Floral decorations and colours in Naples. The case of Villa Pappone in Posillipo

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ABSTRACT

The contribution investigates some examples of the architectural heritage developed in Naples with the expansion and regeneration plan of the city between the late nineteenth and early twentieth centuries, with particular reference to villa Pappone in Posillipo, identifying the decorative features of the Art Nouveau that have given expressiveness to architecture. The typological innovation of the so-called Floral style spreads in Naples mainly in the newly urbanized districts of Vomero, Posillipo, Parco Margherita, and Chiaia, through the construction of villas and palaces that strongly characterize the urban context; some of these examples are also isolated in some urban areas or overwhelmed by successive buildings.

The Liberty in Naples is linked to the works of Adolfo Avena, Giulio Ulisse Arata and Gregorio Botta, who operate an integration between ancient and modern through the new architectural language, which finds its maximum expression in the use of glass surfaces, made with refined decorations and chromatic variations, capable of creating interesting colour reflections and suggestive effects in the diffusion of light. The villa designed by Gregorio Botta in 1912 for Francesco Pappone in Posillipo is an emblematic example of the Neapolitan Liberty, which refers to the models in vogue in the countries of central Europe. The contribution proposes a distribution scheme of the decorative elements of the main facade of the villa classified according to the material used, and their graphic restitution through image-based modelling techniques, in particular of the distinctive entrance canopy made by ornate ironwork and polychrome glasses and the hand-painted majolica tiles bands that run through the building on various levels.

KEYWORDS Floreale Napoli, Polychrome stained glass design, Colour representation, Structure from motion, Facade drawing, Villa Pappone Posillipo, Image-based modelling

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1. Introduction

The production of the Floral Style in Naples spreads in association with the expansion and regeneration plan of the city of 1885 and with the 25 July 1912 law issued for the completion of the plan [Alisio 1987]. It is in the newly urbanized district of the Vomero, Posillipo, and Chiaia hills that the typological and formal innovation of a new architectural language spreads in Naples, which, as is known, developed in Europe between 1880 and 1910 with different names and expressive features according to the countries involved. In France and Belgium, the new architectural language is called *Art Nouveau*, *Modern Style* in Great Britain, *Modernisme* in Spain, *Jugendstil* in Germany, *Sezessionstil* in Austria, *Floreale - Floral Style* or *Liberty* in Italy, named after the London department store of Arthur Lasenby Liberty.

In Naples, the Floreale relates to the works of numerous architects including Adolfo Avena, Giulio Ulisse Arata, and Gregorio Botta who, intervening in compliance with the new building regulations, become the spokesman for a more modern architectural culture that sees an integration of architecture and decorative arts with the abandonment of all axiality and symmetries both in plan and in elevation [Martone and Giugliano 2019]. Floral motifs, delicate ribs, vegetable designs define mouldings, windows, entrances, string courses using new materials, such as glass, iron, and majolica, bearing a set of colours characterizing each component [De Fusco 1959].

2. The Floreale in Naples

In Naples, as well as in other European cities, the Applied Arts movement preceded the Floral style building. With the patronage of Prince Filangieri, the Industrial Artistic Museum was established, whose didactic-industrial activities were highly appreciated for their efficiency and modernity by foreign scholars and art masters. Next to the museum, that collected works of local and foreign tradition, were also born ceramic workshops as well as cupboards, bronze casting, and lithography, including the Southern Artistic Figulina, founded in 1902 by Giovanni Tesorone, which represented the first artistic-industrial initiative linked to the development of the Liberty in Naples.

The Venice Exposition of 1903 was one of the most important events. Under the direction of Ernesto Basile, a leading figure in modern Italian architecture, the Sale del Mezzogiorno were set up, which displayed Neapolitan and Sicilian products. The large turnout to the international Venetian exhibitions, as well as contacts with Basile, determined the success of the Neapolitan Floreale. Not surprisingly, the first Art Nouveau works were internal arrangements for nineteenth-century buildings, such as the windows of the Grand Hotel de Londres and Santa Lucia furnished with floral elements by the architect Giovan Battista Comencini [De Fusco 1959].

The first area interested by Floral settlements in Naples is the Posillipo hill, which separates the gulfs of Naples and Pozzuoli. Characterized by significant orographic differences in height and very suggestive for the views it offers on the Gulf of Naples, the hill was part of the expansion program of Naples designed within the 1914 Town Plan by Francesco De Simone, also the author of some buildings of the Floreale. De Simone defined the new building area, which included the western and eastern declivities of the Posillipo hill up to the slopes of the Vomero, as "the garden city of the West", in which small residential settlements developed along the connection routes to the Vomero. A large and panoramic residential park, called Carrelli, initially distinguished by Floral style architectures, was built along a serpentine road which, only after many years from its construction, was connected to the above Via Petrarca, undergoing significant alterations. Outside the Carrelli park, along the Salita di Casale di Posillipo, which connects to Via Manzoni, we find the elegant Villa Pappone and a little further on Villa delle Rose, significant examples of the Floral style in Naples.

The second area in which the Floral building industry develops is the Chiaia hill, a central-western area between Via dei Mille, piazza Amedeo and Via Parco Margherita, included between Corso Vittorio Emanuele and the ancient "*Real Passeggio di Chiaia*". Here too, the design of the new district shows an "organic" layout due to the orographic nature of the area, not suitable for a nineteenth-century checkerboard-like design like those in the lower city.

Each of these streets differs from the others, thanks to the presence of different building types. This is the case, for example, of Via del Parco Margherita, the Liberty street by definition, along which there are villas and buildings of inestimable architectural value with colourful canopies and majolica decorations. On Via dei Mille and Via Filangieri, however, the floral arrangement is present with massive and imposing buildings, such as the case of Palazzo Mannajuolo.

Another area involved in the expansion plan of the city was the one consisting of the plateau and the slopes of the Vomero hill, where the new constructions follow the canons of the new Floral language. Although on the Vomerese plateau it was possible to create a new settlement with a checkerboard-like layout, on the

southern slope of the hill, the new road system built respected the landscape and the orography of the place.

Along Via Luigia Sanfelice, Via Gioacchino Toma, and Via Filippo Palizzi there is a more significant presence and continuity of Art Nouveau buildings, some of which designed with a double entrance; a first entrance towards the valley and a second one towards the mountain with a particular bridge structure to adapt to the level irregularities of the site [De Seta 1999] (Fig. 1).

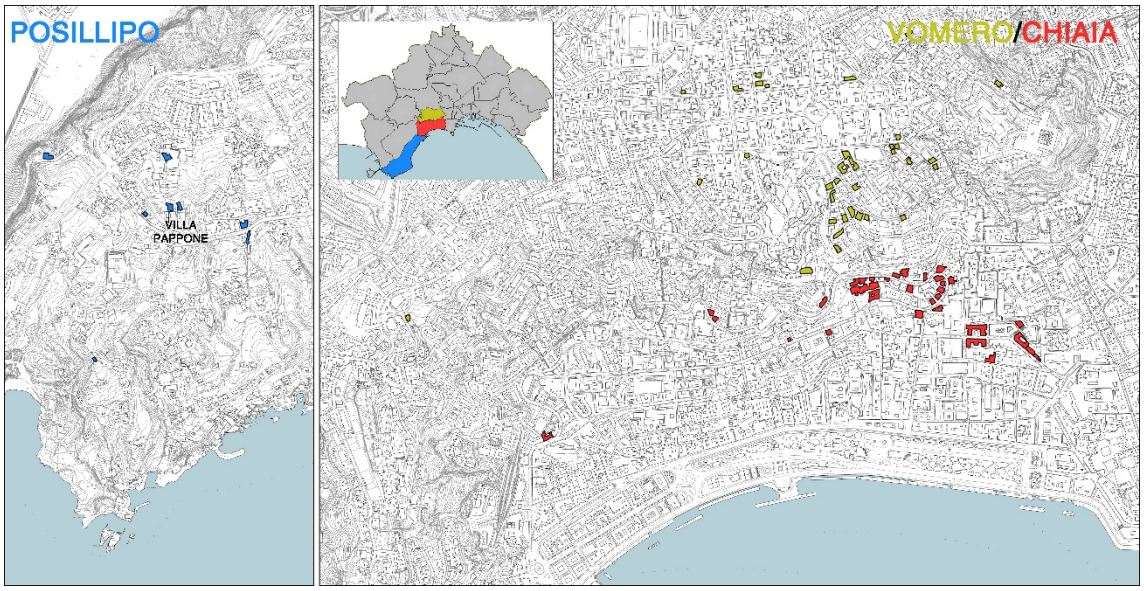

Fig. 1. Cartographic map of the Posillipo, Chiaia, and Vomero districts with an indication of the most significative Floral style buildings in Naples.

3. Light effects through coloured windows and majolica surfaces

The Liberty/Floral style finds in architecture one of its most eloquent expressions with the creation of external surfaces in majolica or made by ironwork and glass, almost exclusively opaque. Entrance canopies, verandas, and windows of villas and buildings manufactured using the stained-glass technique, show refined decorations and chromatic variations able to create interesting plays of coloured reflections and suggestive effects in the light diffusion interacting with the external environment of the street. The glossy surface of the majolica of polychrome decorations that cover numerous Floral palaces in Naples makes the colours bright, producing unusual chromatic effects.

In Naples, it is possible to observe many examples in which both surface treatments coexist, such as the facade of the former Grand Hotel Eden, today Villa Maria, designed by Angelo Trevisan, admirable from Piazza Amedeo, in which chromatic contrasts underlined by a careful choice of materials such as brick, glass, and majolica, contribute to give a suggestive oriental appearance to the building (Fig. 2a/b). Another example of liberty with oriental features is the salmon pink building in Via del Parco Margherita 57, in which polychrome majolica panels in green and yellow pastel colours surmount single-lancet and double-lancet windows with a low arch. At the same time, a blue-green string course at the ground floor wraps around the entrance porch with a balcony above. On the main and side facades open polychrome verandas in metal and glass, in which simple geometrical patterns recur (Fig. 2c/d).

Of classic shapes is a colourful iron and glass canopy that covers the entrance of the baroque building at number 38 in Via Parco Margherita. The formal rigor of the canopy design, based on a combination of squares, rectangles, and semicircles, also reflects in the rigorous choice of primary colours, yellow, red, and blue, which create a harmonious primary contrast based on a quantitative correlation. The predominance, in fact, of the yellow glass with the red in the middle, emphasised by an elongated shape, ending with two semicircles, increases the brightness on the entrance area of the building. The small window layout, in which each geometric figure is highlighted by the band of the binder between the plates, shows an explicit reference to Mondrian. In contrast to the schematic design of the glass, it is a rich wrought-iron decoration that runs along the contour of the canopy with a succession of small palmettes that echo the acroteria of ancient temples (Fig. 2e/f).

An emblematic example of the production of the Floral style in Naples is the Cassa Armonica, a bandstand built in 1877 to a design by Enrico Alvino in the Villa Comunale, where the city's musical band once performed [The Italian illustration 1878]. An elegant cast-iron structure with a circular plan is covered by a dome with triangular segments, each composed of rectangular strips of opaque white glass, which rests on a polygonal lattice tholobate, supported by slender columns on which round arches open. A coloured bichrome perimetral canopy, formed by the alternation of blue and yellow glass, complements the design of the polygonal structure, protruding from the volume of the bandstand. The coloured crown, a diaphragm towards the outside, enhances the white of the cuspid dome, which becomes an incandescent source of light when brightened by the sun. A recent renovation has restored the original colours of Alvino's project, and the entire structure in its lightness continues to be a strongly characterizing element of the surrounding environment (Fig. 2g/h/i).

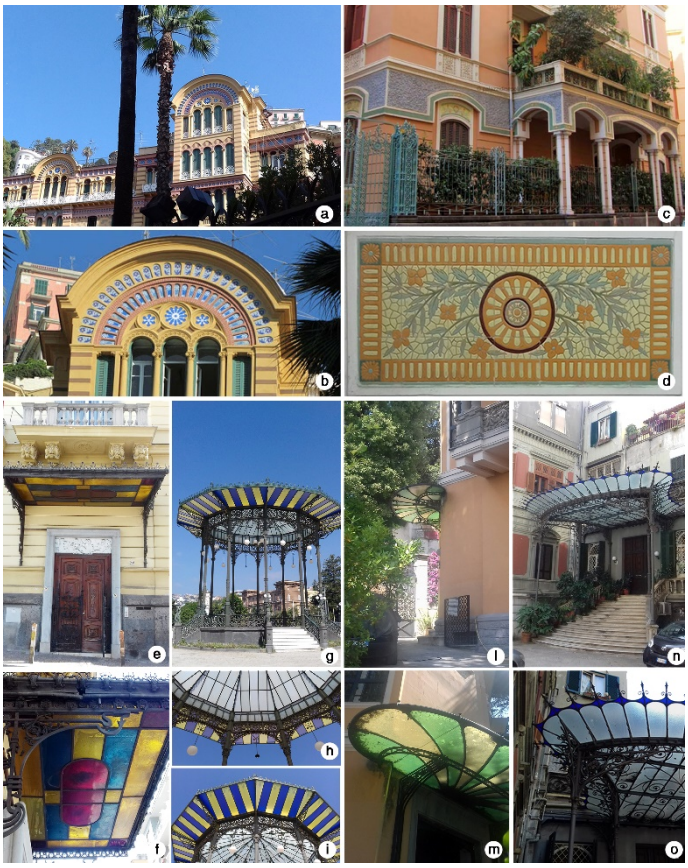

Fig. 2. From above: Villa Maria, ex Hotel Eden (a, b); below: building in Via Parco Margherita 57 (c, d). Below: the canopy of the building at number 38 in Parco Margherita (e, f); the Cassa Armonica in the Villa Comunale (g, h, i); canopy of the entrance of Villa Irene, formerly Villa Ascarelli (l, m); entrance canopy of Palazzo Bile (n, o). During the photographic survey, the pictures were taken with a reflex digital camera with colour temperature control in automatic mode.

Villa Irene, formerly Villa Ascariello, is full of floral friezes that surround the entire volume of the yellow straw building, built in 1913 on a project by Adolfo Avena on the slopes of the Vomero hill, along the hairpin bends of Via Palizzi, at number 41 and 43. A distinctive curved canopy in iron and glass, manufactured with sinuous green and yellow segments, opens onto the entrance allowing the light to penetrate, which conveys green-yellow reflections in continuity with the colours of the surrounding garden [Mautone et al. 2011] (Fig. 2l/m).

Majestic in structure and shape is the stunning liberty canopy in white and blue glass that distinguishes the internal elevation of Palazzo Bile located in vico della Cavallerizza 38, full of floral decorations on a neo-Renaissance structure. Still within the internal courtyard, at the entrance, there is a large veranda in yellow and blue polychrome glass (Fig. 2n / o).

4. Villa Pappone in Posillipo

Representative of the new architectural language of the Neapolitan Liberty, Villa Pappone, designed by Gregorio Botta in 1912 on behalf of the Neapolitan merchant Francesco Pappone, is located on the Posillipo hill, at number 5 in Via del Casale. Referring to the models of the countries of central Europe, such as some buildings in Prague, the villa is characterized in the main facade by a distinctive canopy, in iron and white and green bichrome glass supported by bronze griffins [Palaces of Naples 2019].

Wrought iron balustrades reproduce floral motifs with different designs on each floor, also present in the decorations of the window mouldings and in the corbels that support the balconies. Original decorations such as the majolica string course will be proposed by other authors in some coeval constructions on the Vomero hill. The villa, built with a wealth of materials, represents a unique example in Neapolitan production, which still suffers from the influence of nineteenth-century eclecticism (Fig. 3) [De Fusco 1959].

In the following paragraph, we propose a critical analysis on the facade of the villa, which highlights the decorated majolica surfaces, those treated with wrought iron, and the entrance to the building. The latter, considered as a single element, is composed of the bichrome glass canopy, and a luxurious wrought iron frame, which starting from supporting the canopy, comes together in large volutes as a balustrade towards the marble steps arranged in a shell. A photogrammetric survey with accurate restitution of the

portal highlights the iconic curvilinear shape of the shelter, which finds a formal correspondent in the arrangement of the stairs and the texture of the railings.

Fig. 3. On the left: plan of Villa Pappone (Fusco 1959). Top right: photo gallery of the facade. Bottom right: the entrance and the large staircase.

4.1 Geometry and colour through the image-based survey of the decorative elements

To understand, capture, and represent the decorative elements of villa Pappone, we used an integrated survey methodology, with the use of both digital and direct tools [Cundari 2012].

The acquisition of metric data through Structure from Motion (SfM), performed with the software *Metashape*, as well as the direct survey, and the orthorectification technique, allowed the interpretation of the distribution scheme of the decorative elements of the facade, the modelling and the representation of the shelter entrance, up to the drawing, by way of example, of one of the majolica bands that characterize the elevation [Sardo et al. 2011].

Villa Pappone, one of the best preserved examples of Floral style in the city of Naples, is characterized by the luxury of the decorative elements, declined through thoughtful use of different materials, and by the attention to the design and the chromatic combinations, which not only concerns the outside part but it continues organically inside the building. The distribution scheme of the elevation offers a summary of the distribution and consistency of the decorative elements of the facade examined (Fig. 4).

We first analysed the decorative apparatus according to the material used- majolica, iron and glass - and subsequently mapped it according to the position on the facade. Besides the entrance glass canopy, single and strongly characterizing element of the main facade, the hand-painted majolica and the wrought iron balustrades are distributed in singular bands, characterized by a different design at each level, which run all over the building.

The orthophotos obtained through structure from motion, suitably scaled thanks to the data deriving from direct survey, provided the basis for the redesign of the shelter and of the entire iron structure, in plan and in elevation (Fig. 5).

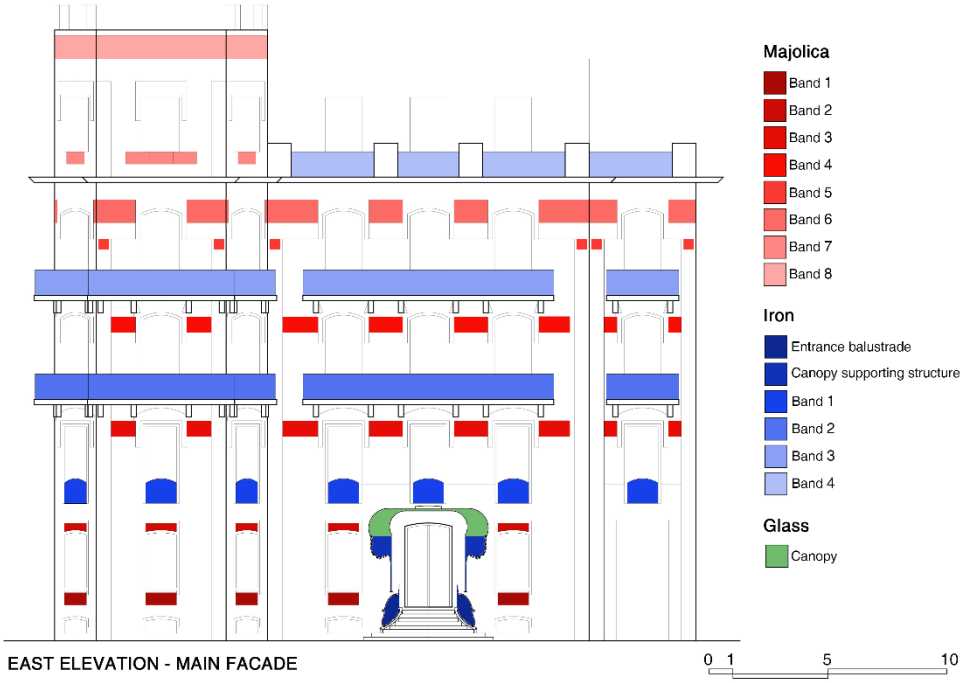

Fig. 4. Distribution scheme of the facade of Villa Pappone with indication and position of the decorative elements declined according to the material.

The shooting of the images used to create the image-based 3D model of the entrance with its rich canopy, with white and green opaque glass, required specific climatic conditions, in order to avoid light reflections, incompatible with Metashape difficulty in working with transparent objects, mirrored or reflective surfaces.

For the photos, we used a Nikon D5200 SLR, with an APS-C 23.6x15.7 mm sensor, which mounts Nikkor AF-S DX 18-55 mm lens, without using a tripod. We took about 50 shots by rotating 180 degrees around the object. The images have been aligned within the software with "ultra-high" accuracy [Foschi 2015].

We took the shots in overcast conditions, obtaining images with a uniform exposure, free of bright reflections, and drop shadows. Even so, several attempts were required, diversifying both the number and order of the shots, before being able to obtain the point cloud used to generate the mesh surface and the photographic texture, which, applied to the model, allowed to generate the orthogonal views.

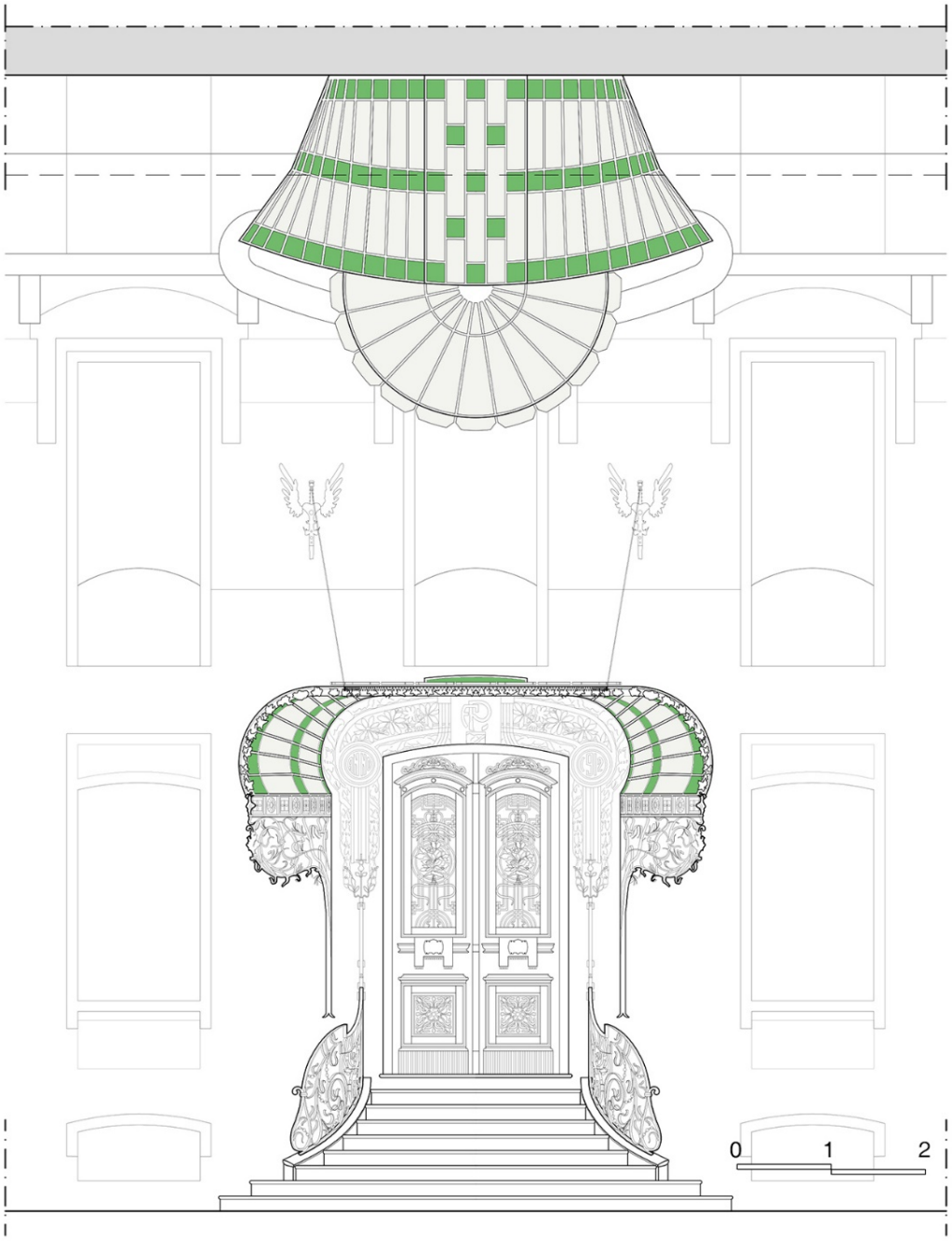

Fig. 5. Plan and elevation of the entrance portal with the wrought iron canopy with two-coloured glass, original scale 1:50.

One aspect that proved to be particularly interesting in this phase of the work was the comparison between the orthogonal view of the model obtained and a photograph of the object. (Fig. 6).

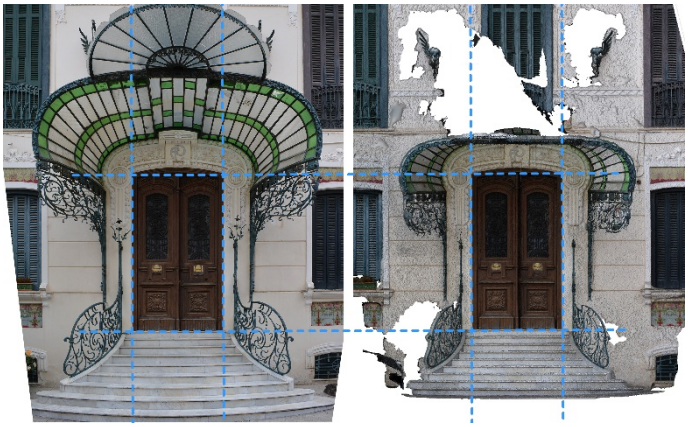

Fig. 6. Comparison between a perspective view from a photograph of the canopy and the orthogonal view of the textured model obtained with photogrammetry.

The 3D photogrammetric model highlighted the altered perception we have of the canopy. In the perspective view, the canopy appears more soaring and slenderer than the orthogonal view. This feature is stressed by the level of the entrance to the building, which is at a higher altitude than the observer; hence the canopy is perceived from a rather low point of view.

The use of the structure from motion has, therefore, allowed the representation of a very complex object and its peculiar characteristic, which would otherwise have been perceptible only thanks to the original project drawings, in orthogonal projections, or subsequent surveys.

Finally, we terminated the analysis of the decorative elements with the study of the majolica bands. We applied the adopted methodology to the band of the ground floor, but it could apply to all the other bands of the building, and, in general, to other decorative majolica elements on other buildings. The digital photographic survey with colour-temperature control allowed a reliable colour reproduction of the areas examined (Santopuoli and Seccia 2008).

The images were captured in RAW format with the same Nikon D5200 SLR camera. We used a calibration target (colour checker), which uses the NCS-Natural Colour System for radiometric references, which come in the form of colour boards. The use of the color checker allowed, in the post-production phase with the Adobe Lightroom software, to balance all the images created in the campaign phase and obtain a more faithful correspondence between the colours of the real object and the colours of the image.

The colours acquired using the color checker were used as a gold standard for experimentation on the use of low-cost equipment for the acquisition of colour. In parallel with the photographic survey, the sampled colours were also acquired through the use of Color Grab, an application for smartphones that allows the selection, capture, and recognition of colours through the camera of the mobile phone (Fig. 7).

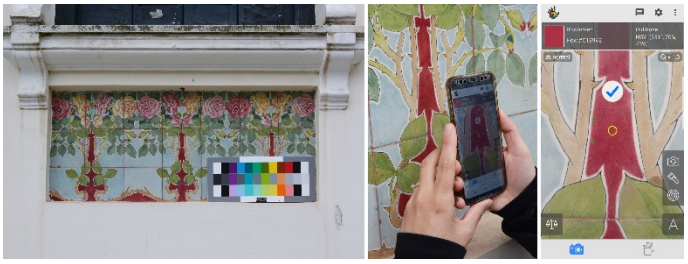

Fig. 7. The colour acquisition phase: on the left, the majolica band photographed with the colour checker; on the right, the experimentation carried out with the smartphone application.

For the re-drawing of the floral motif, we selected a high-resolution photo of the majolica band, which was orthorectified with the software RDF Didattica, using the metric data collected on-site.

All the data collected allowed the creation of a summary board (Fig. 8), in which it is possible to observe the results achieved. In particular, as regards the colour survey with the two described methods, the values of the areas selected for sampling are expressed in RGB, indicated with capital letters.

The synoptic board combines colour with photography and drawing, and could be used as a basis for a critical reading of the decorative apparatus in architecture useful for cataloguing, virtual applications, or reconstruction in case of loss.

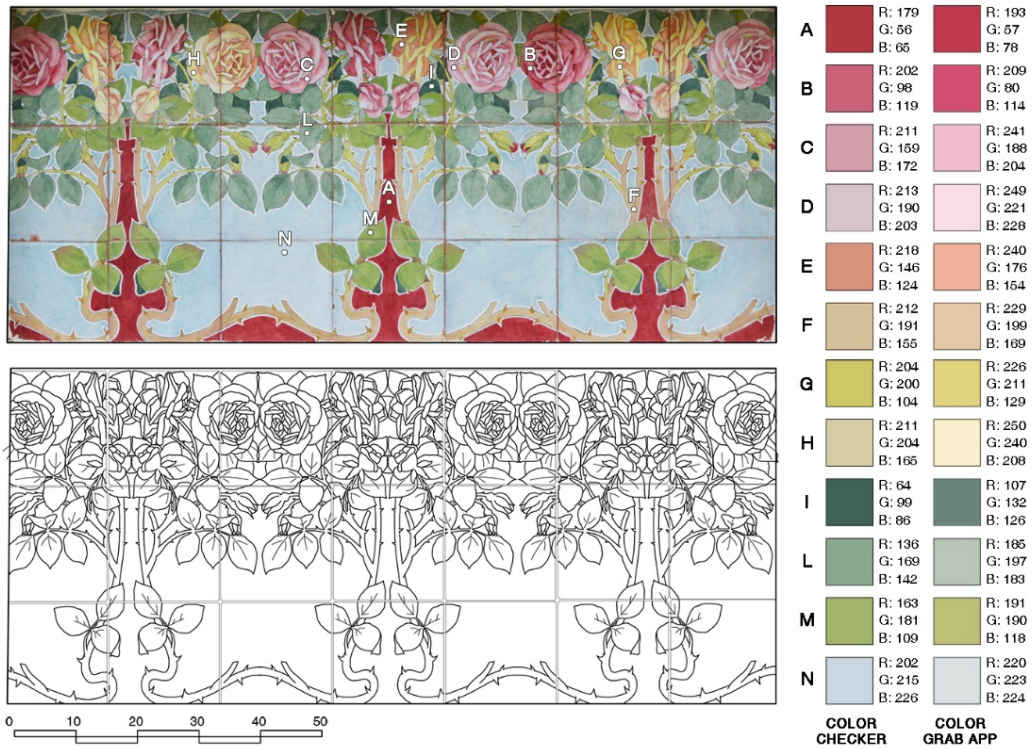

Fig. 8. Synoptic board of the study of the hand-painted majolica band of the first level. Above: orthorectified picture; below: graphic restitution; right: colour matrix. In the first column, the gold standards obtained with the digital photographic survey and the use of the colour checker, in the second the results obtained with the Color Grab application. Even if there is a great visual similarity, due to the automatic balance of brightness that the camera of the mobile phone implements, the second results are not perfectly responding to the reference data.

5. Conclusions

In addition to promoting the knowledge of an asset through the tools of survey and drawing, this study aims at projecting the architectural detail, analysed according to its geometric, formal and chromatic matrix, on the urban scale as an element that contributes to the creation of the image of an urban context. It is hoped that this investigation methodology will then be reflected in broader analyses always aimed at critical documentation for the conservation and protection of the architectural heritage.

6. Declaration on conflict of interest

The authors declare that there is no conflict of interest, real or potential, including financial or personal relationships with other people or organizations, in the three years since the presentation of this work, which could inappropriately influence the results of the research carried out.

7. Declaration on funding sources

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9. Short biography of the authors

Maria Martone - Architect, Researcher at the Department of History, Drawing and Restoration of Architecture, Sapienza University of Rome, aggregate professor of Architectural Drawing I with Laboratory and Digital Representation at the Faculty of Civil and Industrial Engineering of the Sapienza University of Rome, carries out her activity of research on the theme of the representation and documentation of architecture, the city, and the territory.

Alessandra Marina Giugliano - Architect, Ph.D. student of the Department of History, Drawing and Restoration of Architecture, Sapienza University of Rome, carries out research activities in the field of drawing and architectural survey with integrated methodologies, with attention to the

communication of the results obtained through three-dimensional virtual models.

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