had arisen outside, especially the basilicas and villages that had been born on the routes between the old gates of the imperial walls and the new

view, if not by the Visconti, an increase in fortifications; Neither the proof remains today, in Via S. Giovanni Sul Muro, in Porta Giovia. (No. 2, Fig. 4).

From an architectural point of view, however, in this century the realizations of civil and religious elements began, which are still the cardinal points of the city: the Cathedral, the Castle, the Archbishopric (No. 9,
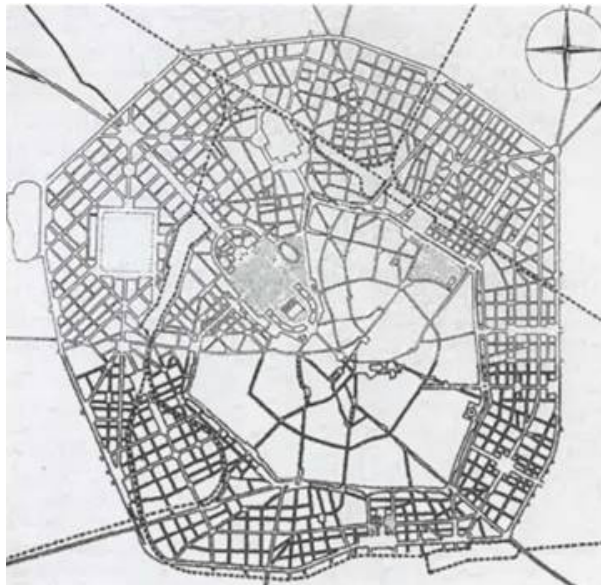
Fig 9. Beruto Plan,1884.
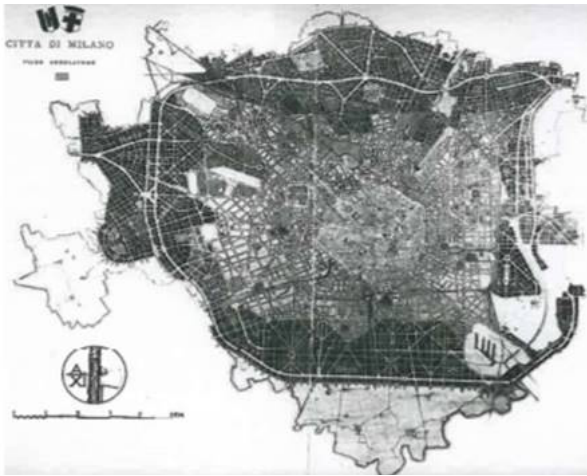

Fig 10. Beruto Plan,1885.

Fig 11. Albertini Plan,1934.

In addition to this, in 1949 Reconstruction Plan was approved by the Ministry of Public Works, pursuant to Law 154 of 1945. The Reconstruction Plan, as a detailed plan, should have been implemented by the Venanzi plan: in reality it is implemented through the regulatory plan still in force (that of 1934) and according to the building regulations of 1921, with very high land density. The municipal administration, faced with this situation, does not defend the planning established by the new Regulatory Plan, but openly embraces the Reconstruction Plan and the previously stipulated conventions. This leads to the decision to revise the regulatory plan. In 1950 the second plan project was adopted, definitively approved in 1953, which has nothing more to do with the original settings of the councilor Venanzi, nor with regard to public services, nor as regards the areas to be allocated to green areas. Milan grows enormously, both in the historic center, with a very strong increase in building density, both in the suburbs, with an uncontrolled expansion.

The principles underlying the general plan of 1953, are summarized as: to be found in the inclusion of the urban plan in a regional plan, in the industrial decentralization, in the creation of a regional management center, in the zoning of the entire municipal territory, in the construction of large axes equipped for penetration from the city into the urban aggregate, in the creation of neighborhoods autonomous residential for an organic expansion of the city, in the imposition of the bond of agricultural green.
The urban plan will be in force until 1976 when the new PRG will enter into protection and it will be immediately affected by a series of partial variations that will follow over time. The plan of 1953 lives, in the protective area left by the inheritance of the AR plan rather quietly until 1971.

From the 1976 plan to the "deregulation"

At the beginning of the 1960s the General Plan of 1953 had already undergone a generalized process of violations and revisions, therefore making it outdated and unsuitable for the rapid changes. In fact, an urban planning practice based on continuous partial variations and on building permits was activated. After ten years from the initiation of the new plan, the municipal administration finds itself in need to re-examine a huge amount of violations. Therefore, two variants were prepared: Variante del 1963 variant (detta? Ombra) and the Plan of Hazon from 1969. Both of them had the purpose to summarize all the violations of the plan from 1953 in one document, but in reality these variants were never approved. In fact it was not until 1976 for a General Plan (Variante Generale) Fig.12, in short called a new General Regulatory Plan (GRP) that would systematize all the errors and address the issues.

Even in terms of statistics it was clear that a rapid change was taking place in Milan. In 1961, Milan had 1 508 978 inhabitants and in 1976 the population reaches 1 738 746 inhabitants. Of all these inhabitants, what was observed was that if in 1951 within the Spanish walls resided 193 000 inhabitants, which accounts for 15% of the total, in 1976 within the Walls there is only 7% of the total, or 123 000 inhabitants. The signal was pretty clear: the trend is that a progressive abandonment of the city center is taking place by the last inhabitants .[1] With the second half of the seventies, one of the first measures of the municipal administration was the revision of the PRG from 1953. The questions posed by the planners at that time were mainly regarding the sizing of the plan and the possibility of
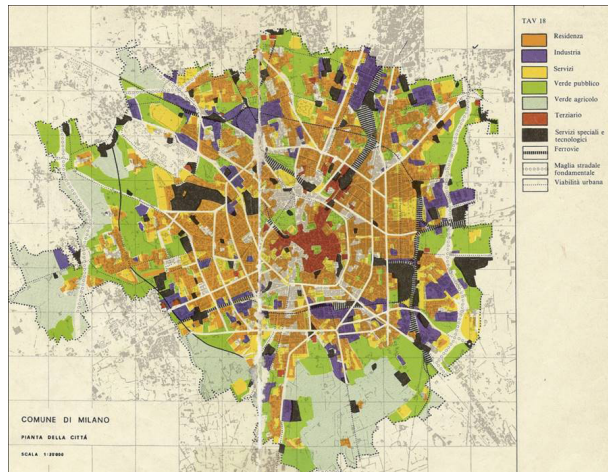
Fig 12. General Plan of Milano 1976

1. Boatti A. , Urbanistica a Milano:Sviluppo urbano, pianificazione e ambiente tra passato e futuro. , (Citta Studi ,Novara 2007, pp.68-80).

curbing the expulsion of industries from the city and emigration of the inhabitants outside the walls, generally towards the urban periphery. In fact the 1976 plan is characterized by a new methods of preliminary investigations and for the first time stored and checked with computer modes. To be precise, there were 24 thematic categories that display the distribution and territorial coverage of numerous statistical data and urban analysis: the social structure of the population, the quality of housing, use destinations, free/unused or poorly used areas and existing public services. The precise census in fact helps to highlight the overall lack of standards and the importance of relationship between the degraded housing and the total amount of housing, that allows the analysis to give awareness to the crisis areas of housing in city. Finally, the building density ratios, which reach up to 20 sqm / mc, for example in Piazza Diaz, trace the map of saturated areas and areas where volumetric increases can be expected.

In line with a territorial analysis, the researchers were able to do a list of main issues that they had to address in the 1976 plan, following the principles of:

– containment of development;

– attention to the recovery of the existing;

– confirmation and re-launch of the production structure;

– development of public transport;

– quality of the city through a serious policy of urban planning standards;

– creation of a green belt.

Compared with the 1953 plan, from the methodological and cartographic point of view, the 1976 plan represents an important leap forward for the urban planning and for the administrative practices it contains. To begin with, the plan takes note of the accumulation of congestive functions in the city and attempts to intervene within the city to improve living conditions by starting from the recovery of the degraded and uninhabited building heritage abandonment. In addition, the accent of the plan moves on popular housing, expected in areas of expansion but above all, in a completely different way from what had been done by now, in the old inner quarters. Then it proceeds to the general recovery of the degraded buildings, placed largely under the B2 classification, under the national law n. 457 of 1978, which will establish the rules for the recovery of the existing building stock and aimed at restoring the popularity of buildings in the city center.

One of the most important examples was the renovation of the Garibaldi district. Corso Garibaldi was an old street of artisans: the modest houses, from the nineteenth-century lines, they were falling apart and in fact the old owners were just waiting for them to collapse to build them again. The citizens committees strongly opposed this widespread attitude, with the support of the municipality administration. This guaranteed the permanent alocation of popular housing for 3,500 people in the city center. Similar interventions oc

cured in the Volturno-Sassetti lot in the Isola district, in the Scaldasole-Porta lot Ticinese, in the Bergamini-S.Stefano-Laghetto lot and in Corso XXII Marzo.[2]

Another important point of the plan is the awareness of the need to reverse the trend of the 1953 plan of transfer of industries from Milan to the suburbs. The

2. Campos G. , Boatti A. ,Erba V. , Un secolo di urbanistica a Milano. , (Clup, Milano 1986, pp.155-156).

problem was that if a city lives exclusively on rental and real estate investments, it becomes vulnerable as it necessarily develops dependency on external investments. Despite the tendency for the transfer of industries, now the planners cultivate the hope that, by constraining the production to the more productive destinations of existing structures, they might still be able to tackle this phenomenon. The plan was targeted at 1 300 000 square meters of productive areas, especially in the areas of Viale Missaglia and via Ripamonti. However, this ends in failure because in 10 to 20 years the transfer of industries become an impetuous phenomenon and the productive fabric of the city landslides. Originally, the first signs of the processes of globalization that began in those years were the shift production where the cost of labor is lower.

But for the really positive aspects revolutionary was the service system, foreseen for the first time in a designed and coherent way. The per capita allocation goes from 7.29 square meters per inhabitant to 24.15 square meters. What is more, the green for the public in Milan in 1964 was 2.54 square meters per inhabitant, and after the revision of PRG it became an estimate of 10.00 squa-re meters per inhabitant.[3] There regional law n. 51 of 1975 establishes a minimum standard per capita of 26.50 square meters per inhabitant, of which 15.00 sqm per inhabitant must be of public green area. It was essential that, for the first time, with the 1976 plan, one can read a green system and public equipment based on possibilities of acquisitions and achievements. There was the possibility of a green belt for Milan, almost continuous from West to East, with the support of agricultural areas to the South and all of them protected for their environmental and production value and no longer a land for real estate speculation.

The road network, as far as public transport is concerned, was able to make the extension of line M2 (already started at the end of the sixties along with completions of the line 1 up to Piazzale Abbiategrasso) seen of Fig. 13 and the forecast of the Passante Ferroviario from Garibaldi, Repubblica, Dateo to Porta Vittoria, Rogoredo [4].

In summary, almost a century after the Beruto plan, Milan knows a new urban planning tool in motion with the current trends and even innovative, especially from the theoretical point of view. However, there were some issues on one hand because of the serious underestimation of the crisis of the Milanese production system and on the other, because of the strong aggressiveness of the real estate regime that would soon lead to thedenial of some parts of the plan that would have been a very positive influence on the city. Fig. 14 and 4

3. Boatti A. , Razzolini D. , Ravescalli F. , Sud Milano: una grande area di riequilibrio territoriale ed ambientale per la metropoli. , (Clup, Milano 1987).

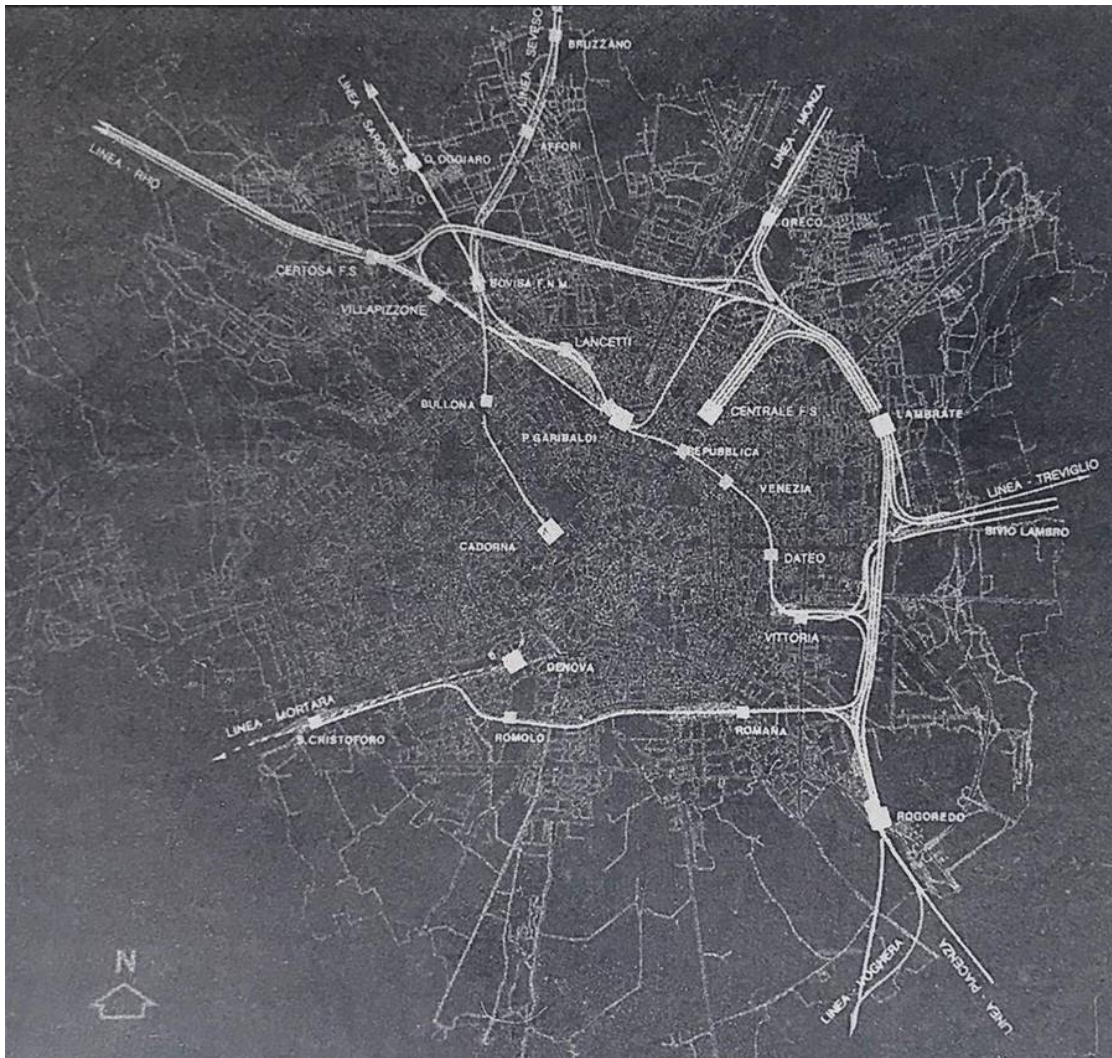4. Denti G. , Mauri A. , Milano: L'ambiente, il territorio, la citta. , (Alinea Editrice, Firence 2000, pp.147).

Fig 13. System of the urban transports – passante in the metropolitan area planned for competition by 1985.
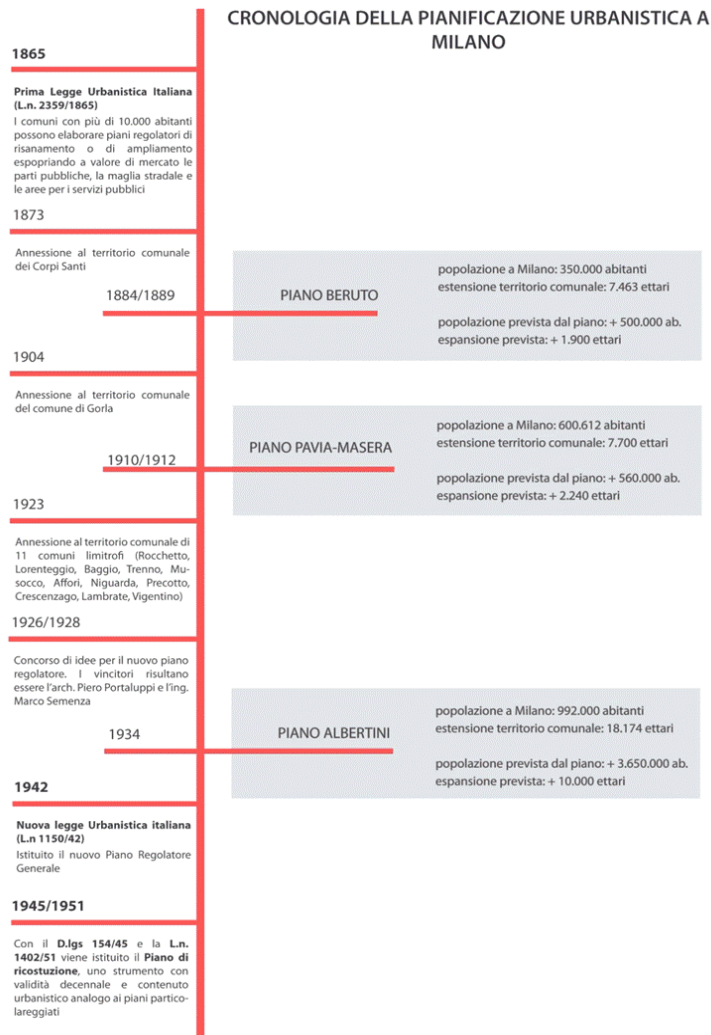
CRONOLOGIA DELLA PIANIFICAZIONE URBANISTICA A MILANO

1865

Prima Legge Urbanistica Italiana (L.n. 2359/1865)
I comuni con più di 10.000 abitanti possono elaborare piani regolatori di risanamento o di ampliamento espropriando a valore di mercato le parti pubbliche, la maglia stradale e le aree per i servizi pubblici

1873

Annessione al territorio comunale dei Corpi Santi

1884/1889

PIANO BERUTO

popolazione a Milano: 350.000 abitanti
estensione territorio comunale: 7.463 ettari

popolazione prevista dal piano: + 500.000 ab.
espansione prevista: + 1.900 ettari

1904

Annessione al territorio comunale del comune di Gorla

1910/1912

PIANO PAVIA-MASERA

popolazione a Milano: 600.612 abitanti
estensione territorio comunale: 7.700 ettari

popolazione prevista dal piano: + 560.000 ab.
espansione prevista: + 2.240 ettari

1923

Annessione al territorio comunale di 11 comuni limitrofi (Rocchetto, Lorenteggio, Baggio, Trenno, Musocco, Affori, Niguarda, Precotto, Crescenzago, Lambrate, Vigentino)

1926/1928

Concorso di idee per il nuovo piano regolatore. I vincitori risultano essere l'arch. Piero Portaluppi e l'ing. Marco Semenza

1934

PIANO ALBERTINI

popolazione a Milano: 992.000 abitanti
estensione territorio comunale: 18.174 ettari

popolazione prevista dal piano: + 3.650.000 ab.
espansione prevista: + 10.000 ettari

1942

Nuova legge Urbanistica italiana (L.n 1150/42)
Istituito il nuovo Piano Regolatore Generale

1945/1951

Con il **D.lgs 154/45** e la **L.n. 1402/51** viene istituito il **Piano di ricostuzione**, uno strumento con validità decennale e contenuto urbanistico analogo ai piani particolareggiati

Fig 14. Chronology of the urban planning in Milano 1865 to 1951

1945

Concorso di idee per un nuovo piano regolatore che si conclude senza un vincitore. Tra i partecipanti si ricorda il gruppo AR con la loro proposta ispirata alle idee del Movimento Moderno

1948/1949 e 1949/1950

Piani di ricostruzione per Milano rispettivamente per la parte meridionale e per la parte settentrionale del centro urbano

1948

Piano Venanzi   1953

PRG

popolazione a Milano: 1.275.000 abitanti
vani residenziali: 1.006.000
popolazione prevista dal piano: + 2.500.000 ab.
nuove zone industriali: + 487 ettari (eliminati 1.071)
previsione nuove stanze: + 900.000

1962

L. 167/1962 prevede l'introduzione dei Piani per l'edilizia economica e popolare (PEEP)
'60

PIM

1963 e 1969

Variante "Ombra" e variante generale: entrambe mai attuate
1976/1980

VARIANTE GENERALE

popolazione a Milano: 1.700.000 abitanti
vani residenziali: 2.000.000
nuove zone industriali: + 162 ettari
aree destinate a servizi locali: + 4.000 ettari
previsione nuove stanze: +82.000

1982

Progetto casa
1984/1985

DOCUMENTO DIRETTORE DEL PROGETTO PASSANTE

popolazione a Milano: 1.601.000 abitanti

1992

L. 179/92: vengono introdotti i PRU, Programmi di riqualificazione urbana. La delibera Serri del 1995 introduce i criteri di approvazione

1998

Attivazione dei PRUSST: Programmi di riqualificazione urbana per lo sviluppo sostenibile
2000

DOCUMENTO DI INQUADRAMENTO PER LE POLITICHE URBANISTICHE

popolazione a Milano: 1.350.000 abitanti

2001

introdotti i PII

Piano urbano della mobilità

Fig 15. Chronology of the urban planning in Milano 1945 to 2001

28

Milan and the urban area: a conurbation without government

Brief history of the Milanese conurbation and the experience of the Milanese Inter-communal plan

Milan and its belt are presented to the Unity of Italy, as we have seen, with a sparse presence of settlements around the city of which the most significant are located in Monza, Sesto San Giovanni, Bresso, Novate Milanese, Settimo Milanese, Cesano Boscone, Corsico and Rozzano (Fig. 16) Subsequently the urban expansion of Milan involves the territories of neighboring municipalities.

To adapt the administrative structure of the city to its new dimension, the Municipality of Milan incorporates some neighboring municipalities including Affori,

Bruzzano and Baggio (Fig. 17).

The Milan of the fascist period, thanks to the Albertini plan, which allowed to build up to the municipal boundaries, traces the road to the future conurbation whose signs are evident with the outlines to the north-east axis Fulvio Testi-Sesto San Giovanni and to the north of the Astesani - Comasina, Cormano Novato Milanese (Fig. 18). In the south Milanese Urbanization proceeds along

the Vigevanese state road, from Baggio-Lorenteggio to Corsico Cesano Boscone and along the axis of the via Emilia towards San Donato.

We must wait until the post-war period to speak about the first inter-municipal studies. Shortly after February 1951, in agreement with the municipalities
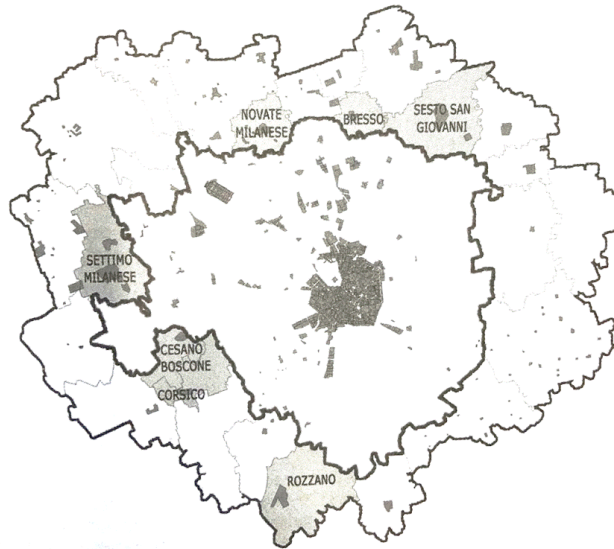
Fig 16. Milan and its belt at the Unita d'Italia with gray areas identified the municipalities in which the most significant settlements were developed.
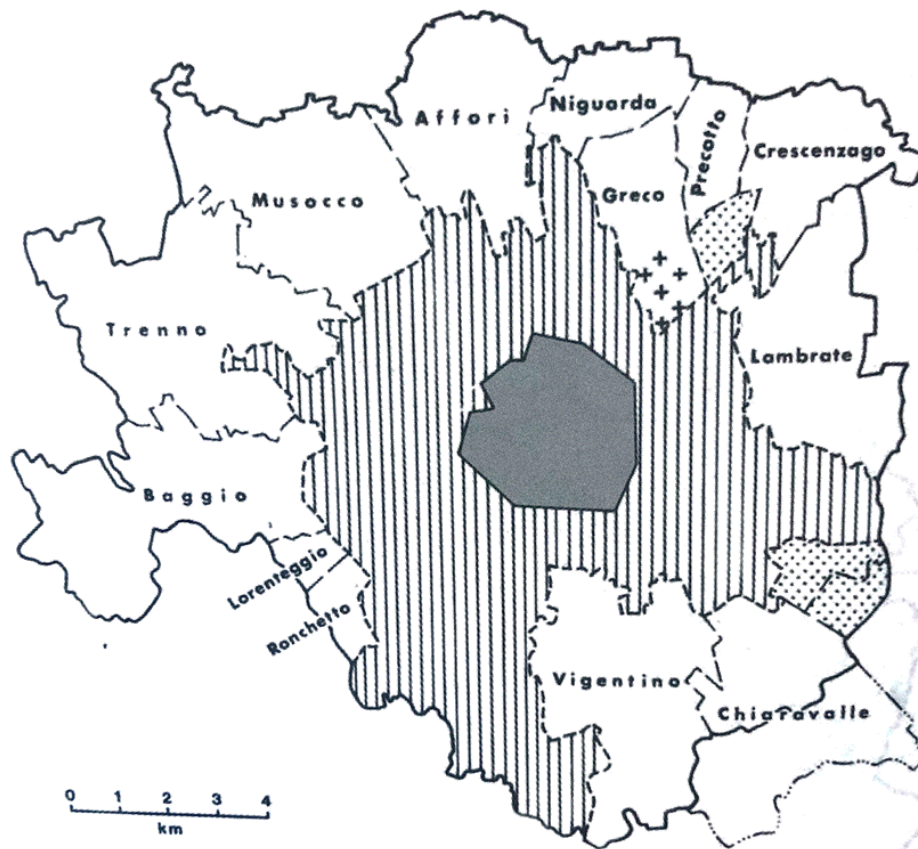
Fig 17. The enlargements of the commune of Milan after the national unity. Gray pattern: the commune at the date of unification (included within the Spanish walls with the addition of the Napoleonic Piazza d'Armi); trateggio: the annexation of the saints, 1873: crosses: area anessa from the commune of Linate and Triulzio from the Municipality of San Donato; to the north the town of Turro); blank: municipalities or hamlets of annexed municipalities in 1923; continuous line: the current boundary of the Milan district; in points and lines: the perimeter of the Chiaravalle commune area incorporated in 1923 and sold in 1932 the San Donato district (from the New World to the infinite city.) A hundred years of transformations and projects in the Milan area, Centro Studi Pim, June 2004).
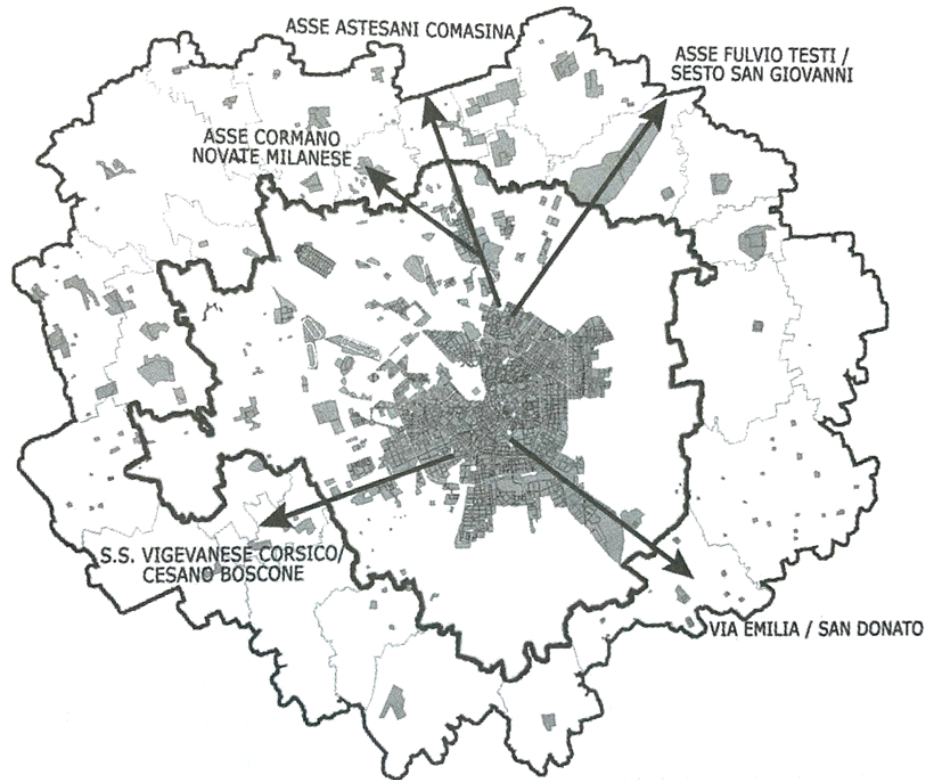
Fig 18. The Milan of the fascist period with the principal axes along which the beginning of the conurbation of the Milanese metropolitan area is evident.

concerned, the Municipal Council of Milan asked the Ministry of Public Works for authorization to study an Inter-communal Plan comprising 79 municipalities, in addition to the capital. The Ministry of Public Works in 1951 does not authorize the request for the formation of the Inter-communal Plan and invites the Municipality of Milan to carry out in-depth studies aimed at defining the extent of the area affected by the developments in the city.

In 1953 the new PRG of Milan was approved and became operative, which contained an inter-municipal directorial scheme.

In 1959, the Ministry of Public Works provides for the formation of the Inter-communal Plan of Milan and of 34 neighboring municipalities entrusting its preparation to the City of Milan under the direction of a specific Technical Committee. To tell the truth, the time was ripe to take care of the great conurbation that was emerging and the intervention at the time appeared useful and timely, in fact on those axes, already mentioned for the fascist Milan, the conurbation was welded between Milan Sesto San Giovanni, Bresso and Cormano to the north, and between Milan Cesano Boscone, Corsico and San Donato Milanese to the south. New conurbation trends are emerging along the Via Gallarate with the municipalities of Pero and Rho and viale Palmanova towards Vimodrone and Cologno Monzese (Figure 19).

In the Technical Committee, however, the representation of minor municipalities is very small compared to the weight of experts and technicians of the capital. Thus the opposition of the minor municipalities becomes active and does not appoint the experts their representatives on the Committee, which in this way cannot be constituted.

Concluded the phase of the talks and the political agreements, the Mayor of Milan convenes the first Assembly of the mayors of the 35 municipalities of the Inter-communal Plan. The text of the 1 Mayors' declaration establishes that they recognize the need to proceed, in full cooperation, to the drafting of an Inter-municipal Plan that will define the administrative and urban policy to be agreed upon, affirming the right of individual municipal administrations to plan their own urban land. From this it follows that the Inter-communal Plan is not the mere sum of the municipal PRGs or even a simple coordination plan, but a plan of direction to which the urban-building regulations of the individual municipalities must be confirmed.

In order to allow a permanent and more streamlined work of elaboration and control by the Assembly of mayors, it is considered necessary to appoint six mayors to be part of an Executive Committee that will respond to the Assembly of the work done, will make appropriate links with the Committee technician and will supervise the Executive Office for the preparation of the plan.

The task of establishing a Study Center for the Inter-communal Plan, under the authority of the Assembly of Mayors, is entrusted to the Council. Thus, was born on December 14, 1961 the Study Center of the IMP.

After two years of work in February 1963, the Assembly fully approved the program guidelines and objectives of the IMP. The fundamental objectives are:

- Identify the area in which development can be traced back to a level of homogeneity;
- Establish a methodology and a practice that postu-

VIA GALLARATE
RHO / PERO

VIALE PALMANOVA VIMODRONE/
COLOGNO MONZESE

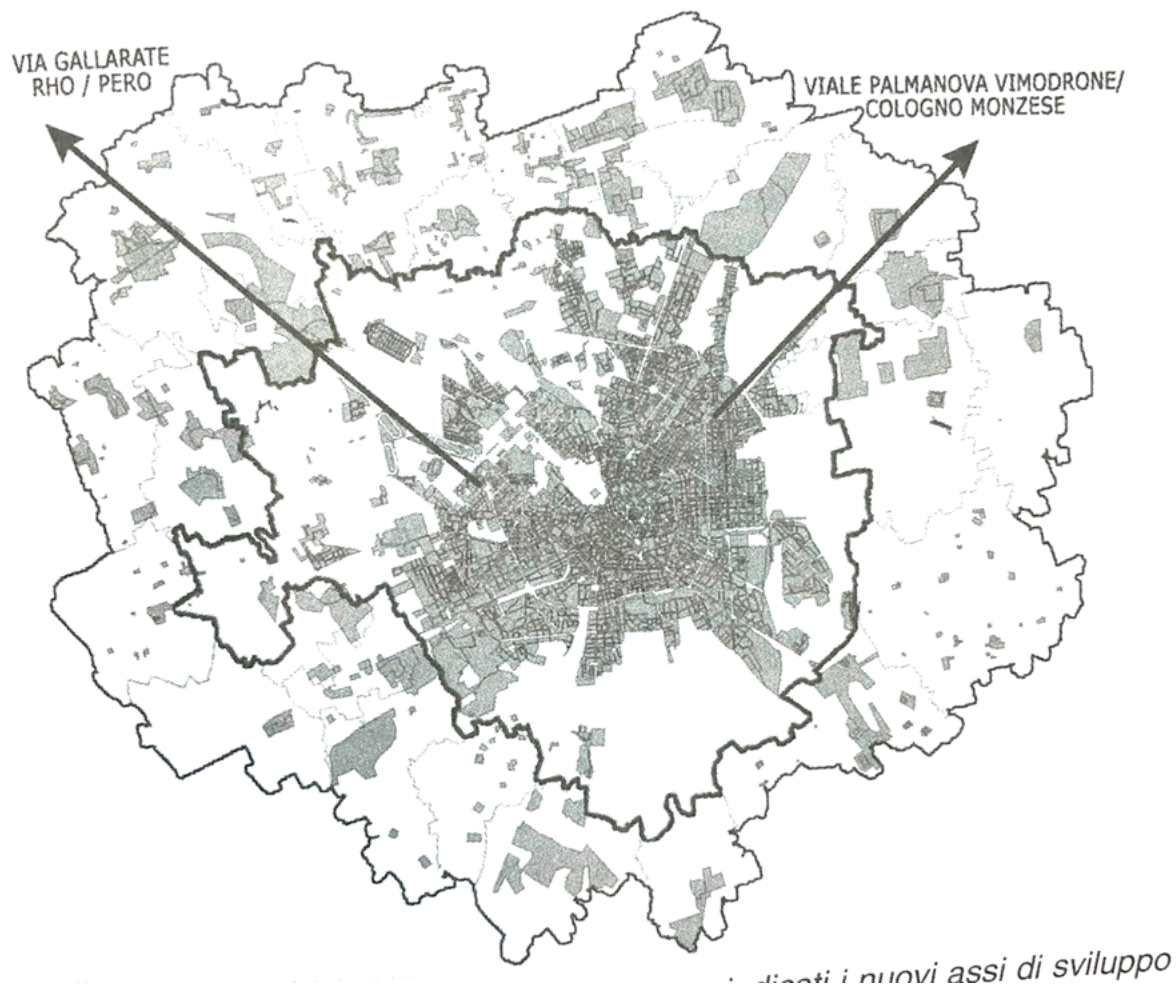indicati i nuovi assi di sviluppo

Fig 19. Milan at the end of the 60's with the new development axes indicated

late the control of development in a democratic and rational way;

- Provide the primary poles with the efficiency and strength necessary to produce the system support frames;

- Establish the location for the different types of location;

- Establish the system of an infrastructural fabric that extends homogeneously throughout the inter-municipal territory;

- Promote the formation of an infrastructure fabric that extends in such a way as to minimize the social costs deriving from urbanization as regards the different types of localization;

- Minimize the social costs that derive from urbanization;

- Provide the restoration and qualification of the habitat;

- To obtain the minimization of land rents;

- Set up a system of incentives and constraints capable of provoking, directing and guaranteeing the implementation of the plan to achieve the objectives set.

It is a period of great political ferment and in this climate the Assembly of Mayors deliberates to take over as its Green Plan elaborated by 6 municipalities of the southern area at the level of the inter-municipal district.

In contrast to the hypotheses of the Turbine plan, supported by the Communists, a political consensus was begun to delineate the Christian Democratic area around a completely different but methodologically modeling and deterministic scheme in equal measure. The two proposals are irreconcilable both for the different operational indications and for the methodological approach.

Meanwhile, the city has grown in all directions now. From the birth up to the current condition, it is evident the contribution of the IMP on some strong points of the development and the territorial organization of the Milan area as the design of the systems of the great metropolitan parks. The PIM also promotes the idea of a single, integrated and passing regional railway service, and the proposals for a new tangential highway system and the Pedemontana.

Finally, it is in the IMP that the initiative to establish the Cimep, the inter-municipal Consortium that has ensured the acquisition of the areas necessary for economic and popular construction in the Province of Milan, takes shape.

The area and the metropolitan city: an urgent issue that can no longer be postponed

The disappointing experience at the institutional level experienced by the urban area of Milan is compounded by an increasingly acute general crisis, a loss of population, which now runs towards the second metropolitan belt, and deindustrialization, which leaves behind a trail of polluted soils and of large empty buildings. The social and civil values are blurred by a tangle of problems that torment the city and which translate into general phenomena such as pollution, lack of cleanliness and order, marginalization and social disintegration: to overcome the crisis we need to intervene on many levels.

A balanced and harmonious development of the different regional areas, with an intelligent distribution of residential settlement weights in relation to the

production system, the road network and transport, can be a determining factor.

The uncontrolled proliferation of large shopping centers then causes the impoverishment and abandonment of traditional centers' commercial structures.

The risk is that all cities give life to a crazy race, essentially aimed at tertiarization and financialization, forgetting for example the monumentality, the tourist vocation or the industrial production. Along this road, unresolved or alienated cities could be consolidated, completely abstracted from their original characteristics or their own history. In the same way, a national public transport system efficiently connected to the international network means being able to lighten the mass of vehicular traffic on the road, favoring the transport of goods on iron, which is the essential condition to avoid heavy vehicles occupying the road system of the cities.

On the other hand, it is equally certain that no large-scale provision alone can give a complete answer to the problem of improving the quality of urban life. The metropolitan city, if it took shape and a polycentric dimension, could be able to transform the suburbs into new attractive centers, thus laying the foundations for a redesign and a new foundation of the capital city and its hinterland.

Even in such a decentralized framework of powers, the role of the practical implementation and management of the major regional strategic plans and the metropolitan area would remain.

A role also of urban planning and detail, which none of the previous scales allows and which is based on urban design, on the planovolumetric ideation, on the project.

It therefore becomes necessary to improve and enrich the street furniture, giving recognizable style to the city.

It is therefore important to create new municipalities within the metropolitan area, capable of autonomously tackling the simplest levels of defense and development of the quality of life in cities, thus bringing the concrete public administration closer to the direct judgment of citizens who, in turn, they must be able to discuss projects that relate to their neighborhoods in a precise but effective manner.

In some important European cities, forms of institutional and substantial organization of metropolitan areas are already in fact existing and have produced remarkable results. They are therefore possible models for a city like Milan and for Italy in general, which comes late to tackle the problem.

Milan XXI century

Milan that has 1.3 million inhabitants in the middle of the 1st decade of the XXI century, after many years begun to increase, mainly because of the immigrants. Last two decades has increased the problems like unified representation of the metropolitan territory and centralized vision of the capital, which were discussed in the 70s and 80s.

In 2000 the master plan of Milan was "Variente Generale del 1976/80". That master plan represented paradigmatic answer to phase of transformation of the city but also involves several issues caused by its drafting, crisis and abandonment[1].

Urban sprawl, the absorption of new population, the process of renewal in the central zones and under – utilization of the existing building sock, the decay of extensive urban area, the difficulty of adopting the system of infrastructures and public provision of facilities to the urban and metropolitan dynamic - for this crisis of the Milan's development have been drafted that masterplan.

This masterplan considers tendencies for further functional transformation such territories as residential, and productive zone, improvement of living conditions and creating the amenities that Milan lacked, by redirecting the provision of build-up spaces. Also, was considered innovations with cautious for abandonment zoning.

Dereliction process affected all established industrial zones of the city, that was obvious along two main axes that projected northwest and northeast to metropolitan area, from Bicocca to Sesto San Giovanni, from Bovisa to the Saronnese.

Deindustrialization was also intensive in other parts of the side: on the east side, closing factories and plant connection with the Porta Vittoria railway station and to the south of Porta Romana railway station, and along the southwest axis, the factory located place because of Navigli and Porta Genova station.

The focus was on the need to question the rigid containment of new development, which tends to second reuse and upgrading of the existing stock of buildings. Development of certain urban areas is in tendency, creation of new central poles with transfer of important functions. "Major projects" was the main focus for revision process of the plan, which main goal is a redevelopment of some large-scale areas occupied by obsolete production plant. The towers on the extreme edge of the former site of the Richard Ginori's pottery works along the Naviglio Grande in Via Ludovico il Moro or to the south along Via dei Missaglia on the site of the former Verona Paper Mills and at the end of Via Ripamonti, is an example of planning regulation that facilitates transformation of the production areas, without reference to any planning scheme.

New general scheme of development which was presented in 2000 in the Documento di Inquadramento, replaced vision of the polycentric city. New scheme of development based on the intersection of two lines of force in urban and metropolitan development, which was represented on the northwest axis (till the airport hub of Malpensa) and southeast (till the city airport of Linate) and by the axis to northeast. This strategic scheme included such objectivities as increasement in the supply of spaces for tertiary-business functions, for techno – advanced research and production and for housing. One lack of this masterplan scheme is about urban green areas policy. Which

1. Corinna Morandi, Milan the great urban transformation, 2005, p.70, 71

made creating new city parks depending on negotiations between public and private operators.

Drafting of the Plan of Services (2004) was represented for returning to a more complex and systematic approach to planning of the whole city. Was introduced a method for assessing ratio between inhabitants' number and a public or community facilities.

Only five urban improvement programs have gone through the planning and procedural process, from the programs drafted in Milan since 1995. They cover some 1.6 million square meters, of which 900,000 square meters are reserved for green areas or com-
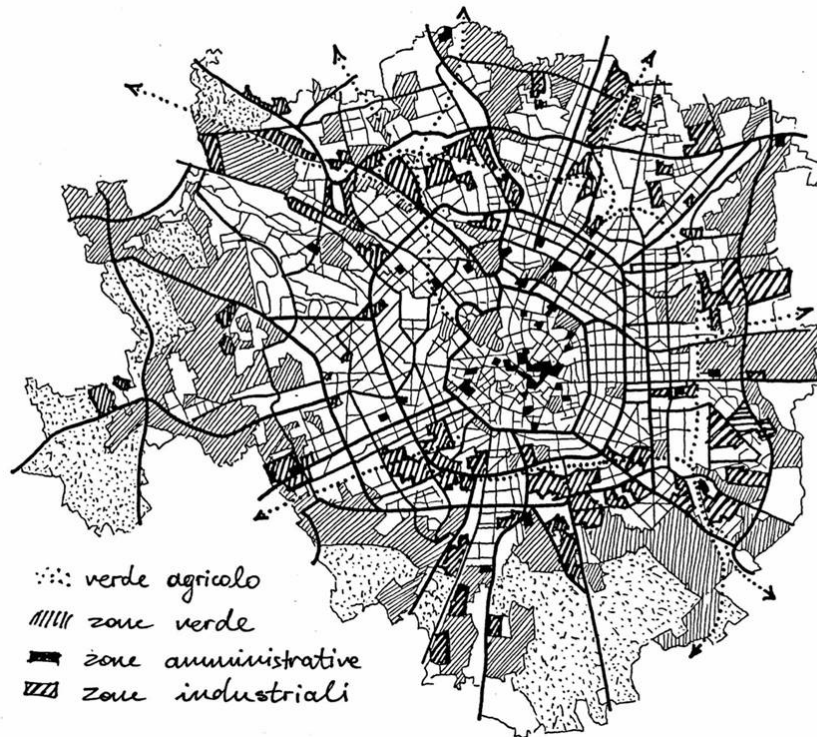
Fig 20. Sheme of the master plan approved in 1980

rete ferroviaria e stazioni
rete metropolitana e stazioni
nodi di interscambio
autostrade e tangenziali
parchi urbani e aree verdi fruibili
parchi e aree verdi di livello
sovracomunale

ambiti di localizzazione Pru
proposte Pru approvate
progetti d'area del progetto passante
1 Bruzzano; 2 Affori; 3 Quarto Oggiaro; 4 Certosa; 5 Bovisa; 6 Portello–Fiera;
7 Garibaldi–Repubblica; 8 Cadorna; 9 Vittoria
aree di ridefinizione
passante ferroviario

Fig 21. Passante Ferroviario (mainline rail link), area and redefinition projects marked in yellow, zones for the location of PRUs (urban enhance-ment programs) in grey
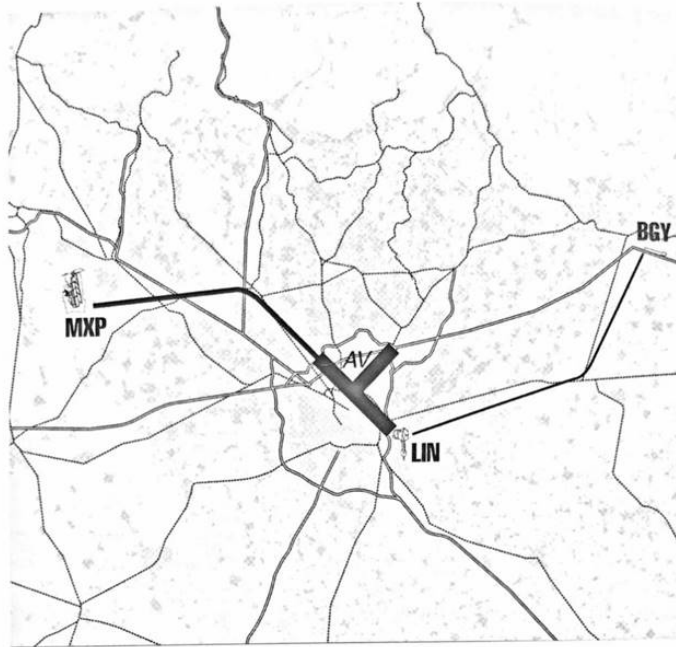
Fig 22. The Dorsale Urbana in the framework document for planning policy (Documento di Inquadramento delle Politiche Urbanistiche), 2000

munity amenities, by involving the conversation of the former OM site between Viale Toscana and Via Ripamonti, the former TIBB works in Piazzale Lodi, the former Fina fuel depot at Certosa-Quatro Oggiaro, and Bisceglie-Lorenteggio, and the former Innocenti-Maserati works at Lambrate.

Two large – scale projects underscore processes of transformation in the north-west. First one is the start of the second urban pole of Milan Politecnico on the site of formal gasometers at Bovisa, anticipated by reuse of the industrial buildings of the former Ceretti

Tanfani works in Via Duarndo, as the School of Civil Architecture and Design, which also provide locating a new museum (Museo del Presente d'Arte Contemporanea)inside the twin gasometers (of 1906 and 1930); the second is urban improvement that involves the sites occupied by the Certosa-Quarto Oggiaro fuel depots as part of the creation of a new urban park (design by Armstrong Bell, 1998).

Urban park is being laid out in the old southern outer-city area Christophe Girot, Andreas Kipar, 1998-99) in continuity with the Parco Ravizza, between Viale

Toscana, Via Ripamonti and Via Bazzi, with a functional mix of office and residential buildings (15-storey high rise blocks, Massimiliano Fuksas, and the large Esselunga comercial area, designed by Ignazio and Jacopo Gardella.

Whole southern segment of the city's territory was involved in extensive processes of transformation, in around 2000.

The zone to the west of Porta Genova started its transformation process in the beginning of the nineties.

As conversion projects covering extensive urban areas, expansion projects for Milan's universities have been cited. State university (Universita degli Studi, with its core campus in the former Ospedale Ca Granda in Via Francesco Sforza), played the similar role to that other universities.

A site left derelict in the late seventies, has occupied new premises in the new quartiere Bicocca, located on the city's northeast axis on the boundary of the town of Sesto San Giovanni. Competition which won by Gregotti Associati (1985) started it realization of transformation of an area of over 670,000 square meters. Preserving the urban layout presented in the beginning of the project, the program has been partially changed. Gregotti Associati designed also architecture of the such buildings like: Teatro degli Acrimboldi (2002) and Pirelli headquarters, incorporating the old cooling tower (2004); the southern head of the complex has been build to a project by Gino Valle (Via Luigi Figini – Via Pietro e Alberto Pirelli, Deutsche Bank building, 2004). One of the few signs of decentralization can be construction of a theatre capable of presenting a program seasons worth for the La Scala Opera House, which was closed in 2004 for reconstruction by Mario Botta.

Between Milan and the town of Sesto San Giovanni, on the northern axis, a series of conversion programs are under way. The scheme includes individual projects and strategic framework for the largest segments, public provision of public facilities, as an example conversion of the site of the former Falck works at Sesto San Giovanni (2002).[2]

Redevelopment projects on the west side of the city was extension of the Trade Fair at Portello, (Viale Scarampo, Via Colleoni, Mario Bellini, 1984-98); redevelopment of the rest of the site of the former Alfa Romeo works at Portello Nord, with a large mixed-use program. Located on the site of the former AGIP refiner at Rho-Pero on the Strada della Sempione (project by Massimiliano Fuksas), the Trade Fair's external pole, that consist of 2 million square meters, became functional in 2005. Its opening marks Partial decommissioning of the older Trade Fair site and redevelopment of its compound. On the basis of the competition held in 2004, work has been given to consortium which task was to build three towers, a design museum, reuse a pavilion as a sports facility and lay out a park (Gruppo CityLife, architects Zaha Hadid, Daniel Libeskind, Arata Isozaki and Pier Paolo Maggiora).Sole 24 Ore building (via Monte Rosa 91, Renzo Piano, 2004) is another significant redevelopment of a brownfield site in same urban area.

Reclamation of the former Innocenti-Maserati works in Via Rubattino, like a mix housing, services and an Esselunga supermarket (Luigi Caccia Dominioni,1999) also one of the major conversion and redevelopment on the eastern outer city.

Rogoredo – former Montecity site redevelopment

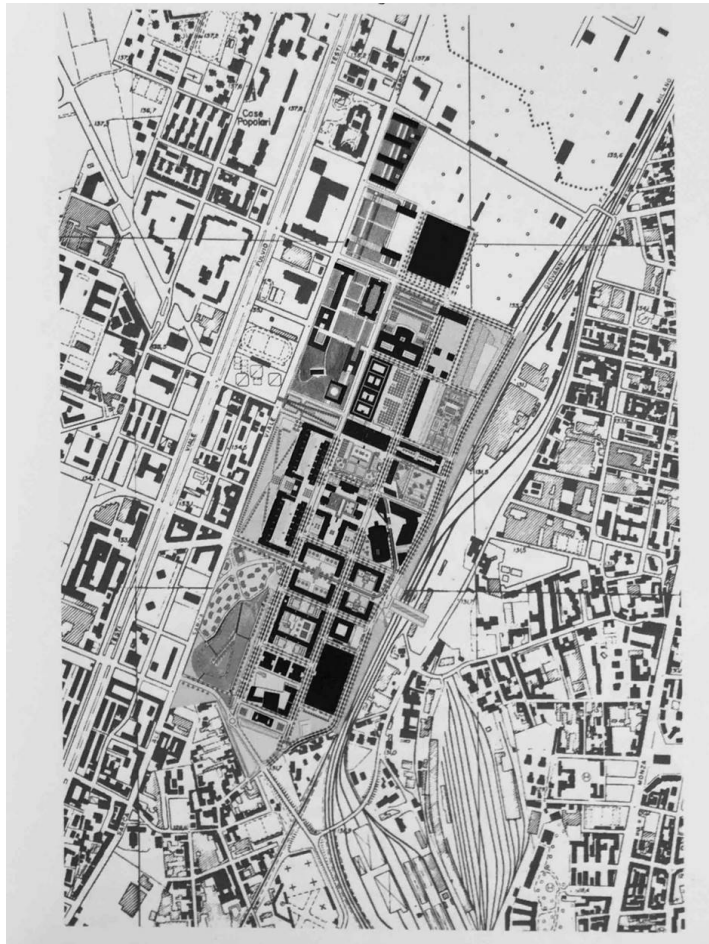2. Corinna Morandi, Milan the great urban transformation, 2005, p.77-81

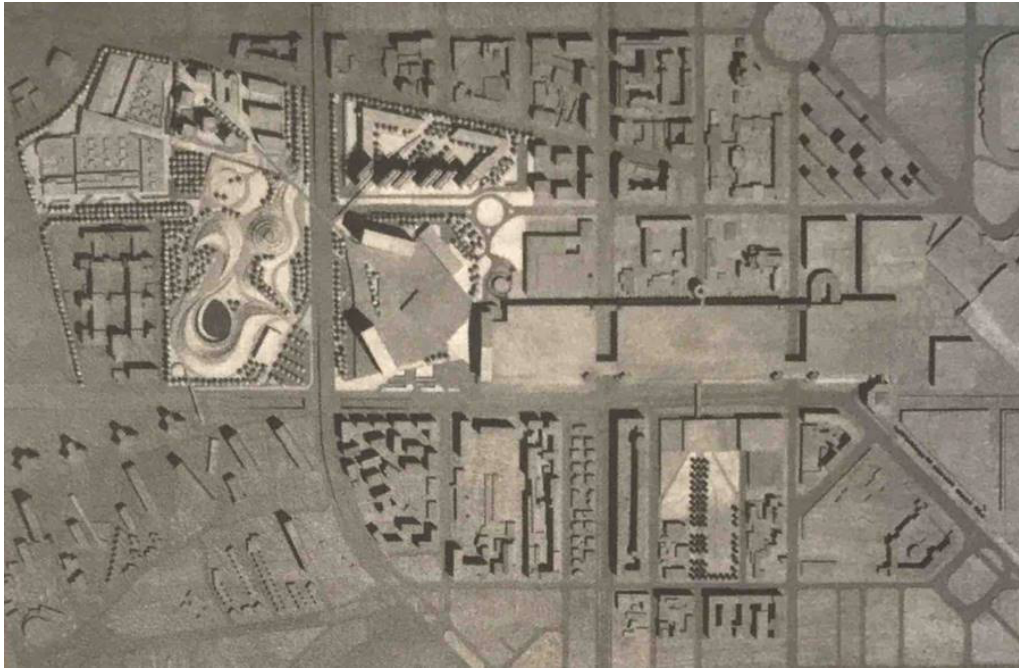Fig 23. Bicocca development, 1997-2005, Studio Gregotti Associati

Fig 24. Conversion of the former Alfa Romeo works at Portello, from 2004, general project Gino Valle

is the most important project, which include construction of a convention center. The design international competition was won by Norman Foster, Paolo Caputo e Giovanni Carminati in 2004. The European Library of Information and Culture, designed by Bolles and Wilson is another big integrated development program, in Porta Vittoria. [3]

All these are main developments of the intermediate belt and the outer city of Milan. There are a significant projects planned in the center of the city, but they

have been held up for a years. Empty urban void, in size of 350.000 square meters, in Garibaldi-Repubblica area, is planned to make it to the site of the Lombardy Regional Authority's new headquarters (project by Pei Cobb Freed & Partners, 2004) and the Citta della Moda, or "Fashion District" (general project by Cesar Pelli, 2004), and within the middle a park (project by InsideOutside group, 2004). Significant concentration of activities has already developed in the

fashion sector, in reality, in peripheral areas, like conception, production and marketing of its products, now undergoing major redevelopment, like those to

3. Corinna Morandi, Milan the great urban transformation, 2005, p.81-82

north and south of Porta Romana, in thequadrilateral around Via Montenapoleone.

The transformation shows a new phase of development of the Milanese and metropolitan scene, where will increase housing, activities that connected to business, communications and economic sectors and bring changes to the urban landscape.

For the design of public space and relationship between new buildings and the urban scene, can be found only few new projects. Redesign of the small open space at the intersection of Via Montenapole-one – Via Croce Rossa, which features is monument – fountain marking the MM3 subway station (Aldo Rossi, 1998) and reorganization of Piazza Cadorna, an integrated nod of the rail and subway service, with a monument by Claes Oldenburg and Coosije Bruggen (Gae Aulenti, 2000). [4]

And to newest urban space redesign can be related Piazza Liberty which is located in the heart of Milan, in the San Babila area, designed by Foster + Partners, in 2018. A place for public gathering. Two fundamental elements that, sunk into the square, characterize the architecture of the amphitheater of the Apple Store in Milan are the stepped plaza and the fountain providing the backdrop, as a tribute to the historic fountains of Italian public spaces. The store is located under the piazza where visitors enter through the fountain and a glass-covered entrance enveloped. [5]

4. Corinna Morandi, Milan the great urban transformation, 2005, p.82-83

5. Piazza Liberty, website www.archdaily.com/tag/piazza-liberty; www.architectours.it/not-just-the-same-apple-store-in-milan-by-foster-partners/

Rehabilitation Of Monumental Places In The Center Of Milan

A PROJECT FOR THE THEATRICAL, MUSEUM AND LIBRARY SYSTEM

After the recent cases of the Globe Theater in London, the Teatro Massimo di Palermo, the Teatro La Fenice in Venice, where there is the problem of gradual differentiation between philological and interpretative restoration, this research proposes to investigate whether the need to maintain certain cultural activities and of collective life in the city (theaters, museums, libraries, etc.) implies an acratically conservative intervention line in nomedel "where it was", up to the extreme limit of the historical forgery. On the other hand, we wanted to verify if the assumption of different criteria "case by case" 1 do not allow to define a more historically founded practice, in which the transformation interventions are also a guarantee of an effective preservation, in accordance with the actual construction processes of the city.

As the examples cited above show, the claim of the reconstruction "where it was, how it was" recurs with particularly frequency for traditional theater buildings, involving the affection of citizenships, the apprehension of the supervision and, therefore, the consent of the administrations.

From this point of view the Milanese case appears particularly significant, starting from the same story of La Scala, substantially rebuilt in the post-war period and yet already lacking adequate equipment. In fact, the increasingly requested requirements for safety, air conditioning, and dynamics of shows, increasingly complex and sophisticated, require devices, systems, devices, dimensions that are not very compatible with the structure of historic theaters. So that, despite the demands of absolute conservation, their restoration, to be vital, must in any case renounce hypotheses of falsification, to be reduced to those of transcription, which implies the questionable but

obligatory criterion of a conforming interpretation. And the problems that nowadays must face the Teatro alla Scala are proof of this contradiction.

The intentions of the research, still in progress, concern in particular the possibility of reorganization, according to the presuppositions of a " critical conservation" restoration, of an adequate reconstruction, and of a consequent reciprocal functional integration of some building artifacts and areas available to new constructions, all lying on one of the most monumental urban axes of the city of Milan, and all characterized by the destination to some of the most important cultural functions of the city (Theater, Museum, Library). It is the auction of Via Larga which, developing on the southern front of the historical center of the city, near the Piazza del Duomo, conveys a series of buildings of considerable monumental interest and, in particular, two polarities placed almost at the extremes of its extension : the monumental complex of Palazzo Reale (also including the isolated seat, from the end of the eighteenth century, of the Royal Stables, and from 1930 of the Municipal Offices built by Renzo Gerla) now destined for the Museum and the adjacent Teatro della Canobbiana, now Teatro Lirico, and that of Palazzo Sormani, seat of the Central Municipal Library with the block of the Ancient Palazzo Trivulzio, on a part of which now stands the building of the Municipal Energy Company.

In contradiction with a misunderstood peripheral decentralization of the duplicate Teatro alla Scala on an area abandoned by the industry, and in contrast to a practice now consolidated by occasional interventions aimed at preservation and conservationism that ensure reliable results in the preliminary planning and project , the research aimed to develop a

hypothesis of consolidation,
integration and accessibility to the "central cultural system" of the Lombard capital, appropriately related through an efficient mobility system extended to the entire metropolitan regional territory.

The first case in question concerns the reconversion of the original structure of the current Teatro Lirico, with the aim of revitalizing the Milanese theater system which, under Austrian domination, represented one of the most flourishing cultural centers in Europe. It would be a question of reestablishing, with different hypotheses of intervention, the programmatic and functional synergies between the Palazzo Ducale (later Palazzo Reale) and the adjacent court theater, Teatro alla Canobbiana (now Teatro Lirico).

The entire history of the Palazzo Ducale is marked by progressive reconstructions around buildings of entertainment, as if to reiterate the natural disposition of the place to accommodate these functions. This is evidenced by the presence in the body of the ducal residence of the theater inside the salon overlooking the garden courtyard, the well-known Salone Margherita (1598).

Since 1613 the theater became permanent so that the organization of the theatrical practice had become established on a regular and official planning of representations of different kinds.

After repeated fires of the Teatro Regio Ducale housed in the Salone Margherita, the last of which on 25 February 1776, the Habsburg administration intended to reorganize the Milanese theater system on the impetus of a liberal and pragmatic attitude, in relation to the proceeds that such demonstrations would have could produce. Prepared the works for the Teatro alla Scala, which began immediately in July 1776

and was inaugurated about two years later.

The small theater, at Canobbiana, was built in place of the old schools founded by Paolo da Canobbio, between the Larga and the Ore districts.

Despite the two theaters reveal in the early nineteenth century relations with the urban space limited to the surrounding public spaces with a sort of "symbiosis" between the administrative and representative activities of the building, all strategically located in a radius easily accessible to the entire urban center (in A physical relationship was documented that connected through a series of passages along the Via Rastrelli, the Palazzo Ducale, with its completion towards Via Larga under the direction of Luigi Canonica, and the Piccolo Teatro, to allow the court and the servants to go there on the occasion of feasts and representations), throughout the following period the theater-city relationship will be destined to develop through the consolidation of physical relationships with the main cultural centers of the urban environment.

The external location of the theater, with its extraction from the inside of the court building, seeking a role in the structure of the urban fabric (role to be reactivated through a system that includes the traditional pole equipped with an "Italian" room and related annexes , and pole of innovation, equipped with special equipment, auditoriums, test environments, rooms, classrooms, laboratories, etc.) proposes architectural themes and functional programs that had already belonged to the Milanese neoclassical culture.

The Palazzo Sormani, now home to the Biblioteca Comunale, is surrounded by the other place on which the research focused on its interests. The programmatic intent concerns the strengthening of the Milanese

library system, which has always been characterized by a specific heritage and educational offer (think of the humanistic institution of the Borromaica Biblioteca Ambrosiana, vital center of the city's culture, or the art collection preserved at the Castello Sforzesco , with the Art Library and the fine collection of prints of the Bertarelli fund, or the more recent ones that make up the heritage of the Catholic and State Universities, or even the scientific one of the Polytechnic), so that, through modern technological opportunities, this allocation does not remain isolated and restricted to specialist users. According to these assumptions the Central Municipal Library, whose bottom is diluted in numerous peripheral structures, given the lack of space, could become the collector of an extended audience drawing on a vast heritage. This potential could rival the modern "containers" that indiscriminately preserve disparate heritage, lacking in disciplinary specificity, although prescribed by contemporary librarianship as examples to follow, on whose architectural conventionality and on whose management difficulty as for costs and updating, seem to arise doubts. more than legitimate (applies to all the state of crisis in which the "modern" National Library of France recently built in Paris by Domenique Perrault). To inspire this program, the attitudes that the surrounding Palazzo Sormani has historically confirmed in incorporating these institutions seem to come to the rescue, almost as an endogenous vocation. Think of the unique vocation of the ancient Palazzo Trivulzio, located between the district of the Lady and the canal, rebuilt several times starting from the seventeenth century, before becoming Pio Albergo, was the meeting place of intellectuals in Milan where they met regularly. But there is something else. From 1707 there was the Milanese Arcadia and in 1727 there was a congress of academics from all over Italy, without forgetting that the garden of Palazzo Trivulzio was a place chosen by Ferdinando I for the reconstruction of the small theater, later built in current by Piermarini, in the aftermath of the Teatro Regio fire.

With regard to Palazzo Sormani's propensity to establish itself as a strategic propulsive center for a potential library system connected to the other cultural institutions of the city, consider the developments of the surroundings and the vocations to assistance, education and directionality, that the monumental buildings in the immediate vicinity have always been preserved.

So far the research has found with a historiographical survey, through an accurate documentary analysis found in the main public and private archives of the city, the susceptibility of these buildings to regenerate themselves and to propose themselves as propulsive centers of economy and culture in the development of historical events, alternating directives, administrative, entertainment, assistance, etc. So, in order to restore these monuments to their vitality, it seems necessary to pursue their natural aptitude for incorporating new and dynamic activities, when to maintain and transmit them, preserving the integrity of architectural qualities, historical experience has shown that they themselves regenerated themselves. With the assignment of strategic and significant functions also for ordinary users. Against the ideology of integral conservation, in the name of which the culture of the Superintendencies deploys presumed principles of "scientificity" and according to which everything must necessarily be preserved, including the occasional and sometimes unsatisfactory addi-

tions overlaid and stratified over time, the strategy that the research adopts, that of "case by case", requires reflection and action according to contextual needs, without rejecting a priori perspective to interviews of reconstruction, completion and reform, supported by the principle of critical interpretation. On the other hand, the progressive emancipation of technological development seems to be able to offer opportunities and resources able to help and encourage the acquisition of a more correct and convincing method of intervention. In other words, it is necessary to prepare applicative tools able to formulate hypotheses that are not detrimental to the integrity and architectural qualities, even in cases irremediably compromised, and oriented to the principle of the reversibility of conservation operations, whether they are completion that of reconstruction, both on the artifacts and on historical environments.

Given the principle of reversibility within a logic and an intervention methodology that does not reasonably prejudice the historical heritage and the artistic qualities of the monuments, its feasibility would make it possible for the architectural culture to act expressing its singular work even in the contemporary era, with the intent to increase the value of the old added value, through the new. This method, already contemplated in the modern Italian architectural culture, when Albini, Gardella, Scarpa, the BPPR, were inclined towards the rejection of a simple setting in the relationship between the new and the old, and included in the interventions on the historical centers rather than in the museum set-ups new expressive codes. Thus, as a result, this operation, imported into the experience of the design themes addressed by research (and extended to teaching activities in the uni-

versity), has activated a diversified methodology of intervention that, while ensuring "scientific" respect for the integrity of the architectural and monumental heritage, has experimentally verified its most significant enhancement with vital creativity, ensuring, even before an aesthetic and environmental control, functional and contextual compatibility.

Palazzo Monti-Sormani

De Conti Monti P.
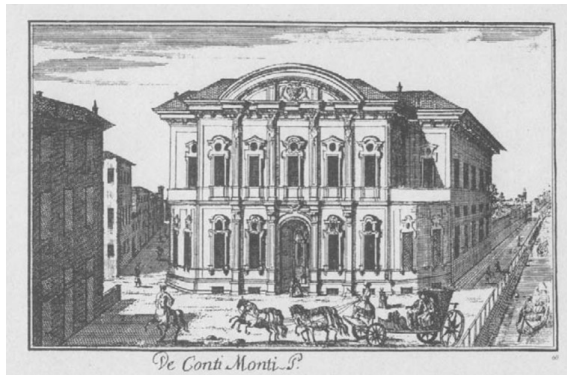
Palazzo Monti-Sormani History

Palazzo Sormani is inclined to become a strategic, propelling centre for a potential library system that is linked to other civic cultural institutions; consider, as an example, what developed in its surroundings and the vocation as welfare, education and representative service that the monumental buildings in its surroundings have always had. The context of this building was in the past a vital suburban site next to Porta Tosa and along the circular external artery of the medieval walls, on whose side the Naviglio ran. The site of the Palace is on the road adjacent to the Naviglio (today via Francesco Sforza), overlooked, among other buildings, by Filarete's Ospedale Maggiore (today seat of the Università degli Studi in Milan); it also defines the street going to Collegio della Guastalla and its large back garden, designed by Pollack, adjoins the one of the nearby Collegio, which is as vast. The early nucleus of Palazzo Sormani-Andreani probably dates to 1476. The archbishop Stefano Nardino had it built, and it underwent several alterations until 1650, when Francesco Maria Ricchino (who before 1648, had already worked on Palazzo Ducale and the Theatre) altered the main courtyard and the portion facing the Naviglio and built the monumental staircase that reached the famous hall frescoed by Grechetto. Francesco Croce, with a substantial intervention in 1736, resolved the problematic location of the Palace at the corner of a trapezoid block, through the addition of a new building in the opposite square. In 1756 Benedetto Alfieri was entrusted with the expansion of the building towards the garden: partly restoring Juvarra's language and mixing it with his own eclecticism, he was able to bring new compositional themes into the orthodox architectural culture of his times. The research has, up to this point, recovered (by means of a historiographic reconnaissance and through an accurate documentary analysis in the main private and public archives of the city) the tendency these buildings have at regenerating and proposing themselves as propelling economic and cultural centres during historical events, alternating executive, administrative, entertainment and welfare functions. In order to restore vitality to these monuments, it seems necessary to follow their natural tendency to assimilate new dynamic activities; history proved that they used to regenerate themselves, though preserving their architectural character by undertaking strategic and significant functions which were also aimed at an average audience. This research doesn't support the idea of a total preservation, on behalf of which the superintendence draws up presumably "scientific" principles according to which everything must be preserved, including those occasional and sometimes poor additions that stratified with time; the "case by case" strategy adopted by this research forces to ponder and act according to contextual necessities, without a priori disregarding the possibility of rebuilding, completing and modifying, according to principles of critical interpretation. After all, the progressive emancipation of technological development seems to be able to offer occasions and resources which could aid and promote the acquisition of a more correct and convincing intervention methodology. The objective, in other words, is to set up application instruments that can prevent damage to the archtectural integrity and quality of buildings, even in irremediably compromised situations, while being oriented towards a reversibility of conservative operations, both in the case of a completion or reconstruction, both for buildings and for historical environments. This principle of reversibility belongs to an intervention logic and methodology that doesn't reasonably jeopardize the

historical heritage and artistic quality of monuments; its practicability would allow the architectural culture to act and manifest its singular activity even today, with the objective of increasing the specific value of the old through the new. This methodology was by the way already considered by the Italian modern architectural culture, when Albini, Gardella, Scarpa and BBPR favored a relationship between old and new as opposed to a mere environmental adaptation and proposed new expressive codes in their interventions on historical centres rather than in museum installations. As a consequence, this way of operating as it was introduced into the design topics faced by this research (and extended to the didactic activity at the university) set up a varied intervention methodology which, though ensuring a "scientific" respect for the integrity of the monumental and architectural patrimony, verified by way of experiment a more significant enhancement by guaranteeing a functional and contextual compatibility before an environmental and aesthetic control. Feasibility studies and methods of intervention. The procedure adopted by this research contemplates, besides the completion of the phases now under way, a varied intervention methodology aiming at verifying, through the arrangement of demonstrative projectsand feasibility studies, reliability and vitality of those exchange and integration relationships that exist within system of central museum seats. As far as intervention hypotheses on Teatro Lirico are concerned, this research gathered the ups and downs that characterized history of this building, through a series of gradual alterations of original arrangement. These alterations began in 1893 when Achille Sfondrini transformed the horseshoe layout of hall following a circular geometry 5 though the erection of a round metal dome supported by

metal columns; although this intervention increased the volume of the hall, it brought significant damage to its acoustics, due also to substitution of a series of upper boxes with terraced platforms that raised the seating capacity; in1932 Eugenio Faludi, with a refined rationalist taste, removed decorative apparatus placed by Sfondrini and, through little devices, searched for original layout of theatre; a complete alteration of Piermarini's structure took place in 1939 when Antonio Cassi Ramelli, after adopting very conventional typology with gallery and stalls, totally distorted the arrangement of old Teatro della Canobbiana and compromised the integrity of the original structure of hall and of the scenery. Reconversion through critical reconstruction of Piermarini's layout for Teatro Lirico would re-establish (by means of an appropriate restoration of box typology, derived from cultural tradition of the "Italian" theatre) bipolar system between two most important Milanese opera houses (Scala and Canobbiana); it will also provide latter with an advanced scenic apparaus while offering interesting opportunities to requirements of modern dramaturgy.

The Central Municipal Library Palazzo Monti-Sormani
Temporary situation

The Central Municipal Library which is called "Palazzo Monti-Sormani" by the name of the historic building in which it is based - is one of the most unique examples of integration between the new and the ancient in post-war Milanese architecture. It was inaugurated on March 10, 1956, at the end of the reconstruction and restoration of the prestigious sixteenth-eighteenth-century residence led by the architect Arrigo Arrighetti, manager of the Building Projects Office inside the Technical Office of the Municipality of Milan. The need to find a new location for the Municipal Library, whose previous headquarters were at the Castello Sforzesco had been destroyed by the bombings of the war, find a favorable response in the restoration and functional redesign of the Palazzo di Porta Vittoria. The new intervention is based on the reconstruction in modern forms of the building on Via della Guastalla, destroyed by the bombings of 1943, and the development of its connections with the historic building.

The volume - a trapezoidal shaped body that follows the two main alignments of via della Guastalla and the courtyard - contains on the ground floor the entrance area with the filing cabinets - now used for reading newspapers, and on the first level a large warehouse for books. On the top floor, corresponding to the level of the noble floor of the building, there is the large reading room, lit from above by 96 circular skylights. To the south, in the final part of the building on via della Guastalla, is the book tower, a technical volume made up of four levels of shelving with a structure in iron beams that originally contained the publications in folio and which today contains the rarest volumes; it can be accessed from a stairwell with a hinged bookshelf between the old building and the new intervention, connected to the main system of stairs, elevators and services through gradients and passages that link the differences in altitude. In the facade on via della Guastalla the disruptive modernity of the intervention is summarized: a regular and uninterrupted grid formed by square openings: built on the module of the shelves of the internal stores which marks the whole front interrupting only in the upper part, in correspondence of the great hall of reading, where the blind surface of the facade allows books to be lined up whole side towards the road. In this geometric design only the two string courses of the raised floors and the book store are highlighted, which contribute to accentuating the horizontality of the facade. In correspondence with the book tower, the modular facade system extends all the height of the building, while on the side towards the garden the external walls incline to obtain indirect light through long slits that become elements of characterization of the front. The exhibition of the rationalist lattice of the facade in an expressive key arises from functional needs: the depth of the individual square modules, if on the one hand allows the entry of diffused light, on the other prevents the sun's rays from entering directly into the interior, altering the conservation of volumes. The facade is made with a semi-prefabrication system, mounting all the vertical elements out of place and fitting the horizontal elements in a later phase, according to a very simple constructional scheme. Even the wooden doors and windows are easily assembled by the serial prefabrication logic designed for the project. [1]

1. Bellini G., The Municipal Library of Milan: Palazzo Sormani , Milan 1961 (p. 27-29)

Central Municipal Library Project by Arrigo Arrighetti

Fig 25. A.Arrighetti, Central Municipal Library, Palazzo Sormani

The municipal administration decides to transfer the Civic Library to Palazzo Sormani, and it is the first intervention of Arrighetti as an architect of the Technical Office of the municipality of Milan. The theme is very challenging because it is an intervention on a historic building, a patrician building of the period baroque, which is available to collect the civic library that previously had its headquarters in the Castello Sforzesco[1]. It required the creation of a library that could accommodate 500 places for reading and one million volumes. The project was set in the following criteria: respect for the intact historical part, complete demolition of the unsafe parts towards via della Guastalla and construction on this area of modern structures that can provide the Library with the best functioning, files, reading rooms and the warehouses of the books. In the restored part, on the other hand, the management offices are designed and in general the offices of the library: some rooms for reading, and a hall. The front on Via Guastalla owes its physiognomy to two reasons: the first of architectural respect, the second of a technological character. The consideration that the new front would only be seen as a very strong perspective, suggested the idea of a compact, modular architecture, conceived so that the new wall constituted, for an observer placed in front of the facade of the Cross, a fifth capable to frame the baroque architecture without disturbing. The reasons of a technological nature were intended to prevent the sun's rays from entering directly into the storehouses of books, so a sun-likelamella structure was studied. The same criterion of fifth and para-sun

1.http://www.ordinearchitetti.mi.it/it/mappe/itinerari/edificio/2205-biblioteca-civica-a-palazzo-sormani/54-arrigo-arrighetti
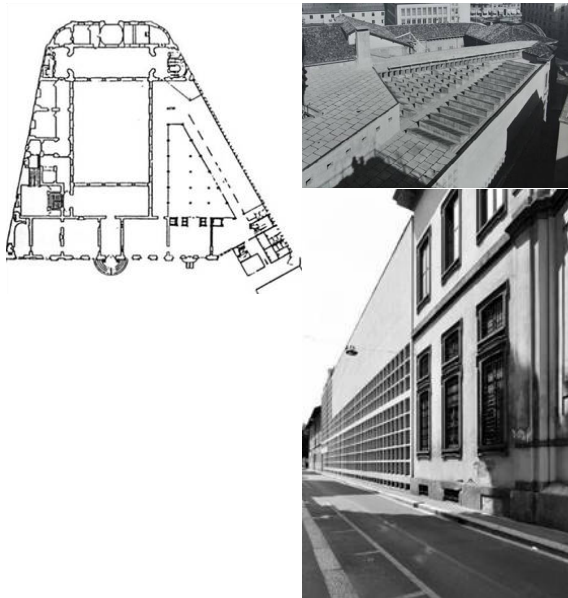
was used to complete the facade on the garden.[2]
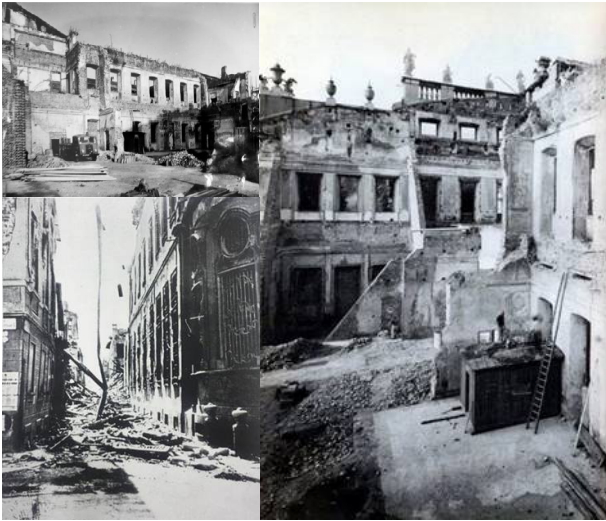
Fig 26. Palazzo Monti-Sormani after bombing

2. Bodino C. (edited by), Arrigo Arrighetti architect, Milan 1990

LIBRARY: AN EVOLVING DEFINITION

LIBRARY: AN EVOLVING DEFINITION The library is a complex organism which fervently adapts its functional components in pursuit of satisfying man's need to store, conserve, diffuse, and consume knowledge that, alongside the structure, constantly changes form. Its architecture must be responses to functional, performance, managerial, and environmental needs and can be considered as "technical." Instances that are intangible and innumerable are considered "symbolic." These can be social and cultural considerations wherein they give the architecture roles and meaning in the urban context as representations of an institution of humanity. As such, it can give a point of reference for the community, a converging point, an urban catalyst, a social condenser, and a cornerstone for the territory and its city. Having evolution as the library's primary concept for maximum flexibility and functionality can be likened to the supermarket or an industrial warehouse wherein the distribution networks, the supply and demand chain, the location of various activities are laid out and designed to achieve the maximum functional efficiency. However, the most interesting aspect of the architecture of a library arises from how it can respond beyond functional needs but above all, to the deepest needs of human beings: the pleasure of spatial experience, the historical and cultural memory, the imagination, the exploration, the discovery and freedom of choice. Apart from these, the library must also be capable of leading its evolution by having ways in can expand and innovate.

EVOLUTION OF THE LIBRARIES BETWEEN PERMANENCE AND TYPOLOGICAL INNOVATION

In the history of architecture, libraries are, together with residences and places of worship, among the oldest building typologies. They are derived from purely functional and intentional use, and not from a morphological development which will be further elaborated. The most ancient of libraries are those where memories are retained and documented like that of Ninive from the 5th century BC where simple archives of sacred texts and documents were attached to the palace or the temple and were completely inaccessible to the public. It was only in the Hellenistic period that the library developed to be an important support tool for teaching and research for philosophical schools. Here, they appeared to be more accessible albeit in a very small circle of adepts. However, these scrolls were kept in one or more rooms adjacent to other public buildings, temples, representative rooms (oikos) as well as open spaces like gardens and peripatas where speculative activities took place as in the Aristotelian school of the Lykeion of Athens. There were no unified spaces for consultation and discussion but only for storage. This is a model that will remain unchanged for several centuries following up to the Roman public libraries. It was not until the era of Imperial Rome that libraries assumed real autonomy in an architectural point of view evolving into buildings with a strong urban characteristic. They were no longer linked to places of political or religious power and instead placed in a central position close to major public services like the Baths, the Forum, or the Market. They became meeting places where scholars socialized and taught resembling, in some ways, the basilicas. Moreover, they became spaces where justice was administered and businesses were discussed. Its functional typology became

complex and can be codified from the point of view of building typology. Vitruvius in De Architectura describes the library as a large rectangular room facing east, with one or two orders of galleries of columns, and a perimeter porch with an apse containing the statue of Athena on the opposite wall to the entrance. Along the perimeter, there were niches with wardrobes containing the scrolls that were arranged on two or more overlapping balconies; an example is the library of Celsus in Ephesus from the 2nd century AD. From the ruins of the ancient world arose libraries from courtyards of monasteries and cathedrals; spaces that do not participate in public life. Once again it lost its architectural identity and returned to being annexed by other building complexes. It held true that those that hold knowledge hold power. The monastery became a center of religious, economic, and social life where its main cultural purpose was for the conservation and transmission of knowledge. It became the place where the book was produced thanks to the copying and conservation of the manuscripts. The monastic library was fragmented into distinct parts where its three functions were carried out in different and not necessarily adjacent environments. The reproduction of the manuscripts took place in the scriptorium, a then newly conceived

space, consisting of a large and well-lit, well organized space with jobs arranged in the form of a pettine and arranged perpendicular to the walls; a veritable laboratory for the book's production, "a joyful factory of wisdom." Preservation took place in the storage spaces where, sometimes, simple armories were placed in the scriptorium itself or in one or more rooms above. The consultation, apart from the collective readings during meals or mass, did not take place in silent solitude or within the scriptorium, which were exclusively for the transcription of the texts, but in other places of the monastery. Consultations were performed in the cell and the cloister, where the monks had the reading desks and the books in crates or wardrobes. It is the place where the climate was harsher and rainier therefore cubic oils were created in the perimeter of the cloisters with niche-study function which were widespread in monasteries and cathedrals of the late Middle Ages. A famous example in the cloister of the Gloucester Cathedral of the 14th century. During the period of the High Middle Ages, there was an important change in the modality of consultation of the written text, a harbinger of consequences on the organization of the library space. Silent reading blossomed from this period and radically changed the relationship between the book and the reader by adding an aspect of intimacy that was previously unconceived but created the conditions for the creation of collective rooms for studying and reading. A rendition of this new intimacy between the book, the reader, and the idea of a private space for consultation is the famous painting by Anto nello da Messina of San Gerolamo's studio (1474 ed.) where the saint, immersed in the exegesis of sacred texts, is represented in the silence of a vast vaulted gothic hall in which his studio of wooden construction is located; a real "architecture inside the arches, reading," raised a few steps from the floor, equipped with a desk and shelves, on which books, writing instruments, and other objects are stored. Natural light comes from the wide portal that frames the scene. In the representation of this closet-shrine is a "living and exact description of the indispensable characteristics to create a pleasant communication between the ac-

cumulated reserves of knowledge and the reader." It requisites that the best should meet the needs of the human being in the activities of study and consultation, which will remain substantially unchanged over time. The equipped space of the San Gerolamo by Antonello has, in fact, originated from the modality of silent reading of Sant'Ambrogio from the direct relationship between reader and text, and from the philosophical concept that saw man at the center of the space. He brought to that period the construction of individual, collective, and silent consultations which were designed to be the best response to users' needs and not just for the conservation of documents. Antonello's painting in the second half of the fifteenth century, combined the intimacy of late-medieval karulas with the structures of furniture now widespread in monastic libraries. Here he made the plutei for reading and writing and shelves for the conservation of books. By the twelfth century, cities started to become centers of social life and culture leading to the creation of universities. With them,

the libraries again became a fundamental tool for the dissemination of knowledge. To cope with the need to serve a broader public and to guarantee the preservation of heritage, a new architectural solution was developed which will remain in place for about two centuries: the classroom library, a hall rectangular with long walls punctuated by windows having parallel rows of benches equipped with a lectern and a seat (plutei) arranged perpendicularly to the walls so that the readers received light from the side with a central passage corridor on the opposite side. The books, no longer contained in wardrobes and cases, were attached to the plutei with chains and were offered for reading and studying. The library thus became the setting for the exhibition of the book and it was itself the physical representation of the catalog, as each book had its own specific place for consultation. It is a reader-friendly library, derived from the juxtaposition of many individual spaces, designed to facilitate and promote consultation designed to allow more users to enjoy a situation of recollection and concentration. The classroom type was further developed in the Renaissance; always taking advantage of the church archetypes. The hall was divided into three naves divided by columns and the rhythm of the rounded arches; the two lateral ones destined to plutei and lecterns, the central one used as a distribution corridor. The prototypes are the Library of the convent of San Marco in Florence (Miche- lozzo, 1444) and the Malatesta Library at the convent of San Francesco in Cesena (Matteo Nuti, 1447-1452). The last great example of this typology is the Laurentian Library (Michelangelo, 1522- 1534) located on the second floor in the cloister of the Basilica of San Lorenzo in Florence. With Michelangelo, this typology reaches its completeness with a coherent and perfect integration between spatial articulation, functional destinations, furnishings, and decorations. The neutrality of the exterior corresponds to the maximum expressiveness of the three internal environments arranged in sequence: the access vestibule, vertically dilated and dominated by the large plastically modelled staircase; the rectangular hall (46m x 12m) for the consultation of the books, marked by the pilasters, the windows and the rows of plutei (designed by Michelangelo). Finally, the publicly inaccessible triangular hall where the deposit of rare books should have been was never realized. From the point of view of the library typology an important innovation lies in

this unprecedented decomposition of the whole in a sequence of different spaces and volumes, strongly characterized and corresponding to different functions. The classroom typology will remain dominant for the following two centuries, with subsequent improvements and innovations that mainly involved new furniture solutions strongly integrated with the architecture designed to cope with the staggering increase in the book heritage: for the diffusion of the press and for reasons of representation. In the university libraries were first added two or more shelves above the lectern (Queen's College, Cambridge, 1448), giving rise to the system of the seats (scanni). Later, they were arranged shelves with parallel rows, interspersed with tables and chairs or real study carrel, giving rise to distribution typologies still in use today. In the Renaissance, the library also became an instrument of affirmation of power on the part of princes and rulers, of patronage and often also a pure habit in accordance with the spirit of the times. The desire for magnificence and ostentation led them to fill the halls of books, which themselves become "architectural ornaments" of the interior spaces. It is the so-called Sall System or wall-system, in which the shelves are placed against the walls on one or more levels, accessible by stairs and balconies so that the rooms are literally covered with books. The cases are the following: Library of the Royal Palace of the Escorial in Madrid (Juan de Herrera, 1567), the Vatican Library (Domenico Fontana,1587), the Ambrosian Library (Lelio Buzzi and Fabio Mangone, 1609). The latter, built by Federico Borromeo's will, was innovative in many respects. it was the first major public library in Europe with the precise mission of acting as a reference institution for the diffusion (and propagan-

da) of the culture of the Counter-Reformation and, for this reason, was open to anyone wishing to access it, offering optimal conditions for study and consultation with books "exposed to public ". The building consists of a single rectangular room (26x13.6 m) barrel vaulted, of such height (15 m) to allow the lunettes for natural lighting to overhang adjacent buildings. Any excess of bandit ornamentation and the time soberly decorated with linear squares. The books prevail over everything by showing themselves: along the walls are placed shelves on two superimposed levels, the second of which is accessible with a gallery at 4.5 m in height. The space for consultation in the center of the room, surrounded by books and isolated from them by the external environment (also from the point of view of thermal and acoustic comfort). The reader is at the center of the environment in which container and content are identified, space and function merge and the book itself becomes decoration and architecture, but magnifies the current ruler, but the immensity of knowledge and the value of culture made available to everyone. The theme of the "room covered with books" was the theme most developed during the seventeenth and eighteenth centuries, from the Arts End of the Bodleian Library (financed by Thomas Bodley for the Oxford College) to the great Roman libraries, up to the surprising late Baroque libraries beyond the Alps. The concept of the library as a single large unified room, to whose walls there were books and, sometimes, sculptures, as had been done at Ephesus, continued in the eighteenth century, and had its more exuberant expression in the monastic libraries of southern Germany and Austria such the libraries of St. Florian, Melk, Ottobeuren, Wiblingen, and many other Baro-

que monasteries in the Upper Danube were places where light, sculpture, painting, storage of books and use of space were considered as a unit and where this total space was considered symbolically important within the building group. At the beginning of the eighteenth century, there was a typological innovation that combines the wall-system with Renaissance architectural typologies: the centrally planned library which incorporates the archetypal forms of the classical temple. The library-temple also became a library-catalog where codification of the increasingly sophisticated knowledge classification done. It is here where they found an effective architectural metaphor of the "circularity" of knowledge. An example is the Augsburg Library of Wolfenbüttel (Herman Korb, 1706, demolished in 1887). It was inspired by Palladian designs as the first to be built in a completely autonomous building with a rectangular plan and an oval full-height reading room in the center surmounted by a high tambour with 24 windows and richly decorated and two overlapping gallery bookshelves. The building inaugurated the use of a typology that was well suited to host the library function, both for architectural features and above all for symbolic meanings. The central plan and the reference to the noble types of ancient Rome are constant themes that are often found in the architecture of libraries of the eighteenth and nineteenth centuries which found their majestic completeness in the project by Etienne-Louis Boullée for the Bibliothéque du Roi of Paris. The library, which takes up and elaborates the type of the basilica inspired building, imagined an immense barrel-vaulted room illuminated from above containing a large amphitheater of four tiered, overlapping, shelved books inside; in itself, a new ar-

chetype for library design. A student of Boullée, Jean-Nicolas-Louis Durand, who at the beginning of the nineteenth century published the Accurate architecture lessons given to the Ecole Polytechnique, composed and written the compositional practices of Boullée and Ledoux simplifying them in a taxonomy of possible combinations. In this way, he architectural design can be based on elementary geometry translating into logical compositions of pure volumes. He referred to it as the art of combining masses and organizing spaces. Among the public buildings or édifices publics, Durand illustrates the library as a "temple dedicated to studying" and "a public treasure that contains the most precious deposit, the human knowledge." His ideal library consists of a huge fully colonnaded square at whose corners contained lodgings for librarians, print shops, stores, and service rooms. At the center of the square is the actual porticoed circular library composed of eight radial tunnels leading to a round pantheon with a coffered dome. Surrounding it are galleries intended for consultation areas. Books are housed along the walls of the galleries and, perhaps, also inside closed sectors between the galleries themselves. Natural lighting is guaranteed by windows above the bookshelves while the particular distribution of reading rooms all face the center where librarians could be ensuring order and the facilitation of surveillance inside." In Durand's project, the symbolic component of geometry prevails. The circular form as a symbol of totality and perfection, of absolute and universal knowledge. It is inscribed, and opposed to, by the square geometry symbolizing the finite of the human and earthly condition. The aspiration of man to preserve all universal knowledge has a divine character (the circle of the library) but enclo-

sed in the earthly condition (the perimeter square). The library as we know it is a typological system borrowed from pieces of known systems such as the one-nave or three-nave church system or the centrally planned organization of the Renaissan
ce temple. Although its historical precedents are de-contextualized pre-existing buildings or built within mixed-used complexes (the monastery, the cathedral, other public functions, etc.), it is now a stand-a-lone structure simplified in the elementary use of solids and linear geometries. With this, the library was theorized for the first time as an autonomous, functional, and architectural typology. At the beginning of the nineteenth century, the exponential growth of the book heritage led to a further refinement of the building typology and its functional distributions. Implemented in 1816 by Leopoldo Della Santa, who in the treaty of construction and regulation of a universal public library, was an idea, a first of the time, of the functional tripartition of the library. It separated the storage spaces from consultation areas and document processing. It created a central reading room with adjacent catalog area, some offices and storages for the collection of rare books, and two wings on both sides where forty-eight long and narrow deposits of books were contained. The functional tripartition of Della Santa was immediately used in the projects of two new large libraries. They were by Henri Labrouste for the Sainte-Genevieve Library in Paris, where it was first implemented, and later in the Bibliothéque Nationale. The increase in books and users during the second half of the nineteenth century and throughout the twentieth century sought after better standards and distribution typologies where they were adapted for various activities and

services provided. It developed a progressive specialization of the various functional units of the single library and the diversification of the library institutions with respect to the different information needs and categories of users. On the one hand, each of the three functions of the library (conservation, consultation, treatment) were fragmented into different spaces according to the types of documents such as: books, periodicals, newspapers, rare books, maps, other media; or into the types of users such as: scholars, men, women, children, etc. On the other hand, the differences between the various libraries (national libraries, popular libraries, general libraries, university libraries, etc.) were accentuated and perfected leading to new hybrids and typological transformations inspired by historical typologies or from distributive and form models created by Functionalism (the free plan of industrial and tertiary buildings, curtain-wall facades, etc.).

The Evolution of Architectural Types in Library Architecture:

The basilica, the pantheon and the amphitheater of books Emerging from historical excursus previously discussed, each new typology partially takes or borrows from past logically linked projects which, in turn, creates an innovative combination of parts, components, and relationships. Architecture is based on architecture. The bottom line of building is a design for spatial distribution that satisfies certain functional needs. It is in those invariant morphologies that the arrangement physical context creates structure and in turn becomes architecture. When the organizational idea of form creates a delineating recognizable order and manifests in different examples of similar properties creates a completely assigned independent function, it becomes a fixed point in the changing of architecture, the creation of a typology or a specialized version thereof. What is to be observed in the Library's evolution is how it changed throughout history from its derivation from different architectural types. In this sense, explains Carlos Marti Aris, history and typology are presented as two complementary aspects. While history shows processes in transformation, analytical typology refers to what in the same processes remain the same. Furthermore, both aspects relate to one another where only the mutation becomes permanently visible. It was shown in the history of libraries where some elements of other architectural types were constantly repeated (the basilica plan, the central plan, etc.), initially borrowed, then made to mutate. Using these conclusions confer to the library an institution of dignity which is venerably equal to places of worship. With these, there becomes

an architectural type that can represent certain cultural, social, and symbolical values. These are architectural types are not univocally linked to a certain function, "better activity" as Marti Aris prefers to point out, but which lend themselves to accommodate different uses without the form being altered. The persistence of certain formal structures as the foundation of the Library remains as a symbolic force without being overlapped. This refers of the basilica system, where at the time of the ancient Rome was destined to be public activities of the civil society, which later became an architectural type par excellence as Christian places of worship. The basilica, the pantheon, and the amphitheater of the books represent extremely powerful and evocative architectural images. From them, the idea was reused for the library and other public buildings. The morphological types that rose from it did not have anything to do with Durand's typologies and compositional method. Durand elaborated and classified the typologies through the combination of architectural languages that were simplified into volumes and geometric forms that can be used as syntagma to construct the discourse through architectural composition according to a well-defined syntax. Luciano Semoran notes, how for Durand, the typological discourse did not aim at identifying absolute figures but as guiding ideas; "invariants with a strong evocative force within them." He explains further that they can be "abbreviations of possible combinations of volumetric and geometric components." To understand these architectural types, Qua
tremére de Quincy (student of Durand) can be referred who, in his Dictionarire Historique de I'architecture (1825), first describes the type starting from its etymological meaning, its ltoo (coming from the Greek word tt), which expresses, a general sense applicable

to many varieties of the same idea, model, matrix, imprint, relief or low relief. He then defines it in reference to the concept of model: not as "the image of a thing to be copied or imitated perfectly," but "as the idea of an element that must itself serve as a rule to the model." It should be an object to which everyone can conceive of works and which will not resemble each other that can be vague in the type.132 From many points of view, the basilica had already achieved its perfect fulfilment. In the Ambrosian Library project in Milan, spatiality of the hall was reduced to the essentiality of the volume, free from any ornaments that were not the books. The invention / typological innovation of Boullée was not so much a system but the book amphitheater due to its majestic "architecture in architecture," It becomes an architectural type, free from the basilica plan. The same idea can be found again in other very different applications, such as the British Museum Library or the Stockholm Library, where the design is grafted onto the central plan type. It was explicitly mentioned in the competition project of Stirling and Wilford (1989) for the Bibliothéque Nationale in Paris, where the "study library" is a longitudinal hall lined with barrel-vaulted books with a glass roof. For the Municipal Library of Se32 Samir Younés, The Historical Dictionary of Architecture of Quatremère de Quincy, 1825 , p. 255 regno by Aldo Rossi (1989), it consisted of the sequence and juxtaposition of three well-identified architectural types: the cylindrical tower / baptistery (entrance), the basilica with the amphitheater of the books (open bookshelf reading room), cloister / courtyard (exhibition spaces, multi-purpose rooms, support services). Up to some recent German libraries: the hypogean reading room of the Sächsische Lande-

sbibliothek in Dresden by Ortner & Ortner (1990-1996), the remaking of the "Haus Unter den Linden" Library room in Berlin by Gerhard Merz (under construction), and the "Bibliothek 21" in Stuttgart by Eun Young Yi (under construction), where the amphitheater of books is placed in a square-shaped volume. The Stuttgart project, for example, was a building designed to be mighty and monolithic cubic volume, nine stories high, strongly in contrast with the surrounding buildings, arranged on a sheet of water to isolate it from the rest of the urban context. Inside there is a large central square atrium, which covers the first four floors of the building, above which there is the reading room: an amphitheater of books with a square plan, five stories high, illuminated by a large skylight. The image of the amphitheater of books, precisely because of its expressive power, returns to many successive library architectures, became very distant from the Boullée project, becoming the reference and figurative solution (the equivalent of what for Boullée had been La School of Athens). This is the case of the National Library of Mexico City of Alberta Kalach (2004-2006) where a sort of huge overturned ship, stranded in the city, in whose hull there is an amphitheater of overturned books: a mighty metal structure that seems to be able to contain all the books of the world, suspended in the long central nave, on which the reading spaces overlook. It is also the case for the Library of Exeter by Louis Kahn (1966-72) where he precisely referred to the Library of Boullée: There is an illustration of the library without tables. It is a large imperialist hall with many rows of books stacked along the walls and people who give books to others at the bottom. There are no seats or tables to read; only the sense of what a library should be

like: go to a room and find all the books there. This is also part of trying to understand the nature of a library.233 The figurative solution associated with the emotional reference to the enormous hall molded the image of "a man who takes a book and goes towards the light."334 It follows the technical elaboration of the project and its distributive characteristics that responded to the functional program that had been defined by librarians. In particular, the program required that "the emphasis should not be placed on books, but on readers who used books." This encourages and ensures the pleasure of reading and studying creating studio carrels near windows where natural light can likewise be 33 Geometries of Reading, Light of Learning: Louis I. Kahn's, Phillips Exeter Academic Library 34 Louis I. Kahn : silence and light : the Master's Voice in the Lecture for students at the Department of Architecture of the Eidgenössische Technische Hochschule (ETH) Zurich (Swiss Federal Institute of Technology), February 12, 1969, Auditorium Maximum, ETH Zurich / edited by Alessandro Vassella. enjoyed. The Program also asked that the internal spatial organization of the building be easily understood; that the reader, upon entering, would be able to orient himself immediately. Kahn's library also represented a refined elaboration of the centrally-planned type, referencing as well to Frank Lloyd Wright's Unity Temple, which constitutes the other fundamental recurrent architectural typology in the history of library architecture. Of the centrally-planned type, the Pantheon is the primary example for excellence; a concentration of symbolism linked to the figures of the circle and the square: "the splendor at the service of the institutions of man" (Kahn).435 The Pantheon system underlies, in a direct or mediated way, many

outstanding examples of architecture. Among these are the British and American libraries with a central plan of the 18th19th centuries: from the Rotunda of the Virginia University Library to the Low Library of Columbia University in New York (McKim, Mead & White, 1893). The latter, built with neo-Renaissance forms in a Greek Cross Plan, led its entry towards a flight of steps towards the colonnade and into a large central reading room lit by large lunettes and covered by a dome. In the Low Library, as well as Jefferson's Rotunda, the choice of the central-floor architectural type is given an "urban scale" caliber becoming the authoring element of the building's composition and the network of paths and open spaces of the university campus (l'"Acropolis of America"). 35 Louis Kahn, the Beginning of Architecture. Notes on Silence and Light. Noelia Galván Desvaux, Antonio Álvaro Tordesillas. The Pantheon is also the direct reference for E. Vincent Harris in the construction of the Manchester Central Library (1926-35). It was circular in shape with a pronaos of access where the reading room was surmounted by a dome with a central oculus for a skylight. The library of Stockholm by Erik Gunnar Asplund (1920-1928) belonged with the likes of the Library of Manchester in referring the Pantheon and were revisited through the British Museum Library and the architectures of the French "revolutionary" architects. After a long "silence" in the progression, the central panoptic plan (Pantheon / British Library) resurfaced but was revised, distorted, and utterly "betrayed" in much recent projects such as the Finnish Library of Tampere (1978-1986) by Raili and Reima Pietilä. It had a room with an inclined and lowered dome, with a central oculus. The German Library of Karlsruhe (1978-1991) of O.M. Ungers was next where the

rectangular reading room surmounted by a coffered dome with a central oculus. Furthermore, the Stirling and Wilford competition project (1989) for the Paris national team, where the "Library of Current Affairs" was made as a large circular room vaulted by a glazed dome and mentions the British Library. The geodesic dome by Buckminster Fuller became an inspiration for Michael Graves in his Denver Public Library (1990-1995) where the circular consultation room deforms and reinterprets the figure in a postmodern key with a flat coffered ceiling and a central oculus. There were much more filiations and those mentioned are just for the expressive incisiveness of the architectural type. An echo, not too far away, can also be found in the Library for the Faculty of History of the University of Cambridge in Stirling (1964-1967). The reading room with the vertiginous cover was inclined in iron and glass where the dome sits on an octagonal panoptic plan. The shelves were arranged in a sunburst towards the center. In various ways, from the architectural type of the Pantheon can also be derived in buildings with a central plan that has a circularly inscribed figure resulting to a "transgression" (Marti Aris) from which a new typological configuration can be defined. This was the case of the project by Raphael for Villa Madama (1517) where the memory of the Pantheon appeared as an imprint in the emptiness of the circular court which constitutes the ordering element of the general system with the Celeste vault. Moreover, such was also the case for the Altes Museum by Schinkel (1824-28) where the round vaulted ceiling with a coffered dome embedded inside a double-edged building was composed in a series of aggregate elements (the portico, the staircase, the linear bodies, etc.). On the type of the Pantheon inscri-

bed in a complex with a central plan was where the amphitheater of books was inserted giving further rise to a type that will be the basis of other successive solutions: the many American libraries of various dimensions like in Washington, the Library of Congress by Smithmeeyer and Peltz in 1897, and above all, the Asplund Library in Stockholm. Here the roundabout, which in the first project (1921), was turned into a coffered dome. Just like the Pantheon, it becomes the final solution (1928) where a high cylindrical drum that manifests itself as an autonomous, monumental volume, calling the stylized neoclassical forms of the Barriére de la Villette that Ledoux had built in Paris (in 1784). The municipal library of Asplund, says Marti Aris, can be considered as an attempt to reduce to the essence the formal structure of the Schinkel's building. It appeared here made up of its two main components: the U-shaped perimeter body and the cylindrical volume. All the agglutinating materials which components intertwined in the Altes Museum disappeared in the Asplund library. The roundabout ceased to be a mere interior space, and manifested itself as an independent volume, a pure cylinder. Asplund eliminated the cover dome in the Altes Museum, which persists in the first version of the project. Once the intermediate elements have been eliminated, the cylinder must reassemble its relationship with the peripheral block in order to establish contact with it. The parallelepiped navaids adapted to the round body determining three points of tangency to which the building can be entered externally. A cross-shaped figure is produced which determines the access system and at the same time regulates the organization of the large reading room. It is also necessary to note the absence of the large portico on

the front, which, in the Altes Museum, acts as an entry scenario. It is interesting to note that the suppression of the portico produces introversion in the layout of the access, relegating the uncovered side to the role of the rear façade. Insight into the library of Asplund we are faced with a purification of the formal structure exemplified in the Altes Museum, which determines a more central and dominant effect of centralization. The libraries of Asplund and of Kahn become themselves typological references to which many successive projects refer to and from which different filiations come. In the Altes Museum, the Stockholm Library, the Low Library, and that of Exeter, the identification of the architectural type responds to the desire to create an architecture able to communicate the exceptional nature of the public function hosted in it alongside highlighting the urban role as a cornerstone of the city (or university campus). A library in which echoes of Exeter's project can be found in Giorgio Grassi for his Milan Polytechnic in Bovisa (1990). Sadly, it remained unrealized and then revived and built in the University Campus of Valencia, Spain (1992-95). Although it had a bilateral symmetry development and not the cubic and isotropic form of the Kahn Library, it is equally compact and introverted with a large central atrium of seven modules tall on which the various open shelf storages with height of a module were flanked by double height reading rooms with small windows towards the outside. The interesting typological filiation of the Asplund solution is, Probably, the Stirling project for the Latin Library (1984) but too much remained unrealized. It had a longitudinal arcade building from whose gable roof burst two travertine cylinders with large skylights corresponding to the general consultation room with perime-

ter shelving sloping on three levels and to the open shelf section with a circular ziggurat with three levels of shelves. In this case, as in the others listed, the realization of a large full-height volume containing the reading room, which emerged in the composition of the building complex, reverberates the internal configuration of the building, flaunting the exceptional connotation public of its being an authentic urban interior. In all these projects, the strenuous search for an adequate typological configuration corresponds, as seen by Rossi, to the need to find a strong emotional core and an effective figurative solution. If the structure of a sufficiently well-structured project can govern any changes that occur during or after the operation, and therefore allow the building to evolve to respond to new cultural, social, technological, and new destinations of use.

New Central Public Library of Milan

Abstract

Ever since previous headquarters at the Castello Sforzesco was bombed and destroyed during the Second World War, Palazzo di Porta Vittoria was chosen as a new location for the Public Library of Milan. Palazzo Monti-Sormani, is one of the most unique samples of the synergy between the classical and the post-war Milanese architecture, located in the vicinity of the la Cà Granda, got restored and functionally redesigned to its new purpose.

Palazzo Sormani which was inaugurated in 1956 through the reconstruction and restoration of the prestigious XVI – XVIII century residence led by the architect Arrigo Arrighetti. The proposed project site is located adjacent to Palazzo Sormani, which also sits above a historical border of Mediolanum, the ancient version of Milan.

As we read through the evolution of libraries in different cultures and throughout the ages, libraries have been shaped for its designs by the technical innovations as well as changing cultural attitudes. The value for the place being a center of knowledge has been decreasing and it has been evolving to become a place that is more valuable for the silent joyous space, it provides in contrast to the current day's busy lifestyle habits in order to quietly sit and consume new knowledge or a comfortable and quiet place to work. Today it's not just a place that people go to read a book, it's a cultural center where people can meet, share and get information from different kind of devices. Libraries became some multifunctional place where also located different kind of workshop spaces, meeting halls, educational cinema, shops and cafeterias. The project aims to look through history and understand how the cultural system progressed and evolved alongside the urban development as the new design should visually harmonize the urban context and its connection with Palazzo Sormani.

To integrate new library project to the area was made analysis of project site and its surroundings building, project volume heights were defined along with its axes, which marks the borders of project and its connection to the surrounding buildings.

Material connection was established through red brick and candoglia marble due to its abundance in use throughout Milan. Flexibility of spaces gave the opportunity to preserve all type of books and make publicly available. The idea is to create a library which blends-in with Milanese architecture. The second phase of the design strategy was creation of a pavilion inside the garden of Palazzo Sormani. The design aims to create a non-physical, visually strong connection to the Palazzo Sormani, with its garden and the new library. A new pavilion in the garden is proposed, preserving as much of existing green area as possible. By creating that pavilion, axes of inner facade of Palazzo Sormani and nearest buildings, were considered. Two volumes were created, one is solid two floor box the other one light, one floor box, with brighter space. Thus, visitors of garden can experience different ideas of the space.

The Urban Context

The beginning of the design process I started with analysis of the projected area, focusing on context of the surrounding neighborhood.

The site of projected area situated on top of the historical border of Mediolanum, Milan's ancient version, next to historical palace which was converted to a public library. Since the expansion is imminent due to limitation of site, must be created new spaces which will meet needs and functions of modern central public library of Milan. The existing garden of Palazzo Sormani also will act as the main connection between new project and existing library.

Fig. 27 – Marked project site, with the main important buildings around it.

While analyzing the neighborhood were defined main axis, of the site of projected area. One is the Pa-

lazzo Sormani and second, the Universita degli Studi. Located along Via Francesco Sforza, Università degli Studi is currently one of Milan's premier learning institutions, which previously was a hospital. The ancient hospital of the poor, called the Ca 'Granda, now the headquarters of the State University, is one of the most important monumental complexes, from a historical and artistic point of view, in the city of Milan. It was started in the mid of XV century by the Tuscan architect Antonio Averlino, known as the Filarete (1400-1469).

Fig. 28 – Facade of the Università degli Studi.

Creating his project Filarete get his inspiration from the potent symbol of the cross. The layout involved two crossbars, one for men and the other for female patients, developing within a square, each defining four square-shaped inner courtyards. The two larger blocks were thus connected by a large rectangular courtyard at the center of which stood a church.

Fig. 29 – F. Antonio Averlino, Plan and view of Ca' Granda nel 1740. By F.B. Werner. [From: Archivio Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico.

The university and the project site lie along a concurrent axis located through the previous hospital building. The major axis considered its beginning from Università degli Studi, which continues along the urban fabric of Via Francesco Sforza towards the intersection with Corso di Porta Vittoria and Via Larga.

Through the urban analyses was the emergence of the typology of Milanese Architecture of Courtyards. The notable buildings surrounding the project site such as Palazzo Sormani and Università degli Studi have instances of courtyards. Therefore, it will be used as the primary typology for the project.

The project area for the new library is currently occupied by the "A2A" Energy agency. I've decided totally demolish existing building and create a new project that could better fit with the existing surrounding of the town and better match needs of a modern library. The site, on the northeast, faces along Corso di Porta Vittoria, on the axis that connects with the Ver-

The main composition strategies for the main library building.

ziere historical area on Largo Augusto, while on the southeast faces on Via Francesco Sforza and, beyond the road, it overlooks Palazzo Sormani.

Understanding context is at the forefront of the design process where data is gathered in an urban scale and transformed into usable information which can be used as design parameters. Primary axes can be seen through its organization, created by linking notable architectural manifestations surrounding the project site. The line formed from two reference points namely the Palazzo Sormani and Università degli Studi is the designated primary axis. Reinforcing the idea how the roads became actively used by the inhabitants giving rise to its place in the hierarchy.

Fig. 30 – Analysis of axes in the project area.

Apart from the axis, a typology of the local Milanese Architecture must also be present. Along the via Francesco Sforza, the existing old Palazzo with its garden give the general level of volumetric control to the opposite side new part. The common characteristics

of the two reference points were used and the "Courtyard System" was defined.
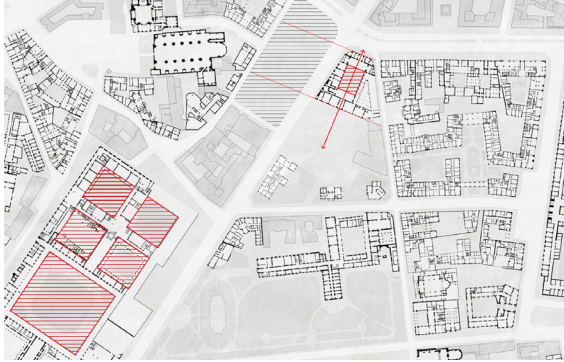
Fig. 31 – Analysis of courtyards in the project area.

The primary design tool used, was through Montage where works are juxtaposed and composed creating an innovative design. Components were referenced from projects done by L. Kahn, R. Meier, Le Corbusier, Guido Canella, and A. Aalto. By using their projects for the montage, main courtyard was developed, which consist of reading space and heritage book depository of the new library. Furthermore, a secondary axis was introduced through the street of via S. Bernardino next to Basilica di Santo Stefano Maggiore. Their intersection became secondary entrance for visitors coming from the University along via della Signora, while the main entrance was created from side of Corso Porta Vittoria / via Larga. Basis of the project concept was to design main reading hall, placed on the middle of the project with courtyard, and adjust to it the separate spaces for reading and studying.
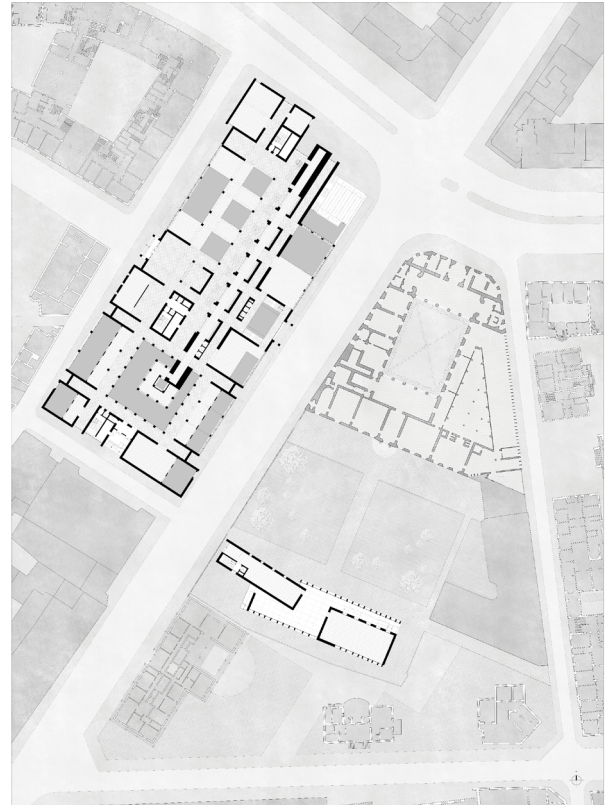
Fig. 32 – Ground floor plan

Main axis of the projected building is characterized and emphasized by two structural brick walls, which space in the middle dedicated to book shelves and private study areas. These structural walls, goes throw all project and have access to all levels of library, by stairs connected to it on each level and elevators. Through this main hall, following the structural walls, we can reach the most important space of this pu-

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blic library: this environment is characterized on the plan, with a hollow courtyard space, in which a tall structural brick walls ends with tower and creates a depository to preserve and keep separate and safer the most precious books, like heritage books. Each floors of this depository contain its own section and different section of this tower is on private access.

Fig. 32 – Ground floor plan

Design of the structural brick wall windows gaps were influenced by the reference of the facade of Palazzo dei Conservatori by Michelangelo Buonarroti. The idea was to have a rhythm of columns with the windows gaps between them, which are wide on first levels but getting narrow on the top levels. The idea was to have some kind of facade wall insight of the building.

Fig. 34 – Façade of Palazzo dei Conservatori by Michelangelo Buonarroti.

Main hall has some crossing bridges on different levels, which serve as connection between its private study spaces with the public ones, which are located on south eastern and north west sides. The connection halls between those two parts of projects, are covered on top, with transparent light skylights.
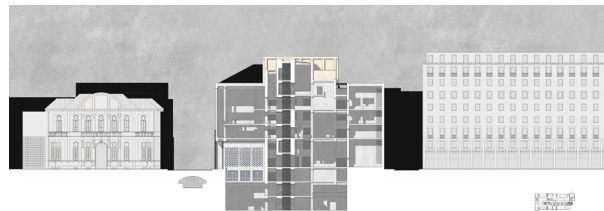
Fig. 35 – Cross section.
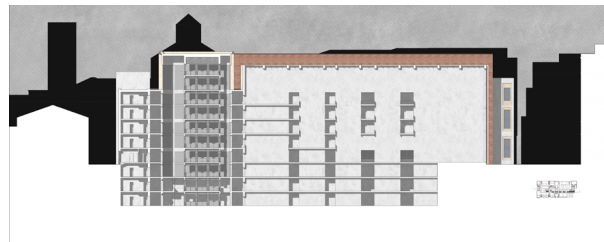
Fig. 36 – Long section.

In general, this library has three main upper floors on +0.600, + 8.000 and +16.000 levels, and two main underground floors on -3.400 and -11.400 levels. Between each main floor, projected middle floors with height of 4 meters.
The south eastern part of this new library is facing via Francesco Sforza where the main access from Corso di Porta Vittoria is located. The main entrance situa-

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ted on -3.400 level which is accessible by outside stairs and ramps.

Fig. 37 – Long section.

Through that entrance we arrive to the part of the library where more commercial facilities, such as coffee shop and book store, are located. Following further, to the middle of the project, there located main vertical connection system, with stairs and elevators which connects the upper and underground floors on all levels. Moving further to the south east of the building, there located corridors around the courtyard tower which distributes the surrounding spaces where the reading rooms and the offices are located. On the upper floor, on the level of +8.000, facing via Corso di Porta Vittoria, composed rectangular glazed box with wide open space inside, which store contemporary books and reading areas.
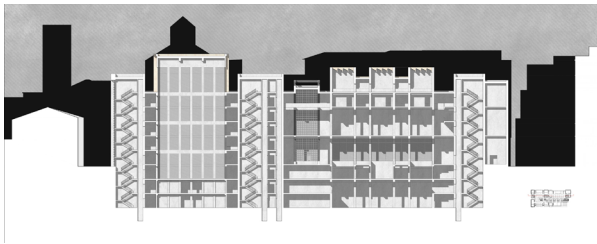
Fig. 38 – Long section.

On the north west side of the project, located secondary entrance, on the +0.600 level, which facing the street via della Signora. This side of the building consist of different reading areas and computer study rooms. In the middle of that area composed three uplifted boxes, with skylight on top, which supported by columns and have an entrance throw the bridges from the main hall. Those spaces provide additional private reading zones.

The underground floor of this library consists mainly from wide and flexible exhibition and lecture halls, which also can be used as educational media rooms. Projecting this building was considered the use of the natural lighting, as much as possible to improve the illumination, of the spaces, by inserting in some parts the skylights. Those parts of library which considered to store the books, kept away from light or have little amount of light transition.
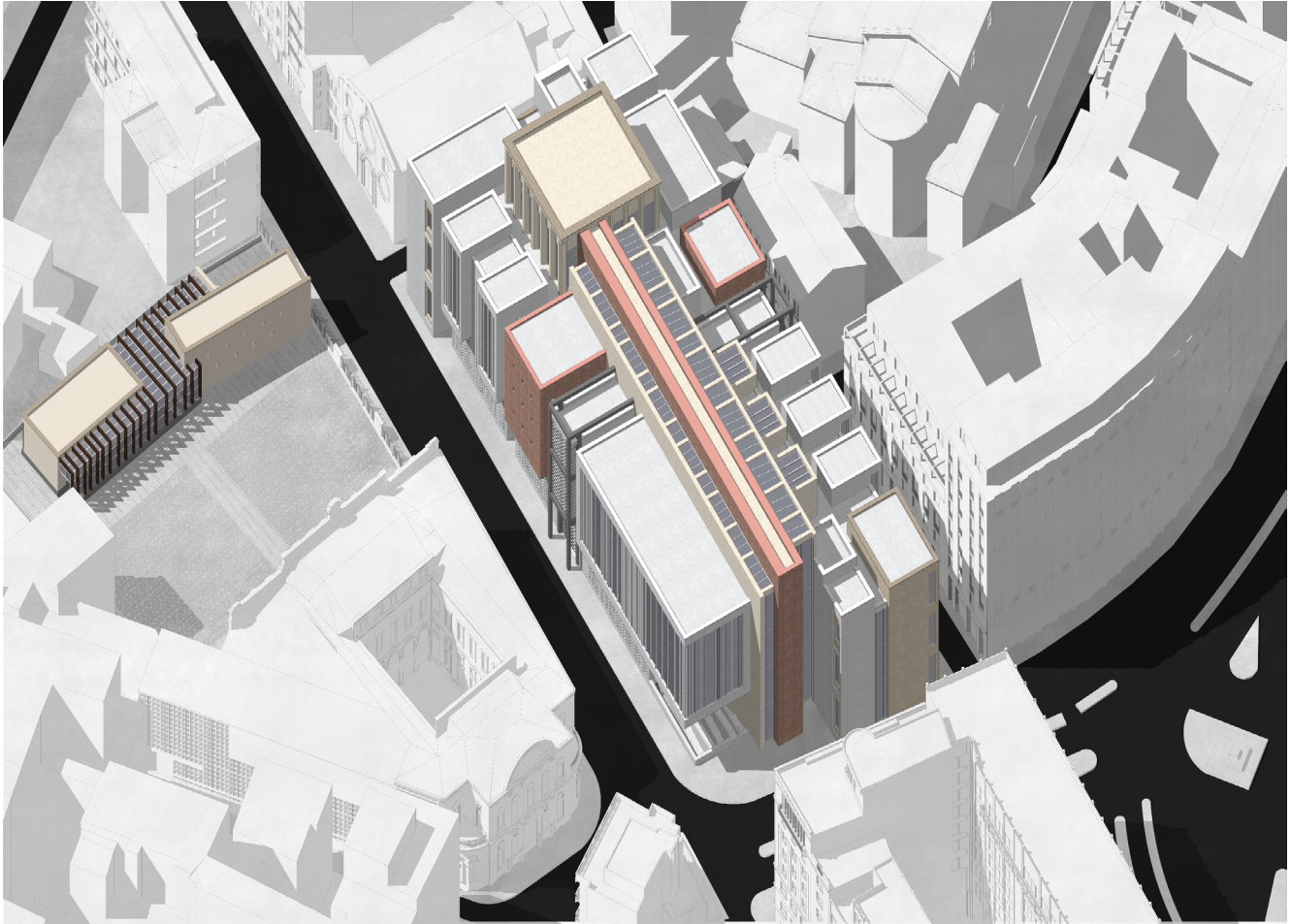
Fig. 39 – Axonometric view.
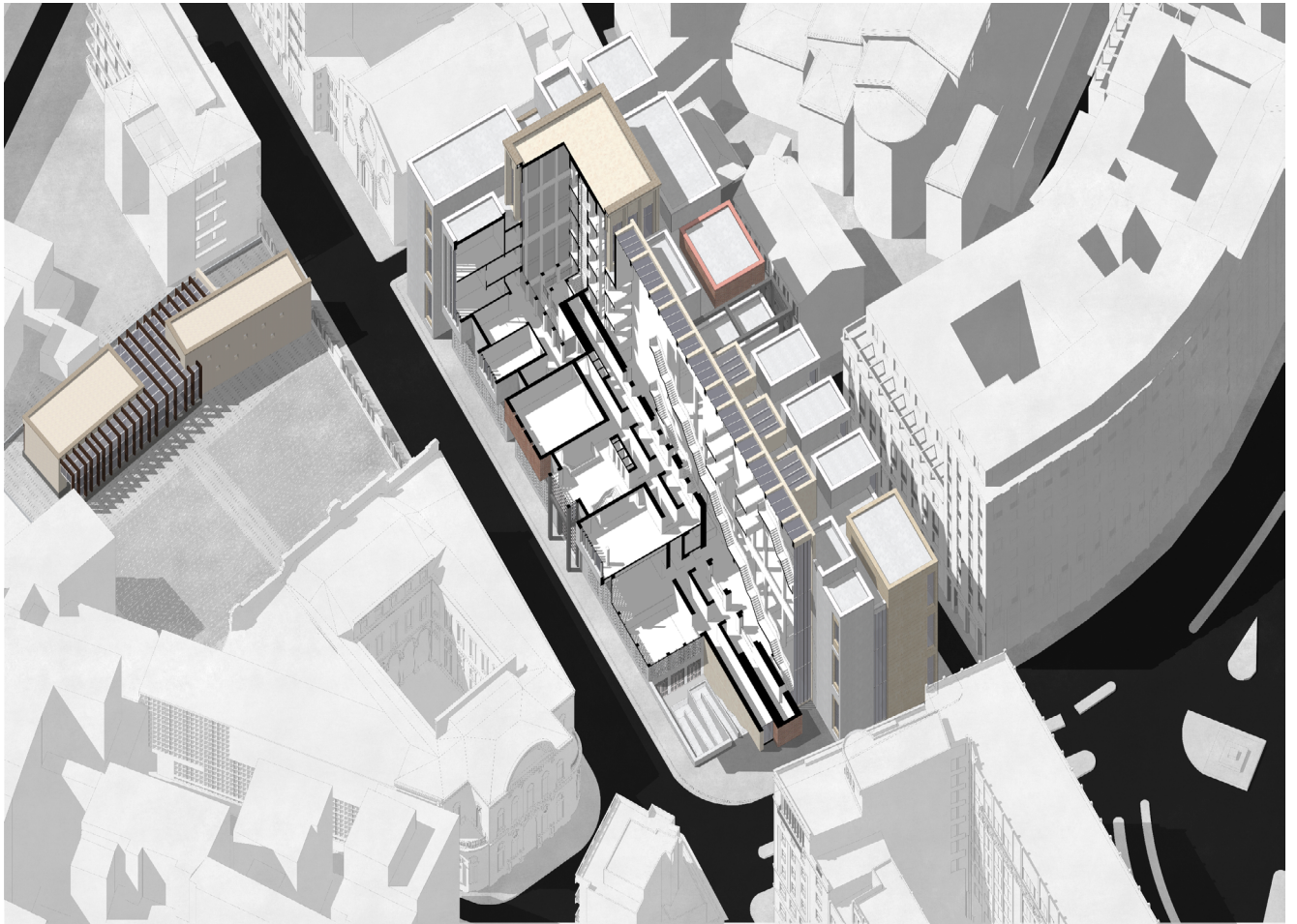
Fig. 40 – Axonometric Section.

Facades

As it was mentioned before the volumes are created according to urban fabric of project area.

Outside the building is characterized by a composition of volumes that have different heights and configurations, following the distribution of the inner space, which become easily recognizable even outside, where each space is characterized by its exclusive identity. Following this idea, the choice of materials with which the building is made was also important.

Before working on facades another research was done, analyzing the building facades of well – know architects (examples on figure.) and most important the Milanese facades.

Fig. 41 – City library in Heidenheim by Max Dudler.

WEST ELEVATION
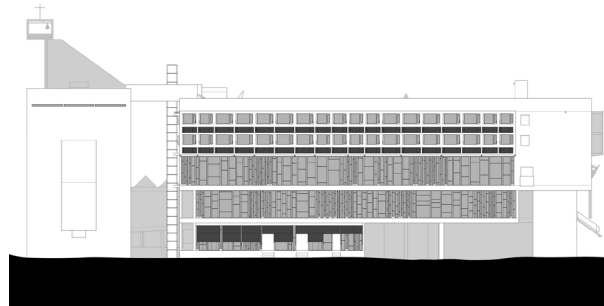
Fig. 42 – Convent of La Tourette by Le Corbuiser.

Fig. 43 – Stadhalle Reutlingen by Max Dudler.

Projected library facade walls mostly made from exposed concrete, with combination of red bricks. The main courtyard tower and some walls colored with paint, same as the color of Palazzo Sormani. The vertical connection system, which located in the middle of project identified with glass curtain wall and metal beams and columns. In the project also used glass, and in some parts was inserted candoglia marble, the traditional type of marble that used in Milan.
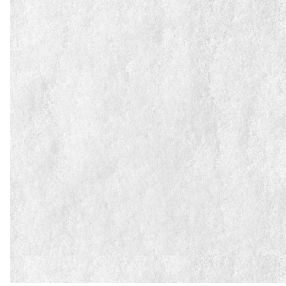
Fig. 44 – Exposed concrete.
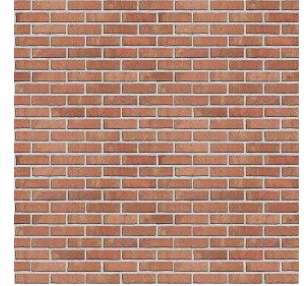
Fig. 45 – Red bricks.

Fig. 46 – Paint.

Fig. 47 – Candoglia marble.
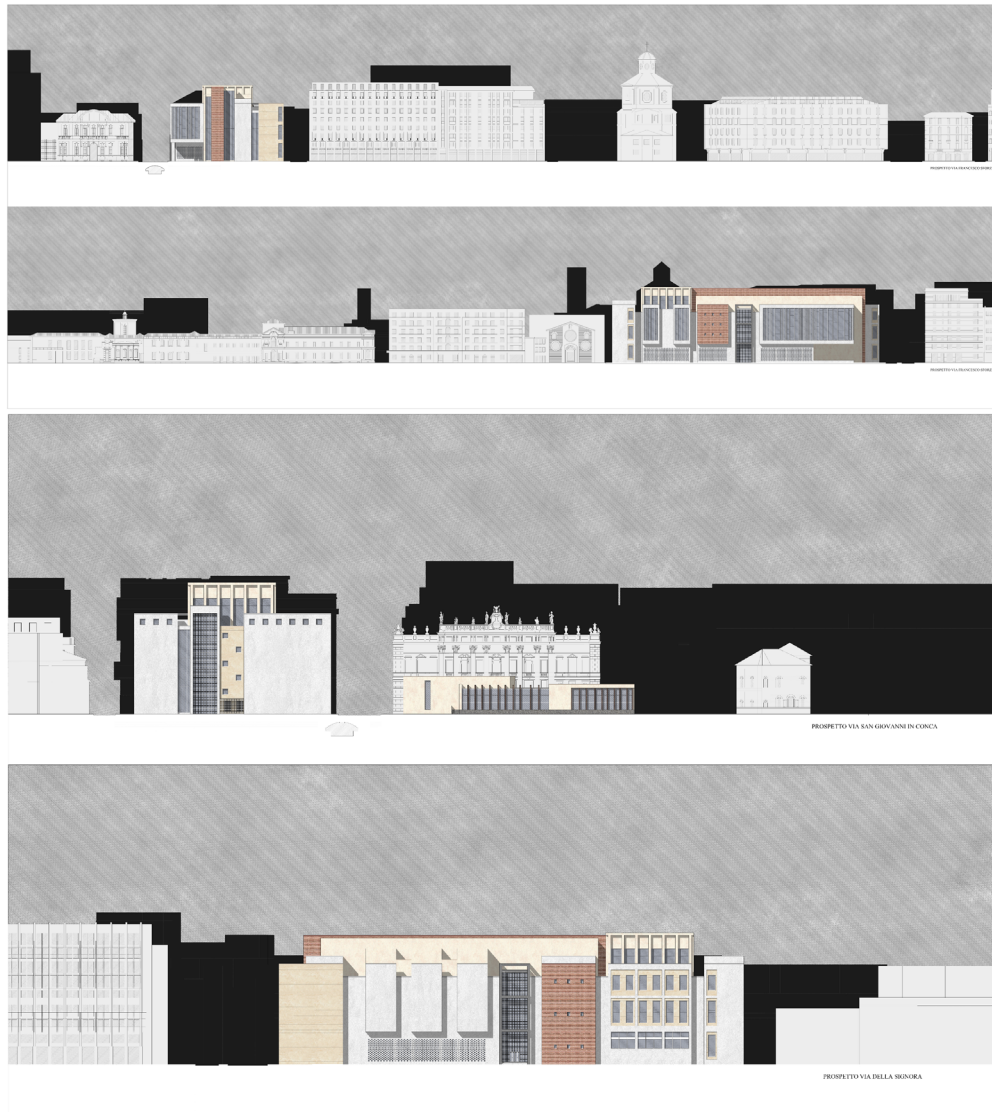
Fig. 48 – Facades of the library project.

The pavilion

The goal was to create a non-physical connection between the Palazzo Sormani, it's garden and the new library project. Thus, the pavilion was created considering main following requirements. The Palazzo Sormani, the new library and the neighborhood buildings were the main references which dictated the volume of the pavilion, on its plan and height. Garden is an important part of Palazzo Sormani and the task was to preserve it and don't changed it totally. Keeping its function and green zone a small-scale pavilion was proposed as a design which has the direct connection to the facade of Palazzo Sormani.

At the beginning of the design process main axes were defined. Which were axes from Pallazzo Sormani building and site axes according to the buildings behind it.

The main point of composition was by overlapping these two axes, create two boxes, which one of them will be a solid close volume, while the other one will be lighter volume with glass and wooden beams, which rhythm is following same axes of inner facade of Pa¬lazzo Sormani. which facing to the garden. By composing two contrasting spaces, visitors of garden can experience different ideas of the space.

Fig. 49 – Analysis of axes in the project area of the pavilion.

Fig. 50 – Facades and sections of the pavilion.

Panels of the Project
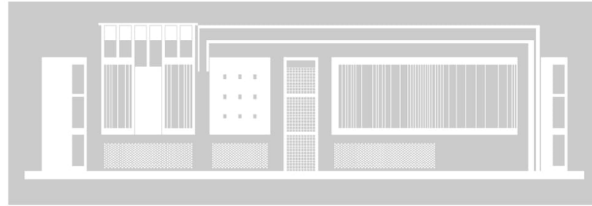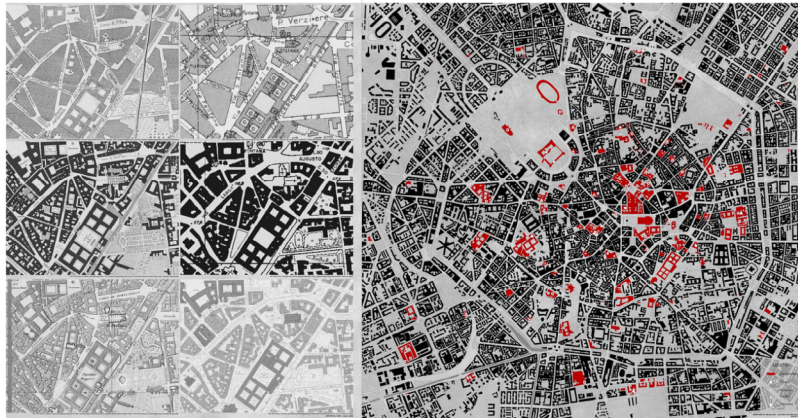
Historical Maps, Analysis of Project Area; Urban map of Milan, 2019, Cultural System Analysis.
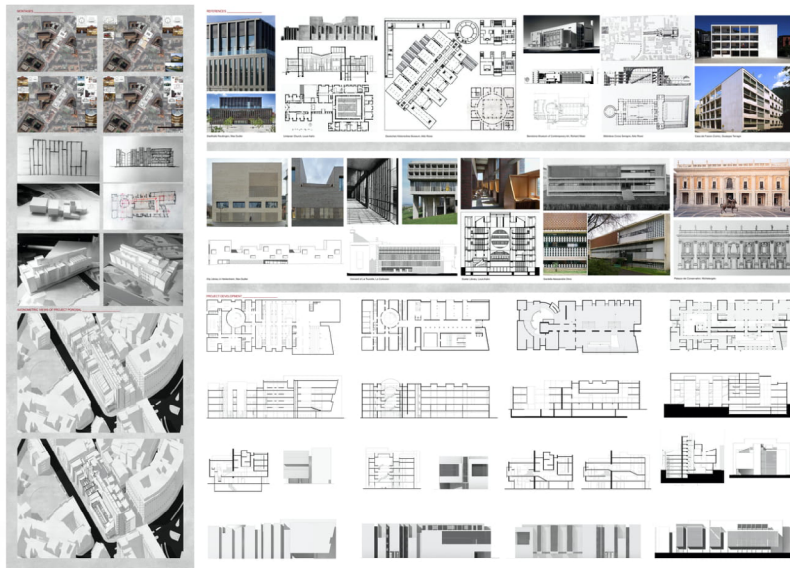
Design Strategy. The development of the project.
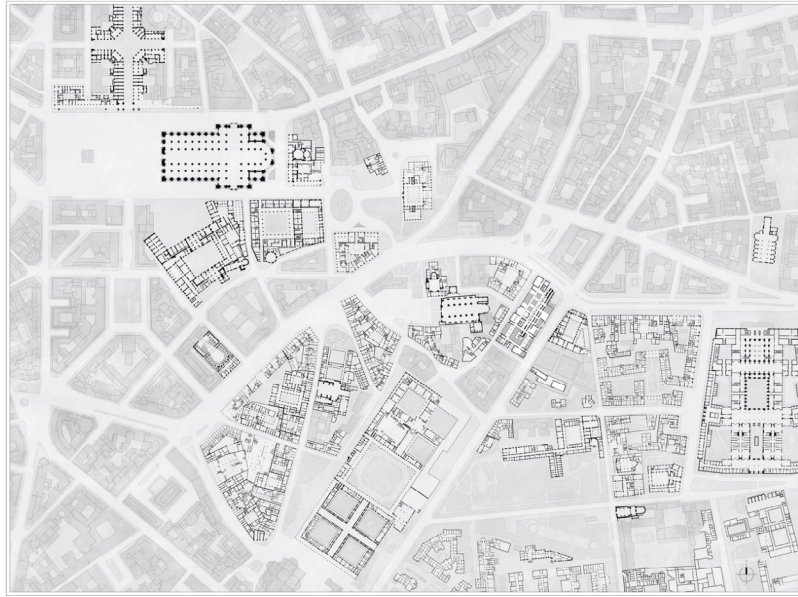
Project Typological Map. Scale 1:1000

Project Typological Map. Scale 1:500

Project Roof Plan. Scale 1:500

Minus Third Underground Floor Plan. Scale 1:200

Minus Second Underground Floor Plan. Scale 1:200

Underground Floor Plan. Scale 1:200

Ground Floor Plan. Scale 1:200

First Floor Plan. Scale 1:200

Second Floor Plan. Scale 1:200
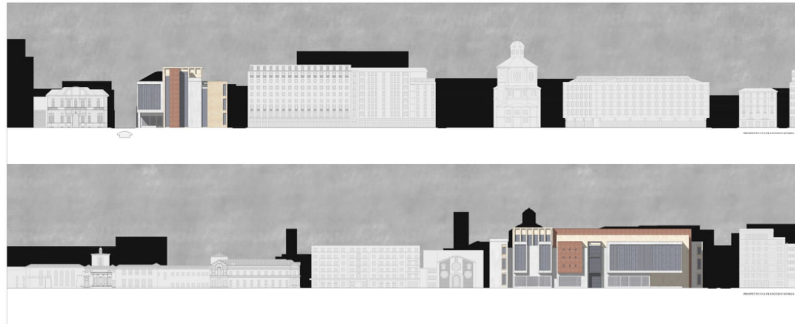
Facades by Via Larga and Via Francesco Sforza. Scale 1:200

Facades by Via S. Giovanni in Conca and Via della Signora. Scale 1:200

Long Sections. Scale 1:200

Long Sections. Scale 1:200
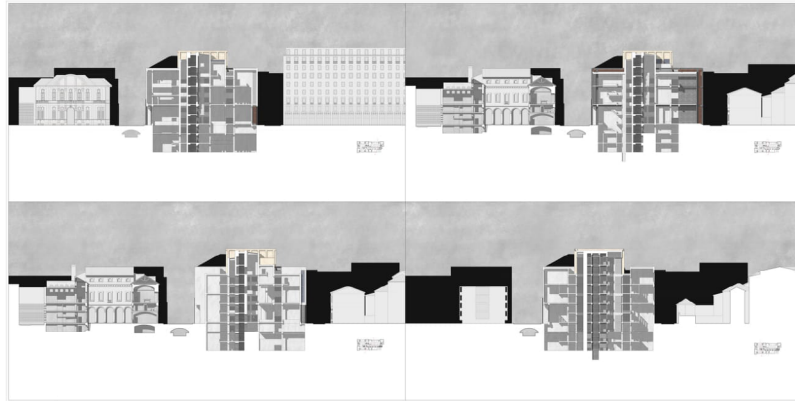
Cross Sections. Scale 1:200
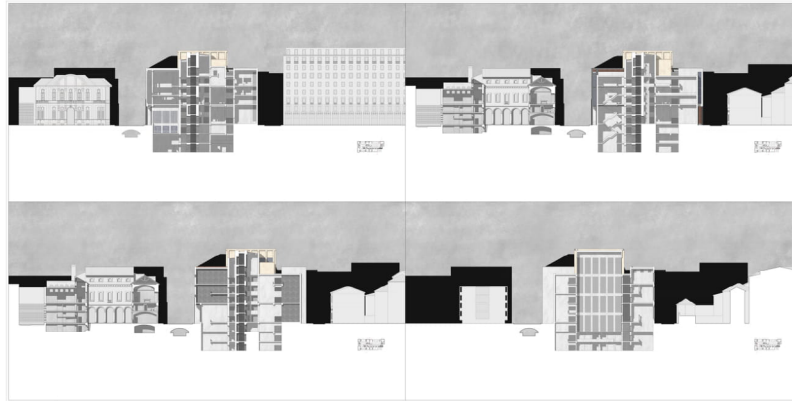
Cross Sections. Scale 1:200

Facades and Sections of the Pavilion. Scale 1:200
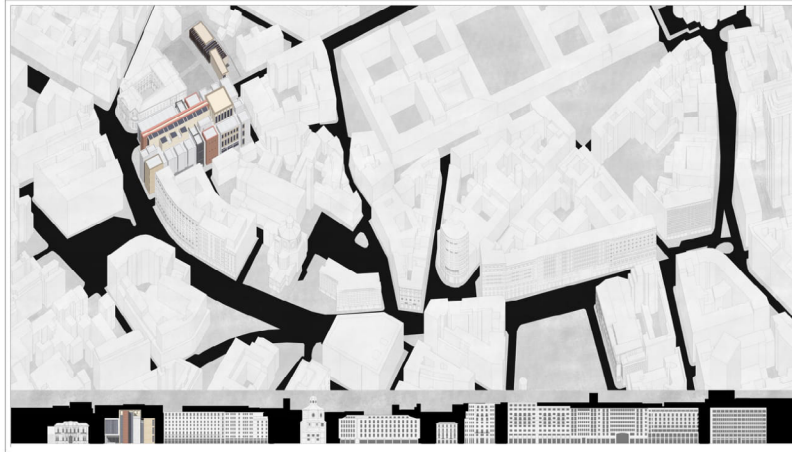
Axonometric View and Facade by Via Larga. Scale 1:500
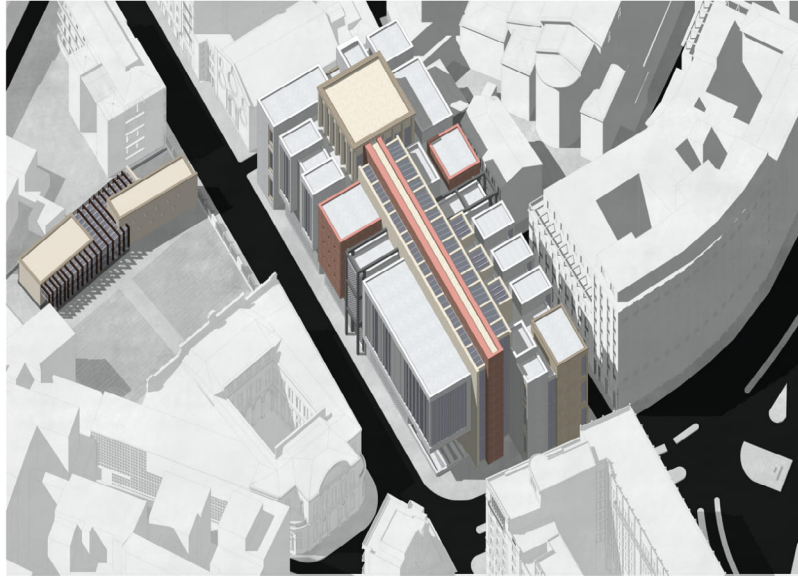
Axonometric View. Scale 1:200
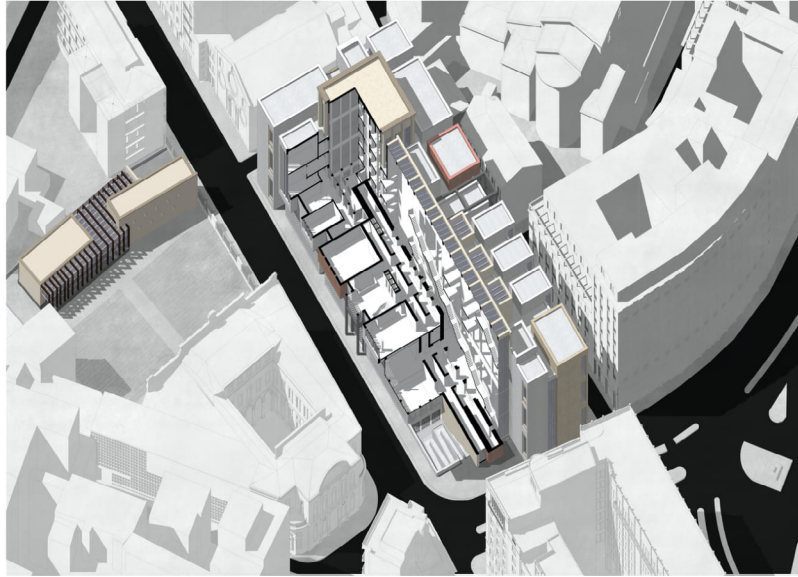
Axonometric Section. Scale 1:200
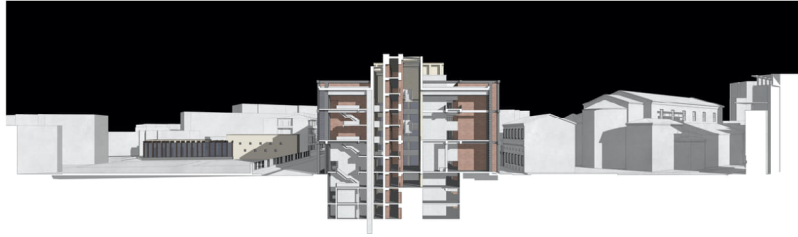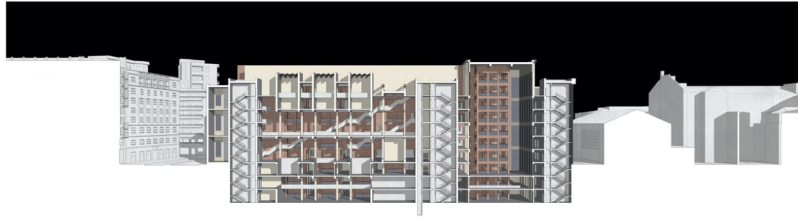
Cross and Long Perspective Sections. Scale 1:200

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