HABITABILITY OR PROFITABILITY?

Urban planning regulations subordinated in form and functionality to the regulation of land profitability in Santiago de Chile

Urban regulations, as possibilities and limitations to construction, outline one of the forms of coexistence within the city. Their criteria, however, do not always point to that end. As this article describes, if a norm based on habitability entails a regulation based on criteria such as coexistence and quality of life, one with an axis in constructability entails a focus on market and profitability.

Introduction

Urban regulation is an expression of city models that accumulate as geological layers of the zeitgeist of each of the eras that have passed through the history of urbanism. Although urban regulations have always influenced the profitability of urban land – insofar as they define the constructability of the plots –, the urban development of Santiago de Chile has increasingly prioritized profitability and is an expression of a strong financialization of this city (de Mattos, 2015).

As is well known, since its origin, the aim of urban legislation has been to coordinate the coexistence of different interests and set the criteria to achieve good urban habitability (Fernandes, 2003; Rajevic, 2010; Orellana, Vicuña and Moris, 2017). In the city, the interests of the actors who inhabit it coexist with those who operate on its speculative and economic level. These two variables, that of inhabiting and the economic, exist side-by-side, influencing each other. On the one hand, economic exchange is what gave rise to the formation of cities as places of marketing and centrality (Weber, 1922) and it is in the city where the 'soil market' unfolds (Ingram, 2006:109-112). On the other hand, the value of urban land is conditioned by the quality of inhabiting, since the symbolic, social or cultural capital, derived from...
that specific inhabitation, operates as capital incorporated into the built environment (Bourdieu, 1983).

The management that balances these strained interests has been the subject of recent initiatives in the field of Latin American city planning. One is the City Statute initiative, a project of urban legislation from Brazil, where the asymmetry between the different criteria tried to be resolved by legislating the issues of the city in a specific normative body – the City Statute – in order to displace its usual link to the right to property, which regulates individual action, to the field of administrative law, that is, to make the regulation of the city part of the consensus among a collective (Fernandes, 2003; Rajevic, 2000). Along with this, the reform of the National Urban Development Policy, developed in Chile in the past decade, made progress in defining and making explicit the various aspects that interact in urban development and that coexist in the city: “social integration, economic development, environmental balance, and identity and heritage” (Ministry of Housing and Urbanism [MINVU], 2014:20-63).

While the notion of coexistence of these different edges has been incorporated into Latin American legislation, countries with a longer tradition in planning have even made progress in regulating the management of asymmetries between the different interests of the city. In the case of urban legislation in Germany, there is an arbitration mechanism that, through a participatory process specific to the type of urban intervention and together with the actors involved, defines the priority that corresponds to each variable in each case (Abwägungsgebot Art. 1 Paragraph 7 from Baugesetzbuch; Battis, et al, 2019).

If we look at the praxis of urban planning in Chile from this viewpoint, there is still room for improvement in terms of managing the asymmetry between the different interests of the city due to what has been described in recent literature as an imbalance between the habitability...
Installing the central argument in the consolidation of an ‘entrepreneurial urbanism’ (Harvey, 2005), these authors describe how the normative criteria have changed during the last decades and how the paradigms that had become visible in those years – the morphological criterion in the 1930s (i.e. Barrio Cívico in the center of Santiago) and the functional criterion in the 1960s (i.e. modern housing complexes such as the Neighborhood Units) – have been suspended in favor of the criterion of maximum profitability of the land.

Habitability vs. Profitability in Chilean Regulations

The morphological and functionalist paradigms, once present to define habitability and urban form, were displaced by the paradigm of the commercialization of urban development (Vicuña, 2017; López-Morales, et al, 2012). Specially at the scale of metropolitan and communal governance, and through public-private partnership mechanisms, the Chilean regulatory framework promotes the emergence of hybrid forms generated from arbitrary development opportunities and individual speculative interests (Vicuña 2013).

This article wants to highlight, in addition to the subordination of habitability variables, the fact that the true variables that are defining the urban form have been concealed, occupying normative figures to make them tributary to the maximization of buildable area.

Historically, in European cities and Latin American cities influenced by Europe, the invention of normative codes was at the service of habitability criteria: the building height obeyed the maximum height defined by a constructive safety criterion as well as for a symbolic-cultural reason, distinguishing public buildings (taller) from private buildings (lower). Also, the distancing regulations were created in response to a habitability criterion linked to safety against the spread of fires and good lighting of the rooms within the buildings.

Here is where the fallacy behind the rules referring to heights, distances and volumes as formulas to achieve the maximum land profitability becomes obvious. These are normative codes installed as if they were codes of form, they even seem to derive from modern city models that promote volumes and greater heights, but when put into practice they become arbitrary and decontextualized when
it comes to achieving the objective of an adequate urban form. A description of the regulations on the construction coefficient, the rasante and the assignment of green areas and streets will allow us to deepen this argument.

1. The construction coefficient
The construction coefficient is a normative figure that was first applied in Chilean regulations in the 1960s (Ministerio de Obras Públicas [MOP], 1960). It is used to define the volume and height of the building, expressing the proportionality between the total amount of square meters built on its different floors and the size of the land. The origin of this regulation coincides with the influence of modern architecture in Chile, with isolated buildings in which the height is governed according to the logic of sunlight and ventilation of the building’s premises and neighboring constructions.

Since 1960, the construction coefficient began to gradually replace the volumetric regulation, which was previously achieved with the Building Height and the Continuous Grouping Form norms. In this previous regulation, regardless of the size of the property, the line and the height ensured a certain harmony of the whole, as volumetric capacities and profitability varied depending on the property size [FIG. 1, left side]. On the other hand, the construction coefficient regulation established the homogeneous capacity, that is, an equivalent profitability for plots of similar size [FIG. 1, right side]. The construction coefficient not only became more frequent in district regulation, but it was also often accompanied by the use of two exception rules that encouraged the creation of larger lots and building complexes through an increase of 30% or 50% of additional constructability.

What was decisive for the construction coefficient to become a measure of profitability – rather than habitability – was that in the District Regulatory Plans of the 1980s and 1990s the application of this norm was much more recurrent to define heights and distances, practically abolishing the regulation via limitation of building heights in many districts (for example, Santiago Centro, San Miguel, Nuñoa, Recoleta; which, in general, were also districts with a high degree of urban renewal). Also important is the incidence of the greater number of projects that took advantage of exception rules such as the Property Merger and the Harmonic Complex, which became important amplifiers of the land profitability (up to an additional 50% of constructability) (Schlack and Vicuña, 2011).

The districts that have placed greater emphasis on urban form and habitability, as is the case of Providencia and the historical patrimonial sector of Santiago, have been abolishing regulation through the construction coefficient, once again regulating the form by limiting building height.

2. Rasante
The rasante is a normative figure, originally consigned in the ordinance of the 1930s, that defines the
longitudinal profile of the buildings, that is, the end line of the building along the front, and with it, its height and the shape in which the cornice of the building is configured. Until now it has been asserted that this form of regulation derived from the urban regulations of New York, where the buildings opted for a stepped building profile (Ugarte, 1999). In these cases, the top floor was set back inscribed in a 60° angle grade. It is also possible to verify a similarity of this norm with what in the regulation of European cities was the ‘setback,’ a final floor of the building that was left set back within an angle of 45° and that, seen from the perspective of the street, would visually blend with the cornice without altering the profile perceived from street level.

In the case of Chile, this situation changed drastically when a new version of the regulation was formulated in 1979. The rasante, as conceived within the regulations of the 1975 Law and General Ordinance of Urbanism and Constructions, established an inclined-imaginary plane, which would set the limit of the building volume in a different way. In this new version, the rasante would no longer be the measure of an absolute height, independent of the terrain to which it was applied, but a theoretical volume, built from inclined planes, with an angle between 60° and 80°, that were built hypothetically from the axis of the street and from the boundaries of the land. With this, the maximum construction height of the buildings would depend on the size of the land to which this standard is applied. This change had an impact on the construction of several districts with greater real estate intensity: in Providencia it even had an impact on the generation of new types of buildings (Carrasco, 2020) and in the district of Santiago, since the 1989 regulations, it would impact on the exacerbation of the land occupation (Vicuña, 2013; Froimovich et al, 2006).
The differences between the two rasante conceptualizations are notorious [FIG. 3, to the left, the rasante understood as a finish with staggering and, to the right, the rasante understood as a theoretical volume].

This version of the rasante regulations would have been incorporated into our legislation as a derivative of the New York Zoning Ordinance 1916 (Ugarte, 1999) which, according to what Ferris’s sketches describe, would have the objective of protecting the sun from neighboring sites when large skyscrapers draw large shadow projections [FIG. 4 and 5].

This notion of the rasante, which was originally proposed to regulate the sunlight in neighboring sites, was applied for decades, having an important effect on the definition of the built volume (Carrasco, 2020). In many districts of Santiago, the rasante regulations were more permissive than the ones of the construction coefficient, and it was used to take advantage of the maximum profitability of the land. The resulting form of the indiscriminate use of this regulation was the emergence of many truncated volumes, whose morphology was literally the maximum buildable under the imaginary volume defined by the ground level [FIG. 6].

In 2001, a change was introduced that freed certain projects from the regulatory restriction of the rasante. This regulatory change was not intended to achieve effective sunlight in neighboring sites, but rather, considering that it defined the maximum volume of the land, the objective was to achieve regular volumes (Ugarte, 2001) [FIG. 7, left]. By means of this normative modification, the sums of the shadow surfaces thrown on the neighboring properties would remain the same in both cases, but the shape of the building would be made more regular to achieve a greater and more rational capacity than that attained with staggered buildings [FIG. 7, right].

If the focus had been on efficiently regulating the sunlight in buildings, the discussion would probably have taken another course. For example, a model of goal-oriented standards (such as a minimum number of hours of sunlight) could have been discussed, following the regulation of the Netherlands [FIG. 8, two morphologically different alternatives to achieve the same goal of three hours of sunlight].

According to what has been said, the evolution of the *rasante* followed the objective of maintaining and improving the profitability measurement of the land and, in some cases, had the secondary objective of shape and habitability. The impact that this regulation has had is important, since most of the high-rise buildings that are built today use the calculation of shadows to maximize the buildable volume above the ground.

3. Transfer of land for streets and green areas
From the first regulation of 1938 onwards, the provision of public space was conceived as a result of the transfer of land in a private subdivision process. Only in very limited periods of Chilean urban development, in the 1960s and early 1970s, under exceptional budget programs, Urban Remodeling regulations and the institutional framework of the *CORMU* (Urban Improvement Corporation) (Raposo and Valencia, 2004; Rajevic, 2019), projects such as neighborhood units were financed, in which green areas and circulations were provided as a constitutive part of the remodeling project, implementing important innovations to Chilean urban design (Pérez de Arce, 2016).

Public spaces were considered relevant elements of urban composition in the period between 1938 and 1960 (Rosas et al., 2015; Cortés, 1996) and, accordingly, the regulation of the transfer of public spaces used terminologies such as *plazas*, *plazuelas*, avenues, parks and streets to refer to these spaces. The regulations established an assignment expressed as a land percentage. A 37% of the surface of the lots had to be destined to public spaces.9

From 1960 onwards, the terminology is associated with the functionalist terminology 'circulation, green area, and services' and the transfer is calculated according to the gross housing density, which indicates the notion of a standard *per capita* of inhabitants.10 The complex table that is incorporated in article 3.3.5 to calculate the assignments shows that the stipulated values are finally very similar to those of the 1938 ordinance. The new normative table is not consistent either in having a proportional surface to the number of inhabitants. In the graph below, it can be seen that, in higher densities (150 inhabitants/ha), the transfer of public spaces reaches only 4.8 m² per inhabitant, while, in lower densities (70 m²/inhabitant) the public spaces reach 10 m² per inhabitant (see comparison between up and down lot in FIG. 9). If this calculation were made with plots of 300 to 600 inhabitants per hectare (vulnerable housing) the situation would be even more extreme and would reach no more than 3 m² of green areas per inhabitant, which is below the standards of 6-7 m² per inhabitant, values usually referenced.11

The evolution of the regulations for the transfer of public spaces shows us that, beyond adapting the regulation to compositional standards (proportion of surface area) or functional ones (surface area per inhabitant), the priority was to adapt a formula so that it maintains very similar requirements to what is
established by the 1938 ordinance. With this, it is possible to deduce that the priority was the consolidation of the maximum value in the assignments of land and, with it, the stable maintenance of the profitability of the land in the development of plots.

**Conclusion**

The review of the three regulations reveals a common pattern: a tendency to subordinate habitability regulations to the objective of maximizing profitability. In some cases, it is the possibility of an arbitrary application of the rule that leads to limiting and defining the urban volume with criteria for maximizing buildability, without arguments associated with habitability (constructability coefficient). In other cases, it leads to the rules being decontextualized from their original meaning to be reinterpreted as a measure for higher profitability (rasante). Finally, in others, it leads to the opportunities to reduce the value of the profitability of the land to be kept to the minimum possible (assignment of green areas and streets).

Undoubtedly, the path that the new National Urban Development Policy of Chile has opened, in terms of the recognition of the city’s complexity, requires exploring the different variables that coexist in urban legislation, making visible, on the one hand, the true objective of the rules and, on the other hand, the arbitrariness that derives from their application. Thus, a certain regulation is not deficient in itself, but rather what leads to an arbitrary urban form is the fact that regulatory plans often use regulations that primarily regulate volumetric capacity (construction coefficient or rasante) to define urban morphology. Even more structural is the problem posed by the regulations for

**FIG. 7** Normativa de rasante (derecha) y normativa de cálculo de sombras (izquierda). La suma de sombras arrojadas en ambos casos es la misma. / Rasante regulations (right) and shadow calculation regulations (left). The sum of the shadows cast in both cases is the same. Dibujo por / drawing by: C. Faríña, 2020.

**FIG. 8** Normativa de asoleamiento de los Países Bajos. Esquemas redibujados de las alternativas para el proyecto VP/RO de MVRDV. / Netherlands Sunlight Regulations. Redrawn diagrams of the alternatives for MVRDV’s VP/RO Project. Dibujo por / drawing by: C. Faríña 2020.
FIG. 9 C cesión de espacio público de acuerdo al Artículo 3.3.5 oGUC. Loteo superior muestra una densidad media 150 hab/ha; calles son un 30% y área verde es 7,24% de la superficie; 4,8 m² de área verde/hab. Loteo inferior muestra una densidad baja 70 hab/ha, calles son un 30% y área verde es un 7% de la superficie y 10 m² de área verde/hab. / Transfer of public space according to Article 3.3.5 OGUC. Upper plot shows an average density of 150 inhabitants/ha; streets are 30% and green area is 7.24% of the surface; 4.8 m² of green area/habitant. Lower plot shows a low density of 70 inhabitants/ha, streets are 30% and green area is 7% of the surface and 10 m² of green area/habitant.


Notas / Notes

1 Acknowledgements: This work was financially supported by the Millennium Scientific Initiative of the National Research and Development Agency (ANID), granted to Millennium Nucleus Center Authority and Power Asymmetries.

2 The construction coefficient is defined in Article 1.1.2 of the General Urban Planning and Construction Ordinance (oGUC) and is one of the urban planning regulations established in district regulatory plans. Originally regulated in Supreme Decree No. 47 published in the D.O. 05.19.92 and in its updated version as Supreme Decree No. 8 published in the D.O. 01.03.05.


5 In the regulation of continuous building in Berlin, for example, the cornice of the building is called obernante and the top setback floor is called stoffelling and falls within a 45° grade, being consigned in the sectional plan of Leipziger Platz. Source: Bebauungsplan II-165, Bereich Potsdamer Platz (Bezirksamt Tiergarten von Berlin). Bebauungsplan I-15 and I-16 Leipziger Platz, entspr. südlicher und nördlicher Teil, Comuna Mitte en Berlin.


9 Article 501 of the Law and General Ordinance of Construction and Urbanization. Law 17386 published in D. O. 6.2.1936. "The layout of new streets, neighborhoods or towns must be projected in accordance with the following general conditions: [...] c) Distribution
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