IS CONCILIATION OF THE OLD AND NEW POSSIBLE?
URBANISTIC INSTRUMENTS APPLIED TO THE HISTORICAL AREA OF THE DOWNTOWN DISTRICT OF BAIRRO DO RECIFE - PERNAMBUCO

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Abstract

The main aim of this paper is to reflect on how the urbanistic instruments contained in Municipal Law nº 16.290/97 and in Federal Law nº 10.257 of 2001 - the Statute of the City -, when applied against a historical reality, can guarantee balance and formal harmony between the maintenance of the old and the introduction of the new. To do so, an urbanistic simulation was drawn up for the downtown district known as the Bairro do Recife, specifically for the group of buildings which surround Tiradentes Square. This has been the basis for identifying the limits and the possibilities of applying the instruments given in these two pieces of legislation. The Bairro do Recife is the place where the city was formed and one of its historical sites, while the surroundings of the square present typological diversity and a high degree of degradation.

Key words: historical area, urbanistic instruments, urbanistic simulation

1.0 Introduction

Renovations of historic centers, which began in various European countries and in the United States in the 1960s, became one of the main components of national strategies for development in the 1980s and 1990s. This attention to historic centers brought in its wake fundamental questions for discussion in the field of urban planning. One that stands out is related to the way in which old and new urban morphologies have been conciliated. In order to engage on this reflection, this paper sets out from the understanding that historic sites are specific places in the city, because of their artistic and cultural value and this is considered as a thematic focus on the application of urbanistic instruments laid down in the Municipal Law nº. 16.290/97³ and in the Federal Law nº 10.257 of 2001 – the Estatuto da Cidade (Statute of the City)⁴.

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³ This law establishes conservation norms for the grouping of buildings in Bairro do Recife district, and contains part of the instruments laid down in the Statute of the City.
⁴ The Statute has come into effect as a federal law which regulates the chapter on Urban Policy in the Federal Constitution of Brazil. From being published, all director plans and urbanistic legislation must be drawn up in the light of its principles and guidelines. These guidelines are in three areas: (i) the group of urbanistic
It is valid to stress that many of these instruments incorporated by Brazilian urbanistic legislation arose and are being applied in other countries such as France, USA, Italy and Portugal. The Outorga Onerosa do Direito de Construir (Selling the Right to Build), for example, originated from experiences in France (Plafond Legal de Densitè), USA and Italy. Public and private consortium for urban development arose in the USA and France, and initially were directed towards revitalizing decayed areas. The so-called coercive works and the right of preference, instruments which are very similar to those contained in the Statute of the City, called, respectively, Consórcio Imobiliário (Real Estate Consortium) and Direito de Preempção (Right of Preemption), have been widely used since the 1970s in the rehabilitation of the historical centre of Lisbon. Therefore, the reflection on the conciliation of the old and new urban morphologies supplied by applying these urbanistic instruments to historic sites is pertinent for the practices of integrated conservation in various places.

The main aim of this paper is to reflect on how such urbanistic instruments can guarantee balance and formal harmony between maintaining the old and introducing the new. Thus, based on the reading of the existing urban morphology, a simulation has been drawn up of formal alternatives arising from the constructive additional material brought about by some of the urbanistic instruments contained in Municipal Law n° 16.290 of 1997 and in the Statute of the City, by taking as an empirical sample the historic centre of the Bairro do Recife district, specifically the grouping of buildings on Tiradentes Square. The precepts contained in both laws were considered as setting the conditions for the urbanistic simulation of the maximum permitted built square meterage on one lot (deemed “potencial construtivo” in Portuguese and which we shall henceforth deem “floor area ratio” in this paper).

The Bairro do Recife is the place where the city was formed, is its most important historical site, and has been the target of urban renovation actions since the 1980s. Today it performs the functions of a business and decision centre, mainly those directed at information technology and governmental institutions. The surroundings of Tiradentes Square display typological diversity and a high degree of building decay. Such a fact lay behind choosing this area, for, by means of simulating the floor area ratio, it will be possible to identify how to introduce changes, without taking away from the character of the pattern of historical occupation.

The text comprises three parts. The first presents the reading of the urban morphology of the Bairro do Recife; the second is a similar reading, this time of the surroundings in Tiradentes Square; the third presents the simulations of making constructions denser, and instruments, which encourage control in forms of use and occupation of the land; (ii) instruments regulating urban ownership; (iii) management in which civil society participates.

5 The Bairro do Recife started life as a port, the central element which structured the city. The oldest portion was begun when it was first settled in the 16th century.

6 The reading of urban morphology is referenced in Kohlsdorf (1996) and Pereira (1996). The method of analysis and apprehension of the urban space adopted by this paper is called direct observation. This method consists of conducting field visits which aim to observe and interpret that reality by obtaining a morphological picture of the area according to three structures: physical-spatial, public spaces and assets. Characterizing the physical-spatial aims to understand the structure of the space, by means of a survey of the urban street layout, of the form and dimension of the lots and blocks, of the constructive typologies, of the ebbs and flows and of the patterns of occupation (typology x lots x blocks). As to the recognition of the public spaces, this aims to classify them into linear ones (streets) and non-linear ones (squares, parks, largos (public open spaces), etc), as well as the state of conservation in which they are found. And, as to the make-up of its asset structure, the uses and flows developed in the urban space must be observed, how appropriate they are, and how they are articulated.
discusses what formal arrangements make balance and harmony between the old and new possible.

2.0 *Bairro do Recife: distinct geometrical morphologies*

The morphology of the *Bairro do Recife* has undergone significant transformations over a long period of time, partly arising from land-fills that have been carried out. The “tongue” of land, on which occupation of the district was begun, was ten times less than its current total area. The opening of a canal to the north, in 1915, was to transform the *Bairro do Recife* from a peninsula into an island.

The opening of this canal forms part of the changes that occurred in the morphology of the *Bairro* brought about by the urban reform for improving the port, begun in 1909. From the 1940s, there was a fall in the economic dynamics when the district of Santo Antonio also underwent a reform, and went on to become the centre of specialized and luxury commerce. The *Bairro do Recife* became an obsolete space, relegated to physical decadence and most of the old *sobrado*-style houses (which we shall refer to as *sobrados*) were turned into night clubs and slums.

Various plans and urban conservation laws for the city have been conducted, since the end of the 1970s, in which the the *Bairro do Recife* has had central importance. They are: the Preservation Plan for Historic Sites of the Metropolitan Region of Recife (PPSH/ RMR – the acronym in Portuguese), of 1976; State Law nº 13.957 of 26 September 1979 regulating the PPSH and classifying eight areas within this District as a historical grouping); Decree nº 11.692 of 22 September 1980 which lists a part of the district at the municipal level and Order nº 263 of 23 July 1998 establishing the national listing of the district. All these legal instruments emphasize the wealth and importance of the built heritage, because of the artistic value relative to the diversity of architectonic styles and urban patterns, and because of their historical value because it represents the site of the city’s origins.

The architectonic and urbanistic interventions undertaken through rehabilitation/revitalization programs have not always maintained formal harmony, as they have brought about de-characterizations. Such a fact can be verified when it is observed that despite its being an island, the internal ambience of the *Bairro do Recife* does not permit the perception of this geographical feature. In addition to the port facilities, which impede accessibility and visibility to the Atlantic shore, since the start of the 20th century, on the riverfront, institutional buildings and their huge car parks, built in the 1980s and 1990s, form a visual barrier and one that stops access to the banks of the Rivers Capibaribe and Beberibe.

Today, the *Bairro do Recife* is an aggregate of its stages in formation and of the best scenarios of architecture and urbanism from the 17th to the 21st century. This is revealed quite clearly both in the morphology of its street layout as in its varied built heritage.

The urban layout of the *Bairro* displays two very distinct typologies: the one regular and orthogonal and the second regular and concentric. The first corresponds to the street layout which follows the power lines of the original layout before the modernization of the port reform. The major streets run in a north-south direction and the minor ones are perpendicular to these in an east-west direction. This case is perceived in the following

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7 The Urban Reform of the Bairro do Recife begun in 1910, besides aiming at improving public health and opening new streets, was tied in with the reform for modernizing the port of Recife. To do so, a long and narrow quay was built, and on it a series of warehouses. This was the moment when the Atlantic sea-front of the island was almost completely taken away from the city.
two stretches: that from Avenida Barbosa Lima to Rua do Observatório, corresponding to
the area dentro de portas (within the gates), with the layout which originated up to the first
half of the 19th century; and that of the Rua do Observatório to Avenida Alfredo Lisboa,
the fruit of the great plan for extending beyond the gates at the end of the 19th century
(map 01).

The second typology is found to the south of the Bairro, and encompasses another area
within the walls. The concentric layout verified is relative to the urban reform at the start
of the 20th century, in which the lines of the layout converged to a central point, a large
largo, today called Marco Zero Square (i.e. 0 km, from which distances to other cities are
measured).

The format of the blocks of land arises from the urban street network. To the south it is
blocks of small and medium size which predominate and square and rectangular formats,
so keeping to the original design of when they were formed between the 17th and 19th
centuries. In the area which was the object of the 1909 reform, triangular and trapezoid
blocks are found, of small and medium size, with a shape similar to that of a “clothes
iron”. In the city centre, the blocks are of larger size, most being square and rectangular,
having originally been formed between the 18th and 19th centuries. The blocks taken up
by the port facilities, to the east and north of the district, and by the institutional buildings
to the east, date from the 20th century and are large-sized and without regular geometric
shape.

The built typologies found in the Bairro do Recife are rather distinct from each other,
conforming to various scenarios. In the extreme south of this area, there is a
predominance of houses in the sobrado style with not more than two floors. In the streets
called Vigário Tenório, Marquês de Olinda, and Rio Branco and in the transverse streets
there is a larger incidence of neo-classical sobrados with three or four floors. These sobrados
are impressive and occupy lots with a wider frontage, and the monumental aspect is
reinforced by the axiality of the streets. The blocks directly linked to the Praça do Arsenal
(a square) are taken up by colonial sobrados, of three or four floors, from the 17th, 18th and
19th centuries. In the central portion of the island, on the east side of the Avenida Cais do
Apolo, in the Rua do Brum and Avenida Bernardo V. de Melo, the predominant
typologies are sheds or warehouses and sobrados of up to two floors, dating from the end
of the 19th century. Between the Rua do Brum and Avenida Bernardo V. de Melo there is
the presence of the typology of shanty town. The portion further to the north of this area
is marked by industrial buildings and facilities which take up large blocks. On the east
side, in the Cais do Apolo (a former quay), are to be found the buildings of largest
dimensions, which vary from 15 to 54 m in height, and were built on large lots of varied
format. The entire Atlantic façade of the district and the area on its extreme north are
filled with warehouses and tankerage parks belonging to the Port of Recife, making up a
huge territorial extension with a spatial ordering specific to this economic activity.

The exceptional monuments and buildings form true built landmarks, with pride of place
for those listed at the federal level: the Madre Deus Church, the Apolo Theatre, the
Synagogue of the Americas, the Church of Pilar, Fort Brum, and the Harbormaster´s Cross
(Cruz do Patrão); besides those listed by the local State: Malakoff Tower and Station Brum
(Estação do Brum). The linear public spaces, namely, the set of all streets in the district is

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8 At the time when the Dutch held sway, between 1630 and 1654, the concern for defence led to the creation of
a system of redoubts and fortifications, with a veritable cordon of protection being mounted both on the
mainland and on the peninsula, where the city’s three gates were built. This is the origin of the terms dentro
de portas (within the gates), for all the area inside the protection cordon, and fora de portas (without the
gates), for the built area beyond that and in the external area to the fortifications.
directly linked to the four bridges, so setting the shape of a main ring of traffic flow formed by the Avenida Cais da Alfândega, Rua Madre Deus, Avenida Cais do Apolo and Avenida Alfredo Lisboa, which is crossed transversally by the Avenidas of Marquês de Olinda and Rio Branco. With the exception of Avenida Cais do Apolo, which has morphological features which are very distinct from the other avenues, these main streets are characterized by the conformation of a “corridor street”, typical of colonial urbanism, in which the constructions front the lot. The non-linear public spaces are the four remaining squares: those of Marco Zero, Arsenal, Tiradentes and Luso-Brasileira, formally distinct from each other.

As to the use of land in the Bairro do Recife, this shows itself to be rather varied and characterized by the spatial overlay of activities. Although port and industrial activities take up large areas, it is institutional use which most attracts people, vehicle traffic flows and businesses. Among institutional uses, the ones that stand out are those regarding federal, municipal and state government organisms. The services are very diverse and specialized. These are the ones that sequentially most occupy areas and best define the functional profile of the district. There are commercial offices for imports and exports, technical professionals, forwarding agents, banks, real estate and insurance agents, offices of sugar refineries and industry, unions and professional associations and, arising from setting up the Porto Digital (Digital Port), services linked to information technology, besides the uses linked to entertainment, leisure and gastronomy. Commerce is scattered all over the Bairro, with the wholesale branch of foodstuff predominating.

3.0 The urban grouping of Tiradentes Square: morphological homogeneity and lack of use the build stock

The group of buildings set around Tiradentes Square is much decayed. Situated in the former fora de portas (outwith the gates) stretch, the five blocks which form the sides of the square were built towards the end of the 19th century. Its urban network, typical of this period, is characterized by its grid being very right-angled under which the largest roads run in a north-south direction and the minor ones, perpendicular to the largest roads, run from east to west.

The blocks of the area result from this right-angular feature and are rectangular and quadrangular of medium and large dimensions\(^9\). Almost all the lots are rectangular and of small dimensions\(^10\). The degree of use of the lots is almost 100\%, a very common characteristic on historic sites, bearing in mind that compulsory purchase of private land for public use was not a regular practice before the 20\(^{th}\) century.

Six built typologies have been found: a ground floor building; sobrado with two floors; sobrado with three or four floors; commercial building with up to three floors; sheds and warehouses of between five and six floors. This latter typology is the predominant one, followed by ground floor buildings and sobrados of up to two floors. (see figures 3, 4 and 5)

\(^9\) Three characteristics were found for the blocks as to their format and size: two are rectangular with large dimensions (between 10,286 and 10,929 m\(^2\)), three are quadrangular with medium dimensions (between 5,020 and 6,278 m\(^2\)) and one is trapezoidal with a large dimension (16,347 m\(^2\)).

\(^10\) The dimensions and formats of the lots in the area studied are: small rectangular (between 150 and 800 m\(^2\)), average rectangular (between 801 and 2000 m\(^2\)), large rectangular (over 2,001 m\(^2\)) and medium trapezoidal (between 801 and 2000 m\(^2\)). In all there are 67 lots, 58 being of a small rectangular format, 6 medium rectangular ones, only 1 large rectangular one and 2 medium trapezoidal ones.
When tackling the architectonic value of these typologies, the ground floor buildings, sobrados of two and three floors and the warehouses are mostly important examples of late 19th and early 20th century architecture, although they have been very much de-characterized. Of these buildings, three located on block 65 (nº. 255, 289 and 303) and one on block 75 (nº. 302) form built landmarks on account of their stylistic and volumetric expression. Almost all the commercial buildings are new constructions and of low architectonic value.

As to their state of conservation, the buildings are very much decayed, 56% of the properties being in a very bad state of conservation, 25% in a satisfactory state and, only 19% well conserved. Besides this, another negative point is the high degree of under-utilization or non-use of the built stock.

The linear public spaces comprise eight streets of traffic. These streets are of small straight and narrow dimensions, with the buildings either fronting or side on to the lots, so forming “corridor-streets”. Only Avenida Cais do Apolo differs from the others by being wider and having two lanes of traffic.

Tiradentes Square began life as a small river port, where small craft were repaired, and has been maintained until today as a non-built-up space inside this densely occupied district. It is a non-linear place of public use with a quadrangular format, of average size, varied vegetation, urban furnishings, and used by those who work near it. (figure 1)

The predominant uses of the area are those of warehousing and the wholesale commerce of foodstuffs. It is possible these activities may tend to disappear to the extent that renovation interventions may encourage other more appropriate uses such as being a centre of business and entertainment.

The morphology of the urban groupings of Tiradentes Square is very homogeneous, some variations being possible as a result, principally, of the format of the blocks, which are expressed in four patterns of occupation (map 02):

- Pattern 1 (blocks 105 and 65): medium-sized rectangular blocks, the lots also being small and medium rectangular ones. The built typologies found are: ground floor sobrados, sobrados of up to two floors, commercial buildings of up to three floors, sheds and warehouses.

- Pattern 2 (blocks 90 and 75): medium quadrangular blocks, small rectangular lots, occupied by ground floor sobrados, sobrados of up to two floors, sheds and warehouses.

- Pattern 3 (block 110): block occupied by large facilities, the Capitania dos Portos de Pernambuco (Harbormaster’s Office of the Ports of Pernambuco), in quadrangular format is distinguished from the others because it occupies the perimeter and has a large internal patio. The buildings belonging to the Harbormaster’s Office of the Ports of Pernambuco are sobrados of two floors, in addition to constructions annexed after the original and which de-characterizes it.

- Pattern 4 (block 85): Tiradentes Square.
The morphological patterns of the Bairro do Recife and of Tiradentes Square, when related to the precepts set out in the Declaration of Amsterdam\textsuperscript{11} (1975), allows it to be shown what can be conserved and transformed. This classification shown in the table below forms the basis for drawing up the urbanistic simulation of the floor area ratio (i.e. the maximum square meterage of construction permitted by law on one site).

**Table 01- Conservation and Transformation**

<table>
<thead>
<tr>
<th>Pattern of Occupation</th>
<th>Conservation</th>
<th>Transformation</th>
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<tbody>
<tr>
<td><strong>Pattern 1</strong>&lt;br&gt;(blocks 105 and 65)</td>
<td>- <em>Sobrados</em> of late 19\textsuperscript{th} and early 20\textsuperscript{th} centuries;&lt;br&gt;- Properties n\textsuperscript{o} 255, 289 and 303;&lt;br&gt;- Public space: paved, public cleansing and lighting;&lt;br&gt;- Control of the flow of goods vehicles and the manner in which they appropriate public space;&lt;br&gt;- To promote attraction of new uses for the unused and under-used properties.</td>
<td>- Commercial buildings, without architectonic value, de-characterizers of the grouping;&lt;br&gt;- Sheds and warehouses, without architectonic value and in a high degree of decay;&lt;br&gt;- Re-membering of lots to introduce a new pattern of occupation.</td>
</tr>
<tr>
<td><strong>Pattern 2</strong>&lt;br&gt;(blocks 90 and 75)</td>
<td>- <em>Sobrados</em> of late 19\textsuperscript{th} and early 20\textsuperscript{th} centuries;&lt;br&gt;- Property n\textsuperscript{o} 302;&lt;br&gt;- Public space: paved roads, sidewalk, cleansing and maintenance;&lt;br&gt;- Control of the flow of goods vehicles and the manner in which they appropriate public space;&lt;br&gt;- To promote attraction of new uses for the unused and under-used properties.</td>
<td>- Commercial buildings, without architectonic value, degraded and not used;&lt;br&gt;- Re-membering of lots to introduce a new pattern of occupation.</td>
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<tr>
<td><strong>Pattern 3</strong>&lt;br&gt;(block 110)</td>
<td>- The group of early 20\textsuperscript{th} century <em>sobrados</em> of great format value;&lt;br&gt;- Public space: paved, public cleansing and lighting;&lt;br&gt;- Control of the flow of goods vehicles and the manner in which they appropriate public space;&lt;br&gt;- To promote attraction of new uses for the unused and under-used properties.</td>
<td>- Commercial building of 10 floors;&lt;br&gt;- Constructions annexed later than the original of the Harbor-master of the Ports.</td>
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<tr>
<td><strong>Pattern 4</strong>&lt;br&gt;(block 85)</td>
<td>- Tiradentes Square and its vegetal mass;&lt;br&gt;- Control of the flow of goods vehicles and the manner in which they appropriate public space.</td>
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The precepts contained in Municipal Law n\textsuperscript{o} 16.290 of 1997, relative to the Historical Site of the Bairro do Recife, and in the Statute of the City were considered as determining factors of the urbanistic simulation of the floor area ratio. The first establishes norms of conservation of the built stock and sets out the application of three instruments contained

\textsuperscript{11} The term conservation when applied to a heritage site is related to safeguarding and protecting it. Integrated urban conservation presupposes not only the recovery of the urban fabric, but also of the social fabric. Paradigmatic experience with regard to integrated conservation began with Italian progressive urbanism of the late 1960s in the city of Bologna. In 1975, by dint of the dimension and importance of this experience, the principles of integrated conservation were brought together, and appear in the Declaration of Amsterdam. This reaffirms that the architectonic heritage comprises all the buildings and urban settings of historical and cultural interest, and extrapolates the exceptional edifications and settings to include any part of the city, including the modern part. In its scope it is also argued the conservation of heritage should be considered as the main objective of urban and regional planning and all actions for recovering degraded areas should avoid to the maximum extent possible substantial changes to the existing social structure.
in the Statute of the City, these being: public and private consortium for urban
development; selling the right to build; and transfer of development rights. The
instruments not set out in the Law, but present in the Statute are: compulsory use
of urban land/ compulsory use of real estate, progressive land and building tax (over time),
the dis-appropriation with payment in titles from the public debt, the real estate
consortium and the right of preemption. All these instruments are important in order to
control property speculation and for the conservation and property valuation of the built
stock of this district.

Besides these instruments it is relevant to cite how the areas of this district are divided, by
Law, into the following sectors: Sector for Controlled Intervention (SIC in Portuguese)\textsuperscript{12},
Setcor of Renovation (SR)\textsuperscript{13} and Sector for Urban Consolidation (SCU in Portuguese)\textsuperscript{14}.

\textbf{4.0 The morphological simulations in the urban grouping of Tiradentes Square:
expanding the built area without verticalizing}

The urban grouping of Tiradentes Square presents homogeneous characteristics.

However, not everything should be conserved as is, since it is possible, and even
necessary, to introduce the new. Therefore, what was adopted as a guideline, was the
conservation of the pattern of existing occupation, indicating the renewal of the built stock
with the physical recovery of the properties to be maintained; the substitution of those of
least architectonic value; and the insertion of new uses.

The simulations undertaken aim at raising elements for discussion on the possible forms
of building more densely in the area, while respecting the identified pattern of
occupation. To do this, use was made of the índices laid down in the Municipal Law of
the Bairro do Recife for the Sector for Controlled Intervention and Setcor of Renovation.
These are: the referential coefficient (µ\textsubscript{ref}) equal to 2.4 and the maximum coefficient
(µ\textsubscript{máx}), for the purpose of the built square meterage allowed by law (deemed solo criado
in Portuguese), equal to 3.0. The application of such coefficients in the tables followed the
guideline for maintaining the existing pattern of occupation.

By using the patterns of occupation set out in Table 01 and the indications of the
urbanistic and architectonic components liable for conservation and transformation, the
current configuration and two volumetric simulations are shown block by block, one of
them corresponding to the proposal adopted with the related table of areas. The selection
criterion for choosing the proposal was that of least impact on the block’s morphology
and simultaneous increase of the built area.

Additionally, internal patios are adopted as a composite element. This is justified because
of the need to create more adequate lighting and ventilation for the new buildings, given
that the original division of the area into lots is characterized by the existence of

\textsuperscript{12} The introduction of new architectonic elements, uses or activities is permitted in this sector as long as they
are compatible with the urban setting. And, it is forbidden to apply the solo criado. The referential coefficient of
occupation is 2.4.

\textsuperscript{13} Altering the current pattern of occupation is permitted in this sector, with an increment of the floor area
ratio for empty or under-utilized lots. The referential coefficient of use is 2.4 and the coefficient of maximum
use for application of the solo criado is 3.0. Besides these indices a maximum height of 40 meters and the rate of
built surface area (deemed solo natural) of 20% are also defined.

\textsuperscript{14} What is laid down in this sector is the maintenance of the existing pattern of occupation, the coefficient of
referential use is 2.4 and the coefficient of maximum use is 3.0. Besides these indices, what is also defined are
the height of up to 76 meters for the towers and 12 meters for the base, and also the rate of occupation of 60%,
of which 40% is of the base and 20% of the tower.
rectangular, small and narrow lots, most of them with only one front getting air and being illuminated. This choice was due to there being such an element in the block occupied by the Harbormaster’s Office of the Ports of Pernambuco, formed by a large U-shaped block fitted around the limits of the lot, thus forming a large internal patio. This was also referenced in the internal patios of the blocks of the ensanche de Cerdá (in downtown Barcelona), the main objective of which was to improve the salubrity of the dwellings there by providing for adequate lighting and ventilation.

It is valid to stress that for the public spaces of the area and for block 85, occupied by Tiradentes Square, all that is indicated is conservation actions aimed at maintenance and function. It is not pertinent or necessary to make any change to the urban form.

**Pattern 1: sobrados, buildings with up to 3 floors and sheds**

**Block 105**

This block is contained by the Sector for Controlled Intervention, which implies building restrictions, including the prohibition of applying the solo criado provisions (see p. 8 above and note 13). The maintenance of the existing pattern of occupation takes place in part of the block, specifically on the south side. What should be carried out is the renovation of these properties and the introduction of new uses in the under-utilized or non-used stock. In the other part, on the north side, the introduction of new components is proposed with the re-membering of lots and the internal patio, while the existing height and alignment are maintained, the main components for the conservation of formal harmony.

These partial modifications are simulated and presented in simulations A and B (Figures 2.2 e 2.3) with the following similarities and differences. In the two simulations, occupation is on the perimeters of the lot, so creating internal patios. However, in simulation A (Figure 2.2), the construction is in two blocks, one larger, with a quadrangular shape, and a height of 13 meters, the other a smaller T-shaped one and ten meters high. In simulation B (Figure 2.3), a height of 13 meters is maintained in a single block and has a larger internal patio. This latter is the alternative chosen given that it is a less fragmented occupation which allows for the renovation of properties with the possibility of new uses, promotes partial transformations in the pattern of occupation and above all ensures formal harmony.

Table 02 brings up the areas of the current and proposed situations. Note there is a 28.3% increase, almost 4,200 m², of built area when this new pattern is introduced. It is also worth stressing, as opposed to the current situation, 939.78 m² of free area is allowed for within this block.
Different from block 105, this one is located in the Sector of Renovation with fewer building restrictions, including because of the *solo criado* permit. In this way the maintenance of the pattern of occupation is conducted on four lots. The buildings on them must be conserved and renovated, and all of them are *sobrados* of historical and architectonic value.

The transformations proposed, apart from the re-membering of lots and internal patio in exactly the same way as block 105, consist of applying the coefficients occupation laid down in Law nº 16.290 for the *solo criado*. As is set out in this law, these coefficients may be materialized in a pattern of occupation characterized by the adoption of verticalization within the blocks (called tower buildings) and horizontalized buildings facing the limits of the lot (called base-buildings in this law), as shown below.

Simulation A (Figure 3.2) proposes the construction of three forty-three meter high tower buildings (13 floors) within the block, and a thirteen meter high horizontalized base building (4 floors) forming the perimeter of the whole block.

The simulation B (Figure 3.3) foresees making the horizontal blocks denser, so conserving the present alignment and height in the area. The blocks resulting from this simulation are twelve meters high, when the *solo criado* provision is not applied, and fifteen meters when
the application of this instrument is given. Opting for this simulation was due to the fact that, similarly to the previous block, the same built area of simulation A was achieved without breaking the formal harmony with the buildings to be conserved, for the existing alignment and heights have been maintained.

In accordance with the calculations presented in Table 02, it was possible to attain a 99.6% increase in built area in relation to the current situation, and also thereby creating an internal patio of 2,645.68 m².

**Pattern 2: sobrados and sheds**

**Block 90**

This block is contained by the Sector for Controlled Intervention, in equal manner to 105, therefore liable to building restrictions. The maintenance of the existing pattern of occupation will apply to most of this block. Its buildings display architectonic value, and therefore the renovation of these properties and the introduction of new uses for the under-utilized or non-used stock are indicated.

Transformation is foreseen in the lots occupied by sheds, and it is proposed these lots should be re-membered. However, even when re-membered, the resulting lots are small if compared to the previous blocks, and are characterized by having little width (between 20 and 25 meters) and great depth (between 55 and 60 meters). Such a characteristic, allied to the legal non-obligatoriness of leaving surface space unbuilt (*solo natural*), end up by
inducing the maximum occupation of the lot. The two simulations undertaken therefore display different solutions for setting up new blocks on these lots.

In simulation A (Figure 4.2), the proposal is for the total occupation of the lots remembered by two blocks, eight and eleven meters high, without the provision of a green area.

In simulation B (Figure 4.3), put forward as being more adequate, two blocks eight and eleven meters high are also erected and the creation of a small patio in the rear part of the buildings is proposed, so permitting better lighting and ventilation.

When we analyze Table 02, an increase of more than three thousand m² of built space is noted, corresponding to an increase of 34.71%. The example of this block elucidates very well the possibility of fitting into the indices for building proposed by the Law of the Bairro do Recife without breaking the pattern of current occupation. By means of applying the referential coefficient (2.4), in a relatively small lot, a considerable gain of built area has been made possible. This has been achieved without needing to use height and creating extra space between buildings which would break the formal harmony with the morphology of the surroundings.
Block 75

This block forms part of the Setcor of Renovation, similarly to 65. The provision for maximizing built square meterage, acquired by the instrument of the selling the right to build, is allowed for in this sector. In the stretch of the block to be conserved, there are tall buildings and sobrados, besides large sheds, which are important examples of early 20th century industrial architecture. For all of these buildings, the proposal is to maintain the existing pattern of occupation and to diversify the uses.

For the buildings to be transformed, two distinct simulations are presented in terms of implementation on the lot and volumetry. The second as an alternative to the first displays less impact on the morphology of the area.

Simulation A (Figure 5.2), is in accordance with what is allowed for by Law nº. 16.290 for this sector. That is, it permits the construction of verticalized buildings, with a height of thirty-nine meters inside the blocks and two horizontal blocks on the perimeters, one ten meters high and the other thirteen meters high. This Law lays down that such precepts maintain the scale of the street, from the point of view of the pedestrian, by promoting verticalization inside the block. This form of implementation does not de facto compromise the reading of the corridor street, a feature of the old lay-out. However, when analyzed from the point of view of the surrounding buildings and the opposite bank of the river Capibaribe, the loss of formal harmony is clear in relation to the historic urban whole is clear, due to the great height of the tower-buildings and setting back implementation in relation to the limits of the lot.

As an alternative to verticalization and to the rupture with the original alignment, what is proposed in simulation B (Figure 5.3) is two horizontal blocks, one of thirteen meters without the solo criado provision and the other of sixteen when this instrument is applied, while maintaining the original alignment of the area. The floor space resulting from the use of this instrument is represented in the images in a dark red color. It is appropriate to observe that the same amount of built area has been achieved as that obtained in simulation A, without verticalization having been necessary. This simulation has permitted a growth of 25.77% of built area in relation to the current situation and the creation of an 885 m² internal patio. Thus there is no breach of the formal harmony of the buildings taken as a whole in the block itself or in the surroundings.

Occupation by means of erecting verticalized buildings inside the lots, which is suggested for this Sector by Law nº. 16.290, is contested, even though what is being dealt with is an area which has already suffered modifications in its former pattern of occupation. As an alternative to this form of occupation, the simulations B presented for blocks 65 and 75 allow it to be affirmed that it is possible to make the built area denser without compromising the formal harmony of its group of buildings which are of historical value.
Pattern 3: *sobrados* and large buildings

**Block 110**

This block is located in the Sector of Controlled Intervention, in like manner to blocks 90 and 105 and therefore the application of the *solo criado* provision is not permitted and the rate of surface built land is left open.

The current pattern of occupation is maintained on the north side of the block, in Travessa Tiradentes, an alley, for the group of late 19th century *sobrados* which are of architectonic value by promoting physical recovery and the insertion of new uses. Further, conservation is laid down for the original buildings of the Harbor Master´s Office for the Ports of Pernambuco.

The transformations are suggested for the later additions to the original Harbor Master´s Office for the Ports of Pernambuco building, situated on the east and the west of the block.
and for an industrial warehouse, located on the east side of the block, all of which have little historical or architectonic value.

In simulation A (Figure 6.2), the lot with the warehouse is re-membered to the Harbor Master’s Office for the Ports of Pernambuco. The new blocks (in red), which substitute the existing buildings, maintain the original form of occupation of the block. They front the lot and thus generate a patio which is confined within it. The height of the original Harbor Master’s Office building, which is approximately ten meters high, is maintained in the blocks proposed.

In simulation B (Figure 6.3), which comprises the situation chosen, the warehouse lot is likewise re-membered to that of the Harbor Master’s Office for the Ports. The original occupation is maintained. Thus the conserved blocks and the new ones also are on the perimeter of the patio but in so doing create a greater integration between the space internal to the block and the public space. There are, therefore, on the east and west sides of the block, openings which give a greater “permeability” to the interior of the block.

In the block situated to the west, the height is ten meters, and in the two more to the east, a greater height of sixteen meters is proposed. It is interesting to note that the erection of these more verticalized blocks to the east does not compromise the area’s formal harmony, although, on this side of the block, tall early 20th century buildings and storage silos already predominate.

As can be seen in Table 02, this new proposal of occupation for the block represented an increase of 39.67% of built area, even when the option is made for solutions which do not enter into conflict with the historical morphology of the area.
5.0 Conclusions and recommendations

In the light of the precepts of integrated conservation and based on the results obtained from the simulations of the floor area ratio, recommendations can be defined liable to be introduced in Law n°. 16.290 of 1997 of the Bairro do Recife, with a view towards making their parameters of use and occupation more conducive to the existing patterns of occupation, thus providing a greater formal harmony between the old and the new.

The simulations permit us to demonstrate that the law of the Bairro do Recife admits transformations which de-characterize the historical pattern of occupation, although there are mismatches in the parameters for construction laid down in it, specifically for the Sector of Renovation. This law permits verticalized occupation in this Sector, with the new buildings being allowed to reach a height of up to forty meters, in the form of tower-blocks, as well as erecting single buildings on the lot. In this way, a rupture of the formal harmony of the existing urban stock is made possible.

Although there are verticalized buildings in the district, such as storage silos and some institutional buildings, mainly in the eastern part of the district, its skyline is predominantly horizontal. Taking this into account, it is pertinent to argue for the continuity of this height in the new buildings that may be built throughout the district.

Because of this, a review is recommended of the height of forty meters laid down for new blocks to be built in the Setcor of Renovation. The adoption, in this paper, of heights of up to thirteen and up to sixteen meters when the provision of solo criado is used, was demonstrated to be satisfactory for the maintenance of the formal equilibrium with the surroundings and sufficient to attain the coefficients of occupation (µref and µmáx) set out in the law.

Another parameter understood as inadequate in the law is the proposal for erecting new buildings in the Sector of Renovation, using the so-called “base-buildings”, around the perimeter of the block and maintaining the height of the surroundings, and “tower-buildings”, located inside the block with a height of up to forty meters high.

This pattern of occupation, according to the law, would maintain the scale of the street, from the point of view of the pedestrian, and would make the inside of the block denser by means of verticalization. It is a form of implementation which de facto does not compromise the reading of the corridor street, a feature of the old layout. However, when analyzed from the point of view of the surrounding buildings or from the opposite bank of the river Capibaribe, the loss of formal harmony is clear in relation to the historical urban stock.

As an alternative to the form of occupation based on verticalization inside the blocks, simulations B demonstrate the possibility of making constructions dense, without compromising the existing pattern of occupation and the formal harmony of the historical site and its surroundings. The implementation suggested, based on the adoption of buildings erected on the edges of the blocks with internal patios, made it possible to create open areas for lighting and ventilation, without, in doing so, altering the relationship between the building and the street. The increases in built area in the blocks dealt with totaled 46.96%, corresponding to more than 26,000 m² (see Table 02), which demonstrates the possibility of making constructions denser in the area with much reduced impacts in relation to those which the law makes possible.

Finally, it has been demonstrated that it is possible to raise the built stock and to promote partial modifications in the morphology of a historic site without breaching equilibrium and formal harmony. This possibility is brought into effect as long as the new is not
superimposed on the old, project management must not be that of added-value competition, but that of the convergence of values. This belief can be seen as pipe-dreaming, but perhaps it remains as one to be dreamed about.

Table 02 – Table of areas for the five blocks

| Block | Area of Current Proposed Increase in Natural | Proposed Built Area | Built Area | to be built area | Built Area | to be conserved | | | | | | |
|-------|---------------------------------------------|---------------------|-------------|------------------|-------------|----------------|-------|-------|-------|-------|-------|
| 105   | 10,929                                      | 4,727.06            | 10,034.37   | 14,761.43        | 18,938.47   | 28.3%          | 939.78| Free* |
| 65    | 10,286                                      | 5,591.5             | 6,358.15    | 11,949.65        | 23,847.62   | 99.6%          | 2,648.7| 1,382.8|
| 90    | 6,217.82                                    | 916.8               | 7,083.23    | 8,000.03         | 10,776.85   | 34.71%         | 318.4 | Free* |
| 75    | 6,278.38                                    | 1,993.65            | 8,351.55    | 10,345.2         | 13,010.89   | 25.77%         | 885   | 498.51|
| 110   | 16,346.8                                    | 5,520.34            | 5,654.55    | 11,174.89        | 15,608.08   | 39.67%         | 7,680.4| Free* |
| Total | 55,076.66                                   | 18,749.35           | 37,481.85   | 56,231.2         | 82,639.97   | 46.96%         | 12,153.9| 1881.31|

* A Natural Soil Rate is not demanded in this sector

Bibliography
Cercellati, Pier Luigi y Scannavini, Roberto. 1976, Bolonia: Política y Metodología de Lá Restauración de Centros Históricos, Gustavo Gilli, Barcelona.
Cullen, Gordon. 1983, Paisagem urbana, Edições 70, Lisboa.
Governo do Estado de Pernambuco y Secretaria de Planejamento y FIDEM. 1979, Lei n° 13.957/ 97, Governo do Estado de Pernambuco, Recife.
Governo do Estado de Pernambuco y Secretaria de Planejamento y FIDEM. 1978, Plano de Preservação dos Sítios Históricos – PPSH, Governo do Estado de Pernambuco, Recife.


Pereira, Luz Valente. 1996, A leitura da imagem de uma área urbana como preparação para o planejamento/ ação de sua reabilitação, Laboratório Nacional de Engenharia Civil, Lisboa.


Prefeitura da Cidade Recife. 1996, Lei de Uso e Ocupação do Solo do Recife, Prefeitura da Cidade do Recife, Recife.


Prefeitura da Cidade Recife y URB-RECIFE. 1988, Plano de reabilitação do bairro do Recife. URB-Recife, Recife.


**Web Pages**

Vitruvius (webzine on Architecture and Urbanism) - [www.vitruvius.com.br](http://www.vitruvius.com.br)

CECI (Centro de Estudos Avançados da Conservação Integrada) - [www.ceci-br.org](http://www.ceci-br.org)

IPHAN (Instituto do Patrimônio Histórico e Artístico Nacional) - [www.iphan.gov.br](http://www.iphan.gov.br)
Appendices

Map 01: Morphological Types of the Bairro do Recife
Map 02: Patterns of Occupation of the surroundings of Tiradentes Square