CONTEMPORARY ARCHITECTURE AND THE TECTONIC PROJECT IN BRAZIL

Izabel Amaral
PhD candidate, Université de Montréal (Faculté de l’aménagement), recipient of the CAPES-Brazil scholarship

Jean-Pierre Chupin
PhD, associate professor, Scientific Director of the Laboratoire d’étude de l’architecture potentielle, Université de Montréal

Introduction
To engage a discussion on Brazilian contemporary architecture imposes to firstly situate this contemporaneity with respects to Brazil’s own architectural history. Brazil’s most significant moment during the 20th century was its modern period, from 1930 to 1960. The inauguration of Brasilia, is an important landmark situated towards the end of this period and represents the moment when Brazilian architecture began to vanish from international historiography. This phenomenon has lasted almost to present day. And the 2006 Pritzker prize nomination of Paulo Mendes da Rocha has barely set about the rectification of this phenomenon of occultation.

The reasons for this disappearance of Brazilian production from contemporary international historiography have already been discussed by Andreoli and Forty. According to these authors, it is a complex phenomena that involves internal (difficulties relative to the creation of a critical debate because of 20 years of military dictatorship, the continuity of modern production during the 1960s and 1970s) and external questions (political interest and the criticism of modernism to name some). Even at the National level, the debate on recent Brazilian architecture is still new, however promising, as we witnessed during the 80’s the arrival of important publications.

An important fact, certain particularities of Brazilian modern architecture are still very present in contemporary productions, particularly the tectonic aspect. We can still notice the presence of a time gap with respect to the international scene, when addressing tectonics. This delay exists because of a construction process that has not yet been fully industrialized, and also because of time-honored hand-craft productions resulting from insufficient economic conditions and cheap, ill-prepared manpower. These conditions differ little from the conditions in which modern architecture was initially developed in this country, with its first adaptations of the international techniques to the local context.

Since the inauguration of Brasilia, the country’s architectural production went through the continuity of modern production, different revisions and critics of modernism itself, post-modernist ventures and finally, regionalist tendencies since the mid-1980’s. Today we must understand how this production defines itself within a broader theory of construction. How has it evolved within Brazilian architecture since the end of its modernist period? Are the Brazilian architects' preoccupations still the same? In this text, our hypothesis is that architecture competitions allow to identify projects, constructed or not, that demonstrate the emergence of a new tectonic ideal in Brazilian architecture.

To address this issue, we must first understand how the notion of tectonics manifests itself in the architectural culture of the country. The fact that this notion was virtually idle in the history of Brazilian architecture does not mean that the Brazilian architects did not discuss the relationship between architecture and construction. However, as we wish to demonstrate, such preoccupations seem to find their stead in the production of architecture itself, rather than in the designer’s discourse.

1) Towards a Brazilian definition of tectonics?
The term tectónica is known in Portuguese as being associated with a branch of Geology, but also to architecture. It appears quite frequently in recent architectural critics and in the discourse of architects. However, there is much research to be done in order to retrace the origins of the term and to understand its use in the Portuguese language, from the word’s Greek origins, its Latin migration and towards current Portuguese.

In the past two decades, we have noticed a recent change in the concept of tectonics specific to architectural domain. The Dictionary of Brazilian Architecture, by Corona and Lemos,
The historian Roberto Conduru introduces the notion of “tropical tectonics”, formulated by Lucio Costa, which refers to climate, culture and technical deficiencies of the Brazilian context, inventing the term “tectonic: art of constructing buildings. Term that still refers to the human capacity of large spans are not favored over concrete construction in Brazil due to their high cost. The rapidity of construction, the desire to preserve the environment, as much as regionalist ideologies, and even resulting from the criticisms of reinforced concrete. Even though this is the most frequently used constructive system in the country, especially when associated to ceramic bricks, we notice that in the last decades, the use of wood and metal has gained significant importance. When we take into account the local particularities, Brazilian architecture that has developed since the 1980’s searches for handcrafted and ecological aspects, and the esthetic expression vary from one region of the country to the next. Many of these regional expressions are characterized by the use of wood. Even if it is abundant in the Brazilian forests, wood remains underused. It is used in the precarious favelas buildings, where it is replaced by masonry or concrete when possible. Wood is also used as an identifiable sign from which to distinguish constructions for the elite, particularly individual houses. This material has never played an important role in the industrialized techniques of construction, or more generally in the sector of social housing. The scarce use of wood in architectural expression is more a result of the country’s wood industries’ limits than the architects’ desire to use it in construction. Thus it is easy to understand why wood is more often used in domestic architecture or associated to a regional character, in rural buildings or in littoral areas. Metal structural systems started being utilized in Modern Brazilian architecture during the fifties. This material was used more intensively during the 1980’s, when the metal industry attempted to promote the use of iron and steel in buildings, particularly in the south and southeast of the country. Despite these efforts, metal has not challenged the prevalent use of reinforced concrete. The metal construction techniques are not commonly used in Brazil due to their high cost. The rapidity of construction, its precision and other technical advantages offered by the capacity of large spans are not favored over concrete constructions. In general, metal constructions are only considered a viable option in the case of serial constructions. In addition, this technology is accessible only in the most developed regions of the country. Brazilian engineers are prepared by the universities to practice according to the market’s context and to perform in the
calculations for concrete constructions. Calculations for metal structures are not considered compulsory requirements by the Minister of education. The metal engineers are specialised and rare in the country, despite the recent investment by industries and building associations attempting to promote the use of metal structures in Brazil.

In Brazilian metal construction, one of the greatest technical difficulties concerns the elements filling the main structure. Ideally, this should be made by the installation of industrialized panels. This technique is not wide spread due to costs that are only viable for mass production constructions. It is common practice to fill these structures with brick walls, a handcrafted, traditional technique that is readily available in all regions of the country. To summarize, the main construction techniques in Brazil – concrete, masonry, wood and metal – and their respective production context play a considerable role in the elaboration of architectural projects. Thus, in contemporary Brazilian architecture, the economic conditions of the building industry are reflected in the desire to attain, within a project, a balance between the lesser construction cost and a maximized aesthetic effect. Following the example of documentation and analysis of contemporary projects made by the L.E.A.P – Laboratoire de l’étude de l’architecture potentielle – we shall consider the particular context of architectural competitions. These latter are candid to the observation of numerous architectural phenomena, particularly tectonics. We selected two Brazilian competitions to study the phenomena of tectonics; the first organized in 1990 for the Brazilian Pavilion for the ’92 Seville Exposition, and the second held in 2005 for the Natal Theater, a city in the North-East of the country. In these two national competitions, we can already identify different tectonic approaches in Brazilian contemporary production. 3) Brazilian contemporary architecture: competition projects and three conclusive tectonic facts

Through the observation and analysis of selected projects from two recent and important competitions, Brazil pavilion for the ’92 Seville Exposition and the Natal Theatre competition, we can state three facts on the uses of wood, concrete and metal. Unless we refer exclusively to projects of great breadth, as it is the case in the aforementioned competitions, wood is not used for the main body of the proposed buildings. Its use is rather limited, and like in the case of Aline Guimarães’ project for the Natal Theatre (figure 1), wood is used for its symbolic value. In this project, the marquee made out of a wood trellis is projected outside the building to signal its entrance, and to cover the public interior spaces. A comparable project is that of Cassio de Lucena Carvalho (figure 2), for the very same competition, which proposes an exterior space half-covered by a wood trellis. Let us note that in the given examples, the use of wood is limited to public spaces. The second observation concerns the use of reinforced concrete. Even though this construction technique is undoubtedly the most commonly used in the country, we are convinced that the technique possesses many unexploited formal and constructive potentials. This technique is frequently used today with formal references to Brazilian modern heritage. Yet, architects are seeking to renew the esthetics of concrete: either through a formal relationship with modernist values, through the creation of original forms using reinforced or pre-stressed concrete, or by the use of colors and coverings. The winning project for the Brazilian pavilion for the ’92 Seville Exposition by Alvaro Puntoni, Angelo Bucci and José Oswaldo Vilela (figure 3) is an example of a formal approach associated to the esthetics of 1960-70 São Paolo brutalists. This project endured harsh criticism, which demonstrate the presence, since the 1980’s, of a strong opposition to modernist esthetics of reinforced concrete. However, in the same competition, we can cite the project by Paulo Roberto Frade, which proposed an injected shell building, covered by a yellow-colored glass mosaic (figure 4). This is a project that, by its shape and use of advanced concrete technology, severs all links with the modernist heritage. Other projects share this logic of renewing the esthetics of reinforced concrete, like Humberto Hermento’s design for the Natal Theatre (figure 5). This proposition presents constructive methods that are similar to those used during the modern period. Nevertheless, the proposed massive volume on pilotis, is made of reinforced concrete completely painted...
in red. Its shapes revisit the modernist vocabulary and it in
novated exclusively by the use of an intense color. In a slightly
different direction, Eduardo Lucio Rebeschini project (figure 6) for this same competition, leaves the concrete apparent,
as in the country’s brutalist tradition. However, its inversed
pyramidal shape supported on two walls, made of a pre-
stressed concrete structure are unusual in the country.
The third statement resides in the employment of metal as a
significant part of the building’s main structure. In the selected
competitions, metal construction is seen associated to rein-
forced concrete volumes, or as elements that enclose interior
spaces, as a skin or as an envelope. Many projects attest to
the shared desire of many Brazilian architects to use metal
techniques, in the aim to make it visible on the exterior of the
project, especially in the case of spaces destined for pub
lic use. We can give the example of Sergio Roberto Parada’s
project (figure 7), and that of Roberto Loeb (figure 8) in the
1992 Brazilian pavilion competition, and the projects by Re-
nato Dal Pian (figure 9) and Juliana Corradini (figure 10) for
the Natal theater competition.
In recent projects, metal appears as a second skin or as a light
membrane, as in the project by the MMBB office for the Brazil
‘92 Exposition pavilion (figure 11), and Mario Biselli and Guil-
herme Motta’s winning project for the Natal Theatre compe-
tition (figure 12). These two projects demonstrate an opposi-
tion between heavy volumetric elements, made of concrete,
and light elements that constitute the sides of the buildings.
These elements were designed to be independent from each
other, and were conceived using different constructive means to reinforce their opposition. In both projects, a metallic skin encloses a portion of the proposed volumes, and in the case of Biselli’s project, takes the form of a perforated metal cloth.

This represents a new element compared to modern Brazilian architecture. This architecture sometimes uses planar perforated elements to enclose the building, but never to enclose a volume, as it was observed in the presented projects.

4) Towards a Brazilian tectonic
   An excellent synthesis the architectural discourse associating constructive techniques, little industrialized in the country, to a particular esthetic was done by Lina Bo Bardi (1915–1992) during the SESC Pompeia cultural and sport complex project in São Paulo in 1977. It is in this occasion that she mentions the concept of “poor architecture”12, when referring to an architecture that avoids expensive constructive methods. In “poor architecture” the construction aims to obtain a strong formal expression that takes part in the constructive simplicity of handcraft means of production. It is only once we have thoroughly understood the extent of this notion of underprivileged and limited means that we will understand the wealth of the effects of Brazilian tectonics.