The Development of the Projects for Villetta Di Negro

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1 Introduction

This contribution analyses the current architecture, that of the past and which has never been built, of the park of Villetta Di Negro in Genoa (Italy) of which the Edoardo Chiossone Museum of Oriental Art is today the main building. However, the currently visible building has a characteristically complicated history, which dates back to the nineteenth century. The first project dates back to 1800 and was commissioned by the Marquis Giancarlo Di Negro to the architect Carlo Barabino (1768–1835) and was destroyed during the Second World War. The reconstruction was entrusted to the local architect Mario Labò who presented the first design idea in 1948 to later modify it in 1952. The current building dates back to 1971, during the period from the first idea to the completion there were several important variations to the project, the most important being that of 1955.

The history of the building was defined thanks the critical literature [1–3] and to the analysis of the archive material: the Fondo del Genio Civile dell'Archivio Generale Regione Liguria (AGRL) and the Archivio Progetti Comune di Genova (APCG).

We will conduct an analysis on the different design phases, using an immersive visualization mode such as Augmented or Virtual Reality, to emphasize the importance of a little-known architectural subject.

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2 Villa Di Negro

The park of Villetta Di Negro is located in the heart of the city of Genoa, originally it was a military bastion of the eighteenth-century walls. The person responsible for the transformation of this area was the Marquis Gian Carlo Di Negro (1769–1857) who, in 1802, bought it from the Municipality. The general structure of the Park is attributable to the English typology, where the paths are curvilinear, sinuous and immersed in an enthrallingly natural setting. The presence of scenically suggestive elements, such as caves and waterfalls, are aspects that characterize the entire park (Fig. 1).

Along with the planning of the park, the Marquis commissioned the Genoese architect Carlo Barabino, one of the most important figures of the period, to design a villa for him: Villa Di Negro [4]; however, it is a building which was conceived for events rather than as a home. According to the testimonies of Federigo Alizeri, taken from his Artistic guide for the city of Genoa [5] the Villa was characterized by its works of art and by the cultural activities that took place within. Barabino's architecture is a choreography capable of enhancing the richness of the works of art and, at the same time, fitting perfectly into the park itself. In fact, the proposal envisaged the use of classic forms on the outside, which relate well to the natural context, while inside, linearity is the most evident element.

The entrance and the exhibition space are the two main volumes of the building (Fig. 2). The testimony of the compositional characters present is visible today thanks to historical photos and, above all, to the surveys, preserved in the archives of the Liguria Region (AGRL) and the Municipality of Genoa (APCG), carried out by Mario Labò, scholar of Barabino [6].

Externally, the building presents itself as a system of regular facades that follow the canons of classicism. The classic imprint is emphasized in correspondence with the entrance area, along the short side of the building. The large portal is arranged in the center of the four columns that support the entablature and interrupt the regular distance between the columns, enhancing the symmetry of the entire façade (Fig. 2b). This revisited pronaos takes up the main canons of classicism by reworking them, as also happens for the crepidoma: a monolithic block that defines the base of the access with the steps that develop only in the center and not along the entire perimeter, as occurs in the reference model.

The larger elevation facing the park and the city has a regular shape made up of two rows of windows of different architectural orders, with small projecting balustrades.

The interior is characterized by a full-height central hall from which balconies overlook and is illuminated from above thanks to a large skylight (Fig. 2c) [4]. A simple, symmetrical system that presents a geometric rigor on a planimetric level which is lost in the experiential vision, which is engaging and satisfying, and this can also be affirmed thanks to the testimonies of the people who frequented the original Villa [5]. The bombings that destroyed much of the Ligurian capital in 1942 also hit the Villa, causing extensive damage that prompted the Municipality to commission Labò for its reconstruction.

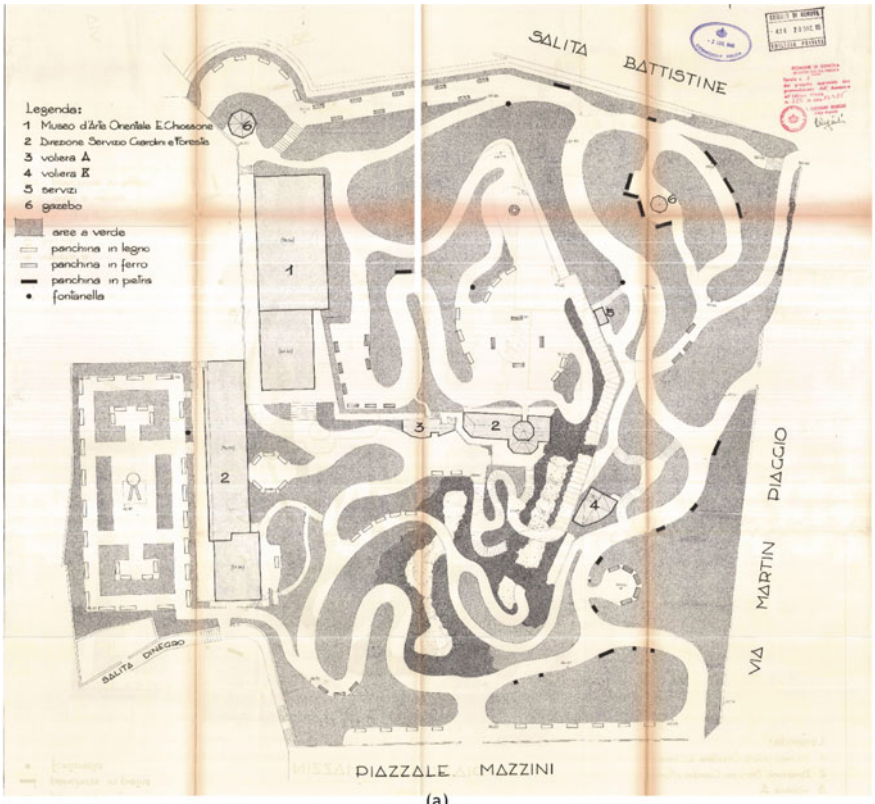

Fig. 1 Villetta Di Negro Park: **a** Planimetric drawing (APCG, cat. n. 496/1985); **b** Waterfall (Photo: Ilaria Camprincoli, http://creativecommons.org/licenses/by-sa/3.0/, Wikimedia Commons)

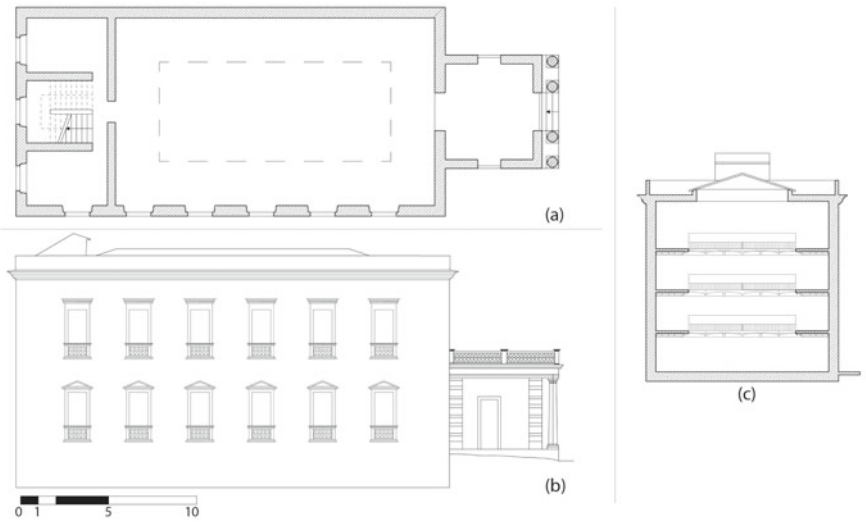

Fig. 2 Villa Di Negro: **a** plan; **b** facade; **c** section (Drawing: A. Meloni)

3 A New Museum for the Park

The reconstruction of the museum was characterized by an important debate in the city, in which Caterina Marcenaro (Director of the Fine Arts Office of the City of Genoa) played an important role, Mario Labò was proposed by her for the reconstruction.

Previously the material collected in Japan by Edoardo Chiossone, artist and important person for the Genoese culture, was hosts by Ligustica Academy of Fine Arts in Genoa. Mario Labò's projects were two: the first unbuilt project of 1948 and the second designed between 1952 and 1955; the second is characterized by numerous variations and would only be completed in 1971, after the death of the designer [7].

3.1 1948, The First Step

Genoa, at the end of the Second War World, was an important city for the reconstruction process, especially in the musealization field. The projects design by Franco Albini (1905–1977) was an important reference for the Italian and international architectural movement; we can cite two important examples like Palazzo Rosso (1953–1961) [8] and the redesigning of Sant'Agostino Museum (1963–1979) [9, 10]. In this context the Museum of Oriental Art is important because was the first museum to be built from scratch.

The Museum coincided with the planning and design of the Villa Di Negro, in the same position inside the park. The main volumes were three: the entrance, the stairs

and the exhibition hall; elements characterized by pure forms, and there was some relation to the previous project.

The access was lower compared to the other part of building (Fig. 3a). The various sectors of the museum were clearly recognizable from the view of the façade and the plans. The south-west elevation, was characterized by a glass block wall corresponding to the stairwell, this form was between the entrance and the exhibition hall (Fig. 3b); on the planimetric view it is possible to clearly see the stair space.

The exhibition hall was simple: a free space interrupted only by the presence of pillars, there were two types of large windows, arranged alternately, along the main sides of the space; this arrangement was repeated on all floors (Fig. 3). This project brought to the fore the vision of a space capable of adapting to different exhibition needs according to the time, where the viewer would be involved only through the exposition of the art itself and not by the spatial characteristics; unlike that which can be observed in the second project, where the architecture is an integral part of the museum experience (Fig. 4).

3.2 From 1952 to 1971: Towards an Oriental Conception of the Museum

In 1952 Mario Labò presented a new version of the project; this change was determinate by some legal problems between the municipally and a property neighboring the museum. The different style used by Labò leads us to believe that the bureaucratic and legal problems were a useful pretext to radically change the design.

The Project underwent many variations, and the completion of the works dates to 1971. In this contribution we will analyze, in particular, the 1952 and 1955 versions, focusing more precisely on the theme of the whole space and the arrangement of the stairs.

The 1952 Project is characterized, on the outside, by a pagoda roof that recalls some forms of oriental buildings (Fig. 5). The South-West façade, like the entire Project, is radically changed, the building is composed of two main volumes: the entrance and the exhibition hall. The first two levels are characterized by large windows facing the urban city center [11], while the opposite elevation faces the winding paths of the park. The exhibition hall is the main space: it is determined by five staggered levels arranged close to the longer sides and which internally overlook a full-height central void. The floors are connected by stairs positioned along the short sides of the building, which are mainly visible from gallery 1 on the ground floor. This arrangement is simple from plan drawing (Fig. 6a) but may be more complex when observed in section (Fig. 6b). The interesting aspect that makes this museum one of a kind is the internal path: the alternating stairs with respect to the floors, define a cyclical path composed of a different ascent and descent.

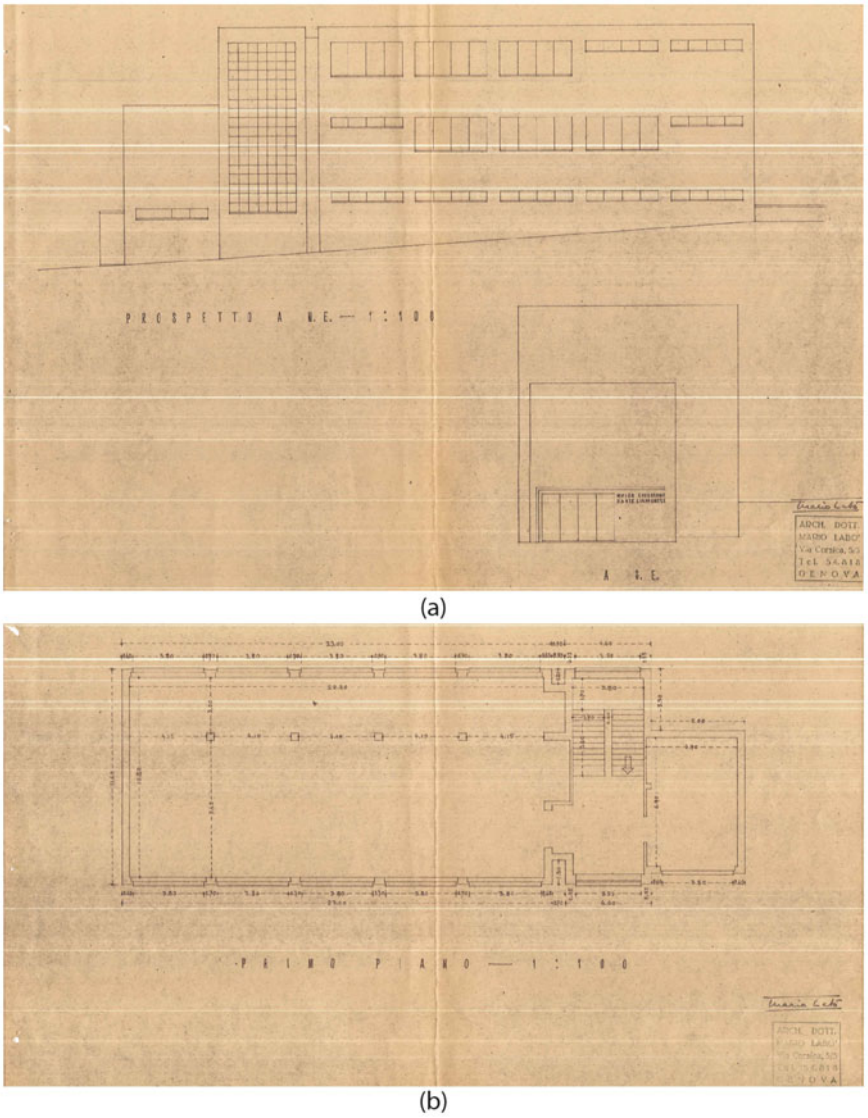

Fig. 3 The 1948 project: **a** plan; **b** facades (APCG, cat. n. 231/1948)

The most important point is where the change of direction between the two movements takes place: the connecting stairs between galleries 4 and 5. Mario Labò was aware of the importance of this part of the project and in fact often changed his idea.

In 1952 the conformation included three staircases along the short side of the building, the last one was characterized by the presence of a gallery floor that allowed you to reach gallery 4. This solution highlighted the symmetry of the layout of the

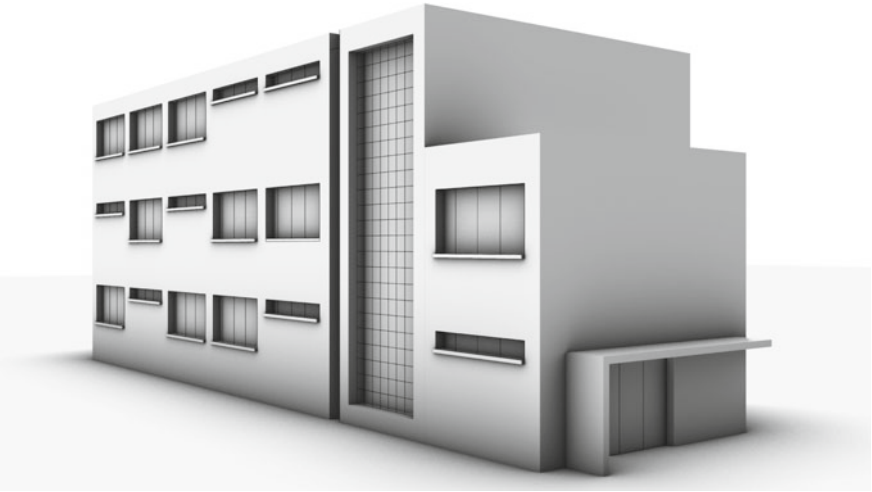

Fig. 4 The 1948 project: 3D model view (Modelling: A. Meloni)

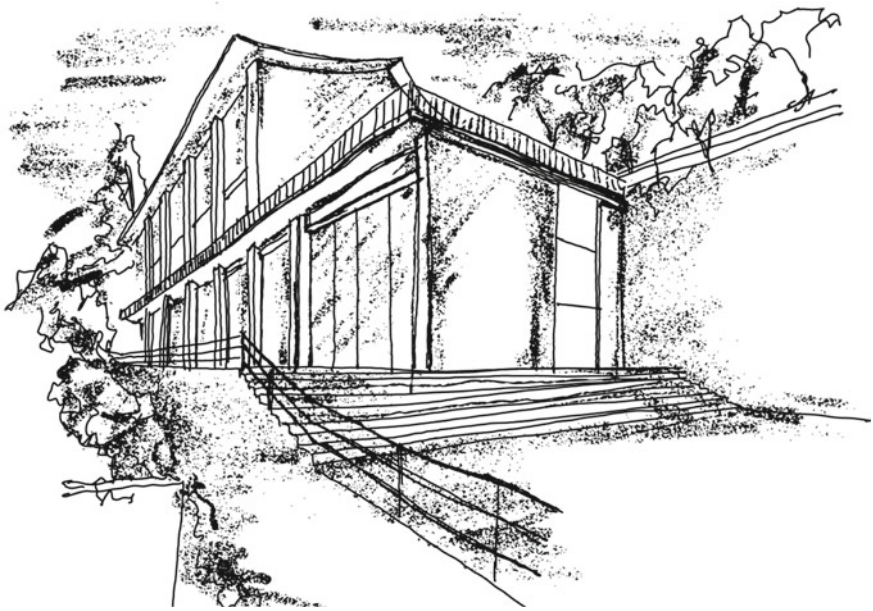

Fig. 5 The 1952 project: perspective view (Drawing: A. Meloni)

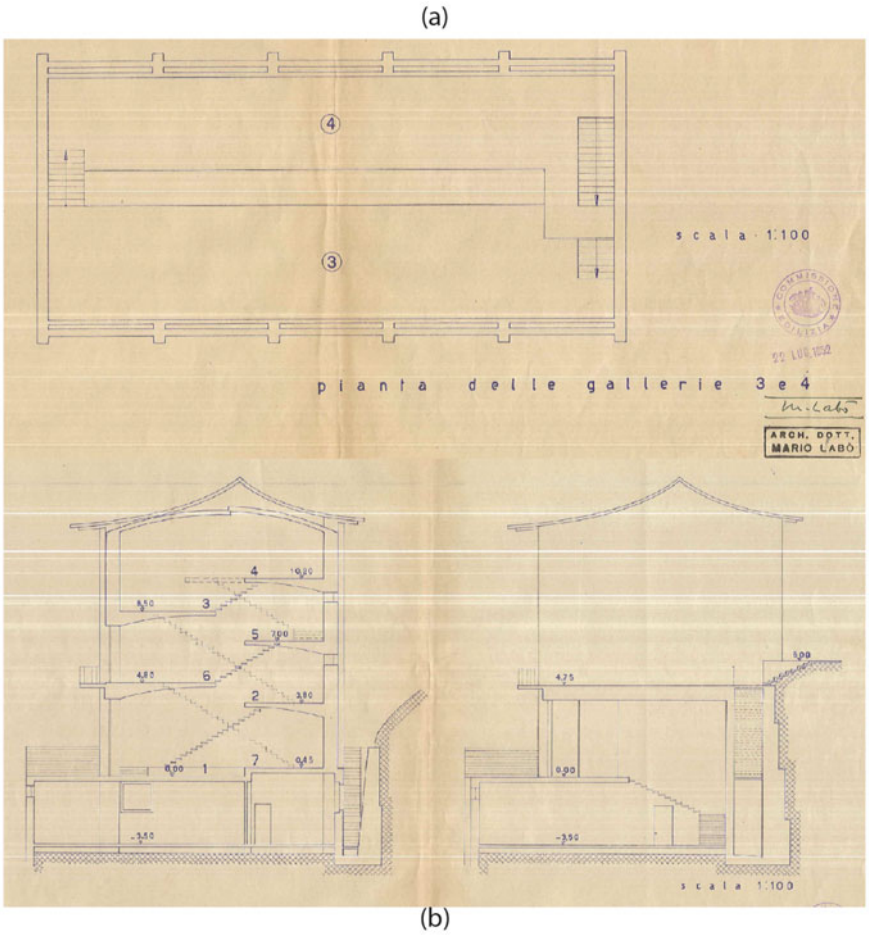

Fig. 6 The 1952 project: **a** plan; **b** section and facade (APCG, cat. n. 969/1952. mc/f/4-mc/f/7)

stairs (there were in fact three ramps per side) but perhaps reduced the effect of the full-height void.

The 1955 design the change concerned the roof, no longer pagoda-shaped but double-pitched (section), and above all the stairs (Fig. 7). In this case, the linearity of the staircase was preferred over symmetry: the connection between gallery 4 and 5 was determined by a single staircase positioned at the corner. It is also interesting to note the addition of a landing in the center of the other flights of stairs: it is a resting place that allows a view towards the central void (Fig. 7b); a design solution that can lead back to the principles of indoor wayfinding described by Ruth Conroy Dalton [12] where the view is essential to facilitate the internal orientation process.

In 1971 the connection stairs were modified again to take on the structure visible today. It is possible to compare the different design versions to observe the different

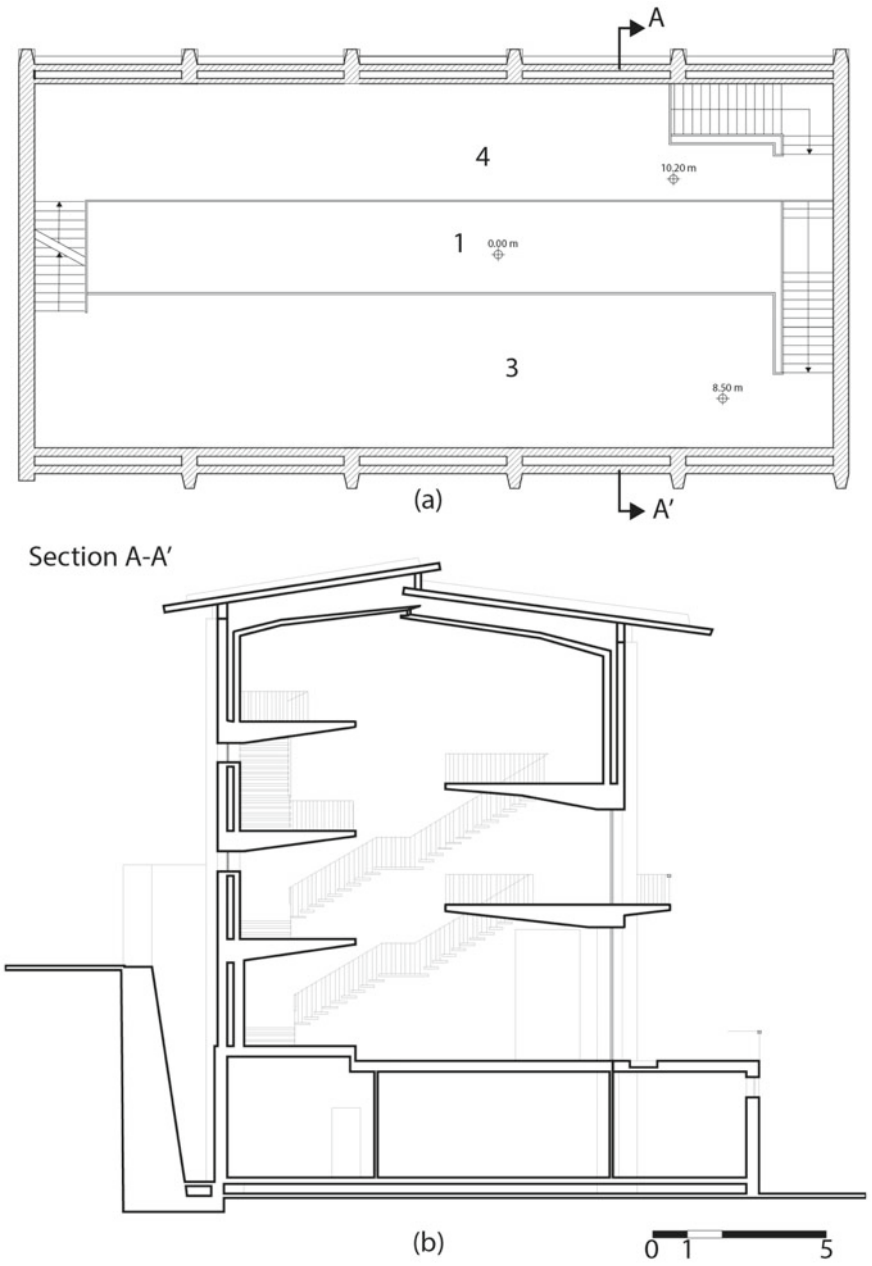

Fig. 7 The 1955 project: **a** plan; **b** section (Drawing: A. Meloni)

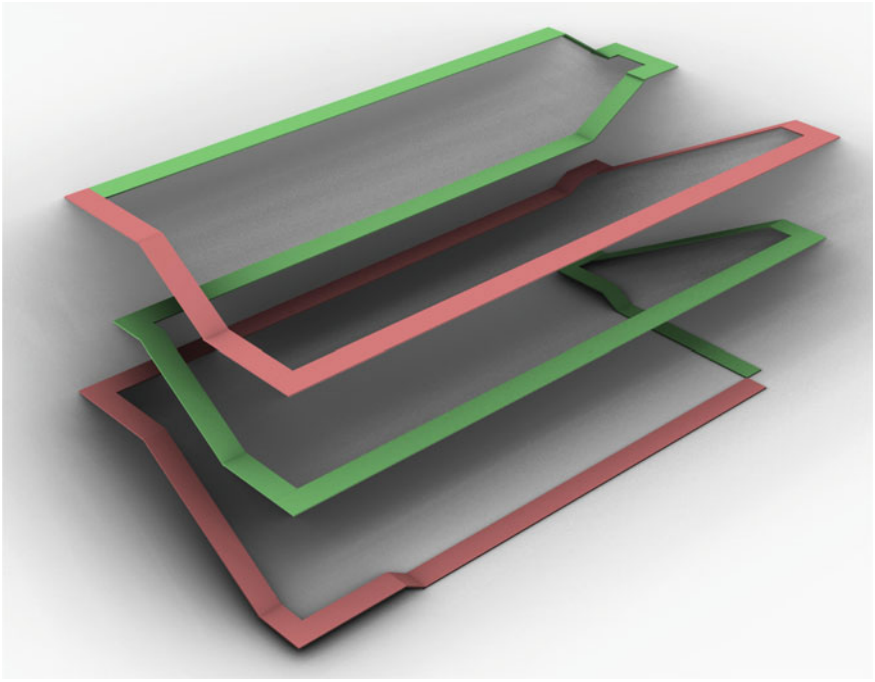

Fig. 8 The Museum's cyclic path, 1971 solution: ascent (green), descent (red) (Modelling: A. Meloni)

impact and how these modifications do not affect the exhibition itinerary, in fact, the cyclical nature of the movement is maintained (Fig. 8):

- A rise path, galleries 1, 2, 3 and 4, alternately cantilevered on the south-west and north-east walls.
- A descent path starts from the galleries 4 and connects 5, 6 and 7.

The construction was completed in 1971 by Giorgio Olcese; he made some changes in addition to the aforementioned stairs. The differences concerned the ground floor material and the wood floor on the gallery: the luserna stone designed by Labò was changed were replaced by Serena stone and a similar situation concerns the wood material surfaces, no longer in teak because was considered too expensive. The external coating, on the other hand, was greatly changed: the glazed terracotta tiles for the external walls and the plastering of the structural elements chosen by the Engineer Olcese are in contrast with the more materical vision of Labò, that envisaged exposed concrete for the structural pillars and granite tiles for the external surface that is rougher to the touch.

The design for the exhibition asset was by Luigi Grossi Bianchi and Stefano Fera [13] they payed particular attention to the Mario Labo idea: the last gallery

on the South-West elevation has no windows to reduce light and allow more light-sensitive materials to be displayed. The study of the installation not only expressed Labò's wishes but emphasized the relationship between space, light and Japanese architecture, also thanks to the use of an external wooden in front of the windows and to the ceiling inside the exhibition all: rectangular joists intersect each other defining a rectangular surface; at the windows, the structure moves on rails allowing different levels of opening and filtering of natural light. This set and the possibility to move it is typical of Japanese homes [14].

The actual version does not preserve the symmetry but maintains the spatiality that characterizes the building which becomes "an architecture of the void" [15].

An interesting aspect is that the Labo's idea is connected with the space of the neoclassical Villa, especially for the central void in the exhibition hall. It should be noted, however, that the open and dynamic space also incorporates the spatial characteristics typical of Japanese architecture [14] which is also revealed in other choices that do not involve the materials identified by Labò and which refer to the use of wood as a reference material and to the solutions proposed by the subsequent outfitting.

The characteristics still strongly linked to modern architecture were modified to create a new project, capable of responding to the needs of the contemporary museum. The desire to abandon the language of the past was explicitly expressed by Mario Labò himself in one of his writings, published by Casabella, on the Museo del Tesoro di Genova designed by Franco Albini: Labò described how the spatial arrangement of Albini's project was an example capable of "Disengaging from a tired rationalist formalism" [16].

4 The Use of AR for the Communication of Architectural Space

The study of archival data allows lost architecture to be reconstructed in three dimensions in order to thus be able to develop communication methods, useful for disseminating the little-known information of an important building of the city. It will be possible via a QR-code to access the 3D model and, at the same time, receive information about the history of this building, through audio and also text contributions (Fig. 9a), the latter being essential for people with hearing disabilities.

The study of the founding literature relating to this field of research is fundamental, especially in the field of museums [17, 18].

However, the aspect that we intend to highlight concerns the architecture, the space of the building rather than focusing on the exhibits present inside the museum itself; a theme highlighted, for example, in the text *Ricostruzione virtuale, VR e AR per la visualizzazione dell'aula provvisoria del I Parlamento italiano* [19].

In the case of the nineteenth-century Villa Di Negro, it will be possible to access the virtual material directly from the park: the QR-code will in fact allow you to connect

Fig. 9 The virtual model of the 1948 project inserted in the current urban context: view from the city center (Editing: A. Meloni)

with the visualization of a 3D model and therefore know the historical characteristics of the park and of the building without necessarily having to enter the Museum of Oriental Art. 1948 will be visible inside the museum via a QR-code. Access to the material will also allow you to interact with contents that show the first solution of Labò inserted within the city context, a photo-insertion where the current image of the museum is replaced with the solution from the late 1940s (Fig. 9). As regards to the internal solutions referring to the 1952 and 1955 projects, the display will be similar, but will be held directly inside the museum. In this way it will be possible to observe the current state and, through the image of the model superimposed on the real one, to know the different arrangements of the internal stairs (Fig. 10).

Fig. 10 Example of Augmented Reality and the different solution for the stairs: **a** 1952; **b** 1955 (Editing: A. Meloni)

5 Conclusion

This contribution illustrated the genesis of a fundamental design project for Italian museum architecture, analyzing its crucial points: the history and the choice of the cyclical path.

Future developments will focus on improving the way we interact with people and we can also think of the possibility of a more immersive visualization, contemplating the use of virtual reality (VR) devices.

The archival study made it possible to create 3D models of each solution and thus bring to light, albeit virtually, the buildings; the lost 19th-century Villa, the never built 1948 project and the changes made during construction to the current Museum, 1952–1955.

The goal is to identify effective communication methods regarding virtual architecture. The use of augmented reality will in fact be able to reveal the complicated historical phases that led to the creation of the current Museum, through an engaging language capable of communicating with a large audience in simple and intuitive ways.

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