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ARQUITECTURAS DEL SUR

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CONCEPCIÓN , CHILE

UNIVERSIDAD DEL BIO BIO

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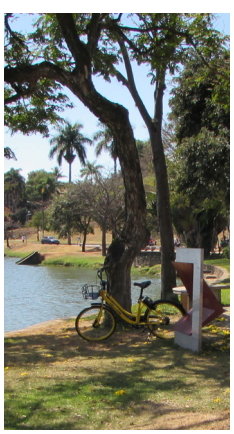

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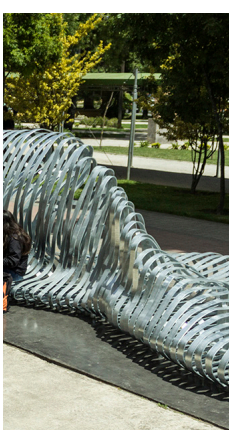

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EDITORIAL PARLAMENTAR

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Parlamentar es la voz que describe la acción de discutir sobre un asunto y que conlleva la intensión primera de encontrar una solución. O sea, se parlamenta para llegar a acuerdos, para coincidir. En este hecho, obligadamente una parte con-cede a la otra que sus argumentos convienen al debate, le son pertinentes, apropiados, necesarios. Asimismo, se trata de un acto que se realiza de forma oficiosa, que no tiene carácter oficial, aun cuando su fuente proceda de una autoridad representativa. Se parlamenta, entonces, entre iguales.

Durante los últimos años, y en casi todo el mundo, hemos asistido a numerosas confrontaciones ideológicas, sociales, económicas inspiradas en argumentos amparados en la razón aparente, el supuesto bien común. La idea de sobreponer a otros nuestros argumentos, sostenidos por demostraciones de diversos tipos, a veces simplemente discrecionales y hasta autoritarios, ha provocado que lo que se solía concebir como *libertad de decidir*, transmute con frecuencia para convertirse en *libertad para disponer*, con lo cual se terminan instalando autoritarismos inútiles, soberbios, altaneros, expresados desde unas estrechas ventanas unidireccionales que, en el fondo, responden a miradas parciales.

En muchos países se han abierto inspiradoras acciones que reclaman participación de otros grupos en las decisiones. Quienes por largo tiempo han visto sobrepasados sus derechos, sus cosmovisiones, sus intereses, generalmente distintos de los que detentan el poder, han decidido alzar sus voces exigiendo ser no solo escuchados, sino incorporados a las decisiones de toda índole. La mayoría de los casos se ha tratado de minorías étnicas, sexuales, sociales, económicas, laborales, periurbanas, cuya participación en las acciones oficiales ha sido simplemente omitida por decisiones paternalistas, falsamente representativas.

En términos históricos, el papel de la arquitectura ha sido muy interesante al responder de forma monumental a este acto de parlamentar. Los edificios para el senado, el congreso, en el corazón cívico de la urbe, alimentaron en su momento la idea de un Estado omnipotente capaz de establecer las tareas de un país, los destinos de una nación sometidos a símbolos clásicos ya caducos. La gente toda, sin embargo, la mayoría de las veces ajena a estos debates, permanecía ausente y silenciada. Con las agitaciones iniciadas en la última década, las exigencias sobre el reconocimiento de pueblos originarios, como también de minorías sexuales, la participación inclusiva de todos los grupos componentes de la nación, ha sobrevenido una necesidad amplia de debatir, de argumentar y contraargumentar, de exponer, de ser oídos. En este sentido, las calles, las plazas, los parques, han reelaborado la idea de unas ágoras contemporáneas que, con pocos medios, han admitido al otro para ejercer su presencia, para manifestar su legítimo relato.

Habitar-cohabitar, vivir-convivir, son formas de hablar y conversar para aunar, asociar, congregar y, ¿por qué no?, hermanar. Desde este horizonte, en su número 61, *Arquitecturas del Sur* vuelve la mirada hacia aquellos proyectos de arquitectura e investigaciones artísticas que dan forma al espacio para dialogar, transar y concertar. Advertimos que la forma arquitectónica indaga nuevas formas para mirar, escuchar, percibir al otro. La necesidad de dar cobijo y albergue a estas acciones colectivas, en espacios no

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monumentales, acaso más discretos, pero que singularizan unas atmósferas dedicadas a recepcionar el relato ajeno y diverso, abren nuevas posibilidades programáticas y formales para *espacializar* el recibimiento de los/las otro/as. *Arquitecturas del Sur* presenta trabajos que redundan en abrigar el parlamento social inclusivo como forma de un nuevo trato que ocupa al espacio arquitectónico.

EDITORIAL PARLAMENTAR

Parley is the voice that describes the action of discussing an issue and involves the primary intention of finding a solution. In other words, one parleys to reach agreements, to be on the same page. In this act, one party must concede to the other that their arguments are of interest for the debate, that they are pertinent, appropriate, necessary. Likewise, this is an act that is done informally, that does not have an official character, even when it comes from a representative authority. Thus, one parleys among equals.

Over recent years, and almost everywhere, we have seen countless ideological, social, economic confrontations inspired by arguments that are backed by an apparent reason, the assumed common good. The idea of imposing our arguments over others, based on demonstrations of different nature, sometimes simply discretionary and even authoritarian, have led to that what used to be conceived as *freedom of choice*, often becomes *freedom of decision*, whereby useless, arrogant, haughty authoritarianism ends up being put into place, expressed from tight one-way windows which, in the end, come from partial views.

In many countries, inspirational actions have emerged that clamor for the participation of other groups in decision-making. Those that for a long time have seen their rights, worldview, and interests overlooked, ones which are generally different from those who have the power. They have decided to raise their voices demanding not just to be heard, but to be included in any kind of decision-making. Most of the cases have entailed ethnic, sexual, social, economic, labor, and peri-urban minorities, whose participation in official actions has simply been omitted by paternalist, falsely representative, decisions.

In historic terms, the role of architecture has been very interesting to monumentally respond to this act of parley. The buildings for the Senate, the Congress, and the civic hub of the city, fed at that moment the idea of an omnipotent State, capable of laying out the tasks of a country, the destination of a nation subjected to already old-fashioned classical symbols. However, the people, most of the time outside these debates, remained absent and silenced. With the uprisings that began at the end of the last decade, the demands for the recognition of indigenous people, along with sexual minorities, the inclusive participation of all groups that form the nation, a broad need to debate, to argue, to counter-argue, to present, to be heard, has arisen. In this sense, the streets, squares, and parks have rewritten the idea of contemporary *agoras* that, with limited means, have admitted the "*other*" to exercise their presence, to manifest their legitimate story.

Inhabit-cohabit, live-co-exist, are means of talking and speaking to unite, associate, congregate and why not, relate. From this point of view,

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Arquitecturas del Sur, in issue 61, turns to those architecture projects and artistic research that shape the space to dialog, compromise, and agree. We see that architectural shape looks at new ways to see, listen, and perceive the other. The need of providing refuge and shelter to these collective actions, in non-monumental, perhaps more discrete spaces, but that rather particularize atmospheres dedicated to receiving the alien and diverse narrative, opening new programmatic and formal possibilities to spatialize the reception of the other(s). *Arquitecturas del Sur* presents works that result in the protection of inclusive social parley as a way of a new deal that occupies the architectural space.

EDITORIAL PARLEY

Parlamentar é a voz que descreve a ação de discutir um problema e que implica a intenção primária de encontrar uma solução. Em outras palavras, parlamenta-se para chegar a acordos, para coincidir. Nesse ato, uma parte necessariamente concede à outra o fato de aceitar que seus argumentos são apropriados para o debate, são pertinentes, adequados, necessários. Da mesma forma, trata-se de uma ação oficiosa, que não tem caráter oficial, ainda que sua fonte provenha de uma autoridade representativa. Parlamenta-se, então, entre iguais.

Nos últimos anos, e em quase todo o mundo, assistimos a inúmeros confrontos ideológicos, sociais e econômicos inspirados em argumentos baseados na razão aparente, no suposto bem comum. A ideia de sobrepor nossos argumentos a outros, apoiados em manifestações de vários tipos, às vezes simplesmente discricionárias e até autoritárias, fez com que o que antes se concebia como *liberdade de decidir*, muitas vezes se transmutasse em *liberdade para dispor*, com o qual terminam instalando-se autoritarismos inúteis, soberbos ou arrogantes, expressos a partir de estreitas janelas unidirecionais que, no fundo, respondem a olhares parciais.

Em muitos países abriram-se ações inspiradoras que exigem a participação de outros grupos nas decisões. Aqueles que por muito tempo viram ser deslembrados seus direitos, visões de mundo e interesses, geralmente diferentes daqueles dos que detêm o poder, decidiram levantar a voz exigindo não apenas serem ouvidos, mas também serem incorporados em decisões de toda índole. Na maioria dos casos, trataram-se de minorias étnicas, sexuais, sociais, econômicas, trabalhistas ou periurbanas, cuja participação nas ações oficiais foi simplesmente omitida por decisões paternalistas e falsamente representativas.

Em termos históricos, o papel da arquitetura tem sido muito interessante ao responder de forma monumental ao ato de parlamentar. Os edifícios do senado, do congresso, no coração cívico da urbe, alimentaram à época a ideia de um Estado onipotente capaz de estabelecer as tarefas de um país, os destinos de uma nação submetidos a símbolos clássicos e já ultrapassados. Entretanto, toda a gente, maiormente alheia a esses debates, permanecia ausente e silenciada. Com as convulsões sociais da última década, vieram à tona exigências de reconhecimento de povos originários e de minorias sexuais, bem como de participação inclusiva de todos os grupos componentes da nação. Aflorou, assim, uma ampla necessidade de debater,

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argumentar e contra-argumentar, de expor e de ser ouvidos. Nesse sentido, as ruas, praças ou parques reelaboraram a noção de ágoras contemporâneas que, com poucos meios, admitiram o outro no exercício de sua presença, na expressão de seu legítimo relato.

Habitar-coabitar, viver-conviver, são formas de falar e conversar para unir, associar, congregar e, por que não, irmanar. A partir deste horizonte, em seu número 61, Arquitecturas del Sur olha para aqueles projetos arquitetônicos e pesquisas artísticas que moldam o espaço que temos para dialogar, negociar, deliberar. Percebemos que a forma arquitetônica explora novas formas de olhar, ouvir e perceber o outro. A necessidade de proteger e abrigar essas ações coletivas em espaços não monumentais, talvez mais discretos, mas que singularizam atmosferas dedicadas a receber o relato alheio e diverso, abre novas possibilidades programáticas e formais para e*spacializar* a recepção dos/das outros/outras. *Arquitecturas del Sur apresenta trabalhos que abrigam o parlamento social inclusivo como uma nova forma de tratamento que ocupa o espaço arquitetônico.*

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THE RECOGNITION OF HERITAGE VALUES BY THE COMMUNITY AND THE PAMPULHA MODERN ENSEMBLE

EL RECONOCIMIENTO DE LOS VALORES PATRIMONIALES POR LA COMUNIDAD Y EL CONJUNTO MODERNO DE PAMPULHA

O RECONHECIMENTO DOS VALORES PATRIMONIAIS PELA COMUNIDADE E O CONJUNTO MODERNO DA PAMPULHA

Figure 0 *Edge of the Pampulha lagoon.* Source: Authors' collection, 2019.

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RESUMO

O Conjunto Moderno da Pampulha é um complexo urbano situado em Belo Horizonte, Brasil, cujo contexto metropolitano apresenta grande complexidade em função de pressões da dinâmica urbana, de impactos ambientais da urbanização e da necessidade de gerir mudanças, preservando os atributos da arquitetura e da paisagem que propiciaram o seu reconhecimento como Patrimônio Mundial. Este artigo é parte de um estudo maior que investiga o reconhecimento pela comunidade dos valores conferidos pelos especialistas à paisagem cultural do Conjunto como patrimônio mundial. Devido às condições restritivas impostas pela pandemia da COVID 19, utilizou-se como instrumento para a pesquisa de campo um questionário *online* de acesso franqueado ao público em geral para a coleta de dados primários junto à comunidade. A análise das respostas obtidas no pré-teste do questionário, objeto deste artigo, demonstram o reconhecimento de elementos da paisagem e do Conjunto Moderno da Pampulha que contribuem para sua fruição e que o caracteriza como paisagem diferenciada no contexto da cidade.

Palavras-chave: arquitetura moderna, gestão participativa, patrimônio cultural, paisagem urbana, Conjunto Moderno da Pampulha.

RESUMEN

El Conjunto Moderno da Pampulha es un complejo urbano ubicado en Belo Horizonte, Brasil, cuyo contexto metropolitano es altamente problemático debido a las presiones de la dinámica urbana, impactos ambientales de la urbanización y la necesidad de gestionar los cambios y preservar los atributos de la arquitectura y el paisaje que brindaron su reconocimiento como Patrimonio de la Humanidad. Este artículo es parte de un estudio más amplio que investiga el reconocimiento de la comunidad de los valores conferidos por los especialistas al paisaje cultural del Complejo como patrimonio de la humanidad. Debido a las condiciones restrictivas impuestas por la pandemia de COVID 19, se utilizó un cuestionario en línea con acceso abierto al público en general como instrumento para la investigación de campo para recopilar datos primarios de la comunidad. El análisis de las respuestas obtenidas en el pre-test del cuestionario, objeto de este artículo, demuestra el reconocimiento de elementos del paisaje y del Conjunto Moderno da Pampulha que contribuyen a su disfrute, y que lo caracterizan como un paisaje diferenciado en el contexto de la ciudad.

Palabras clave: arquitectura moderna, gestión participativa, patrimonio cultural, paisaje urbano, Conjunto Moderno da Pampulha.

ABSTRACT

The Pampulha Modern Ensemble is an urban complex located in Belo Horizonte, Brazil, whose metropolitan context is highly problematic due to the pressures of urban dynamics, impacts from urban development and the need to manage changes and preserve architectural and landscape attributes that have led to its recognition as World Heritage. This article is part of a larger study that investigates the community's recognition of the values conferred by experts on that complex's cultural landscape as a world heritage site. Due to the restrictive conditions imposed by the COVID 19 pandemic, an online questionnaire with open access to the general public was used as an instrument for the field research to collect primary data from the community. The analysis of the answers obtained from the questionnaire pre-test, object of this article, demonstrates the recognition of landscape elements and of the Pampulha Modern Ensemble that contribute to its enjoyment and that characterize it as a differentiated landscape in the context of the city.

Keywords: modern architecture, participatory management, cultural heritage, urban landscape, Pampulha Modern Ensemble.

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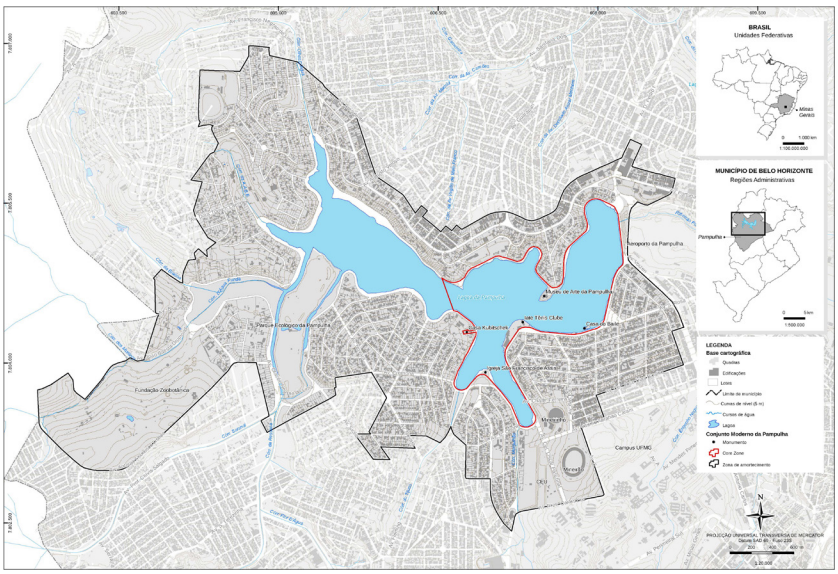

Figure 1 Pampulha Modern Set. Source: Práxis Projetos e Consultoria, 2016, Dossier (IPHAN, 2017).

INTRODUCTION

This research takes Pampulha Modern Ensemble (Figure 1), as an empirical object, focusing on the participatory management recommendation to improve the actions considered in the respective Management and Monitoring Plan presented in the World Heritage Site application dossier (IPHAN, 2017). The awarding of the World Heritage Site title to Pampulha Modern Ensemble, in the cultural landscape category, was based on its outstanding universal value (OUV) and the attributes the site's architecture and landscape have. This unprecedented study contributes towards a real demand of UNESCO[1], foreseen in the Ensemble's Management and Monitoring Plan, which is to resume dialog with the different stakeholders in the area, to put the planned actions into a framework, and make an assessment of the guidelines to protect the property.

To substantiate the research, it began with a literature review on the cultural landscape, particularly on the Historic Urban Landscape Approach (HUL Approach)[2], analyzing secondary data and information from the main technical documents within the World Heritage Site application process for Pampulha Modern Ensemble. This research contributes to the debate on more effective and comprehensive ways of managing and monitoring historic urban sites, including community involvement, as suggested by the HUL Approach.

Pampulha Modern Ensemble

The Pampulha Modern Ensemble was established in the 1940s in Belo Horizonte, Brazil, and comprises five buildings designed by legendary Brazilian architect Oscar Niemeyer: the Church of St. Francis of Assisi; the Casino (currently, the Pampulha Art Museum); the Ballroom (currently, the Belo Horizonte Center for Excellence in Urban Planning, Architecture, and Design); the Yacht Tennis Club; and a hotel (which was never built); brought together by a water mirror or the shoreline of the artificial lake,

1 United Nations Educational, Scientific and Cultural Organization.

2 HUL is the abbreviation of *Historic Urban Landscape*.

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Figure 2 *São Francisco de Assis Church. Assis Church.* Source: Marcílio Gazzinelli.

Figure 3 *Pampulha Museum of Art.* Source: Marcílio Gazzinelli.

Figure 4 *Casa do Baile.* Source: Marcílio Gazzinelli.

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Figure 5 *Iate Tênis Clube*.
Source: Marcílio Gazzinelli.

their respective gardens, designed by landscape architect, Roberto Burle Marx, and works of art by modern artists that are integrated into the buildings **(see Figures 2, 3, 4, and 5)**. Its conception had the intention of transmitting an avant-garde and innovative branding to the city, by creating a neighborhood with Garden City aspects, dwellings with a high construction standard on large lots that had gardens and dense green areas, as well as leisure, culture, and tourism facilities around the existing lake (IPHAN, 2017).

Cultural Landscape

The notion of landscape established in modernity is one of a contemplative element. However, the landscape is not only a setting for architecture, as the environment must be respected, and the sustainable use of Natural Resources, above aesthetics, must be considered (Ábalos, 2004). The Council of Europe, recognizing that landscape is an important element in the quality of life of populations, created an instrument to promote the protection, management, and planning of European landscapes: The European Landscape Convention (Council of Europe, 2000).

Cultural Landscape was officially recognized as a specific category of cultural heritage and was protected under the UNESCO regulatory instruments as of 1992, when the Cultural Heritage Convention adopted guidelines for its inclusion in the World Heritage List, defining three categories for cultural landscapes: *intentionally designed and man-made landscapes*; *organically evolving landscapes* (which fall into two subcategories, *relic landscape* and *continuously evolving landscape*); and *associative cultural landscape* (UNESCO, 2005a).

In Brazil, in 2009 the "Instituto do Patrimônio Histórico e Artístico Nacional" (National Institute of Historic and Artistic Heritage or IPHAN, in Portuguese)[3] approved the category of Cultural Landscape, based on the need for a legal instrument to guarantee the cultural value of

3 Federal Body Responsible for the Guardianship, Protection, and Promotion of Cultural Assets of National Interest in Brazil.

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the landscape, foreseeing the articulation between public power, private initiative, and civil society for its Shared Management (IPHAN, 2009).

Figueiredo (2013) points out that the management of the cultural landscape in environments of great complexity and dynamism, such as urbanized areas, must be imbued with the notion of sustainability, i.e., not impeding the transformations needed for development, and guiding them in favor of heritage preservation.

Historic Urban Landscape

The definition of historic urban landscape was presented in 2005 in the Vienna Memorandum, reinforcing the idea of *historic ensemble* expressed in the Nairobi Recommendation[4]. Apart from the ensemble of buildings, all the natural and built context that surrounds it is considered, as are the current and past social expressions that form the character and perception of these areas in the definition of a historic ensemble (UNESCO, 2005B). This definition outlines the relationship between social evolution and physical forms, demonstrating the need to evaluate preservation methodologies and management tools to mitigate interventions caused by development pressures (Bandarin & Oers, 2012). According to this perspective, the importance of planning policies, and the complexity of the preservation and management of urban heritage, is evidenced. The management of historic urban landscapes is complex because it comprises several heritage subsets subject to urban development pressures and the competing actions of different social stakeholders (Zancheti & Carsalade, 2019).

Urban Heritage Management

Castriota (2009) identifies three moments in the evolution of urban heritage management on facing contemporary challenges, relating them to changes in the characteristics of Heritage Preservation instruments and strategies. The first focuses on preservation. Preservation policies looked into protecting isolated buildings, in an attempt to limit change and to keep the object original. The agents involved in preservation policies were historians and architects. The declaration of architectural heritage was the legal instrument to protect exceptional property. The second is conservation. The concept of architectural heritage extends its conception of a historic monument to include architectural ensembles, also considering its surroundings, ambiance, and meaning. The view of heritage shifts from the limited view of preservation towards a more flexible view of conservation, accepting some changes and adaptations to harbor new uses. This new view on heritage is established alongside the idea of urban heritage. The third one is that of heritage management and emerges from the complications of urban conservation. The government is faced with an economic issue to make preservation and conservation viable, focusing on rehabilitating these areas. The State is no longer just the agent that imposes restrictions through control regulations, but the promoter and partner of projects for areas to be protected, organizing

4 The recommendation proposes protecting urban historical sites and their environment, emphasizing the need for their adaptation to contemporary life, coordinating protection policies at all levels and on urban planning (UNESCO, 1976).

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public, private, and community actors to participate in this new management model (Castriota, 2009).

Financing models based only on public resources are no longer sufficient, demanding multiple and innovative arrangements for the sustainability of urban management. The sustainability of urban sites cannot be based solely on the concept of financial benefit. It must incorporate the intangible benefits derived from the built heritage, to encompass the values considered by the population and local users, contributing to the preservation of their identity and cultural reference (Throsby, 2001). The conservation and renewal of urban areas, using existing infrastructure, and the upkeep of historical components, make it possible to maintain their cultural elements (Keene, 2001).

In this sense, the HUL approach is an instrument that proposes the insertion of new urban management practices, looking to combine conservation with development, considering the different cultural traditions and identities, recognizing and incorporating changes in the built and natural environment, and, at the same time, preserving values through sustainable processes (Bandarin & Oers, 2012).

The HUL Approach

The History Urban Landscape Recommendation proposes guidelines to safeguard historic urban centers by combining urban heritage conservation strategies and the Sustainable Development Goals (UNESCO, 2011). It suggests implementing public policies that value existing dynamics, integrating planning instruments aimed at broader urban contexts and the conservation and management actions of historical areas, including the different stakeholders in decision-making processes (UNESCO, 2019). The Recommendation proposes instruments to support its implementation, organized into four categories: community engagement instruments; knowledge and planning instruments; regulatory instruments; and financial instruments (UNESCO, 2016B).

The HUL approach demonstrates that conservation management confronts the complexity of contemporary city problems, and its sustainability depends on keeping the cultural significance of urban areas. Cultural meaning is shaped by the social environment and is open to new interpretations of its attributes' meanings. The approach advises revisiting the cultural significance of urban areas, adding new significant elements, or even abandoning others, and should be updated considering the physical and functional changes of these areas caused by the social appropriation of urban areas (Zancheti & Loretto, 2015).

The Cultural Landscape of Pampulha Modern Ensemble

Pampulha Modern Ensemble, as a result of its attributes as a founding framework of modern architecture in Brazil, its international repercussions, and joint federal, state, and municipal efforts, was awarded the title of UNESCO World Heritage Site in 2016 (2016a). The Ensemble's framing within the cultural landscape category,

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Critérios da unesco que fundamentam o valor universal excepcional (vue) do conjunto moderno da pampulha	
(i) representar uma obra-prima do gênio criativo humano	
(ii) exibir um evidente intercâmbio de valores humanos, ao longo do tempo ou dentro de uma área cultural do mundo, que teve impacto sobre o desenvolvimento da arquitetura e da tecnologia, das artes monumentais, do urbanismo ou do paisagismo	
(iv) ser um exemplar excepcional de um tipo de edifício, conjunto arquitetônico ou tecnológico ou paisagem que ilustre (um) estágio(s) significativo(s) da história humana	
Elementos e atributos que transmitem o valor universal excepcional (vue) do conjunto moderno da pampulha	
Elementos	**Atributos**
Relação do conjunto com a paisagem	Espelho d'água
Relação entre os componentes do conjunto	Orla da Lagoa
Componentes - mesma linguagem arquitetônica	Entorno da Lagoa
Componentes - usos ligados ao lazer	Mirantes
Obra coletiva – contribuição de vários artistas	Igreja de São Francisco de Assis
Inovação na arquitetura	Museu de Arte da Pampulha (Cassino)
Inovação no paisagismo	Iate Tênis Clube
Inovação no urbanismo	Casa do Baile
Inovação tecnológica para o uso do concreto	Jardins dos monumentos
Integração da arquitetura com o paisagismo	Paisagem circundante
Integração de diferentes linguagens artísticas	Paisagem vergel e horizontalizada

Table 1 VUE of the Conjunto Moderno da Pampulha - rationale criteria, elements and attributes. Source: Authors' elaboration.

demands a more complex and challenging management, covering not just monuments and their context, but also the protection and conservation of its surroundings and socio-economic dynamics. Through the declaration, the ensemble is subjected to a Management and Monitoring Plan, operationalized by a Management Committee[5], which aims at ensuring the integration of actions of the public spheres responsible for its management, and the reconciliation of the economic, touristic, and cultural activities of the region, becoming part of the municipal planning goals.

The OUV recognition of the Ensemble by the World Heritage Committee is based on criteria present not only in its architectural and landscape characteristics but also in its subjective values **(Table 1)**. The great challenge faced by the management bodies is to conserve the OUV, its significant elements, and attributes, while balancing its conservation against the threats of the pressures of metropolitan real estate dynamics and regional socio-economic development challenges. Therefore, it is necessary to increase dialog with the population and to verify to what extent the values established in the application dossier are shared with the community. The protection and preservation of the Ensemble and its buffer zone are guaranteed by several legal instruments and urban, environmental, and heritage protection actions, assigned to various public bodies in the three spheres of government. The managers, concerned with the segmentation of the actions of these bodies, organize reviews in

5 Formed by representatives of the three government bodies with guardianship over the area (Federal, State, and Municipal), the Joint Management Committee is chaired by IPHAN, and several bodies responsible for sectoral policies, civil society entities, and local community leaders take part in it.

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the management and monitoring plan, to simplify the processing of intervention projects among the three government bodies, to avoid contradictory practices (Carsalade & Sousa, 2020).

The variables related to the Ensemble's OUV must be regularly measured through its public recognition, as recommended by the Management and Monitoring Plan, including the enjoyment of its elements, the water mirror, the monuments, the environmental conditions of the lagoon waterfront that connects the monuments, the state of conservation of the Ensemble, and the control of threats to the landscape context in its surroundings and buffer zone (IPHAN, 2017).

METHODOLOGY

Relationships with the community are often complex and, in the case of Pampulha, which involves different sectors of the community, even more so. There are local interests (of those living in Pampulha), collective interests (from other areas of the city), and general interests such as those from other parts of the country and the world, that need to be understood and synchronized. In this vein, the works referred to in this article seek a methodology that can check the shared values as a starting point for participatory management. As a result, this research involves three phases: the exploratory phase; fieldwork; and the management of the material collected (Minayo, 2016). The results presented here refer to the exploratory phase of this research, which starts from the literature review on the historic urban landscape to better understand its specificities, and the importance of community participation in planning and management processes for cultural interest urban landscapes.

As the research method sought to establish a dialog with the community about sharing the values recognized by heritage bodies, Pampulha Modern Ensemble was chosen as a case study. As a result, secondary data and information produced by the main technical documents within the World Heritage application process for Pampulha Modern Ensemble were sought and analyzed, with emphasis on the dossier and its respective Management and Monitoring Plan. At this stage, a research tool was developed to collect primary data from the community. Due to the Covid 19 pandemic, the alternative found to establish a dialog with the different social segments was an open access, *online* questionnaire, meant for the general public. The questions sought to investigate the sharing of the values that led to the Ensemble being given the title of World Heritage Site, by different stakeholders in the study area.

The open questions, multiple-choice questions, and images used in the questionnaire were the subject of the pre-test applied through a *link* sent to participants from three different groups, at three distinct times. The first group, consisting of three interviewees, focused on people with a lower educational level, seeking to verify the suitability of the writing for its easy understanding. The second group, comprising twelve interviewees, was directed to specialists

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in the heritage area, seeking their contribution to improve the concepts and ideas pursued by the questionnaire. The third group, comprising a random and diverse audience, focused on verifying whether the questions reached the goal expected by the researcher. In this group, the link to the questionnaire was sent to some contacts who, in turn, sent it to other people, without controlling the number of submissions, ultimately obtaining fifty-one answers. The contacts of the first and second groups were monitored and contacted after answering the questionnaire, to determine their opinions and suggestions, which contributed to the improvement of the questionnaire. The answers of the third group were used for the final adjustments of the questionnaire and the outline of the analysis categories presented at the end of this article, always in dialog with the attributes of UNESCO, which are the subject of this study's evaluation.

The fieldwork phase of the research coincided with the most restrictive phase imposed by Covid 19, and the definitive version of the questionnaire was made available *online*. Initially, the *link* to the questionnaire was disseminated among the author's diverse network of relationships as a starting point, acquiring greater randomness, comprehensiveness, and quantity of respondents as one contact sent it to another, expanding the initial network of contacts and the number of possible respondents. As in the pre-test, the final management of the material collected is done using the qualitative methodological approach, which is suitable to research and assess the perception of the values recognized by the respondents for the landscape of the study area.

PRELIMINARY RESULTS

Although the results are preliminary, this first piece of research intended to test the methodology for its broader application, which is the basic intention of the reflections presented here. The main contributions of the pre-test to improve the questionnaire, were to reduce the number of questions, simplify the writing, increase the number of open-ended questions while exploring the reasons and justifications of the answers, and to use images as part of a strategy, to boost the perception of the respondents about the meaning and attributes of the landscape reflected in the OUV of the Ensemble **(see Figures 6 and 7)**.

The questionnaire was structured in four parts. The first looked at characterizing the respondent profile; the second is the relationship of the respondent with Pampulha (return rate, the activities offered by the place which attract them, the attributes and elements of the landscape they value); and the third delves into the interviewee's perception of Pampulha Modern Ensemble (with the elements it comprises, the evaluation of conservation and use of heritage, the verification of the characteristics and attributes of the Ensemble); while the fourth part checks the respondent's knowledge about a World Heritage Site and the reason for the Ensemble being

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Figure 6 *Edge of the Pampulha lagoon.* Source: Authors' collection, 2019.

Figure 7 Rear facade of the São Francisco de Assis Church - tile panel tiled panel by Cândido Portinari. Cândido Portinari. Source: Collection. of the authors, 2019.

declared as such.

The categories initially defined to interpret answers to the questionnaire emerged from the content analysis of the results obtained in the pre-test, understood as the identification of the different perceptions of the respondents. These categories sought to contemplate the OUV recognized for the cultural landscape of the Pampulha Modern Ensemble, translated into its elements and attributes.

Multiple Choice type questions, like "*What catches your eye in Pampulha?*", present seven elements of the Pampulha landscape, and the respondent must choose only one option. In a universe of sixty-six answers, the option "*the monuments around the lagoon*" is the most frequent response (42%). Next comes the option "*the waterfront of the lagoon*", with 21% of the answers; "*the view of the water mirror*", with 17%; "*the open space*", with 12%; "*the gardens of the houses*", with 3%; and "*the trees*", with 2%. The option "*the houses*" did not receive any responses. The option "*others*" presented two

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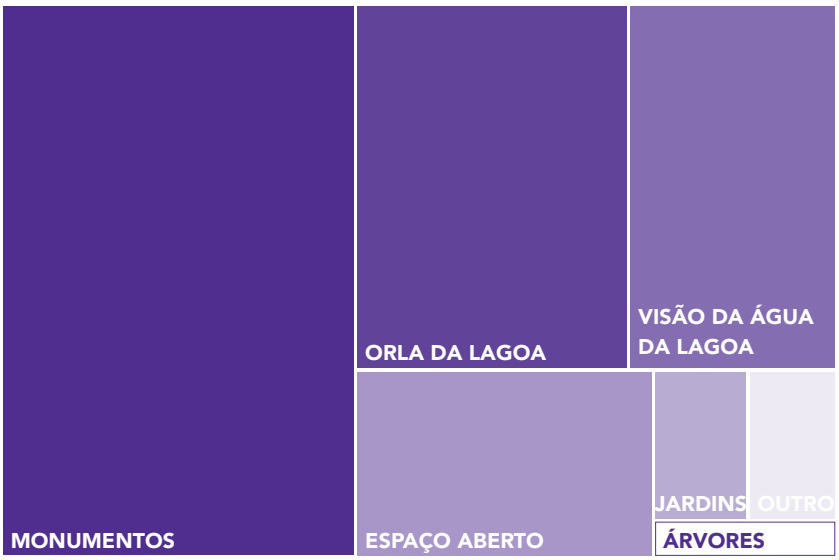

Table 2 Landscape element that most draws the interviewee's attention in Pampulha. Source: Elaborated by the authors.

answers: *"the whole set comprising the elements described above*", and "*how the region is more of an "island" in the uneven configuration of the BH space*"; reinforcing the character of a differentiated landscape in the context of the city **(Table 2)**. The answers received for this question show the recognition by the interviewees of elements and attributes that convey the OUV of the Ensemble: its relationship with the landscape; the waterfront of the lagoon; the water mirror; the monuments; and the surrounding landscape.

Another question of the questionnaire's pre-test presents a mosaic with photos of the four monuments in the Ensemble and the following statement: "*What catches your eye in the photos below?*". Among the responses observed in the three groups, most are related to the category *architecture* or *masterpiece*, often expressed by the term "beautiful". To the question "*What is Pampulha for you?*", most of the answers fit into the categories of *masterpiece*, *identity, and urban park*, the latter about the differentiated landscape of the Ensemble in the city context. Again, these answers confirm the appreciation of the elements and attributes that transmit the OUV of this landscape.

The questions "*What do you like most in Pampulha*?" and "*What do you like least in Pampulha?*" sought to identify the landscape attribute that the interviewee values the most and the one that bothers them the most, respectively. In the open question modality, these questions did not condition or suggest answers, and the characteristic elements and attributes of the landscape were raised by the interviewees. According to the preliminary analysis, for the positive aspects, the answers were organized into three categories: landscape; urban park; and architectural ensemble. The landscape category encompasses features such as the lagoon, its waterfront, nature, garden, and horizontal landscape, the visual scope, as well as the perception of beauty, and the integration of architecture in the context, comprising 54% of the answers; the urban park category includes answers that refer to feelings of well-being offered by the site's characteristics, such as the open areas, an area that is differentiated within the urban context and the urban facilities, which are suitable for sports and leisure, obtaining 25% of the answers; the architectural ensemble category included answers that highlight the architecture, the

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Table 3 Pampulha's landscape landscape most valued by by the interviewee. Source: Authors' elaboration..

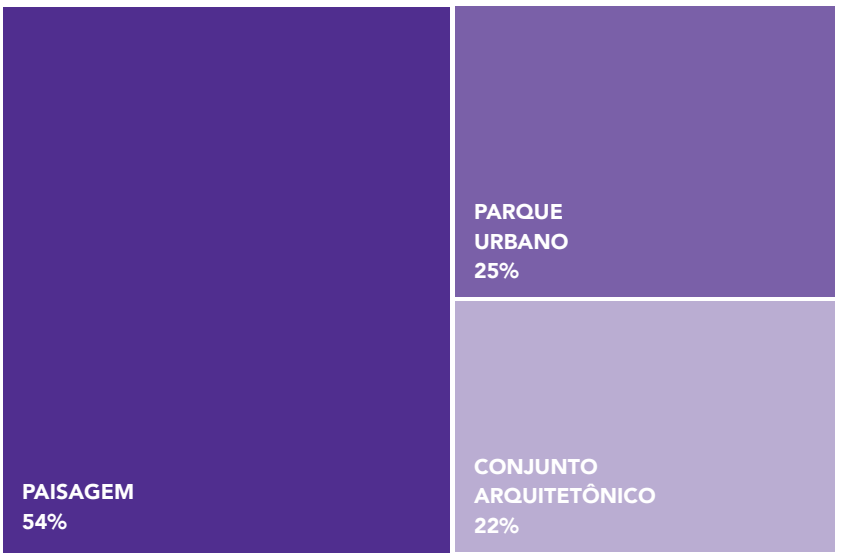
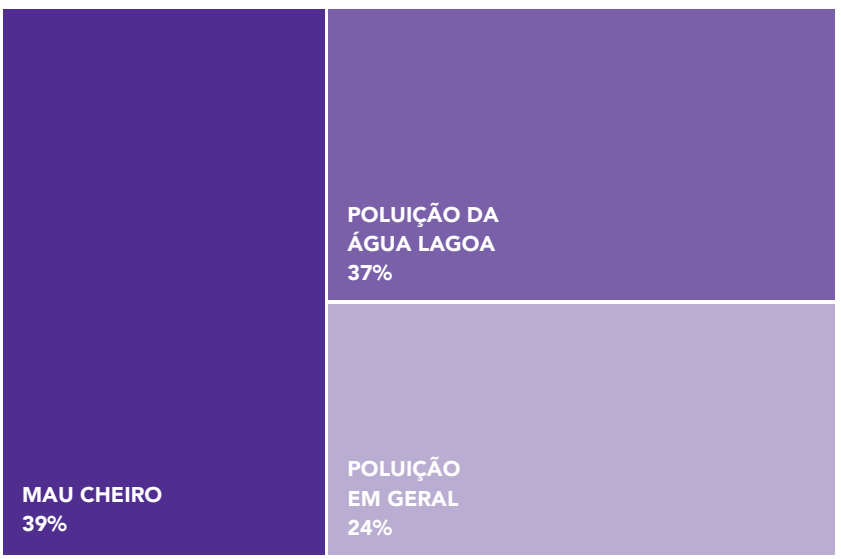


Table 4 Attribute of the Pampulha landscape that bothers the the interviewee. Source: Elaborated by the authors.



monuments, and heritage, with 22% of the responses **(Table 3)**. It is seen that the natural elements in this area are highly valued by the interviewees, as well as the characteristics that define it as a differentiated area in the context of the city. However, not only the presence of nature is valued by the respondents. The presence of architecture as an element that adapts the characteristics of this urban area and its integration with the natural context, are also recognized.

Regarding the landscape aspects that bother the respondents, the answers were spread into the following categories: pollution (65% of the answers); poor conservation (9%); traffic (6%); lack of infrastructure (4%); others (6%); do not know (4%); nothing (3%); and inconsistent answers (3%). In the pollution category, 37% of the answers refer directly to the pollution of the lagoon's water, with 39% to the bad smell caused by this. Another 24% refer to pollution in general **(Table 4).** It is interesting to see that the pollution of the lagoon is the most relevant factor for enjoying the area, and its solution is of great importance for the population.

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The decontamination of the lagoon water is one of the greatest challenges imposed on the managers of the Pampulha Modern Ensemble, a problem that has persisted since the 1980s. Previously, watersports were held on the lagoon, but since the 1980s, its water is no longer suitable for this activity. This situation originates from the urban densification of the Pampulha Basin, most of which is located in the neighboring municipality, and the intensification of urban densification in this area over the last decade. Improving the water quality of the lagoon, to allow leisure activities is also one of the recommendations of ICOMOS[6], which is part of the Ensemble's application dossier (IPHAN, 2017).

The questionnaire used in the pre-test proved to be efficient as an experimental tool, to analyze the elements valued by the different respondents and to make improvements.

CONCLUSIONS

This article presented the method used to build a tool to assess the community's perception of the OUV, along with its respective elements and attributes on which the Declaration of Cultural Significance of the Pampulha Modern Ensemble as a World Heritage Site was based. The literature review on the HUL approach, and that of the documents that supported the application, stand out. Their purpose was to list the main concepts that refer to the research and analysis of the pre-test results, both to improve the instrument used to dialog with the community and to build analysis categories to manage the responses.

The groups of respondents who took part in this exploratory stage of the research had different education levels and professions/ occupations, and were residents of several parts of the city and the metropolitan region, providing a sample of the diverse stakeholders in the study area. The relationship of the Ensemble with the landscape, the use linked to leisure and sport, the lagoon's waterfront, the water mirror, the surroundings of the lagoon, the green and horizontal landscape, the gardens, as well as the architecture and beauty, are just some of the characteristics of the region highlighted by the interviewees in this phase. Although these are not characteristics directly linked to the values of the buildings and artistic elements associated with them, they are elements and attributes that transmit the OUV of the Ensemble as a cultural landscape, which must be preserved and monitored by the managers to keep the World Heritage title. These are values that, on being preserved, can contribute to keeping its distinctive landscape features in the context of the city. The sampling of the questionnaire responses tends to confirm that the population values the relationship between monuments, gardens, the lagoon, its waterfront, and the trees, with the entire built environment and its uses, which make them inseparable from this context.

Due to the social distancing circumstances imposed at the height of the Covid 19 pandemic when the field research was carried out, the way found to listen to the community, and to contribute to fulfilling the community involvement requirement contained in the management

6 ICOMOS, the International Council on Monuments and Sites, is an NGO associated with UNESCO, which seeks to promote the conservation, protection, use, and appreciation of monuments, urban centers, and sites.

plan, was through an *online* questionnaire. Although not ideal, this resource was a satisfactory alternative to re-establish dialog with the community, disseminate recognition of the Ensemble as a World Heritage Site, and the importance of its conservation to maintain an important element of the city's identity.

It was found that more than outstanding universal values, it is the elements and attributes in the landscape of Pampulha Modern Ensemble that contribute to the materialization of such values as a cultural landscape, and that are promoted as aspects recognized and valued by the different stakeholders in the area. These conclusions become important when assessing the means and ways of listening to the community involved, and to determine the ways for their participation.

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Open Form: Oskar Hansen and Svein Hatloy's proposal for PREVI — Proyecto Experimental de Vivienda — Peru.

FORMA ABERTA: A PROPOSTA DE OSKAR HANSEN E SVEIN HATLOY PARA O PREVI — PROYECTO EXPERIMENTAL DE VIVIENDA — PERU.

FORMA ABIERTA: LA PROPUESTA DE OSKAR HANSEN Y SVEIN HATLOY PARA PREVI — PROYECTO EXPERIMENTAL DE VIVIENDA — PERU.

Figure 0 Hansen and Hatloy's proposal for PREVI. Urban space as background and structure for urban events, one of the principles of Open Form. Source: free production of the authors based on data provided by the project.

Este artigo é fruto de pesquisa intitulada "Habitação e cidade na segunda metade do século XX: Alternativas à proposta funcionalista na habitação social no contexto ibero-latinoamericano", e contou com apoio da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Brasil — código de financiamento 001 — e da Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS), Brasil — bolsa de iniciação científica

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RESUMEN

O concurso para o conjunto habitacional do PREVI (***Proyecto Experimental de Vivienda***), realizado em 1969, em Lima, se deu em um momento especialmente fértil de reflexões sobre as transformações da arquitetura e, principalmente, das cidades. Nesse contexto de crítica, temas como a participação cidadã e a transformação da arquitetura no tempo tornaram-se centrais e influíram decisivamente nas propostas das 13 equipes internacionais que participaram do concurso no Peru. Esse laboratório projetual, promovido pelo governo peruano com financiamento da ONU, tornou-se, na visão dos autores deste artigo, uma experiência fundamental em habitação social na América Latina no século XX, concentrando projetos seminais cujas ideias reverberam ainda hoje. Se todas as equipes internacionais convidadas a participar do concurso já tinham, naquele momento, um significativo repertório no tema da habitação e estavam em grande sintonia com a produção crítica de seus contemporâneos, a equipe polonesa, composta por Oskar Hansen e Svein Hatloy, trazia para o Peru uma bagagem de trabalho muito particular que vinha desenvolvendo no leste europeu. Dois conceitos estruturantes da produção prática e teórica de Oskar Hansen e de sua esposa, Zofia Hansen — a "Forma Aberta" e o seu desdobramento em escala urbana, o "Sistema Linear Contínuo" (SLC) — aparecem na proposta para o PREVI como instrumentos na busca por uma arquitetura flexível no espaço e no tempo, ***aberta*** à participação e intervenção do morador e adequada às suas particularidades socioculturais. Desse modo, o presente artigo tem por objetivo resgatar, em um recorte mais específico, as ideias norteadoras da proposta polonesa para o concurso e, em sentido mais amplo, trazer à tona a importância do PREVI enquanto referência fundamental para projetos de habitação social na contemporaneidade.

Palavras-chave: habitação social, PREVI, revisão do modernismo, Forma Aberta, habitação flexível.

ABSTRACT

The competition for the housing estate of PREVI (***Proyecto Experimental de Vivienda*** – Experimental Housing Project), carried out in 1969, in Lima, happened in a specially fruitful moment of reflections concerning changes of architecture and, mainly, of the cities. In this context of criticism, issues as the citizen participation and the change of architecture over time became central and influenced decisively in the proposals of 13 international teams that participated in the competition in Peru. This projectual lab, promoted by the Peruvian government with UN funds, became, according to the opinion of the authors of the present article, a fundamental experience in social housing in Latin America in the 20th century, concentrating seminal projects whose ideas still reverberate nowadays. If all international teams invited to participate in the contest already had, at the time, a significant repertoire in the housing issue and had a good understanding with the critical production of their contemporaries, the Polish team, with Oskar Hansen and Svein Hatloy, brought to Peru a very peculiar work experience that they had been developing in Eastern Europe. Two structuring concepts of practical and theoretical practice of Oskar Hansen and his wife, Zofia Hansen — the 'Open Form' and its deployment in urban scale, the 'Linear Continuous System' (LCS) — appear in the proposal for PREVI as instruments in the search for a flexible architecture in space and time, ***open*** to participation and intervention of the dweller and adequate to his/her sociocultural peculiarities. Therefore, the present article aims at redeeming, in a more specific clipping, the guiding ideas of the Polish proposal for the contest, and, in a broader sense, raising the importance of PREVI as fundamental reference for social housing projects nowadays.

Keywords: social housing, PREVI, Modernism review, Open Form, flexible housing.

RESUMO

El concurso para el conjunto de viviendas PREVI (Proyecto Experimental de Vivienda), realizado en 1969, en Lima, ocurrió en un momento especialmente fértil de reflexiones sobre las transformaciones de la arquitectura y, sobre todo, de las ciudades. En ese contexto de crítica, temas como la participación ciudadana y la transformación de la arquitectura en el tiempo se hicieron centrales. Se trató de un proceso en el cual influyeron decisivamente las propuestas de los 13 equipos internacionales que participaron del concurso en Perú. Ese laboratorio proyectual, promocionado por el gobierno peruano con financiación de la ONU, devino, en la visión de los autores que se exponen en el presente artículo, una experiencia fundamental en vivienda social en Latinoamérica durante el siglo XX, a través de proyectos seminales cuyas ideas reverberan todavía hoy. Si todos los arquitectos invitados a participar del concurso ya tenían, en ese momento, un significativo repertorio en el tema de vivienda y estaban en gran sintonía con la producción crítica de sus contemporáneos, la dupla polaca, compuesta por Oskar Hansen y Svein Hatloy, trajo a Perú una experiencia de trabajo muy particular que se venía desarrollando en el este europeo. Dos conceptos estructurantes de la producción práctica y teórica de Oskar Hansen y su esposa, Zofia Hansen – la "forma abierta" y su desarrollo en escala urbana, el "Sistema Lineal Continuo" (SLC) – se muestran en la propuesta para PREVI como instrumentos para la búsqueda de una arquitectura flexible en el espacio y en el tiempo, ***abierta*** a la participación e intervención ciudadana y adecuada a sus singularidades socioculturales. De ese modo, el siguiente documento tiene como objetivo rescatar, mediante un recorte específico, las ideas conductoras del proyecto polaco para el citado concurso y, en sentido más amplio, exponer la importancia de PREVI en cuanto referencia fundamental para proyectos de vivienda social en la contemporaneidad.

Palabras-clave: vivienda social, PREVI, revisión del modernismo, Forma Abierta, vivienda flexible.

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INTRODUCTION

The debate on the scope and limitations of citizen management on their habitat occupied a prominent space in the field of architecture and urbanism in the second half of the 20th century, both in the context of the reconstruction of Post-War Europe and in the framework of the rampant growth of Latin American cities due to countryside-city migration. Under these two scenarios, issues such as the construction and reconstruction of urban centers, population growth, economic difficulties, and increasing social inequalities brought to light the need to incorporate participatory processes and self-construction in housing research projects.

The participation of citizens, on one hand, and the details of social subjects on the other, are thus going to be fundamental issues that arise at various levels, whether in a more objective and direct perception - the desires and needs of each resident, or each family, focusing on the project, and from this demanding greater flexibility - or in a broader and indirect interpretation - the cultural aspects, the vernacular construction tradition, and informal housing development, for example, are taken as a reference in the project. The possibilities of making this direct or indirect contribution, of the individual or the collective in the construction of their habitat, have become the focus of a vast field of methodological research, challenging, to some extent, the traditional role of the architect as the creator of a definitive and irrevocable form.

In this participatory context - which was part of a more general debate in the 50s and 60s, based on the differences regarding the functionalist dogmas of the Modern Movement -, works, such as those of Giancarlo De Carlo (1919-2005) and Ralph Erskine (1914-2005) on social housing, were key. De Carlo, as Farias (2019) highlights, foresaw the inclusion of the resident in an architectural operation that proposed housing as an unfinished object, and that incorporated time and use in its various stages. In turn, Erskine included, in the Byker Wall (Newcastle-upon-Tyne, England, 1973), to mention just his most important project, consultation with the local community, resulting, as P. Campos (2017) witnessed, in a "very human" project that connects the community to its territory.

These proposals in the field of architecture and urbanism are parallel in a whole "poetic of openness" that, at that time, was effervescent in the intellectual and artistic fields in general, as Umberto Eco pointed out in his Open Work (1962): The compositions of the German, Karlheinz Stockhausen, the writing of James Joyce in Finnegan's Wake, and the mobiles of Alexander Calder are some examples that demonstrate this broad movement of paradigm change, already present in previous decades, which came to consider a more active subject in the very constitution of the work and/or its interpretation (H. Campos, 1975; Melo, 2016).

Within this context of such profound renovations, which reverberated directly into contemporary city-building projects from the Second Post-War period, the *Experimental Housing Project* (PREVI, in Spanish), carried out in Peru between 1968 and 1975, can be considered as one of the most important experiments on social housing ever conducted in Latin America. In this sense, the perspectives of Alejandro Aravena and Kenneth Frampton concur, who equated PREVI with Weissenhofsiedlung (1927), in Stuttgart, ranking them as the two greatest moments in the history of social housing, due to their

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experimental character and large international scope (Aravena, 2004; Frampton, 2015).

The laboratory installed in Lima in the PREVI call, with 41 projects presented - among them, 13 by some of the most renowned teams of the 60s in Europe, the United States, and Japan-, becomes a very important event of abundant and fertile experimentation that can be confirmed both in archives, through publications, and in the Experimental Unit built in the Peruvian capital. The goals of a broader investigation undertaken by the authors, from which this article is derived, were to study this in detail, while taking lessons on architecture and social housing relevant to contemporaneity from this rich production.

One of the teams that took part in the call, who had the most experience in participatory projects —and that was deeply inserted in this environment of new proposals in the Second Post-War period - was the Polish team, comprising the Finnish architect, Oskar Hansen (1922-2005), and graduate of the University of Warsaw, and his pupil Svein Hatloy (1940-2015) (Ruiz Alonso, 2018).

In his professional career, that brought together art, architecture, and teaching, Oskar Hansen developed, together with his wife, the architect Zofia Hansen (1924-2013), the concept of Open Form, key to understanding both the legacy of the couple and the project for PREVI. This concept, presented at the CIAM of Otterlo in 1959 (Hansen & Hansen, 1959), represented the commitment of replacing an idea of traditional, rigid, and univocal work - of art, architecture, and urbanism — with non-crystallized forms, *open* in the sense of the extensive possibility of results and the free reaction and action of the user.

Thus, Oskar Hansen referred to the architectural space conceived following this principle:

> It must absorb the most varied permanent functions (work, food, leisure), as well as accidental, spontaneous ones —which occur in the coexistence of residents over time. [...] It must emphasize the individuality of the inhabitants and the scale of their feelings. The architectural space must be transformed over time, from an individual form to one of multiplicity, and vice versa. [1] (O. Hansen, 1958, p. 436)

Open Form, as López-Marcos (2015) explains, broke down the rigid spatial conception - typical of the "closed" form -, and was proposed as a flexible spatiality where individuals played an active role again, through their ability to produce a reflective space. Thus, architecture and urbanism would generate a base on which the resident/inhabitant could, even as a participant in a collective process, be able to perceive, generate, and adapt their space to their needs.

Oskar and Zofia Hansen initially applied the concept of Open Form in 1958, in the *Warsaw Housing Cooperative (WSM Rakowiec)* project, where they developed a typological diversity of apartments, giving future residents the opportunity to choose (Z. Hansen, N. d.).

Later, the *Juliusz Slowacki Housing Estate (LSM)* project in Lublin, of 1961, showed progress regarding the possibility of choosing between predefined types, tested in Rakowiec, for a "construction that allowed far-reaching transformations" (Z. Hansen, w/d, p. 33)[2], with several flexible housing

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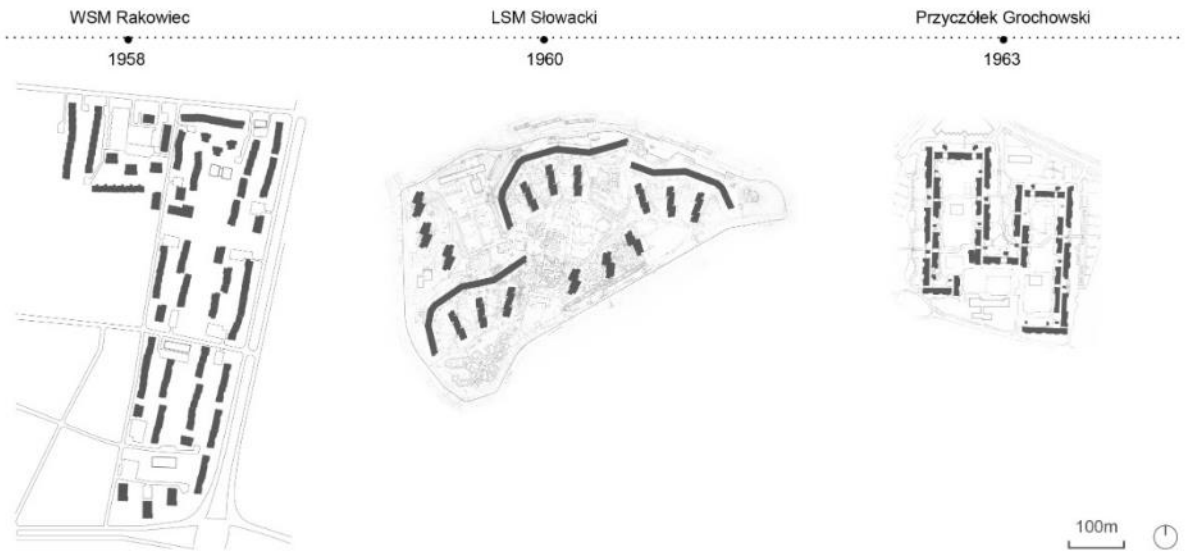

Figure 1 *Layout of WSM Rakowiec, LSM Slowacki and Przyczólek Grochowski.* Source: Prepared by the authors based on the original projects, available in the Hansen Family Archives. (http://www.hansen-family.net/).

modules of different sizes, for families of 2 to 5 people. For each pre-defined module, several internal layout options were developed, presented as a questionnaire to the residents, who also had the autonomy to prepare their own proposal (López-Marcos, 2015; Stanek, 2014). A prefabricated independent structure gave the project flexibility including, for example, beams with tenon joints for the construction of balconies, coupled to the facade following the internal layout defined for the apartment.

In 1963, the couple began the *Przyczólek Grochowski* housing complex project**,** in Warsaw, with blocks supported by a prefabricated system of transverse frames that allowed flexible layouts, including the future knocking through of adjoining apartments on removing internal partitions. The 1.5km long gallery, which connected the blocks, was considered as a meeting point for the residents, and its "folded" setup formed open protected areas for leisure, and for facilities such as a primary school, kindergarten, infirmary, and administrative offices (Kedziorek & Stanek, 2012).

All these housing experiences **(Figure 1)** were trials on how to live in a community, which the architects considered compatible with the Polish socialist regime and that would be suitable for this (cf. Stanek, 2014; Springer, 2017).

This constant research with linear layouts, where circulation gains increasing importance as a structural-spatial element, is a small-scale experimentation of the Linear Continuous System (*LCS*), a principle that the Hansens were developing at that time. This system, which proposed a new form of urban settlement in Poland, consisted of functional strips, arranged in parallel, that proportionally alternated serving and served zones, giving people equal opportunities to access public facilities and urban life in general, through transverse and longitudinal mobility. On breaking with the traditional and hierarchical centralized urban forms —with peripheral diametric growth in relation to a fixed central region—, in the LCS, thanks to the linear layout, housing and services would maintain a balanced relationship, even with the expansion of urbanization (O. Hansen, 1969; Kwiatkowski, 2019).

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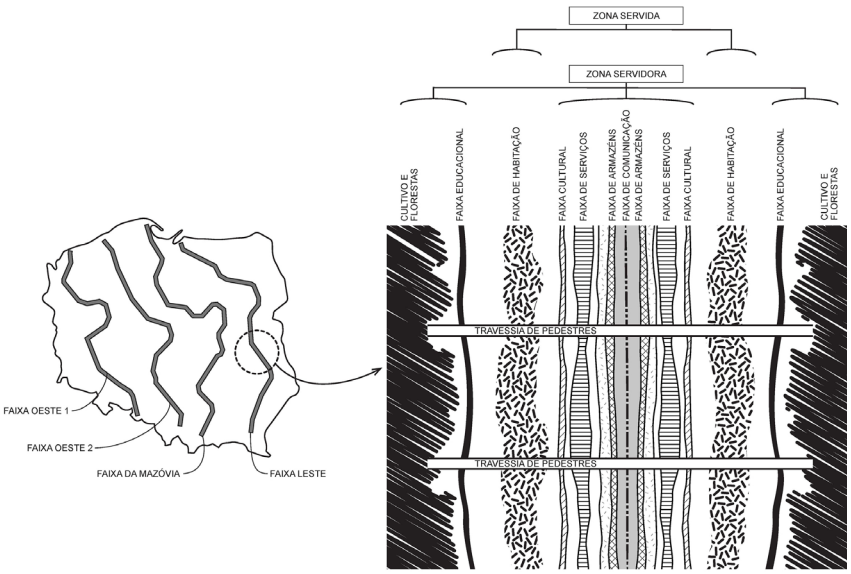

Figure 2 *Ehe layout of the LCS crossing Poland, on the left, and a detailed approximation, on the right.* Source: Compiled by the authors based on the material available in the Hansen Family Archives (http://www.hansen-family.net/).

Thus, Hansen applied the idea of the Open Form to an infinitely larger, regional dimension: Four strips of this system would cross all of Poland, connecting the European demographic center to the sea **(Figure 2)**. In these strips, the interpretation of the Open Form, translated into an idea of a city that was essentially conceived as an infrastructure, a base on which residents would be provided with basic urban functions and would have the freedom to set out their habitat. Drawings and approach models of the so-called West Strip 1, for example, showed a staggered structure, like a colossal continuous grandstand where the inhabitants would build their homes[3]. Then, the LCS was in the same vein as the megastructures proposed in the same period —for example, by Japanese Metabolists— whose primary reference was the Obus Plan (1931), by Le Corbusier (Banham, 2020). In these projects, a large structure served as the basis for smaller units, with a shorter life cycle and susceptible to replacement (residences, buildings, etc.), constituting an expandable and flexible system.

The LCS would thus form the basis for a more egalitarian society, closer to "the positive aspects of the city, i.e., the comforts of civilization, and the positive aspects of the countryside, namely, closer contact with nature" (Hansen, 1969, p.2).[4]

At the same time, the Hansen's background on social housing, developed under the concepts presented here, would culminate in the invitation of the British architect Peter Land to take part in the call for large scale urbanization of social housing to be implemented in Lima, Peru, within the PREVI program. On that occasion, Oskar was accompanied by his young colleague Svein Hatloy (1940-2015), a Norwegian architect, who had been in Poland since 1965, collaborating with the Hansens.

The *Experimental Housing Project* (PREVI, in Spanish), managed under the leadership of the architect Fernando Belaúnde Terry, and financed by the UNDP (United Nations Development Program) in the late 1960s, was a proposal developed within the framework of the rapid migration from the countryside to coastal cities, particularly to Lima, which caused a housing

3 Images available at http://www.hansen-family.net/ (Oskar-Concepts-LCS Western 1)
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deficit, like other Latin American urban hubs, with the proliferation of many informal and precarious settlements on its periphery.

With the goal of being a large laboratory for housing in Latin America, PREVI had several programs, among them PP1[5], which foresaw the construction of a new neighborhood with 1,500 residential units and, for this, the holding of the call, in 1969. 28 Peruvian teams took part in the open call, and 13 international teams, in the call by invitation (Gonsales & Bertinetti, 2019). [6]

The architects from the international teams were somehow inserted in the context of criticism of the dogmatism of the functionalist city, with some even participating in Team X (such as Aldo Van Eyck and the Candillis group, Josic, and Woods) and others in its *milieu* (such as Hansen, the Japanese team, and James Stirling). Not by chance, the call to tender announcement was very much in tune with the new paradigms that emerged from this critical production —which encompassed the entire critical scenario built by the Situationists, by Jane Jacobs, by Christopher Alexander himself, a participant of the call, among many others- and it closely considered the socio-cultural and geographical peculiarities of Peru, along with the economic and technological feasibility of the project.

Among the mandatory requirements and recommendations of the call, the teams had to follow parameters such as the flexible and evolutionary character of the houses and incremental growth, giving families a chance to take part in the progressive conformation of their habitat, and taking into account Peruvian family setups. On an urban scale, for example, the need for high density combined with low rise buildings, as well as giving priority to pedestrians, with multipurpose open spaces —the interpretation of traditional open spaces in Peru, such as *squares* and *boardwalks*- was encouraged ("PREVI/Lima", 1970).

The PREVI housing competition thus constituted a large experimental field, where architects from the northern and southern hemispheres were able to test out or expand upon research that they had been working on with housing, in the context of criticism of the "abstract and universal space" of the functionalist matrix, which included a more contextualistic approach to the project and to the idea of a more active subject.

The coincidence of conceptual and ideological terms and conditions put forth in PREVI, with the precepts of the Polish architects, would make the call in Peru a unique opportunity of application, for Hansen and Hatloy, of the Open Form theory and of the Linear Continuous System. This article looks to study the project of Hansen and Hatloy for the PREVI call, revealing the concepts and procedures contained within it, rescuing its spatiality and trying to shed light on an experiment that, due to its complexity and maturity, involves an even greater role in research.

In this sense, the notes of the Peruvian Housing Ministry (ININVI, in Spanish, 1971), where the projects of the PREVI call and their memorials are published, as well as the most recent publication, The Experimental Housing Project (PREVI), Lima, (LAND, 2015), a broad catalog of proposals for PP1 authored by Peter Land himself, are

5 PREVI initially consisted of three pilot projects: PP1, urbanization project; PP2, improvement of existing areas; and PP3, support for self-construction of housing and facilities. Subsequently, PP4 was incorporated, with the aim of rebuilding the areas affected by the 1970 earthquake (Land, 2008).

6 The teams invited were: Kiyonori Kikutake, Fumihiko Maki, Kisho Kurokawa (Japan), Christopher Alexander (USA), Toivo Konhonem (Finland); Rafael Esguerra García, Álvaro Saenz Camacho, Germán Samper Gnecco, and Rafael Urdaneta Holguín (Colombia); Knud Svenssons (Denmark); Hansen and Hatloy (Poland); Herbert Ohl (Germany); and Studio 5 (Switzerland); Íñiguez de Onzoño, and Vázquez de Castro (Spain); Georges Candilis, Alexis Josic, and Shadrack Woods (France); James Stirling (England); Aldo Van Eyck (The Netherlands), and Charles Correa (India) ("PREVI/Lima', 1970; Land, 2008).

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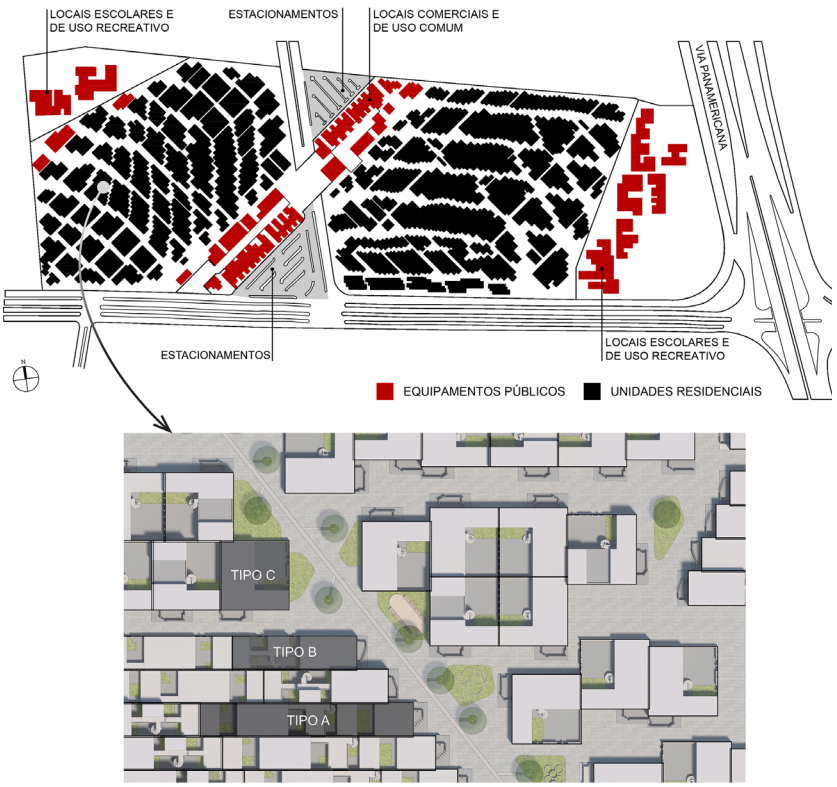

Figure 3 *General urban design: Public and private domain.* Source: Redesign by the authors from images available in Ininvi & Ministry of Housing (1971, v. 18).

essential sources of this study. On the other hand, access to the Hansen Family Archive (http://www.hansen-family.net/) was key to completing the information about the Hansen and Hatloy project found in the bibliographic references cited above.

The City Scale: The Linear Continuous System

The area of the land designated for the call was 40 hectares. It was in the expansion region north of Lima, next to the Pan-American highway, and was part of a residential area that was ten times larger, to which the estate could expand later ("PREVI/Lima", 1970).

The setup proposed by the Polish team alludes to the Linear Continuous System, and the project as a whole is an exercise of direct application of the Open Form. A central strip of stores, services, and facilities, which acts as the backbone of the estate, appears diagonally on the ground, obeying the direction of the prevailing southwest to northeast winds, and channeling them through belts of vegetation.[7] At the east and west ends of the estate, complementing the service areas of the central strip, following the proposed cross-section of the LCS, there are two areas for school and recreational activities with green areas, promoting a kind of isolation for the estate from the busy roads, especially the Pan-American highway.

Set amid these public facilities are the two large residential areas of the estate **(Figure 3).** In them, different types of housing units are associated with different sized plots that, from a fairly open geometric pattern, form the urban space. Hence, the implementation would be

7 The original plans of the project can be seen in full at http://www.hansen-family.net/ (Oskar-Projects-Housing, tab "UN Previ"), a file that has several explanatory diagrams about the proposal and is the basis for much of the information that will be presented in the course of this work.

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incremental and would involve some flexibility. The proposal of terraced residences would provide a high density to the estate —if a maximum height of three floors is considered-, reaching an average of 250 inhab/ha (Ininvi & Housing Ministry, 1971, v. 18), but this could be almost doubled with the expansion of residences over time.

The PREVI proposal as a linear continuous system (LCS) outlines the day-to-day movement of the inhabitants: living, services, production/work, leisure, and contact with nature. This organization implies that these strips could easily extend as the estate expanded, demonstrating the great *openness* -in Hansen's lexicon- of the estate and always the latent potential of connection with the surroundings. On the other hand, the fairly open association between units generates diverse and not very rigid paths that connect the central area and the lateral recreational ones, leading to a constant and diverse transversal flow of people throughout the day, promoting social contact.

The diagrams presented by the architects demonstrated a pedestrian-oriented organization, with a maximum of 10 minutes' walk for the residents to common facilities and spaces, as well as to the highways connecting with the rest of the city. The car only reaches the parking spaces, located at the ends of this central strip, next to the highways. The road that crosses the site, transversely passes underground through the "service area", helping residents walk through the entire estate.

Several levels of groupings are proposed on the estate. The internal courtyards of the residences, which are the private spaces, are the first opportunity to gather, meet, and for recreation, especially for children. On the other hand, the design of streets for pedestrians, with their recesses and small places for living and playing, values the reading of intimacy and characterizes these "semi-private" spaces as extensions of the home, fostering small gatherings, and a relationship among neighbors, through a measurable and private interconnected public space. The multi-age leisure areas, gardens, and some infrastructure, such as flowerbeds and drainage, would be found in these potential places of coexistence.

These alleyways in the estate lead to wider open spaces, of a public nature, associated with the facilities in the center and on the edges of the site. This positioning, while moving away from vehicle traffic to housing, opens the estate to its surroundings. The relationship of the different open spaces is one of the translations of what was thought of as a place of "social relations" by the architects:

> The open areas around the houses offer a wide variety of paths for pedestrians, as well as places for children to play near their homes. These paths comprise open private areas and are connected by the central service area and by the lateral recreational ones. The conditions created are favorable for having a variety of social contacts ("PREVI / Lima", 1970, p. 200)[8].

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Figure 4 *The urban space.* Source: Prepared by the authors based on the data provided by the project.

Through the connection between these different categories of open spaces, repeating strategies used in the Juliusz Slowacki and Przyczólek Grochowski housing estates**,** the architects planned the general activities considering the different age groups and with appropriate distances to the house: in the first group, children up to 3 years of age would be accompanied by their parents, using the open spaces inside the residence. The second group, from 3 to 6 years of age, would already have the autonomy to use the playground, which would be within a radius of 30m of each dwelling, usually located in the various recesses generated in the urban space through the displacements of the buildings. The final group covers children from 6 to 14 years of age, who would be able to go to clubs and sports areas, which are located up to 500m from the residences. This care about the project's suitability for different age groups demonstrates an attempt to promote from early on, the progressive and secure appropriation of collective spaces.

The concept of architecture as a support — that had been worked on by the architects — is clearly explored in this project, from a proposal of urban space with clear boundaries and an apprehensive setup, where the physical elements act as a continuous background that highlights the figures — people and activities —while linking them at the same time **(Figure 4).**[9]

9 They broke from the basic strategies of Modern urbanism -especially that consolidated in the Interwar CIAMs and the Athens Charter (1933)—, which put the physical elements —and architecture- as figures against an infinite and amorphous spatial background.

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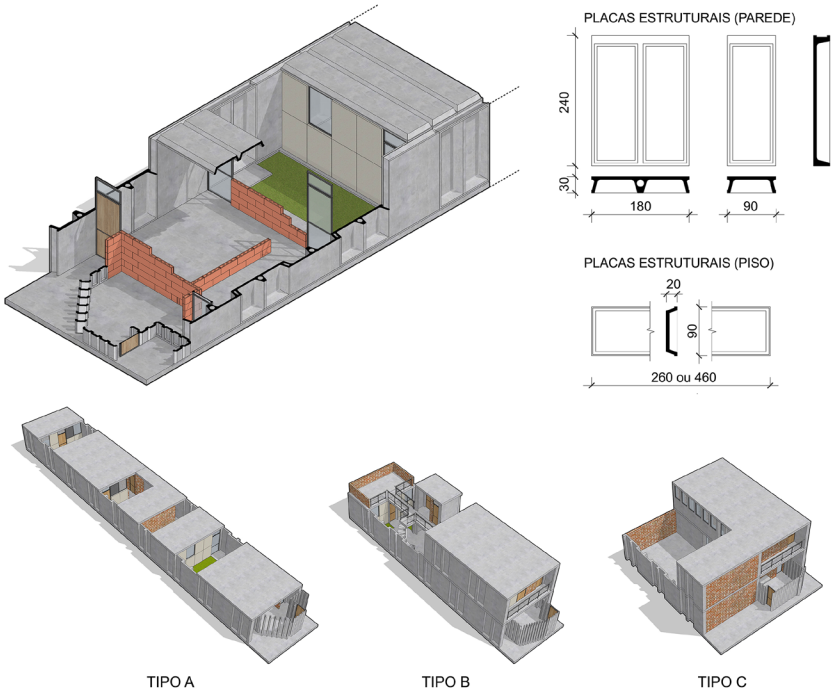

Figure 5 *Residential unit: Constructive elements and typological arrangements.* Source: Prepared by the authors based on the data provided by the project.

The scale of the residential unit: The Open Form

Although PREVI did not foresee direct participation of the future resident in the initial phases of the project, the possible diversity of dimensions and internal organizations of the dwellings, as we will see, assumed their intervention in later housing occupation phases.

Oskar Hansen's experiments with resident participation as a complement of their home, serve as the basis for PREVI, now with the theme of single-family housing. A prefabricated concrete construction system forms the perimeter closure of the lot and the mezzanine and roofing slabs. In the later stages, enclosures with ceramic or concrete blocks, panels, frames, partitions with fabric, etc. would enable the residents themselves to implement them according to their usage needs and their economic possibilities **(Figure 5**). The strategy of using heavier building elements to define the boundaries of the lot allows, from this "base", great internal flexibility — demonstrating a simultaneous concern with the principles of Open Form and with the integrity of urban spatiality.

Thus, three general types of units (A, B being elongated lots; and C, compact lots) with several subtypes, from the depth variation of the lot, are proposed, producing an extensive range of possibilities for housing setups.

The project on a home scale sought to contemplate the different Peruvian family makeups, especially the polynuclear ones. Cohabitation was a recurring situation, and house extensions had to consider this family development over time. Thus, the base residence housed a first nuclear family and, as the family grew and the children formed new families, the dwelling allowed extensions with a certain functional autonomy of the spaces.

In Type A, quite elongated in nature, the intercalation of the

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Figure 6 Residential unit, type A: Extension process; sectoring and flows.Source: Prepared by the authors based on the data provided by the project.

built spaces and their private yards finds, in the perimeter structure, the suggestion of modulation for future growth, aiming at a good relationship between enclosed and open environments, with suitable yard sizes for isolation and natural ventilation. This organization generates a very clear grading of privacy, from the most social environments, at the entrance, to the most intimate, at the back. In principle, this type would house a maximum of two floors, the upper one -equipped with its own kitchen, bathroom, living room, and bedroom— reserved for a second family unit **(Figure 6).**

In Type B, with less depth than the previous one, a single central courtyard separates, on the ground floor, the social area, and one bedroom. Among these volumes are bathrooms and vertical circulation. On the upper floor, a hallway connects the three areas of the floor — bedrooms, bathrooms, and terrace—, and acts as a roof for circulation on the ground floor. This type and the previous one would house up to two nuclear families, reaching a total of eight to nine people, respectively **(Figure 7)**.

On the ground floor, Type C has more defined spaces and, on the second floor, it has the possibility of spatial rearrangement inside a previously constituted shell. This type would have 3 floors with the possibility, then, of housing up to 3 nuclear families and a total of twelve people **(Figure 8).**

The three types have functional solutions in common, such as the demarcation of the external service area, where there is a secondary access. If the front positioning of the service sector distances the residence from direct contact with the street, making the house more introspective,

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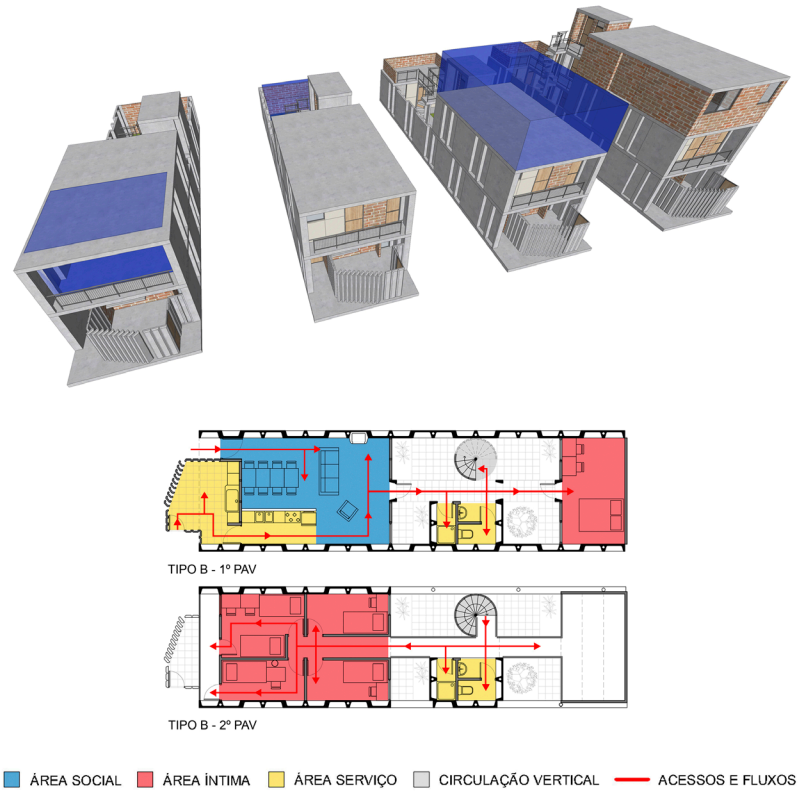

Figure 7 Residential unit, type B: Extension proposal; sectoring and flows.Source: Prepared by the authors based on the data provided by the project.

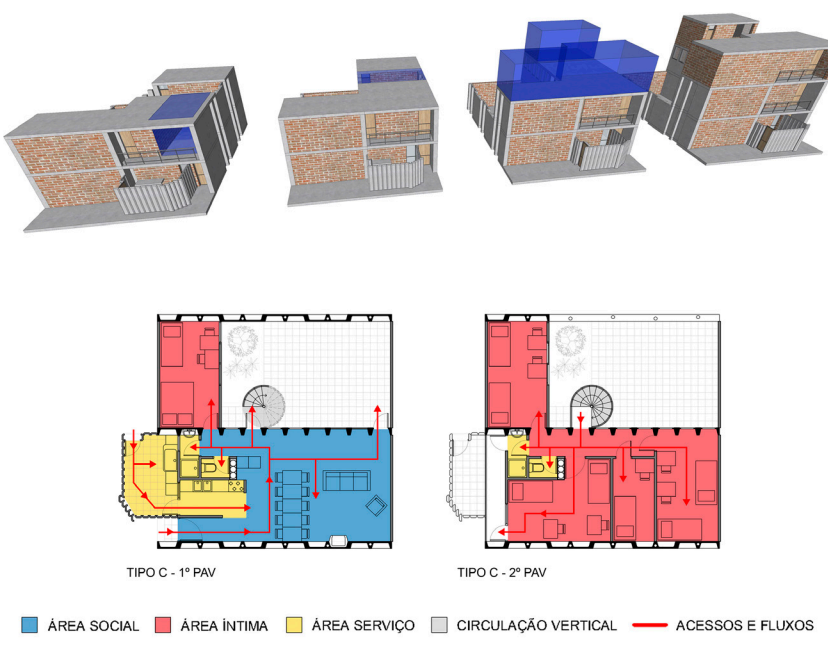

Figure 8 Residential unit, Type C: Extension proposal; sectoring and flows. Source: Prepared by the authors based on the data provided by the project.

the courtyards then become key instruments for the sense of extension of the internal environments.

Thus, since they originate from the same constructive logic and share some formal/functional solutions, the different types of houses coexist and connect, generating a whole with a very cohesive language, despite the high complexity and even unpredictability of their implementation.

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DISCUSSION AND CONCLUSIONS

The proposal of Oskar Hansen and Svein Hatloy for PREVI shows a constant dialectic between repetition and change, rule and individual freedom, rigid support and Open Form, where the role of the architect is essentially different from that based on the design of a final form, of which they would have an absolute control. In this project, the spatial form assumes a process nature, where the project is a sublayer that gives room to new possibilities.

This reduction in the project's degree of determination does not necessarily mean a simplification or reduction of the role of the architect, but perhaps a greater complexity, evidenced, in the case under study, by the different typological variations, possibilities of growth, and adaptation to different family arrangements, use of different building materials, and foresight for the progressive occupation of the space. The flexibility of the project when facing these factors is combined with a certain control of the designers over the form, whether architectural or urban and, therefore, over the environmental quality of the spaces, seeking a qualified relationship between the rigidity of the support and the freedom given to the residents.

The effort to adapt such a universal proposal as the LCS (whose layouts showed the possibility of extension to the entire European continent) to the idiosyncrasies of Peru sheds light on the great complexity that involved the work of Post-War architects, those of the so-called "third generation", linked to discussions of review and criticism within the Modern Movement itself.

On one hand, the "universal man" from the first phase of modernism became a specific individual —"subject before object," in Hatloy's terms— as an increasingly sociological approach to think about the city. Categories like *identity*, *community* and *association*, key in the work of Alison (1928-1993) and Peter Smithson (1923-2003), to quote two architects whose research matched Hansen's, were clearly opposed to the functional categories of the Athens Charter, evidencing from the start of the 1950s, the paradigm shift underway. On the other hand, quite often this same generation of architects, who sought in real and local experiences a sense of place, focused on planning and project concepts whose matrix was still essentially universal and totalizing, with a focus, of course, on giving practical and efficient solutions to the vulnerabilities of a world shaken by war and in a dizzying population and urban growth.

Thus, urban concepts in vogue at that time, such as mega-structuralist proposals or even the idea of *mat-building* -which are reflected in Hansen's theoretical and project propositions and, in a certain way, in his project with Hatloy for Lima-, carried in themselves something of an internal contradiction: if local aspects were taken as a reference and the freedom of action of the individual in the establishment of their habitat was a fundamental premise, this would be achieved through large structural elements using advanced technology, which imposed a blunt and somewhat rigid order. The freedom of the inhabitant would therefore be conditioned to a structural matrix whose construction would require collective strength and consensus, in a process of apparently difficult intermediation between two diametrically opposed scales, that of the megastructure and that of spontaneous and autochthonous housing.

On the other hand, a new notion of temporality and flexibility was also incorporated in these proposals, where LCS and the Open Form were imbued: the great ordering structure of the form should be capable of adaptation, transformation, and growth over time. Given this context of rich complexity, the

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project of the Polish team for PREVI becomes especially interesting, and the more general exercise contained therein, namely that of the translation and feasibility of a repertoire such as that of the LCS - developed essentially as a theoretical proposition and on a very broad territorial scale— in the particular Peruvian peripheral context, in a set of single-family houses so different from the large blocks proposed in Eastern Europe. The establishment of the support structure is manifested, in PREVI, by a less comprehensive scale, especially in housing, but also through public facilities and basic urban infrastructure, which would allow some flexibility in the general implementation of the estate and would facilitate its expansion.

The project of Hansen and Hatloy, based actually on the tension between the universal and the local, the technological and the autochthonous, the planning and the contingency, eloquently expresses the debate on architecture and city of their time. The final form of yesteryear enters into a frank dissolution, well represented by the Hansen dichotomy between closed and Open Form[10], and it becomes procedural and flexible, and is traversed by agents that, no matter how much they have always acted on architecture, did not, until then, have such a prominence in the hegemonic discourse and practice: time, change —in social or family arrangements, in the wishes of users, on so on-, freedom of choice, and participation of the population; in short, openness to the unpredictable and changeable.

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10 The trial Hansen and Hatloy conducted in Peru in 1969 cannot be measured in its entirety. What was built from this call was an Experimental Unit with 500 units which brought together, as a showcase, the proposals of the 24 international and Peruvian teams that took part, adapted to an urban project made by Peter Land.

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THE INTERVENTION OF ARCHITECTURAL-URBAN RESIDENTIAL HERITAGE IN MAR DEL PLATA: AN OPEN PROBLEM

La intervención del patrimonio arquitectónico-urbano residencial de Mar del Plata: un problema abierto

Na intervenção do patrimônio arquitetônico-urbano residencial de Mar del Plata: um problema aberto

Figure 0 View of the fabric of the Stella Maris neighborhood in the city of Mar del Plata, where a picturesque residential context with high-rise coastal interventions stands out. Source: Aerial photograph from Google Earth 2021.

La investigación se inscribe en el proyecto "Paisaje histórico urbano e inserción de obra contemporánea. Aportes para una salvaguarda equilibrada desde el análisis de las prácticas socioculturales y sociomateriales en Mar del Plata", financiado por la Universidad Nacional de Mar del Plata

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RESUMO

El tratamiento del patrimonio, en relación con el amplio espectro de bienes que comprende, implica múltiples abordajes para su salvaguarda. En particular, la incorporación de nueva arquitectura en obras existentes, en cualquier escala, constituye un desafío vigente. Este dilema posee una larga trayectoria en la historia de la arquitectura y el urbanismo, junto a otras disciplinas asociadas, dentro de ámbitos europeos y latinoamericanos. Sin embargo, en la segunda década del siglo XXI, los problemas referidos a las aportaciones contemporáneas en marcos arquitectónicos y urbanos históricos, evidencian una permanencia de dificultades para dialogar, ceder y resistir, o bien, para "parlamentar" entre el legado que sobrevive y las incorporaciones que indefectiblemente recibirá a través del tiempo. En este sentido, resulta de interés lo acontecido en la ciudad de Mar del Plata respecto a las intervenciones de sus contextos pintoresquistas. Sus dinámicas pasadas y presentes, junto con un deficiente proceso de amparo patrimonial, han afectado los paisajes característicos generados en la primera mitad del siglo XX. A partir de ese contexto, el siguiente artículo reflexiona sobre el devenir de aquel legado residencial en dos barrios históricos característicos, desde una perspectiva principalmente cualitativa, mediante la interpretación de fuentes primarias y secundarias. El objetivo, así, consiste en analizar la articulación entre este patrimonio, sus intervenciones desde inicios del siglo XXI y la normativa preservacionista local, para comenzar a comprender los retos inconclusos y, consecuentemente, a formular posibles respuestas a ellos.

Palabras clave: patrimonio arquitectónico, patrimonio urbano, viviendas urbanas, intervención, preservación.

ABSTRACT

The handling of heritage, regarding the broad spectrum of real estate it comprises, involves multiple approaches to its safeguarding. In particular, the incorporation of new architecture in existing works, at any scale, represents a current challenge. This dilemma has an extensive background in the history of architecture and urbanism, alongside other associated areas within European and Latin American frameworks. However, in the second decade of the 21st century, the problems related to contemporary contributions in historical architectural and urban frameworks, show an ongoing difficulty to dialogue, giving and resist, or to parley between the surviving legacy and the additions that it will unfailingly receive through time. In this sense, what happened in the city of Mar del Plata regarding the interventions of its picturesque contexts, is of interest. Past and present dynamics, alongside a deficient process of heritage protection, have affected their typical landscapes generated in the first half of the 20th century. Therefore, this article reflects on the evolution of this residential legacy in two characteristic historical neighborhoods, from a mainly qualitative perspective, through the interpretation of primary and secondary sources. Thus, the goal is to analyze the connection between this heritage, its interventions since the beginning of the 21st century, and the local conservation regulations, to begin to understand the pending challenges, and as a result, to formulate possible responses.

Keywords: Architectural heritage, urban heritage, urban housing, intervention, conservation

RESUMEN

O tratamento do patrimônio, em relação ao amplo espectro de bens que abrange, implica múltiplas abordagens para a sua salvaguarda. Em particular, a incorporação de arquitetura nova em obras existentes, em qualquer escala, constitui um desafio vigente. Este dilema possui uma longa trajetória na história da arquitetura e do urbanismo, junto a outras disciplinas associadas, em âmbitos europeus e latino-americanos. No entanto, na segunda década do século XXI, os problemas referentes às contribuições contemporâneas em marcos arquitetônicos e urbanos históricos evidenciam uma permanência de dificuldades para dialogar, ceder e resistir, ou então para "parlamentar" entre o legado que sobrevive e as incorporações que inevitavelmente receberá através do tempo. Neste sentido, é de interesse o ocorrido na cidade de Mar del Plata em relação às intervenções de seus contextos pitorescos. Suas dinâmicas passadas e presentes, juntamente com um processo deficiente de proteção patrimonial, afetaram suas paisagens características, geradas na primeira metade do século XX. A partir deste contexto, este artigo reflete sobre a evolução deste legado residencial em dois bairros históricos característicos, a partir de uma perspectiva principalmente qualitativa, mediante a interpretação de fontes primárias e secundárias. O objetivo é analisar a articulação entre este patrimônio, suas intervenções desde o início do século XXI e as regulamentações preservacionistas locais, no intuito de começar a compreender os desafios não resolvidos e, conseqüentemente, formular possíveis respostas a eles.

Palavras-chave: patrimônio arquitectónico, patrimônio urbano, habitação urbana, intervenção, preservação.

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INTRODUCTION

The treatment of heritage, considering the broad spectrum of real estate it comprises, involves multiple approaches for its safeguarding. In particular, the incorporation of new architecture in existing works, on any scale, is a challenge today. Actions for heritage conservation and the inclusion of new contributions not only involve architecture but a wide variety of areas that range from the tangible to the intangible, the material and the immaterial, the objective and the subjective. In these conjunctions, renewed interpretations have been generated over time on real estate and its value, alongside the way to intervene in them, using different areas. Among these, the progress generated from architecture, geography, archaeology, sociology, museology, the history of art, and communication, among others, stands out.

On this path, heterogeneous ways of naming, conceiving, and handling the inclusion of contemporary work in existing real estate have been conceived, through conceptualizations listed as "harmonization/ integration" (Brolin, 1984), "modification" (de Gracia, 1992), "articulation" (Trachana, 1998), "intervention" (de Solá-Morales, 2006), "updating" (Georgescu Paquin, 2015), and "integration" (Vázquez Piombo, 2016). Each notion has also interacted -and still interacts- with an endless list of known terms within a specific vocabulary. This nominative framework registered in the heritage field, which is mobile and denied on occasions (de Solá-Morales, 2006), shows the unfinished search for definitions related to actions.

The problem between the heritage ***corpus*** and its intervention has an extensive background in the history of architecture and urbanism, within the European and Latin American settings. Renaissance can be placed as the first moment where the dilemma of forms of interpretation flourished to address "the new in the old" (Semes, 2009). Historic awareness, the way of starting to premeditate the works, to project, and to contemplate what there is through a qualified and not just material view, is significant in this period (de Sola-Morales, 2006). Likewise the "signature work" recognized from thereon, would sustain a notable presence over time that would mark, with different impressions, the handling of constructions that are built or will be built. From then, the theoretical legacies of the 19th and 20th centuries, of thinkers such as Viollet de Duc, Ruskin, Boito, and Giovannoni, as well as Riegl and Brandi, set out different intervention positions among the action, inaction, and the search for a balanced action over that inherited.

The advent of the modern movement in architecture, in the disrupted socio-historical fabric of the first half of the 20th century, especially with the Second World War, re-positioned thematic reflections (Trachana, 1998). Under this scenario, the first modern approaches strengthened the view of the author and a scorn for the compositive and ornamental forms of the past, with the resulting repercussions in the handling of existing real estate. In line with this, the setting-work breakdown and the disregard of the historical-theoretical ***corpus*** to address interventions progressively marked a way to move forward (de Gracia, 1992; Vázquez Piombo, 2015). As a positive contrast from the post-war paradigm change, the concentration of the attention that had fallen previously on

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the monumental architectures or those with exceptional values would revisit their scope to consider contexts. This extension meant the recognition of other types of real estate, which far from simplifying the heritage debates of that moment, complicated and transformed them.

Over time, the progressive openings forged new perspectives in the intersections of culture and sustainability (Cantar, Endere / Zulaica, 2021). Alongside this, the handling of Historic Centers was significant in the revision of their conservationist challenges (Carrión Mena, 2014; Pasuy, Ramirez, Pérez & Mejía, 2017; González Biffis, 2018). The problem of the new in the old regained a renewed ***status quo*** from the mid-20th century onwards. Thus, the added complexity that took place, along with the theoretical-practical dissemination seen in national and international recommendations, put the issue back into the academic and public debate more recently (Georgescu Paquin, 2015). These approaches were accompanied by local, national, and international regulations, and by inquiries that procured -and procure- to contribute rationalities to undertake contemporary works within each urban palimpsest.

However, in the second decade of the 21st century, problems referring to new construction in an existing architectural and urban framework show a permanence of difficulties to dialog, cede, and resist, or to "***parley***" between the surviving legacy and the additions it will undoubtedly receive.

In this sense, that seen in Mar del Plata, an intermediate city in the Province of Buenos Aires, is interesting, regarding the interventions of its quaint settings. This coastal town presented, from its foundation in 1874, a socio-material dynamism connected with an early touristic and port nature (Cacopardo, 2003; Gravano, Silva & Boggi, 2016). Said mobile condition, which marked its past and present, affected its characteristic residential landscapes, in particular those generated in the first half of the 20***th*** century. Nevertheless, a great part of the picturesque fabric remains in two historic neighborhoods, located on the two main hills, that stand out on the prevailing plains. From the first monumental residential links of the start of the 20th century to the boom of the "Mar del Plata style" in smaller-scale dwellings between 1930 and 1950, these sectors bring together a relevant heritage collection. This legacy flaunts social-historic, architectural-material, and especially environmental significance. It is for this reason that this work reflects on the practices -linked to local regulations – which this heritage has had to face, to identify and rethink the associated problems.

METHODOLOGICAL APPROACH

The research was approached from a qualitative perspective, through the interpretation of primary and secondary sources. To explore sustainable conservation strategies of the picturesque legacy, through historical-architectural and social variables, previous studies generated and applied a system of specific indicators whereby difficulties were detected for long-term residential conservation. The most unfavorable indicators were those referring to the means of heritage protection that arose from the State sector, at an urban and individual scale (Sánchez, 2021). For this, attention on the socio-material relationships between the picturesque residential legacy, its interventions from the start of the 21st century, and the local preservationist regulations, were looked into in detail.

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Figura 1 Neighborhoods analyzed in the central sector of Mar del Plata: La Perla and Stella Maris. The aerial images show the predominance of a picturesque residential fabric of residential low-rise picturesque residential fabric in the Mediterranean fragments. Mediterranean fragments. Source: Based on a GESPyT-UNMdP urban map GESPyT-UNMdP urban map and Google aerial photographs from Google Earth 2021.

Starting from the archive and onsite survey on the transformation of the city, the quaint dwellings, and their users, and the crosschecking of written and graphical sources, two historical neighborhoods, where a large part of this residential heritage emerged and remains, were chosen: ***Stella Maris*** and ***La Perla*** **(Figure 1)**. Both sectors, found on the city's two hills, condense the past and the present of the built landscape.

Picturesque heritage constitutes the main architectural-urban heritage collection due to its genesis, dissemination, and permanence, especially in the neighborhoods addressed. From the origins of the city, the seascapes, topography, the view placed on different European standout resorts, and the power of the wealthiest social groups of the start of the 20th century, among other factors, presented a fertile setting to drive picturesqueness. This eclectic current was characterized by the extra-urban nature, asymmetry, the contrast of volumes, and the presentation of materials, conditions closely tied to socio-urban processes (Ballent, 2004; París Benito & Novacovsky, 2009).

With the turn of the 20th century, a transformation was forged from the originally elitist local touristic nature, towards resort-based democratization, accompanied by greater consolidation of the stable population. From the 1930s, the imposing villas and quaint chalets that were initially set on the hills, progressively changed to a more plural city, along with a greater

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Figure 2 Urban profiles Mediterranean urban profiles made up of typical picturesque houses (especially "Mar del Plata style" villas) del Plata"), not declared of heritage heritage value, in the Stella Maris Stella Maris neighborhood. Source: Photographs by the author (2021).

expansion of tourism. The city needed to combine the first large houses with different scale dwellings destined to new middle-class social groups. By mid-century, the dissemination of a fabric was fostered, where small chalets conceived by architects, engineers, and countless builders and similar professionals predominated. These transformations generated a local trend called "***Mar del Plata style***", whose facades condensed the material, technical, technological, and symbolic treatments (Cova & Gómez Crespo, 1982). At its peak, between 1930 and 1950, they creatively adapted asymmetric and juxtaposed volumetries, multiple sloped roofs, real or faux chimneys, a front garden, and a porch. As for the materials, the use of ceramic tiling (especially colonial ones), whitewashing (rustic, especially textured), wood (with techniques like "cut wood"), the local stone (called "***Mar del Plata***", treated in bonds like the "broken cane"), and particular ironworks (preferably forged iron), was intensified. The entire extra-urban nature and the manifestation of owner pride, on having managed to acquire this type of housing, were complemented with varied ornamentations.

Specifically, through the analysis made for this study, in ***La Perla*** 94 lots of entire and irregular blocks were surveyed, where around 400 picturesque houses were identified. In ***Stella Maris***, a lot survey of its 102 complete and irregular blocks was made, resulting in more than 920 picturesque houses. In this way, the real estate density of each neighborhood was revealed, where the "***Mar del Plata style***" chalets stood out. As a result, the landscape formed by the different residential links that share formal compositions, materials, and treatments, mainly on their facades **(Figure 2)**, was sized and understood. In these neighborhood approaches, the interviews with key informants and the users/owners were essential, along with the analysis of the local regulations. The surveys made alongside this were repeated in

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different periods within the sectors with the highest number of properties, which made recognizing the interventions with different degrees of changes and time frames, possible.

Local Protection

The role of municipal governments in heritage protection, which is seen in given areas and specific regulations, is substantial in the contextual residential protection process. In the boundaries between restrictive and permissive policies, the definition of the means of inserting new works in the property and/or its surroundings is complex (Novacovsky, 2009). Although the body of guidelines generated through charters and documents over time, in particular the Venice Charter of 1964, has had to draw out generalist lines to define this type of action, its reinterpretation in the regulations of each locality has ended up being extremely difficult. While the valuation and cataloging of real estate in these documents have found a fertile field that has emerged within each territory, the ways of acting on these values, however, present up until now, dilemmas and contradictions. In this vein, regulatory proposals and the tasks embarked upon in cities like Quito, Mexico City, and Buenos Aires, comprise areas of interest to analyze right and wrong decisions in the preservationist guidelines among pasts, presents, and possible futures.

On a local scale, in 1995, the Heritage Preservation Code of the Pueyrredon General Section, where Mar del Plata is the lead city, was made official through Ordinance N° 10,075. This Code is the most important document on which later extensions and modifications would be made to optimize heritage care. This appears from the condensation of varied prior background information, among which the following stand out: Ordinance N° 5,383 of 1982 (which regulated properties of interest from a tourism-based orientation), Ordinance N° 7,629 of 1989 (which recognized the Municipal Preservation Commission), and Ordinance N° 9,564 of 1994 (which declared a given list of properties of interest).

The Heritage Preservation Code specifies, from its beginning, the legal, economic, and technical guidelines to declare and protect properties. For this, it develops the use fields of valuation (historic-symbolic-social, artistic-architectural, and environmental), along with the responsibilities of the application authority (formed by a Management Unit comprising professional representatives of different municipal areas). In addition, it outlines aspects related to fostering land use and special urbanistic indicators, economic matters related to exemptions of duties and municipal taxes, and determinations for the heritage signaling. It also stipulates the format of the preservationist agreements (mainly arising from the willingness of the users), sanctions (fines referring to the non-compliance of the agreements or violations of the heritage regulations), and the creation of a fund for heritage preservation (from the monies collected through sanctions, special consignments, and others).

In 2003, progressing in the means of implementation, Decree N° 1,063, which partly regulates this, was passed into law. In this document, the possible variables of changes in use are defined, and as a key aspect, a

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chapter destined to the categorization of the properties declared following the listed valuation fields, is added. In this way, instructions and a spreadsheet are presented to determine the heritage categories and, as a result, their degrees of protection and levels of action: Category A, Property of Exceptional Value, Protection Level 1, comprehensive; Category B, Property of Singular Value, Protection Grade 2, structural; and Category C, Property of Contextual Value, Protection Grade 3, of an environmental nature. Thus, that set out in the Code is based on the individual protection of property, without specific lists on the handling of areas of value[1].

Given this context, concerning the last one, Category C, where the residential legacies predominate, and which contains the highest number of declared properties, optimizations were generated considering that established. The modificatory and regulatory Ordinance N°19,660, passed in 2010, generated an innovation along with the tools needed for its implementation. For this, an Appendix (III) was created, which redefined a sub-categorization and sub-classification of these properties through the evaluation and valuation of three aspects: a) The formed environment and the situation of the surroundings, b) The attitudes and willingness of owners and/or tenants, and c) The intrinsic architectural conditions and their significance. This approach also considers two types of nearby settings, the homogeneous one and the heterogeneous one (consolidated or pre-consolidated) which, at the same time, may belong to fragments of larger consolidated, pre-consolidated, or potential scales (the latter regarding the possible developments set out in each district which, if fully consummated, would change the character of the place). In this classification, 6 types of sub-classifications and associated protections are also outlined, 3 for the nearby heterogeneous settings (C1, C2, and C3), and 3 for the homogeneous ones (C4, C5, and C6); in both cases with a valuation gradient that ranges from greater restrictions to possible substitutions that are subject to study (Roma & Millares, 2011). However, this progress which has struggled to help the contextual protection has not managed to offset the need for regulating areas.

It is interesting to mention that from 2002, there is an extensive municipal file that outlines the need to generate protection areas and proposes their creation (N°1,983-3-02). In this file, the urgency of protecting "heritage protection settings/HPS districts", hereinafter called "heritage environmental value areas (HEVA)" is laid out. The proposal is based on prior contributions generated in university scientific research (individual and group results) with the help of the progress from other national topic-based regulations of the time. In this direction, the framing of the Historic Protection Areas of Buenos Aires stands out, which from the beginning has been nationally unequaled to organize preservationist planning in other cities (González Bracco, 2014). The proposals of the file describe conceptual frameworks, methodological outlines, and projects (even based on requests presented by neighborhood groups, like the development of HEVA 1- Santa Cecilia). When broken down, it proposes regulating building protection and environmental protection, as well as a use analysis, through the extension, revision, and development of the established regulations. The outline proposed to articulate safeguarding the nature of traditional neighborhoods

1 Although "buildings declared as part of an ensemble" are specified, these are individualized and categorized by lot.

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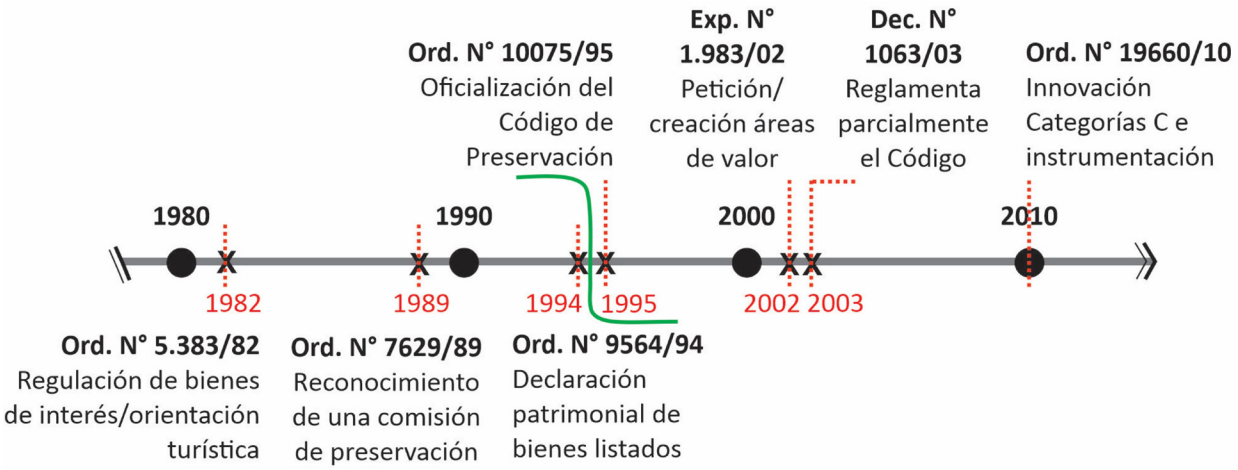

Figure 3 Timeline with the main local documents documents of interest to understand the understanding the evolution of individual/contextual individual/ contextual. Source: Author's elaboration.

with the regulations of the Territorial Organization Code is, without a doubt, relevant. It promotes the joint creation of action parameters and indicators to address changes in properties not listed as being of heritage interest. However, this file currently has no municipal response for its operationalization, nor are there awareness programs that consider the values of the picturesque context, that target owners/ users or even professionals **(Figure 3)**.

Interventions

While the theories and methodologies are systematically debated to review the means of incorporating different degrees of alterations between the existing and the contemporaneous, in the local regulations the dilemma is barely faced. The orientations between the similarity and the differentiation (de Gracia, 1992; Georgescu Paquin, 2015) vanish in the generalities outlined and in the handling of individually listed works. It is because of this scenario that the main power to safeguard and regulate interventions in picturesque dwellings as substantial pieces of local characteristic areas, is primarily based on the definitions of the owners and the intervening professionals, and later, in some of the indicators of the Territorial Organization Code and, finally, in the possible individual guidance of the municipal technical office, when handling listed properties.

Under this reality, the actions lead to professional and/or economic benefits. The practices performed within gaps of that guided or in the vacuums thereof, aside from the socio-historical grounds as guides of operation, have threatened and threaten the present and future of the local landscape. In a very limited way, in some neighborhoods, some of the actions have managed to consider the values of the property and the surroundings with satisfactory results, generally due to the mimicry of materials, formal compositions, and scales. However, what usually happens is that there are problems in the dialog with the picturesque past, seeing two correlated, preponderant forms of contemporary interventions.

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Figure 4 Selection of small and and medium-sized undeclared "Mar Mar del Plata style" villas not declared of value, within the Mediterranean Mediterranean sector of the La Perla neighborhood of La Perla, before and after being intervened. While on the left, minor changes are observed, to the minor changes can be observed to the right to the right, significant transformations are transformations. Source: Photographs by the author (between 2011 y 2021).

As for the non-listed picturesque residential heritage, the main problematic treatments have ranged between:

a. Introductions of different types of "retrofitting" which have affected the properties, through changes or additions of materials or forms. The resulting technological and compositional operations have reduced the values they had, which were particularly visible on the facades, as common denominators of a shared language. The results have even shocked the owners, both regarding the physical features and the symbolic[2] one **(Figure 4).**

a. Replacements of individual properties with apartment buildings, usually high-rise ones, or the construction of towers on empty lots surrounded by typical residential fabrics. The areas closer to the coast have been particularly affected by these interventions, which most of the time has been allowed as exceptions to the existing regulations. Likewise, and just as has happened in other latitudes, some of the towers have been uneasily erected so that the city houses works by internationally renowned architects **(Figure 5).**

Concerning the listed picturesque residential heritage, the main treatments have ranged between:

1. Introductions of different types of prohibited "retrofitting" which, similar to the previous case, distort the value of the properties – even those by which they were listed as part of the local heritage. In some cases, the owners have requested changes in use or specific exceptions, looking for greater profit for the projected replacements.
2. Operations that have implied the partial compliance of some of the

2 In most of the interviews made with owners/users of the intervened dwellings, it was seen that the actions that had been commissioned to "retrofit" the facades, including roofs, had been unsatisfactory. They considered, *a posteriori,* that it had changed what they had "liked" about the house to begin with and that, on transforming or removing it, this had generated a loss more than an improvement (for example, replacing the colonial tiled roofs with corrugated or trapezoidal sheets).

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Figure 5 Selection of a high-rise, coastal intervention designed by an internationally recognized architect within the Stella Maris neighborhood. Note the adjoining residential and landscape fabric. Source: Photographs and video captures of real estate development and of the intervening construction company (www.maralexplanada.com.ar/,https://www.youtube.com/user/MaralExplanada and https://www.imasaconstructora.com/obra/maral-explanada).

Figure 6 Coastal urban profile formed by a group of typical picturesque houses designed by Alula Baldassarini, declared of heritage value, in the Stella Maris neighborhood. Note, on the left, in the photo of the sector, the tower interventions in the two selected cases (detailed on the right), together with the on the right), together with the for-sale sign on the non-intervened residence. the non-intervened residence. In the column with the close-up to the intervened cases, the upper dwelling forms part of the the development and houses its amenities, while the amenities, while the lower dwelling does not lower dwelling does not belong to the building but has ceded part of its air space airspace and its lot. Source: Photographs by the author (2021).

regulated and inconvenient preservationist premises in the means of combining the existing with the contemporary **(Figure 6)**. In some of these cases, the usual request to join the protected property with adjoining lots -built or unbuilt – to form the joint territory to be intervened, has enabled the usufruct of new indicators favoring the construction of more profitable apartment buildings. In this way, the heritage properties are kept to obtain this benefit.

The results of these interventions in the individual and contextual values of the residential legacy have been adverse: breaking of scales, significant reductions of shading and privacy in public and private spaces, sale of nearby properties, and damages to the urban landscape, among others. In this push

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and pull between the past and present, anonymity and authorship, the local Code has not managed to guide safeguarding. Its premises are limited and, on occasions, have been twisted, this added to the exceptions permitted. Each operation authorized outside the guidelines has also fostered a framework of permissions that have operationalized similar practices. At the same time, the incomplete knowledge of the theoretical-heritage basis on performing the interventions, under economic pressures understood as project guidelines, has complicated the subsistence of typical settings.

As can be seen, the theoretical-heritage debate targeted towards responsible actions, expressed just in part of the Code's intentions, manifests a significant break in their transition towards ***doing***. Not considering areas of value and, therefore, not regulating the ways of intervening in the residential picturesque context, makes the protection of these properties impossible. As a linked aggravating factor, many of the actions of the actors involved worsen this situation, due to lack of knowledge and/or interest in pro of individual advantages.

TOWARDS OTHER MEANS OF PARLEY

In brief, the existence of individual protection of properties, the disconnect between the Codes, the exceptions, and the economic interests, combined with the attitudes of some of the intervening players, forms a complex scenario for picturesque residential preservation. This situation is seen in the different interventions studied in these formed settings, their typical visuals, and the consequently undermined landscape attractions.

The preservationist complexity outlined, present in the most different cities possible, requires renewing the search for a balance between the existing and future additions. According to what is seen, in Mar del Plata it is urgent to develop three lines of action, which are summarized below:

a. Making the diagramming of the areas of value in the neighborhoods analyzed operational, as well as in the fragments of interest of the city. The regulatory guidelines of the marked-off areas would consider specific guides – for example, in the particular aspect of picturesqueness – to foster suitable articulations between heritage and the new additions.
b. Regarding the areas of value that are generated, revise and connect the premises outlined in the Territorial Organization Code. This confrontation of the desired profile of the city listed in this code, along with the means of protection generated in a new Preservation Code, would align the action directives in the same direction.
c. Making the different actors involved in the interventions within the created areas aware, emphasizing the tangible and intangible values of the picturesque heritage and its contextual-landscape value.

In these developments, it will be necessary to incorporate the analysis of the theoretical and practical history on the means of contemporary action on the built landscapes, where the context-object debate is laid out, along with

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a vindication of the stories and identities as grounds and not as limitations. Alongside this, the critical examination of the results of existing regulations, already tested in other cities, will constitute substantial help to rethink connections and regulatory reformulations. Jointly, as a common issue for the different lines of action, it will be key to reflect on the responsibilities shared between the community and the individual, between the culture and the economy.

Renewing the means of parley in the interventions of the typical houses of each city, far from being a closed shop, constitutes a challenge that is renewed with the passing of time, the people, their territories, cultures, and their property. These factors, which overlap valuations, heritage and the ways to act, constitute progressive dynamics and redefinition. Thus, the ways of agreeing, listening, and having a dialog with residential urban architectural heritage imply regulating and operating a tangible and intangible palimpsest, that requires a collective commitment so that it is possible to praise its past, enrich its present, and dignify its future.

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REFLECTIONS ON PUBLIC SPACE IN PROTECTED CENTER: POSSIBLE RELATIONSHIPS BETWEEN HERITAGE AND URBAN DESIGN

Reflexiones sobre el espacio público en los centros conservados: posibles relaciones entre patrimonio y diseño urbano

Reflexões sobre o espaço público em centros preservados: possíveis relações entre patrimônio e desenho urbano

Figure 0 Even though the public spaces are deficient in infrastructure and configuration, the most diverse uses can be perceived throughout the day, such as the sale of fish every morning. Source: Own elaboration

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RESUMO

O espaço urbano de uma cidade é o resultado das interações sociais com e entre as pessoas que utilizam e vivenciam esse espaço, configurando assim a esfera pública de uma cidade. Podemos considerar também, que a contrução desses espaços está diretamente relacionada com a maneira como seus espaços livres de edificação se relacionam com os seus espaços edificados. Numa cidade de caráter patrimonial, à essas características são acrescidos os valores históricos e culturais que devem ser protegidos e valorizados através de ações de salvaguarda e proteção. No entanto, a legislação brasileira vigente atua mais sobre o edifício, e mesmo incluindo conjuntos urbanos e seus entornos, não parece considerar que a salvaguarda e proteção do patrimônio de uma cidade também passa pelo planejamento urbano, ou seja às ações de salvaguarda e proteção devem estar relacionadas ações de planejamento urbano, presentes tanto no planos diretores quanto nas ações de intervenção e manutenção do espaço público existente. O objetivo geral dessa pesquisa foi estabelecer e identificar as relações existentes entre o desenho urbano e o patrimônio ambiental urbano que considerassem tanto os aspectos da salvaguarda e proteção quanto os aspectos da qualidade urbana. Foi utilizada a metodologia do estudo de caso, sendo escolhida a cidade de Laguna, no litoral sul de Santa Catarina. Os procedimentos utilizados foram: a análise histórico-estrutural mediante através do estudo da evolução urbana da cidade, o processo de tombamento e as características atuais de seus espaços públicos. Para além da revisão teórica, buscou-se metodologias de análise do espaço público que considerassem as peculiaridades de uma cidade que possui seu centro histórico protegido. Podemos considerar que a pesquisa contribuiu assim para a reflexão das práticas de proteção do patrimônio ambiental urbano relacionadas com as ações de desenvolvimento urbano e qualificação dos espaços públicos.

Palavras-chave: espaço público; desenho urbano; planejamento urbano; centros históricos; patrimônio urbano;

RESUMEN

El espacio urbano de una ciudad es el resultado de interacciones sociales con y entre las personas que utilizan y experimentan este espacio, configurando así la esfera pública de una ciudad. También podemos considerar que la construcción de estos espacios está directamente relacionada con la forma en que sus espacios libres de construcción se relacionan con sus espacios construidos. En una ciudad de carácter patrimonial, estas características se suman a los valores históricos y culturales que deben ser protegidos y valorados a través de acciones de salvaguardia y protección. No obstante, la actual legislación brasileña actúa más sobre la edificación y, a pesar de incluir los conjuntos urbanos y su entorno, no parece considerar que la salvaguarda y protección del patrimonio de una ciudad implican también el planeamiento urbanístico, es decir, las acciones de salvaguarda y protección se deben asociar conacciones de planificación urbana, presentes tanto en los planes directores como en las acciones de intervención y mantenimiento del espacio público existente. El objetivo general de esta investigación fue establecer e identificar las relaciones existentes entre el diseño urbano y el patrimonio ambiental urbano que abarcaran tanto los aspectos de salvaguardia y protección como los aspectos de calidad urbana. Se utilizó la metodología de estudio de caso, eligiendo la ciudad de Laguna, en el Estado de Santa Catarina, Brasil. Los procedimientos utilizados fueron: el análisis histórico-estructural mediante el estudio de la evolución urbana de la ciudad, el proceso de registro y las características actuales de sus espacios públicos. Además de la revisión teórica, se buscaron metodologías de análisis del espacio público que consideraran las peculiaridades de una ciudad que tiene protegido su centro histórico. Podemos considerar que la investigación contribuyó, así, a la reflexión sobre las prácticas de protección del patrimonio ambiental urbano relacionadas con las acciones de desarrollo urbano y calificación de los espacios públicos.

Palabras Clave: espacio publico; diseño urbano; urbanismo; centros históricos; patrimonio urbano

ABSTRACT

The urban space of a city is the result of social interactions with and between people who use and experience this space, thus configuring the public sphere of a city. We can also consider that the construction of these spaces is directly related to the way in which their free building spaces relate to their built spaces. In a city of heritage character, these characteristics are added to the historical and cultural values that must be protected and valued through safeguard and protection actions. However, current Brazilian legislation acts more on the building, and even including urban complexes and their surroundings, it does not seem to consider that the safeguarding and protection of a city's heritage also involves urban planning, that is, the safeguarding and protection actions must be related to urban planning actions, present both in the master plans and in the intervention and maintenance actions of the existing public space. The general objective of this research was to establish and identify the existing relationships between urban design and urban environmental heritage that considered both the safeguard and protection aspects and the aspects of urban quality. The case study methodology was used, choosing the city of Laguna, on the southern coast of Santa Catarina. The procedures used were: the historical-structural analysis through the study of the urban evolution of the city, the registration process and the current characteristics of its public spaces. We can consider that the research thus contributed to the reflection on the practices of urban environmental heritage protection related to urban development actions and qualification of public spaces.

Keywords: urban space; urban design; urban planning; historic center; urban heritage

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INTRODUCTION

The urban space of a city comprises the combination of its built and its open areas, whether related to one another or not, depending on the characteristics of the city. It is the result of social interactions, of the people who use it and experience it. According to Habermas (2003), the public space resides in the public sphere, therefore being a suitable network for the formation of positions and opinions.

In a more specific point of view, urban space also comprises infrastructure networks, urban facilities and furniture, and public services that support the development of urban functions. Thus, it can be considered that the urban space of a city is formed by the relationships established between its different spheres, such as the physical, territorial, morphological, social, economic, historical, and also affective ones.

When studying the urban space in a city of heritage value, whose downtown area is listed as such, as is the case of the city of Laguna on the south coast of Santa Catarina, this definition does not change, but other components must be added to it.

While in an unprotected or non-heritage city, urban space management follows the municipal urban planning legislation, such as a Regulatory Plan and Works Code, with its decisions made directly by state power, in a protected city, this management must also follow specific rules. In these cases, through federal designation, applied by the National Institute of Historic and Artistic Heritage – IPHAN in Portuguese, they must follow the preservation legislation and respect standards for interventions both in built-up and in open areas.

Currently, the main objective of the IPHAN legislation, which focuses on urban heritage, is its preservation as an asset of historical value, and is focused mainly on the built areas and has little regulation on interventions in unbuilt areas (roads, sidewalks, parks, and squares) or, more specifically, in their public spaces, which are the spaces of urban sociability.

This article is based on the understanding that the urban space is complex, non-static, and comprises different elements, which, by relating to one another and to their users, make up what we call a city; and that, when this same urban space is protected by the action of being listed, its relations of history and collective memory attribute qualities to it that are different from those of other cities, that end up affecting this same space. (POULOT, 2009)

Thus, this work presents a reflection on the protected downtown and public spaces of the city of Laguna, on the southern coast of Santa Catarina, under the focus of urban design, without disregarding the concepts linked to heritage and cultural landscape, but rather considering the inseparability between them.

The city went through the federal designation process in the early 1980s, when its downtown area or historic center was listed, a process that in many ways significantly altered how its residents relate to the city as a whole and to the downtown area in particular.

Brazilian legislation acts on both movable and immovable heritage property and, although it includes urban groups in the preservation action, it does not seem to consider that the safeguarding and

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protection of urban heritage also includes urban planning, namely, that the protection actions must correspond to relevant actions of urban planning.

In the case of Laguna, it can be seen that, even if its Municipal Regulatory Plan has considered the preserved area of its historic downtown area in its preparation, this is managed by municipal public entities as the responsibility of the responsible Federal entity, the IPHAN. Hence, there is a polarization between what the responsibility of one and the other is. Perhaps this relationship still has remnants of the listing process, which placed on one side, part of the population that opposed it, and on the other, the IPHAN experts with other residents who were supporters of preserving the downtown area.

In the case of buildings in the preserved area[1], built heritage has specific legislation on its upkeep and possible interventions, namely the Preservation Standard for the Urban Historic Site of Laguna, of 2004. However, for the case of public space –roads, sidewalks, parks, and squares–, this manual does not exist, and a case-by-case analysis is made considering information from Laguna's IPHAN experts. (IPHAN, 2004)

The authors feel that the way in which one interferes in these protected public spaces has as much relevance to the valorization of existing heritage as the interference in the buildings there are in the same place. Thus, when analyzing the 2004 Standard, the following dichotomy emerges: although some items refer to interventions in public spaces within the ensemble, the main focus of the standard is put on the buildings.

The public spaces of a city have their own individual characteristics and can reveal the character of a city as a whole. By experiencing these spaces, one also experiences the city and its singularities. When talking about a heritage city, as is the case of Laguna, this intrinsic value gains greater relevance, its public spaces –streets, sidewalks, parks, and squares– bring with them not only a social value, but also a historical and cultural one.

Although Decree in Law N° 25/1937 fulfilled its purpose in safeguarding and protecting architectural assets, it did not act in the same way when considering the preservation of urban heritage. In France, England, and Italy, the legislation brings into the sphere of urban and regional planning, the safeguarding of heritage urban ensembles; in Brazil, despite several attempts by the responsible entities, the proposed actions were not continued (SANTANNA, 2015). This seems to be a general issue regarding the management of Brazilian heritage: not to act on public spaces.

1 In Brazil, designations are recognized as the most traditional national heritage recognition and protection instruments, and were instituted by Decree in Law No. 25 of November 30th, 1937. Applied to goods of a material nature since 1937, by 2014 there was a total of 1,113 material goods listed by IPHAN, including monuments, urban and landscape ensembles, art collections, and objects. There is a total of 78 urban ensembles, resulting in approximately 70,000 listed real estates (IPHAN, 2017). In Santa Catarina, a total of 26 cultural assets are listed by IPHAN including buildings, heritage, collections, integrated real estate, architectural, rural, and urban arrangements. The largest urban sets are located in São Francisco do Sul, on the north coast, and in Laguna, on the south coast.

METHODOLOGY

The objective here was to reflect on the public spaces in the preserved downtown areas, seeking the possible relationships there may be between urban environmental heritage and urban design, with downtown Laguna being the object of analysis.

The definitions of urban design were mainly based on Del Rio and Sambieda (1990)(2015), who handle the topic as a field of the

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physical-environmental dimension of the city, considering a set of systems and activities that interact with the population during their everyday experiences and perceptions.

Urban environmental heritage and the city's heritage have been studied, starting from the idea that the valorization of the urban environmental heritage, and the need to protect and add value to the oldest downtown areas in Brazil, as well as their integration with other parts of the city, have become the key focus of discussions on the sustainable development of cities and their urban planning. This as these old downtown areas are an important part of the environmental and urban identity, which have been inherited from previous generations, and that must be preserved for the next ones. The theoretical background on which the research can be supported was thus backed in this way (Castriota, 2009).

In the field of urban design, methodologies were sought to assess the urban quality and landscape that best suited the Brazilian urban and sociocultural reality. Four different approaches to analysis and urban space intervention methodologies were chosen to study. First, the methodology for measuring the urban quality developed by researchers at the University of Maryland (Ewing; Clemente, 2013), who focused their analysis on urban roads and on pedestrians, on considering that in terms of the public domain, no element is more important than the streets. Parks, squares, trails, and other public places also play an important role in daily tasks, but considering the critical and ubiquitous role of the streets, this methodology seeks to identify the attributes that make a street more appealing and transitable than another. Secondly, the Public Spaces Manual (Gatti, 2013), which was developed with the goal of guiding the point of view of public administration, technical experts, and the city's public spaces administrators, to seek problems and the potential that may be the basis for restructuring existing public spaces, or even creating new ones. Third, the OSS (Open Spaces System) methodology, the analysis of free spaces developed by QUAPÁ –SEL of FAUUSP–, was studied. This looks to study all existing urban open spaces, regardless of their size, aesthetic quality, function, location, and real estate, whether public or private (Macedo; Queiroga, 2018). The idea of an open spaces system is linked to their functional and organizational (socio-environmental) relationship, since physically only open public spaces are connected to each other, mainly by the road network.

Fourth, two of the IPHAN manuals were studied, the Manual on Interventions in Historic Gardens (DELPHIN, 2005), which looks to meet the technical requirements for the conservation and preservation of historic gardens under the responsibility of IPHAN, and the Preservation Standard for the Urban Historic Site of Laguna (IPHAN, 2004), whose role is standardizing the interventions made there. This standard has as a legal basis, Decree in Law N°25/1937, which, although it fulfills its role in the protection and preservation of architectural assets, does not say the same about the urban environmental heritage.

The selection criteria considered not only the application on public spaces in heritage areas, but also on public spaces without this specific characteristic, considering that this research sought dialog between areas that do not usually talk: the protection of heritage and urban design.

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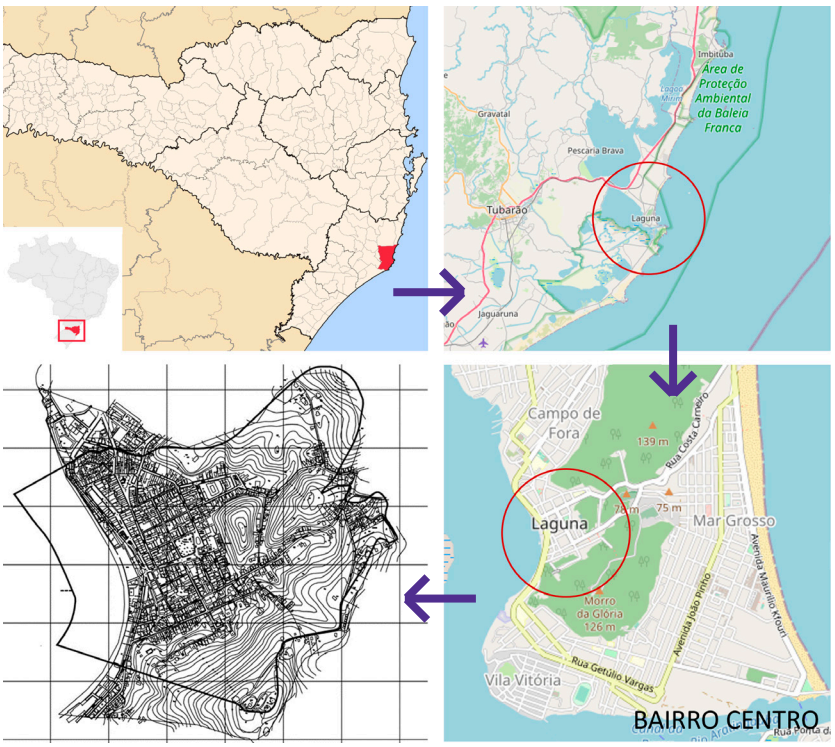

Figure 1 Part of Sector 1, around Praça Vidal Ramos, to the right right Santo Antônio's Church and at the bottom a view of Morro Morro da Glória. Source: Elaboration own elaboration

DISCUSSION AND RESULTS

The municipality of Laguna **(Figure 1)** is located on the southern coast of the state of Santa Catarina, 126 km from the capital, Florianópolis, on BR-101. It has a territorial extension of 336,396 km^2, with an estimated population of 40,000 in 2018. The last census of the IBGE, 2010, indicated that the city had 51,562 inhabitants, but in 2012, the District of Pescaria Brava was recognized, which at the time had approximately 10,000 inhabitants (IBGE, 2018). According to Municipal data (PML, 2018), the city has 35 neighborhoods, with the downtown area and Magalhães being the oldest in the city. It is bordered to the east by the Atlantic Ocean, to the west by the municipalities of Tubarão and Capivari de Baixo, to the north, the municipalities of Imaruí and Imbituba and, finally, to the south, the municipality of Jaguaruna.

According to historian Oswaldo Cabral (1937), until mid-1658, the southern coast of Brazil, today Paraná, Santa Catarina, and Rio Grande do Sul, had no stable foundations. However, São Francisco do Sul, Nossa Senhora do Desterro, São José da Terra Firme, and Santo Antônio dos Anjos da Laguna, were already known by sailors and explorers of the region for being places where vessels could get fresh water supplies. It was only from 1658 that colonization expeditions became more effective, with the aim of ensuring the domination of the territory for Portugal. The region was at the heart of the dispute between the Portuguese and Spanish crowns, which resulted in the signing of the Treaty of Tordesillas in 1494 which, according to local history, it passed through the city of Laguna. According to Lemos (2016, pg. 133) "this meridian was never defined, and the gigantic hinterland was occupied with a total depoliticization of those nations"; only in 1750, with the signing of the Treaty of Madrid, were the true boundaries between the Portuguese and

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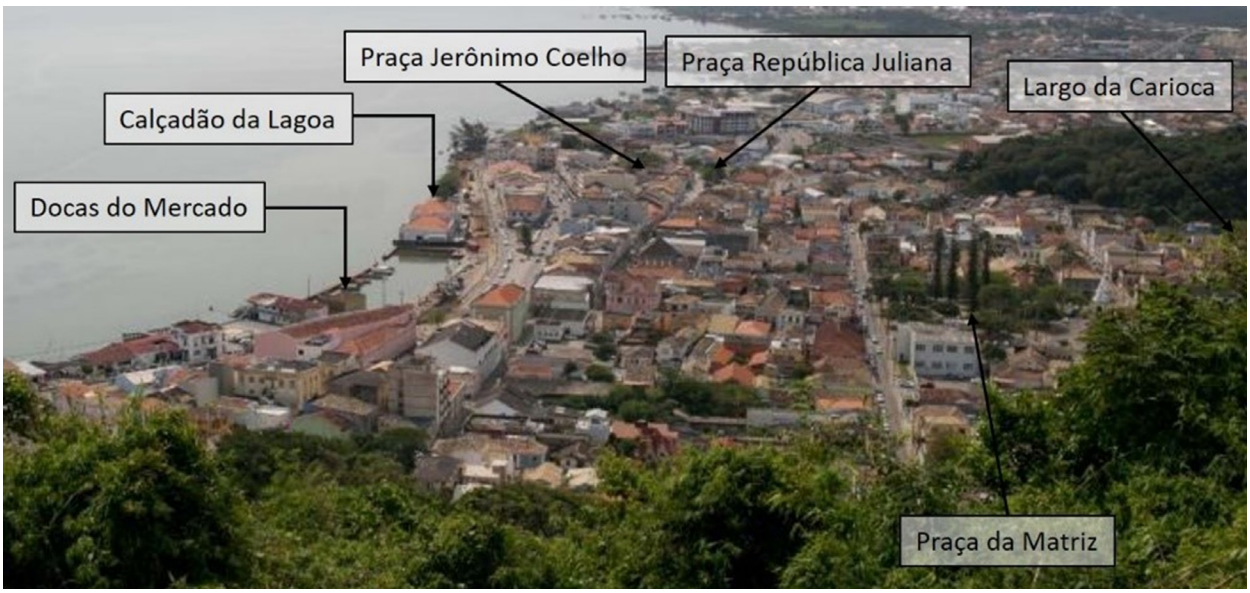

Figure 2 Part of Sector 2, surrounding Lauro Müller Square, to the right the Pinto Ulysséia House and left the Carioca Fountain. Source: Own elaboration

Spanish lands demarcated. Back then, many regions had already been occupied by the actions of the Bandeirantes of São Paulo, as is the case of Santo Antônio dos Anjos da Laguna.

The urban shape of the city of Laguna was influenced by the layouts of the great Portuguese urban centers, where the structuring elements were: the church and the town hall; the difference in Laguna is that those elements are not in the main square itself, as the Portuguese custom dictated. The location of the city was determined by the site, which is protected by hills, with the port protected from rough seas, and the presence of a source of fresh water onsite. The street layout was based on the European Renaissance design, with blocks of 100 to 150m, and some irregular ones due to the topography (Tavares et al., 1983).

The downtown neighborhood includes public administration institutions, such as the town hall, and banking institutions, as well as different types of services and commerce, along with areas intended for leisure and the use by the population. What makes this area rich in possibilities is the presence of residential use, which associated with other leisure, trade, and service activities, forms a living environment that dialogs with the contemporary city, "which gives it a symbolic value above other neighborhoods of the city" (Cittadin, 2010, pg. 124).

The downtown neighborhood has few urban voids, as it is a very consolidated area. The voids mostly comprise public spaces, such as streets, sidewalks, and squares. The sites analyzed were The Main Square, the Juliana Republic Square, Rosário Hill, Carioca Square, the Public Market, the dock, and Paulo Carneiro Square, which is across the street from the market. This analysis also includes the adjoining areas and the surrounding road network, because they are also part of the public space. **(Figure 2)**

For the study, the neighborhood was divided into four sections. The selection criterion was based on sociocultural relevance, urban configuration, and the oldest areas of the neighborhood, identified

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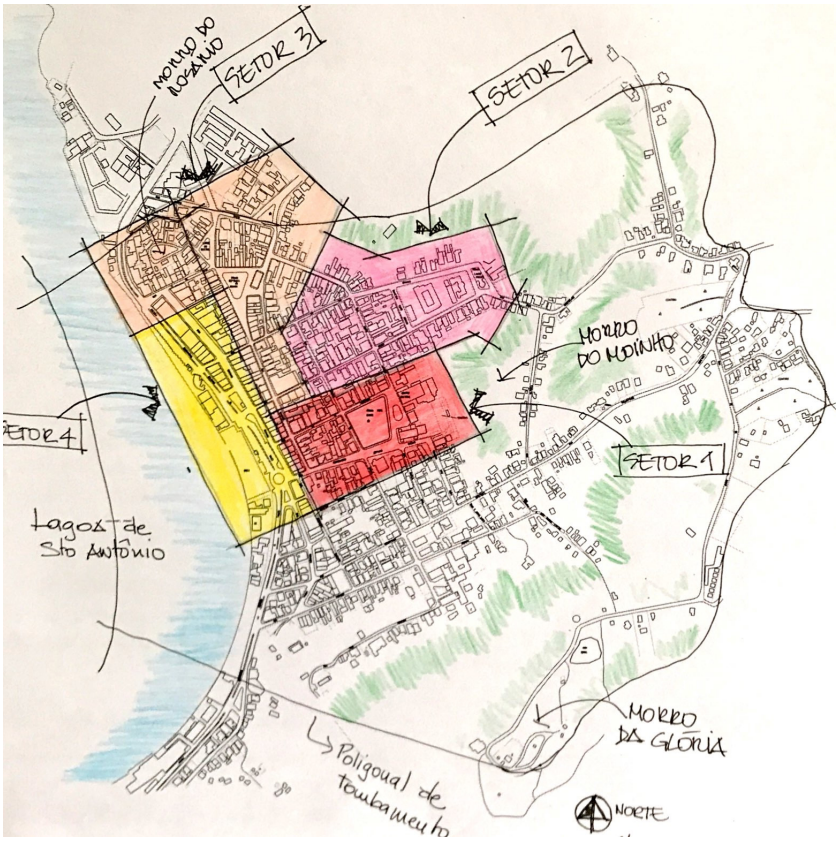

Figure 3 The Centro neighborhood with the delimitation of the four sectors analyzed, in red the Sector 1 treated in this article. Source: Elaborated by the author

during the research. The initial idea was to study the neighborhood as a whole, because it was felt that it is configured as the same public space connected by streets, sidewalks, and squares, but for logistical reasons, the other areas were left out, for future analysis.

As such, it was seen that the oldest public spaces, in chronological order, are The Main Square, Juliana Republic Square, and Carioca Square. The definition of the sections followed the OSS criteria, seeking open public spaces, connected to each other, but it is worth noting that due to its size and spatial configuration, the entire downtown neighborhood is considered as a single section, as the subdivision had a functional character.

The four sections **(Figure 3)** defined were: Section 1, which includes the Main Square, the surrounding streets, and the Boardwalk; Section 2, which includes the Carioca Fountain, the Pinto d'Ulysseia House, and the small square across from it, as well as the streets that surround them. This section is surrounded by hills that are also part of the listed polygon. Section 3 includes the squares of República Juliana and Jerônimo Coelho, and also Rosário Hill, as well as the surrounding streets. This section is considered to be of extreme importance, because it includes the northern boundary of the listed polygon and is directly adjoined to the Progresso neighborhood. Finally, Section 4, encompasses the waterfront of the Santo Antônio lagoon, from the start of the boardwalk to the dock, and runs to the small square across from the Müssi Theater, the Domingos de Brito Peixoto Square.

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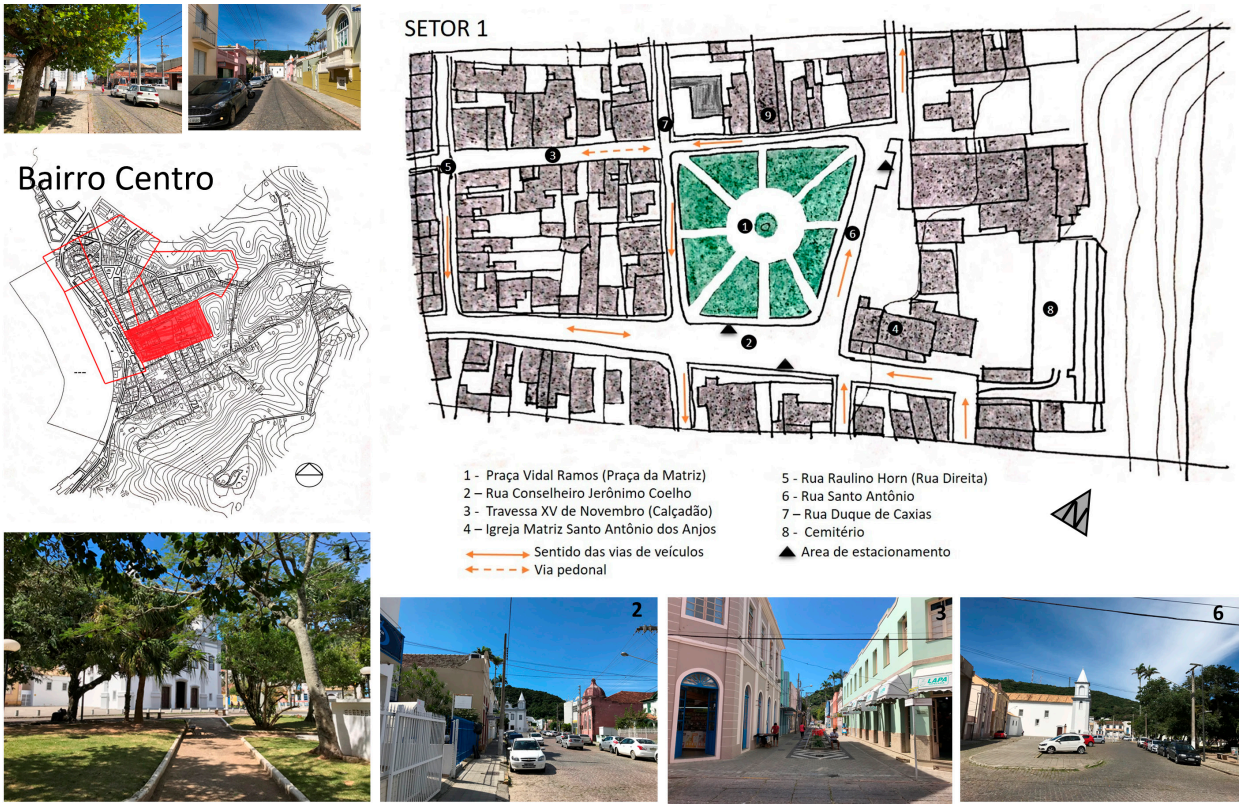

Figure 4 Part of Sector 4, view of Avenida Colombo Machado Salles avenue and Gustavo Richard Richard street, to the left the Municipal the right the surrounding the surrounding buildings. Source: Own elaboration

However, due to restrictions on the size and format of the article, only Section 1 **(Figure 4)** will be described.

According to Marx (1980, pg.50), the square owes its existence above all to religious buildings, such as churchyards, but "civic squares, across from important public buildings, are rare, so these are exceptions". In the case of Laguna, the two types of squares, the religious and the civic ones, were present from the beginning.

Currently, the municipal public administration, as well as private entities, promote some events in the downtown neighborhood, some of a monthly and others of an annual nature, to foster the presence of people in the area and to promote urban dynamics. Among these events, the Open Craft Fair, held monthly, and the Pre-Carnival and the Feast of Saint Anthony, annually, can be noted.

Three approach scales were defined: The city, neighborhood, and section, subdivided into street and square scales. On a city scale, legislation, forms of land subdivision, the ways of ground division; the physical support, and urban policies were analyzed; on the neighborhood scale, urban infrastructure, and its relationship between private and public open spaces, was analyzed; and finally, on the street and square scale, which is the pedestrian scale, the attributes that can define the quality of urban design on the pedestrian scale were analyzed.

The analysis of the way people use the space was made through a behavioral map, which records user behavior and activities in the environment. This instrument contributes towards identifying the uses, layouts, flows, spatial relationships, interactions, movements, and distribution

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of people in time and space (Rheingantz et al, 2009).

Considering the urban infrastructure as the set of technical systems of facilities and services needed for urban purposes (Marcaró, 2016), the road network was considered on the section scale, more specifically the paving of streets and sidewalks and urban furniture. The infrastructure analysis considered the entire neighborhood, the dimensions and homogeneity it has, but it was not felt pertinent to analyze the infrastructure by section, since the results would be very similar.

As for the road network, the streets are paved, as are the sidewalks, but irregularly in size and type of covering. Despite the heritage character, vehicles move freely on the streets of the neighborhood, and only two parts, the boardwalk area and the surroundings of the República Juliana Square, have exclusive areas for pedestrians. Some interventions have already been made in recent years, which can be perceived by the varying types of paving the sidewalks and streets of the area have.

In addition, it can be seen that most of the sidewalks are suitably sized for the use foreseen, considering the flow of pedestrians that circulate through the neighborhood. Here, it is worth noting that in an area of small proportions, such as the downtown district, it would be more appropriate to restrict the movement of vehicles on certain streets.

Section 1 was analyzed from the initial reading of the surrounding urban space and then, with the reading of the space from the user's point of view, measuring Ewing's adapted attributes; and also Clemente (2013), according to the characteristics of the analyzed area, along with a behavioral map, and a walkthrough.

Section 1 comprises Vidal Ramos Square (the Main Square), The Boardwalk (Trav. XV de Novembro) and other adjacent streets. This is where the city began, the site of the first chapel and the first residences and one of the oldest parts of the city, as well as being one of the most traditional ones. The behavioral map made in Vidal Ramos Square showed that the area is widely used both for leisure and as a circulation and connection area with the surrounding streets. **(Figure 5)**

In terms of use and quality of the public space, it can be said that the most significant urban element is the Vidal Ramos Square which, as the city developed, underwent changes until, in 1930, it reached its current configuration.

Apart from the Square, a more recent urban element is the Boardwalk of XV de Novembro Street, built in the early 2000s. This has recently undergone a reconfiguration of its space, with the installation of new paving, new urban furniture, and a drainage system based on green infrastructure, which proposes a more natural form of urban drainage.

Compared to the other areas of the city center, this sector plays an attracting role, in terms of the variety of uses found in it: two of the four banks present in the municipality, a variety of businesses and

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Figure 5 The Human Presence and urban dynamics of Sector 1, highlighting Praça Vidal Ramos square and Jerônimo Coelho street Coelho street, where the banking banking institutions. Source: Own elaboration

services, residences and religious buildings, such as the Main Church and Spiritual Center, which is considered to be one of the oldest in the State, and also buildings of a cultural nature, such as the San Antonio Cultural Center and the Casa de Anita.

Because of all this, it is quite a frequented area, housing both the residents of the area and the users and workers of the services and businesses present in the neighborhood.

It can be seen that Section 1 also has both daily and seasonal uses. Daily is considered as the uses of residents and visitors of the downtown neighborhood, like during times when mass is held; and seasonal are those that occur once a year, such as the Feast of Santo Antônio, which uses Vidal Ramos Square and the adjoining streets for the celebrations that take place in the first half of June.

As for the urban design qualities analyzed, it was seen that, although its public space is not suitably up-kept nor does it have quality infrastructure, it is a space that has not lost its qualities.

When considering the measurements made of urban design qualities, a very similar response was noted in all sections, demonstrating that the area has the potential to become a place of urban quality, inasmuch as it is of heritage quality. Also, the problems related to quality of urban infrastructure also resemble one another.

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Figure 6 Even if the public spaces are deficient in infrastructure and configuration, the most diverse uses can be perceived throughout the throughout the day, such as the sale of fish of fish every morning. Source: Own elaboration.

Even with the lack of suitable urban furniture and facilities, it could be seen during the analysis that the spaces are used, showing that the population uses them, even if they do not have the necessary quality.

Although downtown Laguna has established infrastructure with different uses and functionalities, on being a listed site and having gone through some interventions, on certain days and times it is deserted. In addition, the Lauro Muller and Orla Squares have limited infrastructure and leisure options that invite one to gather and stay. There is also a lack of suitable spaces for children; the streets and sidewalks do not have suitable accessibility; and the landscaping of the squares Vidal Ramos, Jerónimo Coelho, Dr. Paulo Carneiro and Orla lacks upkeep. The area is potentially rich for people to stay, whether residents or not, but is not attractive due to lack of suitable infrastructure, such as street furniture.

During the analysis, one characteristic that stood out was the expressive presence of vegetation in this section, as well as in the other sections analyzed. Both nearby and distant vegetation, formed by the hills that surround the historic hub, also included in the listed perimeter, contribute to making the public spaces in the downtown neighborhood more pleasant for the user, both in terms of comfort and beauty **(Figure 6)**. In the case of Vidal Ramos Square, the upkeep of the oldest species follows the intervention criteria established by IPHAN's Manual on Interventions in Historic Gardens (DELPHIN, 2005). This suggests a possibility of landscape quality that could be more exploited and cared for by the administrative power. The existing vegetation provides pleasant spaces and complements the protected surroundings.

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CONCLUSIONS

In this way, some considerations and conclusions are initially reached regarding the way the city and the public spaces of Laguna have developed, since its foundation in 1676 to its current setup. It can be considered that the different periods of urban growth interspersed with periods of economic stagnation and, consequently, also moments of stagnation of urban space, contributed to the configuration of its current public spaces and what they were like in 1985, when the neighborhood was listed.

It is understood that the urban space is complex, non-static, and made up of different elements, and that these elements, by relating to one another and their users, form what we call a city. When this space was listed, its relations of history and collective memory attributed different qualities to it compared to other cities, which ended up generating some kind of impact, both positive and negative.

The public spaces of the study area were constituted as the city itself changed over the decades. It can be assumed that it was initially spontaneous, following the flow of urban growth, according to the need for use and the spatial configuration generated by human occupation. It was possible to realize that the oldest public spaces of Section 1 presented here, such as Vidal Ramos square or simply the Main Square (Management Field) and the Carioca Fountain (Fountain Field), which appeared configured by the daily and everyday use of the city residents, still maintain their daily use roles in the city's context.

This aspect was noted in the studies made in Section 1. From the analyzes and diagnoses of its public spaces, it can be confirmed that, even with all the changes that a city can undergo throughout its existence, its public spaces can remain almost unchanged, perpetuating its social, cultural, and also functional relations and roles, as occurred with downtown Laguna.

As for the public space analysis methodologies chosen, it can be seen that, either by its urban setup or by its small scale, the studied area has a spatial relationship that is reflected in the relations of use. There was initially a notion, that was not confirmed, that the public spaces of Section 1 had little or no use and that, despite the aesthetic quality assigned to the architectural ensemble, there was no reflection of this in the public space.

It is understood that the built space, aside from delimiting the public space, is also part of it. This occurred mainly while measuring the qualities of urban design where, by identifying the attributes of imaginability, framing, human scale, transparency, and complexity, the importance of building facades in the composition and configuration of public space are considered. When considering the aesthetic and beauty attributes of historical buildings, its relevance, in the case of Laguna, acquires greater importance. In the specific case of Section 1, residential use is still the predominant use, which seems to contribute to the upkeep of the sector's buildings.

Another important issue was realizing that public spaces in a protected city differ little from the rest, perhaps only in terms of impermanence, because, when listed, its configuration and relationship

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between built spaces and open spaces remains unchanged for longer. However, even so, the way spaces relate maintains the same traits of other cities. However, it is worth noting that the layout of public spaces found in downtown Laguna are directly related to the size of the neighborhood and the city as a whole, and can only be compared to the public spaces of other cities of the same size and characteristics.

It is also important to think and reflect on the upkeep of public space in listed areas. The lack of clear norms regarding interventions in public space ends up negatively interfering in the qualities that these spaces can naturally possess. It can be understood that the public space of a city, actually due to its public nature, is collective and must meet the basic and technical needs to allow the proper use of the city, such as urban infrastructure systems, drainage, lighting, landscaping, street furniture, and also public transport, leisure areas, and free movement. For this, its constant upkeep is needed, which in general is handled by the town hall and the municipalities that provide the services mentioned.

It could be said that the quality of the public space can contribute to the protection and consequent valorization of protected urban space, provided that it is considered that public space, due to its characteristics of function and use, is in constant movement. In order for this relationship to be established in a practical way, the norms and criteria for intervention in listed sites must include, apart from the norms for interventions in buildings, intervention criteria for their public spaces that consider urban design aspects. This in order to have public spaces that are in aesthetic and functional harmony with the buildings that contain them.

From these conclusions, some initial guidelines to guide possible and future interventions in the public space of Section I and also the downtown neighborhood can be outlined, always considering the local history and culture:

Propose compatible uses that consider local reality and culture;

Value the traditional places that are already part of the local culture, respecting their characteristics;

Whenever possible, propose diversity of activities, respecting the local culture;

Bring the expert's vision closer to the population's;

Whenever possible, make use of participatory workshops to prepare projects;

In spite of being a field that is still little studied by Brazilian architects and urban planners, since there are two areas that still interact a little with each other, urban design and heritage, fields that are still feel very closed in and of themselves, the authors feel that this is a potentially rich, wide-ranging, and extremely relevant area, when it is understood that, for the appreciation and preservation of historical sites, this entails the valorization of these public spaces, with the involvement not just of architects and urban planners, technical experts, preservation entities, and local governments, but also of society as a whole.

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THE SPACE BETWEEN THE SCREEN AND ARCHITECTURE

El espacio entre la pantalla y la Arquitectura

O espaço entre a tela e a arquitetura

Figure 0 From the movie Ready Player One. Source: Spielberg (2016) and mixed reality experience. inside the Virtual Reality Center of Brest, France. Source: Author's elaboration.

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RESUMEN

El artículo que sigue se refiere a la relación histórica y contemporánea que han desarrollado el cine y el espacio urbano-arquitectónico. Su objetivo es mostrar la influencia recíproca entre la realidad objetiva y la realidad virtual proyectadas en las películas de ciencia ficción *Blade Runner*, del director Ridley Scott (1982), y *Ready player one*, de Steven Spielberg (2011), con respecto a la percepción actual del espacio arquitectónico. La idea de establecer la relación entre estas películas es destacar la prospectiva llevada a cabo por sus directores en torno a la interacción usuario-arquitectura y tecnología. Se citan, como antecedentes, algunas de las obras literarias y cinematográficas que abordan el tema de las ciudades posmodernas y las ciudades del futuro, ya sea desde una visión utópica o desde la perspectiva de una distopía. Metodológicamente, se realizó una revisión crítica de ambas cintas a partir de un esquema de análisis sobre la concepción de la arquitectura a través de su escenografía o puesta en escena (Zavala, 2003), así como de la similitud con la forma en que actualmente transitamos a través del espacio arquitectónico con el uso de tecnología de realidad mixta. De esta manera, los resultados exponen cómo la realidad mixta (física y virtual) impacta la percepción y el comportamiento de los usuarios dentro de los espacios físicos. La conclusión expresa la ineludible presencia de la realidad mixta en espacios tan complejos como son los del cine y los de la arquitectura.

Palabras clave: percepción, espacio, cine, realidad virtual, arquitectura.

ABSTRACT

This article presents the historical and contemporary relationship that cinema and urban-architectural space have developed. Its purpose is to show the reciprocal influence between objective and virtual reality projected in science fiction films like Blade Runner, by director Ridley Scott (1982), and Ready Player One, by Steven Spielberg (2011), regarding the current perception of architectural space. The idea behind establishing the relationship between these films is highlighting the prospective used by their directors around user-architecture interaction and technology. Some of the literary and cinematographic works that address the topic of postmodern cities and the cities of the future are cited as background, either from a Utopian vision or from the perspective of a dystopia. Methodologically, a critical review of both films was carried out based on an analysis layout on the conception of architecture through its scenography or staging (Zavala, 2003), as well as the similarity with the way in which we currently travel through the architectural space with the use of mixed reality technology. In this way, the results show how mixed reality (physical and virtual) influences the perception and behavior of users within physical spaces. The conclusion expresses the inescapable presence of mixed reality in spaces as complex as those of cinema and architecture.

Keywords: perception, space, cinema, virtual reality, architecture.

RESUMO

O artigo apresenta a relação histórica e contemporânea que o cinema e o espaço urbano-arquitetônico têm mantido. O objetivo deste artigo é mostrar a influência recíproca entre a realidade objetiva e a realidade virtual projetada nos filmes de ficção científica Blade Runner, do diretor Ridley Scott (1982), e Ready player one, de Steven Spielberg (2011), no que diz respeito à percepção atual do espaço arquitetônico. A ideia de estabelecer a relação entre estes filmes é destacar a perspectiva adotada por seus diretores em torno da interação usuário-arquitetura e tecnologia. Algumas das obras literárias e cinematográficas que abordam a temática das cidades pós-modernas e das cidades do futuro são citadas como pano de fundo, seja a partir de uma visão utópica ou de uma perspectiva distópica. Metodologicamente, procedeu-se a uma revisão crítica de ambos os filmes a partir de um esquema de análise da concepção de arquitetura por meio de sua cenografia ou encenação (Zavala, 2003), bem como da semelhança com a forma como atualmente percorremos o espaço arquitetônico mediante tecnologias de realidade mista. Desta forma, os resultados mostram como a realidade mista (física e virtual) impacta a percepção e o comportamento dos usuários dentro dos espaços físicos. A conclusão expressa a presença inevitável da realidade mista em espaços tão complexos como os do cinema e da arquitetura.

Palavras-chave: percepção, espaço, cinema, realidade virtual, arquitetura.

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INTRODUCTION

The progress made in IT applied to representation, development, and expression within architecture and cinema projects has provided an approach to the 3D complexity of films and virtual architectural objects. The relationship between current architecture, virtual reality, and cinema is evident in films like *Blade Runner*, by Ridley Scott (1982), and *Ready Player One,* by Steven Spielberg (2018), which are the object of study in this research. The result of the architectural ideas with the application of virtual reality technology in films has generated a space that is perceived daily through smart devices, such as smartphones, computers, tablets, and virtual reality (VR) glasses. The phenomenon there is between a screen and the architectural space, also called mixed architectural space (Palomo, 2021), is conceived, in short, as the simultaneous perception of the physical space and real-time interaction with virtual objects.

The perception of the current mixed architectural space in the process of knowledge and recognition of the space, is defined by the stimuli received visually, acoustically, and kinesthetically, and is conditioned by the prior knowledge of the physical space, the cultural recognition of the spaces of transition, the freedom of movement allowed, and the interaction with the added virtual 3D elements (Palomo, 2021).

To address what the architecture-cinema relationship defines, this study compared, within the two films reviewed, virtual scenarios against real ones. The cinematographic analysis method proposed by Lauro Zavala (2003), who determined that it is possible to make studies using cinema as a category of analysis, in this case from the staging, i.e. through the scenarios, was used for this.

The observations made were based on a setup that allowed abstracting the perception of physical and mixed space. The detailed revision of the staging focused on seeking the mixed architectural space, to show the impact of technology on architecture, and onscreen. The results show the importance of a transition in architectural and urban work towards the conception of virtual and mixed spaces.

Literature, cinema, and architecture have historically shown how they have mutually impacted one another, creating virtual scenarios that lead to imagine alternative and different realities from the physical ones. The films analyzed, show the presence of technology in architecture, the stimulation with virtual devices, even the need of living in virtual reality. In this way, the revision of *Blade Runner* and *Ready Player One* propose evidencing the social and cultural repercussions of new technologies on the transformation processes of the dynamics of social relationships.

Perception of the physical and mixed space

Human beings, from their physical and cultural state, have had to understand space in different ways over time, to live in and interact with it. Boundaries have had to be created and, at the same time, other worlds, generous with the visual and imagination components, have also been created. This coexistence with the world has also forced

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its perception, defined as the cognitive process whereby an animal or a human captures information from outside (Royal Academy of the Spanish Language [RAE], 2019), through sensorial systems. The senses send data to the brain to convert it into images or ideas of what has been perceived. This is a process of awareness of being in the world, or of the body in the world. The architectural space is related to the limitations built elements impose, and its spatial definition is given by the four conventional dimensions: height, width, length, and time; dimensions analyzed by Calduch (2001) and coined by Bruno Zevi (1969). For Alberto Álvarez-Vallejo (2016), perception is a simple, historic, yet not innate, mental operation. Perceptual operations are developed considering the cognitive level of the people: they can be sensorial (at a level of the organs of the senses); sensitive (that promote pleasure as substantial); or theoretical (where artistic valuations of the ideal aficionados are made: artists, architects, urbanists, etc.) (Álvarez-Vallejo, 2016, p. 2).

Virtual space is that which differs from tangible space in at least one fundamental aspect: the digital interaction with the objects that inhabit it in time and physical space. Virtual space is not governed by the Laws of Physics of the physical space (Rodríguez, 2004), that is to say, by the four physical dimensions. The digital interactive setting adapts to a spatial circumstance through specialized virtual reality software, whereby real or imaginary scenarios are represented, modeled by the so-called Virtual Reality Modeling Language technology.

The merging of the elements that the real space and virtual elements form, produces mixed architectural spaces. The perception within a mixed architectural space implies a new user experience. Perception within a mixed architectural space as a complex concept is a response to a historic moment, so it could be seen as a paradox of perception and the process of signifying. The conception of architectural space changes and evolves as, although it is understood within a tangible physical dimension, the concept is extended to a virtual dimension. The use of mixed reality in the architectural space modifies the visual and kinesthetic perception of the user, especially in terms of recognizing and allowing movement.

The effect of using virtual reality **(Figure 1)** in the perception of the architectural space, in the process of getting to know and recognizing the space, is defined by the stimuli received visually, acoustically, and kinesthetically, and is conditioned by the prior knowledge of the physical space, the cultural recognition of transition spaces (spaces for movement) and the permissiveness of movement, that is to say, the thresholds between the public and the private to transit within the architectural space **(Figure 2).** For this reason, the interpretation of the physical and virtual space (mixed architectural space) is related to the prior knowledge and experience about the physical space, the virtual space, and the recognition of the added virtual 3D elements. The interpretation of that simulated can generate an authentic experience, that combines the perception of the immediate stimuli of both realities in a given space (Palomo, 2021).

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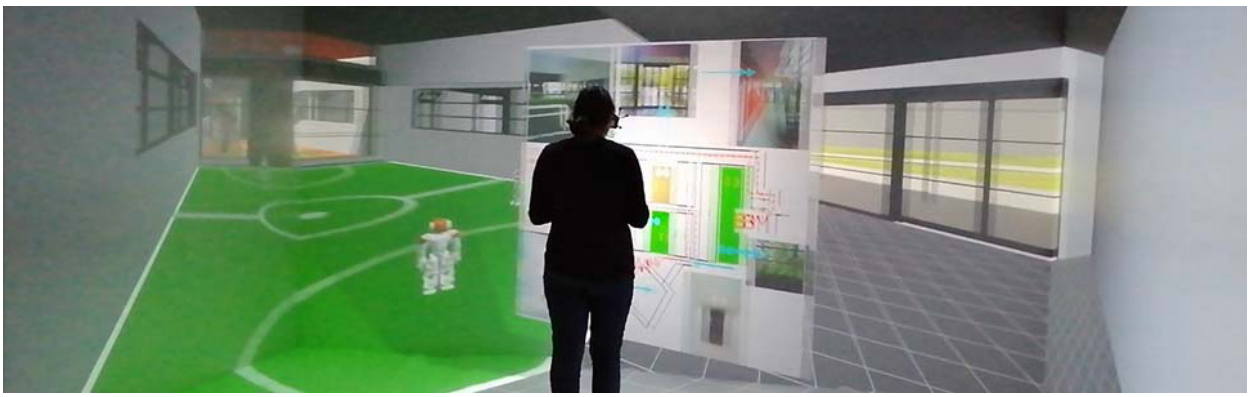

Figura 1 Virtual reality experience within the CAVE in the Virtual Reality Center in Brest, France. Source: Preparation by the author.

Figura 2 Experience with mixed reality. Source: Visualizing the future with Windows Mixed Reality (2016).

Futuristic cinema in Architecture (1900-2020)

The perception of the city of the future has been a topic developed alongside social changes and technological progress. It has close ties with literature, that seems to anticipate the way to move through it, from the visible to the virtual ones. From Jules Verne's *Paris in the 20th Century* (1863) to Ernest Cline's *Ready Player One* (2011), literature has portrayed scenarios of the future world with positive or negative forecasts in the social, economic, and architectural settings. Literature, from the 19th century onwards, presents the general concern of inhabitants regarding the future of contemporary cities, many of them built in the industrial era, and currently inserted within a technological, stock exchange-based, and hyperrealism era (López-Rangel, 2006, p. 8).

In the 19th century, the influence of historic moments, and the change in the perception of space, allowed writers like Charles Dickens, Gustave Flaubert, and Victor Hugo to describe the cites of their time through their narratives. By the 20th century, the perception and description of postmodern and futuristic cities are seen in the novels of Jules Verne (*Paris in the 20th Century*), John Dos Passos (*Manhattan Transfer*), and Alfred Doblin (*Berlin Alexanderplatz*). Later, authors appeared who describe future cities as a dystopia[1], such as Aldous Huxley (*A Brave New World*), George Orwell (*1984*), and Ray Bradbury (*Fahrenheit 451*).

With the invention of cinema, literature was transformed, through

1 According to the RAE, dystopia is a fictitious representation of a future society with negative features caused by human alienation. A dystopia or anti-utopia is a fictitious society, that is undesired in itself (Wikipedia. https://dle.rae.es/distop%C3%ADa).

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Figura 3 Cinema+Literature timeline. Source: Preparation by the author.

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its adaptations, into a collection of images and productions of the realities foreseen for the future worlds, becoming a reference of the configuration of space and cities. The visual manifestation in cinema has portrayed and provided images with different perceptions about physical and virtual spaces. The perception of technology and its diverse impacts on society is addressed in films like *Metropolis* (Fritz Lang), *The Matrix* (Lana and Lilly Wachowski), *Minority Report* (Steven Spielberg), *Inception* (Christopher Nolan), and *Tomorrowland* (Brad Bird).

Among the directors of science fiction[2] movies, that have turned literary works into cinematographic ones, using the topics related to postmodern or future cities, it is possible to mention: William Cameron Menzies, with *Things to Come* (1936); Francois Truffaut, with *Fahrenheit 451* (1966); Michael Radford with *1984* (1984); Stanley Kubrick, with *The Clockwork Orange* (1971); Steven Spielberg, with *Ready Player One* (2011); Ridley Scott, with *Blade Runner* (1982), and *Blade Runner 2049* (2017), adaptations of Phillip K. Dick's novel *Do Androids Dream of Electric Sheep?;* Christopher Nolan with *Inception* (2010), a work of art in itself; and Joseph Kosinski with *Tron: Legacy* (2010) **(Figure 3).**

Science fiction of the future architectural-urban space, on one hand, found a new dimension: that of seeing reality using the eyes, but without actually experiencing it, allowing the spectator to be submerged into moving environments and images, thus fulfilling certain fantasies.

Said visualization gained strength when some architects were influenced by technological progress and the implementation of technology in architecture. The visualization of the technological progress converted the reality of a utopian or dystopian forecast of the spatial configuration of indoor and urban space, into images. Architects with futuristic tendencies made graphical proposals and manifestos of the future city. Here arises the cases of Bruno Taut's *Gläserne Kette* (crystal chain) (Calatrava, 2001); Kutritov's *The Flying City and Beyond* (Khan-Magomedov, 2011) (1928); Anton Lavinsky's *City on Springs* (Prokopljevic, 2020), proposed in 1921; but also those of Le Corbusier, with the outlining of *Cité Radieuse*, in 1933, in Marseilles (Blasco, 2013); Lucio Costa and Óscar Niemeyer, with the design of Brasilia in 1956 (Chaparro, 2013); the city planning of Kevin Lynch, from 1960 (Lynch, 1998); Antonio Sant´Elia and *The city of the future,* in 1914 (Barona, 2009), which had a great impact on Archigram (1964), in *The plug-in city*, *capsule homes, The walking city*; and Paolo Soleri, with his ecological city model of 1970 (Franco, 2013), to be built in space (Arcología "Arcosanti")

In this context, Peter Cook explains the relationship between architecture and science fiction in the publication *Archigram 4*, in 1964. There, he outlines the need to renew the profession of the architect, and the capacity to produce an architectural image in science fiction. Kiyonori Kikutake can be mentioned as an architect who was greatly influenced by the vision of Archigram, whose design based on megastructures was taken on by Douglas Trumbull for the film *Silent Running* (1972). The ideology of Archigram marked a transition in the

2 Science fiction is a literary genre characterized by a narrative that proposes a hypothesis about the future and/or unknown universes, starting from current knowledge (scientific, technological, ethnological, etc.). (Bassa & Freixas, 1993)

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ways of visualizing architecture produced in science fiction cinema in the 1970s. Science fiction films like *Star Wars* (1977), and *Battlestar Galactica* (1978), showed megastructures with technological solutions for their operation. Cinema became the space where architects could build works with a futuristic vision of the space and the city. In the 2000s, futuristic cinema showed the dark public space, with high-rise buildings, giving superstructures a starring role. In the physical world, architects Jean Nouvel, with his Cartier Foundation (1984), Louvre Abu Dhabi (2017), and Qatar National Museum (2019), and Rem Koolhaas, with the Seattle Central Library (2002), and the China Central TV Station (2004), did the same, with buildings with superimposed textures, formed by extraordinary structures.

METHODOLOGY

Architects and film directors work with similar design lines. Both research, create environments, and configure the space, though only in the physical space is the experience of transition more relevant and affected by time. However, in cinema, the experience is manipulated by the planes on which the objects appear[3]. In the 1970-1980 period, a radical change took place in the perception of space and time with the incorporation of IT and person-computer interaction, which has continued up until the present day, when the possibility of being immersed into a reality that is simultaneous to the physical reality and the mixed reality (MR), has been added.

Architects have sought to see the future made in their constructions. Thus, architecture and science fiction are closely tied. On one hand, the concept of architecture has evolved, and architects have found other fields of development and practice such as entertainment (video games and virtual environments), advertisement, movies, and the design of mixed reality spaces. The digital era has allowed setting up virtual spaces, which leads to modeling them in specialized programs. The quality in the visualization of the architectural object in a virtual setting has improved the production of digital tools, which is why designers can make more sophisticated buildings, that before only science fiction could muster in the cinema. The concept of current architecture depends on visual and construction technology, which allows the architect to make the work and, at the same time, provide greater permeability to generate exchange and appropriations of two simultaneous realities, the physical one and the virtual one.

It is important to remember that spatial relationships are subjected to constant transformation (Harvey, 2001). The constant change of technology and its application to the space and its configuration, have the same goal of transforming the space and the user relationship with it.

A critical revision of the two aforementioned films, *Blade Runner* and *Ready Player One,* was made from these perspectives. The analysis of the conception of architecture through its scenography or staging (Zavala, 2003), focused on what the current transit is like through architectural space using mixed reality technology.

3 Some texts that show the relationship between the conception of space in the cinema and in architecture are: The Architecture of Image: Existential Space in Cinema (2001), by Juhani Pallasmaa; Designing dreams: Modern Architecture in the Movies (2000), by Donald Albrecht; and The Wrong House: The Architecture of Alfred Hitchcock (2007), by Steven Jacobs.

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The Architecture in Blade Runner

From the day of its release, the influence of *Blade Runner* (1982) on cinema and the perception of the future in urban scenography has been undeniable (Sammon, 2017). Speculation of a possible future, where technology works as a second skin attached to the architecture, represents a paradigm to conceptualize the future mutation of the architectural object **(Figures 4 and 5).**

The architecture of the cinematographic masterpiece, *Blade Runner*, was made based on the paintings of Edward Hopper and the work of Moebius. According to Portella (2019), Ridley Scott said that the influence for the film's stage design came from the paintings of Edward Hopper, which show the future vision of Hong Kong and New York, and the industrial landscapes of Tyneside and Teeside. The most important reference for the director, in the conception of the film's scenarios, was the French magazine, *Metal Hurlant*, and the work of Moebius, as well as *The Long Tomorrow, by* Jean Geraud (1975), projected in the drawings of Syd Mead[4] (Sammon, 2017) **(Figure 6).**

The idea, within this film, of creating layers upon layers in the architecture, generates a vision of an ever more overloaded city, that can be understood as a reflection of reality, as architecture, without a doubt, suffers or is transformed with the overlapping of styles and trends in successive periods. The response to socio-technological change, at the beginning of the 1960s, allowed diversifying the architectural design proposals[5]. The film shows the influence of technology on the physical plane, but not on the virtual one. However, it leaves the door open to the future mutation and loss of the physical appreciation of architecture as a result of technological intervention. The urban landscape in *Blade Runner* glimpses the loss of the perception of the set-up vacuum. From this approach, it signals the accumulation of construction and technological elements attached to the facades.

Blade Runner was born in a postmodern architecture setting. In the 1980s, postmodernism recovered the shapes of history as a binding instrument to traditional memory. Architecture in this movie is eclectic and iconographic, with classical columns and lit-up signs. The city becomes an ordinary attraction and can be understood from the philosophy of Venturi (1972), in the sense of perceiving the city as a window display, that is to say, the adverts as graphical signs of the urban landscape.

This perception is reflected in a landscape where Greek and Roman columns are mixed, as a reminder of the perfect city or the paradise lost. According to Fernández (2014), the urban context is surrounded by a sad setting, and the architecture is the focal point. In the setting of *Blade Runner*, the oppression and frustration are felt through the constant noise of horns, screams, gases, and ads in a city defined by a chaotic and decadent urban planning, of ghettos with specific economic activities. In the architectural eclecticism, two buildings are included: Ennis House (1924) by Frank Lloyd Wright, and the stores of the Bradbury building (1893) by George H. Wyman, located in the city of Los Angeles. The director included both buildings in the script, and by avoiding more futuristic constructions, he managed to avoid the film's premature aging.

4 Mead was a car designer and was hired to design futuristic vehicles. However, he was involved in many other aspects of the film (Sammon, 2017).

5 Archigram was a catalyst that architects used to have a vision of architecture merged with technology. Richard Rogers, Michael Hopkins, and Nicholas Grimshaw created High Tech. The proposal of Archigram became the result of questioning architectural conventions. In physical reality, the High Tech movement showed that technology could be tangible, and design included it in the new buildings.

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Figura 4. The city as a window display in *Blade Runner*. Source. Scott (1982).

Figura 5. The city of SHINJUKU as a window display (2021). Source: *Brindamos por viajar* (https://www.brindamosporviajar.com/)

Figura 6. The city in the film *Blade Runner.* Source: Scott (1982).

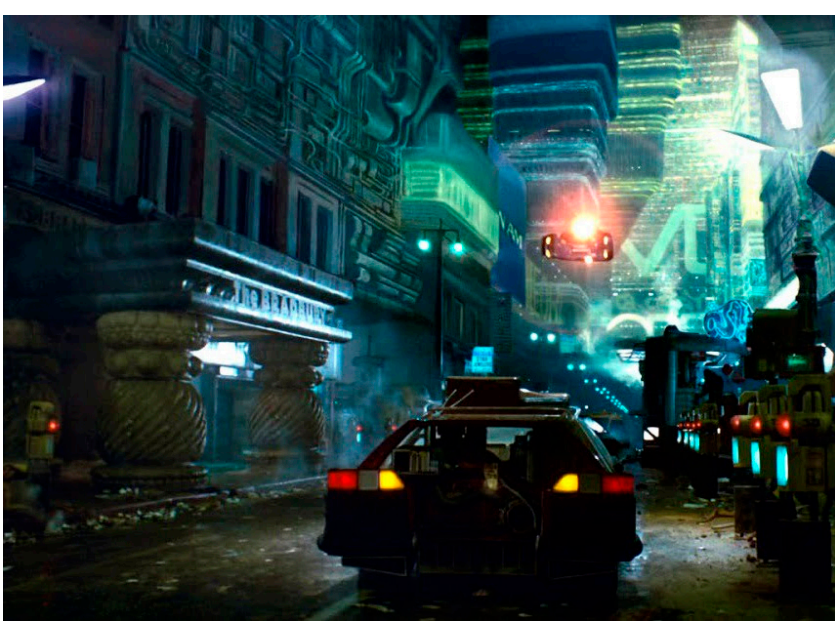

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Figura 7 The "stacks" of *Ready Player One*. Source: Spielberg (2016).

Figura 8 The city of Kowloon. Source: Mead (2017).

Figura 9 Housing in the Western United States (2021). Source: Diéz (2021).

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The Architecture of Ready Player One. The Metaverse

The concept of "*Metaverse*" has been used since it came to light in the science fiction novel, *Snow Crash*, written by Neal Stephenson in 1992. The novel handles the concept of *Metaverse* as cyberspace around new technologies, and the mass scale interaction of different users with different identities from those of the physical world. Stephenson (2000) designed a logical extension of the current IT networks, showing their social and cultural impact. Later, the film *Ready Player One* (2016), based on the best-seller by Ernst Cline (2011), used the *Metaverse* concept to present an alternate reality to the physical one.

Cline's work (2011) tells the story of Wade Watts, a teenager who lives in dystopian 2045. In the script, there is a society whose behavior is uninterested and indifferent to the social, political, and economic aspects. The character of James Halliday, who then becomes a magnate, creates a virtual reality mass-multiplayer online (MMO) video game, which he calls OASIS, where almost the entire population is immersed. The video game becomes an escape from reality. The film presents a nostalgic society, where the main character, Wade, a teenager immersed in cyberspace, goes through a virtual territory, trying to get the game's easter egg (Lahoz, 2019).

Three real-world spaces can be distinguished in the film: the stacks, where Wade lives; the resistance; and the offices of IOI, as well as differentiated spaces that define the social distinctions between the powerful and the impoverished class. The scenarios reflect a dystopian future from the eyes of the lead, where the inhabitants seek an easy escape and not a solution in the real world. The physical spaces show the attitude of society, as it has abandoned the idea of living in the real world. The characters in the film do not believe there is any sense in fighting for a world they have already given up on when they have a more attractive option, in every sense of the word.

The towers (the stacks) are where Wade lives with his aunt **(Figure 7).** The buildings express the social decadence of the inhabitants, a dystopian vision of the future of coexistence in a society. The haphazardly stacked modules, held up by a metal structure, appear as buildings throughout a suburb, showing the disinterest in the urban image and disregard for reality. These are inhabitable scaffoldings. There is a combination of disinterest in the physical space, and the use of state-of-the-art technology. It can be said that the buildings are a kind of shantytown, a spatial setup with no privacy. The space of cordial coexistence is a dynamic one: a virtual space.

The production designer of *Ready Player One*, Adam Stockhausen, recognizes that he was inspired in the walled city of Kowloon, in Hong Kong (Desowitz, 2018). The city of Columbus, Ohio, appears in an aerial view as an overpopulated block, similar to that of Kowloon **(Figure 8),** or the housing in the western United States **(Figure 9).** The clip-on architecture, which can be seen in the towers, has a very clear reference, similar to the architecture of Peter Cook and the Plug-in-City (1964) design of *Archigram*. The virtual space architecture in *Ready Player One* is called OASIS, or *Ontologically Anthropocentric Sensory Immersive Simulation*. It is a solution to society's survival, the opportunity to live two different realities, where the daily concerns disappear and everything is possible. This can be seen in the layout of the space and the possibilities to be wherever you want.

In the book and film *Ready Player One*, the *Metaverse* is a virtual space where the users have fun and can see and express themselves as they wish. The *Metaverse* is a future vision of the virtual space, it is a growing and evolving information hub, that contains everything there is online nowadays[6].

6 In the reality we live in, the companies *Epic Games* and *Sony* saw the possibility of creating a *Metaverse.* Both companies outlined a collaboration and invested considerable amounts in what they call a business between creativity and technology, heading towards building a broader and more accessible digital ecosystem for consumers and creators of virtual content (Todo lo que sabemos, 2020).

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Virtual reality as technology in the IT area has opened up a series of real-time possibilities. The idea of the *metaverse* is a project with wide-ranging opportunities in the fields of communication, architecture, medicine, entertainment, and research. In the virtual world, as shown in *Ready Player One*, it is possible to do or be whatever one wants.

The technological limits are overcome using the ideas that generate solutions through experimentation. The approach of creating virtual[7] worlds or cities, that are alternatives to physical reality, has the following principles: Persistence (of what is created or bought while the *Metaverse* persists); mass-scale (so that 1 to 100 people can interact simultaneously); accessibility and interoperability (from any device and place, jumping from one platform or virtual world to another); and the virtual economy with a social impact (the money generated in this world exists).

The current reality shows that, perhaps, cities will not experience further physical interventions, but rather they will be built virtually. The physical space will be visited at the same time as the virtual worlds.

RESULTS

The aforementioned films, whose subject matters are linked to the impact of technology on the perception of the urban and architectural space, reveal the reciprocal impact there is between objective reality and virtual reality, especially in terms of the alienation of appreciation of architecture and the simultaneous coexistence with virtual reality. They also show the transition towards the virtual which, in the first film, takes place in a more market-based tone and through the prioritization of technological objects over architecture. In the second, a frank transition takes place towards a non-physical reality, that enables life experiences, where the physical space is not the star.

As has been seen, this article particularly focuses on the future perception of architecture and its interaction with mixed reality technology. In this way, it must be stated that the relationship lived during the perception process of the architectural space is related to different aspects, two of which stand out: The use of the space, that is to say, what it was designed for (moving, being, cooking, and so on); and the use dynamic that a user establishes in it. The use of technology in the transition of the space has generated a detachment phenomenon in the perception of architectural and urban space (Palomo, 2021). In this framework, the relationship established in these films highlights the forecast made by the directors on the issue of user-architecture and technology interaction as, on one hand, in *Blade Runner,* a cloudy perception of architecture is seen (closer to reality, without a doubt, where the market-technique and technology are more important than the building) and, on the other, in *Ready Player One*, where a complete detachment from the physical space is shown, as well as a move towards the use of the virtual space that ultimately becomes the primary world, where the perception of physical space is abandoned.

In *Blade Runner* (1982), six aspects that are currently experienced can be identified. First, overpopulated cities where, for the user who moves around on foot, the immediate context is formed by stores or informal shops that impede the complete perception of the urban space. Second, is the use of technology as a second skin of old or new buildings. Third, architecture appears in the background in the transition from one place to another, because the space is no longer essential. Fourth, even when visual perception is what completes the sensation that a space transmits, these stimuli are focused on artifacts that show images outside reality. Fifth, only the spaces set aside for leisure or resting activities are presented as lacking technology, also being privileged

7 Some examples are the video games *Minecraft* y *Fortnite*.

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spaces for the population with high purchasing power -another condition similar to reality. Sixth, new technologies denote coldness.

Meanwhile, in *Ready Player One* (2011) another dynamic that is similar to the modern world is acknowledged: The need to live a different reality, a virtual one, given the social, political, economic, and accessibility circumstances (the users connected to the network can interact with everyone online). In this way, the possibility of being in other spaces appears, using devices that allow seeing them and moving through them, even when the person is miles away.

CONCLUSION

The reciprocal influence between objective reality and virtual reality projected in the science-fiction films, *Blade Runner* and *Ready Player One,* falls on the perception of the built architectural space, and the design of future spaces.

The use of technology within the architectural space has been given by the dynamic and the performing of different daily, social, educational, and recreational activities. Nowadays, technology applied to different production processes within the architectural space, including art, architecture, and cinematography, is a driver in the optimization of processes for the creation and construction of spaces.

In the era of transition from the physical to the virtual, it is important to layout the immersion in different realities. On one hand, is the reality known as physical and tangible, one of daily knowledge; and on the other, the reality built from immersion in virtual reality, that allows taking the experience of a physical space to the strengthening of the space with virtual elements. In other words, technology applied to the physical space is another reality that can be experienced.

The passing from a vision where the concept of the real architectural space is predominant, to a complex vision of the mixed architectural space is an ongoing process that is being experienced right now in history. Mixed reality allows the user to understand both the virtual world and the primary one. The user is only connected to the physical space through elements of the setting that define the knowledge of the space, such as light, real objects, the auditory stimuli, and the built elements that form the interior vacuums to transit.

Perception within a mixed architectural space implies an innovative experience. The conception of architectural space changes and evolves, and the concept is extended to a virtual dimension.

The use of virtual and mixed reality, with its resulting advantages and disadvantages, is inevitable. The transition that takes place from the architectural space to a vision of the mixed architectural space is an event that, without a doubt, will be seen during upcoming years. For this reason, the architecture of the future must be conceived by designing a mixed architectural space (Palomo, 2021), where physical and virtual reality are found together and in real-time. This leads to considering the practice of architecture in a contemporary and complex way. Virtual reality technology has become a given construction born from a social aspect, but that, at the same time, is the ideal terrain to debate about the similarities and differences between the perception of real space and the virtual created space. It is the field of a dichotomy that will generate new epistemology in this regard. In this sense, mixed reality will be a factor in the future variations of the kinesthetic and visual perception of the architectural space; a factor that will have an impact in terms of the recognition and permissiveness of movement and its limits[7]. All that is left is to await the arrival of mixed reality as an imminent event that will change the daily use of architectural spaces, and life in general.

7 This will soon happen, in specific circumstances where the real world is integrated to the digital elements that will change its experience during the transition between the two spaces mentioned. That is to say, amid a hybrid territory.

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Development of the steel industry and avant-garde architecture of the 20th century in Chile: Unidad Departamental Acería CONOX y Colada Continua (1976), and the Central de Alimentación y Casino (1973), in the CAP-Huachipato plant, as examples of the brutalist paradigm.

Desarrollo de la industria siderúrgica y arquitectura de vanguardia del siglo XX en Chile: La Unidad departamental Acería CONOX y Colada Continua (1976), y Central de Alimentación y Casino (1973) en la usina de CAP-Huachipato, como ejemplos del paradigma brutalista.

Desenvolvimento da indústria siderúrgica e arquitetura de vanguarda do século XX no Chile: Unidad departamental Acería CONOX y Colada Continua (1976), e Central de Alimentación y Casino (1973) na fábrica CAP-Huachipato como exemplos do paradigma brutalista.

Figure 0 Aerial view of the Central Food Plant and Workers' Casino (2021). Source: Collaboration of Architect Nicolás Moraga

Artículo resultado de la Tesis para optar al grado de Magíster en Patrimonio Arquitectónico y urbano-UBB titulada "Patrimonio Industrial en el Área Metropolitana de Concepción. El rol de la siderúrgica Huachipato en la conformación del paisaje urbano industrial de la Bahía de San Vicente."

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RESUMEN

La siderúrgica Huachipato en la bahía de San Vicente, Talcahuano, se pone en marcha a mediados del siglo XX como iniciativa estatal (personificada en CORFO) para crear un centro de producción nacional en la zona del Biobío e impulsar el desarrollo económico y social, en respuesta a la crisis de 1930 y el terremoto de Chillan ocurrido en 1939. Dentro de las primeras décadas de funcionamiento, la Compañía de Acero del Pacífico (CAP) implementó una serie de planes de expansión para mejorar y aumentar la producción, modernizando maquinarias y construyendo edificaciones a fin de dar cabida tanto a los nuevos procesos industriales, como a los equipamientos de servicios que utilizarían los obreros. En este contexto, en la década de los 70, se construyeron dos obras de notable calidad arquitectónica: la Unidad Departamental de la Acería CONOX y Colada Continua, y la Central de Alimentación y Casino de trabajadores. En el estudio que aquí se presenta, se recabó la información disponible en Revista AUCA (1979), donde dichos proyectos fueron publicados, y luego se analizaron las características de estas edificaciones poniendo en relevancia sus valores como obra de arquitectura (morfológicos, espaciales, estéticos, estructurales) y revisando los fundamentos teóricos y la relación con otras obras de arquitectura claves para entender los conceptos de "brutalismo" y "*mat building*". En síntesis, los resultados reflejan que estas obras, aunque disímiles entre sí, por adaptarse a funciones tan diferentes como la producción industrial y el equipamiento para obreros, recogen el paradigma moderno del X CIAM de 1956 y los criterios proyectuales de la vanguardia arquitectónica de los años sesenta, configurándose, a la vez, como patrimonio industrial y como patrimonio arquitectónico de Chile.

Palabras clave: patrimonio industrial, patrimonio arquitectónico, brutalismo, arquitectura moderna, *mat building*.

ABSTRACT

The Huachipato steel plant located in San Vicente Bay, Talcahuano, was set in motion in the mid-20th century as a state initiative (personified in CORFO), to create a national production center in the Bío-Bío area and to promote economic and social development, in response to the 1930 crisis and the Chillan earthquake, in 1939. Within the first decades of operation, the *Compañía de Acero del Pacífico* (CAP) implemented a series of expansion plans to improve and increase production, modernizing machinery and constructing buildings to accommodate both the new industrial processes and the service equipment that the workers would use. In this context, in the 1970s, two buildings of notable architectural quality were built: the Unidad *Departamental Acería CONOX y Colada Continua*, and the *Central de Alimentación y Casino de Trabajadores*. In this study, the information available in Revista AUCA (1979), where said projects are published, was collected, and later the characteristics of these buildings were analyzed, highlighting their values as architectural work -morphological, spatial, aesthetic, structural-, reviewing the theoretical foundations and the relationship with other key architectural works, to understand the concepts of "*brutalism*" and "*mat building*". In summary, the results reflect that these works, on adapting to functions that are so different to each other, as the industrial production and workers' facilities) are, reflect the modern paradigm of 1959's X CIAM and the design criteria of the architectural avant-garde of the 1960's, becoming both industrial heritage and architectural heritage of Chile.

Keywords: Industrial heritage, architectural heritage, *brutalism*, mat building, modern architecture.

RESUMO

A usina siderúrgica Huachipato na baía de San Vicente, Talcahuano, foi lançada em meados do século 20 como uma iniciativa estatal (personificada em CORFO) para criar um centro de produção nacional na área do rio Bío-Bío e promover o desenvolvimento econômico e social como resposta à crise de 1930 e ao terremoto de Chillán, ocorrido em 1939. Nas primeiras décadas de operação, a Compañía de Acero del Pacífico (CAP) implementou uma série de planos de expansão para melhorar e aumentar a produção, modernizando máquinas e construindo edifícios para acomodar os novos processos industriais, bem como os equipamentos de serviço que os trabalhadores utilizariam. Nesse contexto, na década de 1970, foram construídas duas obras de notável qualidade arquitetônica: a Unidad departamental Acería CONOX y Colada Continua e a Central de Alimentación y Casino de trabajadores. No presente estudo foram recolhidas as informações disponíveis na Revista AUCA (1979), na qual foram publicados os respectivos projetos e, em seguida, foram analisadas as características destes edifícios, destacando os seus valores como obra de arquitetura: morfológicos, espaciais, estéticos, estruturais, revendo os fundamentos teóricos e a relação com outras obras arquitetônicas fundamentais para compreender os conceitos de "brutalismo" e "mat building". Em suma, os resultados refletem que essas obras, embora diferentes entre si, por se adaptarem a funções tão diferentes como a produção industrial e o equipamento dos trabalhadores, refletem o paradigma moderno do X CIAM de 1956 e os critérios de design da vanguarda arquitetônica dos anos sessenta, configurando-se, ao mesmo tempo, como patrimônio industrial e patrimônio arquitetônico do Chile.

Palavras chave: Patrimônio industrial, patrimônio arquitetônico, brutalismo, mat building, arquitetura moderna.

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INTRODUCTION

The Industrial Revolution, at different moments for Europe and Latin America, led to the formation of urban industrial areas, along with an architecture dedicated to supporting production activities. In the 20th century, following the modern mechanistic paradigm, the abandonment of styles, and thanks to the development of new construction technologies, using materials like steel and reinforced concrete (Aguirre, 2008), new typologies were consolidated for factory spaces, which were adopted early by some Chilean industries.

Huachipato Steelworks, owned by *Compañía de Acero del Pacífico S.A.* (CAP, in Spanish), appeared during the 1940s as a state project led by *CORFO* (Chilean Production Development Corporation). During the following decades, the steelworks project was finalized, covering a large part of the shoreline of San Vicente Bay, and becoming a pole for industrial development.

In the framework of the company's development policy, the architecture of corporate buildings was used from early on, as a dissemination platform of the materials that *CAP* produced in its steelworks. To achieve this goal, several renowned architects were hired, who developed company-led innovative projects, both inside and outside the factories.

Importance of the matter

The transformations of the production system and the commercial logic have subjected 20th-century industrial structures to an obsolescence system, jeopardizing their permanence (Lorca, 2017), something common in the steelworks area. In the case of Huachipato, this situation also occurs, given the need to integrate the management of the industrial complex and its heritage values into the urban development plans. In this sense, this work seeks to highlight the heritage of the factory, where it is possible to see two pioneering examples of Latin American architecture from the second half of the 20th century, where it is possible to see early solutions to the debates that, then, were appearing internationally, and which sparked a broad discussion after the crisis of the Modern Movement, with the finalization of the CIAM congresses and the appearance of the New Brutalism.

State-of-the-art

Although the issue of industrial heritage in Metropolitan Concepción has been suggested, from the architectural and urban value of the dwellings developed by the industry for its workers – for example, in Cerda and Puentes (2019), where the complexes built by ***CRAV,*** in Penco, are addressed-, little is mentioned about the industrial facilities themselves, outside of those of the Lota coal mine, as happens in the work of Moraga (2015) on Chambeque structures. The studies found on Huachipato Steelworks mainly focus on the field of engineering, analyzing the processes, systems, and technologies involved in the plant. The studies from the field of architecture and urbanism refer to the housing complexes built by ***CAP***, among which the article of Fuentes and Pérez (2018) stands out, which describes the establishment of an urban model from the company's housing policies. Even though it alludes to works outside the study area, the study of Esparza (2016) can also be mentioned,

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where ***Villa Presidente Rios*** (Emilio Duhart) is reviewed, an iconic housing complex of ***CAP,*** close to ***Huachipato***, which also shows how industrial development served to promote modern architecture. According to the information collected, beyond the publications of journals where the works are reviewed, such as the monograph revision of the Bresciani, Valdés, Castillo, and Huidobro firm, by Pérez Oyarzún (2006), no research addresses the steelworks' facilities from the architectural point of view.

In this case, it is proposed to analyze the buildings located on the industrial site, built in the 1970s, in the context of the extension and modernization projects of the steelworks factory. Among the facilities chosen is the *CONOX Steelworks* and the *Continuous Casting Department Unit*, created from a plan to improve the distribution of the buildings and specialized units, from which architects De Groote, Gubbins, Molina, and Barros projected this service building linked to the workers of the steel foundry section. The other facility chosen is the *Food Center and Cafeteria (Central de Alimentación y Casino,* in Spanish*)*, designed by Bresciani, Valdés, Castillo, and Huidobro (BVCH), which sought to provide a comprehensive solution to the workers' needs, derived from the increase in production. This, taking into consideration that the CAP-Huachipato factory is an industrial heritage complex that is not officially recognized, and the relevance of the buildings as architectural heritage, on having integrated, as pioneers in Chile, and even in Latin America, the proposals that were being discussed internationally in the area of architecture.

THEORETICAL FRAMEWORK

The concept of "industrial heritage" refers to the elements that emerged from the production activities of industrialization, such as buildings, structures, processes, and tools, along with settlements, territories, and landscapes where they were located, which have fundamental importance as a testimony of historic, economic, and social phenomena that had a close relationship with the way of living of different human groups (The International Committee for the Conservation of the Industrial Heritage [TICCIH], 2003).

The convergence between industry and modern architecture is long. On one hand, industrial structures like "(…) *silos, water towers, factories, ships, blast furnaces, foundries, gas holders, cooling towers, water deposits, among others* (…)"[1] (Layuno, 2013, p. 665), began to be seen as models for the rational and aesthetic conception of architectural form. The machine and the factory were icons of modernity, and industry was a vehicle of development (Torrent, 2017). This resignification is linked with the advent of modern architecture at the beginning of the 20th century, just as Pancorbo and Martín state:

> The adoption of the mechanist paradigm by science drove the technological and industrial revolution, leading to the machine era and a new category of materials: technical objects. The generalized predominance of the mechanical paradigm in architecture as of the 20th century, adopting the technique as a guiding line for architectural activity, and using rational and scientific premises in the project process, led to the birth of modern architecture (2014, p. 1)[2].

1 Free translation.
2 Free translation.

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On the other hand, modern architecture gave feedback to industry: the production-focused buildings began to exploit the new technique -abandoning the old aesthetic canons- with projects that considered large-scale structures, wherein beyond their utilitarian nature, gave room to architectural exploration. The most classical examples are the *AEG Turbine Factory* (Peter Behrens, 1910), the *Fagus factory* (Walter Gropius & Adolf Meyer, 1913), and others that are just or more notorious regarding their contribution to the image of the factory itself as a cultural symbol, along with the resulting development of modern architecture, in the middle of the 20th century. One of these, without a doubt, is the colossal work of Albert Khan (Pancorbo, 2016), which was referenced by architects such as Mies van der Rohe (Pancorbo & Martín, 2016).

METHODOLOGY

From the methodological point of view, this study first considered revising the historical background of Huachipato Steelworks as a production initiative, to contextualize the construction of the works. Starting from a bibliographical review of different sources, it was sought to understand the debate that came from the *CIAM IX* and *X* seminars, as well as the appearance of *TEAM X* as a precursor of a type of architecture that tried to overcome the limitations of functionalist architecture. After this, the works chosen from the bibliographic review of their publications in the AUCA Journal of 1979, were described and analyzed based on the theoretical outlines reviewed.

RESULTS

Background of Huachipato Steelworks

The *Compañía de Acero del Pacífico* (CAP, in Spanish) was born from a state initiative personified in the *Development Corporation* (CORFO, in Spanish), which sought to overcome the economic difficulties of the Great Depression (1929), and the internal situation, diversifying national production by substituting imports and expanding exports, exploiting the natural resources of the country (Ortega, 1989), through the industrialization and consolidation of production centers. With this purpose, CORFO created different national basic industries in the mid-20th century, among which CAP (1946) is found, which involved building the Huachipato Steelworks.

CAP decided to install their steelworks in the San Vicente Bay, in the Province of Concepción, a place that, although distant from the iron mines in the north of the country, had the advantage of being close to the Lota and Schwager coal mines -the potential of the port in the bay to receive raw materials- and the Biobio River as a water source, among other territorial advantages, as well as being close to the urban centers of Talcahuano and Concepción, which could provide the services and housing needed for the workers (Echeñique & Rodríguez, 1990).

With the design of the steelworks, the land was also laid out for future extension plans, with an attached industrial area, and the construction of a workers' housing complex. Huachipato plant was built in 3 years (1947-1950) and began operations in 1951 when only the parts essential for plant operation had been built. As a result, over the first few decades, it would be extended through a series of facility extension and modernization plans to increase production.

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New Brutalism

The term "*brutalism*" was created by Hans Asplund in 1952 and was popularized by Alison and Peter Smithson (1953) in the description of an A+PS housing project in London's Soho district. It is described as:

> (…) not just a language recognized in the shape, but as a way of being located and acting facing the matter, and the materials of a project. It is an attitude to try out the possibility architecture has to be an instrument that strengthens a more educated relationship – on being clearer and having a higher quality- between the human being and their needs of association, nature, and construction (Vidotto, 1997, p. 13) [3].

It likewise proposes a rereading of the modern movement, where the emphasis is not placed on functional aspects, but rather on relational ones. It vaguely adopts elements of scientific structuralism and suggests a differentiation – if the analogy with the concept devised by Habraken (1974), and developed by Hertzberger (2005) and other authors is validated – between support elements (fixed, static, regular, such as weight-bearing elements, and facilities) and infill packages (programs, partitions, and spaces, particularly those that are intermediate or relational), in the development of the project and its materiality.

Despite the standard spectrum of brutalist production being very broad, these ideas are laid out in the conception of a new architectural type, the mat building. The first building considered as brutalist is the Hunstanton School, of Alison and Peter Smithson (A+PS) (1950-1954). Later, Reyner Banham established a first theoretical approach to this current in his article in AR *New Brutalism* (1955), and a decade later, presents a brutalist architecture canon in the book *The New Brutalism: ethic or aesthetic* (1966). There, Banham looks at the works of the previous fifteen years, that encompass the ethical ideal of this new current, which started being built starting from *CIAM IX*, and the emergence of *TEAM X*, showing, at the same time, a move towards an aesthetic (a *style*) which, although to a great extent it betrays the original suggestions of *Team X* and other precursors, it contributes to the extension and popularization of the new architecture. Banham's book (1966) selects European, American, Japanese representatives, and just one from Latin America: the dwellings of *Villa Portales* by BVCH. According to this text, this choice is fundamentally based on the shape developed in the piece with the exempt staircase and the material treatment of the back slope. Therefore, according to the author, it would be the use of compositional resources that allows inserting the work within brutalism, more because of anesthetic (a style) than an ethic. However, the basic principle of the brutalism ethic had been taken onboard by BVCH and was already being applied in works developed by them in those years (like the project for the State Technical University in 1957). There is no doubt that they were perfectly familiarized with the axioms of this current. Their firm regularly received the latest issues of *Domus, Architectural Design, L'Architecture d'Aujourdhui,* and *Quaderns*. It must be added that both Bresciani and Castillo were among those who signed the constitution of the Chilean branch of *CIAM*, and their works were

3 Free translation.

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internationally renowned from the opening of the firm in 1953. *Villa Portales* caught the attention of *Banham,* from its publication in 1961, in issue 12 of *Architectural Design*.

Architecture works at CAP-Huachipato Steelworks

The extension plans of Huachipato considered the construction of new structures, including some of the most iconic of the industry, such as Blast Furnace N°2, which was added to the complex in 1965; CONOX Steelworks, that would replace the Siemens-Martin Steelworks in 1976, to reach a production of 1,000,000 tons of steel per year. An integrated personnel assistance policy, and the adaptation to the demands of the production increase itself, were outlined as part of the expansion policy. This meant the construction of new service facilities for the workers, including the CONOX Steelworks and Continuous Casting Department Unit, and the Food Center and Cafeteria for the workers. Both works are published in the AUCA Journal N°36 issue, from 1979, "VIII Region Urban Development 4", which includes analysis on the Concepción Intercommunal Plan (1963), where the industrial production vocation assigned to San Vicente Bay can be seen.

In this same issue, a series of projects are published that today are considered as modern heritage, like the Remodelación Catedral, the Caja de Compensación CCHC, and COPELEC, together with other housing works, demonstrating the relevance of the steelworks plant's works.

Food Center and Cafeteria

The Huachipato Steelworks Food Center and Cafeteria was part of the project for a complex of facilities, where both the facilities that would serve all the plant's personnel, around 4,000 workers, and an office tower that would house the administration units that were laid out around the plant (Pérez Oyarzún, 2006), would be located. This was on the southern sector of the Huachipato site, towards the shoreline, connected to the plant through a coastal road and central intersection that organized the steelworks longitudinally. This project was assigned to the architecture firm, Bresciani, Valdés, Castillo, and Huidobro, and was developed between 1964 and 1972, to be built and start its operations in 1973. To address this, the architects made a study that sought to compositely integrate the different functions within the program, so that the work would have a unit nature and be adapted to the natural features of the place (Bresciani, Valdés, Castillo Velasco, & Huidobro, 1979. The Executive Complex project considered a set of buildings: The Food Center and Cafeteria, an office tower, and three low-rise blocks for the engineering and industrial relations comptroller departments. These buildings were connected by a horizontal plate and a corridor and were organized into wings using the hall in the heart of the office tower **(Figure 1)**.

However, attending to the priorities of the company, only the unit to provide meals to the personnel, and part of the office tower and engineering pavilions, were built, with just the foundations and steel

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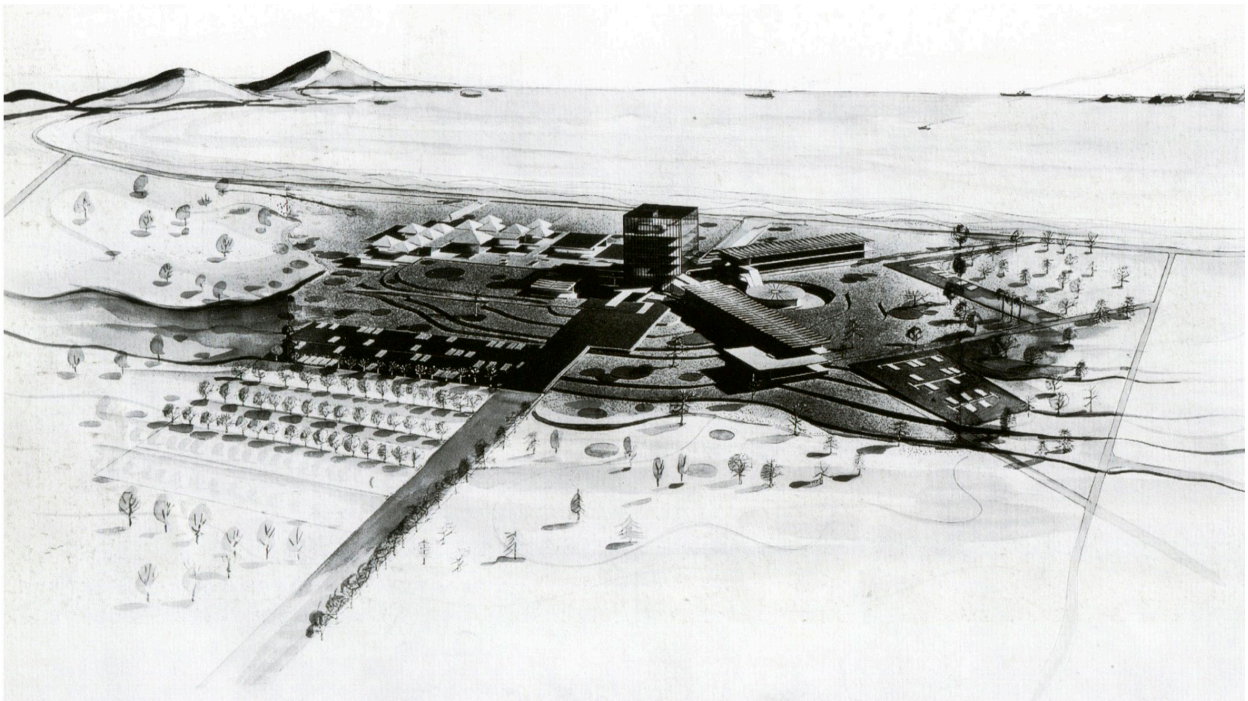

Figure 1 Perspective of the final blueprint for the casino and casino and office complex CAP. Source: Personal file Héctor Valdés P. in Pérez Oyarzún, (2006). Oyarzún, (2006).

structure of the tower being built, which ended up being dismantled (Castillo Velasco [2008], in Fuentes, 2013). Regarding the material of the structure, Pérez Oyarzún states:

> Given the nature of the company, the building complex for the general offices and the Food Center and Cafeteria were projected considering steel as the basic structural material. However, in the cafeteria -the only fully built sector – the structures are mixed: steel combined with reinforced concrete walls due to the seismic stresses (2006, p. 116). [5]

The first level comprises a horizontal plate whose upper floor plan extended with an overhang, and was completely dedicated to the meals program, while the second level was destined to the dining hall **(Figure 2)**. This distribution looked to facilitate food production logistics, providing all the associated functions on a single level. The dining areas were built on the plate that was used as a terrace, with a panoramic view of the bay, while the indoor space was set out with a series of square modules with a transparent perimeter and pyramidal roof **(Figure 3)**.

These modules were distributed forming differentiated spaces on the terrace, in a full-empty logic, and were organized by a graticule that governs the composition, which links the Cafeteria building with the mat buildings. Both the construction of the buildings that tried out this formal strategy and the appearance of the concept in journals took place in the 1960s and 1970s, right at the time the steelworks building was projected. The starting point of the mat building concept can be seen in the project for Berlin Free University (1963-1973), by the architects Candilis, Josic, and Woods: a low-rise, high-density building that was developed horizontally, so that its spatial structure looked like a piece of fabric (Such, 2011). The analogy with fabric comes from the matrix the units of an architectural complex are organized

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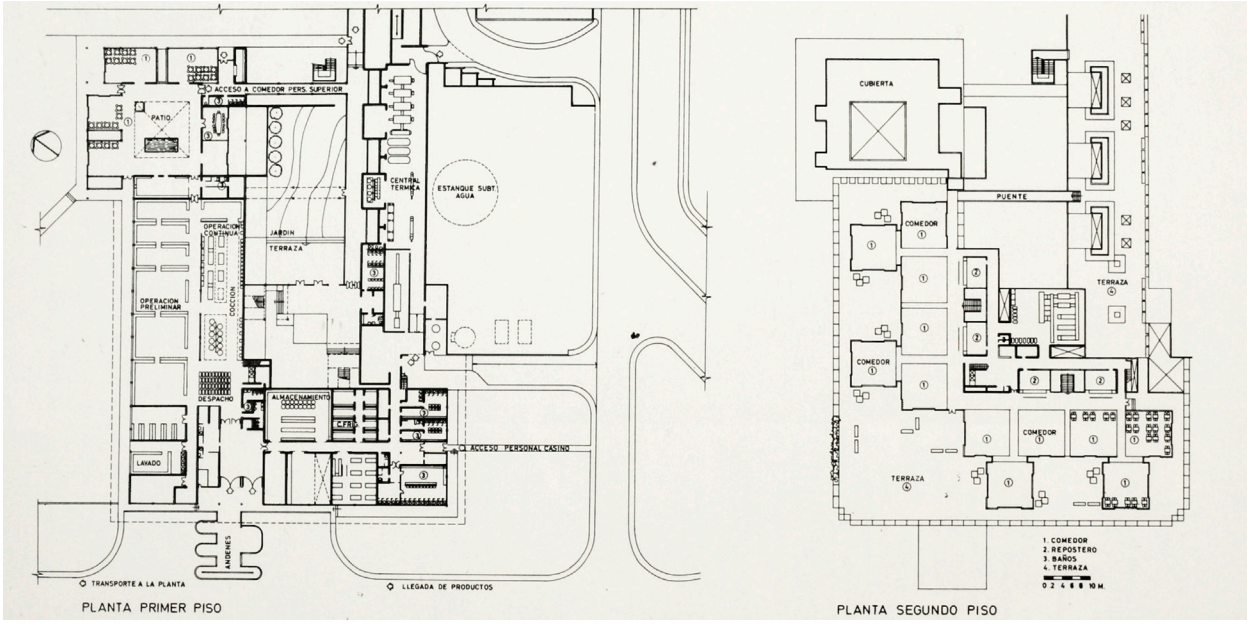

Figure 2 First and second floors of the Central de Alimentación y Casino and second floors of the Central Casino. Source: Bresciani et al. (1979).

Figure 3. Interior view of the canteens of the Central Food Plant, 2016. Food, 2016. Source: Own elaboration (Ignacio Bisbal Grandal).

as a continuous construction, while the alternating units are capable of forming a section that can be extended, being similar to a building-city relationship and scale, with the ability to produce a landscape in itself (Such, 2011). The Amsterdam Orphanage, projected by Aldo Van Eyck between 1955 and 1960, shows the relationship between these modules, which are alternatingly repeated, to generate an irregular, though continuous shape that forms, at the same time, the external space on the ground on which it is expanded as a structure. In this sense, the idea of *mat building* is associated with the compositive operation made for the second floor of CAP's Cafeteria, where

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Figure 4 Aerial view of the southern south of the Huachipato site where the Power Plant is located, 2021. Power Plant, 2021. Source: Collaboration of Architect Nicolás Moraga. Moraga.

the plate of the first level establishes the floor plan on which this structure is developed, where the square modules are distributed to generate the dining hall space and to set up the terrace areas; a distribution that also leads to the formal result of the upper part of the building, which builds its relationship with the horizontal extension of the landscape it is inserted within **(Figure 4).**

The job allows the architects to continue with research that was already in motion, not just in the aesthetic area, but also in typological planning, the development of circulations, the relationship with the surroundings, programmatic flexibility, and structural modeling. In this way, the building is developed as a modulated system, where the structural halls are regularly repeated. On the upper floor, the halls are roofed with a hip roof that generates two spatial module sizes. This system has all the features that brutalist thinking outlined for *mat buildings*: a building outlined from a changing order, *"(…) based on the interconnection, the dense patterns of association, and the possibilities of growth, reduction, and change"* (Smithson, 1974, p. 6), *whose understanding "(…) must emerge from the perception of the parts, as it is not possible to see the system as a whole"* [6] (Smithson, 1974, p.13). The project is, indeed, made with an open flexible system that allows growth and programmatic transformation. This planning becomes a horizontally built building, with edges that adapt to the conditions of the surroundings and yards, which guide circulation, and the program.

CONOX and Continuous Casting Departmental Unit

The project was entrusted to the team of architects comprising Christian de Groote, Victor Gubbins, Hugo Molina, and Gloria Barros, from the study prepared by the firm in 1970 regarding the "*(…) urbanistic and architectural*

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Figure 5 View of the building of the Conox and Continuous Casting Conox and Continuous Casting. Source: De Groote et al. (1979).

improvement of Huachipato Plant, considering the steelworks expansion plans (…) [7]" (De Groote, Gubbins, Molina & Barros, 1979, p. 44). Referring to the results of their work, De Grotte *et al*. state:

> *In said study, a high level of dispersion of the production support units was detected, such as the offices, personnel changing rooms (restrooms and lockers), and dining halls, corresponding to each one of the plant's production departments (Blast Furnaces and Fuels, Steelworks, Rolling Mills), as well as those related to maintenance. As a result, the Improvement Plan proposed joining these services into Department Units, located alongside the operation units. (1979, p. 44)* [8].

As a result, the Department Unit Project initially had to address the personnel of *CONOX Steelworks* (1976), and then, *Continuous Casting* (1988-1994), whose project would be built later, due to the connection with the steelworks in the production process line, the reason why it was placed between both buildings.

The building, which contained offices, a dining hall, and restrooms, was characterized by the high-rise development of this program, leaving the first level mainly clear with just personnel access and a free height of approximately 5.5 m, to allow maneuvers of operators and the vehicles needed for the steelwork's operation **(Figure 5)**. The upper 5-floor body was supported by four reinforced concrete cores that held the vertical circulations (elevators and stairs) and the shaft for utilities. The metal platforms were suspended from the lateral cores to form the levels where the restrooms (2nd and 3rd), dining hall (4th), and office area (5th) were distributed **(Figure 6).** An enclosed corridor was also hung on the outside of the cores, to connect the building with the *CONOX Steelworks* and *Continuous Casting*, which linked to the stairwell ladings between the 2nd and 3rd floors.

The Department Unit, beyond its functional link, establishes a relationship

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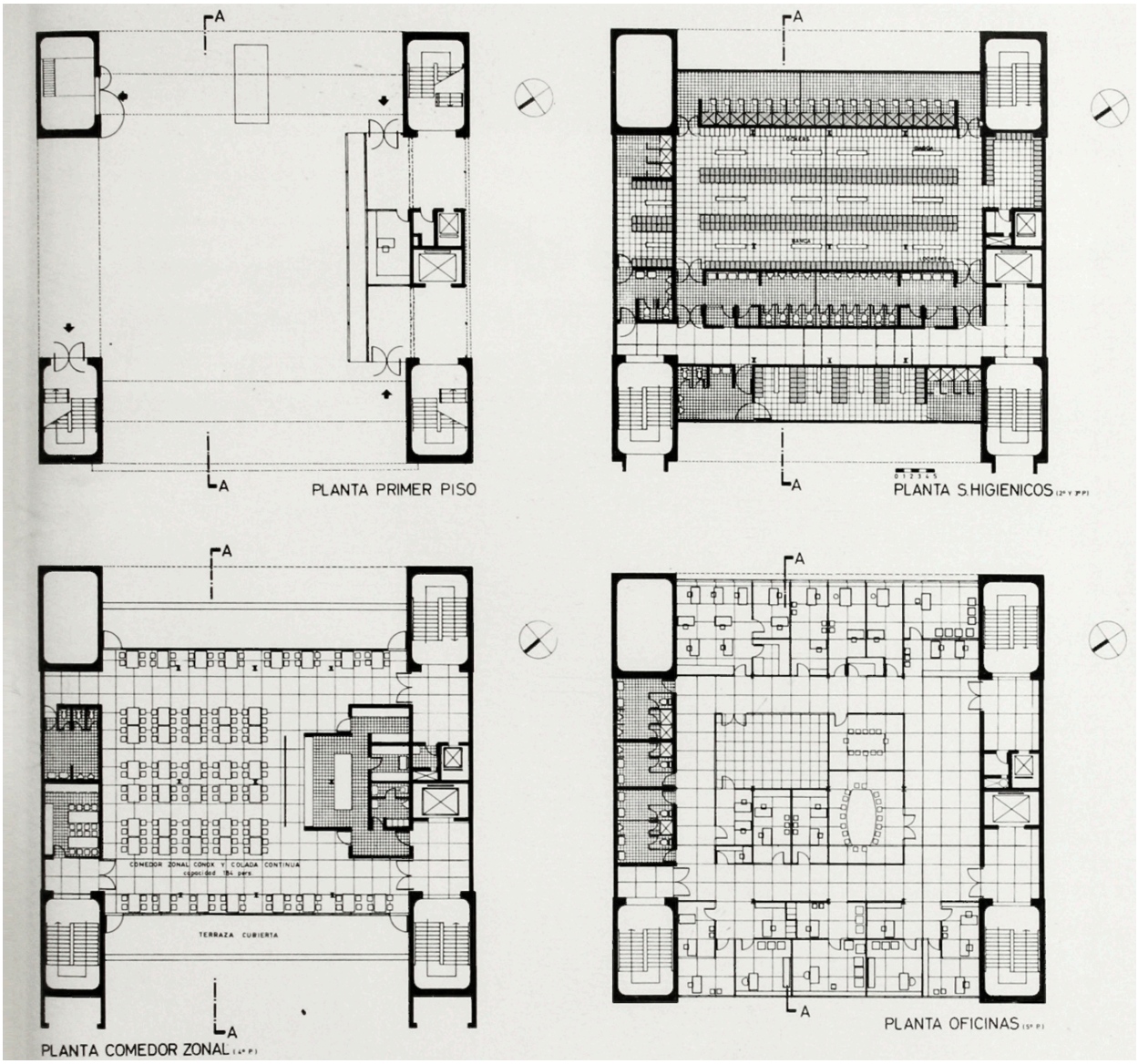

Figure 6 Architectural plans of the departmental unit. Source: De Groote et al. (1979).

with the *CONOX Steelworks* building (built in the same decade) in terms of proportion, as, despite its 5 levels, the monumental scale of the steelworks largely stands out, which the architects highlight in the publication of the building **(Figure 7)**. In this dialog, the expressions of its materials, the visible concrete of the facility, and the metal cover with oxide patina of the production building, also intervene **(Figure 8).**

The Department Unit becomes a brutalist approach to the project, in a time where this movement had already had an important international development and where it had lost a good deal of its ethics, leading to a change of its initial budgets. Although the building does follow this aesthetic, since its tectonics expose both the inherent qualities of the concrete and steel, without a greater treatment than the civil works themselves, the core aspect of its approach must be highlighted, strongly entrenched in the brutalist ethic of architecture, understood as open support that allows programmatic flexibility. In this way, the structural system is directly translated into the morphology of the building, displacing the structure to the sides, and leaving the central space

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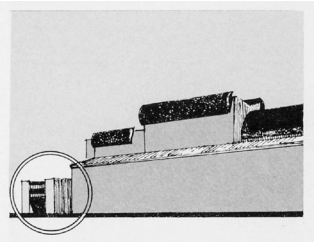

Figure 7 Diagram of the ratio between the Departmental and the Steel Mill CONOX. Source: De Groote et al. (1979).

Figure 8 Aerial view of the sector of the industry where the CONOX CONOX steel mill and the departmental unit are located, 2021. See the scalar relationship and the material material dialogue between both buildings. buildings. Source: Collaboration by Architect Nicolás Moraga.

clear, to turn each floor into a bridge between the supporting cores, services, and lateral circulations.

More than an aesthetic aspiration, the "brutalist" nature of the work comes from the aforementioned criteria; ideas the architects of this new generation of the modern movement agreed with.

CONCLUSIONS

Both the Food Central and the Department Unit addressed here, are works that arise from the development and growth of the Huachipato steelworks industry, and CAP's decision to build these facilities for their workers, entrusting the projects to renowned architecture firms. The professionals presented their projects using criteria that were fully in line with the brutalist ethic, where the functional vision is left aside, fostering relational and flexible aspects that allow for a better relationship between architecture, its inhabitants, and the surroundings. Modern architecture criteria, such as the exposure of materials and structure that evolved in brutalism, and proposals like the composition by full and empty spaces in a mat building, are recognizable in the works and connect to other contemporary avant-garde projects of the 1970s. If, on one hand, the cafeteria clearly is a part of the pioneer developments of the new mat building type (Berlin Free University; Amsterdam Orphanage), built as a horizontal platform which, through modulation and variation, provides a noticeable capacity for flexibility and adaptation, on the other the Department Unit develops an evolved concept of this line of thought, where flexibility comes from the concentration of circulations, structures, and services. Thus, this type of building matches other previous ones, like the Sao Paulo Art Museum (1957-1968), the Ford Foundation by Kevin Roche (1968), and is a typological precursor of works like

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the HSBC, by Norman Foster (1979).

The *CONOX Steelworks* and *Continuous Casting Department Unit*, and the Food Center and Cafeteria, fully constitute an architectural heritage that is linked to industrial heritage elements in the CAP-Huachipato Steelworks and represent its heyday. This heritage is particularly fragile as the entire Concepción Metropolitan Area "*(…) is experiencing the severe social and urban effects of de-industrialization and production reconversion (…)* [9]" (Santa Cruz, 2018, p. 3), and the decadence of the economic projection of Huachipato, resulting from a market reduction. From this perspective, it is of vital importance to preserve and value the architectural heritage of the steelworks, as well as its dissemination and study.

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Pavilion 24 at the "Fair of the Americas" (1954): A biographical approach

Pavilhão 24 da Feira da América (1954): uma abordagem biográfica

El Pabellón 24 de la Feria de América (1954): una aproximación en clave biográfica

Figure 0 Mendoza. Pavilion 24. Current view. Source: Photograph by the author.

Artículo resultado de la Tesis doctoral denominada "Arquitectura para el turismo en Mendoza (1900-1955): lectura histórica y análisis de sus representaciones sociales" Universidad de Mendoza, con financiamiento de CONICET

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RESUMEN

Realizada durante la segunda presidencia de Juan Domingo Perón en Mendoza, la Feria de América (1954) fue una exposición continental que buscó fomentar la producción regional y afianzar las relaciones comerciales e internacionales de Argentina con los países vecinos, además de ensalzarse como evento de atracción para visitantes y locales. Asimismo, se lució como espacio de competición internacional, dado que se presentaron a concurso *stands* de industrias, cámaras empresariales y cámaras de comercio. Concebidos como elementos de arquitectura efímera, los pabellones proyectados para la Feria enarbolaron los preceptos disciplinares propios de su momento. Trabajos de investigación recientes han buscado dar cuenta de la relevancia histórica y simbólica de este evento para la región, como también de los debates disciplinares que, en torno de la Arquitectura y del Diseño, suscitó este encuentro internacional. En este marco, el artículo pretende abordar el caso del único testimonio material de la Feria que se mantiene en pie, a partir una lectura crítico-analítica de la documentación de proyecto y de la obra como portadora de mensajes, considerando las trayectorias profesionales de los agentes técnicos involucrados con su ideación y materialización.

Palabras clave: exposiciones internacionales, edificios históricos, arquitectura efímera, trayectorias profesionales, arquitectura del poder.

RESUMO

Realizada durante a segunda presidência de Juan Domingo Perón em Mendoza, a Feria de América (1954) foi uma mostra continental que buscou promover as produções regionais e fortalecer as relações comerciais e internacionais da Argentina com os países vizinhos, além de ser elogiada como um evento de atração de visitantes e da população local. Da mesma forma, destacou-se como espaço de competição internacional, uma vez que foram apresentados a concurso stands de indústrias, câmaras empresariais e de comércio. Concebidos como elementos de arquitetura efêmera, os pavilhões projetados para a Feira levantaram os preceitos disciplinares típicos de sua época. Pesquisas recentes têm procurado dar conta da relevância histórica e simbólica deste evento para a região; bem como os debates disciplinares que, em torno da Arquitetura e do Design, provocaram este encontro internacional. Nesse contexto, o artigo visa abordar o caso do único testemunho material da Feira que permanece de pé, a partir de uma leitura crítico-analítica da documentação do projeto e da obra como portadora de mensagens, considerando as trajetórias profissionais dos agentes técnicos envolvidos em sua ideação e materialização.

Palavras-Chave: exposições internacionais, edifícios históricos, arquitetura efêmera, trajetórias profissionais, arquitetura de poder.

ABSTRACT

Held during the second presidential term of Juan Domingo Perón, in Mendoza, the *Fair of the Americas* (1954) took place. It was a continental exhibition that sought to promote regional production and strengthen Argentina's commercial and international relations with neighboring countries. It was also praised as an attractive event for visitors and locals. Likewise, it stood out as a space for international competition, given that stands from industries, business chambers, and chambers of commerce took part in the call. Conceived as elements of ephemeral architecture, the pavilions designed for the Fair displayed the disciplinary precepts typical of their time. Recent research has sought to account for the historical and symbolic relevance of this event for the region, as well as the disciplinary debates on Architecture and Design, that led to this international gathering. In this framework, this article aims to study the case of the only material testimony of the Fair that still stands, starting from a critical-analytical reading of the project documentation and of the architectural work as a messenger, considering the professional backgrounds of the technical players involved with its conception and materialization.

Keywords: International Exhibitions, Historical Buildings, Ephemeral Architecture, Professional Backgrounds, Government Architecture.

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INTRODUCTION

The city of Mendoza was the site of the international event known as the *Fair of the Americas*, an industrial event held between January and April 1954. As a suitable setting for the showcase, 30 ha were provided on the edge of the *Parque General San Martin* lake, to house the hundreds of stands and representative premises of important industrial groups and businesses, along with pavilions of Latin American countries and Argentinian Government Ministries. The Fair embodied the national Government's dream of showing a booming, prosperous Argentina, connected to the region's countries, and at the cutting edge of industrial development.

The decade between 1946 and 1955 is considered as key in the economic history of modern-day Argentina. National industrial production gained a growing relevance in the economic matrix, focused on industrialization that required -according to the purposes of the Peronist plan – the encouragement of the internal market, has Claudio Belini (2009), and Pablo Gerchunoff, together with Damián Antúnez (2001), have shown. Belini (2009) states that the promotion of industrial activity focused on those activities that used domestic raw materials and that focused on the internal market, along with manufacturers that made articles of primary necessity or interest for national defense. In 1949, the Industry Secretariat became a Ministry, incorporating under its control, the state companies dedicated to the extraction and refining of hydrocarbons, like the State Petrol Deposits (YPF, in Spanish), but also in creating new state companies, like the State Water, Energy or Gas ones.

From the area of Design and Architecture, the Fair embodied a clear willingness to show the latest progress in standardized construction, use of steel and wooden structures, provision of facilities, and property development, among which, naturally, those nationally produced were highlighted. In the words of Wustavo Quiroga (2012), the creation of the Fair meant the amalgam of industry, politics, society, art, architecture, and design, in an advanced action that achieved "an avant-garde proposal that, from Mendoza, brought the country into dialog with international trends" (p. 13). The ephemeral nature of the Fair's buildings opened up the possibility to experiment with other materials, determined by the same construction regulation of the pavilions and stands (Raffa & Marchionni, 2011), which aimed at the direct assembly and the structural design of light elements, the reduction of execution times, facility and speed in the assembly of the pieces or parts, the rationalization of the manufacturing process (which led to a better economy on controlling material waste), and the possibility of reusing the structures and components once the exhibition ended.

This article follows a line that makes the architecture object and its characteristics more complex, linking them with the professional backgrounds of the technical experts and agencies that the projects arose from. This point of view, complementary to the traditional studies that focus only on architecture works, has led to a growing interest among the scientific and academic communities of Argentina and Latin America, which is seen in outstanding works in this line of research (Articardi, 2016; Cirvini, 2004; Jajamovich, 2011; Liernur, Aliata, Crispiani & Silvestri, 2004; Pintus, 2014; Raffa, 2019; Raffa, 2017; Raffa & Cirvini, 2013; Verde, 2002).

The particular way of addressing architecture production allows outlining the path of conflicts and agreements generated around the field[1], from the

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experience of the actors involved and their entities, as a way of understanding the forms of thinking about architecture, derived from the social, economic, and cultural context of the time.

As for the methodological aspects, the work follows the "historic narrative model" (Sautu, Boniolo, Dalle & Elbert, 2005), and that of "case studies" (Stake, 1998), to analyze the chosen example. Specifically, from the world of architecture, Bruno Zevi (1998) and Marina Waisman (1993) are the references when it comes to handling objectual analysis, crossed by the processes of historical evolution, which involves social, political, economic, and architectural culture factors. Waisman goes further into the study of architecture and material culture considered as "modest" by the traditional Eurocentrist lines. The author proposes an analysis of the surroundings and the context these architectures emerge from. In this sense, topics referring to the rescue of the techniques and knowledge of the past are developed, along with the reading of the "building as a historic document" (1993, p. 138), and architecture in its communicative role, on becoming a messenger (Eco, 1986). For this reason, the *direct observation* of the work (Piovani, 2010) is one of the approach techniques.

For Zevi (1998), the interpretation of architecture starts from the consideration of the space, both interior and exterior, that contains it. In addition, it is sustained that it is possible "to read", from the area, components related with its *content*, its *shape,* and the *sensitive perception* (1998, p. 27).

The historic context

The strong fostering by the State of access to social welfare, promoted within the context of the first Peronism, granted a mobile quality to the society. From 1946, a new edition of this ascendant project was created, which had accompanied the country's path from the dawn of the century. In this framework, and according to Juan Carlos Torres and Elisa Pastoriza (2001), "more Argentinians could see those above them on the social scale, with the expectation that they and their children could soon reach them" (p. 278). The union-based advantages that regulated work shifts and paid vacation became the first step in the *welfare democratization* process, which allowed many of the practices that were previously reserved for members of the aristocracy and political leadership, to permeate to broader segments of the social fabric. Specifically, this great mobility was possible as a result of a more egalitarian income structure. And with more money available, "the Argentinians could consume more and in a more varied way" (Torre & Pastoriza, 2001, p. 282). As a result, a marked increase was seen in the quality of life of the population, particularly within the working classes.

At a provincial level, the work of Faustino Picallo (1946-1949) strongly supported the Grape Harvest Festival, organizing annual industry, trade, and mining fairs. Cecilia Raffa (2018) has specified that the Governments of Blas Brisoli (1949-1952) and Carlos Evans (1953-1955) implemented the First and Second Provincial Five-Year Plan, with the execution of public works (health centers, hospitals, maternity wards, town halls, schools, and police stations), the construction of touristic hotels with the departments of the campaign (such as San Rafael, Tunuyán, and Tupungato), and the promotion of activities focusing

1 This work follows the conceptualizations of "field", "*habitus*", "capital", and strategies" developed within the Theory of action of Bourdieu (1999).

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on widespread merriment, such as cinema, sporting events, and tourism. Mendoza was presented as a strong province, consolidated based on a virtuous binomial: as a productive territory and as a tourism destination[2].

Raffa (2018) explains that, within the repertoire of national promotion and investment policies which had Mendoza as a destination, on one hand, the visualization achieved "through the Grape Harvest Festivals (…), as well as the acts and works related to the Year of the Liberator, was seen. On the other, the construction of the Las Cuevas frontier town" (p.197). The industrial fairs held in the province (especially the Fair of the Americas) were used to disseminate the Government's actions.

Debates on architecture

In general terms, as Francisco Liernur (2001) outlines, starting from 1940, architecture manifests the gradual abandonment of the traits of austerity, abstraction, and mass, to begin its search within the values of eloquence, materiality, and transparency. The view towards Europe turned in the second Post-War period towards the United States: the German journals of the years before 1940 were replaced by *The Architectural Forum* and *Progressive Architecture.* In this way, especially after the allies' victory, daily life "received the impact of the *American way of life* like an avalanche, through magazines and cinema" (Liernur, 2001, p. 230).

At this time, professional work experienced a noticeable transformation that was manifested in the displacement of the individual liberal activity model, towards the installation of a new group subject, both on the state and private sphere. As a State entity, the National Architecture Direction (DNA, in Spanish), "centralized the planning, project, and execution of the National Government's public works and the five-year plans" (Cirvini, 2004, p. 248).

As Liernur (2001) expresses well, a nostalgia for the individual, the primitive, the natural, and the private emerged at this time, which was especially promoted by nationalist sectors (p. 240). The most eloquent manifestation of this reaction was, in the architecture sphere, the widespread dissemination of "rustic" tastes, and the references to organicism and regionalism. The anti-urban protest, a long-standing tradition in the United States, was introduced in a two-prong fashion into Argentinian culture: one, through the dissemination of the work of Frank Lloyd Wright; secondly, thanks to the work of Richard Neutra: the *Nuestra Arquitectura* journal, which began to dedicate, from that moment forth, an important space to this American architecture, disseminating works by Neutra, Breuer, and Rafael Soriano (Liernur, 2001). But the approach to nature also had "other Italian or Brazilian models" (Liernur, 2001, p. 242).

These conditions acted as a breeding ground of architecture that, although it emerged from a space of reflection about the particular aspects of its "modern" quality, also managed to identify itself with local materials and traditions. Alongside this, the preference for non-industrial materials became notorious, which led to a "rediscovery" of visible bricks or stone. These conditions were added to those from the theory of space, brought by Erwim Walter Palm, who visited Buenos Aires in 1950, and by Bruno Zevi, who did so in 1951. Space became one of the core concerns in the debate

2 The Province of Mendoza is part of the Argentinian drylands. It has a rainfall that ranges from more than 1,000 mm in the mountains, between 200 and 450 mm in the piedmont plains, and around 80 mm lower down in the basins. The provincial territory is organized by availability and access to freshwater, where two strongly contrasting areas are recognized: the "irrigated or oasis lands" and non-irrigated lands. The agricultural areas and most important conurbations are located in the irrigated land, while small settlements and disperse outposts are found across this vast territory (Montaña, 2008).

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of figurative art, particularly in those groups related to the abstract art movement (Liernur, 2001).

The "concrete", such as Alfredo Hlito or Tomás Maldonado, "sought to reflect about the relationship between the plane and the space, passing from the absolute denial to the exploration of spatial constructions using color and lines" (Liernur, 2001, p. 285). The most important references were neoplasticism and suprematism, mediated in those years by the reading of Lazlo Moholy Nagy. Premises like technological excellence, linguistic purge, and functional intransigence formed the basis of this current. César Jannello and Gerardo Clusellas, in charge of the Architecture and Planning Office, "responsible for conceiving the general image of the Fair of the Americas and its pavilions" (Quiroga, 2012, p. 29), followed this trend.

The planners: Professional background before and after Pavilion 24

Roberto Quiroz (1915-no date) graduated as an Architect from the University of Buenos Aires (UBA) in June 1938. Alongside Carlos A. Quiroz, he was awarded First Prize in the Contest for the Catamarca Legislative Palace, in 1939. With Eduardo Naón Rowland, he planned private homes in the northern suburbs of Buenos Aires. He used visible bricks in all of them. José M. Vedoya Green accompanied him in the basic rural housing project, where, using "excessively reduced" resources, the planners were constrained to so tight a limit "that there was no margin for architectural works, beyond the benefits of the floor plan and the rationality of the structure" (*Tres casa suburbanas*, 1945, p. 91). They also planned another one in Olivos, where they explored the resources of standardization, the rationality of the structure, and the expressiveness of the brick.

Quiroz worked in the Architecture Direction of the Ministry of Public Works (MOP, in Spanish) of the Nation. From this office, he projected the offices of the Eva Perón Foundation, then the Faculty of Engineering (1950-1957). Apart from his work in the public architecture office, he was a part of the Roberto Quiroz – Ismael Gil Chiappori[3] firm between 1945 and 1968. Together, they addressed the remodeling of Luna Park stadium in 1951, and the "17 de Octubre" neighborhood (Villa Pueurredón, in Buenos Aires). As study planners, they managed countless horizontal property buildings, "from which the ones at Arenales 3605, on the corner of Julián Álvarez (1957), and the one at Araoz 2725 (1959) stand out" (Quiroz, no date).

It is possible that his work on the MOP pavilion of the Fair of the Americas gave him the experience necessary to plan the Argentinian pavilion of the Osaka International Expo in Japan, in 1970 (Argentinian Pavilion, 1970). In 1973, he handled the task for Necochea Casino **(Figure 1)**, an opportunity where he reflected on new paths related to plastic experimentation, through large reinforced concrete volumes, without forgetting the benefits of standardization and rationality in the design, and turning to pre-cast concrete elements.

Luis María Mamerto Bianchi (1912-1998) was born in Tandil (province of Buenos Aires) and studied in the Architecture Faculty of UBA, graduating in 1937. In 1936, he traveled to Europe with Professor Real de Azúa. He was

3 Chiappori was born in 1908 and graduated from UBA in Architecture in 1932. From 1940 to 1949, he worked in the DNA. Between 1962 and 1969, he was the National Architecture Director (Fiorito, 2012).

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Figura 1 Roberto Quiroz on a visit to visit to the construction site of the Necochea Necochea, accompanied by authorities and chroniclers. Source: Flores (2014, p. 7).

in Germany during the Olympic Games, then in France and Italy. That year "he won a gold medal in a contest organized by the Central Architecture Society (SCA, in Spanish). He had entered SCA aspiring to be a partner in July 1935 and actively took part in different commissions" (Fiorito, 2012). He won numerous awards for his actions in contests (between 1936 and 1955). When he received an award from the National Culture Commission and in the V National Architecture Assembly, for Buenos Aires Airport, he said:

> "For me, it would be the greatest prize one could achieve as an Argentinian citizen, that the construction of an airport would become a reality in Buenos Aires and, as a result, have in our city one of the most important airfields of the world" (El progreso de Buenos Aires reclama un gran Aeropuerto, 1943, no page)[4].

The expression highlighted in the chronicle showed the thought that favorably judged the relationship between the expert and society, typical of that time. Bianchi worked as the Director of the Olavarría Regulatory Plan, in 1957. He also took part as a member of the teams in the "Chivilcoy, Tigre, Chascomús and Luján regulatory plans, in the Province of Buenos Aires" (CV Luis María Bianchi, 2015, no page).

He was a founding member of the Argentinian Planning Association and a Professor in the courses of Urban Planning Composition, Urbanism and Planning, and Planning, in the Faculty of Architecture of UBA, between 1951 and 1973. His constant professional training turned him into an urban planner, and specifically, into a landscape designer with great sensitivity.

His links to the state architecture agency began when he was in his fourth year at university, the moment when he joined MOP. He was an Organization of the American States scholar, which allowed him to travel to see the English *New Towns* (1955). In his public role, he worked as a Department Chief in DNA **(Figure 2)** and as a member of the Ribera Norte urbanization and systematization works commission, in the Public Works Secretariat (1967). Alongside his work for the Ministry, he was a partner of Luis Vitores (who had accompanied him in the Olavarria Plan's

4 Free translation.

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Figura 2 Luis María Bianchi in his office at the MOP. Source: Bianchi family repository.

commission) and worked as a "deputy treasurer, librarian, spokesperson of the directive commission, and member of the college of judges of the SCA" (Fiorito, 2012). Between 1962 and 1968, he held the position of Director for the Urbanism Higher Education Institute. Bianchi traveled to England and the Netherlands in 1965 to "take part as a scholar in an urban planning study, and in 1967, to Toronto in representation of the Faculty of Architecture and Urbanism, to the Metropolitan Areas Congress (CV Luis María Bianchi, 2015, no page).

Pavilion 24 – Ministry of Public Works of the Nation

The Fair of the Americas demanded the construction of 93 pavilions and almost 20 offices, including the *Alegorica* Tower, an open-air theater, and bars. The American countries represented (with pavilions) were Brazil, Chile, Ecuador, and Paraguay. There was also a large pavilion that housed different Latin American countries, stands of Chilean and Mendoza companies, and provincial pavilions for Mendoza, San Juan, Misiones, La Rioja, Eva Péron (today, La Pampa), Córdoba, Corrientes, Santa Fe, Tucumán, and Buenos Aires, along with stands and premises for different commercial chambers (Quiroga, 2012).

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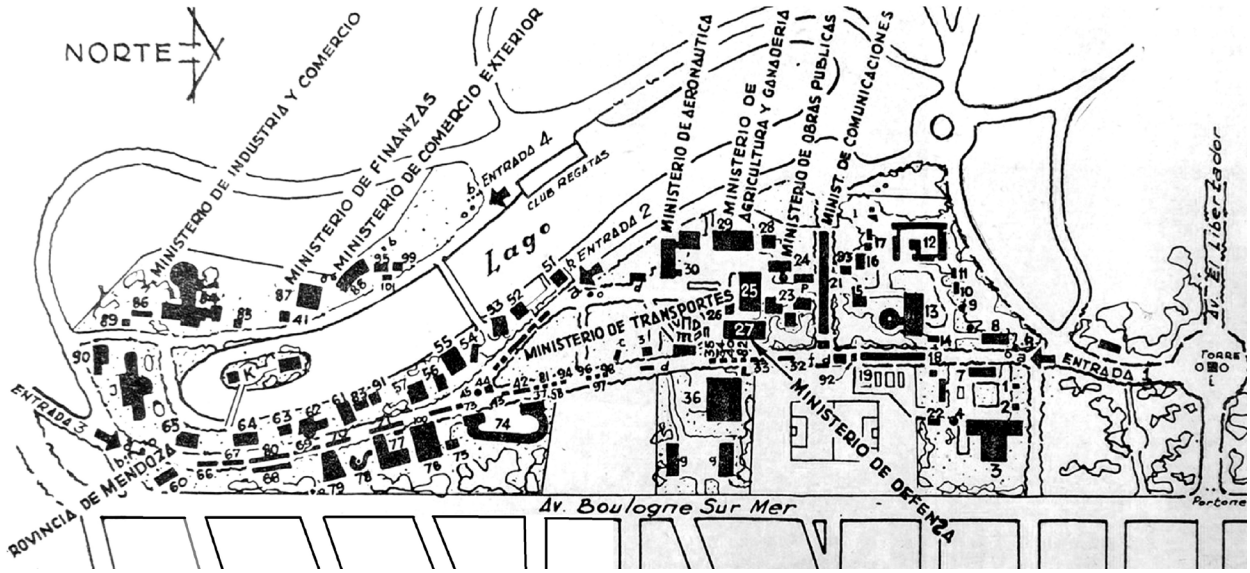

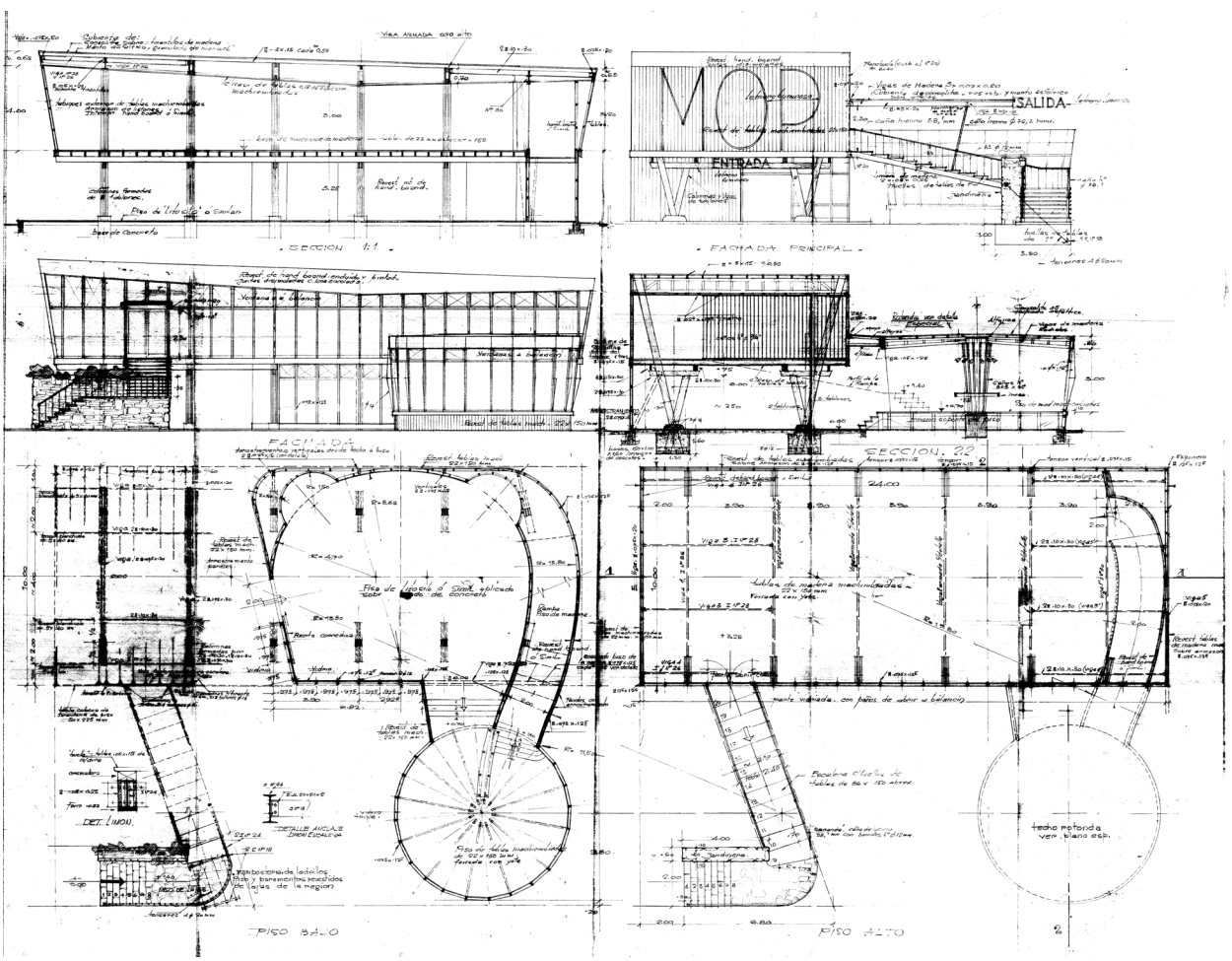

Figure 3 General plan of the Feria de América. Source: Mendozantigua [Blog] (https://mendozantigua.blogspot.com/)

Figure 4 Mendoza. Pavilion MOP for Feria de las Américas. General Plan. Source: Archive CeDIAP-AABE.

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A large empty space on the plains of the Park formed, as a square, the pavilions of the Ministry of Aeronautics (in the southernmost end), the Ministry of Agriculture and Farming, the National University of Cuyo, and the Ministry of Public Works of the Nation (to the north). The Ministry of Transport pavilion, to the east, virtually closed the space **(Figure 3)**. The MOP building is the only remnant of the Fair of the Americas. Although oral tradition says that it was the stand of Cuba, this error is because "it was home to a namesake club for a long time" after the fair was dismantled, but the allocation given in the Master Plan "is irrefutable, as is the list of references that mention the existence of the Cuban stand in the Latin American countries pavilion" (Bórmida, 2012, pg, 217, 218).

Pavilion 24 had two large, abstract structures linked by an organic circulation, that combined ramps and stairs **(Figure 4)**. The first volume, 3m above ground, and conceived as a rectangular cuboid, was supported on a system of V-column pairs, locked by the beams of the mezzanine and the roof. All the supporting elements were wooden, except the beams at the roof ends, where the lack of height impeded having reticulated beams, the reason why IPN profiles were used. Under this body, in the southern half, a semi-open atrium was found, which acted as the indoor-outdoor transition. The northern half harbored the DNA's presentation room which, through a double line of wooden partitions, with a circular arch geometry of great plasticity, used indoor and outdoor partitions, covered in tongue and groove splints. A large window towards the east had the only visual connection with the plains. Merely as an exhibition, this space had models and sheets of the Direction's projects, like the San Miguel Old People's Home, the YPF building, School N°6 of Santiago del Estero, the Bariloche Hotel, and Embalse Hostel, among others, which shows the diversity of programs, typologies, and scale the state agency handled **(Figure 5).**

Next, there was a circulation area or "traffic circle" which was the compositive counterpart of the highest block (Zevi, 1998). The traffic circle was cylindrical, with slightly outward sloping walls, and a roof with radial beams supported on twelve steel pipes, which formed a central eye **(Figure 6).**

The main space, with a height of 3.25m, housed a large open exhibition space, with technical drawing stations, project models, and wall presentation panels. The pavilion entry was at the southern end, symbolically linking the start and end of the path (Zevi, 1998), through a two-stage flight of stairs, the first covered by a large cantilever canopy, supported by two steel bars.

The dates that appear on the labels of the different plans confirm that the building project process lasted from October to December 1953. The labels reveal the names of the other technical parties of the team, involved in the preparation of the documentation of the works: the structural plan of the traffic circle was signed by a member called Caddia; Soto appeared as responsible for the general and detailed drawings of the architecture; R. Bejar appeared as responsible for the electrical installations, with his draftsman (with an illegible name); and A. Peretti as responsible for drafting the lighting, which had been designed by the same planners. The general and detailed plans show the comprehensive nature of the design process that likewise addressed the fixed equipment elements, such as the tables to

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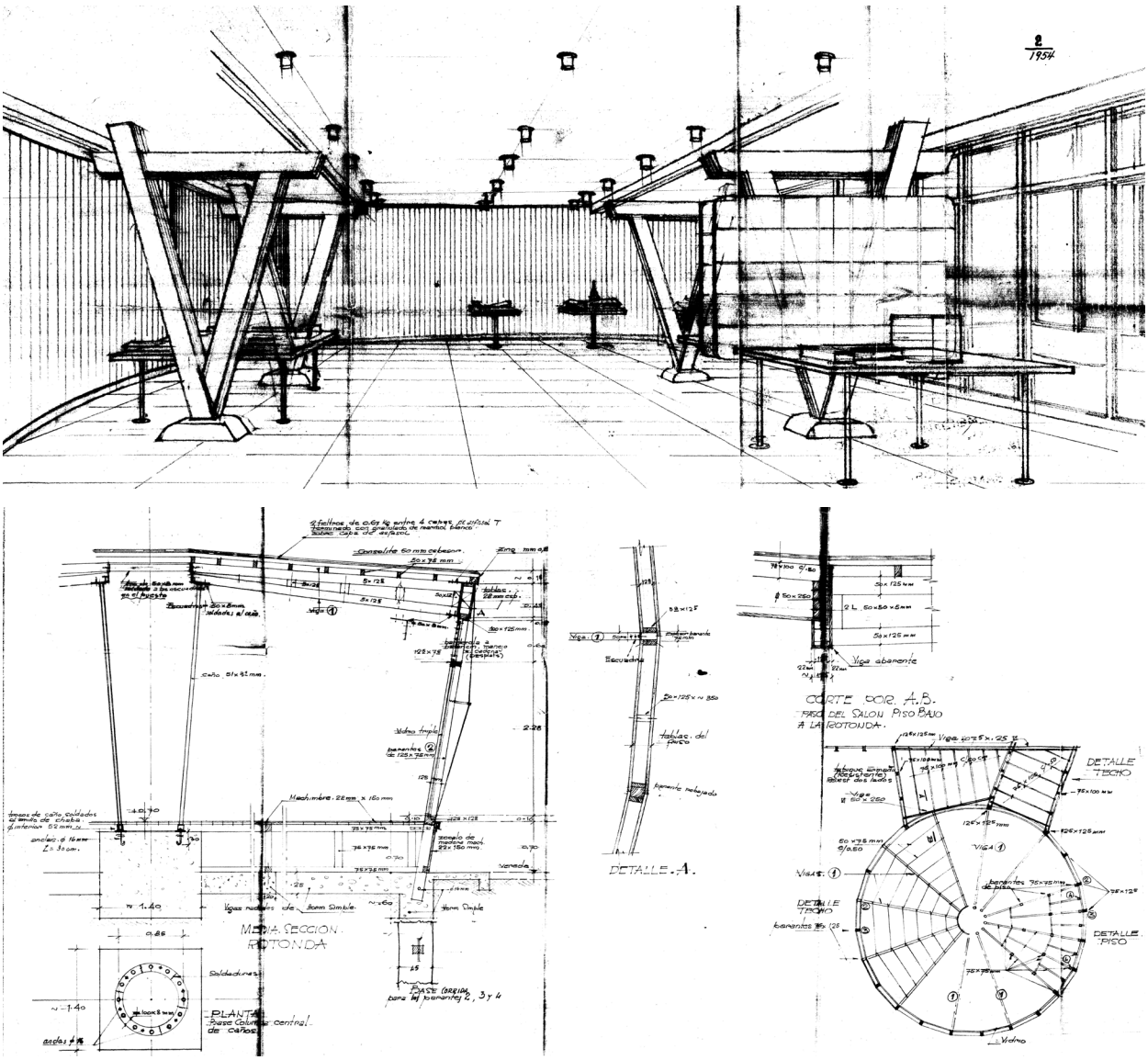

Figure 5 DNA Room. Perspective. Source: Archive CeDIAP-AABE.

Figure 6 Detail of the rotunda of Pavilion 24. Source: Archive CeDIAP-AABE.

show the models, the panels, and the partitions for the billboards **(Figures 7 and 8)**.

Structural planning is one of the most interesting features of the pavilion. It shows the avant-garde intentions of the authors and the maturity with which they approached the commission, making part of the previous experience both had patent: rationality, use of standardized commercial sections, the economy of resources, and simplicity in assembly and execution, expressed in the use of screwed together joints. Simplicity and speed predominated in the materials: hardboard panels were used on the walls, the floor used Litosil, and the roof, tongue and groove wooden panels. The "direct observation" of the building (Piovani), confirms a careful manufacturing and excellent quality of materials, another of the salient traits of the work, although it had been conceived as an ephemeral construction.

The revision of the documentation available in the Public Architecture Documentation and Research Center (CeDIAP, in Spanish), and the historic photographs of the model, from the same repository, allows understanding

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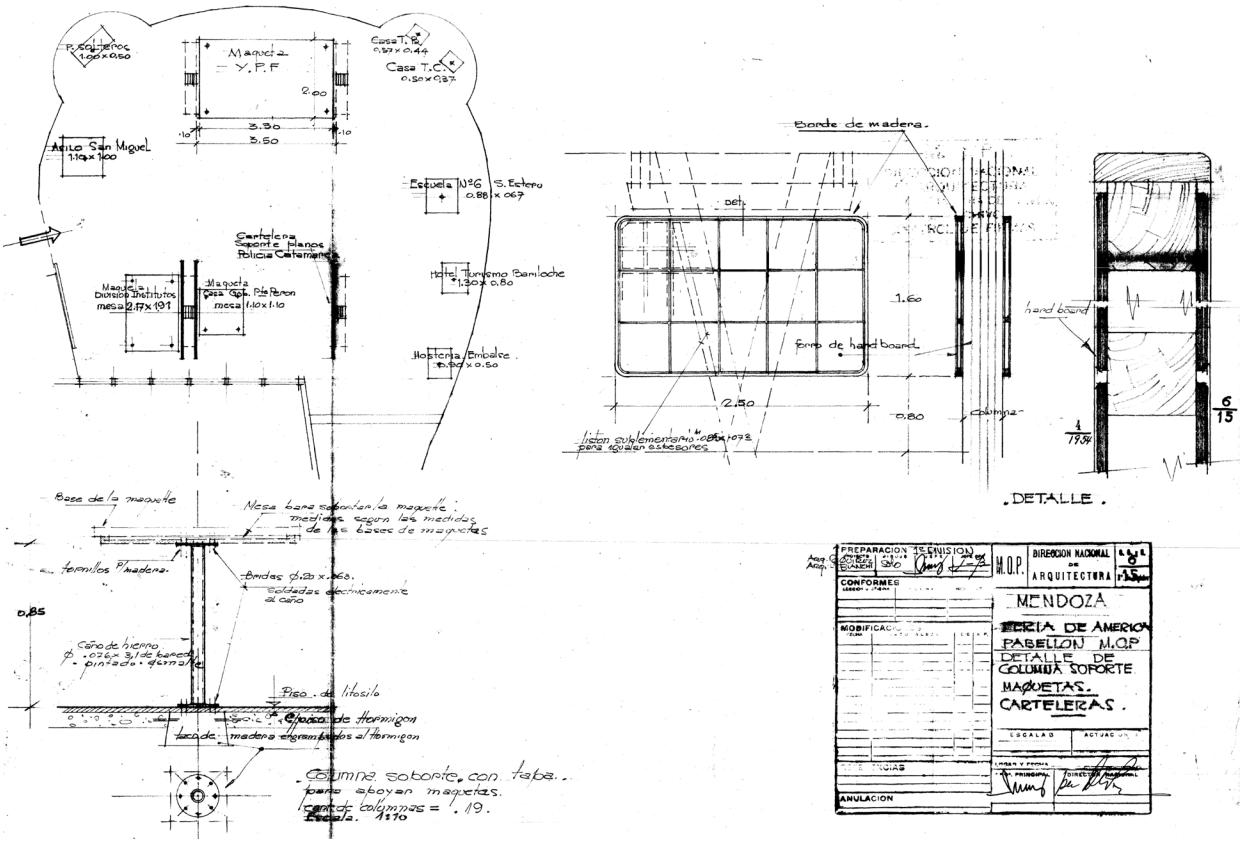

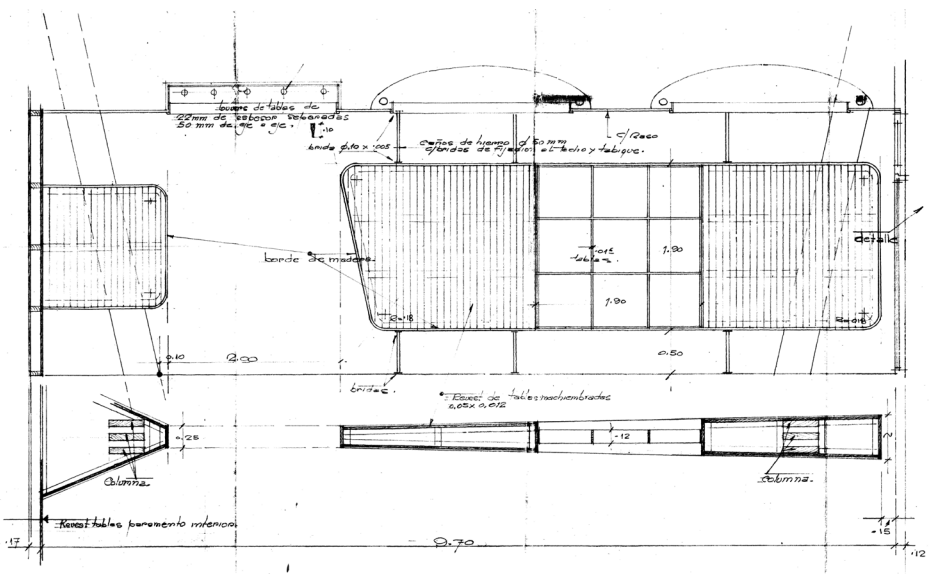

Figure 7 Detail of columns support, models and billboards. Source: CeDIAP-AABE Archive.

Figure 8 Detail of high of the upper floor. Source: CeDIAP-AABE Archive.

the resulting spatial volumetry of the architectural object: the pavilion was conceived with a high degree of abstraction (Zevi, 1998). Through subtle operation strategies on the form, the singular nature of the building was accentuated: the slight outward slope of the outer walls of the solid proposed a reading of continuous "tape", whose elements could take on three spatial roles: floor and roof plan (as found in horizontal position), or foundation (in a predominantly vertical position). This continuous envelope did not accept

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openings, but rather, in the compositive logic of the object, the vocation of "looking" outside involved long west-east facing facades. This allowed placing on the access façade, towards the square, facing south, the MOP sign identifying the pavilion, in neon lights hidden behind graceful folded veneer letters, at the full height of the suspended block.

From the "physio-psychological" interpretations proposed by Zevi (1998), the composition had an anti-ethical game between the horizontal elevated block, linked to the rational and ever-lasting, which contrasts with the volumetry of the traffic circle, associated with dynamism, hesitation and the transitory, achieving a balance of constituent forces that gave rise to a high quality expressive and formal building, which fit harmoniously in the landscape. On the other hand, the games of lights and shadows that generated shades at different times of the day, from the foliage of the trees in the sector, in counterpoint with the profuse illumination from inside the glazed space at night, must have had very suggestive views for the visitors.

The only reference that the construction makes of the "local" is the base of the exit steps, as it was made with crafted natural rock and laid with mortar, appealing to the "rustic" quality and the influence of the site, even when this was a highly efficient and rational architecture.

It is possible that Bianchi's background in landscape management had an impact when it came to imagining the link with the predominantly green surroundings of the Park, from the semi-covered space of the atrium, passing through the exhibition rooms until reaching the foot of the stairs, right after the exit. If the suspended block were moved by the wind, this would allow low-level light to enter from the west and a fluid view of the forest towards the east, which manifested a concept of a dialogical work, halfway between the idea of "viewpoint" and the "object to be viewed".

FINAL REFLECTIONS

The Fair of the Americas represented an outstanding opportunity that allowed showing off Argentinian industrial production and strengthening commercial ties with the countries and chambers of commerce and industry taking part while being considered as a window display of architecture and Argentinian and Latin American design.

The analytical approach of the only remaining building from this Fair, from the professional background of its authors, allowed delving into the particular aspects of the architectural project, contrasting with the debates within the field, that permeated from architecture journals, meetings, and international conferences, the visit of important figures or the trips that some officials made, as part of their training or professional process.

The singular conditions of the planning wandered between the adoption of the language, where an explicit willingness focused on abstraction predominated; the definition of the constructive-structural system, where the geometry of the supporting system took on a superlative relevance in the project's setup; and the spatial planning, which was a merely functional need (in this case, for presentation). This need imposed by the building program did not undermine the symbolic basis of the work, but on the contrary, it boasted a harmonious relationship with the environment, receptive of the landscape qualities of the place, and open to the sensitive component proposed by the

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indoor-outside and access-route-rise-route-exit-drop sequences. In this sense, the valuation of time as the duration of the proposed itinerary, but also of the time passed in nature, where the colors and light of the Park's plains are involved, evoke the "rustic" component of the building and its attachment to the "local".

The professional background of the planners shows a constant vocation for innovation and experimentation. The multiplicity of problems and scales they addressed, without a doubt, nourished their way of thinking about architecture, which led to the acknowledgment from their peers and the state agencies where they worked.

The approach to the building conception processes, but also to its context of emergence, allows, first of all, venturing some considerations that complement the conventional view of the architecture of the time, to lead to a vision that considers the particular conditioning factors of a way of designing, building, and communicating, of political leadership whose purpose was to show the executive capacity of the State. On the second plane of analysis, this exploration likewise leads to understanding the ideology of this political leadership. For this reason, the rhetorical component of the design was instilled as a key element, which would explain the research of materials outside the supremacy of reinforced concrete, the search for economy and purity of the proposal and the standardization, and the very high quality in design and execution. The strength and conceptual clarity of the ephemeral architecture developed in the sample and, in particular, of Pavilion 24 come from these principles, as a direct result of the aforementioned experimentation and innovation process. Furthermore, this spirit of overcoming cannot be read in isolation, but rather must be examined within a broader position, from the leadership, which embraced an idea of unlimited progress, derived from the growing industrialization, as part of a general plan that sought to strengthen provincial economies and the satisfaction of the internal market demands of Argentina.

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Cocriação: colaborações emergentes ibero-americanas em arquitetura e manufatura digital

Co-creating together: Ibero-American emergent collaborations in architecture and digital manufacture

Cocreación: Colaboraciones iberoamericanas emergentes en arquitectura y en fabricación digital

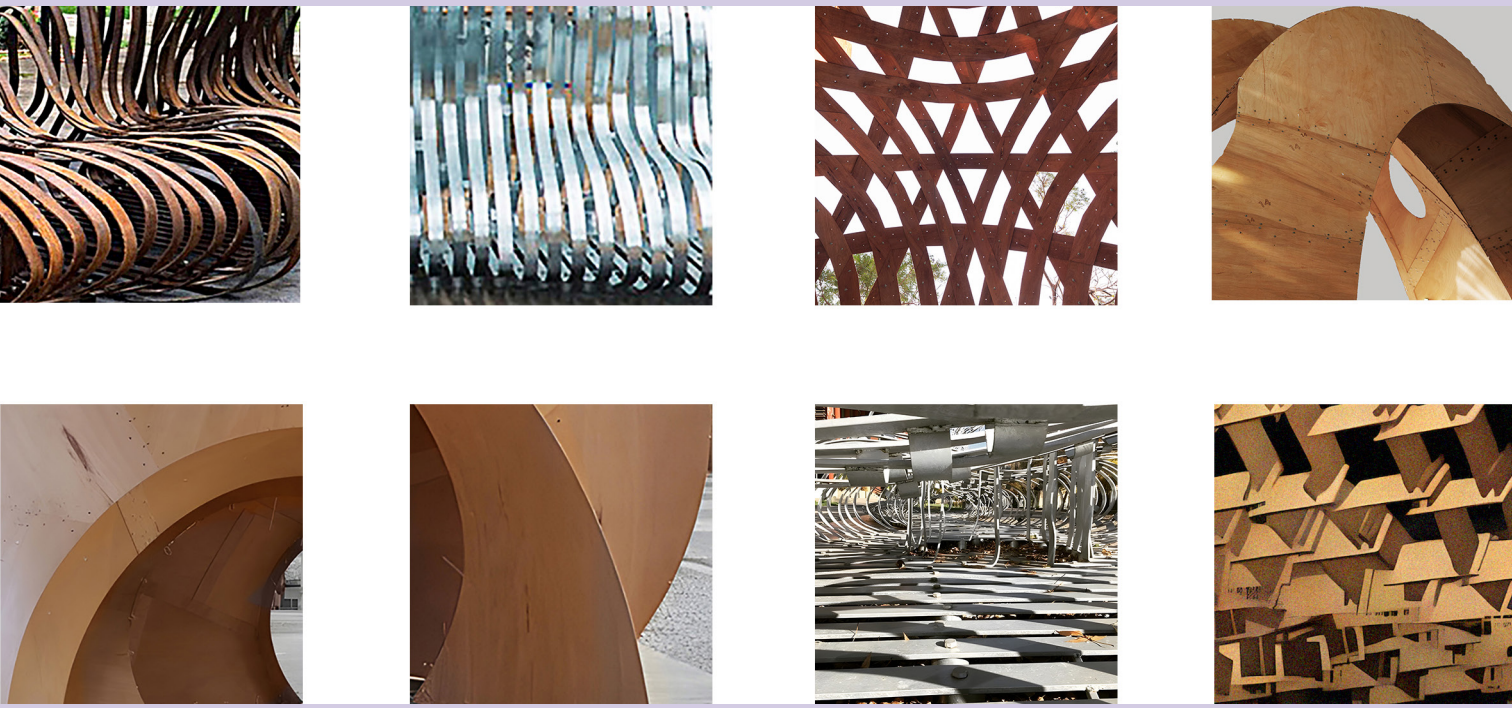

Figure 0 Geometric pattern maps generated by parametric design and digital fabrication corresponding to cases analysed in the article. Source: Mauro Chiarella 2022.

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RESUMO

As novas tecnologias de design e fabricação digital difundidas com a globalização, potenciam ferramentas e processos inovadores para a arquitetura. Estas novas tecnologias abrem diferentes oportunidades profissionais, forjando relações alternativas com a sociedade, especialmente em gerações e países emergentes. Este artigo pretende refletir sobre estas novas experiências colaborativas, entre universidades ibero-americanas, contando com o uso intensivo de tecnologias digitais na arquitetura. Para superar as lacunas tecnológicas, descrevemos os esforços colaborativos para produzir construções na escala real, mediante a colaboração em rede, que resulta na hibridização dessas "novas mídias" adaptadas aos seus contextos locais e culturais. Estas iniciativas surgem da tentativa de superar a escassez de recursos das Universidades locais e seus processos institucionais rígidos. Além disso, anseiam promover a conectividade global junto das novas gerações, por meio de ações informais e coletivas que rompem com o ensino tradicional, aplicando técnicas avançadas em processos criativos coletivos. Estas experiências revelam uma autoria arquitetônica distribuída entre todos os participantes que colaboram na conceituação, programação, gestão e execução do projeto, com diversas práticas híbridas e uma poderosa sinergia coletiva; que também resultam em novas propostas ampliadas que desdobram novas relações com o meio ambiente e a comunidade. Assim, essas ações tendem por si mesmas a integrar e projetar novos horizontes na colaboração arquitetônica. Este artigo tem como objetivo mapear essas ações espácio-temporais em arquiteturas do sul global (Santos 2014).

Palavras-chave: Cocriação, Fabricação Digital, Sul Global, Superação Criativa.

ABSTRACT

Innovative technologies for digital design and manufacture have spread with globalization, providing improved working tools and processes for architecture. These technologies open up different professional opportunities, forging alternative relations with society, especially for new generations and emerging countries. This article reflects on novel collaborative experiences between Ibero-American Universities, accounting for the intensive use of digital technologies in architecture. To bridge technological gaps, the authors describe collaborative efforts to produce full-size constructions, using networking, which results in a hybridization of these "new media" adapted to local and cultural contexts. These initiatives arise from an attempt to overcome the lack of resources at local Universities and their rigid institutional processes, along with their concerns about promoting global connectivity for new generations, leading to informal and collective actions that break with traditional teaching, applying advanced techniques in unseen collective and creative processes. These experiences reveal an architectural work distributed among all the participants that collaborate in the conceptualization, programming, management, and execution of the design, with diverse hybrid practices, and a powerful collective synergy. This also results in new expanded proposals that unfold new relationships with the environment and the community. Thus, these actions tend, by themselves, to integrate and project new horizons in architectural collaboration. This article aims at mapping these spatial-temporal actions in Architecture from the global south (Santos 2014).

Keywords: Co-creation; Digital Manufacture; Global South; Creative Problem-solving

RESUMEN

Las tecnologías innovadoras disponibles para el diseño y la fabricación digital se han difundido con la globalización, entregando mejores herramientas y procesos para la arquitectura. Estas tecnologías abren diferentes oportunidades profesionales, creando relaciones alternativas con la sociedad, especialmente para las nuevas generaciones y para los países en vías de desarrollo.
La intención de este artículo es intentar reflexionar sobre experiencias colaborativas innovadoras entre las universidades iberoamericanas, dando cuenta del uso intensivo de tecnologías digitales en la arquitectura. Para cerrar las brechas tecnológicas, se describen esfuerzos colaborativos para producir construcciones de tamaño real, usando la colaboración en red, que resulta en una hibridación de estos "nuevos medios", adaptados a los contextos locales y culturales. Estas iniciativas surgen de un intento por superar la falta de recursos de las universidades locales y sus rígidos procesos institucionales, junto con sus preocupaciones sobre la promoción de la conectividad global para las nuevas generaciones, lo que lleva a acciones informales y colectivas que rompen el molde de la enseñanza tradicional, aplicando técnicas avanzadas a procesos creativos colectivos. Estas experiencias revelan un trabajo arquitectónico entre todos los participantes que colaboran en la conceptualización, programación, manejo y ejecución del diseño, con diversas prácticas híbridas y una poderosa sinergia colectiva. Esto también resulta en nuevas propuestas expandidas, que resultan en nuevas relaciones con el medioambiente y la comunidad. Así, estas acciones tienden, por sí mismas, a integrar y proyectar nuevos horizontes en la colaboración en la disciplina de la arquitectura. Este artículo busca mapear estas acciones espacio-temporales en la arquitectura del sur global (Santos, 2014)..

Palabras clave: co-creación; fabricación digital; sur global; superación creativa.

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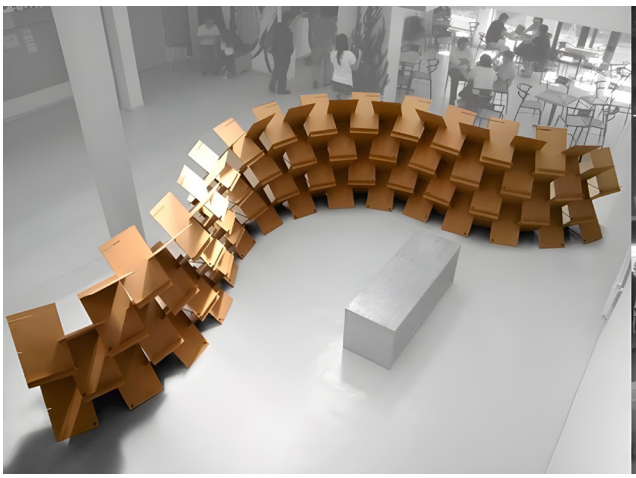

Figure 1 Muro-Pixel and Casa G experiences. First examples of digital design and fabrication collaborations in Ibero-America. Source: Rodrigo García-Alvarado.

INTRODUCTION

The changing conditions, due to the accelerated technological dissemination of digital media, place the same type of concerns at the same time, but in different contexts, with different degrees of industrialization (Kieran and Timberlake, 2004). This change in architectural context was behind the creation of SIGraDi - Sociedad Iberoamericana de Gráfica Digital - in 1997, with a debate that reflects an uneven impact of the fourth industrial revolution, in the Ibero-American context, without the consolidation of previous industrial revolutions (such as serial mass production) in technological and social aspects. In this context, the difficulty to access autonomous funding and dedicated resources to update and produce knowledge at an academic level, through project and construction practice, poses a challenge to overcome (Monedero, 2003). This challenge encourages dialogue, collaboration, and the exchange of human and technological resources as a way of integrating and sharing knowledge in a context that stretches beyond borders (Davis, 2019). Just as with the ELEA initiatives in 1983, Supersudaca emerged in 2001, and Plataforma Arquitectura (now ArchDaily), in 2008. However, the "SIGraDi" effect took time to expand, and a decade after its creation, the authors of this text, from Chile, Brazil, and Argentina, met, beginning collaboration under this context, with the desire for a collective improvement that continues until today.

This article outlines a brief cartography of a set of collaborations between different countries, institutions, but most of all collectives – co-creating together- that progress both in terms of scientific interest, as well as in friendship among peers, projecting new professional perspectives for architecture and society. This, with the hypothesis, that these experiences evidence a socio-technical dialogue and co-creation procedures, and with the specific objectives of recognizing their characteristics, conditions, and potentialities.

This type of collaboration in Ibero-America, involving design and digital fabrication, was previously addressed in publications such as those by Sperling et al, 2015; Scheeren et al, 2018; and Wallisser et all, 2019. These works record many initiatives and participants, providing a panorama and trends, but without in-depth analysis on

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the resulting artifacts. Moreover, recent reviews like Scheeren and Sperling, 2019; Herrera et al, 2020 and Celani, 2020, show the historical development and diversity of technological emergence in Ibero-America for architectural education, pointing to digital fabrication and implementation models. In addition, Davis, 2019, reveals practical cases that demonstrate the potential of co-creation in architectural education.

METHODOLOGY

The article gathers and describes the co-creation design process using digital media and digital manufacture (as defined by Kolarevic 2003; Stacey, 2004; Gramazio & Kohler, 2008), starting from the experiences in each university and community, but with a special focus on the joint experiences developed collaboratively. The technologies used are 3D-modeling, digital rendering, parametric and generative design, Laser cutting, CNC-machining, and Steel bending. The chronological sequence establishes a relationship between these activities, as well as analysis and discussion of their characteristics, framing both the technological and creative aspects involved, as well as the social and architectural limitations that these tried to overcome. The methodology thus combines operational and institutional descriptions, as well as reflections about their particularities and interrelations. This report is also based on the authors' academic experience, how they were taught and worked, according to disciplinary conventions, and seeks to explore new ways and possibilities of acquiring advanced technologies in other countries, adapting them to expand local abilities adapted to the Ibero-American reality, highlighting a cultural crossroads, and the transformation of professions.

Our cartography focuses on nine experiences, three in each institution with the leadership of each of the three authors (including one carried out jointly by two of them), and a final one that the three authors led jointly. We describe the itinerary of these activities with the technical procedures used following institutional terminology but, fundamentally, reviewing their pedagogical implications. The analysis concludes in three main facets on the disciplinary horizon, which seek to expand upon the projections of these experiences in the face of cultural assumptions.

SHARED EXPERIENCES

The authors met for the first time in 2009, at the SIGraDi Conference in Sao Paulo, Brazil, where they had the opportunity to talk and share experiences. This congress coincided with the introduction of visual programming, associated with digital fabrication, in a course, taught by Gonçalo Henriques and Ernesto Bueno. This three-day course introduced the South American participants to programming and began a series of experiences that would intensify with the congress. Mauro Chiarella and Rodrigo Alvarado worked together on a postgraduate program abroad and began to think about how to apply the experiments back in their countries. The second author migrated from

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Europe to Brazil and had the challenge to adapt his knowledge in a new context. The three authors collaborated in 2011, in Santa Fe, Argentina, working with new technologies and design approaches with local students. Since then, their collaborations have benefited from remote communication media, which the authors began to use more often to work remotely. On not being activities with predetermined dates or actions, the collaboration took place with spontaneous temporary exchanges, remotely exchanging experiences, within a framework of the congresses where they met (among these SIGraDi São Paulo, Fortaleza, Florianópolis), and with some teacher exchange periods (Chile> Brazil 2010, Argentina> Chile 2013, Chile + Argentina> Brazil 2020).

Muro-pixel (Pixel-wall) and Casa G (House G) (2008, 2010)

2008 and 2010 saw the first collaboration on digital fabrication and parametric design. This was the "Muro Pixel" at Bio-Bio University in Chile in 2008, with the arrival of the first laser cutter that allowed cutting and assembling plates, forming variable envelopes, such as temporary installations in the university grounds **(Figure 1, left).** Through the collaboration of a Chilean and Brazilian researcher, and developing a parametric design that allows them to assemble different versions. The experience is disseminated online, and several Ibero-American countries replicate it, as an introductory exercise in parametric design and digital manufacture, using different materials and manufacture strategies considering their local contexts. This led to a new experience in 2010 at Universidade Federal do Rio Grande de Sul, in Brazil, with the Chilean researcher and local faculties collaborating in the installation of a CNC machine at the Faculty of Architecture to show its building potentialities, developing a housing system with embedded panels, called "Casa G". This focused on self-managed social housing (Garcia Alvarado, Turkienicz, 2010), building a full-scale basic prototype **(Figure 1, right)**. The experience was based on two intensive workshops, where Brazilian, Argentinian, and Chilean students participated together, developing a generative urban program, scale models, and a real-size housing prototype with the support of a local industry, which was then exhibited at construction fairs.

Bancapar (2012-14)

Bancapar, which won the design prize, Clap Platinum, in 2015, is a parametrically designed bench, conceived as an object of Public Art. The project was self-proposed for the front of the Industrial Engineering Faculty of the Bio-Bio University in Chile, and required a joint initiative, with shared management and authorship, involving interdisciplinary work between students and professors of the university and a teaching research group from the National University of Litoral, Argentina. This collaboration resulted in an unprecedented project that merged regional art, technology, and manufacture in the region. The experience left with questions when compared with the traditional ways of doing

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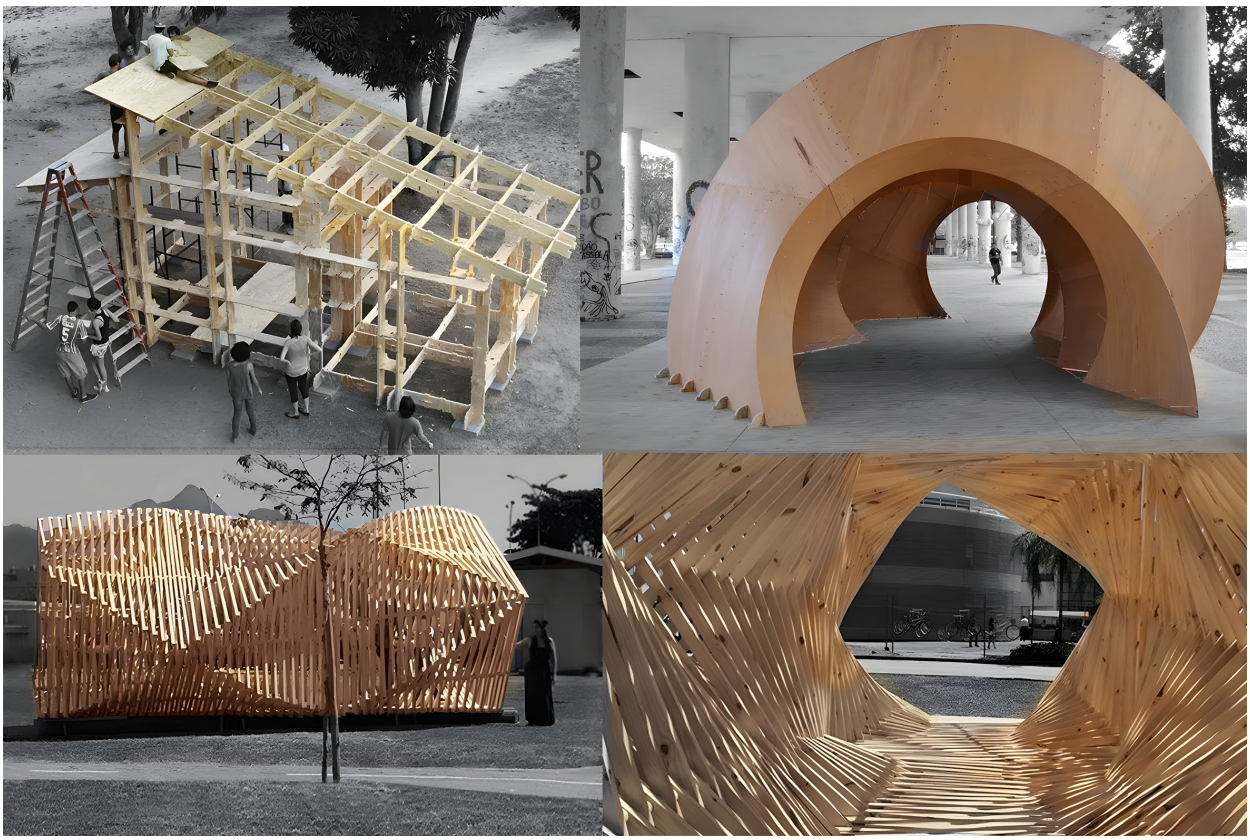

Figure 2 Wiki-House, Helicoidal Surfaces, Tornado Pavilion (2014, 2015, 2017), Source LAMO archive.

and thinking in project disciplines (Chiarella and Garcia-Alvarado 2015). In Bancapar, the use of parametric formulas has a prefiguration characterized by Collaborative Design between teams from two universities and Ibero-American countries, where the concept of Author(s) and their work was broken down due to the manipulation of an initial dynamic formula, regardless of a single, predefined formal result. The emergence of new domains of collective creativity led to the use of the initial designers' own inventiveness to expand and enhance the imagination of the other subjects involved in the process (Chiarella et all, 2020). Parametric formulas acted as tools for universal language communication, enhancing that creativity, allowing the initial designer to lose control of the design process while maintaining shared objectives and guidelines **(Figure 2).**

Wiki- House (2014), Helicoidal Surfaces (2015), Tornado Pavilion (2017)

In Brazil, digital fabrication experiences began at Universidade Federal do Rio de Janeiro, perhaps with a subliminal influence (Casa-G). Local experiences began with the development of construction systems in the final architecture graduation project by Clarice Rohde, and a collective effort to produce the first Wiki-House in Ibero-America in 2014 (Passaro and Rohde 2016), as a prototype for regular housing **(Figure 2, top left).** In 2014, Gonçalo Henriques migrated from

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Portugal to Brazil to join efforts to apply digital integration, regarding computational design and manufacture, to expand local expertise to the local Laboratory – LAMO, and to the University. At that time, a paradigm shift began for the students, combining architectural practice with digital media and manufacture. A further project using Helicoidal surfaces, namely the Butterfly Galleries Pavilion (2015), was installed in the university courtyard **(Figure 2 top right)**, with a Spanish architect, Andres Pastor -Invited by Maria Angela Dias, involving local professors, students, and LAMO team for the digital fabrication and construction support - who later went to Argentina and Chile, to build in collaboration with the other authors, 3 other pavilions using digital fabrication, namely, HS-BG 2015, SSFS 2015, Bio-dune 2018 (Pastor,-Alvarado 2019). Since then, the local LAMO laboratory organizes a series of annual activities, such as seminars and workshops, to link theory and practice, with students from Argentina taking part in 2017 (Henriques, Bueno, Lenz, & Sardenberg 2019). The construction of the Tornado Pavilion in 2017 marked a period of collaboration between local groups, resonating remotely with the others (Passaro, Henriques, Sansão, Tebaldi, 2019), also as a full-scale construction **(Figure 2. down)**. In 2011, the Argentinian professor Mauro Chiarella continued his postdoctoral studies in Chile, and visited Porto, and thus, the intersections of knowledge, cultures, and mixed experiences began to intensify.

Pavilions SSFS (2015) and Flexoinform (2019)

The SSFS "Same Slope - Folded Surface" Pavilion was the winner of Silver Emporia 2016 for Innovative Ephemeral Architecture, selected for its ecological, reusable, and recyclable stand. This low-cost canopy is a self-supporting 8 x 8 m skin made of a single 5 mm layer of wood **(Figure 3. left)**. The use of algorithms and parametric design enabled unfolding a complex surface into a planar set of flat parts cut with CAD-CAM technology. The assembled parts are like a great puzzle, using cold bending to acquire shape and final strength. It was ecological, reusable, recyclable, and sustainable. The geometric shape, materials, and its tension-cable mounting system enable reuse of the installation, which rests on the ground without perforations, respecting the existing pavement of the public place where the group installed it. The SSFS experience verified the use of Collaborative Design, where the strategic use of developable equal slope geometries nourished the initial design (University of Seville) to achieve the manufacture and assembly (FADU-UNL) of a temporary folded pavilion. Andres Pastor and the FabLab of the Spanish University, started the design process, and then students from Master's Degree in Argentina tested two of its modules. The team from Seville built the final pavilion completely in Seville for the European Night of Researchers in September 2015.

The recently built Pavilion has the goal of using the active bending behaviour as a design tool, having as reference the

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Figure 3 SSFS (Same Slope - Folded Surface) Pavilion (2015) and Flexoinform (2019). Source Chiarella, RILAB UNL.

geometry of structures based on the elastic deformation of initially flat elements **(Figure 3 right)**. Active Flexion (AF) is defined as the instrumentalization of one of the –"new"- capabilities inscribed in Digital Materiality (DM) from a Performance-Based Parametric Design (PBPD) Approach -and not as a predefined structural typology-. The methodological proposal uses analogue-digital "form-finding", as a PBED (Performance Based Ecological Design). In instrumental terms, parametric modelling -of algorithmic mathematical logic-, digital simulation -for the prediction of physical behaviour-, computational numerical calculation evaluation, and finally, CNC manufacture, were used to combine the different ideation, simulation, analysis, and manufacturing instances to a continuous logic that re-informs the model from the data obtained at each moment. In this sense, the empirical-analytical experimentation is digitally amplified through Integrative Processes (IP) that constitute a new procedure and approach to geometry, to rethink the ideation processes and open multiple possibilities to emancipate -from the modern paradigm- the material condition in architecture. Flexoinform looks to produce an approach to DM in architecture as an alternative proposal that challenges "conventional" design and construction methods in architecture, by developing a parametric design algorithm aimed at optimizing the operational relationship between geometry, material, and structure in curved laminar envelopes to Active Flexion (AF).

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Mutable Surfaces (2020)

The Mutable Surfaces workshop took place in Rio de Janeiro from 9th to 15th February 2020. This workshop was jointly organized by 4 universities, from 4 countries, Federal University of Rio de Janeiro (Brazil), Bio-Bio University (Chile), National University of the Litoral (Argentina), and the University de Costa Rica (Costa Rica) with students and tutors from 3 countries, a mixed Portuguese-Spanish language, with most participants being "digital natives", and teachers having classical training, but digital enthusiasts. To organize the workshop, the organizers applied for state funds but did not get support. To make the workshop possible, a shorter version was prepared, seeking mutual assistance between local and external participants, seeking to share the research and knowledge of the participating universities, limiting the physical development to an intermediate scale, leaving the initial goal of a 1:1 pavilion for future development. The participants were undergraduate, master's students, and professors from the Faculty of Architecture FAU-UFRJ (8 participants), Engineering COPPE-UFRJ (2 participants), Fine Arts EBA-UFRJ (2 participants), Bio-Bio University (6 participants), Costa Rica University (6 participants).

The authors organized a 3-day training schedule, with lectures and tutorials on visual programming in the morning, and practical exercises in the afternoon, followed by three days in the applied project. This hybrid teaching and project model followed previous LAMO experiences, but now in an extended version. Andres Passaro gave the welcome speech and the opening lecture (day zero). On the first day, Rodrigo Alvarado and Carolina Vargas gave lectures, followed by practical experiences in the afternoon with Alexis Salinas and Paula Ignacio Ulloa. The second day saw lectures by Mauro Chiarella and Rebeca Duque Estrada and in the afternoon continued with physical-digital form-finding with Pedro Engel, Adriane Ossaille, remotely supported by Luciana Gronda and Martin Veizaga from Argentina. Finally, on the third day, Gonçalo Henriques and Juarez introduced participants to gridshells and pre-stressed structures. In the afternoon, the participants designed gridshell structures with form-finding methods and structural analysis.

After three days of theoretical and practical training, we recommended the students to work in groups of three, with participants from different countries, resulting in seven groups designing proposals for the theme introduced beforehand. After a brainstorming and rapid development session, each group presented its project. From all the projects, all the participants jointly selected the four with the most potential to combine projects with complementary affinities and ideas. Finally, in the last two days, the groups conceptually developed four projects in-depth using form-finding models on an intermediate scale, ending with presentations of each group and an intensive dialog of experiences and projections.

In this workshop group, collaboration allowed overcoming financial difficulties and to achieve a joint project, exchanging human, technical,

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Year	Name	Technologies	Institutions	Countries
2009	SIGraDI SP Workshops	Parametric Design and CNC machines	Mackenzie	Portugal, Chile, Argentina
2009-10	Muro-Pixel	Parametric Design and Laser-cutter	UBB-UNISINOS	Chile & Brazil
2010	Casa-G	Parametric Design and CNC machines	UBB-UFRGS	Chile & Brazil
2011	Santa Fe Workshop	Parametric Design and Laser-cutter	FDU-UNL	Argentina, Chile & Portugal
2012-2014	Bancapar	Parametric Design and Steel bending	UBB-UNL	Chile & Argentina
2014	Wiki-House	Parametric Design and CNC machines	UFRJ	Brazil
2015	SSFS	Parametric Design and CNC machines	UNL-US	Argentina & Spain
2015	Helicoidal Surfaces	Parametric Design and CNC machines	UFRJ-US	Brazil & Spain
2017	Tornado Pavilion	Parametric Design and CNC machines	UFRJ	Brazil
2018	Bio-Dune Pavilion	Parametric Design and CNC machines	UBB	Chile & Spain
2019	FlexoInform	Parametric Design and CNC machines	UNL	Argentina
2020	Workshop Mutable Surfaces	Parametric Design and Laser-cutter	UFRJ	Brazil, Chile, Argentina & Costa Rica

Table 1 Summary of the experiences analysed

and cultural knowledge. The development of a project introducing three themes, revealed the need for greater coordination beforehand, as in this case, there was a short preparation time. One of the biggest challenges was working with participants with different skills and cultures, in a short period; and although it is felt that they made interesting progress, further development would require more time for the groups to work together. In this sense, the idea to develop the project for an intermediate scale was suitable, although the group is always looking for the opportunity to build something together at full-scale. The authors would like to say thank you to all those who participated in person and the others who took part remotely in this Ibero-American task force.

Table 1. These experiences show a growing and diverse chronological sequence **(Table 1),** but share several similar conditions (in addition to the same academics having participated in several of them). Firstly, it constitutes progress in the use of new digital design and manufacturing technologies for architecture, which university curricula usually do not accept, but which students, professionals, and researchers consider relevant to get to know. Secondly, these correspond to circumstantial activities, to collective initiatives self-managed by the participants, sharing knowledge through practical activities, instead of teaching processes with foreign guests. Thus, making an early adaptation of technologies,

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Figura 4 Architecture and digital fabrication. Example of the Methodology and teamwork experiences, with international collaboration. Source Chiarella RILAB UNL.

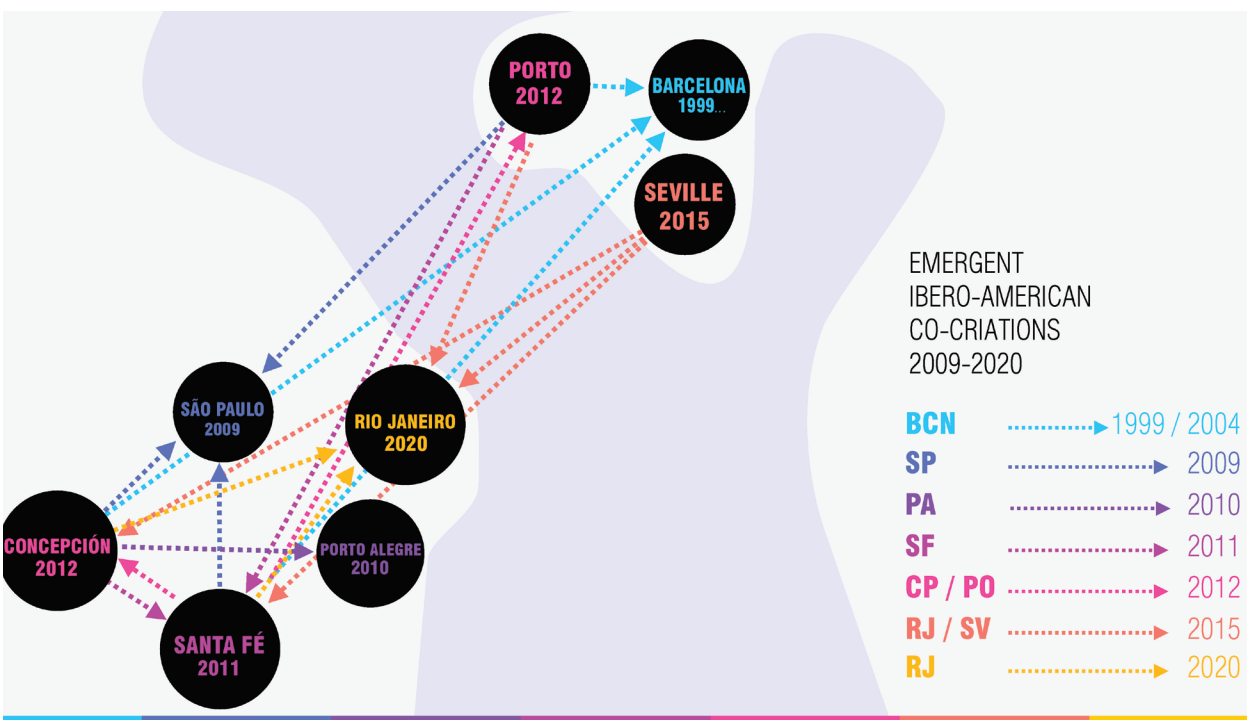

Figura 5 Network diagram - Graph of the interrelations and personal exchange of design and technology between cities/ countries/universities. Source: Gonçalo Castro Henriques 2022.

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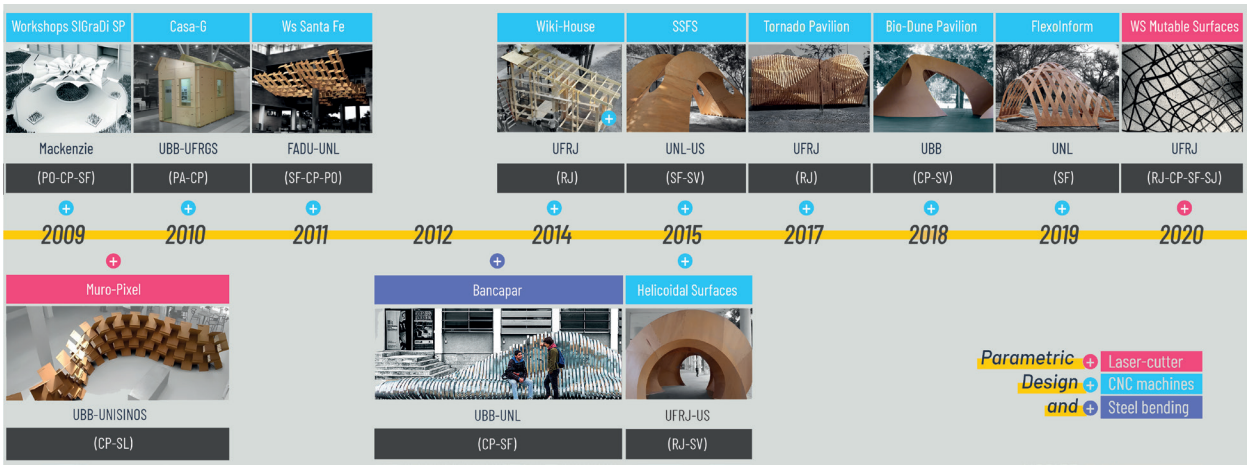

Figura 6 Time-line regarding the projects and the technologies developed through the network collaboration. Source Mauro Chiarella 2022.

and developing a collective physical production, usually testing real-size project and construction possibilities. Third, these experiences also seek new challenges in architecture, social needs that are little covered by traditional construction, in interactive processes, far from the usual work hierarchy in the industry, and even from the distinction between students and teachers. All the participants propose designs and explore their execution together, organizing themselves to solve the difficulties that arise, raising collectively manufactured examples, but rather in an experience of new ways of producing habitable spaces.

The results of these collaborations are mainly the students learning about new technologies, but also the development of new design methodologies and the experience of teamwork, with international collaboration and a broader vision of professional work **(Figure 4).** One can see this evidenced in the group work, the focus of the proposals towards creative contributions with a disciplinary and social impact, and the intense reflection on their role in architecture. In addition to the continuity of these activities, which must address multiple difficulties of organization and implementation, while generating new initiatives and interactions, showing a map of actions in different geographical places and institutions **(Figure 5)**, with an incessant crossing of participants, methodologies, techniques, and study topics **(Figure 6)**. We apply technological tools with a renewed cultural vision regarding different social contexts, which retrofits the professional training.

CONCLUSIONS

This article makes progress in the spatial-temporal cartography of collaborative design and manufacture experiences in Ibero-America. Similar cartographies have been collected in Sperling et al, 2015; Henriques 2017, Scheeren et al, 2018; Chiarella, Bruscato, Henriques & Tortul, 2018; Wallisser 2019. The authors reflect on transitory flows in the digital context of university institutions that usually lack the capabilities to use new technologies. This has sparked collaborative initiatives generally characterized by the following features:

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a) Collective authorship and execution, where the role of the designer, of the builder, and of the workers are broken down. All participate in different tasks that collaborate in the design and realization of the models, and usually a full-scale construction.

b) Hybridization of technologies; the use of open-source software, self-learning among peers, global communication, crowd-founding, and concentration of intensive actions over time, with the combination of local materials and state-of-the-art equipment, often addressing the solution of technical difficulties with manual processes, demonstrating a collective synergy.

c) Development of new social solutions; approach to new forms and architectural expressions, proposals for public space and open urban functions, with a distribution of artistic creation, especially suggesting alternatives of temporary or social living, artistic interventions in co-creation, or with neighbours' participation.

These socio-technical characteristics show a learning agenda of new capabilities and cultural commitment with the territory, across all the initiatives and participants in the activities, impelling a particular approach to update the education and vision of architects, as well providing new insights for global knowledge. The properties that emerge in these initiatives reflect a culture of community work and a renewed social vision, supported by new media, but also by open and innovative concepts (Znoinska and Dumitrescu, 2021; Doyle and Senske, 2018). Thus proposing, new modes of architectural collaboration for contemporary challenges.

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