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Nuovo Mercato Marina in Messina: for a valorization of the design thinking through the analysis and the digital representation

Full of history and identity, the architectural archives define themselves as privileged narrators of a construction process that exists or never existed, invaluable testimonies of the interactions and mixtures that have taken place between architecture, culture and society. The project for the Nuovo Mercato Marina in Messina, probably dating back to 1919, is part of the highly valuable archival collections, described in the cartouches by plans and perspective views, capable of celebrating the new Messina waterfront signed by Luigi Borzi, Santi Buscema and Rutilio Ceccolini.

The project is part of a post-earthquake revitalization program, consisting of new key relationships, through which hierarchies and shared architectural languages are established, through the creation of spaces for social interaction and cultural value. Despite the importance of the discovery, it is not possible to fully understand

the design intent, as the documentation received today lacks elevations and sections useful for slavishly reconstructing the two-dimensional and three-dimensional drawings.

For the design and digital reconstruction, reference was made not only to the documentation in possession, but also to the tastes, symmetries and modules of the architecture designed in the area of the Messina port curtain wall. The analysis to understand the volumes, heights, and modules involved, more specifically, the analysis of the Palazzata building, the Banca d'Italia and the Piano Regolatore Generale designed by Luigi Borzi. These analyses provided a precise spatial image of the urban context in which the project was to be built.

The product is a digital model susceptible to formal interpretations, in any case useful for communicating the project of the Nuovo Mercato Marina in a more accessible way.

Keywords:
Historical archive; Luigi Borzi; Nuovo Mercato Marina; analysis; digital reconstruction

ARCHITECTURE ARCHIVES: BETWEEN PAST AND PRESENT

Architectural archives define themselves as privileged narrators of an existing or never-existing construction process, witnesses of interactions and mixtures between architecture, context and society. In fact, they do not only represent the design element, but they tell the social contexts, styles, artistic-architectural influences that led the designer to define certain lines and forms.

The promotion of architectural archives is therefore defined as a fundamental action, for an increasingly accessible knowledge for every type of user, exponentially multiplying the possible dissemination of the same to an increasingly wider audience. It is in fact from the 1980s that architectural archives, until then preserved in places difficult to access without specific permits, have been given attention, defining a new paradigm of dissemination and knowledge. Thus, specific centers dedicated to the recognition of archival material were born, duly catalogued and filed, although not definitively avoiding the fragmentation and dispersion of data (Tonicello, 2014). In addition to fragmentation, the vulnerability of archives is also reinforced by their incompleteness, as they are collectors of fragments of memory, awaiting their recognition as examples of the succession of architectural history over time (Albisinni, De Carlo, 2011).

The enhancement of archives has seen in recent years a succession of increasingly innovative dynamics and processes aimed at the use of archival heritage in a more accessible way. In order to overcome the gap between 'silent' archives and cultural offerings, we can therefore use digital, a valid tool for the connection between hard sciences and soft sciences, through which to give shape and disseminate knowledge of archival sources.

Digitalization becomes, in fact, a preparatory act for the connection of knowledge, in order to improve accessibility, communication and understanding, crucial actions in the context of the different topics relating to the main regional and national programs, among which we recall the 2030 Agenda and the main ERC sectors. In line with these

programs, digitization becomes the basic process through which to make accessible projects relating to existing or never-realized architecture, starting from archive documents.

THE RECONSTRUCTION OF MESSINA: PLANNING AND NEW REGULATIONS

Reconstructing the thought behind a project that never existed means investigating the ways of living, the geometries and modular definitions that characterize the landscape of a place, as well as the architectural production of the designer. To understand the spaces of the Nuovo Mercato Marina in Messina, we therefore refer to the architecture and urban structures that distinguish or have distinguished this urban scenography of fine architectural value.

During the Renaissance, the facade of the city of Messina changed face. Numerous architects were commissioned to "give dignity and decorum to the neighborhoods where the management functions are gathered, to give a more elegant and sumptuous facade to the representative tasks and to create a more rational distribution of economic functions" (Gigante, 1980, p. 52). It is in this climate of prosperity that Messina sees the construction of one of the most impressive and economically prestigious factories: this is the case of the most iconic architectural complex of the port curtain, the Palazzata, destroyed and rebuilt several times, at the time generating a colossal scenographic backdrop for those coming from the sea. The Palazzata, built between 1622 and 1625 based on a design by Simone Gulli, consisted of a curtain of buildings twenty meters high and over a kilometer long, accompanied by the design of imposing road axes useful for sorting the flows towards a specific cultural and social destination. The rebirth projects were however cut short on the tragic evening of December 28, 1908, when the city was razed to the ground. It was Giolitti who on 15 January 1909 appointed a Royal Commission with the task of designating the "most suitable areas for the reconstruction of the settlements hit by the earthquake of 1908 and earlier", which designated

that the reconstruction should take place in the same area and "in the immediate vicinity of the port" (Guidini, 1910, p. 24).

The same spatial rules, together with the proximity to the port, are used for the project of the Banca d'Italia, built between the 19th and 20th century, almost in the same period as the Palazzata, already included in the new Master Plan for the city of Messina, just destroyed by the earthquake.

The first proposed intervention was, in fact, the drafting of the Master Plan, in line with the new anti-seismic and hygiene regulations, decisive for the reconstruction of the entire urban and architectural system of the city. The Royal Decree of 18 April 1909 n. 193 defines two main criteria: "Art. 22 paragraph a) the streets must have a width of no less than ten meters; [...] paragraph b) the facing houses, [...] must not have a height greater than the width of the street minus 3.50 meters" (Campione, 1988). It is the engineer Luigi Borzi – former municipal technician at the Civil Engineering Department and survivor of December 28 – who is given the task of drafting the Messina Master Plan, the theoretical and practical basis of the entire urban and architectural layout of the city.

LUIGI BORZI'S WORK: BETWEEN MODULARITY AND RATIONALISM

Luigi Borzi, Chief Engineer of the Technical Office of the Municipality of Messina, precisely defines and designs the architectural and urban history of a city almost completely razed to the ground by the earthquake that occurred on December 28, 1908 in Messina. In 1909 he was entrusted with the development of the new Master Plan for the city, completed on December 9, 1909 and accepted by the Superior Council of Public Works on March 20, 1910 (Di Leo, Lo Curzio, 1985).

The criteria on which the Plan for the reconstruction of Messina is based find strong links with the 'new' urban planning of the 20th century, following the growth of the city population and the desire to trace new rational and orderly urban lines, in line with the new standards for the healthiness and decorum of the urban space.

The project in fact envisages the complete redesign of the ancient routes defined by the old urban fabric, through the superposition of a regular geometric grid, building a system of regulations and parameters on which to base the architecture and the planimetric system of the city.

The Borzi Plan therefore becomes the result of the application of Basile's teachings in the Palermo context, characterized by a 'modular' plan for blocks. On the basis of architectural ausetism (Basile, 1870), that is to say the theory of architectural composition through the additive and subtractive use of volumes, the construction of a new organic urban growth is defined (Mercadante, 2009): pure geometries marked by regular and well-calibrated structural steps. The formal inspiration also comes from the treatise on 'the Modern City' of 1889 by Camillo Sitte, increasing the number of green areas in the city.

On a structural level, the expansion of the urban area towards the north and south was planned, mainly along the city streams, limiting the heights of the buildings and widening the streets, with a ratio between covered area and free area of 40%. In confirmation of these prescriptions, the Palazzata building, now destroyed by the earthquake, was re-designed by halving its relative height and width: it must therefore be monumental, even if it does not have monumental dimensions (Marconi, 1931). The winners for this project will be the architects Camillo Autore, Raffaele Leone, Giuseppe Samonà and Guido Viola, thanks to the "spirit of sober and rhythmic monumentality, and the general architectural criterion informed by a happier fusion of modernity of spirit with traditional Italianity of forms, based on an alternation of vertical parts with horizontal parts very happily found to avoid the dangers of monotony along the front" (Cardullo, 1993, p. 32).

The graphic language of the Master Plan for the city of Messina becomes the communication tool for the architectures in which pure geometries and serial units of measurement constitute a codified expression of the form (fig. 1), on which to identify functions and dimensions. The Borzi Plan, in fact, is still characterized today by insulae intersecting at right angles, defining a Modernist architectural language, nourished by methods and standards of architecture

that have not particularly changed over time. It is on the basis of a 'new' Messina of Rationalist taste that the research lays its foundations, in the study and analysis of the architecture and urban fabric of the city, by Luigi Borzi and subsequent urban planners and architects who followed the Borzinian imprint, through which to propose a double-track analysis process, useful for reconstructing the modules and symmetry relationships that governed the rationalist architecture of Messina. The ultimate goal is to bring to life a project rediscovered in 2021, which is not fully appreciable today due to the lack of sufficient archive material to understand the elevated spaces.

THE BANCA D'ITALIA IN MESSINA: FOR AN UNDERSTANDING OF ARCHITECTURAL MODULARITY

Between the late 19th and early 20th centuries, around the same time as the Palazzata, the Banca

d'Italia established itself in Messina, located between Via Garibaldi and Via San Giacomo. Following the 1908 earthquake, its building was quickly demolished, as it was no longer statically viable and had suffered severe structural damage.

The space identified corresponded to the new expansion zone of the Mosella, a hub of major road and rail arteries, of particular prestige and potential for commercial buildings (Mastrangelo, 1991). As with the Palazzata, and consequently with the Mercato Nuovo project, the Banca d'Italia project had to comply with the guidelines set out in the new master plan, requiring the necessary and preliminary definition of urban planning tools (Scibilia, Sutura, 2019).

In drafting the new master plan, Luigi Borzi identified the organization of the façades within a rigid geometric and compositional structure of the perspective schemes as the primary focus. The



Fig. 1. Analysis of the new Master Plan of Messina, designed by Luigi Borzi. Elaboration by the author.

modular motif is repeated throughout the architecture, with a specific rhythm and architectural order (Palazzolo, 2010). The buildings as a whole are thus conceived as a homogeneous and coherent system, characterized by equal heights and architectural orders, punctuated by highly plastic elements (fig. 2).

After Borzi's death, the project was continued by Santi Buscema, who modified only the elevation of the structure, due to the height of the blocks, from 10 meters to 11.50 meters. The Banca d'Italia building is distinguished by an architectural composition rigorously punctuated by geometric and extremely proportional modules, reflecting the ideals of order, functionality, and monumentality typical of the era. The rhythm is punctuated by pilasters and Ionic half-columns, conveying a sense of controlled verticality and visual continuity.

Each module comprises an architectural unit composed of three openings marked by rectangular windows, the highest of which is halfway up the module compared to the first two, all framed by repeated classical elements. This regular pattern, in addition to ensuring compositional harmony, favors a unified reading of the building, despite its considerable size.

The modular approach is maintained for the internal structural distribution, with a symmetrical division of the load-bearing spaces and a regular distribution of the pillars, complying with the new anti-seismic regulations introduced after the 1908 earthquake. The use of regular construction modules responded not only to aesthetic requirements, but also to a specific technical objective: to facilitate serial construction, ensure the stability of the building, and reduce construction times.

The building is thus an emblematic case of the consistent application of the principle of modularity, applied both in architectural and urban planning design, capable of synthesizing the values of functionality and representativeness, giving rise to an architecture that reflects the tensions and aspirations of early twentieth-century Messina.

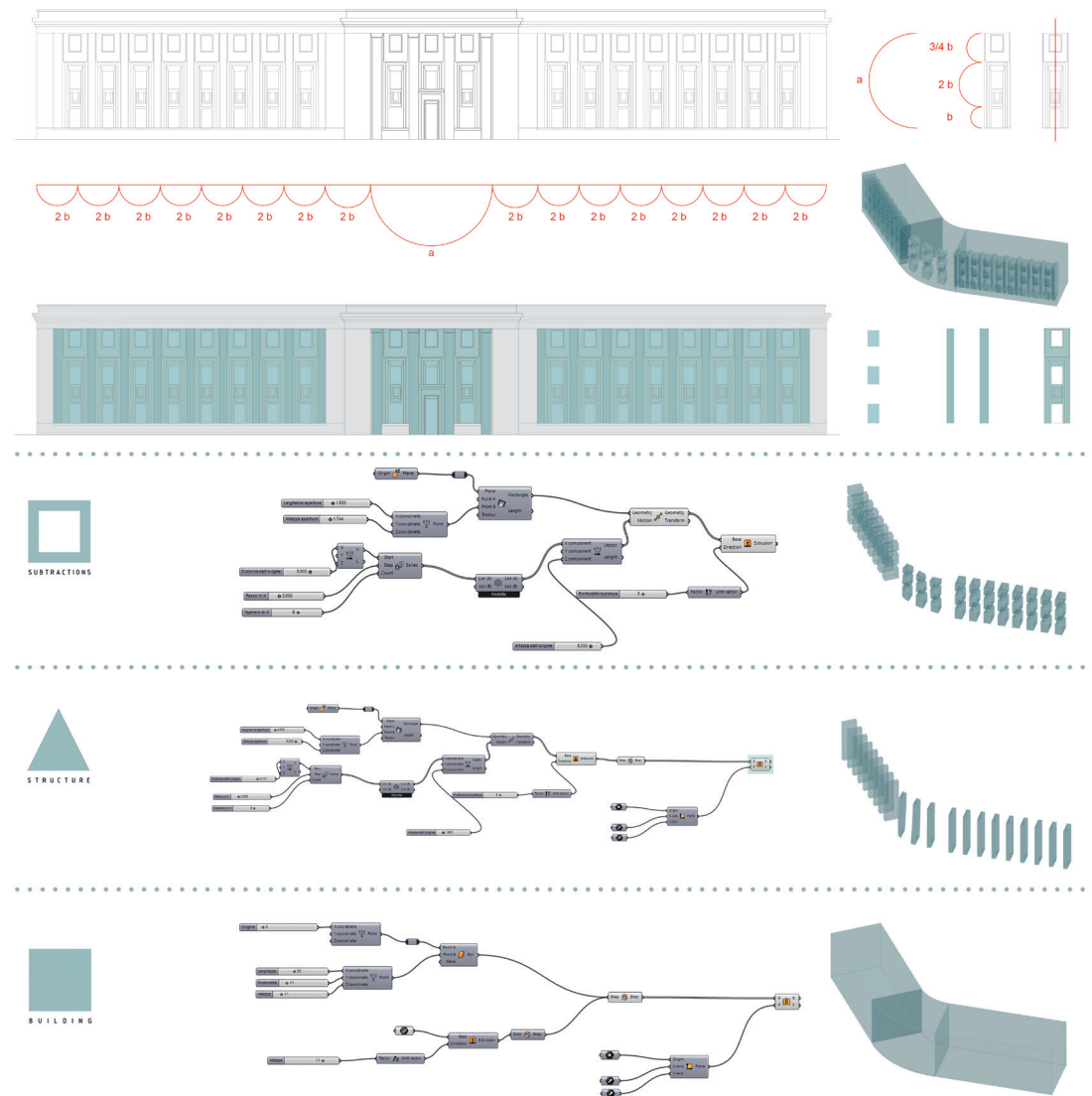


Fig. 2. The Banca d'Italia designed by Luigi Borzi and Santi Buscema: modules and decomposition. Elaboration by the author.

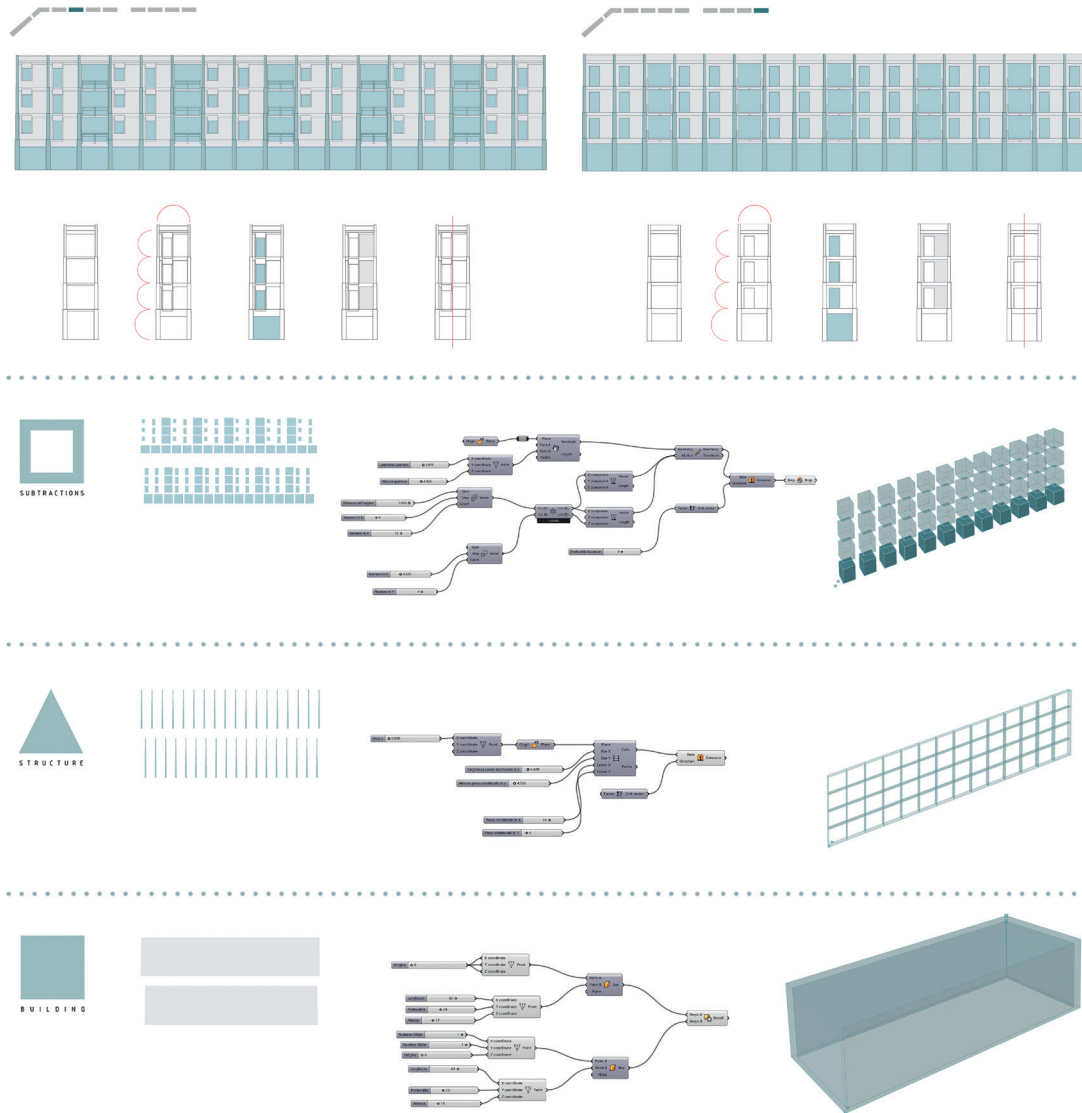


Fig. 3. Block VI and IX of the “Palazzata” building designed by architects Camillo Autore, Raffaele Leone, Giuseppe Samonà and Guido Viola: modules and decomposition. Elaboration by the author.

THE PORT CURTAIN IN MESSINA: STUDY AND ANALYSIS OF A LIQUID URBAN SPACE

The project for the new seafront, in the aftermath of the 1908 earthquake that destroyed the city, therefore fits into a period of great economic, social and urban planning fervor, at a time when political interests mix with regulations and indications for correct and safe construction. It is the perimeter of the seafront, more specifically the port, that is most at the center of debates and controversies, always the symbol and pride of the city. As mentioned, the main project that distinguishes this space is the Palazzata building, for which the engineer Borzi expressed the following opinion: “Its static conditions are deplorable; abandoned in this way it will represent a permanent danger. Its position regarding the altimetric of the new docks planned in the Piano Regolatore Portuale is such that its entire base should be buried up to about eighty centimetres above the stylobate, unless one wanted to build a wall around it to support the new docks, occupying part of their area. Also on the side of the square, the level of the new Garibaldi road, in order to allow the drainage of the rainwater towards the sea, must be raised, consequently the relative façade should be buried up to the plinth of the columns. Remaining in that place would obstruct the view of the main façade of the new building and would remain dissymmetrical to the new square” (Mercandante, 2009, pp. 108, 109).

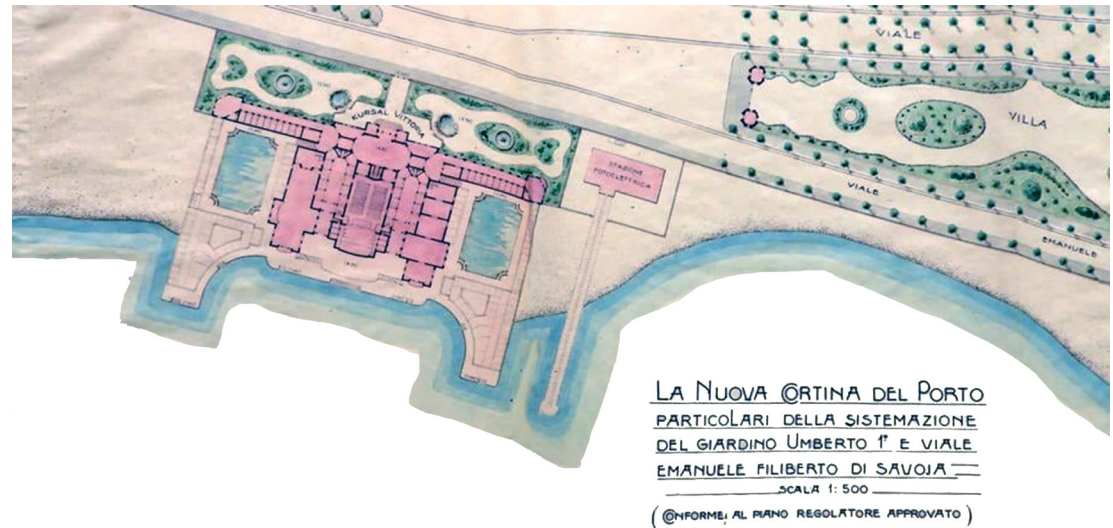
It is therefore evident that Borzi had clear and precise indications regarding the heights and geometries that would define the urban waterfront, for which a maximum height of about 10 meters was approved, later increased to 15, as demonstrated by the current project of the existing Palazzata (fig. 3), also characterized by pure geometries and specific modules and ratios.

The interest in a new seafront was such as to force Borzi to soften some rigid regulatory restrictions, drafting himself, in 1919, now dying, a project for the same area. The design idea, far from the ancient Palazzata, included the construction of commercial and residential buildings, no higher than 10 meters in elevation, characterized by two

floors and a long walk: a covered space on the ground floor and an uncovered one on the first, symmetrical with respect to the axis of the new Town Hall square, capable of increasing the representativeness of the latter, connecting it with the port and attenuating the exposure and opening to the sea. The executive plan of the sea front was set aside until 1930, when the competition for the design of the new Palazzata di Messina was announced.

The hypotheses for the arrangement of this space have, however, seen a revolution in recent years, thanks to the discovery of some maps and perspective sketches, now kept at the Historical Archives of the Municipality of Messina. The material, most likely dating back to 1919, includes plans and perspective views of the new Messina waterfront signed by Luigi Borzi, the engineer Santi Buscema, his collaborator, and the famous architect Rutilio Ceccolini. The project is part of a rebirth program, in line with those that have been realized and not in the vicinity of the port curtain. The planimetric system developed by Borzi is presented at a scale of representation that is not adequate for understanding the architectural details, even though the openings, entrances, stairwells and external arrangement can be clearly seen.

Despite the importance of the documents – evidence of a design intent aimed at creating a unity of the sea front, with a purely rationalist taste, functional to trade and commerce – they do not appear to be sufficient to understand the design of an architecture that was never built, as it lacks elevations and sections useful for the construction of a three-dimensional model sufficiently coherent with the architect's original design thought. For the construction of the digital model, useful for giving the community a 'design knowledge' as coherent as possible with Borzi's project, reference was made not only to the documentation in possession, but also to the tastes, symmetries and modules of the architecture designed in the area of the Messina port curtain, as they are particularly coherent with the design documents found, as well as to the prescriptions reported by Borzi himself.



PROGETTO DEL NUOVO MERCATO MARINA
VEDUTA PROSPETTICA

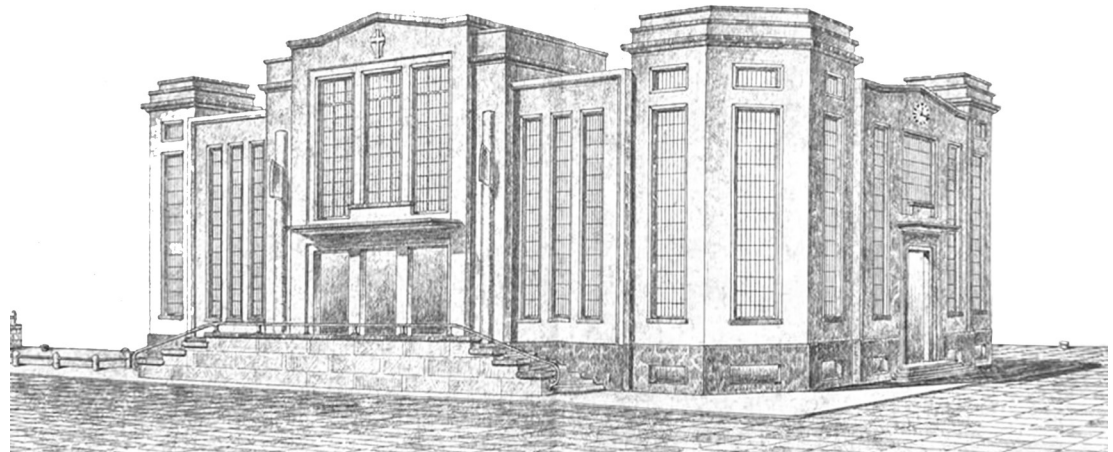


Fig. 4. Luigi Borzi, La Nuova Cortina del Porto project. Historical Archives of the Municipality of Messina.

Fig. 5. Luigi Borzi, Nuovo Mercato Marina project: partial perspective view. Historical Archives of the Municipality of Messina.

NUOVO MERCATO MARINA PROJECT IN MESSINA: DIGITAL VISUALIZATIONS FOR THE VALORIZATION OF ARCHIVE FINDS

The same relationships and proportions presented for the Palazzata and Banca d'Italia projects can therefore be transposed into the analysis and understanding of the never-realised project for the Nuovo Mercato Marina in Messina, by Luigi Borzi [1]. Having defined the importance of the projects realized and not proposed within the port area of the city of Messina, we intend to propose below a critical reading of the archival documents found, today difficult to communicate to a non-expert public and not entirely complete for an expert public. The process of design and virtual reconstruction of the Nuovo Mercato Marina in Messina, places its foundations in the now established cognitive and interpretative model most commonly applied for non-existent architecture [2]. The bibliographic and archival research (figs. 4, 5), as well as the analysis of the documentary sources have been configured as the theoretical basis for the reconstruction of a design thought that is not appreciable today, as it lacks some documents necessary for a complete reading of the project.

The drawings are in ink on glossy paper, codified by the use of colors capable of structuring a graphic hierarchy of the representation. The plan, in scale 1:500, is presented without particular urban references, specifically related to the new green areas of the project. The design is linear and essential, in which the modularity and architectural symmetry clearly stand out, used as a monumental and monolithic element for the enhancement of the sea front. The external space has in fact a level of detail and care equal to the architectural element, capable of building and highlighting a new relationship and harmony between the open space and the architecture.

The first analysis concerns the location of the project itself, as there is currently no critical report that helps the reading of the documentation. Borzi places the project near Viale Emanuele Filiberto di Savoia, a fact that is not sufficiently clarifying due to the length of the same road, as well as due

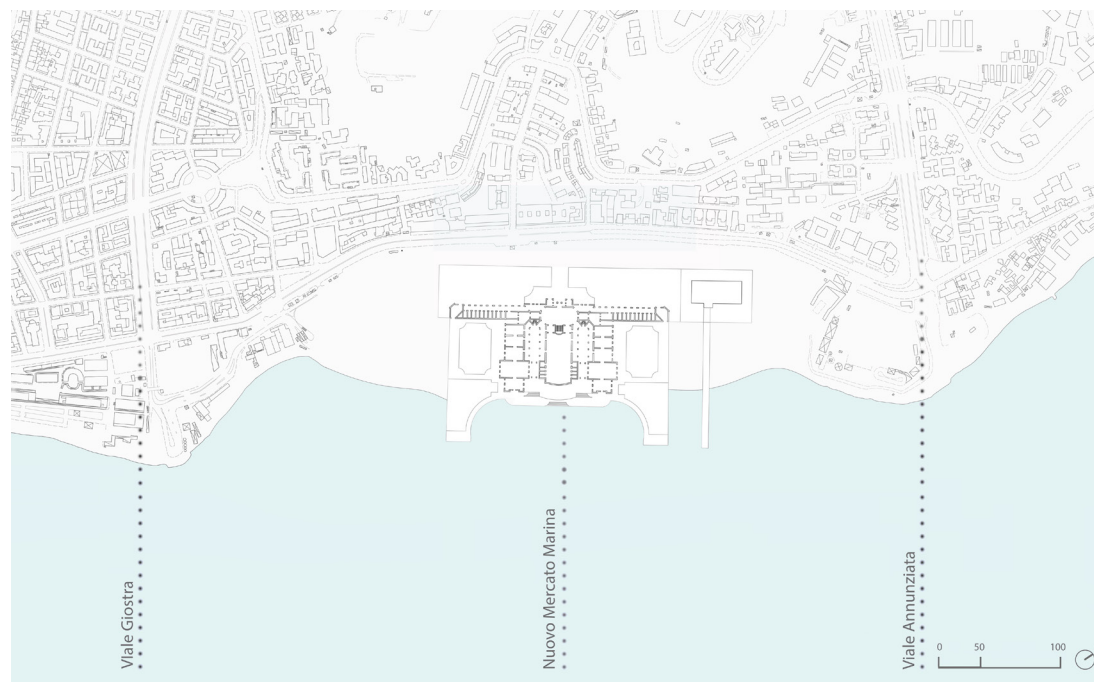


Fig. 6. Nuovo Mercato Marina by Luigi Borzi: study and analysis of elevation ratios. Elaboration by the author.

to the planimetric representation, not framing the surrounding city. Starting from the known data, a study was carried out regarding the trend of the represented coastline, as well as the road axes and the presence of rivers, in line with Borzi's design *modus operandi*. This analysis allowed us to place the project between the rivers of Viale Giostra and Viale Annunziata (fig. 6), by virtue of the orography of the territory and the port spaces, which are incompatible if considered in the space of the port curtain wall and the Palazzata.

The second aspect regarding the reconstruction of the design intent undoubtedly concerns the relationships with the elevation, defined solely by a perspective drawing of a part of the project. To reconstruct the volumes, we used the Visual Programming Language, through which we related the dimensions in the plan to those of the eleva-

tion (fig. 7) [3]. The planimetric construction was in fact configured as fundamental to understanding the structuring of the spaces, on two levels or full height, and the relationships with the ground connection, by virtue of the imposing stairways placed outside the project and at its entrances. It is precisely the entrances that markedly define the design aesthetics, consisting of volumetric subtractions, capable of giving grandeur and a specific volumetric hierarchy at a perceptive level. If for the pitch of the large windows we referred to the volumetric system, for the construction of the height of the volumes and the openings themselves we compared what was reported in the documentation drawn up by the engineer Borzi for the structuring of the Messina Master Plan. In fact, he envisaged a homogeneous structure, with elevations proportionate to the main central

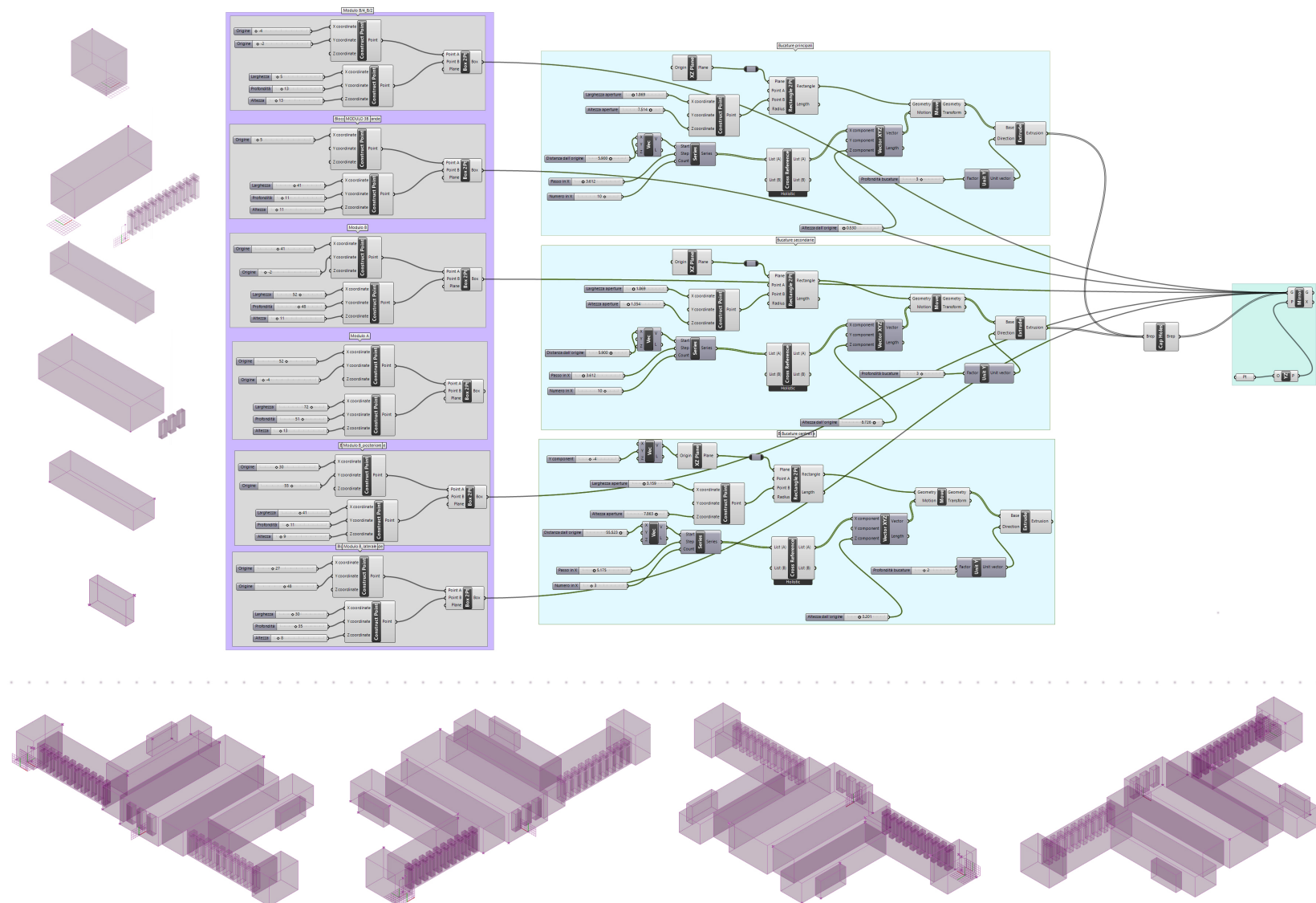


Fig. 7. Nuovo Mercato Marina by Luigi Borzi: study and analysis of volumes. Elaboration by the author.

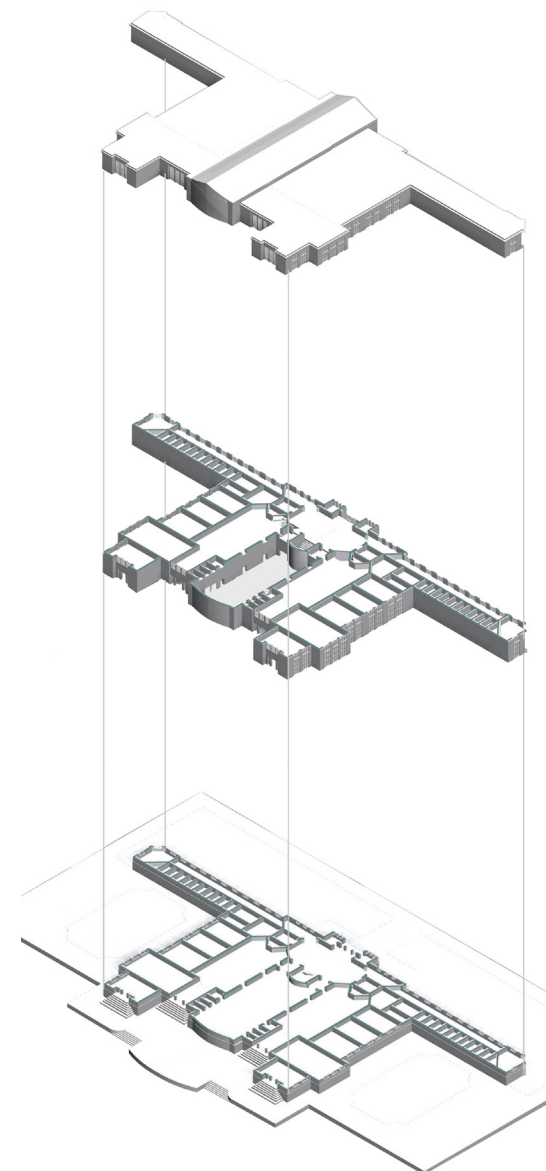
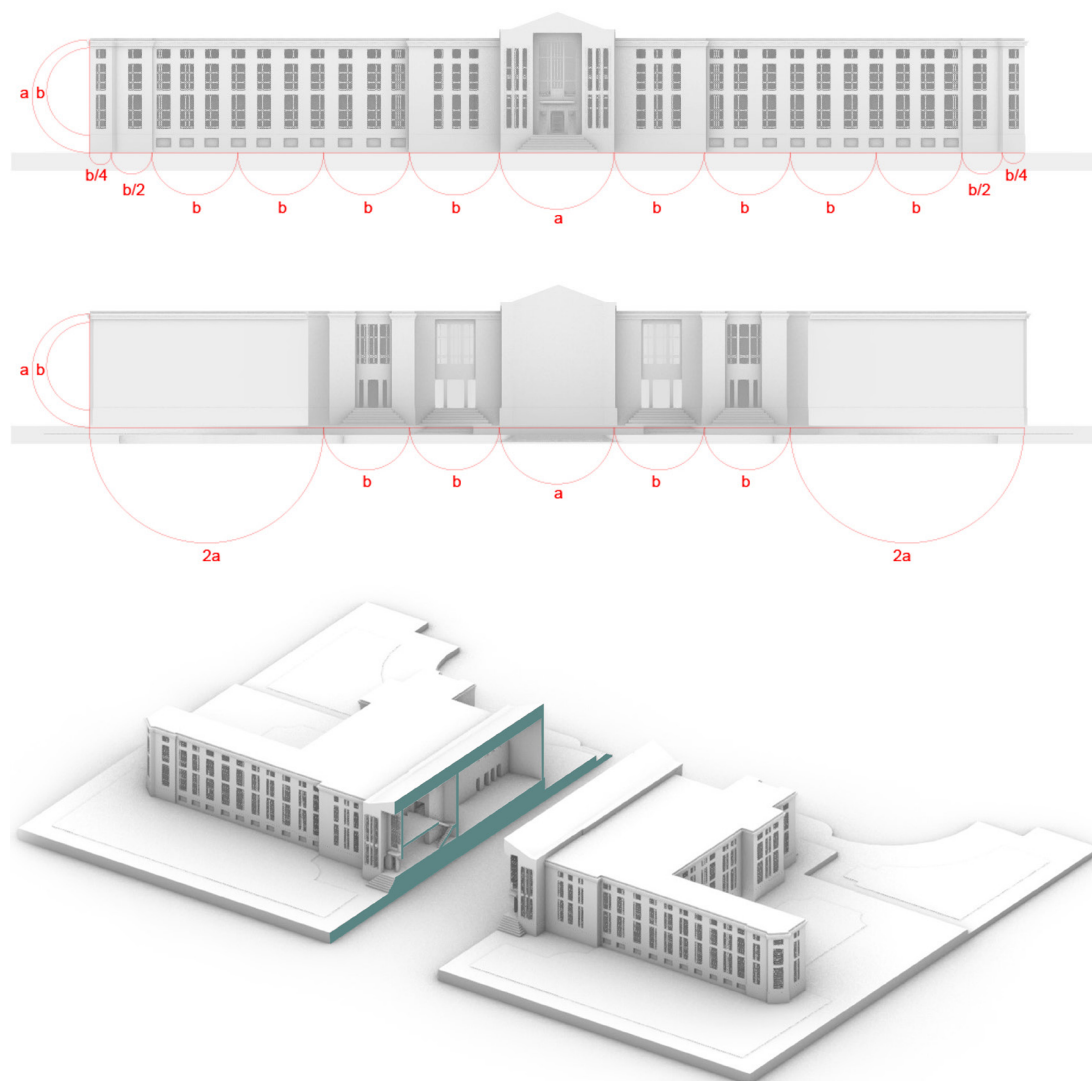


Fig. 8. Nuovo Mercato Marina by Luigi Borzi: study and analysis of elevation ratios. Elaboration by the author.

Fig. 9. Nuovo Mercato Marina by Luigi Borzi: digital reconstruction. Nuovo Mercato Marina by Luigi Borzi: digital reconstruction. Elaboration by the author.

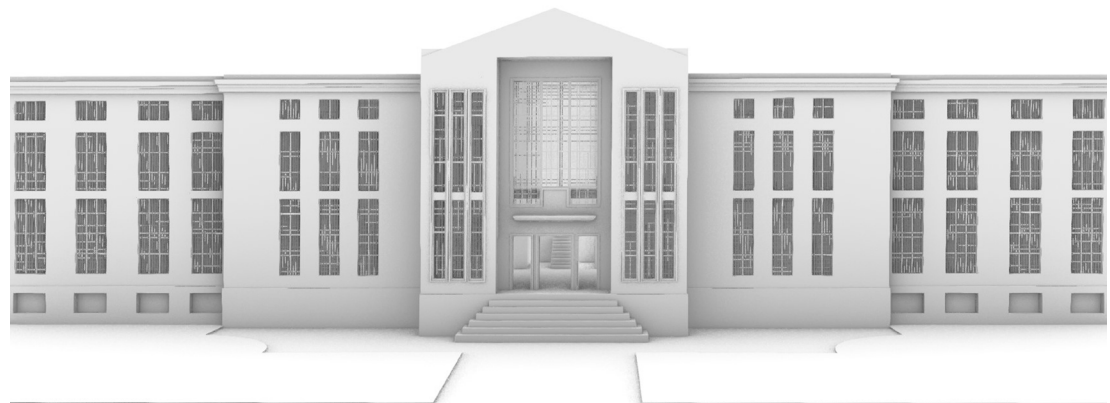
Fig. 10. Nuovo Mercato Marina by Luigi Borzi: digital reconstruction. Elaboration by the author.

space, present in many courtyard blocks designed for the Mosella district (Riccobono et al., 1988), foreseen within the new Master Plan. The analysis demonstrated a perfect relationship between the central space and the elevation (fig. 8), with a height of ten metres, in line with the requirements reported by Borzi for the design of the entire planimetric system of the city and of the Palazzata, the only possible construction susceptible to possible greater soaring. The volumetric analysis and understanding has made it possible to build a digital model (figs. 9-12) certainly susceptible to formal interpretations, useful for communicating in a more accessible way incomplete projects, otherwise unknown and difficult to visualize in their spatiality.

The spatial reconstruction makes it possible to define immersive environments useful for strengthening the attractive link between the cultural asset and the user, without losing sight of the scientific nature of the method. The use of the digital model is in fact accompanied by the planimetric section of the architecture, consistent with the archival documents, for a mediation between 'cultural entertainment' and scientific-archival dissemination.

CONCLUSIONS

The digital reconstruction of the architectural apparatus and the relative external appurtenances of the Nuovo Mercato Marina by Luigi Borzi for the city of Messina confirms and validates the now consolidated process regarding the understanding and valorization of the archive material relating to architectures never realized. The bibliographical and archival research, as well as the analysis of the documentary sources not expressly pertaining to the building, as the latter totally lacking in supports to accompany what is shown, have proved fundamental for a possible understanding of the design idea. In this context, digital offers itself as a powerful tool for the communication and valorization of the archival heritage, through which to visualize new scenarios, increasing accessibility and fruition.



Figs. 11, 12. Nuovo Mercato Marina by Luigi Borzi: digital reconstruction. Elaborations by the author.

NOTES

[1] The documents underlying the project, along with a significant collection of documents, were discovered by Councilor for Culture, Enzo Caruso. The correspondence is now held in the Historical Archives of the Municipality of Messina, located in the Palacultura, where other important collections can be consulted, including the design for Palazzo Zanca and the documentation relating to the Master Plan drawn up by Borzi. The correspondence discovered in 2021 consists of a set of previously unpublished architectural projects, dating between 1918 and 1935, relating to buildings and public spaces that were never built but are of notable formal and artistic value. The entire corpus, examined in collaboration with architect Nino Principato and Antonio Calabrese, a volunteer archivist, includes drawings, hand-colored plates, period magazines, and photographs of wooden models relating to segments of the Palazzata and the Cortina del Porto, works designed as part of the post-earthquake reconstruction but never built. Inventoried by the staff of the Cannizzaro Municipal Library, the material was identified thanks to Councilor Caruso, who, during a reconnaissance activity, recognized the exceptional value of the correspondence among numerous disused folders. These documents most likely belonged to the original archive of the Municipal Technical Office, later shelved for conservation reasons.

[2] The process of preliminary analysis leading up to three-dimensional modeling for archival documents is now well established, albeit not without its challenges. Indeed, the documentary elements are often fragmented and

heterogeneous sources, necessitating a consistently personalized approach, based on ever-changing and/or innovative instruments and processes.

[3] The use of Visual Programming Language (VPL) was particularly suited to the Nuovo Mercato Marina project, as it was analyzed and theorized through the analysis of specific modules and relationships of existing buildings. This visual structuring process allows for the establishment of relationships and mathematical solutions with respect to the various essential geometries, enabling us to understand spatial connections and generate otherwise nonexistent graphic designs.

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