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Leonel Pérez-Bustamante
Doctor en Urbanismo, Profesor Titular
Universidad de Concepción
Concepción, Chile
https://orcid.org/0000-0001-6661-6260
leperez@udec.cl

Marco Morales-Marchant
Arquitecto, Profesional Independiente
Chiguayante, Chile
https://orcid.org/0000-0002-2311-5121
marcoamorales@udec.cl

Boris Cvitanic-Díaz
Doctor en Arquitectura, Académico,
Departamento de Arquitectura
Universidad de Magallanes,
Punta Arenas, Chile
https://orcid.org/0000-0002-9008-6519
boris.cvitanic@umag.cl

Daniel Matus-Carrasco
Doctor en Urbanismo, Académico,
Departamento de Arquitectura
Universidad de Magallanes,
Punta Arenas, Chile
https://orcid.org/0000-0002-7066-9610
daniel.matus@umag.cl

VILLA CEREPEC-CHIGUAYANTE. COOPERATIVISM AND COLLECTIVE HOUSING IN GREATER CONCEPCIÓN

VILLA CEREPEC-CHIGUAYANTE. COOPERATIVISMO Y VIVIENDA COLECTIVA EN EL GRAN CONCEPCIÓN

VILLA CEREPEC-CHIGUAYANTE. COOPERATIVISMO E HABITAÇÃO COLETIVA NA ÁREA DA GRANDE CONCEPCIÓN

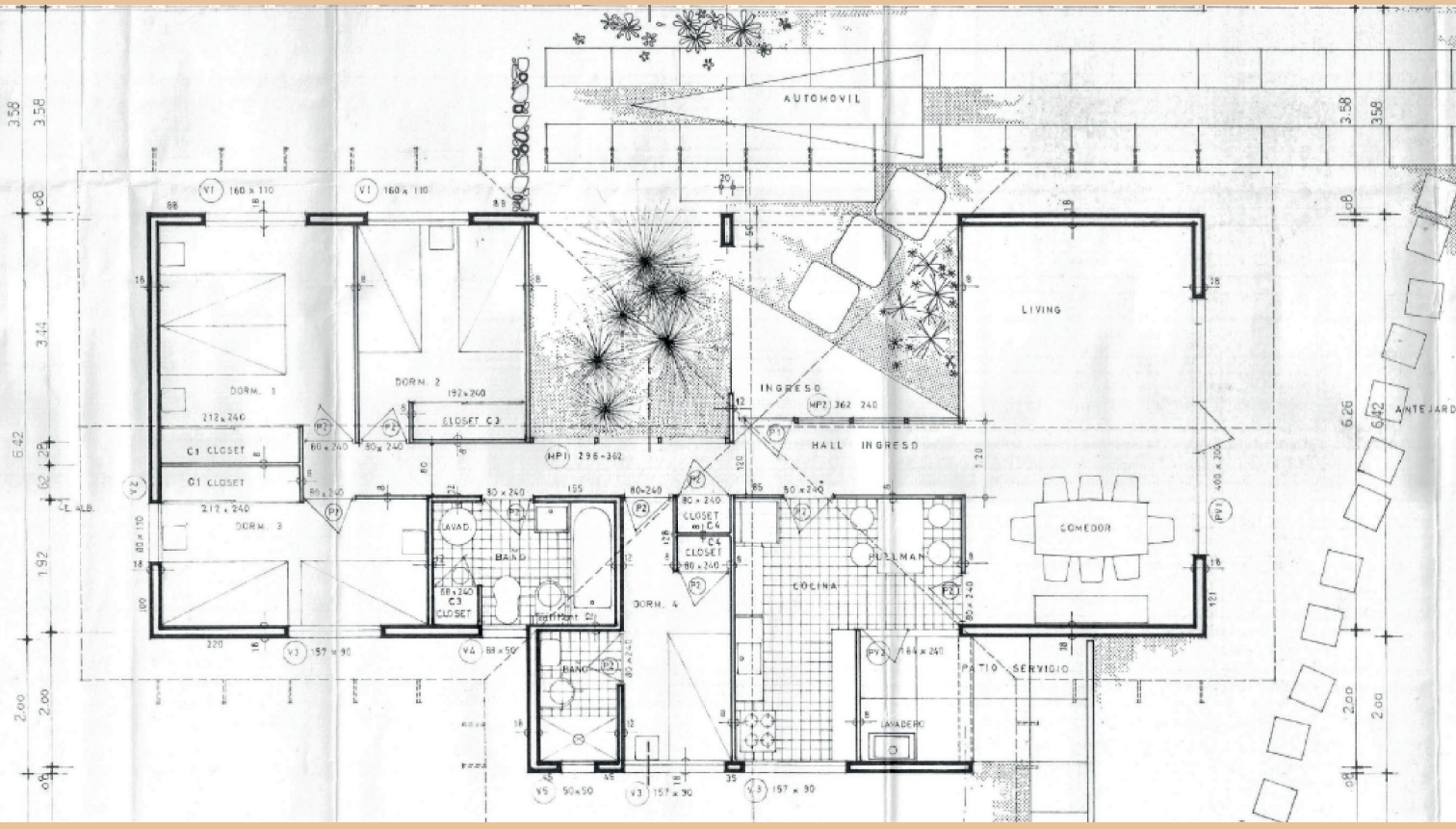

Figura 0. Floor plan type A.
Source: DOM Archives (1969).

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AS / Vol 41 / Nº 63 / 2023
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RESUMEN

El Área Metropolitana de Concepción (AMC) evidencia las huellas de la industria en su desarrollo urbano. Bajo el alero de las industrias estatales y de sus trabajadores, desde la segunda mitad del siglo XX se desarrollaron conjuntos habitacionales distanciados de las plantas industriales, que propusieron nuevos modos de desarrollo urbano para su época y lugar. Un caso relevante es el de la Cooperativa de Empleados Refinería de Petróleo Concepción (CEREPEC), en Chiguayante. Este trabajo registra parte de la evolución urbana de esta comuna, a través del análisis del conjunto habitacional, que se vio materializado por trabajadores de la Empresa Nacional del Petróleo (ENAP) bajo el modelo cooperativista. Los resultados evidencian tanto en el aporte fundacional a la construcción del espacio urbano de la "calle Manantiales", como la forma en que el cooperativismo se materializó en el diseño urbano y el proyecto arquitectónico del conjunto CEREPEC. Destaca la relación empresa-trabajador-caja de ahorros, donde el trabajador asume el liderazgo y la empresa apoya la gestión, en un modelo muy distante del paternalismo industrial que construye con lógicas diferentes nuevas fracciones de ciudad. Se trata de un modelo de relevancia por cuanto los procesos participativos se constituyen en una demanda de gran actualidad, los que involucran las dinámicas de construcción y transformación de viviendas y barrios.

Palabras clave: vivienda colectiva, desarrollo urbano, cooperativismo, industria del petróleo, Gran Concepción.

ABSTRACT

The Metropolitan Area of Concepción (AMC) has industrial traces in its urban development. Under the auspices of state industries and their workers, housing complexes were developed in the second half of the twentieth century, away from industrial plants, proposing new modes of urban development for the period and location. A case in question is the Cooperativa de Empleados Refinería de Petróleo Concepción (Concepcion Petrol Refinery Employees Cooperative or CEREPEC), in Chiguayante. This article records part of the urban evolution of this commune, through the analysis of a housing complex materialized by workers of the National Petroleum Company (ENAP) under the cooperative model. The results show both the foundational contribution in building the urban space of "Manantiales street", as well as the way cooperativism materialized in the urban design and the architectural project of the CEREPEC complex. The company-worker-savings bank relationship stands out, where the worker assumes the leadership and the company supports its management, in a model that is very distant from industrial paternalism, and which logically builds different new sectors in the city. It is a relevant model because participatory processes are in demand today, involving the dynamics of construction and transformation of houses and neighborhoods.

Keywords: collective housing, urban development, cooperativism, petroleum industry, Greater Concepción.

RESUMO

A Área Metropolitana de Concepción (AMC) evidencia os traços da indústria em seu desenvolvimento urbano. Sob os auspícios das indústrias estatais e seus trabalhadores, desde a segunda metade do século XX, foram desenvolvidos conjuntos habitacionais distanciados das plantas industriais, que propuseram novos modos de desenvolvimento urbano para seu tempo e lugar. Um caso relevante é o da Cooperativa de Empregados da Refinaria de Petróleo Concepción (CEREPEC), em Chiguayante. Este trabalho registra parte da evolução urbana desta comuna, por meio da análise do conjunto habitacional, que foi materializado por trabalhadores da Empresa Nacional de Petróleo (ENAP) sob o modelo cooperativo. Os resultados mostram tanto a contribuição fundamental para a construção do espaço urbano da "Rua Manantiales", quanto a forma como o cooperativismo se materializou no projeto urbano e arquitetônico do complexo CEREPEC. Destaca-se a relação empresa-trabalhador-banco, onde o trabalhador assume a liderança e a empresa apoia a gestão, num modelo muito distante do paternalismo industrial que constrói novas frações da cidade com lógicas diferentes. Este é um modelo relevante na medida em que os processos participativos são uma demanda altamente atual, envolvendo a dinâmica de construção e transformação de moradias e bairros.

Palavras-chave: habitação coletiva, desenvolvimento urbano, cooperativismo, indústria petroleira, Gran Concepción.

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

INTRODUCTION

INDUSTRIALIZATION AND URBANIZATION IN GREATER CONCEPCIÓN

The location of productive activities strongly influences urbanization processes. According to Ponce and Martínez (2001), "industrial development has always been followed by a boom in the urbanizing process and the growth of cities" (p. 67), along with economic, social, and urban changes (Rojas, Muñiz & García, 2009). Classically, industrialization processes triggered since the 1940s, have produced an increase in urban population due to rural migration, densifying already consolidated areas of industrial cities and pressuring peripheries, which were characterized by working-class neighborhoods where different forms of ties and relations between political, social, economic, and cultural actors were produced (Bouza, 2006), among them, cooperative action.

If Greater Conception was key in the industrialization of southern Chile, it was also home to cooperative action mobilized by workers and employees of different industrial and port activities located in an increasingly complex urban system, in constant growth and a permanent urbanization process. In the first half of the twentieth century, this urban dynamic had been driven by the coal industry, in the cities of Lota and Coronel, and by the textile industry, in the basins of Bellavista and Tomé. However, since the 1950s, development is explained both by the creation of the Production Development Corporation (CORFO) in 1939 and by the decisive introduction of the State Industrialization policy through Import Substitution (ISI) (Palma, 1984), vectors of the development of a new urban system. The key production hubs and the construction of new land and maritime transport infrastructures were the strategic industries established in the cities of Talcahuano and Concepción in the 1950s and 1960s. In particular, the Pacific Steel Company (CAP), built on the Huachipato estate and operational since 1950, and the Refinery of the National Petroleum Company (ENAP[1]) (Pérez & Fuentes, 2019), operational since 1966. Both were characterized by the direct and indirect construction of worker and employee housing. ENAP, created in 1950, after the discovery of exploitable and marketable hydrocarbon fields in the Magallanes region, developed an internal housing policy, giving access to homes for employees and workers in different areas of the country. In the Greater Concepción area, Springhill, built since 1970 (Pérez, Herrera & Fuentes, 2019), Rucalhue (Pérez, Herrera & Fuentes, 2018) and Concepción Petroleum Refinery Employees Cooperative Neighborhoods (CEREPEC), the latter which is analyzed here, were expressions of this housing policy.

The creation of ENAP, after the discovery of the first oil well in Magallanes in 1945, allowed implementing the oil industry through productive infrastructures in strategic points of the country (Cvitanic &

1 ENAP was created through Law No. 9,618 of June 19, 1950, as a State-owned Public Company, whose main focus is the exploration, production, refining, and marketing of hydrocarbons and their byproducts. It operates as a commercial company under a public law legal system and is managed autonomously (ENAP, 2021).

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

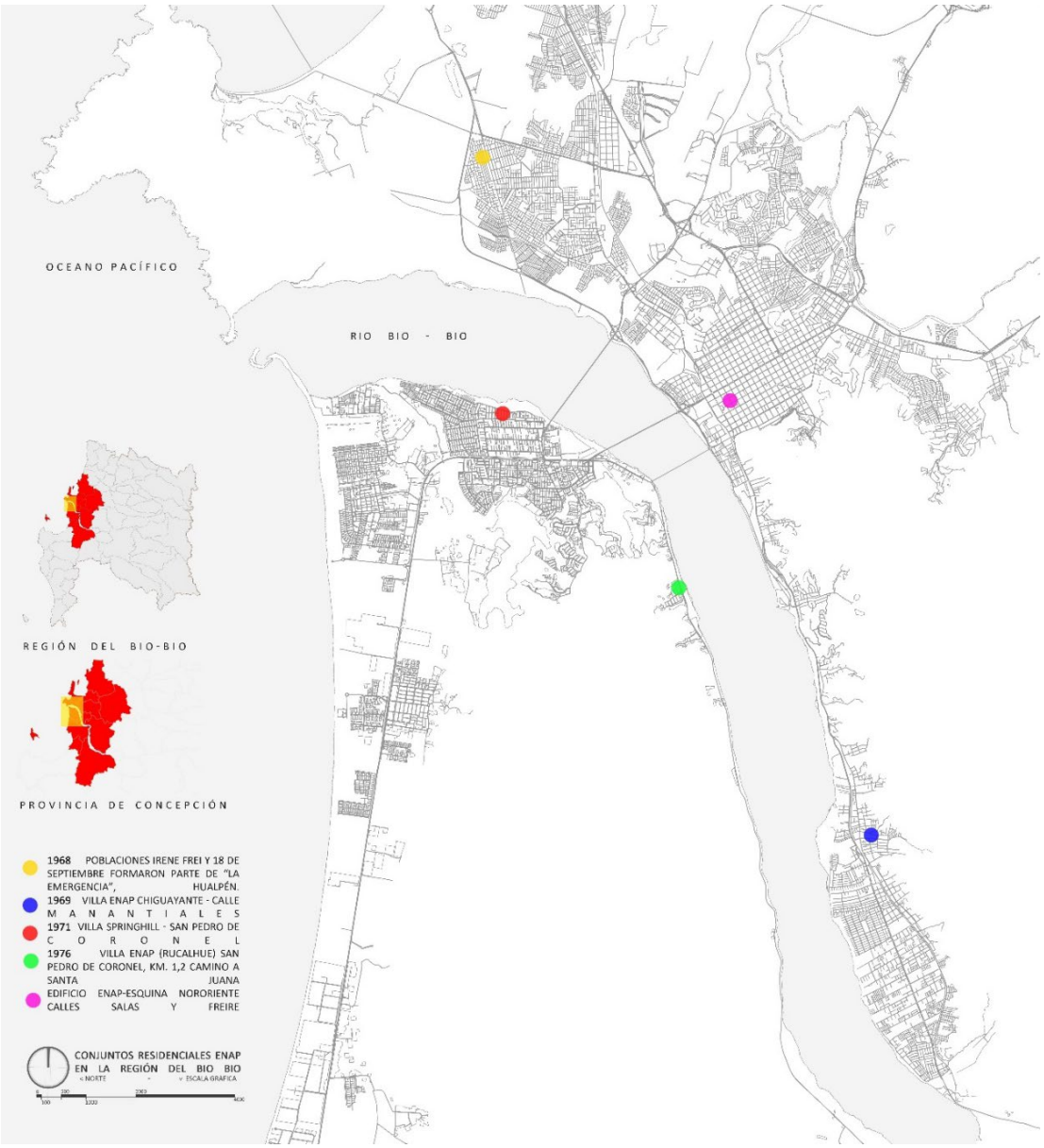


Figure 1. ENAP Bío Bío housing complexes in the AMC. Source: Cisternas (2017).

Matus, 2019). After the Concón Refinery (1954), the Bío Bío Refinery was built in the Biobío Region (1966), which, as a result of the high demand for specialized labor for its construction and later operation, developed internal housing policies for workers to have their own homes.

ENAP, to address the housing problem of its workers, created a housing section, and a Housing Plan that, for the Biobío Region, was implemented in the communes neighboring the industry (Pérez et al., 2018, p. 529). The Plan sought to solve the housing deficit based on access to one's own house. Employees and workers had degrees of freedom to choose where to live, depending on their purchasing power but also based on a structure that was slowly institutionalized through regulations, and was recorded both in the company's goals and in the historical development of affordable housing in Chile (Matus & Cvitanic, 2016, p. 131). Thus, in the Biobío region,

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

the ENAP Housing Plan determined that a series of housing complexes should be located (Figure 1) around structuring roads, thus consolidating a tentacular system (Pérez & Salinas, 2007; Fuentes & Pérez, 2012) that influenced the formation and consolidation of urban expansion sectors.

In the region, as in the country, the houses belonging to these complexes followed a specific housing model, in architectural terms, in what Bravo (1965) has defined as "a residence not only planned and with certain conditions ... but also subjected to a rationalization of design" (p. 3), while, in urban terms, it involved modeling a collective space for the workers, away from social conflict and close to the industry, or as far as possible connected with it. These houses reflected the image of the company in its workers by creating a social space, involving the construction of social relationships and configuring a collective identity associated with the company and its housing complexes (Acevedo & Rojas, 2014; Matus & Cvitanic, 2022).

The approach to the construction of residential spaces, before the creation of the Housing Corporation (CORVI) in 1953 and the Ministry of Housing and Urbanism (MINVU) in 1965, was strongly determined by initiatives that committed the State to the housing problem, which, according to Castañeda and Quiroz (1986) covered

> (...) from the creation of institutions directly involved in the design and construction of housing complexes (for example, the Reconstruction and Relief Corporation of 1939 and the Housing Fund of 1943) to the granting of different incentives for private building activity (Law No. 9135 or the Pereira Law of 1948 and [...] Decree in Law (DFL) No. 2 of 1959). (pp. 9-10)

However, to overcome shortcomings in terms of state support (Behrens, 1985), alternative models such as cooperativism were resorted to. This ended up giving a key boost to the housing sector by introducing financing through the National Savings and Loans System (SINAP), created in 1960**2** and comprising several Savings and Loans Associations that had savings deposits and loans from international organizations. With the comprehensive reform of the General Law of Cooperatives in 1963, cooperativism received new incentives from the State, in line with the general working-class and sectoral economic support policies (Radrigán, 2022).

The cooperative model was based on associations of people who joined voluntarily to form a democratic organization, the cooperative, whose administration and management were handled following members' decisions. Their mission was to address the common economic, social, and cultural needs and aspirations of a given group, through a jointly owned and democratically controlled entity (International Cooperative Alliance [ICA], 2013).

SINAP, after having seen a great boom in terms of financial resources, gained "remarkable importance [...] thanks to being a monopolistic institution

2 As a result of the Alliance for Progress, in April of that year, Federal Decree No. 205 was issued, which structured SINAP, launching "the financing mechanism for the acquisition and construction of housing in a joint action of the public (Central Savings and Loan Bank) and the private sector (Savings and Loan Associations)" (Behrens, 1985, p. 259).

AS / Vol 41 / Nº 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

in the issuance of adjustable instruments in an inflationary context" (Foxley, cit. in Castañeda & Quiroz, 1986). From the defining crisis of SINAP in 1975 and its closure in 1980 through to the end of the Dictatorship, there was an involution of the cooperative movement, caused both by the elimination or control of working-class movements (Institute of Urban and Territorial Studies [IEUT], 2022), and the implementation of the neoliberal model where housing became a market-regulated consumer good acquired by families through savings (Hidalgo, 1999).

In the Biobío Region, particularly in the AMC, the state industry since 1963 had used the cooperative model as an alternative mechanism to paternalism to keep its loyal workers, who benefited from subsidies to access their own housing. The industry became involved in urban processes, where the State became a participant in the urbanizing model proposed by the workers. In this way, a series of residential complexes emerged as a result of the coordinated effort of three actors, the State, the industry, and the workers, such as the Desiderio Guzmán Neighborhood, related to CRAV, in Penco (Cerda & Puentes, 2019), Springhill (Pérez ***et al.***, 2019), promoted by ENAP, through its workers and cooperative, in 1970, and Rucalhue (Pérez ***et al.***, 2018), started by engineers from the oil company, both in San Pedro de la Paz.

In this context, the research hypothesis for this work is that the residential complex of the CEREPEC cooperative constituted a particular urban development model in the AMC, associated with the participation of the State, industry, and workers, who were participatively involved both in the construction of urban space and specific architectural solutions.

The main objective is to determine the urban and architectural implications of the housing action supported by ENAP in Chiguayante. Specifically, it seeks to analyze the formation of the urban complex, architectural proposal, and housing solution; and, secondly, to establish relations between this development and cooperativism as a mechanism of access to property.

To achieve these objectives, this study has been faced in an exploratory and descriptive-analytical way. The research approach is mixed, with quantitative and qualitative approaches. It began with fieldwork, visits to the sector, and semi-structured interviews with the first inhabitants of the residential complex. From there, the recording of social aspects was addressed based on data obtained from interviews and photographic records of the houses. At the same time, the Municipal Works Directorate's archives were reviewed and a planimetric reconstruction of the units and complex was made. After this, a spatial analysis of the sector was made to understand the urban evolution and the structure of Manantiales Street, in addition to making a morphological analysis of the CEREPEC ensemble. Finally, approaches were crossed to compare sources, before a discussion and closing reflections.

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

Figure 2. View of Chiguayante and the Biobío River, 1915-1920. Source: https://www.facebook.com/groups/fotosantiguasdechiguayante

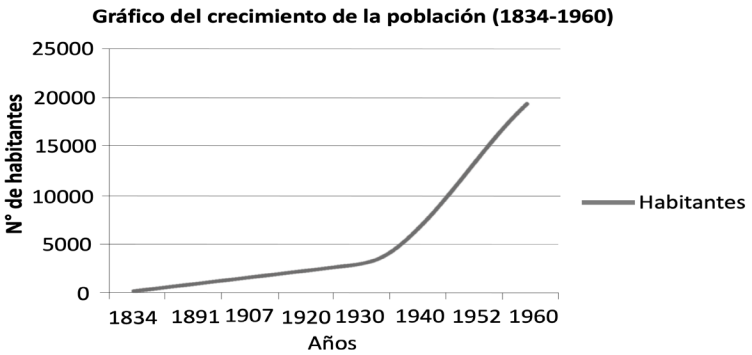
CONTEXT. COOPERATIVES AND URBANIZATION OF RURAL SPACE

The commune of Chiguayante was created in 1996 by the former municipal delegation of Concepción, covering the territory located between the slopes of Manquimávida Hill and the Biobío River (Figure 2). Although Chiguayante, until the 1890s, was nothing more than a rural sector (Pacheco, 2012), its urban development is due to twentieth-century industrialization, among other factors. The metropolization process of the AMC in the second half of the twentieth century would consolidate this territory with a residential role, driven by industries that were either located or that developed housing projects there.

A turning point in Chiguayante's urban development was the parceling of rural property as a mechanism for occupying space (La Rivera, 1991), the starting point for moving from a small town to its growth as a city. At the beginning of the twentieth century, this was an option for the inhabitants of Concepción and rural sectors, seen as an ideal area to live and obtain stable work, thanks to the installation of large industries such as Schaub, Caupolicán, in 1938 (started in 1903 as Tejidos de Algodón Chilean Mill Co.), El Tigre (1928) and, subsequently, Masisa and Indama, among others (Brito & Puentes, 2018), which were an important impetus for its growth. This determined that from the 1930s (Graph 1), Chiguayante saw an accelerated, explosive, and inorganic population growth, with scarce resources to solve its deficiencies that dragged on for almost the entire century: water, lighting, housing, sewerage, paving, transport, health, and communication, to name a few issues that affected the inhabitants (Pacheco, 2012).

Industrial development brought the need for housing along with community facilities, which they tried to solve with State support (Brito, Cerda, Fuentes & Pérez, 2018, p. 60). "To solve the housing problem

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466



Graph 1. Population growth of Chiguayante, 1834-1960. Source: Astudillo (2015).

Figure 3. Plan of the Manantiales sector and each cooperative. Source: Preparation by the authors.

in Chiguayante in the mid-twentieth-century, both state (such as the CORVI), municipal, as well as workers' actions, helped to solve these problems" (Muñoz, 2015, p. 14). This urban and housing development took place in a fragmented way, adapting to the morphology and generating several urban spaces between the slopes of Manquimávida Hill and the Biobío River.

The search for housing and the opportunity to acquire large lots to build housing complexes, added to the companies' cooperative model to provide workers with their own housing, are factors that allow these groups to acquire land and realize this aspiration, in a rural area. The former Chacra Armería is a representative sector of urbanization through cooperatives and, in this dynamic, CEREPEC is the first to plan its housing project there (Figure 3), coordinated by ENAP's accounting staff.

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

RESULTS

CEREPEC AND COOPERATIVE CONSTRUCTION OF THE URBAN SPACE

The urbanization of the Chacra Armería estate began in 1969 when Carmen Shasman divided her land into nine plots. Specifically, "the lotting was done by a gentleman from the Van Rysselberghe family who was an architect or engineer, and all of lot one was left for them (A. Díaz, Interview, November 12, 2020). It was designed based on a dirt road for trucks, the only access to the lots from Avenida B. O'Higgins, with the CEREPEC complex being the first to start when the cooperative was awarded property number five. For this reason, the members still call themselves "colonizers" of this urban space:

> (...) It was 1967 when it occurred to those of us working in ENAP's accounting department to form a housing cooperative since we all rented houses (...). We started looking for land, we went to see the Road to Penco, the area halfway to Talcahuano, Lonco Norte (very expensive) before reaching the entrance to Chiguayante, the site of Mrs. Carmen Shasman. It was Mr. Enrique Van Rysselberghe, the realtor, who showed the site to all the cooperative's members. (J. González, Interview, November 12, 2020)

CEREPEC's members, thanks to the support of ENAP and the Savings and Loans Society[3], considered a project based on equal lots to build their homes in a sector that lacked complete urbanization, with just electricity and an unpaved street. The first symbolic act was to name this street to have location references after the houses were handed over, which was made by Juan González, leader of CEREPEC.

> (...) There was no street, no sidewalk, no fences dividing the yards, only signs of the trucks that brought materials. One weekend, it occurred to me to christen the main street. Since we were employees of an oil refinery, and the oil was discovered in a place called Manantiales in Punta Arenas, it stayed in my mind (...). I looked for a board of one meter by thirty centimeters wide, and with black paint I put Manantiales, and I went to place it on the post at the entrance of the street (...). My neighbors helped me and we put it on the top of a pole and it stayed there until the municipality placed an official sign. (J. González, Interview, November 12, 2020)

The site of the CEREPEC complex was bordered to the West by lots acquired by private individuals and to the East, by the BioGas and COTELEF (Cooperativa de Empleados Compañía Telefónicos de Chile) Cooperatives (Figure 3).

FROM COOPERATIVES TO NEIGHBORHOOD GROUPS

The heyday of cooperatives in the 1960s made it possible for a rural sector such as the Chacra Armería to experience a densification process

3 The Central Savings and Loan Society controlled the Savings and Loan Associations (AAP), which were constituted as mutual and regional entities managed by a board of directors, and were intended to attract savings from the public "...even from minors who could read and write and from married women, to invest them in mortgage loans of up to 30 years granted to depositors for the construction, acquisition, expansion, and completion of DFL type 2 housing" (Behrens, 1985, p. 260).

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

Figure 4. Arrangement of lots and wooded strips. Source: Preparation by the authors based on DOM Files.

in three years, allowing the first three cooperatives to be installed and the rural use changed to residential. After Manantiales Street, three secondary roads (2nd, 3rd, and 4th streets) and six passages were laid out.

Cooperatives and their housing complexes start forming a sector with a varied socioeconomic level

> (...) We are an inclusive sector, we do not discriminate against anyone, we have wealthy neighbors, and others not so much (...) We are a quiet sector, where we all know each other and when a stranger arrives, we immediately notice and tell one another. (A. Díaz, Interview, November 12, 2020)

The Manantiales sector was made up of four cooperatives, CEREPEC, COTELEF, BIOGAS, and Docencia, along with four lots sold to private parties, which are part of the Manantiales community (Figure 4). The Manantiales Neighborhood Group was established on May 19, 1994, where the cooperatives became part of a community that developed urbanization projects such as the participatory paving of Manantiales Street, an initiative implemented a few months after forming the Neighborhood Board.

> We have worked this place to make it what you see today. When I arrived this was marshland, and cows and chickens were roaming the land. Even the street you came down was made by us, the neighbors. (A. Díaz, Interview, November 12, 2020)

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

Figure 5. Type A housing (left). Source: Photo by Marco Morales (2021)

Figure 6. Type C housing (right). Source: Photo by Marco Morales (2021).

DESIGN AND MANAGEMENT OF THE COMPLEX

In 1968, the members contacted an architect to develop their housing project:

> When the company gave us bonuses, we bought materials for our homes, for example, with the bonus for September 18th**4**, we bought 20 toilets, and with another bonus, we bought 30,000 bricks and stored them in a friendly warehouse (...). When we had the money and the land, we looked for an architect and we said - We have this, what can you do with it? (J. González, interview, november 12, 2020)

The urbanization of the CEREPEC complex was influenced by the family structure back then, as almost all of the members were married and had children.

> Without the company I wouldn't have my home where I have raised my children, I am grateful for everything I have and what I have achieved in all these years (...). My children miss this house and we have committed to never sell it. (J. González, Interview, November 12, 2020)

The housing complex: design, costs, and financing

> In March 1969, the land began to be divided into 20 lots, and 3 types of houses were designed (...) We were looking for an architect, to design the houses for us, and the proposal of Mr. Jorge Manuel Labarca Van Rysselberghe won. (J. González, Interview, November 12, 2020)

Labarca stood out in the Penquista (Greater Concepción) scene of the 1960s for his contribution to residential architecture through the construction of multiple housing complexes (Cerda & Burdiles, 2016; Darmendrail, 2020)**5**. Together with the architect Boris Aptecar G., a language and types of housing were achieved in CEREPEC that give the neighborhood spatial and formal unity (Figure 5 and Figure 6).

From an urban point of view, the land (Figure 4 and Table 1) was divided among its twenty members with three types or models of housing. The

4 Companies usually give a bonus for September 18th in Chile, for the National Independence celebrations.

5 Labarca worked on the construction of housing complexes in Concepción, Talcahuano, and Lirquén, such as the houses of Collao Neighborhood or the twenty-three houses of Bío Bío Cooperative. Darmendrail (2020) highlights that his residential work was characterized by the search for new volumetric and plastic expressions, through the use of prominent roofs and slopes, or the use of folded planes, in the context of overcrowding of the single-family house type bungalow.

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

Lot N°	Area m2	Lot N°	Area m2	Lot N°	Area m2	Lot N°	Area m2
1	499.50	6	464.00	11	446.40	16	500.00
2	499.50	7	455.85	12	446.40	17	499.80
3	499.50	8	494.99	13	500.00	18	499.80
4	497.50	9	486.35	14	500.00	19	499.80
5	447.25	10	486.35	15	500.00	20	499.80
Total area of lots				9.723,19 m2			
Area of streets and green areas				5.862,81 m2			
Total land area				15.586,00 m2			

Construction value of the houses	1.923.237,71
-Land	125.106,00
-Urbanization	229.015,58
Municipal rights and permits	32.212,98
Notary and real estate conservator	5.325,70
Management of AA. PP. Andalién	79.361,34
INVICOOP expenses	94.569,21
Various	11.513,69
Total	2.500.342,21

Total, built square meters	2.026,42
Value per square meter built s/site	1.172,10
Value per square meter built are site	1.233,84
Total cost of housing - Type A - Type B - Type C	 125.105,48 126.061,43 111.033,26
Commercial housing values - Type A - Type B - Type C	 175.200,00 168.472,00 143.984,00

proposal consolidated wide streets for vehicles and groves that allowed an efficient separation between vehicles and pedestrians, and the vegetation on pedestrian routes intelligently supplied the absence of green areas in the complex, seeking to give continuity to the natural context where it was located. The lot layout followed the streets laid out when the sector was subdivided and, because they had almost equal surfaces, left small voids at the corners and edges of the streets, which were designed as wooded areas, given the impossibility of a green area usable as a square (Figure 4).

The financing to cover the project's costs were similar to that used by most cooperatives, consisting of the company granting a loan, in this case, ENAP, and an A.A.P (Savings and Loan Association) since without the support of these organizations it was very difficult for workers to opt for their own housing (Table 2, Table 3, and Table 4)

Table 1. Areas of the CEREPEC Cooperative lot. Source: Own elaboration based on DOM files

Table 2. CEREPEC joint construction costs (values in Escudos). Source: Own elaboration based on ENAP Journal (1969): Own elaboration based on ENAP Journal (1969))

Table 3. CEREPEC construction financing (values in Escudos). Source: Own elaboration based on ENAP Journal (1969)

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

Values in Escudos	
ENAP Loan	948.655,44
A. A. P. Loan	1.292.274,74
Contribution from associates	259.412,03
Total	2.500.342,21

Table 4. Values of each house (). Source: Own elaboration based on ENAP Journal (1969).

Figure 7. Location of the housing types. Source: Preparation by the authors based on DOM Files.

From an architectural point of view, the three types of housing pointed to different member needs, while the allocation of lots was made randomly through a draw, materializing the type of housing that best suited each family group (Figure 7):

> All the plots were alike and we raffled them among ourselves. What changes, is the type of house that each one chose because if one had a big family, he chose the big house and some said -No, we will have only two children-. Well, they chose the small house. (J. González, Interview, November 12, 2020)

The lots have a regular shape, and three types of detached single-floor bungalow-type houses were built in them. Two types differ slightly in the area assigned, with different interior layouts. While the third smaller model, considered smaller rooms, but with areas planned for later expansions that could be handled by the owners. They considered a similar layout on the ground, with a five-meter setback from the street, which determined a perception of visual amplitude and continuity of the Neighborhood.

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

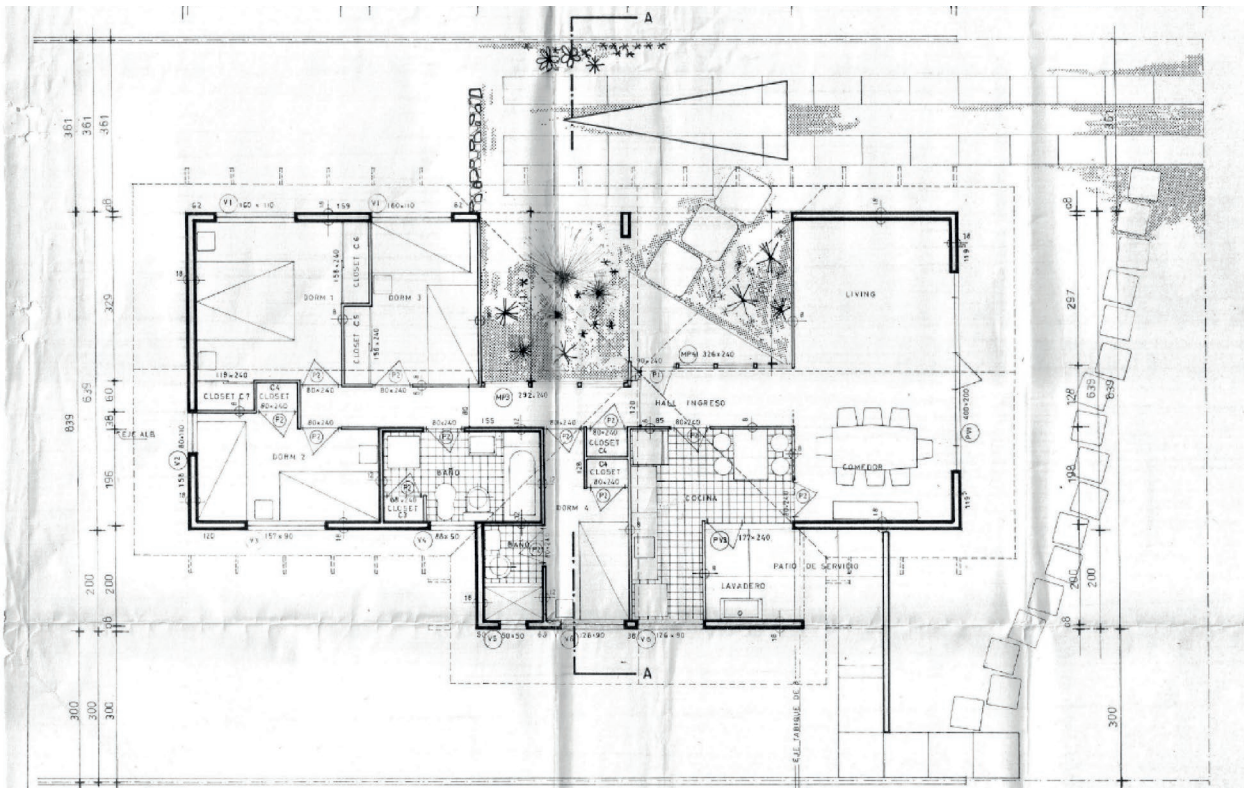


Figure 8. Floor plan type A. Source: DOM Archives (1969).

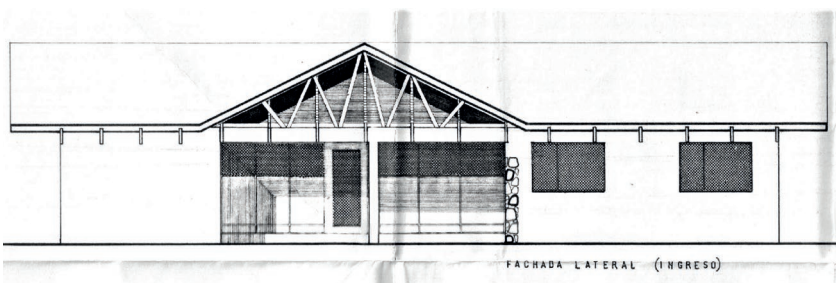


Figure 9. Street view. Source: DOM Archives (1969).

Once construction was completed, a symbolic act was held on site: directors and executives attended a handover ceremony to the members. On December 17, the first four families from the cooperative arrived in the neighborhood: "I was the first one to come and live in my new house. Within a month the Soto, Flores, the Muñoz families arrived. We were no longer alone" (J. González, Interview, November 12, 2020).

Types of housing: unity and diversity

Housing Type A (Figure 8 and Figure 9);
Year of construction: 1969
Site area: 499.50 m^2
Built area: 97.00m^2
Covered open area: 12.50 m^2
Total built area: 109.50m^2
Material: Masonry with lightweight half-timbered roof

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
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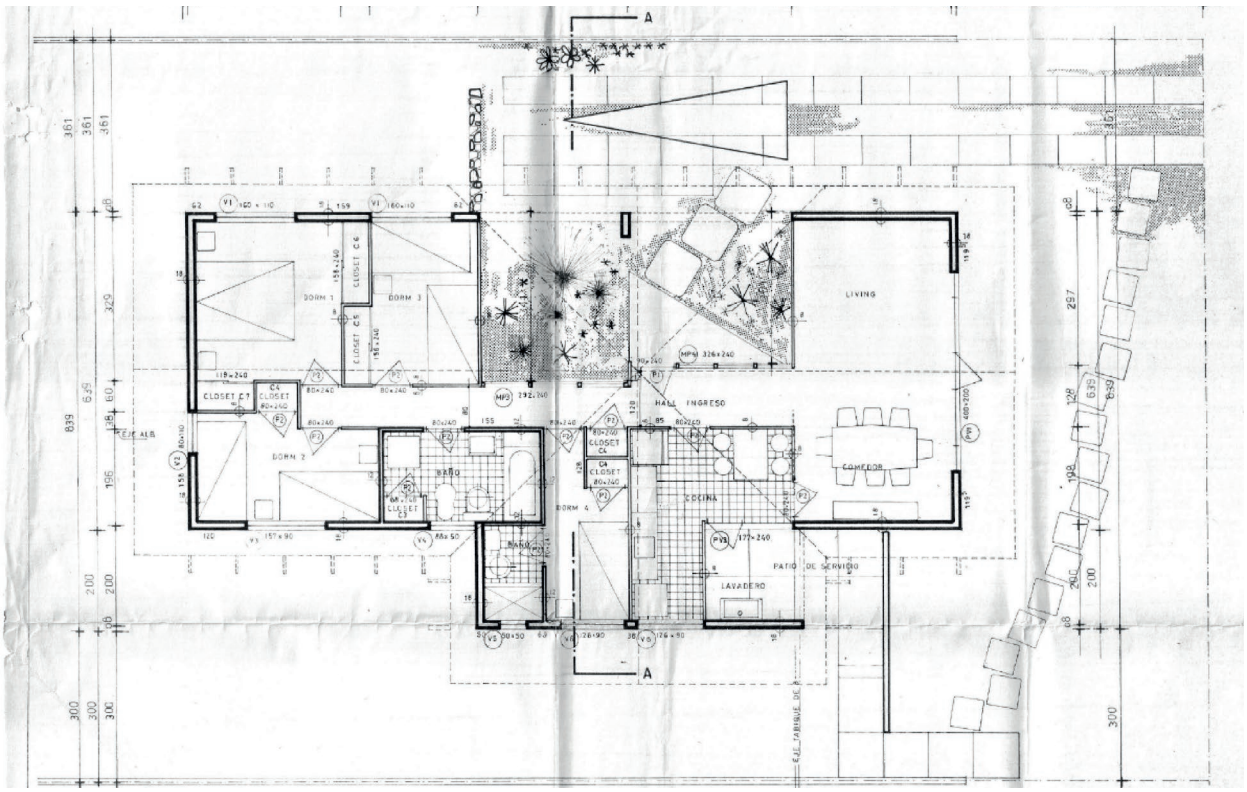


Figure 10. Floor plan type B.
Source: DOM Archives (1969).

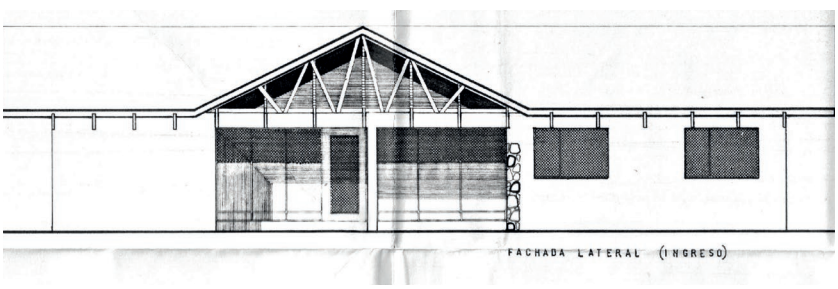
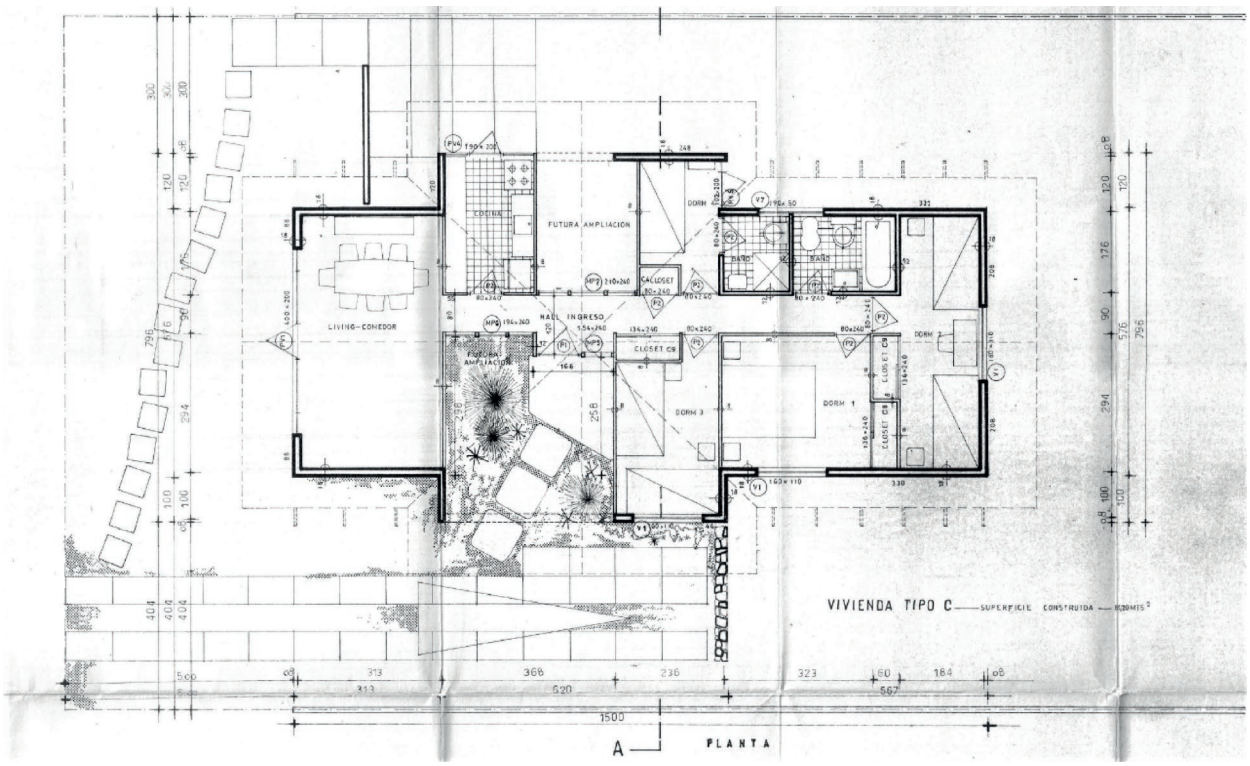


Figure 11. Side View (entrance).
Source: DOM Archives (1969).

This type of housing had the largest surface area and was chosen by most workers who had three or more children. It had a floating wooden frame roof that seems to detach itself from the structure of the house. It was accessed by a porch located on the side of the house that reached a hallway where, on one side, it had most of the home's common spaces, such as the living-dining room and, on the other, the four bedrooms, leaving the main façade with a large window facing the street

Type B Housing: (Figure 10 and Figure 11)
Year of construction: 1969
Site area: 499.50 m^2
Built area: 90.33 m^2
Covered open area: 11.84 m^2
Total built area: 102.17 m^2
Material: Masonry with lightweight half-timbered roof

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466



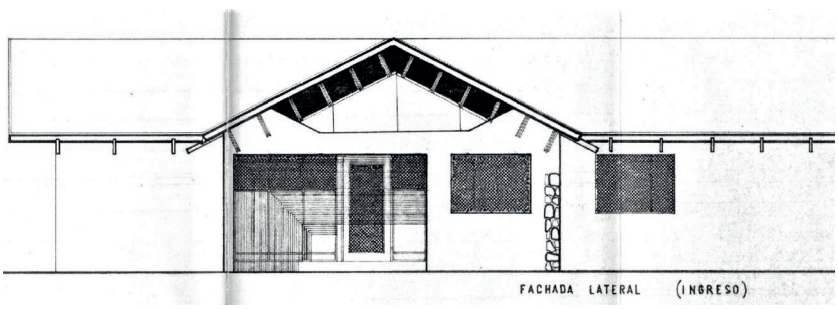


Figure 12. Floor plan type C.
Source: DOM Archives (1969).

Figure 13. Side view (entrance).
Source: DOM Archives (1969).

This was the intermediate type and was very similar to type A. It differs in its internal layout (shape and size of closets and walls), but still maintains the same spaces with its four bedrooms, living-dining room, kitchen, access porch, kitchen, bathroom, and laundry room.

Type C Housing: (Figure 12 and Figure 13)
Year of construction: 1969
Site area: 499.50 m2
Built area: 80.20 m2
Covered open area: 8.79 m2
Total built area: 89.99 m2
Material: Masonry with lightweight half-timbered roof

The smallest of the three types had a similar architectural setup, but with smaller rooms. Its internal layout differs from Types A and

AS / Vol 41 / N° 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

B in that it establishes two separate sectors, day and night. Between them, space is freed up for possible future extensions.

CONCLUSIONS

The urban growth of Chiguayante since the 1960s was strongly backed by cooperativism through the development of housing projects, carried out by three linked actors: Industry, workers, and the State. The housing cooperatives represent a transition from paternalistic top-down workers' housing to ones generated through democratic construction and urbanization processes of homes and neighborhoods.

Cooperativism also generated changes in the AMC's industrial paternalism model, with a new type of relationship between industry and worker. Housing cooperatives constituted a relevant alternative to the paternalism of workers' housing built by philanthropic industrialists in Lota, Coronel, or Tomé in the nineteenth and early twentieth centuries; or of State institutions and companies such as CAP, and others in Biobío. Housing cooperatives such as CEREPEC represent ideals of concrete, and total participation, in the sense that the members had decision-making power at all stages, from the location, and the design of the housing, to its construction.

In urban terms, the system and mechanisms of access to housing determined by cooperativism in the context of certain industrial activities resulted in the creation of a city model differentiated from that established by paternalism. State participation and support of the company were key factors for workers to become urban agents that, based on their associativity, influenced the constitution and conformation of medium-sized urban complexes. The access to funds for the acquisition of the land, lotting, urbanization, and construction were stages managed by the workers in search of the common good.

At the same time, cooperativism, regarding its architecture, stimulated the development of somewhat standardized solutions to accommodate a diversity of owners, with the implementation of alternatives and proposals for progressive growth, but that maintained a sense of unity and harmonious whole from the point of view of their morphology and implementation.

The growth of Chiguayante in this period is intertwined with industry, which accelerated the construction of high-standard housing and public spaces with social value. Although necessarily austere, this mode of urbanization gave importance to the wide street, as a public space par excellence that, together with neat green strips and wide ante-gardens, were transformed into key spaces for neighborhood interaction. Likewise, the Cooperative gives way to cohesive neighbors

AS / Vol 41 / Nº 63 / 2023
ISSN Impresa 0716-2677
ISSN Digital 0719-6466

who recognize that they have worked and built their space themselves. Groups of industry workers who colonize a rural area, name and urbanize their public space, manage professional and institutional support, collectively think about their homes, etc. Active citizens who sought their solutions in the context of a participatory era and society.

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