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Color as Material: Ceramic Surfaces in the Work of Gio Ponti in Milan (1927-1970)

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Abstract: The study is based on the analysis of the design and operational path conducted by the architect Gio Ponti on ceramic materials between the late 1920s and the early 1970s, with particular attention to applications in the Milanese context. Milan represents the main laboratory for experimenting with the figurative, plastic and chromatic potential of modern ceramic surfaces. The analysis of archival documentation preserved at the CSAC Archive in Parma, the Gio Ponti Archives in Milan and the Archivio Progetti at the Iuav University of Venice allows for a deeper understanding of the design path at different scales, from the design of specific lines of ceramics for industry, to their application in buildings. The second part of the analysis is aimed at tracing the conservation problems of ceramic surfaces, with the aim of highlighting both the cultural and technical aspects that are affecting the conservation of this heritage. Connected to the latter aspect is a focus on the principal deterioration phenomena of modern ceramic surfaces related to different types of substrates, providing in-depth knowledge that opens up new strategies for their conservation.

Key words: Ceramic surfaces, modern architecture, Gio Ponti, Milan, deterioration patterns.

"(CERAMIC) is a marvelous material
it is an incorruptible material
let's wrap architecture in mosaic tile,
even buildings have a skin.
Let's clad architecture in diamond tip elements:
they do not simulate a built wall, like a parapet,
but announce how they are a finish:
they bring to surfaces a plastic value
and play with light under the movement
of the sun: they are beautiful" [1].

1. Introduction

Exploring Gio Ponti's relationship with ceramics requires first retracing, through his writings and rich existing archives, the confluences between architecture, art and industry beginning in the late 1920s. From his earliest works, Ponti assigned ceramics a crucial role in expressing modern architecture. While simplifying surfaces (a lack of projections, of eaves, of decorations, etc.), the new language of building saw these finishes as a tool capable of creating dynamic and three-dimensional surfaces [2]. Likewise, the role of light became fundamental to the perception of ceramic façades: "finishes acquire (and bring to architecture) new values—plastic values—under the sky, under nighttime light, shimmering and changing their appearance with the passing of shadows (to which we must add color, which has infinite possibilities in ceramics)" [3].

The study analyzes Gio Ponti's design and operational path with ceramics between the late 1920s and early 1970s [4-7], with a particular focus on his work in the Milanese context. Indeed, Milan has been the principal laboratory for experimenting with designs and building solutions linked to the plastic and chromatic potentialities of ceramic surfaces.

The analysis of the archival documentation conserved at the CSAC archive in Parma, the Gio Ponti Archives in Milan, and the Archivio Progetti at the Università Iuav di Venezia, permitted a further exploration of the design work linked in many cases to the definition of individual tiles, and how they were to be applied.

The second part of the essay looks at issues of

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conserving the ceramic surfaces designed by Gio Ponti, with the aim of understanding the technical aspects and cultural considerations that effect the conservation of this heritage. This latter topic is tied to a focus on the principal deterioration phenomena of modern ceramic surfaces, also in relation to the diverse typologies of support, with the aim of expanding knowledge that opens up new scenarios for conservation.

2. Method and Materials

2.1 Ceramic Surfaces: Industry and Architecture

The use of ceramic materials in the 20th century architecture is documented in industry publications and manuals that focused a great deal of attention on these surfaces, with important contributions such as that of Enrico Agostino Griffini from 1931. A commonly known text in both academic and professional settings, *La costruzione razionale della casa* was a fortunate publication reprinted various times between 1931 and 1950. In particular, the 1932 edition [8-10], featuring a section dedicated to *New Materials*, contains an exploration dedicated to stoneware, with a focus on how it is made and its particular characteristics. This material is produced by baking "at a temperature of 1300°C, a mixture composed of clay, feldspars and colored pigments, previously passed under a hydraulic press. This produces a product with a crystalline structure, in other words vitrified, that possesses the typical qualities of clay: compactness and homogeneity as well as impermeability, non-porosity, solidity, inalterability and the aesthetic quality of grain and color. Slabs of stoneware are fabricated in the form of tiles and small mosaic tiles. The surface of these tiles, the side visible after installation, can be matt or enameled. [...] Matt stoneware (unglazed porcelain, Ed.) is available in a vast variety of colors. The glaze applied to the surface considerably increases its decorative value. Glazes can be flamed, poured and crystalized; there are lively and brilliant decorations, as well as more matt and velvety finishes" [8]. Characteristics of durability, resistance and hygiene are central to the description of this material: "Stoneware is impermeable and without porosity, [...] which makes it impenetrable to humidity, impurities, microbial vegetation and allows it to be suggested for all those applications where issues of hygiene are of particular importance. What is more, stoneware also presents notable qualities of resistance and inalterability that makes it durable, not subject to wear, not susceptible to cutting and deteriorations that, possible in other materials, create receptacles for dust and putrid and fermentable elements" [8].

Among the materials available in the construction market at the start of the 1930s, special mention must be made on:

- red clay body ceramics (lithoceramics), obtained by firing a single iron-rich clay;
- unglazed porcelain tiles (grès) obtained from a mixture of plastic clays of kaolinitic nature, feldspars (develop glassy phase) and quartz sand skeleton;
- glazed porcelain tiles, obtained from a mixture of low-plastic, kaolinite-rich clays with added quartz sands and feldspars. The glazed variation helps cover natural pores and provides brightness and chromatic variations;
- clinker, obtained from a mixture of fine clays fired at high temperatures (>1,250 °C) by introducing the principle of vitrification.

As noted by Fulvio Irace, the use of ceramics as a material of modern architecture can be considered "a natural development within the reform movement in the field of decorative arts that, since the end of the 19th century, established [...] the theme of aesthetic variation in serial products" [11].

In a country that had not yet experienced the industrial boom linked to the employment of this material in construction, Gio Ponti was one of the first architects, together with Angiolo Mazzoni and Giuseppe Pagano, to regularly choose ceramic finishes as early as the late 1920s. According to Ponti, this choice is also related to the issues of early deterioration evident in modern plaster

finishes, to which new "incorruptible materials"[1] [1] should have been preferred, particularly for the façades subject to prolong exposure to weathering and pollution.

2.2 Rigor and Neutrality: The 1920s and 1930s

In addition to being one of the privileged materials during his lengthy and fortunate professional activity, ceramics also represented for Gio Ponti the beginnings of his career. The interest in the artistic and decorative aspects of this material saw him designing ceramic tiles for the Richard-Ginori company in Sesto Fiorentino, where he served as artistic director of production from 1923 to 1933.

Ceramic mosaic tiles were above all one of the principal tools for expressing the "never-exhausted creativity" [12] that Ponti dedicated to his native city. For the architect, Milan was the embodiment of the evolution of ideas, technique and form connected with this so small yet so highly characterizing element of industrial production. Oscillating between design, architecture and the decorative arts, Ponti turned, case-by-case, to unique forms as part of what remained an always recognizable language.

In the Borletti House (1927-1928), designed with Emilio Lancia, ceramics was selected to bring character to the walls of a sizable stairwell, where large sage-colored tiles dialogue with stair treads in light colored stone. In the Adele House (1934), one of the ten *Domus* or *Typical Houses* completed between 1931 and 1936, this material became, instead, a qualifying element in the design of façades. The basement finished in grey stone tiles is flanked by clinker that, as in the coeval Rasini Tower (1932-1935), defines the external surfaces.

Likewise, in public and corporate buildings completed during this period, Ponti employed ceramic with a style that expresses a sober modernity, characterized by simple lines. In the Montecatini 1 building (1936) and the EIAR building, later the RAI (1939), unglazed porcelain tiles are once again utilized as an internal finish in areas of intense traffic, such as stairs and lift blocks (Fig. 1).

Ceramic tiles in tones of grey and beige are tested in unique combinations with aluminum and its alloys, and with traditional materials such as marble and wood, to create sober and light polychromies.

2.3 Eclecticism and Play: Second Half of 20th Century

During the post-war period Gio Ponti definitively asserted himself as the most enthusiastic supporter of ceramic materials considered "so ancient and modern at the same time" [11]. In Ponti's work, ceramics became from an anonymous, serial surface to a small design object that overcame the standard and the monotony of repetition, amplifying and qualifying the relationship between architecture and the city.

Fig. 1 Studio Ponti Fornaroli Soncini with E. Bertolaia, EIAR building, later RAI building (1939), unglazed porcelain tiles in combination with stone and wood (2021).

[1] The adjective "incorruptible" referring to ceramics appears as early as 1957 in his volume, Ponti, G. (1957).

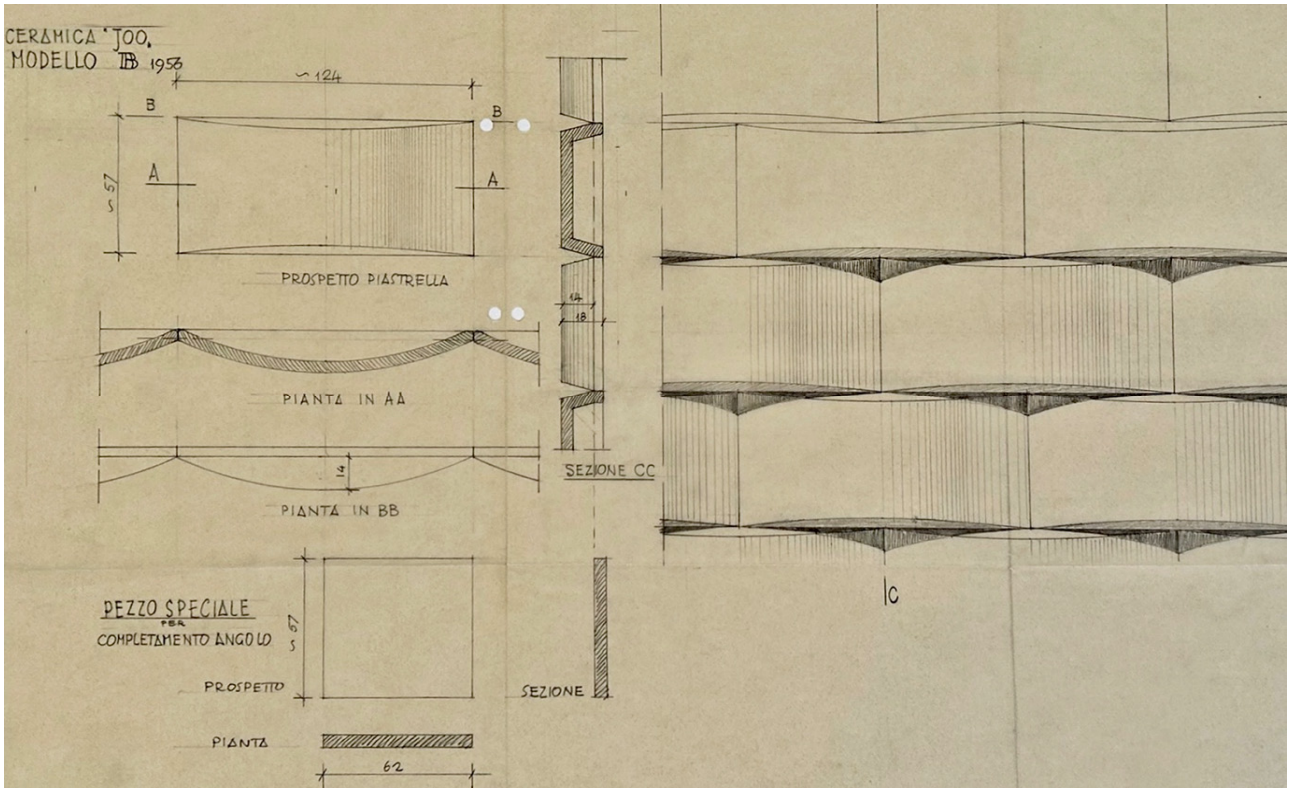

Fig. 2 Studio Ponti Fornaroli Rosselli, Ceramica Joo, model B, 27th April 1956 (part.). © CSAC Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Fondo Gio Ponti.

During the 1950s, thanks to the experimentation conducted abroad which led to the construction of the Villa Planchart (1954) and Arreaza (1956) in Caracas, and the Villa Namazee in Teheran (1957-1964), Ponti intensified the use of ceramics supported by fruitful collaborations with companies that worked with him to develop new products for modern architecture (Fig. 2). The use of ceramics to qualify façades represents for the architect a tool that participates in the definition of the "landscape generation of architecture", recognizing this material's ability to guarantee the quality of public space: "The Architect, the Artist, must paint. Because, in the end, he must compose a landscape also with his walls: always, natural or urban as the case may be, the architect creates a town. This comes from the appearance (of the elevation) and dimensions and its walls or surfaces: this is the reason for their color: this is the reason for their reliefs (that the architect must know how to measure, and thus must possess in his fingers, for the play of the sun and light; something tactile). (This is the landscape generation of architecture)" [1].

In 1957, the attention to ceramics as a cladding for buildings produced at the industrial scale, was already expressed in his book *Amate l'architettura*, returned in the article "Un rivestimento per l'architettura" [3] published in *Domus* magazine, under Ponti's direction at the time. The essay is dedicated to the production of the Ceramiche Joo company in Pioltello Limito (Milan) designed by Ponti. The eclectic language of this ingenious alchemist of plastic forms was exalted by the fortunate collaboration with this company initiated in 1956, which led to the creation of a rich series of glazed porcelain tiles with relief surfaces whose patents are conserved by the Archivio Centrale dello Stato (Rome). The photographs taken by Giorgio Casali[2] accompanying the article exalt the theme of surfaces in relief and polychrome finishes

[2] Iuav Archivio Progetti, Fondo Giorgio Casali, IUAV/AP, Casali 1.fot/3/228, s. 596, n. 059992.

resulting from combinations of different forms and colors: the new tiles called “diamonds”, “embrace”, “ashlar” and “pebble” mark the passage from the flat surface of the classical mosaic tile (2×2 cm) to a vibrant finish capable of giving “lightness and grace to volumes, and reflections of light and sky” [3].

The analysis of the documentation conserved by the archive CSAC Centro Studi and Archivio della Comunicazione at the University of Parma allows reconstructing in detail the outcomes of the architect’s intensive contacts with the ceramic industry during this period. The date 27th April 1956 can be found on the drawings of models “B”, “C” and “D” of the Ceramiche Joo: each element is drawn in plan, elevation and section with a detail of 1:1 scale[3], and a particular attention to the possibility to compose the diverse elements and the creation of special pieces.

While not involving his work in Milan, there was also an important collaboration with D’Agostino Ceramiche, a family-run business in Brignano (Salerno) active from the 1930s. The collection designed by Ponti between 1960 and 1964 for the Hotel Parco dei Principi in Sorrento would mark an important step for the company toward a renewed image of modernity. The tiles, measuring 20×20 cm and 9 mm in thickness, were decorated by hand in variations of white and blue, differing from those of the same dimensions for the *Multipref 729* series created by Ponti for Gabbianelli company in the 1950s, decorated using the technique of silk-screening.

The two-toned combination of white and blue can also be found in the 1961 drawings for Ceramiche Mazzotti S.A.C.I.E in Turin. Each drawing describes the geometric, chromatic and decorative characteristics and the numerous possibilities for their composition[4] (Fig. 3).

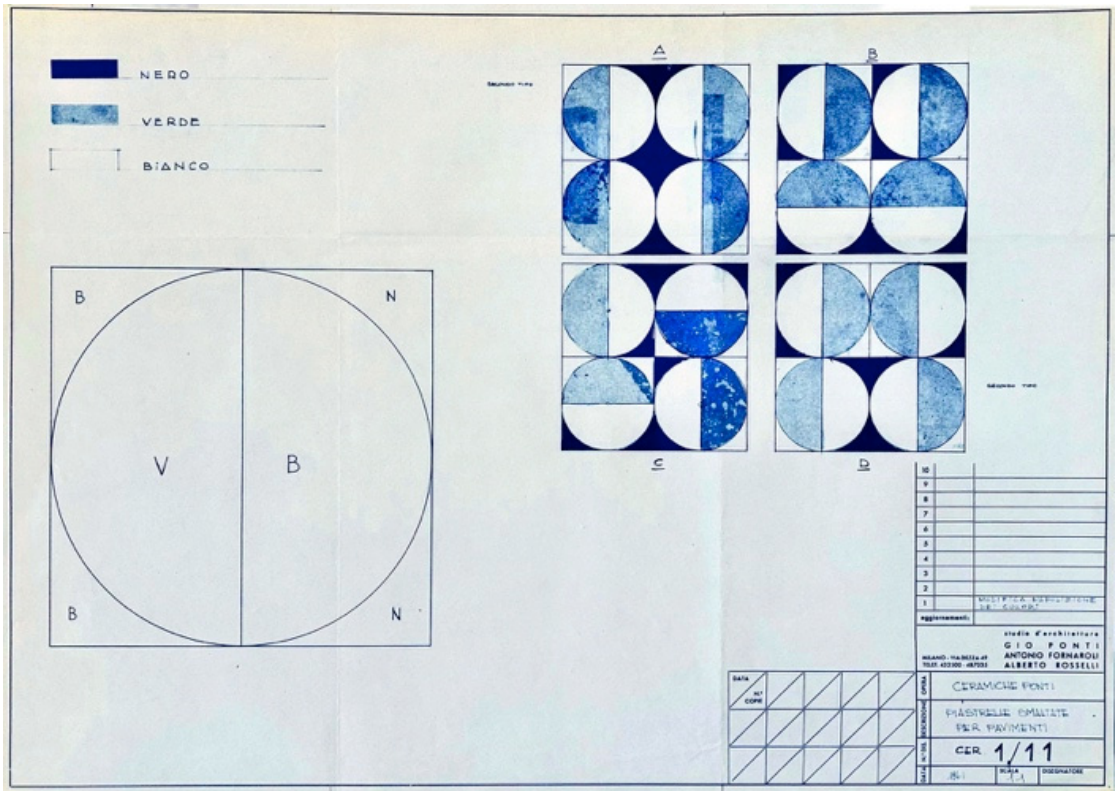

Fig. 3 Studio Ponti Fornaroli Rosselli, Ceramiche Mazzotti, glazed ceramics for floors, 1961 © CSAC Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Fondo Gio Ponti.

[3] Centro Studi e Archivio della Comunicazione (CSAC), Fondo Gio Ponti, Ceramiche Joo, 1956, coll. 339/2, inv. PRA 526, id. 13990.

[4] CSAC, Fondo Gio Ponti, Ceramiche Mazzotti S.A.C.I.E. Torino, 1961, coll. 326/6, inv. PRA 724, id. 14393.

The modular composition of different elements was also explored in 1965 for Gabbianelli, a Milanese company for whom Ponti developed the project *Nine Infinite Designs* [13] (reduced to seven, in 1966): the decoration of the tiles is based on variations of blue, yellow and white, allowing for the composition of numerous variations of designs and color: "it is false that industrial production signifies monotony and the mortification of fantasy. When we place our trust in the imagination of artists and «designers», of ingenious architects, modern industrial production offers infinite choices" [5, 13].

The second post-war period and the city of Milan have represented for Ponti a privileged context for experimenting with the new expressive possibilities of ceramic surfaces. Indeed, this material became an almost constant presence in his work through the 1970s, proving its ability to adapt to widely differing contexts, from residential buildings (RAS Houses in via Monti, 1956; House in via Vallazze, 1956; Melandri House, external base, 1957; INA building in via San Paolo, 1963-1967), to scholastic architecture (the *Trifoglio* and School of Architecture at the Politecnico di Milano, 1956), to corporate architecture (Second Montecatini building, 1947-1951; Edison building, 1952; Pirelli tower, 1956; Assolombarda building (stairs), 1958; Palazzo RAS, 1962-1963; Banca del Monte, 1964; Montedoria building, 1970; Savoia Assicurazioni building, 1971) to religious architecture (St. Luca Evangelista, 1955-1961; St. Francis of Assisi at Fopponino, 1961-1964; St. Carlo Hospital Chapel, 1964-1969).

This latter field presents a particularly rich documentation dedicated to the construction of the votive temple of St. Francis of Assisi "offered by Milanese business owners" (1961-1964) whose design spanned 15 years[5]. In particular, the drawings dated 30th May 1961 show the attention by Ponti to the detailing of the surfaces of the façade, in a combination of "scraped grey cement" for the base and "white-grey" Piccinelli ceramic mosaics, alternating with "white-silver diamond ceramic" and oak portals[6]. Inside the building was instead planned the use of "flat Joo ceramic in the same color as the façade"[7]. The most relevant drawing from this series is certainly the detail of the installation of the finishes, shown on the drawing *Façade detail. Parish residence facing the church square*, 28th April 1961, scale 1:20[8]. It represents a very detailed drawing which shows, in elevation and section, the methods of installing the 'diamond' ceramic tiles respectively on structures in reinforced concrete and on block infill with a 2 cm layer of cement mortar (Fig. 4).

Similarly, for the façades of the San Carlo Hospital Chapel (1964-1969) Ponti also selected Joo ceramic, both diamond tip and flat, in grey enamel, in assonance with the other buildings of the hospital. The tiles are 5×10 cm in size, alternated with bands made of glass blocks by Fidenza company and diamond tip windows in smoked glass. The drawing dated 3 September 1961[9] describes the relief elements of the finish that, depending on the angle of the sun, reflect light "to create effects that change depending on the vantage point from which the building is observed"[10].

The possibility to render the perception of color on the façade vibrant and never constant with the variation of light and the position of the observer can also be found in Ponti's designs for the Politecnico di Milano

[5] CSAC, Fondo Gio Ponti, Tempio votivo di San Francesco, Milano, 1960-1975, coll. 325/4, inv. PRA 610, id. 14173.
[6] CSAC, Fondo Gio Ponti, Tempio votivo di San Francesco, Milano, 1960-1975, Particolare facciata tempio sul sagrato, 30 maggio 1961, scala 1:20, coll. 325/4, inv. PRA 610, id. 14173.
[7] CSAC, Fondo Gio Ponti, Tempio votivo di San Francesco, Milano, 1960-1975, Particolare facciata. Casa parrocchiale sul sagrato, 28 aprile 1961, scala 1:20, coll. 325/4, inv. PRA 610, id. 14173.
[8] CSAC, Fondo Gio Ponti, Chiesa di San Carlo Borromeo all'Ospedale San Carlo, Milano, 1961-65, coll. 329/1, inv. PRA 844, La chiesa. Facciata principale, 3 settembre 1961, scala 1:100.
[9] Advertising page of Ceramica Joo Milano srl, 1966. Domus 443 (October): 2.
[10] CSAC, Fondo Gio Ponti, Politecnico di Milano, 1955-1963, coll. 338/5, inv. PRA 590.

(1955-1963)[11] and in particular for the building known as the *Trifoglio* (1959-1963), suspended above a rusticated bush hammered concrete base and finished, on the upper levels, in very shiny and faceted dark grey Joo mosaic tiles.

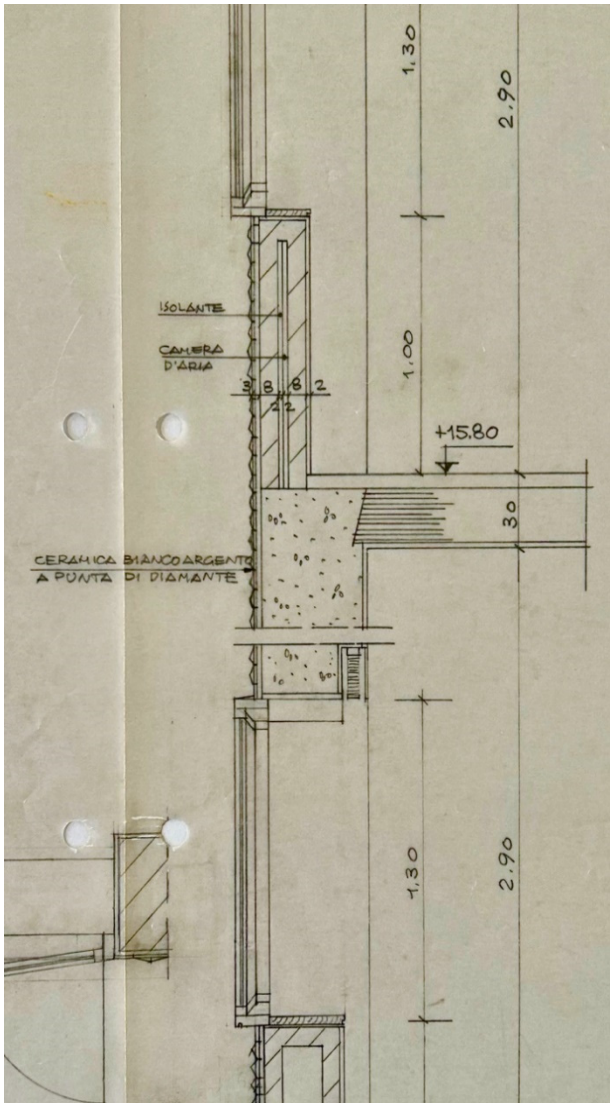

Fig. 4 Studio Ponti Fornaroli Rosselli, Façade detail. Parish residence facing the church square, 28th April 1961, scale 1:20 (part.) © CSAC Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Fondo Gio Ponti.

However, it was in the field of corporate architecture that Gio Ponti struck a balance between a consolidated language and more daring experiments. The drawings for the Second Montecatini Building (1947-1951)[12] dating back to 1947 show ceramics used in small diamond tiles and plain tiles cladding the façade facing via Principe Amedeo, flanked by taller volumes finished in slabs of Nuvolato Apuano stone with a bush hammered concrete base[13].

In Montedoria office building (1970) Ponti, now in his nineties, amplified the theme of color by modeling a volume whose façades are defined by vibrant green scales and the alternation of large openings and smaller windows (Fig. 5). The project drawings, dated between 1968 and 1969[14], do not arrive this time at such a high level of detail for the surfaces. All the same, the earliest drawings already show the choice to use "green ceramic elements 6×19.5 cm, both flat and in relief" that would be indicated in 1969 as Superklinker tiles by Saccer company, alternating with "surfaces in scraped white cement", bands of glass block and "natural anodized aluminum windows" by Securit [4].

The variations of light during the course of the day emphasize the geometric and chromatic differences of these choices: "what is differentiated in this case are the diamond reliefs, some set inward others projecting, others with a double faceting, with a narrower relief containing 'two diamonds' per tile" [14].

The green mosaics with different shades and marbling were previously used by Ponti at the Bijenkorf warehouses in Eindhoven (1964-1968), produced to his design by Saccer company. The same cladding can also be found on the Savoia Assicurazioni building (1968-1971) in Milan, the last building realised by the architect.

[11] CSAC, Fondo Gio Ponti, Secondo Palazzo Montecatini, Milano, 1947-1959, coll. 328/2, inv. PRA 700.
[12] CSAC, Fondo Gio Ponti, Secondo Palazzo Montecatini, Milano, 1947-1959, Facciata su via P. Amedeo, 4 marzo 1957, scala 1:100, coll. 328/2, inv. PRA 700.
[13] CSAC, Fondo Gio Ponti, Edificio Montedoria, Milano, 1968-1969, coll. 325/1, inv. PRA 852, id. 14522.
[14] CSAC, Fondo Gio Ponti, Edificio Montedoria, Milano, 1968-1969, Facciata su via Andrea Doria fianco su Piazzale Caiazzo, 18 giugno 1963; Facciata su via G. B. Pergolesi, 9 aprile 1968, scala 1:100; Facciata su via A. Doria, 31 ottobre 1969, scala 1:50, coll. 325/1, inv. PRA 852, id. 14522.

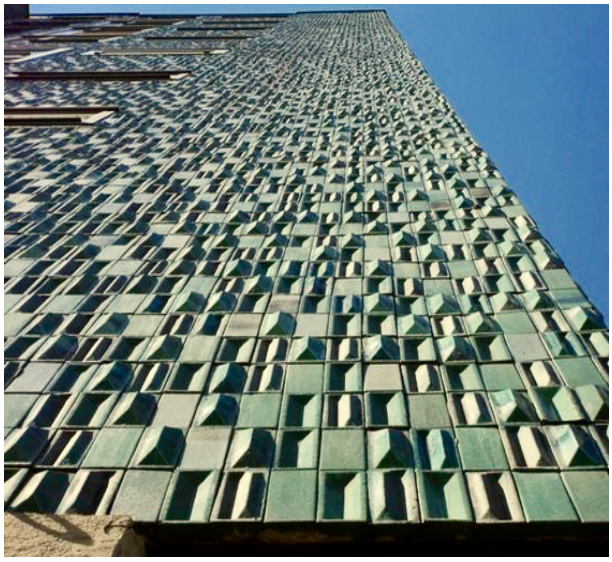

Fig. 5 Studio Ponti Fornaroli, Montedoria office building (1970), four different types of green ceramic tiles (Di Resta 2021).

2.4 The Deterioration of Ceramic Surfaces

In Gio Ponti's writings, the dialogue established between ceramics and architecture is motivated, other than by aesthetic characteristics, also by requirements of durability and hygiene guaranteed by the choice of this material. Particularly in polluted environments, such as large cities, ceramic surfaces would offer a valid and more durable option than plaster.

These finishes now represent an important material, technical and artistic legacy for modern architecture, capable of documenting art, experimentation and industrial innovation. All the same, despite the excellent intrinsic properties of ceramic materials, they are frequently subject to deterioration that can take the form of cracking, spalling, detachment and falling elements that represent a risk to the integrity and efficiency of modern surfaces. The causes of these phenomena are not generally due to physiological aging, but instead to errors in design or installation. The principal causes of deterioration include:

- incompatibility between surface and substrate;
- deterioration of the substrate (cement or adhesive based on vinyl or acrylic resins) or of the sealants (erosion, calcium hydroxide washout in cement mortars, action of acid substances, carbon dioxide or sulphates on cement mortar)
- application to supports affected by problems of rising dump;
- poor quality of materials.

The notable difference in the elasticity of surfaces and supports is generally the first cause the deteriorations mentioned. Thermal movement of the finish material is in fact impeded by the leveling and/or adhesion layer because the elastic module of these mortars (or resins) is inferior to that of ceramic tiles (Fig. 6). The constant action of movement causes spalling, detachments and falling [15].

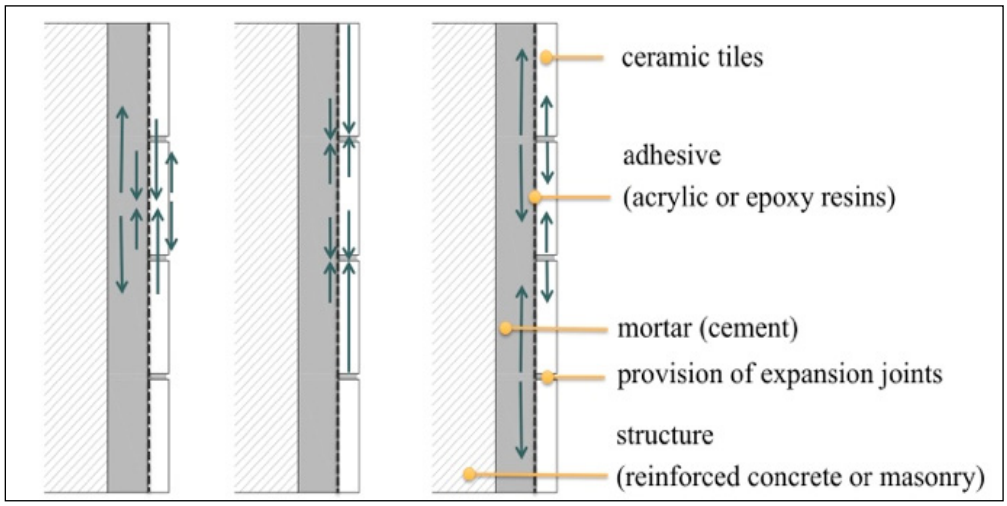

Fig. 6 Ceramic surfaces. Deterioration phenomena related to the installation methods (Di Resta, 2023).

Fig. 7 Deterioration phenomena of modern ceramic surfaces. From top left: (a) expulsion of vitrification of glazed finishes; (b) hair cracks of unglazed porcelain tiles; (c) fractures of unglazed porcelain tiles due to the expulsion of concrete cover; (d) detachment and falling of mosaic tiles; (e) visually evident repair works; (f) deterioration of the cement mortar (substrate); (g) hair cracks on "diamond" unglazed porcelain tiles; (h) fractures on "diamond" unglazed porcelain tiles (Di Resta, 2021).

While the deterioration of the support that can lead to detachments and falling of tiles is a common issue for façades with a ceramic finishes, the analysis of Ponti's architecture in Milan highlights significant differences in the behavior and related state of conservation of surfaces in relation to the diverse supports to which the tiles are applied (Fig. 7).

A particularly explicative example is offered by the finishes of the St. Carlo Hospital Chapel [16], where there is an evident difference in the state of conservation of the mosaics installed on reinforced concrete and those on masonry infill walls. The first shows serious and widespread phenomena of cracking caused by the expulsion of the concrete cover (Fig. 7c). Diversely, tiles applied to infill walls show a lesser extent of deterioration limited to the cement mortar and/or the adhesives, generally the cause of detachment and falling of entire mosaic tiles (Fig. 7d).

While the unglazed porcelain tiles (grès) is characterized by the scarce absorption of water and a good chemical resistance and resistance to freezing, the same is not true of glazed porcelain tiles. A specific phenomenon related to this material is the deterioration of the enamel finish (Fig. 7a), which does not generally suffer from alterations when properly protected against the effects of atmospheric agents and sharp changes in temperature, but shows diffuse phenomena of cracking and expulsion of vitrification when placed outside.

3. Conclusions

Ceramic surfaces are among the most expressive materials in the work of Gio Ponti, a "generous and powerful champion of modernity and renewal"[15].

All the same, his buildings in Milan are only an important sample of a much vaster phenomenon, demonstrated, in addition to the numerous buildings designed by Ponti around the world, also on ceramic surfaces of many works that constitute an important legacy of modern architecture. This heritage of

[15] The company TeamWork Italy, specialized in reproduction of modern ceramics, mosaics and klinker tiles for restoration works, has provided the tiles for the mentioned interventions.

technical, artistic and architectural culture is now at risk of being lost, due to a lack of systematic studies on the conservation of the unique materiality of the buildings.

In many cases, the deterioration of modern surfaces has led to widespread and extensive works of substitution, in some cases integral, nurturing a new market for the production and re-production of tiles for the restoration of modern architecture.

In Milan, different degrees of replacement of mosaic tiles have been carried out at the St. Carlo Hospital Chapel, now St. Maria Annunciata (glazed porcelain mosaic tiles "diamond", grey color, 7.5×15 cm), the *Domus Adele* (clinker relief tiles, mustard color, 10×20 cm), the Montecatini building (glazed porcelain mosaic tiles, white color, 2×2 cm; "diamond" clinker tiles, grey color, 6×12 cm, in 4 typologies: relief, bas-relief, high bas-relief and flat), the Montedoria office building (glazed porcelain mosaic tiles, variations of green, 6×19 cm), the *Nave* and *Trifoglio* buildings at the Politecnico di Milano (glazed porcelain mosaic tiles "diamond", grey color, 7.5×15 cm; relief mosaic tiles, dark grey color, 5×5 cm) and the former Savoia Assicurazioni building (enameled green relief mosaic tiles).

Both economic reasons (high cost of conservation work) and the need to retain the visual integrity of modern architecture are among the principal causes of replacement works that represent the true risk of losing ceramic surfaces.

The ongoing research is aimed at providing a systematic characterization of phenomena related to the deterioration of modern finishes, nurturing successive investigations and exploring possible new strategies for conserving the elegant and distinct skin of 20th century architecture.

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