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## CROSSED DESTINIES: THE TECTONIC AND MODERN ARCHITECTURE IN BARCELONA DURING 50'S -60'S

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### Abstract

The tectonic as theoretical subject was carried on in the nineteenth century in the context of German culture and concerns the relationship between form and construction, focusing on the analysis of the correspondences between the constructive and static needs and the intents addressed to aesthetics. In Barcelona, oppressed by Francoism during the '50s and '60s, the will to be modern was expressed to a considerable extent through the reinvention of a language characterised by a successful synthesis between modernity and attention to local culture. Therefore the tectonic is an investigative tool that links the culture of Barcelona's design with the broader koinè of modernity that has made tectonic one of its fundamentals. As in Italo Calvino's novelist *The Castle of crossed destines* where different tales intersect, and the tellers are prompted by the symbols of a pack of cards so even in Barcelona the representative strength of Architecture interweaves with theoretical texts about tectonic providing a wider horizon to understand Barcelona architecture in the modern age.

**Keywords:** Tectonica; Core; Cladding; Building; Expression; Shape.

## 1. INTRODUCTION

There are various tools for reading and interpreting the changes that have affected the culture of design in the architecture of Barcelona in modernity after the Civil War: one of these is tectonic since it is strongly linked to the evolution of the languages from which one can realize the innovative character of modern architecture. Architects associated with Grup R, School of Barcelona and Realism have modified the expressive paradigms of the modern avant-garde, engaging a synthesis between the figurative sphere of architecture and the technical-constructive one. Through the tectonic, they have plastically expressed the continuity between architecture, history and the reality of building. Value should be placed on the development of new languages that reject the neo-historicist ones advocated by the Franco regime, which, like the Nazi and Fascist dictatorships, reproduced obsolete stylistic elements by emulating neo-Renaissance classicism to bend architecture to political propaganda.

If the architecture of the regime copies, falling into an involuntary and for this reason even more dramatic parody, the moderns instead represent, problematizing the relationships between the system of supports, the envelope, the shape of the architectural volume and the perception of the materials.

## 2. METHODOLOGY AND OBJECTIVES

The aim is to retrace the theoretical pathway of tectonics, finding put possible connections with Barcelona modern architecture between the '50s and '60s. As we are about to see, there is no evidence of explicit tectonics studies in the writings of the prominent architects of this period, but tectonics drives the work of architects under the radar helping them to achieve a poetic architectural shape.

The narrative of the paper has been carried on taking as suggestion Italo Calvino's novel *The Castle of the Crossed Destiny* combining the realm of concrete architecture of Barcelona in '50s and '60s and the sphere of some theoretical texts which have investigated subjects related to tectonics. Among them the work Kenneth Frampton's interpretation of tectonic got a seminal and unquestionable relevance.

In Calvino's novel the guest of the castle are supposed to tell each other a story but as they can't speak they have to communicate through tarot cards. Something similar has happened for tectonic in Barcelona. The buildings can speak if there is subtended theory that in our case is given by the literature issued in Spain and Italy about the recovery of the ancient agreement between materials and architectural shape. Indeed, the tectonic may be addressed to highlight how the envelope or the cladding deals with the "core" that, in turns, may be understood as the loadbearing structure, the layout arrangement or whatever other elements are able to convey the identity of architecture.

The quest for modern architecture in Barcelona is grounded on regaining the consistency between building and expression so that the tectonic may be considered a driving force even if it has not been explicitly mentioned.

Attention has been paid to the dissemination of his writings in Italy through the Electa publisher of Milan and *Casabella* magazine (issued by the same publishing house) since many fundamentals<sup>1</sup> of modern Catalan architecture have been shared and developed in synergy with the post-war Milanese design culture.

Frampton draws the basis of tectonic from Karl Müller, Karl Bötticher and above all Gottfried Semper; referring to Heidegger's existentialism, he postulated a dialectic between the phenomenological presence of things in themselves (Frampton 1995: 22) and their capacity to generate symbols and metaphors. From this standpoint, the meaning, for example, of a structure does not simply concern the arrangement and dimensioning of pillars or walls in order to make the buildings to stand up, but how this task is accomplished 'poetically' arousing those emotions that allow us to utter the famous Loos' sentence "this is architecture". This process comes into being through the dialectic between "representational" and "ontological" (Frampton 1995: 16), in other words, between the formal and constructive aspects, considered as the essence of architecture and as such ontological.

Through this term, Frampton focuses on the permanent nucleus of architecture that 'withstand' contingencies, investigating the relationship

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<sup>1</sup> The impact of the Italian architectural journals was highly relevant in the developing of Barcelona modern architecture (Lucchini & Jaen 2018).

between representational and ontological changes according to cultural contexts.

If, on the one hand, the *tekton*<sup>2</sup> is related to the form and represents the art of composing, on the other hand, the *archè* is a first principle, and therefore ontological, addressed to unveiling the semantics sphere of architecture according to the literature and the Calvino style narrative mentioned above.

So we are going to tell four tales able to rise theoretical issues related to tectonic of Barcelona modern architecture.

### 3. ARGUMENT

The first tale is about Frampton's influential theory of "critical regionalism" (Frampton 1984). Such a position opposing both the technocratic acontextual deformation of architecture and the post-modernist vernacular addresses a "critical awareness" of the culture of design able to grasp the importance of relations with the environment, the sense of places and their culture. In many ways, critical regionalism is in continuity with Ernesto Nathan Rogers' "environmental pre-existences" (Rogers 1954), which, as known, was acknowledged and reworked by Oriol Bohigas: both believed that history and design are dialectically influenced (Rogers 1997) and affirmed that materials, structure and form do not configure absolute values but are relative to places and their history (Bohigas 1961).

Kenneth Frampton's studies on tectonics also had a specific field of application in Barcelona. In the same year in which the article on Critical Regionalism was published in *Casabella* magazine<sup>3</sup>.

In the monograph about MBM arquitectes published in Italy Frampton (Frampton 1984: 8) points out a veiled contradiction between the traditional brick masonry that expresses the sense



Fig. 1. MBM arquitectes: casa del Pati. (Source: M. Lucchini, 2018).

of mass and heaviness and the "modern" need for a light structural syntax. In this book, the critical studies about MBM bring forward the tectonic conception of the form outlining the difference between an articulated system of discontinuous and linear elements made up of triliths, frames and cages and a stereotomic one in which the architecture is conceived as a compact and continuous mass (Frampton 1995: 5).

In the architecture of the '60s, MBM arquitectes, are often manipulated tectonic choices exposing the structural frame system on the façade. In the house in calle Comte Borrell 87-89 (1963-1969), the structural frame, the infill, the windows and bow-windows are analytically assembled, leaving no doubt of the difference between the bones and the skin of the building. The same lexicon appears in the Mutua Metalúrgica clinic in Avinguda Diagonal 394 (1955-1959) or in the Escorial (1955-1960) residential complex. However, in buildings with a load-bearing walls structure, the dialectic between exposed concrete structure and face masonry is more dramatic.

The houses in calle Navas de Tolosa (1960-1962) and in Ronda Guinardó known as "casa del Pati" (Fig. 1) are considerable example as the powerful exposed concrete bases shaped with structural frames and corbels support the masonry walls not only bearing loads but even symbolically.

<sup>2</sup> The etymological connection between architecture and the word *tekton* seems obvious but conceal a long and articulated history. Apart from an archaic origin into the indo-european culture the *tekton* was mentioned in Homero's poems taking a wider meaning of skilled craftsman able to make ships and working wood with an axe. The *tekton* was an attribute given also to hero like Odyseeus or king as Alexander the Great (Holst 2017: 3).

<sup>3</sup> *Casabella* directed in the 50s and 60s by E. N. Rogers was, together with *Domus*, one of the main magazines which conveyed the cultural exchange between Catalan and Milanese architects (Lucchini & Jaen 2018).

In the '90s While the Barcelona Model is rising, Frampton writes various essays on the catalan magazine *Quaderns* about tectonic in Barcelona and Spain.

The tectonic becomes a critical tool to assess the aesthetic value of a building in terms of consistency between frame, infill and relationship with the topography (Frampton 1990: 56). Later on, he argues that in Barcelona, there is a "culture tactile building" aimed to support the "local identity in the face of global development" (Frampton 1995: 18).

The second tales concerns the correlation between truth and deception that is a part of the dichotomy between Frampton's representational e ontological. Whether they have gathered Grup R or not, the most qualified architects devote their work to the everyday professional experience, concentrating on the urban and social context and the search for continuity between people and architecture. The theoretical manifesto of this attitude is Bohigas' article "Cap a una arquitectura realista" (Bohigas 1962). The trust in the expressive truth embraced by modernist avant-garde has to be rethought, investigating a more complex compromise between minimalism and discarding whatever ornamentation.

#### 4. RESULTS

Architectural thinking fulfils the consistency between formal characters and structural or constructive meaning through the mimesis. It is a compositional and critical topic that alludes to the theatrical representation (Ugo 2008) and the relationship between the visible and the invisible aspects of the artistic forms. According to the play, an actor pretends to be someone else, but in this pretending, his personality blends with that of the represented character. The same happens for architecture. A building mixes truth and deception, linking the sensible dimension with a 'world' of images and ideas represented by its figurative value.

The truth seen as the intelligibility of the structure, which in turn is considered "the arrangement of tectonics part" (Forty 2000: 276) has a wide range of meanings which stretch from the load bearing structure to the spatiality: the deception and representation are two opposite sides of expression, and both are under the realm of

tectonics as it manages the relationship between the structure and the cladding.

Having said that, we ought to introduce another character into this tale. It is Juan José Lahuerta, author for Electa publisher of monographs on Le Corbusier (Lahuerta 2011) and Gaudí (Lahuerta 1992), with a wide range of introductions and articles. He has analyzed the evolution of modernity with a surprising and innovative approach (Dal Co 2010) speaking about Le Corbusier's nihilist will to re-start architectural design from scratch according to a machinist architecture that arouses "standardized emotions" (Lahuerta 2010: 251-252). Lahuerta underlines the different approaches of Auguste Perret and Le Corbusier in the works of architecture built between 1923 and 1927: the first shows explicitly the frame or trilithic structure highlighting their ordering and hierarchical role so that the building is within the set of rules defined by architectural composition; the second omits any allusion to construction, material or structure by concealing the technique behind the abstraction of the white plaster. Lahuerta argues that according to Perret the meaning of architecture lies in the construction technique. At the same time, Le Corbusier achieves an abstract compositional law whose sense lies in an artistic taste partly extraneous to architecture and close to the artistic avant-gardes (Lahuerta 2010: 252).

From a tectonic point of view, the question is whether to remain within the field of constructive rules and reveal this choice in the composition of the facade, as in Perret's house in Paris in rue Franklin, or to conceal the constructive reality, whatever it may be, behind such a surface more abstract the more the cladding is far from material concreteness.

It is an antinomy typical of modernist architecture that could be traced in the most recent dialectic between solid and filigree (Deplazes 2005: 13-16), that is to say the difference between discontinuous and continuous forms - and in the complex relationship between truth deception and mimesis.

Going back to Barcelona Antoni de Moragas Gallissà (1913-1985) is one of the architects who conveys the figurative values to the structural system to which the infill remains subordinate. In the Park Hotel (1950-1953), each element's shape clearly reveals its constructive task. The abstract plastered surface of the side façades withdraws



Fig. 2. A. De Moragas: casa in calle Comte Borrel. (Source: M. Lucchini, 2017).

towards the front, leaving room for a triliton which supports the cantilevered balconies and is partially hidden by the projecting volume of the rooms. The trapezoidal cross-section of the balconies represents the shear stress, which is highest at the point where they engage the slab. In the large housing blocks such as the houses in calle Sant Antoni Maria Claret at numbers 318-332, (1956-1957) and in calle Comte Borrel 205-211 (1958), (Fig. 2) or the subsequent casa de Los Toros in the Gran via de les Corts Catalanes (1959-1962) Frampton's ontological nucleus correspond to the floor plan layout, always set on a matrix array; the internal partitions are projected onto the perimetral walls 'typing' a frame system on the façade which conveys the idea of tectonic manipulation.

Josep Maria Sostres (1915-1984) has consistently declined the opposite theme of stereotomic masses: since the Maria Victoria hotel in Puigcerdá (1952-1956) his architecture is made up by clear and solid volumes whose purity is stressed by the plaster cladding. The folds on the side walls of the building improve the view of the rooms, getting a wall surface with sharp prismatic inserts. In the Agustí house (1953-1955) Sostres moved towards the purism of the two plastered volumes, emphasizing the continuity of the



Fig. 3. J. M. Sostres. Mercado de la Salud». (Source: [www.urbipedia.org](http://www.urbipedia.org)).

masses that the architect preferred not to pierce explicitly: for example, the shutters seemed to 'rest' on the volume without compromising its integrity. The body of the building is worked on by subtraction of matter: the volume corresponding to the under-staircase has been taken off so that Sostres gets a cantilevered part, shaped like the negative of the stair, thus arousing an impression of amazement. On the upper floor, a further subtraction of the volume defines a loggia which, with the other openings, becomes the means through which the architect works on the relationship between inside and outside.

This type of language is due to the contacts with Alberto Sartoris, Bruno Zevi and Alvar Aalto between 1949 and 1951 and to the interest of Sostres himself in concentrating the expressive force of architecture in elementary compositions and reducing the texture perception.

The Moratiel house (1955-1958) is a meaningful building that may be considered a theoretical program of architectural composition with multiple references to modernism - ranging from Le Corbusier, Wright, Neutra, Breuer, Johnson, Figini and Pollini (Armesto, Aris 1999: 140) reworked into contrasting and simultaneous visions of tectonics. The apparently solid and impenetrable masses of the north façade fade into planes of different densities towards the house's interior. The stereotomic image of the building is characterized by the trilitic tectonics of the small glass and steel pavilion, the masonry cylinder and the slender silhouette of the steel parapet. Sostres' latest work, the Mercat del La Salut in Badalona (1980) (Fig. 3) is an introverted



building surrounded by streets with an impossible alignments. Spread over three levels (parking, market and civic centre) it has a plan arranged on the superimposition of rectangular spatial modules according to an alternating orientation. The construction materials are presented for what they are, i.e. reinforced concrete and stone and help to establish a contrast between the solid and massive figures and the hollowed-out interior divided into spaces, ramps, walls and boxes.

Sostres' architectures are often laconic and perhaps represent the "silent waiting", and the feeling of uncertainty sprung from the loss of avant-garde languages and the rising of expressive forms marked by critical or militant realism pursued by architects like Bohigas Mitjans, Coderch or Moragas. (De Solà Morales 2000). In any case, he has been consistent with Le Corbusier's modern principle of "skilful, rigorous and magnificent play of volumes under the light" rooted in the aesthetics of built masses where volume is configured as the irreducible core of architecture.

The third tale is the one of metaphor of the "hull and the raiment."<sup>4</sup> It was coined by Werner Oechslin's while he was attempting to grasp the relationship between appearance and essence through the evolution of tectonic (Oechslin 2002) He argued that the avant-gardes and the modernist get rid of the complex bounds between the core (structural or otherwise) of the architecture and the raiment. The trajectory of Modernity begins with the "disenchantment with Botticher overly intellectual work" (Oechslin 2002: 64) who, with the dualism between "Kernform" and "Kunstform" claimed that the sense of architectural form lies on the relationship between a visible shape which represents an invisible meaning. The Modern Movement, denies the aesthetic role of the envelope going toward a sharper dichotomy between truth and falsehood, where the former concerns the visibility of the 'pure' structure or volume while the latter refers to any cladding that hides the structural truth.

Adolf Loos, on the one hand, considers ornament as something morally reprehensible to be removed; on the other, he shows a keen interest in fashion and dressing (Oechslin 2002: 114), stated

by parables which have a metaphorical meaning. Loos acquired the debate about the hull and the raiment, arguing that the cladding was not as a stylistic envelope but something close to the decorum or proper form of the building, a concept taken up in Italy by a part of the contemporary School of Milan (Monestiroli 2002).

Lahuerta observes that Loos appreciated the Semperian principle of coherence between form and material and attributed to its qualities that today we would call resilient. (Monestiroli 2002).

The clothes evoked by Semper are masks that decorate, embellish and make visible what otherwise could not be seen, creating illusions or revealing the essence of the architectural organism (Burelli 2004: 155). Semper's *bekleidung* theory is bounded to the subject of textile walls in two ways: first, having been fascinated by the Caribbean hut he believes that the knot was "a primordial tectonic unit" (Frampton 2000: 188) and therefore the act of weaving had a primary role in enclosing space. Secondly, he stresses the connection between expression and clothing with the famous comparison between the German word *wand* (wall) and *gewand* (cloth) interpreting the dualism between hull and raiment in terms of structure that need to be upholstered by clothes. The tectonic stems from an interplay between veiling and unveiling or masking an ontological core that Oechslin mentions as a hull with a "dress" which is, respectively the raiment. As a part of such a concept, the figurative meaning of textile walls may be conveyed through the idea of weaving and fabric, which in turn metaphorically evokes the syntactic relationships among the elements of the cladding in the façade. This field includes masonry made up of or covered with small elements (bricks, terracotta strips, tiles), which can be considered a "petrified fabric". (Frampton 2000: 188).

Obviously, not all face masonry walls can be considered textile. Among MBM arquitectes works the social houses complex in calle Pallars, 301-317 (1955-1959) (Fig. 4) awarded the FAD architecture prize in 1959 and deemed a symbol of realist expressiveness, is certainly stereotomic with a "massive, almost Roman syntax influenced by English neo-brutalism" (Frampton 1995: 8). Quite the opposite the masonry of the house in Avenida Meridiana (1959-1963) is textile, although there is load-bearing walls structure not recognizable from the outside. Not only because

<sup>4</sup> Werner Oechslin instead of the words cladding or envelope refers to "raiment" to make clear the central role of Semper and his effort to find analogies between the boundary of the building and clothing with the associated meanings concerning fashion and representativity.



Fig. 4. MBM arquitectes. Social houses complex in calle Pallars (Source: M. Lucchini, 2018).



Fig. 5. MBM arquitectes. Housing complex in avenida Meridiana (Source: M. Lucchini, 2018).

the cladding is made with ceramic tiles but, above all, because the walls are “folded” interacting with the system to form cantilevered bow-windows with a triangular plan. (Fig. 5). This formal solution is a figurative translation, widespread in Barcelona, of architectural elements in Catalan modernism, such as the Terradas house by J. Puig Cadafalch (1904) (Pizza, Rovira 2002: 89). It characterizes not only the house in avenida Meridiana, but many other famous buildings including “La maquinista” block by Coderch. In this case the ‘core’ is the permanence of the formal structure of the bow-window; its meaning evokes the Catalan design culture, while the ‘dress’ corresponds to the shape of the folding wall. If in Casal Sant Jordi by Francesc Folguera i Grassi (1959-1931) the bow-window had been reproduced almost literally, Coderch instead searches for a deeper coherence between the geometries of the plan and the conformation of the façade.

Folding and textile walls share a feeling of lightness with the envelopes shaped by sunshades, shutters or slat façades and venetian blinds that are among the fundamentals of Catalan modernist grammar, as evident in Gaudí’s Palau Güell (1886-1889).

The fourth and last tale is about the resume of the traditional catalan expression as a part of the resistance to the Francoist regime. The recovery of a local language was rooted both in the literary sphere since the 1940s (Amat 2018) and in architectural, namely in the school of Barcelona

and Realism. It is not difficult to recognize a substantial continuity with Frampton’s appeal to mediate the universal character (the will to be modern) with elements “derived directly from the characteristics of a particular place” (Frampton 1984: 22). From this standpoint the most iconic building (even if it’s a tired reference) is the famous ISM (Instituto Social de la Marina) house in Barceloneta by Coderch and Valls (1952), where, in summary, the living space is conceived as a sequence of bands that wraps around the core of the H-shaped plan (Lucchini, Jaen 2018), which in turn stems from the design tradition of houses in the urban fabric of the Ensanche. The representative part is obviously the polyhedral shape of the envelope with slight concavities alternating with convexities made up of vertical bands formed by Majorcan shutters spaced out with blind walls (Fig. 6).

The famous shutter system with adjustable slats developed as it is well known by the collaboration between Coderch, Valls and Llambi has been conceived as a ‘membrane’ independent from the structural walls. The façade features an appreciable homogeneity, but the building is not fully shifted to the sphere of abstraction as had happened in many modernist works of architecture. The tectonic acts like a mask, counterbalancing the concealing of the structure<sup>5</sup>

<sup>5</sup> Load-bearing walls are sectioned to behave like pillars and a thin and robust slab with important overhangs obtained thanks to Celetyp ceramic products.



Fig. 6. J.A. Coderch, M. Valls. House ISM at Barceloneta (Source: M. Lucchini, 2017).



Fig. 7. F. Mitjans. House in Avenida Tokyo (Source: M. Lucchini, 2019).

with reference to the principle of the lighting filters which keep the building close to the sphere of architecture. (Armesto 1996: 56) Coderch and Valls focus on the aesthetic quality of the Coderch cladding, matching Semper's *bekleidung* principle. The ISM house would have lied if the load-bearing structure had been the aim of the architectural meaning. But it's not like that. was fascinated by the scale of the objects. Indeed, the famous Llambí shutter was shown at ninth Triennale di Milano in 1951 in the Spanish Pavillon designed by him. The wooden jalousie is turned into a backlit exhibition stand to show photos becoming an "object of poetic reaction": the real goal is secondary; what counts is turning the light into architectural matter. According with Santos Torrella, Coderch's work denotes an emphatic meaning: "inanimate objects always retain something of what has been deposited in them" (Armesto, Diez 2008: 61). The majorcan shutters bear an emotional content through the interplay between space and slats tuning the amount of light which cross the façade.

This kind of sensitiveness in Coderch for the cladding and the tactile perception of architecture probably stems from Josep Jujol's teaching, which was a master of Coderch and had a very skilful capability in setting the relationship between architecture and artistic fields (De Solà Morales 1989: 12-13).

Apart from other Coderch and Valls' buildings as the house in calle J. Bach 7 (1957-1961) or the one for Antoni Tàpies (1960-1963) in Barcelona there is an attitude shared by many qualified professionals: Emili Donato Folch (house in calle Rosselló 1964-1966), Francesc Mitjans (house in

calle Mestre Nicolau 1957-1960, house Tokyo in av. De Pedralbes, 1954-1957) (Fig. 7), or Ricardo Bofill (house in calle S. Bach 28, 1960-1962) and others designers treat the façades by a tectonic standpoint. They balance the concept of wrapping a building with a thin, tight membrane (Goldberg 2009: 99) turning the façade in a layered space with depth and different textures. In this way, the envelope is a limit setting an intermediate area which outlines the boundaries between the city and the domestic space. (Armesto 2008, 174)

## 5. CONCLUSIONS

Tectonics, therefore, addresses the criticism more towards the 'how' than towards the 'what', problematizing the way in which the designer decides to convey the technical form. It faces the germ of a controversy that characterizes the changes of language or the contrast between the expression of the structural truth and the will to conceal partly or in all, in order to make the perception of the architectural fact more seductive. Without the dialectic between hiding and unveiling, there can be no authenticity as well as interpreting the artistic form; therefore, the being aware of the outward appearance means tackling the essence of the core form. The envelope is not just a covering but a veil or a mask that must be crossed to understand the body. Grup R, architects of the School of Milan and the ones of School of Barcelona and later of Realism realize the importance of these exchanges. They concern a set of correspondences between the building, its representation, and the sensitive perception of the inhabitants and the designers

sought. Frampton's contribution is to have systematized the theoretical approach to tectonics by emphasizing the role of regionalism and local identity as opposed to a normalizing universal, which can be Francoism, financial speculation, or other factors that today we could recognize in the excesses of digital technology.

Facing how from a tectonic perspective and dissecting its temporal depth also meant giving a correct figurative value to the technique: what was represented became the architecture itself and the rules that make its functioning effective. In this path, contrasts were revealed between

opposing forces of a structural and compositional nature that have always been present in architecture and anaesthetized by the linguistic uniformity of uncompromising rationalism.

In the case of the Barcelona design culture, we can deduce that the ontological, therefore the being of architecture or its substance, is to be sought in a cultural *koinè*, founded on mutual exchange with the School of Milan, in which modernity is not thought seen in the Enlightenment manner as a linear progression but as a more articulated relationship based on permanence and change.

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