

# **The Decorative Use of Concrete in an “Other” Modernism: Italian Architecture of the Dodecanese (1912-1943)**

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## **BUILDING MATERIALS, THEIR HISTORY, PRODUCTION AND USE**

This research paper explores architectural development in the Dodecanese during the period of Italian governorship. According to the Treaty of Lausanne, 1923, after an initial period of military occupation, Rhodes and the Minor Islands were declared Italian Islands of the Aegean. Within the architectural experiences of that context a central position is assumed by the problem of finding an architectural language - a search for an appropriate "style" to be the image of a precise and ambitious political programme. The governors of those far away islands summoned some Italian architects to create an architecture that was representative of Italy - one that would take into account the *genius loci* and, yet, could belong to modernity at the same time. On those Aegean islands the Italian architecture is representative of that "other" Modernism, so often either forgotten or left at a margins of the history of the official modern architecture. Here Modernism and Mediterranean traits, innovation and tradition, are merged. As years went by the architecture produced in Dodecanese during this period sank into a double oblivion. On the one hand, it is “forgotten” by the Italians for its association with Fascism. On the other the Greeks ignored it as a relic of the foreign occupation. As a matter of fact this is a regional variant of the modern architecture that experiments with the use of concrete as a new building material, but which remains deeply rooted to the plastic-masonry principles typical of the Mediterranean region. The creators of this architecture are minor characters, coming from the provinces, who, having learned the lesson on Modernism, re-elaborated it thanks to their local experiences. In other words, such an architecture may be placed within the "bends of 1900" (Miano 2003): a second architecture, an "other" Modernism with respect to the official one.

Indeed, this study deals with two distinct aspects of the above-mentioned architecture, both tied to the structural system: concrete as a structural element and concrete as an ornamental one. On the twofold nature of the "structural" and "ornamental" concrete the clearest statement comes from Peter Collins, *Concrete: the Vision of a New Architecture*. This history reveals architecture seen from "an eccentric and one-sided point of view". Yet, if the history of concrete as a structural element is already well known, less attention has been paid to the "aesthetic question", to the ornamental possibilities given by that material. In fact, apart from the well-known history of reinforced concrete, there exists a general history of concrete, often mistakenly confused with the former (Collins 1959).

This study looks at the consequences of the introduction of concrete within a masonry system, trying to answer to the following questions: Which transformation leads to the introduction of a reinforced concrete frame in Modern Mediterranean Architecture? What is its consequence for the architectonic organism? How is the ornamental system redefined during the passage from masonry to concrete construction?

The first section deals with the framing of the Italian architecture of Dodecanese within the wider context of Modern Mediterranean Architecture. The second section moves from the direct investigation of the buildings in question to reach, through a comparison with famous examples and the reading of practical guides published during that period, a possible comprehension of the building systems validated by the drawing.

## **THE INTRODUCTION OF REINFORCED CONCRETE FRAMES IN MODERN MEDITERRANEAN ARCHITECTURE.**

The adoption of reinforced concrete as a new building material in this region has, at least, two peculiar reasons. On one hand it bears witness to the aspiration to Modernism which characterises the "provincial" designers who, far away from the most important debates on architecture, longed for experimenting with the new acquisitions in the technical field. On the other it presented the possibility to finding a technical solution to the seismic risk which constantly threatens those islands and which Italians were called to face promptly after the earthquake of 23 April 1933, that destroyed the town of Kos.

The problem about the seismic risk was relevant to building choices during the 1930s. A fact proved by the circulation, within the Italian Dodecanese of the issue "New Technical and Sanitary Regulations for the Building in Seismic Areas" (Regio Decreto Legge 3/04/1930, n. 682, published in the "Gazzetta Ufficiale" 7/06/1930, n.133), of which some copies are stored in the Archive of the State of Rhodes. The reinforced concrete frame as a potential remedy for earthquakes alone would have sufficed as a reason for an abrupt transformation, which however did not happen. Indeed, it was exactly the awareness of building in a seismic area that led the Italian designers to partially keep the masonry system. (Mezzina 2003) For a correct planning of the structures in seismic areas it is necessary to consider as strictly connected, both the structural framework (the frame) and the "secondary" parts (infill wall). In such buildings the masonry does not merely fill in the reinforced concrete frame, but it is statically collaborating; it works side by side with the frame. With the basic structure of an independent framework, often thick and heavy walls are combined (Poretti 2004).

The introduction of concrete as a building material has not turned upside down the masonry building system, but it has led it, through slight up-datings and continuous transformations, to become an original expression of the Modern Mediterranean Architecture. (Strappa 2003, D'Amato 2001/2003) In other words, the masonry system was not abruptly substituted by the framed system,

but it was absorbed, assuming some principles, accepting to be partly modified by it. In that type of architecture there persisted an organic unity of a plastic masonry kind, visible both in the planimetric composition and in the decorative scheme of the façade (**fig. 1**).



Figure 1. Main span profiles of the Albergo Gelsomino in Kos and the Albergo Roma in Portolago (Lakki).

From the planimetric point of view, the composition tends to restore the boxing aspect of the masonry architecture. Note, for example, the planimetries of the School for Boys and the School for Girls in Kos, planned by Florestano Di Fausto and Carlo Buscaglione at the end of the 1920s (**fig. 2**). From the static point of view, the structure is composed of a reinforced concrete frame and collaborating walls. From the point of view of arrangement, the plan is still very rigid, it has the aspect of the traditional masonry structures.

The use of reinforced concrete frames in these structures did not lead to a rending between the external reading of the construction and the structural system. The façade is still characterised by fascias of horizontal stratification and by tectonic “knots” which reveal, more or less clearly, the structure. In these buildings the façade is still the place for deep mouldings, for contrasts between light and shadow. On the façade is concentrated the linguistic and expressive search of the author.

Notwithstanding the different stylistic solutions that this architectures, from time to time, adopt, from the functional buildings of the new town of Portolago (Lakki) to the Art Déco style in Kos, some standard features in the structuring of the façade, such as the overhanging mouldings and the “extroverted” surfacing, still persisted (**fig. 3**). Every single ornamental element does not represent an isolated element, a unique and unrepeatable episode. On the contrary, the element participates in a choral system focused on urban ornament. The single moulding becomes a synthesis between the urban dimension and the architectural dimension. The detail does not belong to the single building, but to the town as a whole, to its skyline.

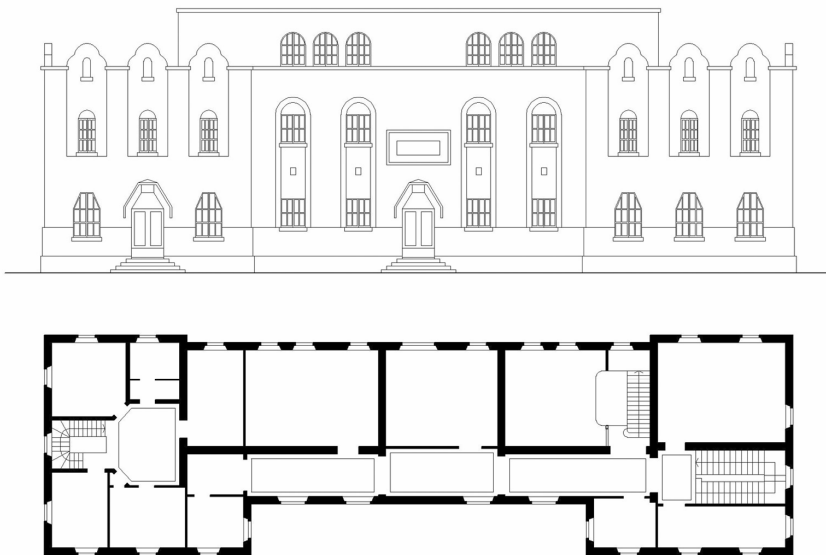


Figure 2. The first floor plan and façade of the School for Boys in Kos.

The traditional vertical hierarchization of the façade is not abandoned. Indeed, it includes some exceptions, "concessions" to Modernism. For example, the "window in the corner", widely used in modernist architecture, is found both in the most clearly functional buildings, as in the estates built by the "Istituto Nazionale per le Case degli Impiegati dello Stato" (National Institute for Civil Servants Housings-INCIS) in Lakki, and in the re-elaboration of the vernacular architecture by Mario Paolini in Kos. The window in the corner, in turn, in the INCIS estates in Lakki, carries two distinct meanings, with a lower or higher degree of modernism indicated by whether or not it retains a central support (**fig. 4**).

Moreover, even where the protection given by the wall lacks and the concrete pillar stands as an isolated element, the building does not betray its masonry nature. The wide use of arcades likewise does not represent a surrender to the construction of modernist discrete supports being inserted in

the wider language of urban composition. The use of discrete vertical supports does not stand for *piloti*, does not sever the relationship between ground and superstructure, as it happens in modern North-European architecture, but it continues the use of structures of Mediterranean tradition, strongly characterising the urban space through arcades and loggias (fig. 5).

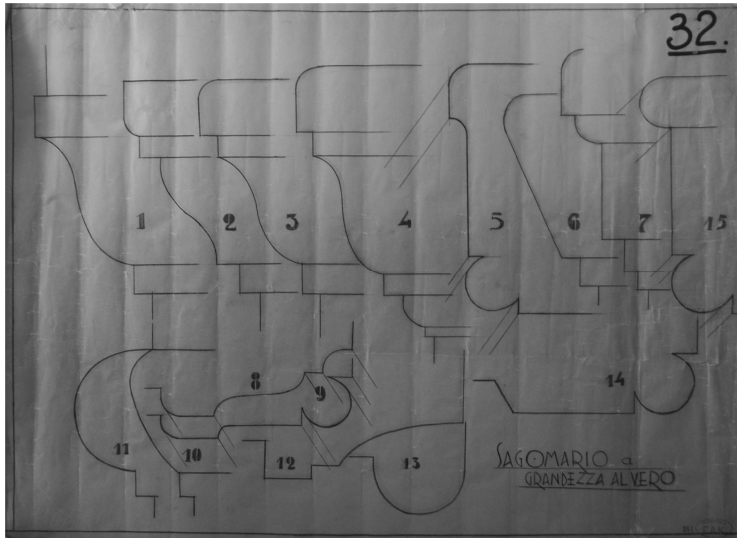


Figure 3. Original drawing of concrete moulding profiles, belonging to INCIS in Portolago (Local Archive of Leros).



Figure 4. “Windows in the corner”. The INCIS estates in Portolago (Lakki).



Figure 5. The Albergo Roma in Portolago (Lakki). A series of arcades along Piazza Littoria.

A study of original design drawings, made by Italian architects during 1930s, highlights some interesting features. Take, for instance, Paolini's drawings of the council houses in Kos, where often in the plans no pillars are indicated. It seems as if these are plans for masonry houses whereas the plans for the foundations are as normal for framed structures. The architectural forms hardly reveal their structural secret. There was inertia in using the continuous masonry system. Notwithstanding the fact that the designers were absolutely aware that the construction would be made with a reinforced concrete frame, it is as if they kept on planning for load-bearing walls (**fig. 6**). Although it may appear as a marginal detail, concerning only the drawings, as a matter of fact this confirms and gives proof to the thesis that we are here confronted by a modern concrete architecture which declares itself to be part of the wall tradition, Mediterranean, continuous, opaque. That is, a regional variant of Modernism. As was common in Italy during the inter war years, that kind of architecture is strongly conditioned not only by the wish of the Regime to auto-represent itself, but also by an autarchic policy and its consequences in building technology. It is an architecture done in the Italian way that treats reinforced concrete as a form of masonry (Poretti 2004).

Starting from this datum, we need to look at the general spread of already tested building systems, and the structural compromises adopted inside the building process by the Italians during the occupational period in Dodecanese. In this way, it is possible to understand the relationship between the stone wall and the reinforced concrete frame.

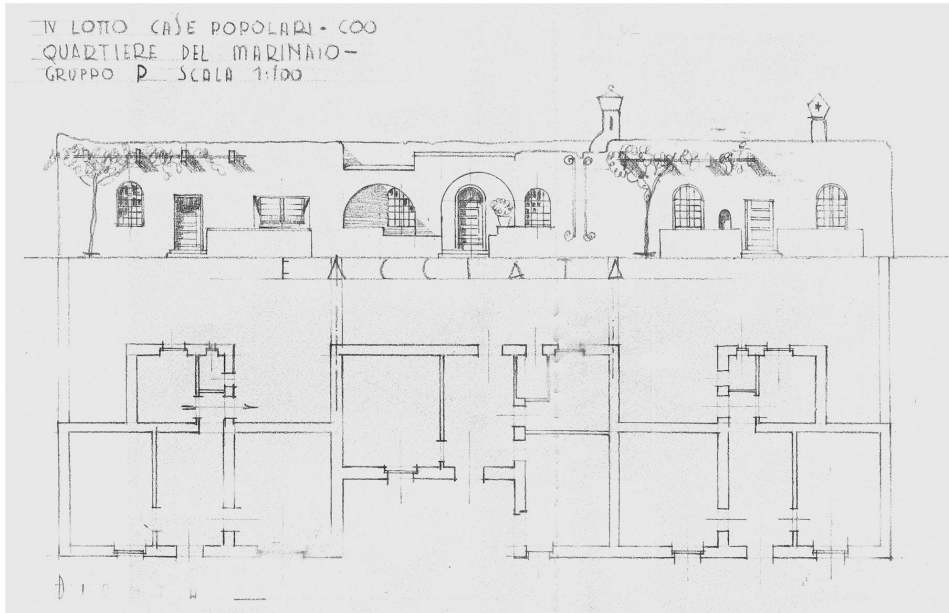


Figure 6. Paolini's designs for the council houses in Kos. (Courtesy of the Italian Archaeological School in Athens).

## THE ORNAMENTAL AND EXPRESSIVE POSSIBILITIES OF CONCRETE: THE ORNAMENTAL USE OF THE NEW MATERIAL

With the introduction of the new material, concrete, came the question about its architectonic expression. The need for expression that designers keep on worrying about led them to linguistic experimentation, to "cross-breeding", to the combination of styles. In other words it led them to "eclecticism". Concrete then came to be used in order to give shape to different linguistic solutions, while stone continued to be employed for buildings nearest to the Regime and full of rhetoric. The architecture in Rhodes, the main town on the archipelago and most representative of the Italian colonisation policy was, for example, for the greatest part clad with stone - above all during the so-called period of "purification" - in an attempt at presenting an image of a town "made up of stones" in continuity with the Age of the Knights (Ciacci 1991, Pitsinos 1996, Martinoli-Perotti 1999). By contrast, in Kos any ornamental schemes for the façades are rendered through the use of concrete. A very few buildings deserved being clad in freestone, the "Casa del Fascio" (Fascist Party Headquarters), the Archaeological Museum, the semicircular flight of stairs to the Church of Aghia Paraskevi, in the settlement of Piazza Aranci (Aranci Square) - all of them built in limestone, mygdalôpetra, similar to travertine (fig. 7). The ornamental parts of all the rest of the architecture, from the estates to the churches, are made by using a cement or concrete paste, a ductile material

that can assume any shape or aspect and reproduce the code of "any" style - in many cases even assuming a resemblance to stone-work.

Concrete was widely used in the archaeological field as well. A study of the restoration work done by the Italian archaeologists in Kos during the occupational period, reveals the wide use of building techniques and of materials similar to those used on new building sites. Similar to most of the decorative building elements of the new town, a paste made from concrete was used. Its task was to imitate the effects of handwork and of the chromatic variations of the stone. Such a paste, widely used as insertions for missing parts and in the restoring of the broken blocks, was just the plastering of a primary concrete structure, internal and reinforced, characterised by large dormant pieces having no claims to aesthetic value. That two-fold combination is used in a similar way to realise structural elements which also carried an ornamental function, as for example with the rough piers and the capitals of the arcades in Kos.

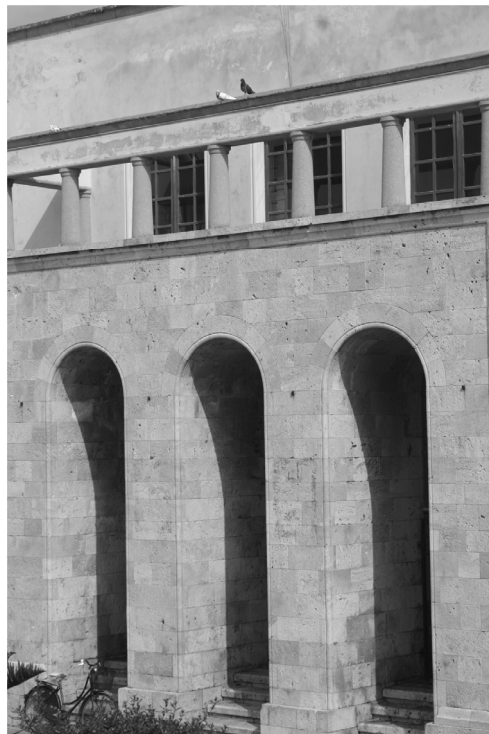


Figure 7. The Archaeological Museum in Kos. Entrance arcade.

The linguistic and ornamental enquiry came from the acknowledgement of a morphological role for concrete. Its essential nature is just to be amorphous. It offers countless possibilities: the possibility ornamentally to express a design without the cumbersome mediation of a material that has its own,

intrinsic, constitutional, ornamental "pattern". Its "amorphous" nature was the reason for such great fame and for its widespread use during this particular historical period, and in a region where linguistic pluralisms were dominant. Indeed, according to Collins, there seems to be a link between the use of the new material and the flowering of the "eclectic" architecture during the second half of the nineteenth century: the architecture expressed by the new material had its basis in "eclecticism", that is, using everything most peculiar of each style, is an apt way to constitute a ready-to-use grammar guide for composition (Collins 1959).

In that peculiar regional variation of Modern Mediterranean Architecture, the relationship between structure and ornament was clarified, starting from two paradigms which led the observations in the case-studies: the detection of the morphological role of the material and of the "tectonic" role of the building element. It will be necessary, therefore, for a global comprehension of the architectural ornamental system to be able to question both the material used and its expressive aim - both concrete and the concrete mouldings.

In most of the Italian architecture in the Dodecanese, the ornamental apparatus took various different shapes. What, then, is the relationship between the building system and the ornamental one? A peculiarity of modern Italian architecture with respect to modernity in the rest of Europe, is the different way of conceiving of the relationship between structure and finishing. Very often in modern Italian architecture, the architectonic image is defined by the relatively autonomous system of the finishing (Poretti 1996). The ornamentation of these buildings varies in ways that I will try to classify in the present study.

The *tiles made up of gypsum and stucco*, represent a kind of ornament that may be called "narrative", and which attains well-defined and unambiguous traits, easily understood. Examples of this are: the decorated walls of the Kallithea Bath in Rhodes (designer Pietro Lombardi, 1930); the ornament in relief on the front side of the Nursery School in Kos, 1934, and on the façade of the Institute of Marine Biology in Rhodes (designer Armando Bernabiti, 1934). That kind of ornament can be assimilated into the category Quatremère De Quincy has defined as "allegorical" decoration. It is an applied ornament, but not at all a superfluous one. It constitutes a sort of big caption to the building and its role is an immediate cross-reference to the buildings on which it is used (**fig. 8**).

Frequently, *tiles made of "artificial" stone* can be found. An example is the ornamental arched lintel of the crowning gable of the Albergo Gelsomino in Kos. The artificial stone has been made from the local stone of Patmos, with colours varying from ochre to red (**fig. 9**).

Quite common are *stucco mouldings*. All the torus mouldings that run along the edges of the walls, beams and pillars are made of stucco and represent a stylistic constant that identifies the Italian architecture in the region (**fig. 10**). The torus mouldings may even be created out of different materials, according to the place and the language the building assumes. In the old town of Rhodes

the torus mouldings are made of stone, whereas in the entrance-portal of the Italian Cemetery in Kos, they were created from concrete grit and the effect longed for was one of an enormous and smooth monolithic surface.



Figure 8. Nursery School in Kos. Decorative tiles in stucco gypsum.



Figure 9. The Albergo Gelsomino in Kos. Tiles of "artificial" stone in the crowning gable.

Next to the freestone mouldings, present, as already mentioned, in the most representative buildings of the Regime, *artificial stone mouldings* can be found. Most of the ornamentation belongs to this category, the crowning frames and that on stringcourse of the buildings in Lakki, a military town of new foundation on the island of Leros (**fig.11**). Furthermore, it is interesting to notice that freestone even appears in the same buildings as artificial stone. Stone and artificial stone co-exist, for example, on the same façade, as at the Albergo Roma in Lakki. In the detail drawing, Bernabiti, the designer, specified stone Patmos for the big moulding on the portal of the corner tower, while for the string-course that runs along all sides of the building, we read "*pietra artificiale imitante la pietra di Patmo*" (artificial stone imitating stone from Patmos). The ornamental apparatus of the façade is characterised by a few linear elements, the stringcourse, the cornice of the building and the frame articulating the arcades. Besides, the case of the Albergo Roma in Lakki, designed by Bernabiti in 1935, clearly highlights the relationship between the concrete frame and the ornamentation. As far as the static system is concerned, in that building too, the wall system is not merely a filling in, but is structurally collaborating with the concrete frame. Just how basic this combination was to the building technology is shown by the fact that whenever the concrete frame is free from the wall system, as in the arcades on the square, the decaying process of the concrete structure is more evident: wherever the wall system is missing, the reinforced concrete frame is warped.

In the low-cost constructions one finds *mouldings made with concrete casting and stucco*. They represent the cheapest way to create a moulding. The stringcourse mouldings and the cornices of the Workers Housings in Lakki are created in that way.

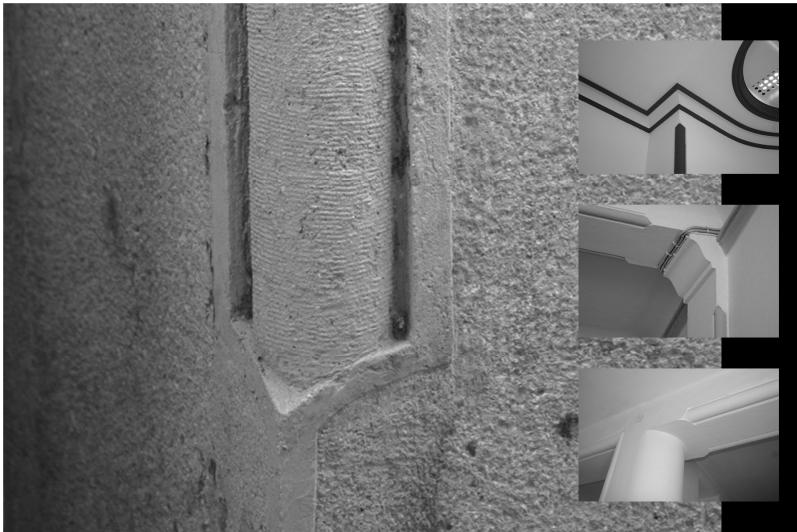


Figure 10. Torus mouldings in Italian buildings.

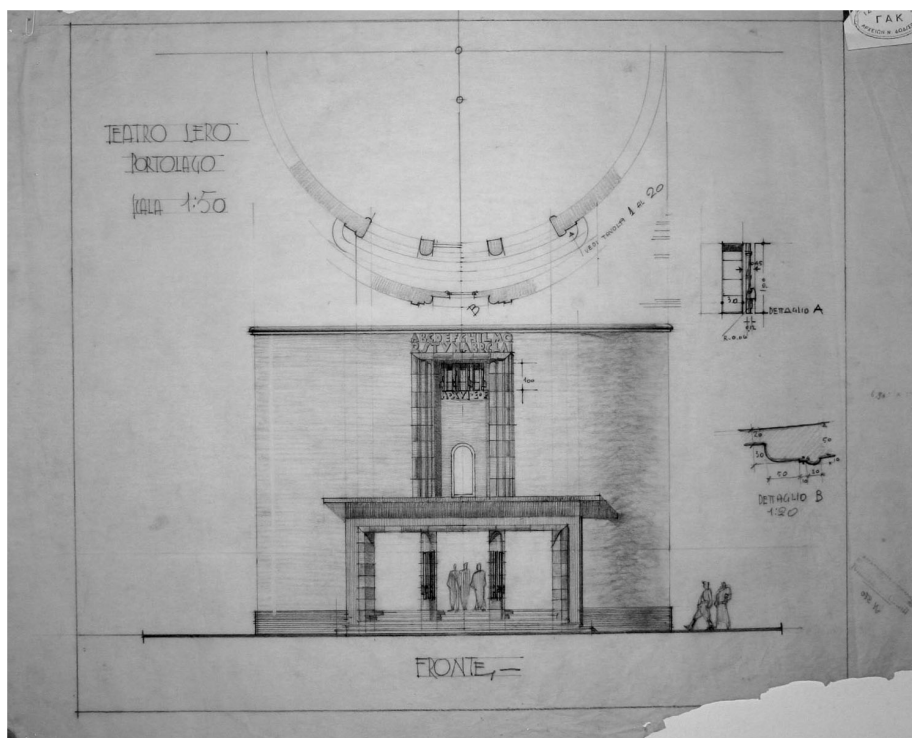


Figure 11. Original design for the Cinema-Theater in Portolago (Archive of the State of Rhodes).

Although not strictly speaking belonging to the category of ornamental shapes dealt with above, the superficial treatment of external plaster on buildings is significant for the way it follows the image of the traditional masonry system. Original in this way is the use of *coloured plastering in concrete paste*. That treatment can be seen on the ground floor pillars and on the shafts of the arcade columns of Albergo Gelsomino in Kos. Those columns are made in reinforced concrete and covered with a base of concrete paste on which the coloured plaster is laid. The designer's aim was to reflect, in coloured concrete, the polychrome aspect of the freestone walls. It formally and chromatically recalls the aspect of the fortifications of the nearby old town.

Also interesting is the *carved plasterwork*. The ashlar cladding of the doorjambs in Figure 11 appears furrowed in alternate directions. That is not just the effect of the drawing on paper, to more clearly emphasize two adjoining ashlars, but an effect produced during the execution. That kind of working is noticeable even on the concrete surfaces of the same buildings where the plaster laid on the wall decoration looks like a drawing. The low quality of the real masonry texture, made with irregular stones, is overcome thanks to the “carving” on the plaster of false horizontal rows and vertical joints. The plaster aims at representing the composite aspect of the freestone wall, an example of which is provided by the external wall of the Harbour Office in Kalymnos.

The *concrete grit components* probably represent the most original aspect of the ornamental apparatus of these buildings. Consider the several shapes taken by the grit capitals in the town of Kos (**fig. 12**). They are made from a concrete mix cast in appropriate formworks. The desired lithic effect is obtained through the treatment of the surface and the re-proposition of elements characteristic of the freestone architecture, as for example the surface treatment imitating the stone bossing.

It is possible to make an interpretative hypothesis about the construction of the arcade columns of Kos market, designed by Petracco in 1933 (**fig. 13**). The direct inspection of the handcraft and a careful analysis of the pictures of that period, taken during the construction, allow us to reconstruct the building process. We can recognise four distinct working phases: the creation of the reinforced concrete structural framework (the structural core of the column is a rectangular pillar in concrete casting); the predisposition of unfinished shape of the capital through the filling up with irregularly shaped crushed stones; the casting of concrete grit into a shaped mould; the treatment or finishing of the concrete surface. As it is possible to observe from the pictures of that period, the standard capitals were made with two concrete blocks cast off-site in moulds and then assembled on the building site. The resultant joints were subsequently hidden through the treatment of the surface. The capitals in the corner and those oblong of the main span, instead, are special elements necessarily made *in situ*.



Figure 12. The Kos Administration Palace. A contemporary picture, belonging to the Archive of the Archaeological Institute of Rhodes, showing a detail of a concrete grit capital.



Figure 13. The New Market at Kos. A contemporary picture of the works), and detail of a concrete grit capital (Markoglu 1992).

The special ornamental components of the Council Housing by Mario Paolini in Kos are made in coloured concrete grit, as is indicated on his design drawings. The tracery decoration, a constant in the Italian buildings from the period, reminds one of the Ottoman *hamman* windows (**fig. 14**).

The analysis of such a building technique should consider the state of the art of the new material. During the second half of the nineteenth century there was a lively theoretical and scientific debate on the topic of concrete and its uses, perfectly chronicled by Peter Collins in his book published in 1959. Within the pages of the English journals of that period a variety of views on the use of concrete were expressed by theorists, architects and builders. Collins emphasises the sceptical behaviour of the contemporary builders toward concrete. Once its structural qualities were accepted, it was the aesthetic question that caused the deepest doubt: what ornamental function could be given to concrete? (Collins 1959) If we extend that question to the present case, we may wonder if it is right to treat concrete as if it were a stone, as was done by the Italian builders in the Dodecanese. In

other words, is it "morally correct" to reject the historical view (expressed by Ruskin and others), that any material whatsoever needs to demonstrate its own nature by not imitating any other material? What did the Italian protagonists of this technology in the Dodecanese know about that historic debate? How extensive was their technical know-how in the use of concrete?

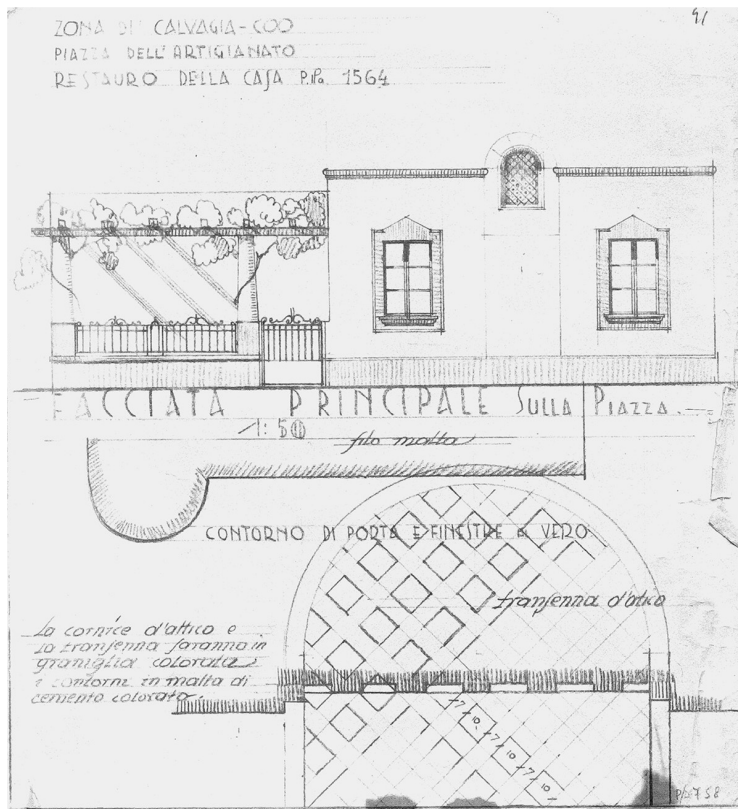


Figure 14. Paolini's design for council houses in Kos, showing details of a concrete grit ornamental element (Courtesy of the Italian Archaeological School in Athens).

We shall start to answer those questions by consulting the literature of that period. One of the most outstanding and most widespread guides was the *Manuale dell'Architetto* by Daniele Donghi, an engineer from Padua, published in 8 volumes between 1905 and 1930, in Turin. Among the "concrete materials" Donghi lists the stones and the artificial marbles. By reading his guide we understand how well known the main characteristics of those materials were: great ornamental possibilities, strong mechanical resistance, but needing protection against atmospheric agents. Donghi noted that "the qualities of stones and marbles are great, though not all of them offer satisfactory results as for their costs and their resistance to the whims of the weather" (Donghi 1906, p. 352). Among the types of stones that the author lists, and which fit the present case are the

"concrete artificial stones", which he divided according to: resistance, ornamental, finish and for any other use. "By mixing concrete, gravel or gravel mixed with naturally coloured crushed stones and by pouring the mixture into appropriate moulds or prints, artificial stones of whatsoever shape and size can be obtained" (Donghi 1906, p. 353). Of special interest for the architecture under examination, is the description of the ornamental stones, of which the author describes not only the mixture, but the type of working as well:

In general for the ornamental stones the Portland concrete of a good quality is used and small marbled crushed stones of particular colours; the mixture needs to be handled carefully and dried appropriately. In so doing one can obtain artificial stones which are more resistant and last longer than bricks and many other natural stones as sandstone, pudding stones and soft limestone etc. and that can be roughly hammered as a natural ones, smoothed and polished to appear as marbles, granites and porphyries. According to their shapes and uses, sometimes it is necessary to introduce cores or iron bars [...] In order to avoid the crack or the flaking of that artificial stones surfaces as time passes by, as it happens to the concrete blocks previously made, it is absolutely necessary that the drying process be completed before their positioning: this is an advice to keep in mind at any time if one does not wish to risk the work. As compared to natural stones, the ornamental concrete artificial stones allow a great saving [...] having in mind their shapes, even complicated ones, that only through a hard work can be obtained by the natural stones.

(Donghi 1906, p. 354)

In Donghi's list of advantages of the artificial stone it is possible to recognise a further one: the artificial stone allows the suppression of the joints, seen as a sign of weakness in the architectonic organism, where infiltrations could ruin the building's integrity. Yet, this point of reference cannot be applied to the whole production in concrete artificial stone in the Italian Dodecanese. As a matter of fact, sometimes, the monolithic method was preferred, freed from the joints of functional inconvenience. Very often, however, the joints were kept as a matter of choice in reference to the old masonry tradition. Their presence, inside an artificial stone system, represents the memory of the piece-by-piece working method of a freestone system.

Those who sublimated the expressive use of concrete would, however, further question the state of their know-how. The example of Auguste Perret is of relevance here. The experiments by Perret are obviously geographically and culturally far away from the Italian productions in Dodecanese, but quoting him seems justified considering his almost contemporary surveys of the same material. These led him to sublimate the use of concrete, to poetically re-elaborate it. We can look at Perret to understand his personal re-elaboration and to compare it with the Italians, as we look at a teacher in order to understand a student's work. In the present study the matter of comparison is not the whole of architectonic poetics, but the treatment of concrete and of concrete grit specifically as ornamental materials.

Now it has already been said that concrete is worked as if it is stone. However, we need to add that sometimes, it is even assembled as if a stone. As Perret himself commented about the external surface of the Museum of Public Works in Paris: "infill walls are made by assembled prefabricated concrete elements. Those elements are not standard ones. Each of them is made to fit its own place and numbered just as the stones of a freestone building " (Gargiani 1993, p. 194-196). That observation can be extended to the architecture under examination. Think, for example, about the arcade pillars of the Kos Administration Palace, or, of the Archiepiscopal Palace in Rhodes. In both instances the formal aspect of the columns is given by the ashlar cladding in artificial stone, more precisely in concrete grit. The ashlars are of similar yet not identical sizes. This datum can be observed in the most ordinary tectonic elements where one would expect to find a unifying system, that is, in the horizontal mouldings such as stringcourses, window frames, etc.

As an example, take the cornice of the base of the School in Lakki, made after a project by Rodolfo Petracco (1934-1937). The geometric profile is torus-shaped, the frame is made by assembling the joined concrete grit ashlars. The joint lines are visible and the length of each piece ranges from 40 to 75 centimetres. The aim was not to exemplify the building process through the standardisation of the pieces. Such an omission can be read as a further proof of the permanence of the masonry system with respect to the challenges of Modernism. The ashlar, though having lost its monolithic nature is still thought of, inside the building design, as a unitary element to be organically aggregated. The single ashlar block takes on neither a standardised shape nor a standardised size, since each one of them is made to fit its own place within the building system. During the transition from stone to artificial stone, from a structural system to a cladding system, some concepts peculiar to the plastic-masonry architecture had survived.

The geometric profiles that identify the individual mouldings have also been slightly simplified, with respect to those in stone, for constructional reasons. For example, some undercuts are less deep, just hinted at, as can be observed along the frame of the school in Lakki. Furthermore, the new material offers new possibilities. The structural frame at the school projects significantly with regard to the wall face, appearing as a canopy to shade the classrooms. The same frame in stone would have made a common cornice with the window, whereas the concrete makes it audacious, emphasising its own structural qualities. During the passage from natural stone to concrete not only had the geometric profiles of the mouldings changed, but even the structural element itself, by "warping", took on new functions.

Going back to the object of the analyses, the ornamental possibilities of the concrete, we need to face two main aspects: the question about surface and the question about form. The question about the treatment of the surface contains in itself the one about cladding that is not part of this study. The surface of the concrete is formally described following three scales: colour, grain size and type of treatment of the surface. According to Collins, with respect to shape, there are three paths: a tendency toward plain geometric compositions (the whole interest being concentrated on the

ornamental surface); the recall to the historical styles of the building tradition; the need for original shapes coming exclusively from the intrinsic plasticity of the material. From the point of view of an architectural language, the three above-mentioned paths lead to three different poetics.

The aim of the present study was to reveal the character of the Italian-Dodecanese architecture, without restricting it to fixed categories. However, as said before, a strictly relevant aspect of that architectural context is its linguistic plurality. Therefore, by itself the architecture in question escapes any rigid classification of shapes. What proved possible to detect, among all the considerations over the use of concrete, is the most basic one, namely, its treatment to imitate stone. From the observations made so far, the so-called "passage to modernity" represents the "passage from a stone building system to one in concrete". On this double meaning rests the peculiarity of a kind of architecture which, born out of a co-existence of traditional materials and materials of new acquisition, on the one hand aspires to modernity, on the other keeps alive the building traditions of its locality. The transition from old to new, within the Mediterranean countries, happened gradually and with small transformations affecting not only building techniques but the ornamental apparatus as well.

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