Urban walkways designed by João Batista Vilanova Artigas

Passarelas urbanas projetadas por João Batista Vilanova Artigas

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Abstract

Modern architects operate with at least three fundamental notions: space, time, and movement. In the case of the walkways, the challenge is also to solve the problems of walkability in specific topographic constraints of the city. Based on documents available in the library collection of the School of Architecture and Urbanism of the University of São Paulo, this study analyzed the urban walkways designed by Vilanova Artigas in the 1970s for the city of São Paulo and the region known as ABC Paulista. The value of these walkways in Artigas' work lies not only in the designed and constructed object, but also in his theoretical thought about circulation, connection, city, people, and architecture. A table was created with the drawings of the walkways and their main circulation elements. This study contributes to the appreciation of our architectural and modern urban heritage.

Keywords: urban walkways; Vilanova Artigas; circulation; path.

Resumo

Os arquitetos modernos operam com pelo menos três noções fundamentais: espaço, tempo e movimento. No caso das passarelas, o desafio é resolver também os problemas de caminhabilidade em condicionantes topográficos específicos da cidade. Com base em documentos disponíveis no acervo da Biblioteca da FAUUSP, este estudo analisou as passarelas urbanas projetadas por Vilanova Artigas na década de 1970 para a cidade de São Paulo e ABC. O valor dessas passarelas na obra de Artigas reside não apenas no objeto projetado e construído, mas também em seu pensamento teórico sobre a circulação, a conexão, a cidade, as pessoas e a arquitetura. Foi criada uma tabela com os desenhos das passarelas e seus principais elementos de circulação. Este estudo contribui para a valorização do nosso patrimônio arquitetônico e urbano moderno.

Palavras-chave: *passarelas urbanas; Vilanova Artigas; circulação; percurso.*

Introduction

João Batista Vilanova Artigas (1915-1985) was one of the greatest names of modern Brazilian architecture. During the fifty years of his profession, he conceived projects focused on different themes and programs, such as residences, clubs, and schools. In the 1970s, Empresa Municipal de Urbanização – EMURB in São Paulo commissioned the architect to plan a series of pedestrian walkway.

This study analyzed the urban walkways designed by Vilanova Artigas in the 1970s for the city of São Paulo, Santo André and São Bernardo do Campo. The walkways selected for this study were chosen based on documents of the projects available in the physical and digital collection of the FAUUSP Library. The proposed walkways to cross large urban roads in São Paulo were: av. 9 de julho, av. 23 de maio, av. Rubem Berta and av. Matarazzo, and ABC Paulista.

Based on the interest and involvement in research on path, circulation and its elements, the objective was to identify and classify the types of walkways according to their design solutions. We studied the selected projects focusing on design strategies, elements of circulation, relating the urban dimension, technical matters, the circulation system by architectural program, concept, and parti, in addition to establishing associations with the architectural oeuvre of Artigas.

The archives (Figure 1) include plans, sections, elevations, and construction details, as well as historical photographs. Leonardo Barci Castriota (2011, p. 15) notes that in recent years significant changes have occurred in research in the field of History of Architecture and Urbanism, reviewing traditional versions of dominant historiography. Therefore, there was an improvement in studies and significant methodological advances, in addition to the rediscovery and reexamination of documentary sources.

The adopted methodological procedures were: 1) survey and analysis of documents present in the FAUUSP design collection; 2) definition of focus: walkways over main avenues; 3) visiting the sites; 4) production of drawings for the study of form: dimensions and geometry; 5) identification of design solutions and strategies, and classification of the types of walkways; 6i) synthetic table containing drawings, and urban contexts.

Based on concepts related to architecture, circulation, path, urban connections, urban design, accessibility, and walkability, as the original results of this research, a table was created with the study designs of the walkways, their classification according to type of circulation (ramp and/or stairs), connections and urban insertion resulting from the characteristics of the context, according to the original drawings.

It was observed that the researches on the analysis of Vilanova Artigas' architecture did not focus on the systematic study of this theme, a fact that characterizes a lack in the literature to be analyzed in the oeuvre of this important architect.

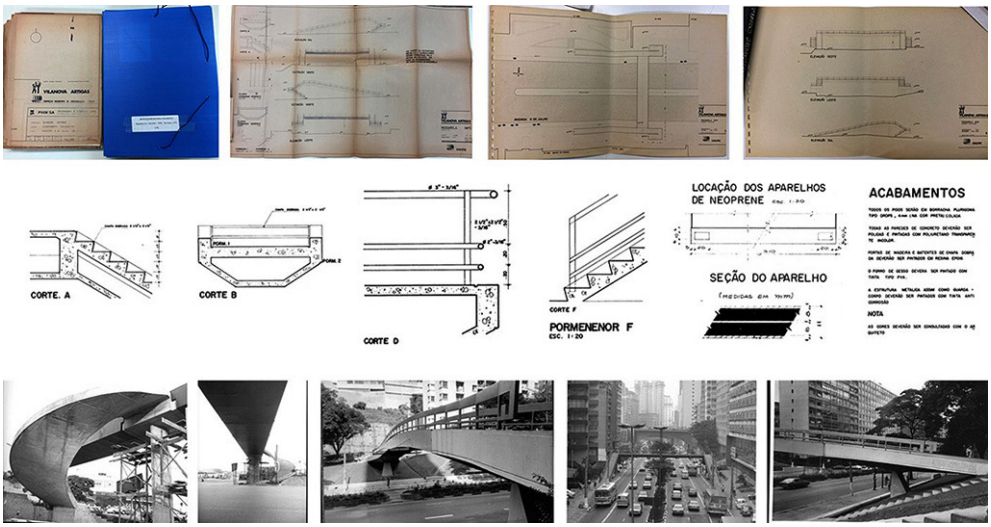
The circulation, movement and paths through the spaces are important aspects related to modern architecture. In an innovative way, and grounded on modern architecture concepts, Vilanova Artigas

created projects with the adoption of the elements of circulation in different ways. The analysis of the architect's set of urban walkways projects can reveal fundamental aspects for a better understanding of his work. These facts aroused the interest of studying these projects focusing on circulation systems to further understand the association between these elements of architecture and the urban dimension.

In the case of an urban environment, these elements of connection are especially important and symbolic. In Artigas' architecture we can observe the importance of the circulation system in the definition and structuring of the architectural parti.

The original contribution of this research resides in the object of study, focus of investigation, and in the methodology, using drawings, visits, photos, and diagrams.

Figura 1 – INPS walkway design



Note: Drawings and construction details extracted from the drawings of the studied walkways.
Historical photos of the walkways selected for the study. Material made available by the FAUUSP Library.
Source: by the authors (2018).

Movement through space

Modern architects, in general, operate with at least three fundamental notions: space, time and movement. In the 20th century, major architectural innovations occurred in the context of the design of large integrated and fluid spaces, as well as structure and new materials. In this context, free spatial movement has become one of the most widely explored aspects by modern architects.

By studying architecture design in the context of modern architecture, developed by important architects, we notice relevant and significant innovations that occurred in the field of design, concept, and construction. Each architect, inserted in a different social, cultural, and technological context, brought, in their own way, varied innovations to the field of architecture and urbanism.

Among the innumerable innovations that can be attributed to the period of modern architecture, the concept of *promenade* is essential to interpret the meanings of spaces and their connections. In this case, walkways are one of the public infra-structure equipments that materialize this concept.

Vilanova Artigas was one of the most important and influential Brazilian architects of the 20th century. The relevance of his work is not restricted only to his architecture, but also to his writings and teachings, which contributed to the development of São Paulo and Brazilian architecture. An architect, professor and intellectual, Artigas left important designs and buildings that constitute a significant part of our culture, renewing concepts that until then were tied to a colonial and provincial past of São Paulo.

Reading the texts written by Artigas, such as “The social function of the architect” and “Paths of architecture”, is necessary for the correct understanding of his thinking about architecture. By reading Artigas' texts and analyzing his architectural work, it is possible to identify some key concepts in his theoretical and practical discourse: 1) new directions, varied forms and technical solutions; 2) Scientific, technical, and artistic experimentation; 3) Innovative techniques, mastery of technique and science, especially with the modern technique of reinforced concrete; 4) Defining structure as architecture; 5) Identity and national spirit, creation, development and strengthening of an authentic national architecture; 6) Spaces that promote meetings, humanity, and social aspects.

These concepts could be executed through new construction possibilities, reinforced concrete. As Yves Bruand observes: *By completely abandoning the submission to nature that had marked its first phase, he opted for modern materials, namely independent structure in reinforced concrete* (Bruand, 2008, p. 296). In Artigas' texts, the architect's stance regarding the association between architecture and technique is evident, namely construction.

In his text “Architecture and National Development”, Artigas (1981, p. 137) discusses his training at the engineering school and the fact that architects are initially builders. The architect emphasizes that it is important not to build only functional and technical buildings, but based on human sensitivity.

In his architectural oeuvre, these concepts could be performed through new construction possibilities, especially by the

modern technique of reinforced concrete. One of the design strategies used by Artigas to materialize these concepts is the adoption of ramps in his projects. Ramps are elements of modern architecture that allow to create a fluid and continuous space, visually and formally.

Artigas' work can be considered a manifestation of the architect's position over the society of his time. The use of new materials and construction techniques were decisive factors in changing the modern language of his architecture.

In addition to constructive change, he also aimed to modify the organization of the architectural programming of spaces. Artigas believed that changes in society started demanding a new stance from architects and artists. It should be noted that during his career, the architect proposed changes in the organization of the architectural program, sectorization, circulation and connection between spaces.

Pedestrian walkways: circulation, path and movement through urban space

> Because many rivers, due to their width, depth, and speed, cannot be ford, the convenience of bridges was created. (Andrea Palladio, Third Book)

The concept of walkway appears in the modern city based on the idea of bridges in the old city. As stated in the Aurélio dictionary, a walkway is: "ponte estreita construída sobre avenidas e estradas para trânsito de pedestres". In the third book of the Andrea Palladio Treatise, *The Four Books of Architecture*, the architect approaches the design and construction of bridges as an important element for the circulation of people around the city. For the architect, bridges should be beautiful and safe, made of wood or stone.

There are countless important bridges that constitute our cultural repertoire. The Ponte d'Avignon in France, the Ponte Vecchio in Florence, or the Bridges of Rialto or dell'Accademia in Venice. In Brazil, it can be said that the most well-known pedestrian walkways are those designed by João Filgueiras Lima, Lelé, for the city of Salvador in Bahia.

Regarding Urbanism, Lucio Costa (2018, p. 277) states: "A city is the palpable expression of the human need for contact, communication, organization and exchange - in a certain physical-social circumstance and in a given historical context". Le Corbusier, in his books *Urbanism* and the *Charter of Athens*, notes the importance of circulation and its means, both for cars and for people, for the dynamic of modern city. In the *Charter of Athens*, Corbusier states: "Pedestrians must be able to follow routes other than the automobile. This would constitute a fundamental reform of circulation in cities". In this sense, walkways, as elements of urban infrastructure, are fundamental to the freedom of movement, connection, and safety of pedestrians, in addition to contributing to the fluidity of urban activities.

In São Paulo, Empresa Municipal de Urbanização – Emurb, a public company created in November 1971, had as main objective the planning and intervention of the urban space. However, Emurb split up in 2010 in the companies São Paulo Urbanismo

(SP-Urbanismo) and São Paulo Obras (SPObras). In the 1970s, a series of walkways were requested by the company as a demand for pedestrian problems in the urban spaces.

On the scale of urban design, Vicente del Rio (1990, p. 69) develops a methodological reasoning that unites the various theories that complement each other, regarding analysis and performance from the user's perspective, that is, how he sees, feels, understands, uses, and appropriates the city, its elements, and its social activities. This methodology involves visual analysis, perception of the environment, environmental behavior, and urban morphology. One of the approaches is precisely the connections and the place. Urban infrastructure elements such as walkways are important for city activities to take place.

This thinking is in line with the contemporary concept of *walkability* coined by Chris Bradshaw in 1993, which focuses on the conditions of urban space seen from the perspective of the pedestrian. As Danielle Hoppe and Rafael Siqueira (2018) note in general lines, this concept can be defined as the extent to which the characteristics of the urban environment favor its use for walking.

Walkability comprises aspects such as the conditions and dimensions of sidewalks and intersections, the attractiveness and density of the neighborhood, the perception of public safety, road safety conditions and any other characteristics of the urban environment that influence the motivation for people to walk more often and use the urban space. Walkability focuses not only on physical elements, but also on attributes of land use, politics or urban management that contribute to valuing public spaces, the physical and mental health of citizens, and social and economic relations on the street scale and the neighborhood. (Hoppe; Siqueira, 2018).

Kevin Lynch presents his study of the landscape on the urban scale of the city, organizing it into five elements, one of which is related to connections, namely roads. For Lynch (1960, p. 103) circulation is one of the fundamental functions that can be expressed by the shapes of a city. The skeleton of the city's image consists of these streets, paths, and connections. And, according to this reasoning, walkways are part of this structure. In addition to the matter of connection, the city offers visuals and points of interest along the route, which takes on an even greater meaning, making it an experience in full and involving perceptual qualities natural to the movement through space.

A path is the action of moving, a route to be taken between one point and another, distant from each other. In a space, routes are necessary to move from one location to another, and thus perform the necessary activities. Circulation and path, in architecture and in the city, are not items to be planned only in a functional and objective manner, but also subjective, as they involve various perceptual and psychological questions.

Gordon Cullen presents a series of observation drawings, the serial view, which studies the city from different paths. Cullen (1971, p. 25) notes that the city has territories that lead to static occupation, and others that consist of appropriation by the movement, in addition to interconnections, connections and paths.

As important as the possibility of connection and movement, one of the qualities that Lynch points out is "awareness of movement". Qualities that make the observer sensitive to his own real or potential movement by means of his senses. The city is apprehended by the senses and by movement.

Professor and researcher Andreas Keil, who published the book *Pedestrian Bridges. Ramps, Walkways, Structures* (2013) states:

> Pedestrian bridges must of course primarily be functional, but they should also engage with a site's unique features, its routes, topography, and context. Their presence in public space offers not only the potential to connect separated spaces, but also to give a place its own identity. (2013, p. 6)

Artigas' architecture consists of a set of proposals implicit in his theories and practices. The adoption of system and circulation elements, especially the ramp, inspired generations of modern and contemporary architects, in addition to debate and innovative proposals in the field of architecture. In his work, we observed that the circulation, path, and movement of people were also thought at the scale of the city and not just the building, with an effective and harmonious relationship with the city, reinforced by the design strategies associated to the circulation system, which involves the approach of the building, accesses, and routes. There are well-resolved functional solutions, in addition to conceptual, perceptual, and symbolic architectural qualities, reinforced by the system and circulation elements.

Reena Tiwari (2018), professor and researcher at Curtin University in Australia, investigates the behavior and perception of people in cities, and observes how important connecting elements are for movement, fluidity, and interaction in activities:

> The concept recognizes that people need to reach places and interact, and that movement between places needs to be efficient, environmentally benign, and conducive to healthy communities. The term 'connecting places' conveys this meaning. 'Connecting' indicates that sustainable forms of movement enable interaction between places. 'Places', while being the central focus, implies high-quality areas with a strong sense of locale, within which the community can live, work, shop, learn, and play. A key distinction between this book and others in the same field is the perspective of place making. Instead of a simplistic reliance on manipulating form and materiality in the creation of a place, the emphasis is on synthesizing physical and cultural components with the needs and aspirations of people. Place making is about making visible people's 'right to their cities' and urban spaces. (Tiwari, 2018, p. 18)

As such, walkways are elements of urban infrastructure that contribute to the performance of people around the city to be more satisfactory, since the large motorways create limits and urban obstacles. Following Tiwari's reasoning, walkways are therefore elements that contribute to the sustainability of urban space. As Maurizio Vogliazzo (2002, p. 2) notes, *architecture, like everything else and everyone else, has no future without infrastructures*.

Urban walkways designed by Vilanova Artigas

> In a conglomerate like Grande São Paulo, constructions commonly called components of 'urban furniture' go unnoticed, and architecture is mixed with equipment related to public services. But sometimes we are faced with buildings whose presence is significant in the landscape, thus projects where plastic intention is paramount, such as walkways. (Xavier, Lemos and Corona, 1983, p. 149)

This study analyzed the urban walkways designed by Vilanova Artigas in the 1970s for the city of São Paulo and ABC, as requested by Empresa Municipal de Urbanização, Emurb.

There are eight urban walkways in the city of São Paulo, their projects being available for consultation in the collection of projects of the FAUUSP Library. Walkways over roadway designs, such as that of Imigrantes road, or over Trailways, such as Lapa, were not selected, as the selection criteria for this article are urban walkways over main roads in the city of São Paulo and ABC. However, one of the best well-known, the walkway over Rubem Berta avenue, in front of Congonhas airport in 1972, was not included in this article, as its drawings are not available in the FAUUSP library collection.

According to data from Sinaenco (2019) and the São Paulo Engineering Institute, there are 75 walkways in the city of São Paulo, many are in poor condition. Fortunately, in the list of this document, the walkways designed by Artigas are not listed as works in poor condition.

Cesar Shundi Iwamizu (2008, p. 281) comments that the walkways designed by Artigas start from the same structural logic, in concrete, tubular steel and the use of neoprene as a new element in construction. Dalva Thomaz (1997, p. 354) also notes that Artigas was concerned with the issue of prefabrication in the design of the walkways, in order to facilitate the execution of these connection elements.

The original projects and archives, present in the collection of projects of the Library of FAUUSP, were analyzed, since some projects were not built, or if built, they have already been modified over the years.

- Walkway on Avenida 23 de Maio with Rua Coronel Oscar Porto, Paraíso, 1972;
- Walkway on Avenida Rubem Berta with Alameda Miruna, Planalto Paulista, 1972;
- Largo Padre Péricles walkway on Avenida Francisco Matarazzo, Perdizes, 1972;
- Walkway on Avenida Rubem Berta with Avenida Aratans, Planalto Paulista, 1972;
- Walkway over Avenida 9 de Julho with Fundação Getúlio Vargas, Bela Vista, 1972;
- Walkway on Avenida 9 de Julho/J.M. Lisbon, Jardim Paulista, 1973;
- Ibirapuera walkway on Avenida Pedro Alvares, 1974;
- Walkway on Avenida 9 de Julho/n. 610 - INPS, Bela Vista, 1977;

Urban walkways in ABC Paulista:

- Walkway on Avenida Coronel Alfredo Flaquer/Perimetral, near Av. Guilherme Marconi, Centro, Santo André, for the Santo André City Hall, 1974;
- Walkway on Rua Justino Paixão over Avenida Ramiro Colleoni, Centro, Santo André, for the Santo André City Hall, 1974;

• Sesi walkway on Avenida dos Eucaliptos/ Rio Tamanduateí, Centro, Santo André, for the Santo André City Hall, 1974;

• Walkway on Avenida Pereira Barreto, Rua Caiubí, Jardim Paraíso, Santo André, for the Santo André City Hall, 1978;

• Walkways in the Municipal Palace of São Bernardo do Campo/Av. Brigadeiro Faria Lima and Av. Pereira Barreto, for the São Bernardo do Campo City Hall, 1975;

Rosa Artigas (2015, p. 200) comments on the urban walkways in São Paulo: "These are projects for nine walkways that cross avenues [...] with the same constructive principle serving for all of them: a central free span grounded by a prefabricated metal structure supported by reinforced concrete pillars at the ends".

The consulted documents demonstrate an intense work of the architect in developing urban walkway projects with similar construction principles – precast and/or metallic structure – that could be quickly assembled and installed – but with different designs, straight and/or curved, according to the characteristics of the urban context where they would be inserted – topography; height required for passage on the expressway; area available for the insertion of stairs and/or ramps; vegetation; pedestrian flow.

Results and discussion

> The pedestrian must be able to follow routes other than those of the car. (Le Corbusier, The Athens Charter, 1993)

The design of a walkway involves an interdisciplinary and collaborative vision between engineering and architecture. While the engineering view encompasses structural, static, and dynamic issues, the view of architecture involves functionality, insertion into the urban context and the landscape, language, details and understanding and sensitivity towards the user. In this sense, it is noted that Artigas, with his training as an engineer/architect, subtly united the sensitivity and technique that a walkway project requires.

A walkway should connect two points, preferably with the shortest route, but also direct visuals and promote experiences for the pedestrian walking on it. Therefore, there is not only a functional problem, but also a perceptual one. In addition, a walkway must be accessible and safe.

According to the norm of the Brazilian Association of Technical Standards (ABNT) 9050, pedestrian walkways must be provided with ramps, or ramps and stairs, or ramps and elevators, or stairs and elevators for the circulation of people. Ramps, stairs and elevators must fully comply with the provisions of this norm. Although the analyzed walkways were designed in the 1970s, they already met the needs that we now find systematized in the standard, as a natural solution to the problem presented.

The walkways

In this topic we present the object of study. The walkways designed by Vilanova Artigas.

In the city of São Paulo we have studied eight walkways. The walkway over Avenida 23 de Maio with Rua Coronel Oscar Porto, Paraíso, 1972, was not built. This walkway should make it possible to connect the two

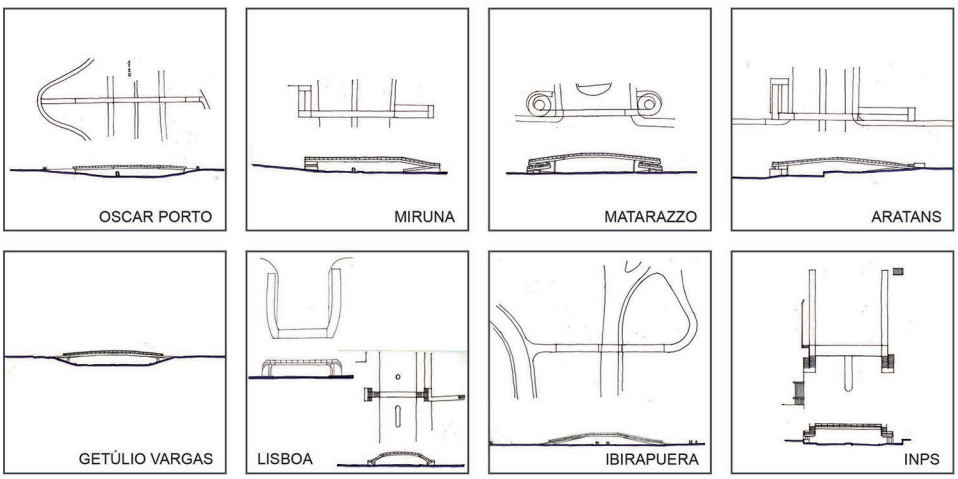
sides of Avenida 23 de Maio around the Paraíso and Vila Mariana neighborhoods. Due to the topographic conditions of the region, Avenida 23 de Maio is located in a valley, and the walkway connects two streets with higher elevations, without the need for stairs or ramps to access it, presenting only a slight inclined surface configuring the design of an arch.

The walkway to Avenida Rubem Berta with Alameda Miruna, Planalto Paulista, for Emurb, 1972, was built, allowing to connect the two sides of the north-south corridor in the Moema neighborhood, close to Avenida dos Bandeirantes. Access to the walkway occurs through straight ramps.

The Largo Padre Péricles walkway, on Avenida Francisco Matarazzo (Figure 6), Perdizes, for Emurb, 1972, built, allows the circulation of people crossing Avenida Matarazzo in an important location, on the one side, the Perdizes neighborhood, and on the other, Barra Funda. Access to the walkway occurs through circular, helical ramps.

Walkway to Avenida Rubem Berta with Avenida Aratans, Planalto Paulista, to Emurb, 1972. It was built to make the connection between the two sides of the north-south corridor in the Moema neighborhood possible. It is located very close to the Alameda Miruna walkway. Access to the walkway occurs through straight ramps.

Figure 2 – Study designs of the analyzed walkways. Plan and elevation.
Sequence of projects: Oscar Porto; Miruna; Matarazzo; Aratans; Getulio Vargas; Lisbon (2 versions); Ibirapuera and INPS



Source: drawings by the authors (2018) based on the original drawings from the FAUUSP library collection.

The Walkway Over Avenida 9 de Julho with Fundação Getúlio Vargas (Figure 7), Bela Vista, for Emurb, 1972, built, connects the two sides of Avenida 9 de Julho around FGV, between Bela Vista and Consolação. Access to the walkway occurs naturally with an inclined surface, forming a slight arch, due to the topographic conditions of the valley region.

The Walkway on Avenida 9 de Julho/J.M. Lisboa, Jardim Paulista, 1973, was not built. There are two versions of the project. One with access through stairs and the walkway has a slight slope forming an arch, and another with access through straight ramps.

The Ibirapuera walkway at Avenida Pedro Alvares Cabral, 1974, was also not built. It would have provided for straight ramps to access the walkway, which should occur naturally, as a continuation of the public walkway. This walkway would be an articulating and facilitating element for people who circulate in Ibirapuera Park.

Fortunately the walkway on Avenida 9 de Julho/n. 610-INPS, Bela Vista, for Empresa Municipal de Urbanização (Emurb), 1977, was built, whose access occurs through straight stairs and ramps.

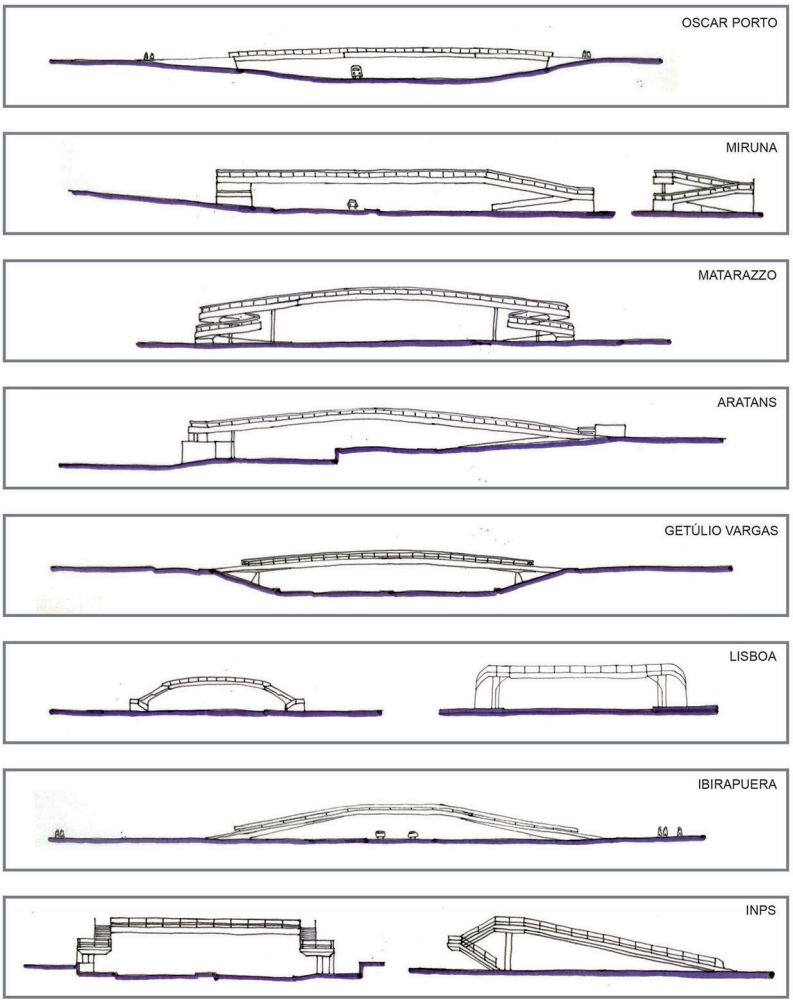
These walkways positively redefine the urban landscape of the place, in addition to creating visuals for the pedestrians that circulate on it. Unique views of the city can be seen from the walkway, such as the Nove de Julho walkway, Fundação Getúlio Vargas, a wide and unobstructed view of the Avenida Paulista spire and the São Paulo Museum of Art (Masp). In the case of the walkway over Avenida 23 de Maio, the views would be especially open towards the obelisk in Ibirapuera Park.

The topography of the city of São Paulo offers natural conditions that configure valleys and avenues, urban limits, as occurs on Avenida 23 de Maio, located in the valley. The walkway that would be installed there would occupy the highest elevations, connecting areas that were detached from the road. Urban limits can also be streets (Lynch, 1960, p. 76), where the observer was not prevented from circulating on the road, so the image of the street as a circulation route predominated, as occurs on Avenida Rubem Berta, in this case from the walkways of Rua Aratans and Avenida Miruna.

In the city of Santo André at ABC Paulista (Figures 8-9-10), the walkway on Avenida Coronel Alfredo Flaquer (Figure 11), also known as Avenida Perimetral, was built for the Santo André Administration in 1974, and connects the two sides of this avenue that crosses an important central part of the city. It is located close to Av. Guilherme Marconi, which connects the city center to the Vila Assunção neighborhood. This walkway contains ramps as access elements. On one side straight ramps, and on the other side a spiral ramp with organic design. The straight ramps are covered with a roof, with zenith openings.

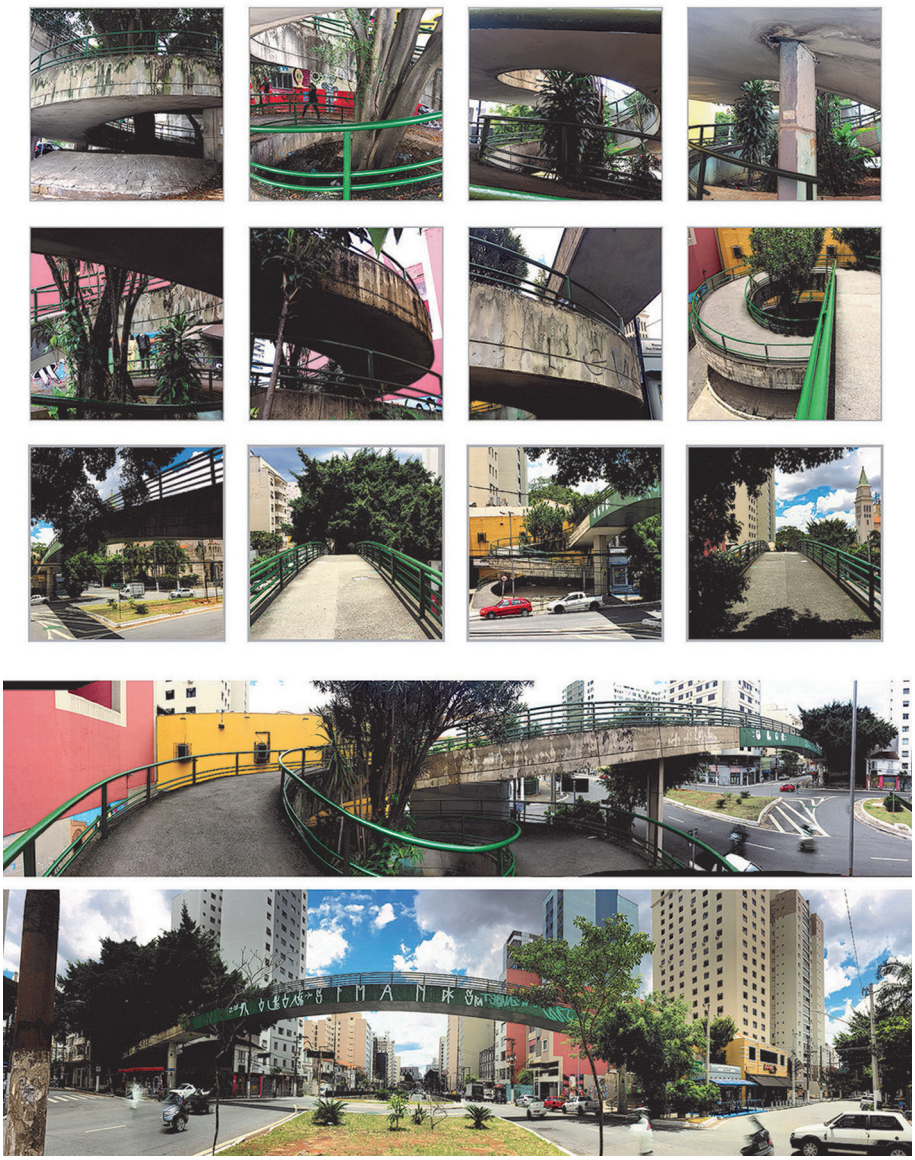
The walkway that creates continuity on Rua Justino Paixão crosses over Avenida Ramiro Colleoni, an avenue with a large flow of cars. Located in the center, next to the Municipal Palace and built for the Santo André Administration in 1974. There are straight ramps as access elements.

Figure 3 – Study designs of the analyzed walkways. Elevation.
Sequence of projects: Oscar Porto; Miruna; Matarazzo; Aratans; Getulio Vargas; Lisbon (2 versions); Ibirapuera and INPS



Source: drawings by the authors (2018) based on the original drawings from the FAUUSP library collection.

Figure 4 – Photos from the visit at Padre Pericles/Matarazzo walkway



Source: by the authors (2020).

Figure 5 – Photos from the visit at GV walkway

Source: by the authors (2020).

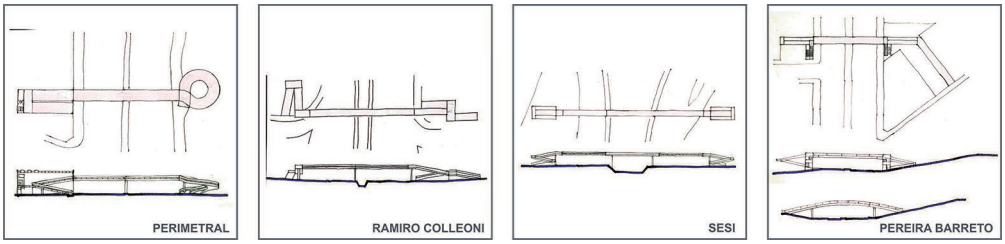
The Sesi walkway at Avenida dos Eucaliptos, also built for the Santo André Administration in 1974, creates a safe crossing over the Avenida do Estado and the Tamanduateí River, connecting neighborhoods in the city. The access elements are straight ramps.

The walkway on Avenida Pereira Barreto with Rua Caiubí in Jardim Paraíso, designed for the Santo André Administration in 1978, was not built. The drawings show straight stairs and ramps following the topography on one of the sides.

For the Municipality of São Bernardo do Campo (Figure 9), there is a set of walkways located in the Municipal Palace of São Bernardo do Campo with Av. Brigadeiro Faria Lima and Av. Pereira Barreto, from 1975.

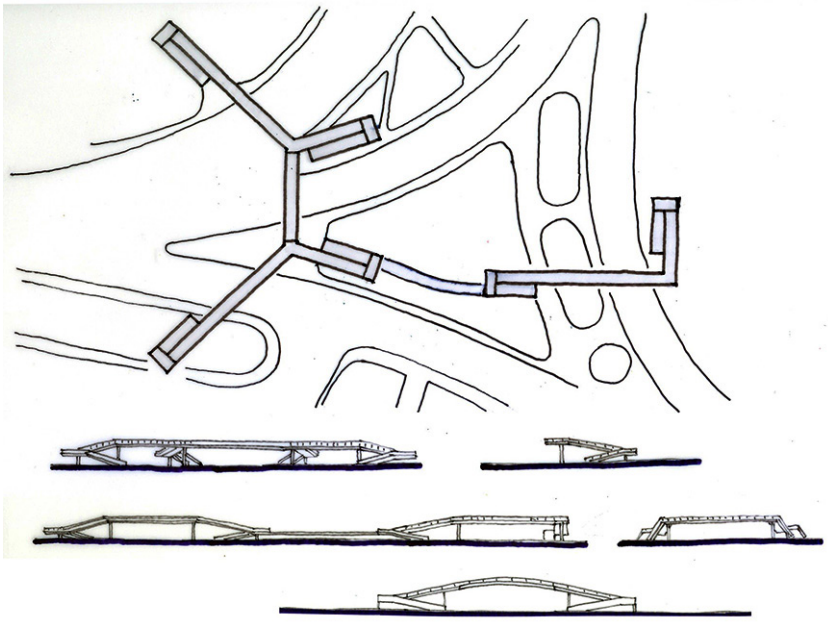
It is important to highlight that issues of accessibility, comfort and safety, all topics discussed today, were already contemplated on the walkways designed by Vilanova Artigas in the 1970s as a natural solution to the problem presented in the program.

Figure 6 – Study designs of the analyzed walkways. Plan and elevation. Sequence of projects – Santo André: Perimetral; Ramiro Colleoni; SESI; Pereira Barreto (2 versions)



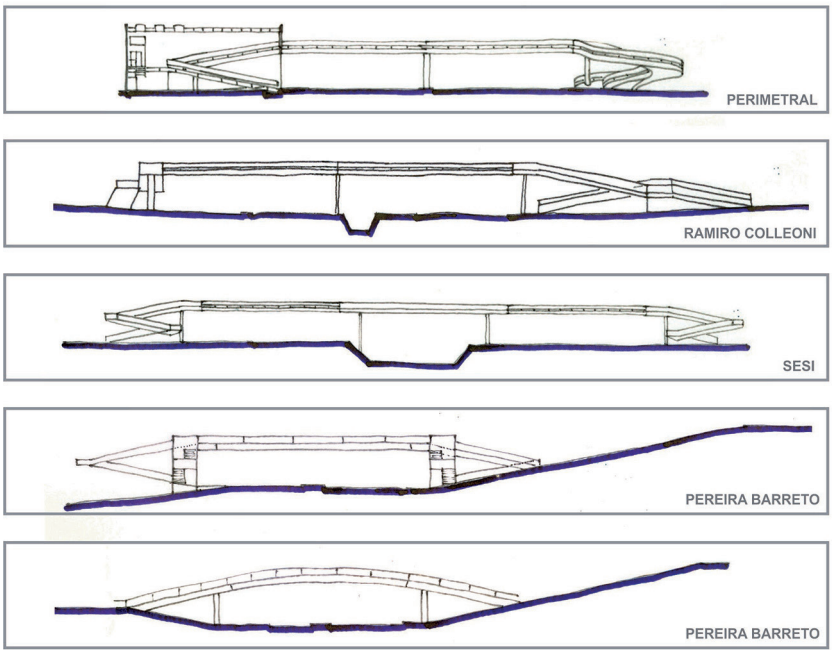
Source: drawings by the authors (2018) based on the original drawings from the FAUUSP library collection.

Figure 7 – Study designs of the analyzed walkways. Plan and elevation. São Bernardo do Campo



Source: drawings by the authors (2018) based on the original drawings from the FAUUSP library collection.

Figure 8 – Study designs of the analyzed walkways. Plan and elevation. Sequence of projects in Santo André: Perimetral; Ramiro Colleoni; Sesi; Pereira Barreto (2 versions)



Source: drawings by the authors (2018) based on the original drawings from the FAUUSP library collection.

Figure 9 – Photos from the visit at Perimetral/Alfredo Flaquer, Santo André walkway

Source: by the authors (2020).

In some cases, as in the Aratans walkway, the pedestrian is gradually led to the access and the ramp, in order to reach the walkway without noticing. Each terrain and topography condition generated a design solution proposed by the architect, between ramps and subtle accesses.

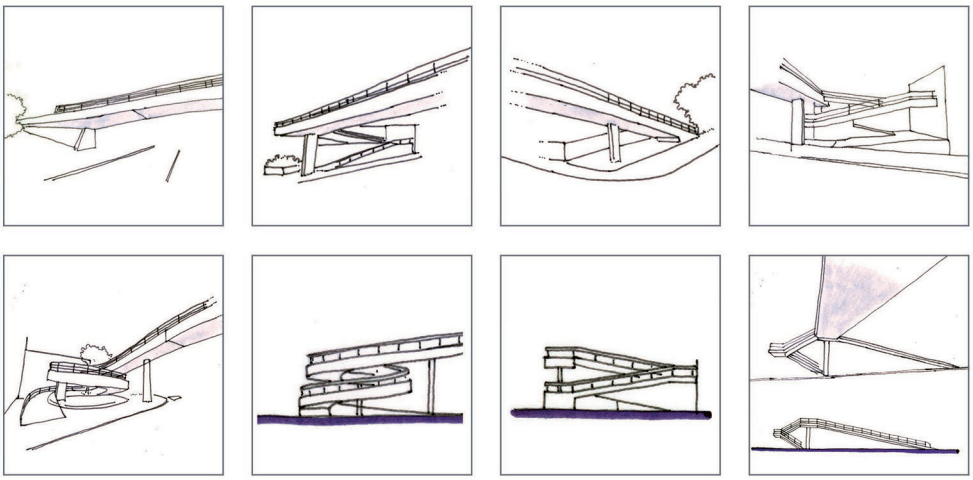
The consulted drawings show that the architect studied options for solutions before the final version, as in the case of the walkway over Avenida 9 de Julho, with Coronel Lisboa which presents a solution with stairs and ramps.

The studies and visits show that, in most cases, there are trees and/or shrubs in the place where the supports and access to the walkway are located. This fact demonstrates a care for the public space regarding the perception of the urban environment, especially in a stretch of route and arrival.

The width of 3.20m, as in the case of the Avenida 9 de Julho-INPS walkway, allows for the circulation of several pedestrians simultaneously, with comfort and safety. The 90 cm high windowsills provide safety and comfort to pedestrians, who have the possibility to view the city landscape while walking the walkway.

The lightness of the designs of the walkways, the elegant solution of the supports and the plasticity of the elements of vertical circulation characterize these walkways as elements of qualification of the urban landscape of São Paulo. The analyzed walkways showed different solutions of supports and accesses, with straight or spiral ramps, and stairs. The walkways have a central free span grounded by a metal structure supported by concrete consoles with accesses and vertical circulation, also in concrete.

Figure 10 – Study designs on the access and circulation elements of the analyzed walkways



Source: drawings by the authors (2018) made from observation.

The differences in solutions take into account the peculiarities of each location and topography.

The proposed system represented a significant advance in terms of technology and speed of assembly. In the case of the walkways, the challenge was to solve the problems of topography constraints in the city, road network with public sidewalk, streets and paths, interconnection with stairs or ramps, and particular constraints of each project.

Final remarks

> In the debates of the 1984 competition, the concept of architect that Artigas would never tire of repeating would be present in a prominent place, as a *double* technician mixing artist and humanist, obliged to think of the whole and to contribute for everyone to take ownership of the civilizing process and progress. As he himself observed in one of his last interviews, the architect should work so that "the general structure of the city, the coexistence and the distribution of space become the manifestation of a certain historical moment or a way for men to live their own dignity as projected in each building". With this conception, Vilanova Artigas designed hundreds of unions, schools, hospitals, stations, houses and buildings, walkways and bridges. (Nogueira, 1989)

Through the interest in exploring and investigating the theme of circulation, path, and movement through space, on the scale of architecture and the city, and their relations, the research on Vilanova Artigas' urban walkways came naturally.

The importance of these walkways in the architect's oeuvre, as a whole, occurs mainly because of the conceptual coherence and affinity for understanding the relation between architecture and the city. It can be said that in Artigas' architecture the elements of circulation are important and valued, because in addition to being a functional circulation, it also assumes a social character: “another space” of permanence that promotes visual, spatial continuity and encounters. In this social and urban character, these “space” of connection are especially important and symbolic. In the case of an urban environment, these spaces of connection and also of coexistence are especially important.

In Artigas' architecture, the importance of the circulation system in the definition and structuring of the architectural parti is noteworthy, since the elements of circulation are of special importance and act serve as an ambient.

The concept and methodology that underlie the projects selected for analysis are of great contribution to the understanding of the architecture produced at a given time. Recovering historical proposals for analysis improves to reflect on the topic in question. Analyzing and relating the selected projects is a creative and innovative approach, which generates knowledge in the area of design, architecture, built environment and urbanism.

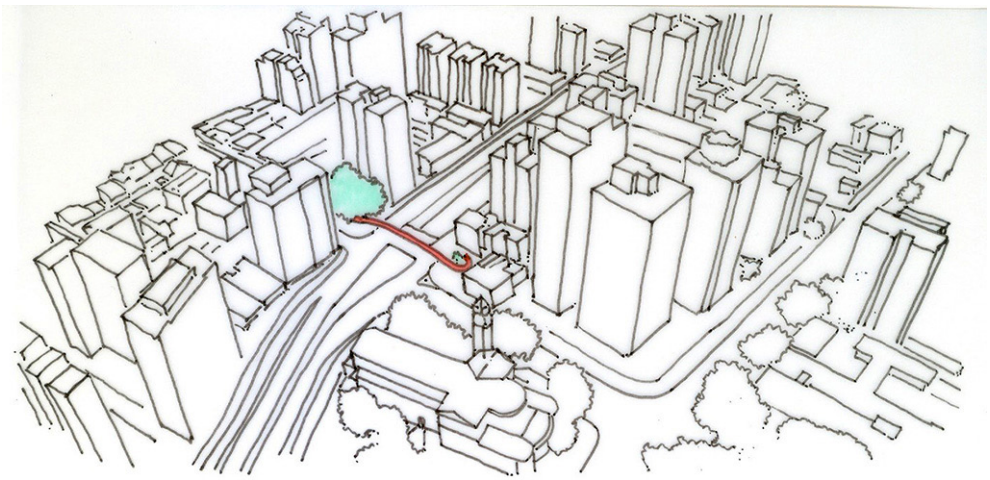
The value of these walkways, in the entirety of Artigas' oeuvre, lies not only in the designed and constructed object, but also on it representing much of what is present in the architect's theoretical thought about circulation, connection, city, people and

architecture. In addition, we can say that some important experiments and achievements were carried out with regard to the elements of circulation, the walkways, and some examples of his oeuvre of architecture.

The elements of circulation and connection, such as walkways, stairs, and ramps, also offer a symbolic interpretation of bringing together, and at the same time creating internal and external spaces, valuing the space "in-between", the interval, and the movement of people. Thus, the utopian, the symbolic and the metaphorical are present in his architecture and in these elements of urban infrastructure.

This study contributes to valuing our cultural, architectural, and urban heritage, the registration and documents of this precious collection, and built architecture and urban infrastructure.

Figure 11 – Study design of the Largo Péricles walkway, on Avenida Francisco Matarazzo (1972)



Source: by the authors, 2018.

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