

REFERENTIAL HOUSING TYPE FOR THE 21ST CENTURY CITY: NEW TYPO-MORPHOLOGICAL STRATEGIES IN BRUSSELS

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ABSTRACT

The hypothesis of this paper is that a specific urban identity can be traced back to the residential spaces of the city. The concept of referential housing type, defined as the archetypal and most ordinary residential type in a specific place throughout its urban history, is the most effective tool to disclose the identity of cities. Its benefits are threefold. It reveals the socio-cultural character of a place, enables a better understanding of other forms of housing, and sets a basic vocabulary from which it is possible to interpret new forms of housing.

Utilizing the case study of Brussels, this paper aims to adopt an innovative approach that can further investigate the transformations and identity of cities. Although there can be a foundation type for each historical period, a city is characterized by a single referential type. Therefore, the referential type allows a dynamic analysis and understanding of the built environment's evolutionary mechanisms, providing a basis for addressing future changes.

The referential type deals with both housing legacies and new housing typologies, which are designed to meet current challenges of sustainability and social changes. It can provide new suggestions for housing design, concerning, for instance, urban densification and living quality. The investigation of urban identity thus plays an important role in the design of the 21st century city.

Keywords: *Brussels, Referential Housing Type, Typology, Housing Design, Urban Identity.*

REFERENTIAL HOUSING TYPE

Urban identity, usually associated with a purely aesthetic result (Mumford, 1938), is all the more evident when the built environment of a city, in more historical periods, is homogeneous to the point of becoming a form of identification (Aymonino, 1975). Within the built environment, building types oversee the identification between ways of life and forms of architecture (Martí Arís, 1990).

Due to its representativeness, housing provides valuable information to the disclosure of urban identity. Consequently, and given its ability to provide a conceptual link between uses and spaces, housing typology is the most suitable tool for a typo-morphological study.

While studying processes of typo-morphological evolution, Caniggia defines the *foundation type* as 'a type of building which, in a certain time and place, represents the majority of buildings because it identifies the codified family residence standard' (Caniggia and Maffei, 2001, p. 244).

Furthermore, Aymonino offers a valid, pioneering theoretical contribution: 'If we analyze the processes of formation of the capitals of the major European countries, we can identify, precisely in the presence of episodes "representative" of an urban character, i.e. architecturally defined (beyond the dimension of the time in which they were realized), one of the reasons for their "duration" and their validity over time' (Aymonino, 1965, p. 89).

A new concept was subsequently introduced: the referential housing type (Ledent and Komossa, 2019), which is defined as the archetypal and most ordinary residential type in a specific place throughout urban history. Although there can be a foundation type for each historical period, a place is characterized by a single referential type. The concept of referential housing type offers a dynamic approach to the field of typo-morphological analysis since:

- a) along with its spatial definition, it accommodates a series of socio-cultural codes; and
- b) it provides a reference for housing in a specific environment regardless of historical classification.

In the city of Brussels, housing is particularly relevant, especially in light of its crystal-clear urban structure, the ongoing demographic increase, and the consequent growing demand for new housing. Indeed, the statistics forecast a population growth of 50,000 inhabitants in the Brussels-Capital Region within the timespan of 2020-2040.

Adopting a comparative approach between the referential housing type and contemporary housing projects, this paper investigates the transformation of Brussels' urban area. The goal is to establish a method of urban analysis that can provide, from a socio-cultural point of view, new perspectives on ways of living.

Considering the referential type as able to incorporate essential characteristics of the domestic culture of an area's past, the main hypothesis is that the nature of the changes we are currently experiencing prompts a critical questioning of the referential type. In this context, the referential type can serve as a standard reference for new spatial experiments in housing production.

In order to understand how the features of Brussels housing should be considered in future initiatives, which will face new urban and social issues, this typo-morphological study explores how the concept of referential housing type can provide significant guidance for contemporary housing design and city planning.

MAISON BRUXELLOISE TYPE

The referential housing type in Brussels, the so-called *maison bruxelloise*, originated during the 19th century. It reflected the way of life and domestic habits of the bourgeoisie. Specifically, Ledent and Komossa (2019) defined recurrent features of the *maison bruxelloise* type.

Typologically, it is constituted by a terraced house, which establishes an interwoven relationship with closed urban blocks (Fig. 1). Indeed, housing contiguity is governed by party walls that build the structure of the urban layout and extend outdoors to delineate private gardens. The depth of the houses reaches a dimension of 10 to 15 m.

These terraced houses have a maximum height of 10 to 15 m, in direct proportion to the width of the streets. The first inhabited floor, called *bel étage*, is 0.5 to 2 m above street level, enhancing privacy on the main floor and allowing light into the sunken basements.

The inner space of the referential type is mostly organized around the main and secondary rooms. This spatial peculiarity is arranged according to a longitudinal division that separates the house into two distinct segments, in a 1/3 and 2/3 ratio. The main rooms are distributed in a row (*enfilade*) that occupies the wide longitudinal section of the house. The secondary rooms occupy the narrower section and group together the services, circulation, and staircase.

If originally the referential housing type was related to the bourgeoisie, later the same set of features was also adopted in projects of working-class housing. They gradually evolved towards collective housing (Smets, 1977).

In 1889, the law concerning housing policy set new guidelines for workers housing in Brussels. The experimental collective housing executed in previous years was replaced by a standard plan, constituted of 'an entrance; two rooms and an annex on the ground floor, two bedrooms upstairs and an attic sometimes converted into an attic room under the roof' (Smets, 1977: 51). This spatial arrangement was a simplification of the main referential type, excluding the middle-class reception and service functions.

Consequently, through the bourgeois and the working-class variations, the *maison bruxelloise* type shapes, in a homogenous way, the residential space within Brussels' urban fabric. Its typological features reveal the individual character of the Brussels referential type. Even though it showed typological flexibility, and acquired different arrangements for very qualitative collective spaces, its conception and disposition of space is fundamentally attached to the individual property and single-family uses.

BRUSSELS URBAN FABRIC

In 1866, in response to auspicious economic conditions and demographic increase, Victor Besme proposed a plan for the new extension of the Brussels urban planning. Its morphological principle was based on new infrastructures and on the specific *maison bruxelloise* type as a basic unit of the ordinary city fabric (Zitouni, 2010). The structure of the terraced houses related directly to the wide roads designed by Besme. Thus, the city's referential type was implemented on an urban planning scale.

In order to increase the number of houses, Besme's plan was structured by smaller urban blocks, which consequently led to an increase in the number of roads and corner plots. Typologically, urban blocks were conceived and organized according to a rational scheme. Two aspects confirm this hypothesis. Firstly, houses were originally built in the middle of the sides of the blocks. The corners were the final elements to be built. Secondly, economic and construction constraints allowed standard plans, which determined the average plot width at approximately 6 meters for single-family houses (Ledent, 2017).

The block establishes a clear and closed boundary between the public and private space. The individual units that make up the block form its outer periphery. Through these morpho-typological features, the city thus reflects social hierarchy in its built structures.

TOWARDS BRUXELLES 2040

From 2010, as part of the elaboration of the Regional Plan for Sustainable Development (PRDD), a study on the territory of the Brussels metropolitan area highlighted the main priorities and actions to be implemented by 2020, which have been based on an evolutionary perspective of regional development by 2040. Considering the high increase in population that is expected during the period 2020-2040, sustainable urban development requires new planning for urban densification and improvement of housing and infrastructure.

The results noted that the departure of upper and middle classes from the compact city (essentially represented by Besme's plan) and the occupation of the central parts of the metropolis by international immigration have led to the creation of a huge urban sprawl (Picqué et al., 2012).

According to the study, Brussels requires the construction of a quality living environment, with a coherent distribution of housing through a typologically varied urban territory. The area along the canal is identified as a potential axis structuring the new city from South to North. This essentially industrial zone, a region of predominantly lower-income population, is considered as a fabric to be densified and transformed, by means of housing in conjunction with a mixed programming, including activities, offices, and public spaces.

More recently, the results of the Brussels 2040 study have been implemented at several levels.

In 2015, the Regional Government implemented the new master plan for the 14-kilometer-long canal territory. At the core of the development interventions, there is a mix of urban functions, economic strengthening, and a potential of 25,000 housing units to meet the demographic boom and the need for social housing (Chemetoff, Région de Bruxelles-Capitale, 2014).

The General Policy Declaration common to the Government of the Brussels-Capital Region 2019-2024 addresses the issue of housing by supporting neighborhoods to develop the city in a polycentric way (AA. VV., 2019). The increase in the number of housing units is achieved through the construction of new properties and the renovation of existing buildings. The Government is committed to the construction of 6,400 housing units over a period of five years. This policy pays particular attention to the integration of collective facilities.

CURRENT TYPO-MORPHOLOGICAL STRATEGIES

Besme's plan and the new development areas linked to the Brussels 2040 horizon have radically opposing approaches. In Brussels, the current strategies for housing construction are essentially two.

The first is the design of one-off projects. They are characterized by their small scale, which allows, through a direct confrontation with the referential type, their integration within the blocks of the compact city while respecting limited heights. The awareness of the traditional city's quality matured and prompted the creation of 'neighborhood contracts' (Cohen, 2007) to support the development of such one-off projects. These public initiatives called for contemporary projects to revitalize and reinterpret the traditional city fabric. However, for economic reasons, multi-residential buildings were built rather than individual houses. Even in projects displaying a higher typological mix, single-family houses are conceived as duplex apartments distributed from a gallery (Fig. 2). In this way, the staircase is integrated within the domestic space without defining an architectural ratio typical of the referential type. In fact, this house plan takes the enfilade sequence of the *maison bruxelloise* to new extremes: the contemporary *bel étage* is constituted by a single large and multifunctional open space. Considering that, following the referential dimensions, the house width is approximately 5 meters, the spatial arrangement requires big window surfaces on the gallery side and on the courtyard side, where a balcony is positioned.

The second strategy for housing construction specifically concerns larger-scale projects along the canal. This area, usually called '*Croissant pauvre*', predominantly houses an economically disadvantaged population. As indicated in the study and policies for Brussels 2040, these operations are presented as catalysts to reactivate brownfield or empty sites along the canal. Therefore, they are not one-off projects, but real urban structures that define new parts of the city.

Indeed, the large scale of the plots, due to their industrial past, encourages the development of more extensive projects rather than the division of the territory into a series of smaller plots (Le Fort and De Visscher, 2020). Three housing projects are particularly representative.

The multi-story building designed for the former site of the Bpost combines one-bedroom apartments with loggia/winter garden and studio apartments with balcony (Fig. 3). This set-up is rationally organized by the central corridor of distribution, which influences the compact form of the secondary rooms at the entrance of the apartments and shapes mono-oriented dwellings. Here, a fundamental change from the referential type is worth noting. While the domestic space of the *maison bruxelloise* is conceived in relation to the street, the new apartments follow a repetitive scheme along the interior distributive corridor.

The housing complex 'Havenlaan' by the Brussels canal combines various dwelling types in a freestanding block, comprised of three small towers and a linear building (Fig. 4). The linear building presents a hybrid constitution, characterized by duplex row-houses and mono-oriented apartments. In this case, the referential type is not used as a typological reference for reinterpretation, but as the ground for a radical transformation that conceives its typological opposite. The mono-oriented apartments are actually not able to provide the fundamental feature of the *maison bruxelloise*: the spatial sequence determined by the primary rooms in a row, which allows a genuine distinction between front and rear and enables different social practices.

The last example is the project for the site 'Tour and Taxis'. In this project, a fragmented block of multi-apartment buildings articulates typological variations to simulate the typical urban block (Fig. 5). Compared to the referential type characterized by a standard ratio, the dwelling plans show an absence of spatial flexibility. It can also be observed that, by adopting spatial elements in the distributive scheme and interior space such as bow-windows and irregular shapes in the rooms, they increase the heterogeneity of the conventional plan.

21ST CENTURY HOUSING IN BRUSSELS

The extension of the urban planning in the 19th century and the current strategies for contemporary housing in Brussels bring into confrontation not only two typo-morphological approaches but also two contrasting visions for the city and society.

The transformations revealed by typological comparison in the arrangement of domestic spaces also inform substantial changes in ways of living.

Besme's urban development represented the individual character of Brussels' society. The referential type embodies a concept of living centered around the family structure, which gives shapes to standard dimensions and organizes the interior spaces, consequently providing greater flexibility. Despite this flexibility, differences between the front and rear of the building provide nuance to the domestic space of the *maison bruxelloise*. The privacy and intimacy progressively increase from the room on the street side to the one within the block. It follows that the individual character of the domestic life within the referential type house is identifiable from the public space of the street. At the same time, owing to the limited heights and distances between buildings, the contiguity of houses within the urban block creates relationships between neighbors. Therefore, the set of spatial features linked to the referential type have a direct impact on its inhabitants and on everyday life, shaping the urban and socio-cultural image of Brussels.

Contemporary housing, on the other hand, focuses on individual and single inhabitants, which nowadays constitute the majority of the Brussels population growth. This leads to the design of mainly studio or one-bedroom apartments, which are characterized by specific spatial solutions with low domestic flexibility. The high demand for new-build small dwellings produces a high degree of typological mix within each project. At the same time, current design approaches aim to combine these dwellings in collective schemes for social purposes. This tendency explains the production of small dwellings grouped by distributive spaces—such as corridors or galleries—and collective gardens. Such arrangements try to experiment with new forms of collective living but are not able to offer the nuanced character that is typical of the *maison bruxelloise*. Indeed, the mono-orientation of the apartments and the introduction of additional spaces that are not conceived as a collective eliminate typical domestic uses and reinforce the independence of each dwelling.

These typo-morphological changes also have an important impact on the urban structure of Brussels. It is significant to notice that the urban idea promoted by Brussels 2040 and the new canal masterplan share with the Besme's plan the ambition to propose a new built environment to respond to an important increase in population. Nevertheless, new housing strategies need big parcels of land and erase the old divisions of the referential urban block. While this generates new urban forms, it also removes the primary structure of the city. The trend towards the homogenization of the blocks ultimately leads to a decrease in the resilience of a heterogeneous urban fabric (Le Fort and De Visscher, 2020).

Implicitly, the large territory dimensions of new housing entail the transformation of the typical urban block into different freestanding urban layouts. This change provokes the disappearance of the relationship between a building's front (street) and rear (gardens within the block) identified in the referential type. With their bigger area and freestanding layouts, the current housing projects also produce more public spaces, with which dwellings establish a direct relationship.

Presently, the Brussels referential type constitutes more than one-third of the dwellings in the city (Ledent and Komossa, 2019), demonstrating a high-level resilience within the contemporary urban fabric. At the same time, current housing directions are experimenting with new typo-morphological features, which do not define a clear model for contemporary domestic life and the development of the city.

The transformation in spatial features that determine domestic use and the disappearance of the main structure of the city pose new questions concerning the urban identity of Brussels. It is important to conceive new types that can also take into account the qualities and the character of the referential type, while adapting these to contemporary social and urban needs. With regards to the negotiation between inherited identity and future planning, the predicted population growth and the restructuring of the Brussels territory at the dawn of 2040 present themselves as pivotal moments in the shaping of the identity not only of Brussels but also of the 21st century city.

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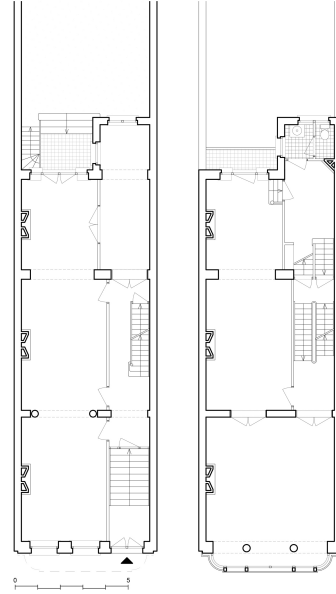
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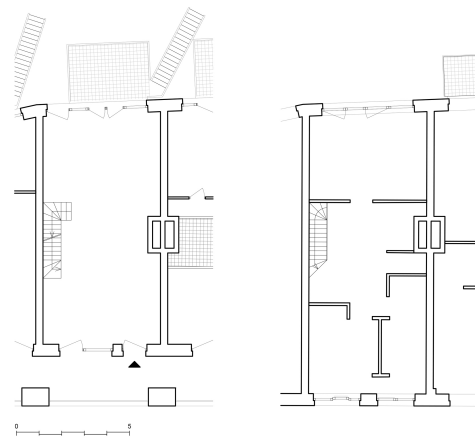
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**Figure 1. Site plan and referential housing type in Boulevard Lambermont 73, Schaerbeek (1908).
Architect: Frans Hemelsoet**



**Figure 2. Site plan and dwelling type of the housing complex 'Brutopia', Forest (2012).
Architects: Stekke + Fraas**

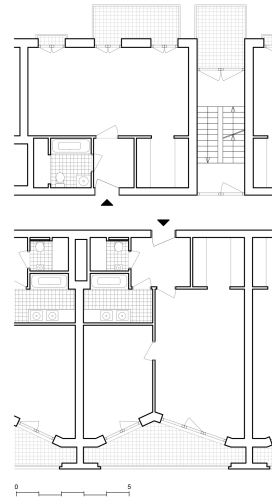


Figure 3. Site plan and dwelling type of the project on the former site of the BPost building, Brussels (2019).
Architects: 51N4E

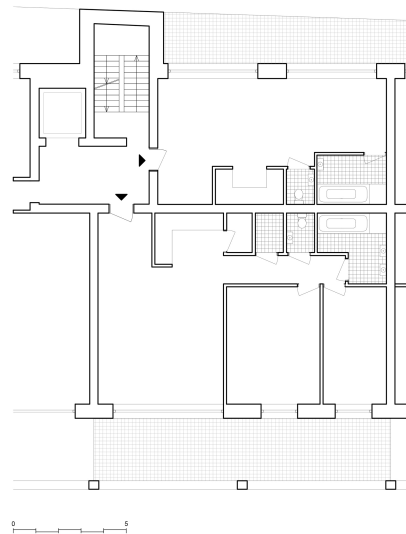
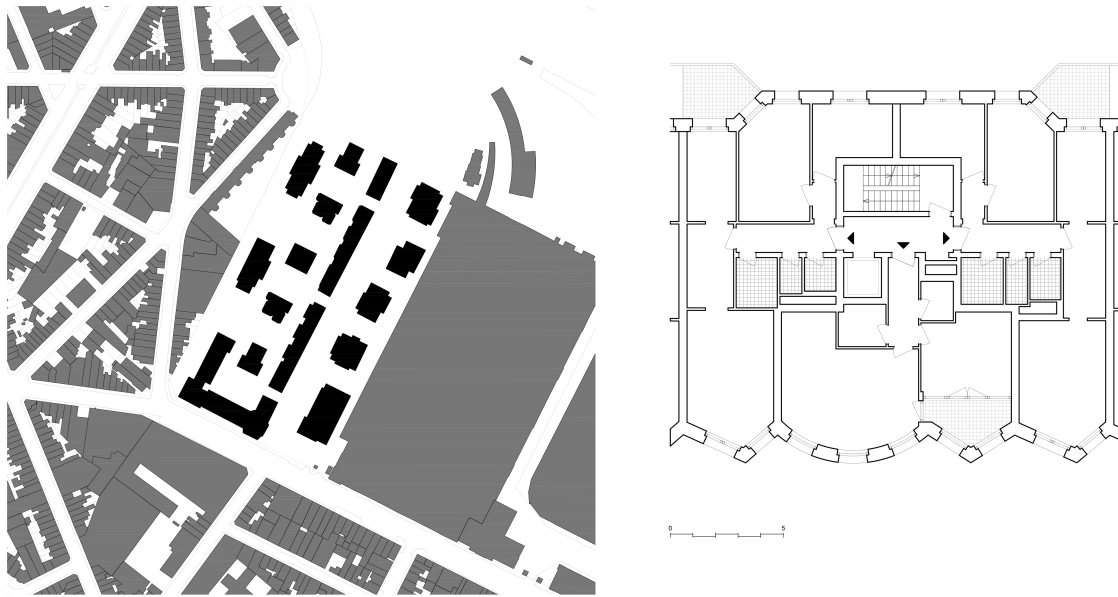


Figure 4. Site plan and dwelling type of the housing complex 'Havenlaan' at the Brussels Canal area (ongoing project).
Architects: Office KGDVS.



**Figure 5. Site plan and dwelling type of the project on the former site of the Tour & Taxis building (ongoing project).
Architects: Sergison Bates, AWG Architekten, noArchitecten.**