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# BEYOND THE APPEARANCE. OVERWRITTEN HERITAGE COMMUNICATION

Alfonso Ippolito, Giulia Luffarelli,  
Simone Helena Tanoue Vizioli

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## Abstract

The knowledge of an urban space does not end with the collection of superficial information but requires a two-way relationship between subject and object. We are talking about an active process in which man has the opportunity to interact; man is the protagonist of an urban experience that leads him to formalize an image in his mind. If we think about the whole process, the goal is based on a research process, systematization of existing and new data, and, therefore, of all the analyses and studies carried out so far to access a deep knowledge capable of achieving the standardization of the acquisition process. It is intended to establish a codification of data (e.g., texts, bibliographies, maps, drawings, traditional and massive surveys, virtual reconstructions, etc.) in order to create a virtual environment (digital library) of heterogeneous digital models of cultural heritage, from large to small scale, but also of intangible data. From this paper's specific point of view, this research presents a pilot experience that consists of structuring a protocol for documenting the eclectic historical heritage of the city of São Carlos, located in the State of São Paulo, Brazil. In addition to developing the protocol, this research also proposes that its results can be accessed digitally and democratically by society. Thus, it is emphasized that this work is the beginning of a process that does not end in this article, but rather, it will serve for the consolidation and systematization of data with the municipal institutions of São Carlos in order to value the eclectic style, which for many years was placed on the fringes of architectural studies in schools in the country.

## Keywords

Documentation Protocol, São Carlos, Eclectic Heritage, Models 1D-2D-3D.

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## 1. INTRODUCTION

We can consider any urban space as a set of places experienced by man and characterized by the connections between the space that changes over time and the perception of those who live in it. The city is understood as the space of collective memory [1], stratified in a succession of changes linked to the passage of time. This change process has often transformed the urban image to the det-

eriment of the legacy of the past. However, sometimes, we find ourselves in more or less profoundly transformed urban contexts with respect to an original aspect of which we can glimpse all those necessary and essential intangible values that we cannot ignore for the story of the same urban areas with a past that has characterized them. [2]. All these values constitute the “intangible heritage” that

must be considered integrated with the current urban structure, of which profound knowledge guarantees us. The relationship between man and knowledge of the city is often difficult to understand; even if the city changes through events very close to the man and to his needs, its stratification is still a complex process, difficult to read as a whole because it is composed of elements that have disappeared, changed and added [3]. The knowledge of urban space is closely linked to the mechanisms regulated by perception, which are considered a tool for investigating the sensitive world [4].

Knowledge of urban space is not limited to collecting superficial information but requires a two-way relationship between subject and object [5]. We are talking about an active process in which man has the opportunity to interact [6], the man who is the protagonist of an urban experience that leads him to formalize an image in his mind [7]. The image thus becomes the synthesis between real and ephemeral, the only means to communicate [8] in an ever more complete and reliable way the perception and values of urban space [9].

Indeed, the integrated digital models (1D, 2D, 3D) are the means of excellence for the construction of the image of urban systems that are no longer usable. They are immediate, and thanks to their similarity with the reality that surrounds us, they can contain and communicate tangible and, at the same time, intangible aspects. This heterogeneity of information embedded within them makes them indispensable in every phase of a knowledge process between past and present.

If we think about the whole process, the goal is based on a research process, systematization of existing and new data, and, therefore, of all the analyses and studies carried out so far to access a deep knowledge capable of achieving the standardization of the acquisition process. It is intended to establish a codification of data (e.g., texts, bibliographies, maps, drawings, traditional and massive surveys, virtual reconstructions, etc.) in order to create a virtual environment (digital library) of heterogeneous digital models of cultural heritage, from large to small scale, but also of intangible data.

From this paper's specific point of view, this research presents a pilot experience that consists of structuring a protocol for documenting the eclectic historical heritage

of the city of São Carlos, located in the State of São Paulo, Brazil. In addition to the development of the protocol, this research also proposes that its results can be accessed digitally and democratically by society. Thus, it is emphasized that this work is the beginning of a process that does not end in this article, but rather, it will serve for the consolidation and systematization of data with the municipal institutions of São Carlos in order to value the eclectic style, which for many years was placed on the fringes of architectural studies in schools in the country. Another point is that such a study of the city's architectural heritage still does not exist.

We chose the city of São Carlos as the object of this research for two main reasons: first, we would like to strengthen the Cooperation Agreement between the Institute of Architecture and Urbanism of the University of São Paulo and Sapienza University of Rome (Dipartimento di Storia, Disegno e Restauro), whose activities have been developed since 2018; second, is the importance not only of systematizing information about the entire historical heritage of the city but mainly, focusing on the eclectic period of São Paulo architecture between the end of the 19th century and the first decades of the 20th century, where there is strong evidence of Italian influence.

The development of the protocol can be divided into five moments (Fig. 1):

- 1) collection of textual data in primary documents, photos, urban cartographies, testimonials, among others (model 2D and 3D) – to preserve the heritage, as well as the cultural manifestations of different societies, this project starts from the need to think about new possibilities for reading information and the problem of the inexistent data in São Carlos about its eclectic buildings. For this moment, we are using the historical methodology to bring into view the influence of Italian architecture from the past on the local Brazilian architecture. Collecting historical data allows for creating a narrative of the urban evolution of the municipality, contextualizing the study buildings;

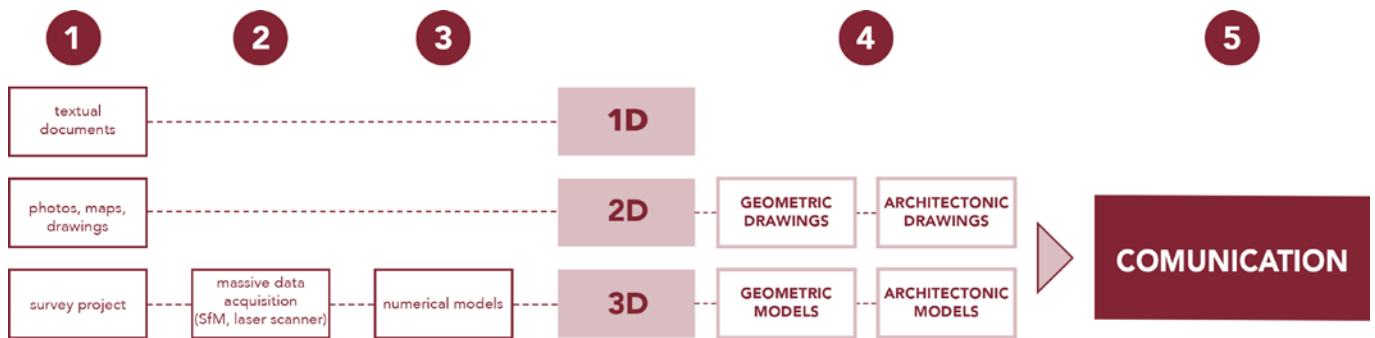


Fig. 1. The five moments of the Documentation Protocol.

- 2) massive data acquisition through 3D laser scanning, digital photogrammetry (SfM), observation of drawings – for this moment, the research focuses on the possibilities of massive acquisition data, not new in Europe (Italy), but recent in Brazil. Because of the high cost of the equipment, the use of the laser scanner is relatively new, and there is no digital database in São Carlos;
- 3) scientific elaboration of 2D and 3D graphic models – this part of the protocol consists of analyzing the database and creating new information as architectural drawings or 3D digital models. It is essential to highlight that in Brazil, mainly in São Carlos, we do not have plans, sections and facades of eclectic buildings and the few existing materials were executed without precision, which does not allow us to consider them scientific documents, that is, the drawings must be realistic so that professionals from other areas, engineering (pathology), restoration, for example, can use them as support for their work;
- 4) analysis of the collected data – based on the research methodologies presented by Groat and Wang [10], in this part of the protocol, we used the correlational method since part of the focus of this specific research was based on the identification of the metrics of the classic orders of Italian architecture in the ornaments of the eclectic buildings of São Carlos;
- 5) this last part of the protocol, the dissemination of information to society, is still under construction and without a defined deadline, as it is a long process. It involves the Qualitative Methodology described

by Groat and Wang, in the sense that the evaluation of the impact of the results will not be measured by the scientificity of the products only but by the interaction with which the products will have among users. In this pilot work, it was possible to create a website where digital information can be easily accessed simply using a smartphone. In this specific case, the virtual tour of the CDCC (Centro de Divulgação Científica e Cultural) Building in São Carlos was placed on the public website of USP; this is one of the products intended to be included in the protocol of documentation and communication of the cultural heritage of São Carlos.

The relationships between the population and the urban environment change over time concomitantly with the changes produced by new technologies, space and society. Since the early 2000s, communication and information dissemination have diversified through the possibilities of virtualization and spatial digitization. These digital media have been used as memory support in spreading information and communication virtualization.

The direct interaction with the heritage was the key to the development of this research: the objective is to create a virtual space to place the information collected and shared with everyone. In addition, the virtual space has become an extensive database, an almost exploration territory, essential for citizenship, as it allows society to have direct access to sources of helpful information to know its identity.

Reinforcing the importance of this research, the popularization of smartphones is a fundamental fact that

allows even greater access and participation in the understanding and disseminating of cultural heritage by the general population. The virtual representation of the heritage can integrate knowledge of physical properties with other information, allowing for continuous and uninterrupted updating and the possibility of direct communication between government agencies and the local community.

In this way, increasing the number of citizens who collaborate in actions on heritage is possible. Since this interface can reach the widest and most heterogeneous audience possible, it can also encourage them to move around the city in search of the history contained in the places, monuments and buildings.

## 2. A BRIEF HISTORY OF THE SÃO CARLOS CITY AND THE ECLECTISM STYLE

With a population of 256.915 inhabitants [12], São Carlos is located in the geographic centre of São Paulo State, approximately 230 km from the capital São Paulo.

The city of São Carlos developed with a strong Italian influence. Although the first immigrants who arrived in the city were Germans financed by Antonio Carlos de Arruda Botelho, the Count of Pinhal, the vast majority of immigrants came from Italy. The first Italians arrived in 1886, and until 1921, they formed a total contingent of 9,694 immigrants in São Carlos [11].

The period between the last decades of the 19th century and the beginning of the 20th century, the period called Eclecticism, was chosen as a starting point for this work. This choice is due to its significant historical importance because many cities in São Paulo still preserve buildings from that period and the notorious influence of Italian culture. It is a period with some gaps in buildings' documentation, given the little importance attributed to the style in the history of São Paulo architecture and the fact that Modern Architecture in Brazil, the style that followed Eclecticism, prevailed and still prevails today.

The history of the village of São Carlos begins in 1831, and after population growth, in 1865, the town was elevated to a city. The urban development core of São Carlos do Pinhal – a name referring to the natural forests of araucaria pines existing in the region – began

at the end of the 18th century, with the opening of the path known as “Picadão de Cuiabá”, which connected the coast from San Paolo to the mines in the interior of the country. The year 1857 is officially considered the year of the São Carlos establishment [13].

With the arrival of the railways in 1884, São Carlos became one of the largest coffee exporters in the region [14]. In the first decade of the 20th century, the city became one of the biggest hubs for immigrants, mostly Italians from the northern areas of Italy, who arrived to work in the fields of commerce and manufacturing. The coffee crisis in 1929 led Italian immigrants to abandon farming and work in manufacturing and commerce, working in areas such as ceramics, service provision, woodworking factories and civil construction.

Investments in banking and other types of services by coffee growers and the presence of skilled labour in the 1950s made industrial activity the main driver of the city's economy [14]. According to documents referring to the city of São Carlos, Italian immigration greatly impacted the number of inhabitants, becoming the majority in the city, changing not only the field of work but also society as a whole. Among the immigrants who managed to develop outside the fields, we can mention Aurélio Civatti and Alexandre Masci, councillors of São Carlos. Not all Italians came to work in the coffee plantations; many continued to work in the same roles they had in their homeland, so São Carlos had a highly qualified workforce for its urban development [15].

During the period between 1857 and 1929, the economy and social organization of the municipality were structured in the rural environment, where coffee, the main product of the municipal, state and national economy, was cultivated.

With the decline of the coffee cycle at the beginning of the 20th century, the city plunged into a profound economic crisis. Rural-city migration was rising, changing the urban social structure and contributing to new industrial city paradigms. One of the most significant changes, which was reflected in the investigated process, was the approval of a new posture code for São Carlos in 1929.

This article does not intend to discuss the critical debate around Eclecticism; many European researchers



have addressed the issue with different positions, but such debates did not arrive in Brazil with the same critical meaning of modernity. As stated by Fabris, «the affirmation of Eclecticism in Brazil does not imply knowledge of the previous tradition, but the radical rejection of the colonial vestiges that persisted in the country» [16]. The aim of this text is only to contextualize the period of construction of eclectic buildings in São Paulo - São Carlos; however, as mentioned above, historical research will be a fundamental part of the process in the protocol of documentation of eclectic buildings.

The transition from colonial to modern architecture in Brazil passed through neoclassicism and many other “neo”, whose sum identified the Eclecticism that manifested itself differently in different Brazilian cities. According to Fabris [16], Eclecticism imposed itself as a modern style suited to the modernization process that the country had been experiencing since 1870.

The civil construction and marble works stood out both for their production and the number of Italian immigrants, as many had already brought handicrafts from Italy, and others developed it when they arrived in Brazil, working for the coffee elite and later for the Italian industrial owners.

According to Bortolucci [17], while in Europe, the various architectural manifestations of the 19th century were deeply marked by a process of constant self-criticism, in which they sought to find the “true stylistic expression” of that period, in Brazil, these manifestations were assimilated “without further explanation” and, at the same time, accompanied by a strong sense of “modernity and modernization”. “Brazilian eclecticism” was assimilated as a sign of progress and freedom of expression, ignoring any type of philosophical considerations in which European neo-Classicals and neo-Goths were involved.

From the end of the 19th century and in the first decades of the 20th century, in São Paulo State, many Italian builders and architects were corroborated by the arrival of bricklayers and artisans who contributed to registering the Italian influence. The eclectic style of São Paulo resulted from a combination of local and foreign contributions, which spread through the cities of the interior of São Paulo, among them São Carlos.

São Paulo’s Eclecticism was characterized by an approximation with neoclassical, gothic and art-nouveau architecture, very present in the ornamental elements of the facades. Several buildings show neoclassical influences, such as the arch in the windows and doors, the Greek pediment, platbands and window and cornice ornaments.

The emergence of *Palacetes* in São Paulo State dates from this period. According to Homem’s definition [18], the São Paulo mansion was the wealthiest and most spacious house, built with stylistic precision, isolated from the lot’s boundaries, located in the middle of gardens, and with a new internal distribution. With the advent of the railway and the importation of new materials such as slate and ceramics from Marseille, Belgian glass, wallpaper, mosaics, tiles, and marble, among many others, and the arrival of immigrant labour, the rammed earth of the houses was replaced by brick masonry. [17], It was this union of material and technique with styles brought from Europe, Neoclassical, Neo-Gothic, Neo-Romanesque, added to the local construction cultures, which gave rise to Eclecticism in the last decades of the 19th century.

São Carlos still presents examples of eclectic architecture, whose buildings range from public to private, from sumptuous farmhouses to illustrious public buildings and even houses. In São Carlos, we can list some Italian buildings (Fig. 2) and master builders, such as the Palacete Bento Carlos, built by David Pietro Cassinelli, which stood out at the time as one of the most luxurious eclectic mansions in São Carlos due to its size. Cassinelli also built the Palacete Pinhal (1893), the urban residence of Antônio Carlos de Arruda Botelho, the Count of Pinhal [15]. The construction of the Railway Station building dates from this period (1884).

Another example is the construction of the Center for Scientific and Cultural Dissemination at the University of São Paulo (CDCC USP), which was the responsibility of master builder Giuliano Parolo [19]. The State School Dr. Álvaro Guião, the forerunner of the faculties of Philosophy, training several professors for Grupo Escolares, was designed by the German architect Carlos Rosenkrantz and built by the engineer Raul Porto together with the master builder Torello Dinucci, developed an eclectic style from São Paulo, inspired by the art-nouveau styles. And neoclassical [20].

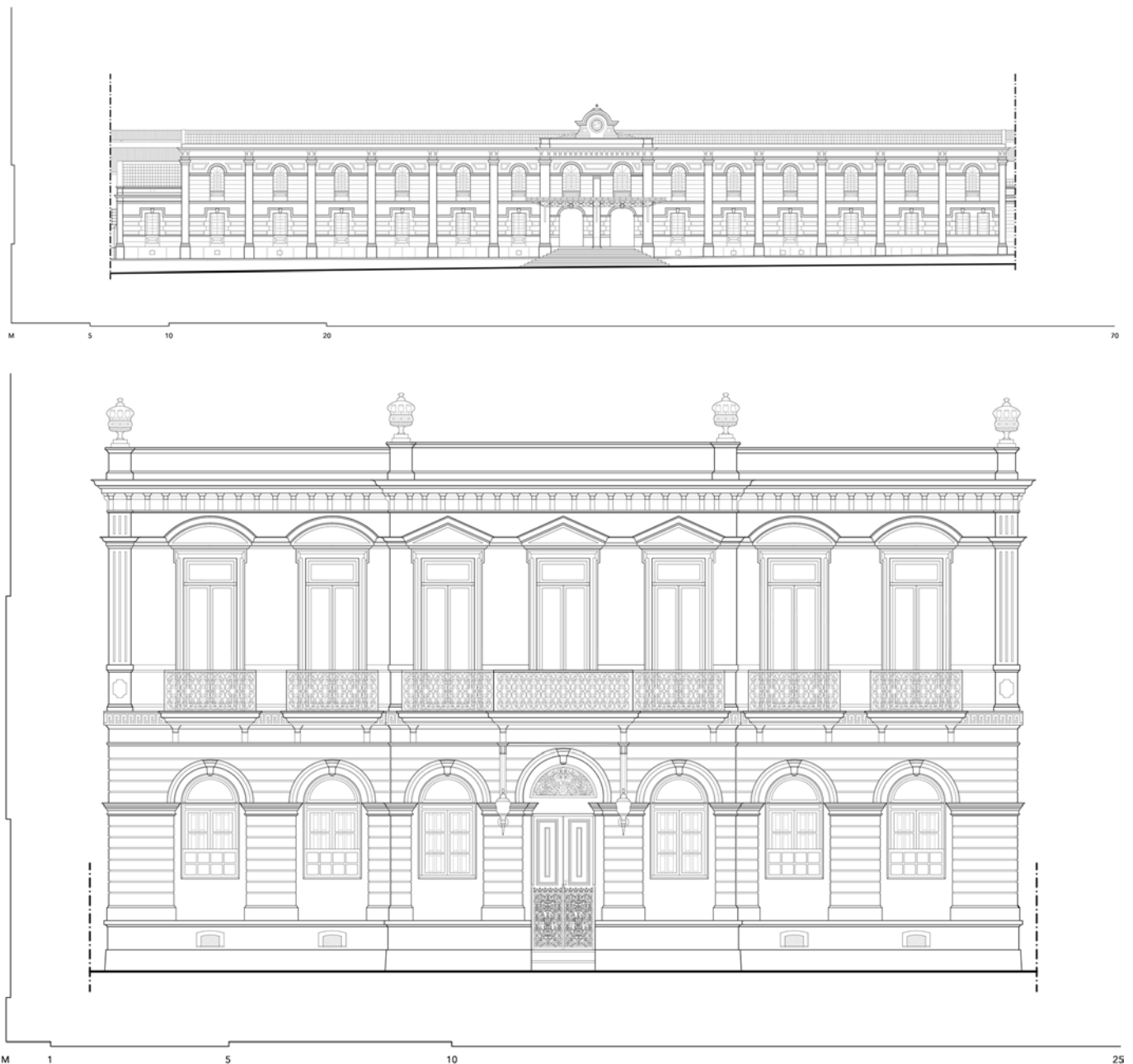


Fig. 2. Eclectic Heritage of São Carlos City (São Paulo, Brazil): Railway Station building and Palacete Conde do Pinhal, São Carlos.

### 3. THE PROCESS OF COLLECTING AND SYSTEMATIZING DATA

Based on the collaboration between Sapienza University of Rome, IAU USP and Fundação Pró-Memória de São Carlos, we intended to frame the objects of study, and based on the documents available, it was possible to analyze the eclectic style. Based on the scientific method, a pilot study was carried out with a classification that can be repeated as a matrix to explore each architectural typology.

The research that has been carried out intends to analyze, classify and deepen the studies on the architectural characteristics of the buildings of São Carlos to create a system of scientific data on the architectural heritage. From the analysis of existing materials, we sought, therefore, to understand the stylistic characteristics that developed in the state of São Paulo between the end of the 19th century and the beginning of the 20th century.

The city of São Carlos has an architectural language that does not fully value the expressive qualities of

Eclecticism, as there is a combination of neoclassicism, neo-Gothic and Art Nouveau that is expressed both in the various decorative elements and on the facades of the buildings. There are many stylistic elements linked to classical taste, but it was noticed that they are treated, both from the graphic point of view and in their execution, in an unreliable and little-detailed way. In civil construction, the use of this architectural language in the city of São Carlos is due to the strong presence of Italian immigrants. These were designers and engineers but also stonecutters and workers who had carried out the projects by often applying variations with respect to the classic European model according to their own knowledge.

As a pilot project for the implementation of the collection, analysis, systematization and dissemination of the São Carlos historical heritage, part of the research started in 2020 will be presented in this article. Among the different existing documentation methods, technologies based on three-dimensional digitization that have recently been highlighted, such as the laser scanner and photogrammetry, which generate mathematical models (cloud of points) and geometric models (mesh). Whether due to the rapid acquisition and generation of data, the extreme precision or the increasing availability, both have proved to be excellent techniques for the three-dimensional digitization of built heritage. Unlike the software used in the creation of models that depend on drawings and empirical measurements, these technologies have the method of capturing points from the object of study itself, in its current state, generating a precise digital model that can reveal imperfections, pathologies and layers of memories in a three-dimensional manner.

Currently, any heritage activity to be developed, whether documentation or restoration, must have a complete and accurate record, so the remote point capture technologies are fundamental for allowing long-term monitoring of the object. Based on this capacity for analysis, in the context of site conservation and management, they make it possible to locate and measure changes in all orders, assess their evolution, and place all interventions, analyses, and tests. Thus, it is possible to perform accurate comparisons of changes in the object of study on a millimetre scale [21].

Mixed techniques, direct and indirect measurements and photogrammetry were used to elaborate the first drawings and models in the process of systematizing data on the Eclecticism of São Carlos. The first step consisted of a bibliographic survey on the history of São Carlos and the architecture of the period. Some cartographic maps were identified; however, there was a significant absence of cadastral data and mainly graphics (plans, sections, facades) of the eclectic buildings of the city. Bortolucci [17] and Benincasa [22] are two researchers who have published material on the subject; however, few technical drawings exist. Thus, given the importance of documentation, we opted for a representation methodology that consists of 1D, 2D and 3D representations and communication of the generated results to the entire community.

#### 4. ANALYSIS AND CORRELATIONAL METHODOLOGY

The buildings selected for the initial stage (2021) are part of a list of more than 100 buildings from the historical heritage of São Carlos, present in the publication of the 4 editions of the “Percursos” Project [23], developed by Fundação Pró-Memória. The objective of “Percursos” is to encourage the protection of heritage, promoting visibility and access to historical and technical information about properties in the city’s central area, included in the list of declared assets of historical-cultural interest in the municipality. The second step of work was carried out by examining 38 of the São Carlos historic buildings. They were totally different building types, so it was decided to proceed to the deepening of 8 specific architectures, chosen on the basis of their qualities and on the material (1D – textual materials, 2D – graphic representations, 3D – tridimensional models) provided in order to have a reading of the architectural language of the city.

The methodological analysis was based on a reading of the cartographic and photographic material in the different methods of representation, which allowed the development of a critical understanding of each unique building. Three-dimensional models and typological and proportional analyses were created from the general pre-

sentation of the architecture in order to register the detailed characteristics.

The project also articulates actions aimed at promoting heritage education, tourism and dissemination of local culture, integrating various sectors of the City Hall, such as the Department of Tourism and the Departments of Transport and Education. All properties present in the project are included in the list of declared assets of cultural historical interest in São Carlos. In 2021, among the buildings that are part of the “Percurso” Project, studies were carried out on the following historical patrimonies of São Carlos,

- 1) *CDCC USP – Centro de Divulgação Científica e Cultural da Universidade de São Paulo*
- 2) *Núcleo Residência Silvio Vilari* (Figs. 7–9)
- 3) *Palacete Conde do Pinhal* (Figs. 4–6)
- 4) *Instituto INOVA – Residência Tolentino Guimarães*
- 5) *Estação Ferroviária de São Carlos – Fundação Pró-Memória de São Carlos*

- 6) *Residência Militão (antigo restaurante Cabanha)*
- 7) *Centro Integrado de Turismo – Casarão Eugênio Franco*
- 8) *Escola Estadual Paulino Carlos*

## 5. STYLISTIC CATALOGUE

The table (Fig. 3) describes the stylistic solutions for each decorative element of the buildings examined (frames, cornices) both through 2D models consisting of an elevation and a section explaining the geometric-morphological relationships by including a metrological analysis.

The analysis proceeded by examining 38 of the city’s historic buildings, all belonging to totally different building types. In this way, it was possible to deepen the 8 specific architectures chosen on the basis of their qualities and of the material (1D, 2D, 3D) provided in order to have a complete reading of the architectural language of the city.

ARCHITETTURA	CORNICE (prospetto)	CORNICE (sezione)	CORNICE (proporzionamenti)	CORONAMENTO	CORONAMENTO (proporzionamenti)
CDCC I Centro de Divulgação Científica e Cultural					
Núcleo Residência Silvio Vilari					
Palacete Conde do Pinhal					
Instituto INOVA I Residência Tolentino-Guimarães					
Estação Ferroviária de São Carlos Fundazione Pró-Memória					
Restaurante Cabanha Residência Militão					
Centro Integrado de Turismo Casarão Eugênio Franco					
Escola Estadual Paulino Carlos					

Fig. 3. Graphic analysis and systematic elaboration.





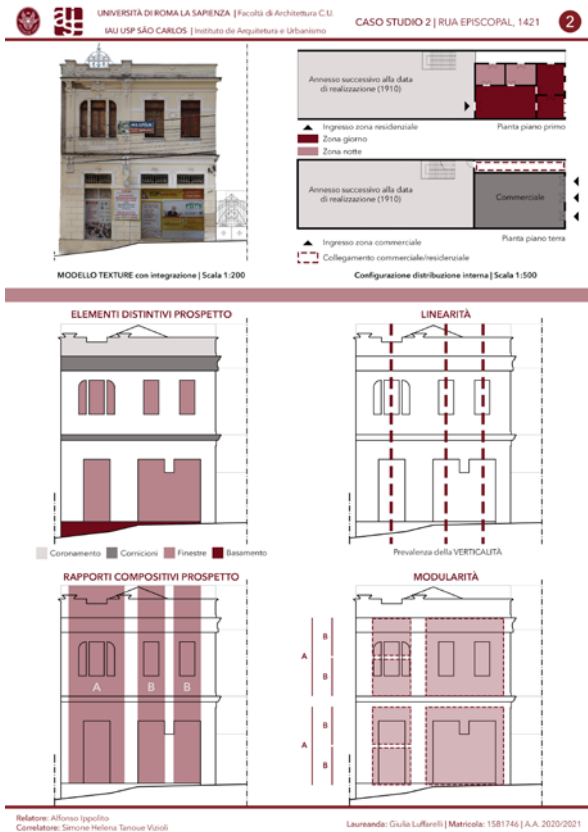


Fig. 8. Left: Morphological Analysis - Nucleo Residênciale Silvio Vilari - Rua Episcopal 1421.

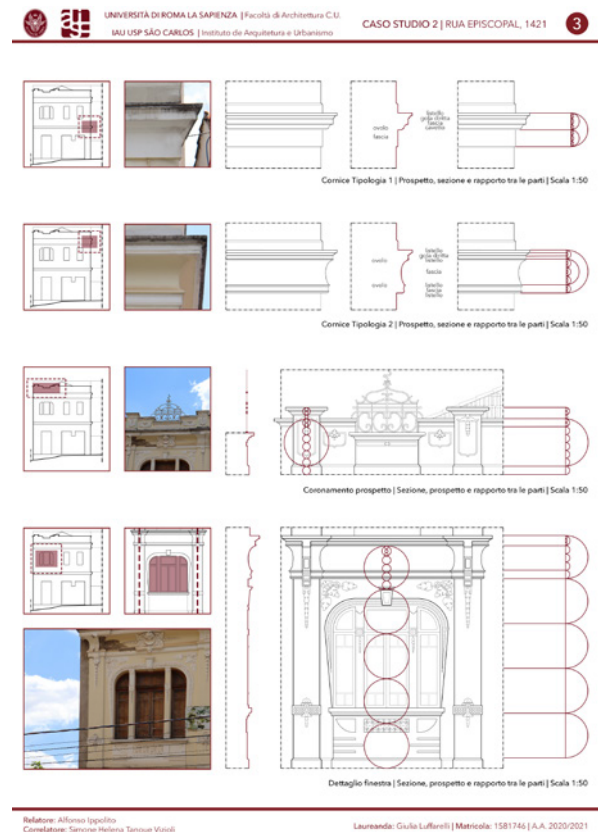


Fig. 9. Right: Proportional ratios - Nucleo Residênciale Silvio Vilari - Rua Episcopal 1421.

The methodology of analysis was based on a reading of the cartographic and photographic material in the different representation methods, developing a critical reading that made it possible to study the single building. Starting from the general presentation of the architecture, three-dimensional models, typological and proportional analyses were created up to the definition of the detailed characteristics. For each case study, a process of data capture, graphic analysis and systematic elaboration of the products was developed, as can be exemplified in the following studies.

### 6. DISSEMINATION OF INFORMATION

The virtual space has become an extensive database, an almost exploration territory, essential for citizenship as it allows society to have direct access to sources of valuable information for knowing one's identity. The dissemination and interaction of information about cultural heritage to the general community can occur in different interactive ways, among them, communication through

QR-Codes placed directly on the buildings, through informational totems scattered at strategic points in the city and also through virtual interactivity, as in the case of the virtual tour (Fig. 10).

As one of the mechanisms of interaction between the heritage and the São Carlos community, in 2020-2021, the Instituto de Arquitetura e Urbanismo (IAU) da Universidade de São Paulo Campus de São Carlos (USP) created the graphic design of a virtual tour to commemorate the 40th anniversary of the Center for Scientific and Cultural Dissemination (CDCC-USP), with the photogrammetry of sculptures, mapping of the main facade and three-dimensional models of objects of historical importance. This interaction is part of the data systematization presented in this paper. The directors of the CDCC coordinated the curatorship and content of the exhibition. The virtual tour has 47 360° views that go through the exterior and interior of the CDCC/USP building, creating the ambience for the virtual exhibition installations. It can be accessed free of charge by computer or smartphone from a link presented below. The virtual tour uses the hotspots



### Nucleo Residência Silvio Vilari

PROSPETTO | Rue Episcopal, 1421



### CDCC | Centro de Divulgação Científica e Cultural

PROSPETTO | Rua Nove de Julho, 1227



Fig. 10. Comparison of different modes of communication.

as variable elements according to the selected panoramic image, enabling different forms of interaction during the visit. Using Sketchfab, links were created to access photogrammetry models, improved in 3ds Max 2020, such as the 3D model of the CDCC façade [24].

## 7. CONCLUSIONS

The research project developed from an agreement that obtained cooperation funding from Sapienza University of Rome and the Instituto de Arquitetura e Urbanismo (IAU) da Universidade de São Paulo Campus de São Carlos (USP). It moves within protocols aimed at the classification and communication of Cultural Heritage (CH), with the idea of bringing a method for the documentation and dissemination of CH with particular reference to the city of São Carlos to the Brazilian reality. The field of application concerns a stratified context that starts from the early 1800s and reaches today but is poorly supplied with textual and graphic material. The ongoing research attempts to build a repeatable classification model that contains all the information related to the architectural unit studied with the support of 1D, 2D, and 3D models. Regarding the communication of the first results, a website has been built that allows anyone to access this information to provide specific training to Brazilian students and professionals. In this way, a social role is also fulfilled, enabling universal access to scientific knowledge by structuring the memory of the city, previously lost, within the research itself.

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