SOCIO-SPATIAL ANALYSIS OF MIDDLE INCOME

HOUSING PROJECTS IN BRUSSELS
MOVING BEYOND MAINSTREAM SOLUTIONS

with lessons from Amsterdam, Hamburg & Copenhagen.

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B-REL research project
Report prepared for Innoviris

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Executive Summary

Housing production in Brussels should change, both spatially and organisationally, in order to sustain its current population and address the ongoing emigration flow of middle income households. As expressed by the residents of a selection of five case studies in the North-Western part of the Brussels region, a number of spatial elements within their housing situation conflict with their prevailing housing preferences and aspirations. These 'mismatches' manifest themselves on the level of the individual home, housing project and neighbourhood, and contribute to the overall decision to stay or move (out of the Brussels region). Seven 'best practice examples' in the cities of Amsterdam, Hamburg and Copenhagen illustrate ways to address these mismatches. Out of the case study-analyses, this research proposes six parameters of improvement regarding the design and organisational structure of housing projects. With respect to the design, elements regarding the **sequence** and **form** of private, collective and public spaces, together with the **circulation** within the housing project and **access** to the dwellings, are identified as contributing factors to common privacy issues and decreases in functionality. Additional to these design parameters, it remains important to provide a level of **diversity** and **flexibility** to adequately respond to the observed housing preferences and aspirations. A **mix of different typologies** and **housing units of varying sizes**, and a structure that provides the possibility to move from one type to another **adapted to the life stage** and **changing household composition**, might offer solutions for public housing developments (such as those of citydev.brussels).

The case studies in Amsterdam, Hamburg and Copenhagen show some good examples of how, with the engagement of residents, an additional degree of flexibility is introduced and the housing units can be designed or can be modified throughout the development process. The cases show alternative ways in how the public authorities outsource responsibilities, how new actors are introduced and the role of existing ones have changed. With the introduction of what can be called Public-'Common' Partnerships (PCP's), future residents and civil society organisations become engaged in the production of housing, with added possibilities to intervene or participate in the management, design and maintenance of the housing project. In contrast to regular public-private partnerships, these PCP's offer the additional advantage of having the capacity to **address specific individual** and **collective needs** and preferences of the -known- end-users, and thus, aim to reduce the mismatch between housing preferences and what is produced. In short, in order to answer adequately to the observed diversity in housing preferences and aspirations, the housing production in Brussels needs to adapt its design practice and organisational structure to increase the quality and liveability, and diversify and democratise towards housing developments that are more demand-centred.

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1 | Research set-up

1.1 | Introduction

1.1.1 | Spatial mismatches

Residential choices are the result of a complex interplay between sociological determinants (see Schillebeeckx & De Decker, 2020) and perceptual frames (see Verhoest et al., 2020). Additionally, from an architectural and urbanist perspective, it is argued that characteristics of the housing environment on building and neighbourhood level play a significant role as well. The presence of intermediate, shared and parochial spaces (Gehl, 2011), the qualities of private outdoor spaces (terraces, gardens) (Karsten et. al., 2011), the level of services and neighbourhood infrastructure – in other words: the material qualities of the housing environment will influence the choice for an urban or non-urban location. Prior to every household's decision to move, there exists a trade-off process where specific housing preferences are confronted with the current housing situation. The current housing situation may be coinciding and/or conflicting with the housing needs and preferences; and households may decide or may be forced to move if this discrepancy increases to a certain level. Ideally, to fulfil in the diversity of housing needs and preferences, the housing production needs to respond and adapt. In Brussels however, the housing market has to deal with a variety of non-demand related constraints and drivers (due to among others increased land costs and benefits related to economies of scale) and research has indicated that the production of housing only in a limited way responds to actual housing needs in the Brussels region (see Romainville, 2017). For example, in recent decades the Brussels region has seen an overproduction of certain housing types (e.g. 2-bedroom apartments) (perspective.brussels, 2012). This suggests that the dominant mode of housing production in Brussels tends to produce a '**mismatch**' with prevailing housing preferences, possibly contributing to the observed emigration of certain groups of households.

1.1.2 | Spatial levels

Dissatisfaction with the housing environment presents itself at different spatial levels. For example, while the choice for a non-urban location might seem to be caused by a determined preference for the typology of a single family house and private garden (and the absence of affordable options in the region), the decision to move is often connected to other factors on several spatial levels (e.g. the availability of child-friendly and green spaces in the neighbourhood). To uncover the spatial dimension of people's residential choices, this research distinguishes between mismatches at three spatial levels:

The neighbourhood. The first level is the level of the neighbourhood and the metropolitan area. Here, mismatches occur between the desired characteristics of the neighbourhood and those that are available. Some residents end up in different neighbourhoods then their preferred location, due to budgetary constraints. In other cases, the preference for a particular housing type leads residents to a location that does not correspond to their desires. Other residents end up in a location because it is accessible, even if they report that it is very unattractive as a living environment.

The housing project. The second level is the level of the housing project. This includes the organisation of the collective and public spaces in and around the home and the organisation of the access to the home. Within housing projects for example, the factor of privacy between public and private spaces should be carefully considered to avoid mismatches. In addition, poor quality of collective spaces can compromise their usability and lead to residual places.

The individual home. The third level is the level of the individual home and the private space of residents. Here, the mismatch is expressed in housing types that are not adapted to household composition in terms of available rooms. The dominance of 2-bedroom apartments is responsible for this. Such types are very often too large (and expensive) for small (1 and 2 person) households but too small for families, also in terms of available private outdoor space.

This research focuses on the level of the housing project and the individual home to determine mismatches that contribute to the overall decision to move. The level of the neighbourhood is used to briefly introduce the individual housing projects. For a detailed analysis on the neighbourhood level, see Schillebeeckx & De Decker, 2020.

1.1.3 | Compensating qualities

While mismatches can be present on each spatial level separately, specific housing preferences result out of a balancing act, disregarding a strict separation between spatial levels. For example, the need for a large private garden (level 3) might be reduced if there is a shared collective garden (level 2) present within the housing project. Similarly, 'mismatches' occur in relation with the local neighbourhood and region (level 1). For example, specific unanswered needs, preferences and aspirations on the neighbourhood level can be compensated through the design of the hous-

ing project. E.g. the absence of a child-friendly and safe neighbourhood might increase the need for a private or secluded collective garden. Conversely, the absence of a private garden might be compensated if a park or an easily accessible playground is provided on the neighbourhood level. Earlier research on high density urban housing affirmed this notion of 'compensating qualities' (Schreurs et al. 1998, Ministerie van de Vlaamse Gemeenschap, 2002, Ryckewaert & De Meulder 2009). While, ideally, mismatches should be addressed on all levels (housing project, neighbourhood and region), specific mismatches can be, to a certain extent, compensated for on different spatial levels. Housing projects may need to provide qualities 'in-house' if certain needs are not present on a larger level. Within this respect, the increasing pressure on inner-city open space calls for higher standards concerning the design and layout of new developments in order to become attractive in a sustainable way. According to the concept of compensating qualities, high density urban housing projects need to offer additional qualities that are traditionally found in suburban environments in order to compete with these. For example, they need to assure sufficient space, adapted or flexible unit typologies, excellent privacy and a high quality of private or shared outdoor spaces, as the production of certain typologies have become economically unviable (the single family house with private garden), or standardized and only limitedly responding to the diversity of housing preferences.

1.2 | Research objective

All together, these spatial mismatches contribute to the overall mismatch between housing preferences and available housing environments. They provide clues to improve the design of housing projects and public space to better adapt them to diverse housing preferences. The objective of this study is to search for ways to decrease these presupposed mismatches, and to increase demand centred qualities of housing to ensure spatial and architectural quality on the individual, collective and public side. Apart from an analysis of existing dwelling environments, the aim is to identify prospective housing situations that correspond to the motives and aspirations of people who want to stay within the Brussels Capital Area. Ultimately, the aim is thus to advise city developers (policy makers, urban planners, building companies, etc.) of future housing needs. To do so, the two main research questions are related to the concept of mismatches.

1.3 | Research questions

In line with the twofold research objective, the main research question is subdivided into two parts. The first research question deals with the current housing production in Brussels and its ability to respond adequately to prevailing housing aspirations:

1 | What are the characteristics of the recently developed housing projects in Brussels and do they match with the housing needs of a diverse group of incoming and leaving households?

The second research question deals with prospective housing situations.

2 | How can we reduce the existing mismatches or in other words, in line with the observed high diversity of housing preferences and aspirations (see Schillebeeckx & De Decker, 2020), how can we produce a more diversified, qualitative -and affordable- housing patrimony? What kind of new or innovative housing typologies are being developed internationally and can be implemented in regional development locations in Brussels?

1.4 | Methods

1.4.1 | Current housing production in Brussels

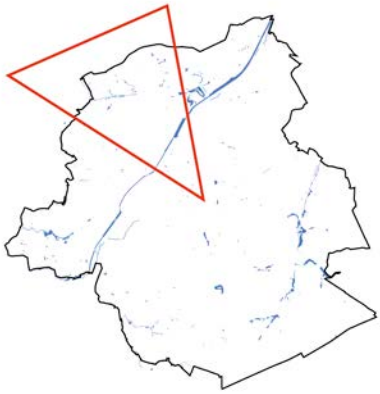
To analyse the characteristics of the recently developed housing projects in Brussels (research question 1), this research starts from specific case studies. The choice to explicitly use a bottom-up approach via the analyses of case studies stems from the observation (see Schillebeeckx & De Decker, 2020 and Verhoest et al., 2020) that housing preferences are highly individual, and people's housing choices depends on their subjective frames of reference, often linked to very specific housing situations and own experiences. An evaluation of the current housing production is thus only appropriate if it starts from specific cases and includes the opinions of residents.

Category	Subcategory	VL*	JV*	RD*	JJ*	WS*	Total
Age category	<20	0	0	0	0	0	0
	20-40	2	2	2	2	0	8
	40-65	8	4	5	4	2	24
	65+	1	1	2	1	4	9
Gender	man	6	4	6	3	2	22
	woman	5	3	3	4	4	19
# residents	1	1	1	2	1	2	7
	2	5	3	5	3	4	20
	3	2	0	1	1	0	5
	4	1	2	1	2	0	6
	5	2	1	0	0	0	3
Household type	single	1	1	1	1	0	4
	couple without residing children	5	3	3	3	6	20
	couple with residing children	5	3	3	3	0	14
	single parent household	0	0	2	0	0	2
Diploma	secundary	1	1	1	1	4	8
	further vocational training	0	1	0	1	0	2
	bachelor	1	1	0	1	2	5
	master	9	4	6	4	0	24
	PhD	0	0	2	0	0	2
Migration Trajectory**	immigrant	9	4	5	5	0	24
	emigrant	0	0	0	0	4	4
	emigrant and immigrant	1	1	1	1	0	4
	internal mover	1	2	3	1	0	7
	external mover	0	0	0	0	2	2
Tenure	owner	10	5	7	6	4	33
	tenant	1	2	2	1	2	8
Housing unit type	apartment	1	5	9	5	0	20
	loft	10	0	0	0	0	10
	maisonette	0	0	0	0	6	6
	single-family house (closed)	0	2	0	2	0	5
Total persons interviewed		**11**	**7**	**9**	**7**	**6**	**41**

Table 1 **| Socio-economic characteristics of the interviewed residents for each case study. *VL (Victoria Lofts), JV (Jette Village), RD (Residence Dewez), JJ (Les Jardins de Jette), WS (Wemmel Square). ** immigrant (has come to Brussel); emigrant (has left Brussel); emigrant and immigrant (has left Brussels and returned); internal mover (has moved within Brussels); external mover (has moved outside of Brussels).**

Study area and selection of cases. To illustrate the actual housing production for middle income households in Brussels, a selection of 5 case studies was made. The selection is restricted to recently built multi-family housing projects or multi-dwelling units (MDU's) with 10 housing units or more, thus often involving a considerable impact on the neighbourhood level and contributing to densification objectives set by the regional government. Providing an exhaustive overview of housing production in Brussels extends beyond the scope of this research, nevertheless the selection aims for a relatively wide range of middle income housing in the Brussels region, including both projects of private project developers, as well as projects initiated by public agencies (municipalities & Citydev.brussels). The projects are located in neighbourhoods in the North-West region of Brussels with varying housing densities, radiating from the city centre to the periphery of the Capital Region (see figure 1). The N-W Brussels region was specifically chosen as a result of the preparatory analyses during the first months of the research project (see annex 1). The case study area was based on the main migration patterns in and out of the Brussels region, deducted from existing

***Figure 1* | The selection area for the cases (segment of the North West Brussels region).**



studies and literature on dwelling environments and residential mobility from and to the Brussels Capital Region patterns (De Maesschalk, De Rijck & Heylen, 2015; Slegers, 2013; De Corte et al., 2003), in combination with additional quantitative analyses and mappings. The results showed that (1) households tend to migrate in a radial and stepwise manner and that (2) the proportional amount of households within our target group (middle income households and social climbers) is significantly higher in the N-W Brussels region, compared to other segments of the city.

In-depth interviews. Perceptual frames and housing preferences include experiences with actual dwelling environments, but also factors such as life cycle, lifestyle and taste contribute to people's mental frame of reference when making a housing choice. To grasp the relation between (1) people's aspirations and motives to move/stay and (2) the actual use of spaces in and around the house as well as the appreciation of the material qualities of the home, several qualitative research steps were conducted. Firstly, to understand how residents actually value, use and appropriate the space in and around the house, in-depth interviews with residents (41 in total)* included questions on the actual use of spaces in and around the house as well as on the appreciation of the material qualities of the home and the neighbourhood. The questionnaire is included in annex 2. All interviews were recorded, have been transcribed and coded with a code system (see for a detailed description Schillebeeckx & De Decker, 2020). In each in-depth interview a qualitative mapping exercise was added, were daily activity routines were drawn by the residents on various scales (local to metropolitan scale) to understand the interlinkages of mismatches on different spatial scales and identify potentials for compensating qualities. These mapping exercises often triggered memories and emotions linked to specific places or trajectories and proved important to understand the neighbourhood through the perception of the residents. Secondly, all projects were visited, documented and photographed** multiple times and qualitative mapping was included to check the statements in reality.

1.4.2 | Innovative housing production abroad

To search for alternative ways to produce housing and to provide exemplary cases that can be of inspiration for future housing projects in Brussels (research question 2), a study of foreign urban housing projects was conducted. We selected 7 housing projects in the cities of Amsterdam, Hamburg and Copenhagen (see figure 2). While within different socio-historical contexts, there are three main factors why the housing projects in these foreign cities could be useful for the Brussels situation.

1| Comparable context. The cities belong to the same level of scale in terms of size (population) or status (country capital) and are in a relatively similar North-Western European context at a social, economic and political level.

2| Comparable challenges. The issue of affordable housing is on the political agenda in each city as a result of a (formally recognised) housing crisis which affects several layers of the population and results in a permanent suburbanization trend among (lower) middle income households.

3| Targeted policy programmes. Each city has an elaborate programme to provide affordable housing for middle income households within the city. The programmes explicitly focus on affordable housing, pursue a strategy of densification in the urban context and aim to provide an answer to the continuous urban exodus. The chosen case studies form part of these policy programmes and, given the significant contribution of public funding or support, can be seen as illustrative of the housing policies in these cities.

The case studies abroad were, in contrast to the mainstream character of the cases in Brussels, specifically chosen because they are based on 'innovative' housing solutions, introducing alternative methods in the organisational structure, the development process and in the design. While designated as innovative, these housing alternatives have meanwhile outgrown their experimental phase and have undergone a scaling up (and institution-

** 12 interviews were conducted by Joren Sansen & 29 by Kristien Van den Houte.*

*** All photographs were taken by the author (Joren Sansen) unless stated otherwise.*

alisation, in most cases). Currently, the general amount of housing that is/has been constructed through these housing programmes matches or outperforms the amount of total public housing production in Brussels. In Brussels, similar innovate initiatives exist, but are still in their infancy, are specifically aimed at disadvantaged or socially vulnerable groups (Community Land Trust Brussels) or are not yet systematically stimulated or supported by the government (such as individual co-housing initiatives).

Towards policy recommendations by identifying thematic parameters. A thematic approach using the parameters uncovered during the analyses of the Brussels' case studies will form the stage for a discussion regarding generally applicable design principles. These common themes are identified in relation with the main research question: in what way do certain characteristics of housing projects contribute to decrease the mismatch with housing preferences? The theoretical observations of these -sometimes abstract- design parameters are illustrated by specific examples from the -exemplary- cases in the cities of Amsterdam, Hamburg & Copenhagen. Both data on spatial ánd organisational characteristics (similar to the analyses on the Brussels cases) were gathered. The results are based on secondary data, through desktop research and literature review, complemented with primary data through on-site observations (each housing project was visited and photographed) and interviews (17 in total, 9 informal, 8 formal) with key actors (residents, architects & other experts) (see table 2).

Table 2 | **Number of respondents interviewed during case study visits, according to position (resident/expert) and country (Netherlands, NL; Germany, DE and Denmark, DK).**

Respondents/ Country	NL	DE	DK	Total
Residents	6	2	6	**14**
Experts	1	/	2	**3**
Total	**7**	**2**	**8**	**17**

1.4.3 | Policy recommendations

Linking both the analyses of the Brussels cases and the alternative -best- practices abroad allows for the development of policy recommendations. However, a straightforward translation of the housing models and projects abroad to the Brussels situation is problematic. While some comparable challenges and goals can be identified, housing markets and housing models evolve through a path dependent process, reusing or altering existing organisational structures and architectural and planological designs (Bengtsson & Ruonavaara, 2010). Due to this slow and context-dependent process, the housing models cannot be readily imported to the Brussels region. However, some elements may be appropriately used and provide improvement to the future housing production in Brussels. To validate these recommendations, the preliminary results were presented and discussed during a round table workshop. The round table featured a limited set of experts (9 in total) representing both private actors (project developers) and public entities (planning & architecture agency), reflecting the nature of the case studies analysed. This range of local experts made it possible to check the feasibility of the proposals to the Brussels situation. A summary of the discussion and main policy recommendation is included in annex 3. Ultimately, the perspective and proposals of these actors where taken into account to develop the general policy recommendations of the main report.

1.5 | Structure

To provide an insight in the characteristics of the recently developed housing projects in Brussels and the specific mismatches that are present with the housing needs and preferences of the residents, the cases in the Brussels region are first discussed (§2). The cases are introduced by a discussion of the sociospatial characteristics of the neighbourhood (N-W Brussels region) as perceived by the residents, to create an understanding of the shared perceptions of the different neighbourhoods and explore common mismatches and unanswered needs (§2.1). These are illustrated through statements of residents and cartographic material. To offer insight in how these mismatches on the neighbourhood level are compensated for on the regional level, the concept of compensating qualities is further explored through actual mappings of residents' activity patterns. After this, the analyses turn towards the housing projects separately. The analyses of the specific cases are separated into two parts; (1) a discussion on the material qualities of the housing project and the individual housing units (§2.2), and (2) a discussion on the organisational structure and the development process of the housing project (§2.3). The two perspectives provide insight into how the housing projects were produced, and how it is used and valued at present by the residents.

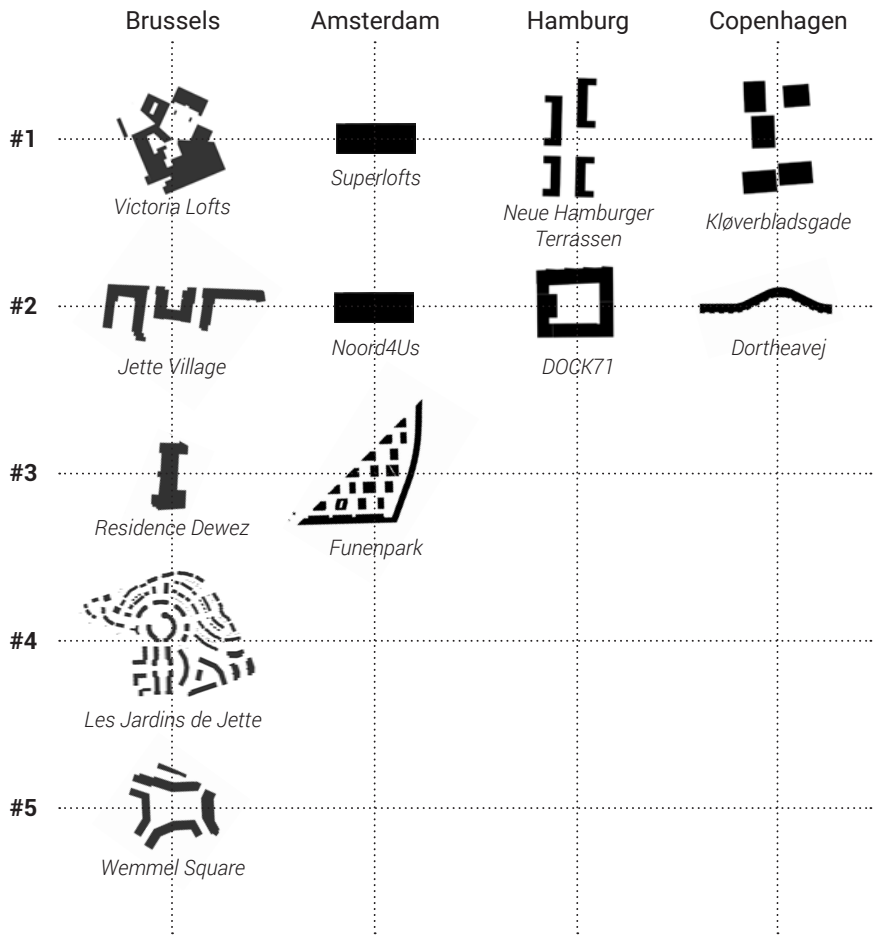
Thirdly, the cases in the cities of Amsterdam, Hamburg and Copenhagen are discussed (§3), to outline the innovative housing typologies that are being developed internationally and to provide inspiration for the housing production in Brussels. The discussion here is structured more

thematically across case studies, rather than for each case study separately. This thematic approach is to underline the fact that specific 'housing models' cannot be translated directly to the Brussels situation, as they are context-specific and originated within a slow and path dependent process not easily copied to another situation. Rather, the thematic approach is chosen specifically to highlight some design principles and points of attention that remain important, whatever the situation the housing project is in. To provide some practical inspiration however, these 'universal' themes are illustrated by concrete examples abroad, focussing on the level of the housing project and the individual home (see spatial levels §1.1.2).

Finally, to link the observations from the Brussels cases with those abroad, a general conclusion (§4) summarises the main results and points of attention regarding the development of middle-income housing projects in high-density contexts. The main conclusions are concluded by a summary of the workshop discussions and policy recommendations for the Brussels Capital Region.

For the interested reader, the last chapter (§5) is composed of a set of 'case study fiches'. In order to provide a more detailed insight into the 12 case studies (5 cases in the Brussels region & 7 foreign projects, see figure 2), key data are provided, such as housing density, built and habitable surfaces, surface of private and public space, etc. Also particular amenities or qualities, such as the existence of shared or communal spaces etc. were investigated and listed. The technical sheets provide an overview of three thematic facets: (1) the programme by means of basic data, (2) the development process and organizational structure and (3) the design by means of maps and profiles. The resulting fiches of documented housing projects were drawn up on the basis of publicly available data via desktop research, in-depth interviews or requested from the developer/architect. The sheets give an indication of the diversity that is present within middle-income housing projects, not only with regard to the spatial aspects such as housing and project typology, circulatory patterns, scale & proportions, but also with regard to the manner of development, the actors present and the various forms of collaboration.

Figure 2 | **An overview of the case studies.**



2 | Housing production in the Brussels region

This chapter focuses on the characteristics of the selection of recently developed housing projects in Brussels in order to determine in what way the current housing production matches or mismatches with the housing needs of a diverse group of incoming and leaving households (see research question 1). The characteristics of the housing projects are mainly illustrated from the perspective of the residents through analyses of the interviews and directly illustrated with quotes, complemented with field observations and mapping exercises.

A large diversity of residents. As shown in the introduction (table 1), each case study accommodates a diversity of people. The interviews revealed that this diversity in part was the result of restraints imposed on the households and compromises made. For some residents, specific elements of the housing project or neighbourhood convinced them to move into the housing project, such as a preference for a specific housing type or high accessibility levels (sometimes compensating for other negative neighbourhood aspects). Some residents indicated that they ended up in different neighbourhoods then their preferred location, due to budgetary constraints. Residents of public (citydev) developments had less choice regarding the neighbourhood and sometimes ended up in unfamiliar or unwanted areas. These compromises and restraints resulted in significant differences in household profiles in each housing project, and accordingly, differences in preferences, perceptions and perceived mismatches.

Shared perceptions. Despite the internal diversity of households within each housing project, several perceptions regarding the housing projects or neighbourhood proved to be shared, sometimes regardless the household type, socio-economic background, and personal experiences. This research focuses on these regularly mentioned and/or shared perceptions and statements that could be drawn from the interviews. These shared perceptions indicate ways in which housing projects in Brussels tend to fail consistently and continually.

Structure of chapter 2. The focus of the research remains on the level of the housing project and the housing unit. The main part of this chapter thus consists of a morpho-typological analyses of each case study separately via the interviews with the residents. However, neighbourhood characteristics equally influence the decision to move. To give a brief understanding of the context in which the housing projects are located, the case study area (North-West of the Brussels region and the immediate surroundings) are first discussed (§2.1). Following this introduction on the general area, the main analyses deals with the spatial (§2.2) and organisational (§2.3) characteristics of each housing project specifically.

2.1 | N-W Brussels and its neighbourhoods through the lens of residents

The preparatory quantitative analysis within this research (see annex 1) shows that households tend to migrate in a radial and stepwise manner along the same segment of the city and its hinterland. This confirms existing research stating that households tend to choose between housing solutions within a corridor that gives them access to the same 'part' of the city (Boeri, 1998; Priemus, 1984). Following this observation, the housing projects are situated along a line that starts within the relatively dense neighbourhood of Simonis and extends linearly along the centre of the municipality of Jette towards Wemmel, just outside the Brussels capital region (see figure 3). The cases are situated within a range of neighbourhoods with different spatial characteristics allowing for a diversity of households with different housing preferences and aspirations.

The choice for a specific segment of the city allows to situate the cases in an analysis of the wider context at municipal and above-municipal level. While the immediate surroundings may be very different for each of the case studies, on a regional level many locations and activities that function beyond the local are shared across cases and contribute to the residents' mental image of the city. The description of the area starts accordingly with shared statements and perceptions of the N-W *region* of Brussels (§2.1.1). After this, the description zooms in on perceptions of the immediate surroundings (§2.1.2).

2.1.1 | Perceptions of the N-W region of Brussels

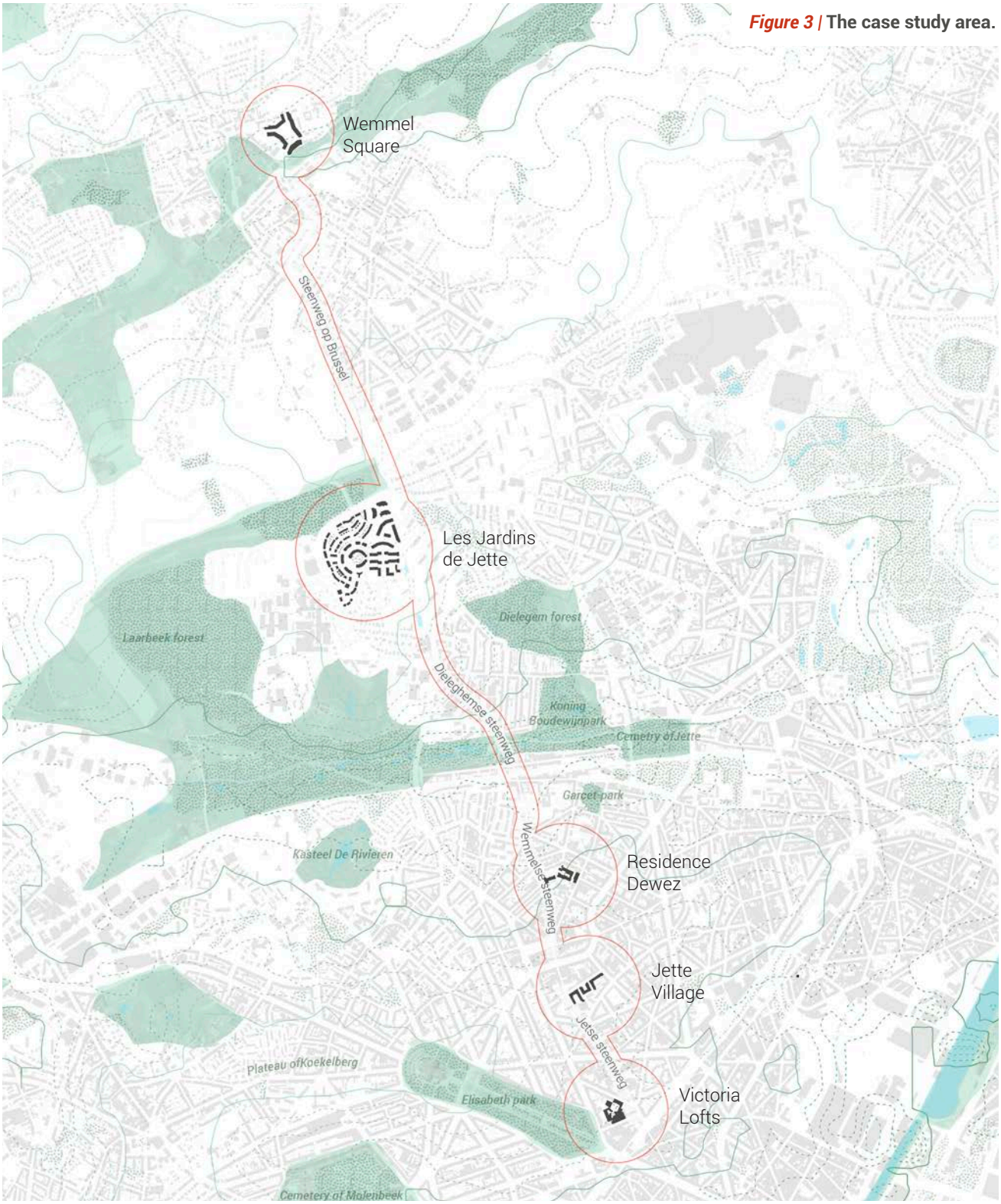
The appeal of Jette's centre. Within the case study area, the municipality of Jette and specifically the place de Mirroir was frequently mentioned as a focal point of interest, clearly functioning as an important center with a wide range of services and activities (see quote 4, 9 & 13). Residents of peripherally located housing projects (les Jardins de Jette, Wemmel Square) had an active or mental connection with the commercial area of Jette, and even more centrally located cases (Victoria Lofts in Koekelberg) displayed, despite the high accessibility to the city center a strong connection with the municipality of Jette. Jette was frequently mentioned as 'a sympathetic village within the city' (quote 3, quote 4), a place that is able to combine a lively and active atmosphere with a -relative- high abundance of green spaces and quiet neighbourhoods.

A mental image through places and activities. Frequently, when the municipality was mentioned, the overarching mental image of the area of Jette across case studies was strongly related to specific spaces and activities. Regardless of the case study, there were specific places and activities that were regularly mentioned when asking about the positive aspects and general atmosphere of N-W of Brussels, such as the Sunday and annual market on the place

“ ***Quote 1 |*** *En fait je suis déjà venue dans le quartier il y dix ans. A l'époque j'avais visité un appartement de location par ici et je me suis promené entre la place Werrie et la gare de Jette et je me suis dit 'Tiens ça me plaît ici'. C'était un peu différent à maintenant mais déjà à l'époque ça me parlait et c'est ce côté…**ces maisons ouvrières un petit côté campagnard, tranquille, et puis effectivement les espaces verts, je trouve intéressants.** Et quand j'ai eu cette proposition d'acheter ici, effectivement étant donné qu'on est au centre de Jette avec le centre Armillaire (centre culturel de Jette, De Smet de Nayer) à côté, il y a plusieurs choses qui se passent par ici.* ”

~ Residence Dewez

Figure 3 | **The case study area.**



Mirroir, small drinking facilities in park areas, the yearly festival of Jammin'Jette, and specific places such as atelier 340, bar Eliza, etc … . As these places and activities where frequently mentioned, it illustrates how spaces, though often small or ephemeral, can give this segment of the city a distinct and attractive identity.

Shared negative perceptions. However, the interviews also revealed some shared negative perceptions. E.g. unsafe traffic situations, unclean environment, and noise were elements that appeared in interviews across case studies, however, more as a general aspect of the wider Brussels region. Despite these negatives, the positive aspects of the immediate surroundings were able to satisfy and convince the residents to stay in the area -for the most part- indefinitely. French speaking residents of citydev-developments for example (Jette Village & Residence Dewez), which reasons to move to the area were linked to the housing project on offer and less on the neighbourhood, mentioned that the area of Jette - and by extension the whole area to the north of the canal, has surprised them positively, despite being relatively unknown before (quote 3).

2.1.2 | Perceptions of the immediate surroundings

During the interviews, the negative perceptions of the Brussels region (regarding noise, safety, and cleanliness) were sometimes overruled by statements that concerned the local neighbourhood and immediate surroundings. Figure 3 and figure 4 show that each housing project is located within a different neighbourhood with different access to activities, amenities and green infrastructure. In addition to the inherent characteristics of the immediate surroundings, the interviews revealed that accessibility played a major role in the perception of the neighbourhood. The following descriptions are thus organised according to the location and accessibility type of the housing projects.

Living in close proximity to a local centre. Jette Village and Residence Dewez are located close to the centre of Jette, in walking distance from the commercial area surrounding 'place Mirroir' (Koningin Astrid-square). The municipality of Jette was frequently praised because of its small-scale, village-like characteristics; its pleasant and sympathetic atmosphere, plenty of small and local shops, restaurants and bars, single-family houses of a modest scale, and attractive parks and green infrastructure (see quote 1, 2, 3, and 4). Living in close proximity to the core of Jette was thus addressed during the interviews as a clear advantage (see 5). Similarly, the residents of Wemmel Square, specifically chose the project because of its location, combining a central location within the municipality of Wemmel while remaining close to green infrastructure

Living peripherally. Residents of Les Jardins de Jette, located at the periphery of the Brussels region, had conflicting images of the neighbourhood. Some residents explicitly chose the neighbourhood for its calm ambience, spaciousness and green infrastructure and child friendly environment (see quote 6). Others perceived the neighbourhoods residential character as a negative aspect, indicating it as a 'sleep town' were nothing ever happens (see quote 7). Others chose the neighbourhood out of a comprise, specifically searching for a rural area or an affordable single family house and garden, but not ready to give up on the city's services and activities, ultimately regretting the decision for Les Jardins de Jette as the neighbourhood did not fulfil in both aspirations (see quote 8 and 9).

Living in an area of high accessibility. Located close to the border of Koekelberg and Jette, and in close proximity to arterial roads (Keizer Karellaan, R20) and metro stations Simonis & Elisabeth, the area functions as a transfer node and passage space and is notably more dense and highly frequented. Some residents experienced the area as unpleasant, overcrowded, dirty and unsafe (see quote 10). However, the negative aspects of the neighbourhood were compensated to a certain extent by the qualities of the housing project itself with the enclosed tranquillity of its green inner courtyard (see quote 11) and the direct metro connection to the city centre, and close proximity to the center of Jette. Some residents of Victoria Lofts explicitly mentioned the potential of the neighbourhood, and expected that the public space in the vicinity would be upgraded in the near future (see quote 12).

> "***Quote 2 |*** *que ici* ***c'est encore fort aéré****, il y a des beaux parcs, oui des avenue arborées*"
> *~ Jette Village*

> "***Quote 3 |*** *En natuurlijk kenden we Jette een beetje, het is een* ***zeer aangename en sympathieke gemeente****.*"
> *~ Residence Dewez*

“ **Quote 4 |** *Ik denk dat Jette dan, Jette heeft ook echt een kleine stadskern he. Dat is zo* ***een mini-stadje eigenlijk in de grootstad.*** *Daar heb je echt nog, ja, nog zo alles. Allez, alle winkeltjes en dat leeft daar ook nog echt. Ge hebt daar echt nog zo een paar cafeetjes en restaurantjes, en, en alles echt...* ***Jette doet mij bv. denken aan mijn hometown, aan Tienen.*** *Omdat dat echt nog zo een stadskern is met alles rondom, dus ja, dat zal nostalgie zijn dat spreekt ofzo.*
~ Victoria Lofts ”

“ **Quote 5 |** *ici par contre on s'imbriquait, on venait se loger dans un quartier qui existe déjà, avec des commerces, il ne fallait pas revendiquer une école, il fallait pas revendiquer je ne sais pas quoi, donc* ***s'inscrire dans a ville existante me plaisait beaucoup****.*
~ Jette Village ”

“ **Quote 6 |** *Je suis Normande hein donc moi* ***je cherche la qualité de vie***
~ les Jardins de Jette ”

“ **Quote 7 |** ***c'est vraiment une cité dortoir,*** *quelque part ou les gens viennent pour le soir chez eux, ne sortent pas beaucoup, ils vont travailler bon bien voilà il n'y a pas vraiment une vie animé.*
~ les Jardins de Jette ”

“ **Quote 8 |** *Entre les deux, après dans tous les compromis du coup* ***parfois on regrette d'être un peu loin du centre*** *et que ça soit pas toujours facile de rentrer le soir aussi, et* ***on est pas tout à fait à la campagne non plus*** *mais malgré tout c'est comme ça, je pense que c'est difficile d'avoir toujours l'idéal de ce que on recherche*
~ les Jardins de Jette ”

“ **Quote 9 |** *Alors on descend,* ***on va se rapprocher****, par ce que on voulait être un peu plus proche des commerces donc on va être* ***un peu plus proche de la place du Miroir***
~ les Jardins de Jette ”

“ **Quote 10 |** *Ehm... I would certainly move out of this area. Yes. and possibly out of Brussels. Because I don't like the neighbourhood.* ***I don't feel safe, it's dirty.*** *So I was aware of this while, I was a bit aware of the, of the... these things, you know, coming in. But living here, it's become more and more important. And, I also don't like ehm, the metro. it's too crowded and It's very dirty. It's very dirty, it feels very unsafe in the evening. And then you know,* ***a lot of the times, I'm the only European in, in the metro, it feels a bit strange you know.*** *So...*
~ Victoria Lofts ”

“ **Quote 11 |** *Als je hier de straat uitloopt, dan is dat niet de gezelligste, leukste buurt, er zijn er wel gezelligere en mooiere in Brussel. Dat werd dan* ***gecompenseerd door het feit dat je hier in het groen zit, we zitten niet op straat****, andere eigenaars zitten ofwel toch op straat, hebben een kleine ruimte of een balkonnetje, wij zitten echt hier in het midden met ons mooi terras.*
~ Victoria Lofts ”

“ **Quote 12 |** ***Zeker niet in de positieve zin , niet van 'oh fijn we gaan naar Koekelberg', omgekeerd zelf****, eigenlijk op de hele lijst van criteria was dit het zwakste punt want we waren gewend aan en eigenlijk op zoek naar een buurt in Brussel waar we gewoon buiten konden stappen, gezellig een terrasje konden doen, gezellig een bakker etc., en dat heb je hier theoretisch wel bij Simonis maar* ***het is niet gezellig en dus wat wij wel hopen is dat dat in de toekomst gaat veranderen****. Koekelberg is natuurlijk een kleine gemeente die zeer afhankelijk is van Jette en Molenbeek. Als het Spiegelplein wat allure krijgt, als het kanaal met het nieuwe museum, als dat echt die buurt herpositioneert, dan zijn er de plannen aan de overkant voor die nieuwe school, nieuwe appartementen etc., (Comenius-site) maar wij hebben bijvoorbeeld op de Jachtlaan in Elsene gezien hoe op een jaar tijd alles kan kantelen in de een of andere richting. Hierachter heb je bijvoorbeeld een heel mooi pleintje. Je ziet dat daar vroeger waarschijnlijk een echt Belgisch kruideniertje was, daar was ook een krantenwinkel die 2 maand geleden gesloten is. Dat zou theoretisch prachtig pleintje kunnen zijn met een paar kleine winkeltjes maar daar blijft niets van over. Komt dat ooit terug? Kan je niet voorspellen. Hoe het Simonisplein zelf gaat evolueren ...*
~ Victoria Lofts ”

***Figure 4* | Shops and services in a 500 meter radius**

Food & essential services
(such as, supermarket, bakery, butcher, fish store, delicatessen shop, night shop & bank/ insurances, sport facilities, laundry facilities, pharmacy, health insurance, dentist, medical centre, library, school, town hall, ...)

Catering sector
(such as restaurant, ba, snackbar, ...)

All other shops or services

Compensating qualities. As follows from the concept of 'compensating qualities', the interviews indicate that if local mismatches on the neighbourhood level exist, they can, if necessary, be compensated on a larger scale. To illustrate the extent of this compensation potential on the regional level, the daily activity patterns of individual residents were analysed (see figure 5). The in-depth interviews and cartographical analyses of activity patterns have pointed towards two distinct patterns of use. On the one hand, residents display movement patterns that indicate a very close relationship and use of local neighbourhood facilities (see figure 4) and public spaces. On the other hand, residents display rather long-distance patterns of movement to metropolitan facilities (downtown or peripheral shopping areas, sports and leisure facilities). Both of these patterns occur in all residents, but in varying degrees (see figure 5 and figure 6), depending on the profile, the needs of the respondents and the place of residence.

Local orientation. Residents of housing projects in the centre of Jette (Jette Village & Residence Dewez) display overall a very great attachment to, and use of, local services. Here the convivial and 'village'-like reality of Jette appeals to the 'arcadian mindset' of residents. Overall, the interviews indicated that the neighbourhood mostly corresponded to their preferences and needs. This indicates minimal local 'mismatches' and less compensation is needed on the regional level. They appreciate and use the local amenities intensively and have an active relationship with their immediate neighbourhood and nearby commercial centres (see quote 13 and 14). For residents of Jette Village and Residence Dewez, the possibility to access most shops, services and activities by foot, was specifically valued (see quote 15 and quote 16).

> "***Quote 13* |** *C'est un quartier, comme vous connaissez* ***la place du Miroir qui est très bien desservie par les commerces et en même temps je suis très au calme.***
> *~ Residence Dewez* "

Figure 5 | **Mapping excercises documenting the activity patterns of the residents. The lightgray area represents the Brussels Pentagon for reference of scale and orientation.**

Regional orientation. Some residents of the housing projects closer to the city centre (Victoria Lofts) stated rather few 'local' movements. In the case of Victoria Lofts, we can relate this to a mismatch of the neighbourhood with the socio-economic profile (high income, well educated) and 'metropolitan' mindset of the residents (see quote 17). The residents of Victoria Lofts frequently expressed their dissatisfaction with the local service level, as the neighbourhood of Koekelberg does not hold an abundance of specialised goods and services, such as cultural activities bars, restaurants, bakeries, etc that specifically cater for the middle and upper classes. The residents however mentioned that the lack of these amenities was compensated to a certain extent by the proximity of a metro-station with a direct connection to the city centre (see quote 18). With an abundance of services providing 'high' culture, the city centre thus remains the locus of interest (see quote 19).

In the case of the peripheral projects, the relative absence of local movement patterns and high amount of longer distance movements was related to the general lack of nearby services and amenities resulting (relative) in a more car-oriented life style (Jardins de Jette). The lack of nearby services resulted in longer commutes and trips to activities and services. Equally this affected the older residents of Jardins de Jette, particularly in combination with a relative absence of ambulatory services for the elderly (see quote 20). In the case of Wemmel Square, peripherally located relative to the Brussels centre, the high amount of long-distance movements was primarily caused by a lingering mental connection with the Brussels region after emigration.

Source: author

> "***Quote 14 |*** *Il y a Delhaize, il y a Carrefour, il y a un Proxy Delhaize qui va s'ouvrir ici encore, vous avez des restaurants, des magasins pour les enfants,* ***franchement c'est hyper pratique****, maintenant ils font beaucoup de travaux, mais une fois que ça sera fini ça sera encore plus beau donc...*
> *~ Residence Dewez* "

> "***Quote 15 |*** *Le quartier est très bien servi pour faire des cours à pied.* ***Jamais j'utilise la voiture****, peut-être une fois par an, mais oui. Avec un petit cadi.*
> *~ Residence Dewez* "

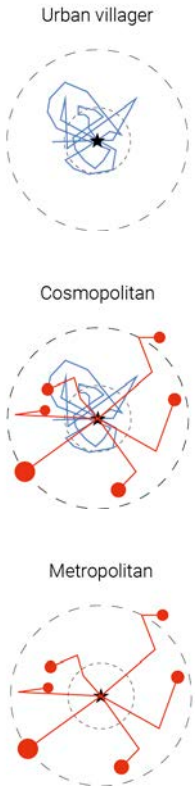
> "***Quote 16 |*** *Pour la proximité des commerces, on peut tout faire à pied en fait à Jette, donc on peut tout faire,* ***on peut faire ses courses à pied*** *donc proximité du centre pour le boulot et alors dans le quartier c'est l'offre en commerce*
> *~ Residence Dewez* "

> "***Quote 17 |*** *We gaan heel soms, naar een terras, aan Simonis...op café.* ***Eigenlijk doen wij in Koekelberg verschrikkelijk weinig.*** *Ja, de buurt heeft nood aan betere restaurants in de buurt en betere voedingswinkels. Niet noodzakelijk bio maar je hebt hier gebrek aan geraffineerd voedsel. Restaurants zijn hier weinig. Supermarkten zijn er voldoende maar* ***te weinig kleine winkels met gespecialiseerde voeding****. Wat ik elke dag bijna te voet doen is hier door 't park, naar de bakker, da's toch al ver hè voor nen bakker, nen goeien bakker..*
> *~ Victoria Lofts* "

“ ***Quote 18 | Culturele activiteiten missen we op zich niet zo, we pakken de metro naar het centrum.*** *Heel veel verplaatsingen eigenlijk naar het centrum, de Nieuwstraat, De Brouckère, omdat dat voor ons wel het gemakkelijkste is...restaurants, cinema, ...*
~ Victoria Lofts ”

“ ***Quote 19 |*** *Ik denk dat ik toch altijd zal geneigd zijn om naar het centrum te trekken....* ***de grote namen en niet de lokale kunstenaars...***
~ Victoria Loftsl ”

Figure 6 | **A typology of activity patterns**



2.1.3 | Concluding remarks on neighbourhood perceptions

To conclude, the neighbourhood and immediate surroundings of case studies that are located close to the centre of Jette had a overall more positive evaluation by a larger range of household profiles, mentioned as a good combination of elements through a small scale, walkable mix of residential, commercial and green areas. These areas proved able to accommodate a wide range of household types and age categories. The case studies adjacent to the centre of Jette, whether more peripherally (les Jardins de Jette, Wemmel Square), or more centrally (Victoria Lofts), had more distinct features that were able to please specific household types. Victoria Lofts attracted economically well-off and culturally active and in need of high accessibility levels, while les Jardins de Jette was able to satisfy seniors and families with children in search of space and child-friendly surroundings. However, these neighbourhoods were sometimes mentioned as only a temporary solution to the current housing needs (for example quote 9, a family who plans to move closer to the city centre as the kids have left the house).

“ ***Quote 20 |*** *Et pour faire des petits travaux vous ne trouvez personne pour travailler une heure, bien que à Vilvoorde le système de, est très bien fait, ils ont un organisme pour aider les vieilles personnes, qui manque pour moi à Bruxelles. Je trouvais que à Vilvoorde c'était mieux organisé pour les seniors pour venir en aide. Maar* ***het comfort van de senioren in Brussel is niet hetzelfde als in Vilvoorde****, daar was het beter. Vb: de lamp is kapot, en in Vilvoorde kon je daar bellen, en er komt een man voor die lamp te veranderen, en daar had ik een tuin en ik had iemand van de gemeente die kwam werken in de tuin, en ook als je moest weg gaan naar het ziekenhuis, en je kan niet meer goed stappen, had je auto's die je kwamen halen en die met jou naar het ziekenhuis gingen, en ook voor de mensen die niet meer goed te been zijn konden ze een auto met chauffeur vragen om even rond te rijden en betalen per kilometer, dus dat is wel een goede service. In Jette heb je dit helaas niet..*
~ JJ_BED17.5.2 ”

2.2 | Housing projects: spatial characteristics and residents' perceptions

As follows from the concept of 'compensating qualities', the negative aspects of the neighbourhood can be compensated to an extent by the features of the housing project. This part thus focuses in detail on the spatial characteristics of the housing projects. As will become evident, some housing projects explicitly try to compensate for the neighbourhood. Victoria Lofts' gated collective garden and inner oriented courtyard design, tries to compensate for the busy area of Simonis. Les Jardins de Jette, with its -failed?- attempt to increase density towards its center and accommodate some commercial services, tries to compensate for the lack of amenities nearby and its peripheral location. Wemmel Square, on the other hand, does a better job of introducing centrality in an area that is peripheral (relative to the Brussels region).

The following analyses give a closer view on the characteristics of each of the cases and how they are (un)succesful in providing for the remaining housing needs and preferences of the residents. These analyses should be read with the fiches (see §5) in mind. These fiches provide some basic figures and mappings, providing the necessary background information to understand the statements from the residents.

2.2.1 | Victoria Lofts (Koekelberg)

See fiche §5.3.1

The flexibility of empty shell housing. Victoria lofts consists of two housing types (see figure 7). The first phase was a reconversion of the ancient chocolate factory into lofts, only minimally interfering with the industrial style and unconventional layout by inserting units with an open plan and 'casco' (empty shell) design. The second phase replaced storage facilities by new-built, conventional apartment units, closing of the housing block at the northern side. Interviews with the residents of the first phase indicated that the casco design offered extra flexibility regarding the layout as opposed to standard turn-key apartments. Due to the open layout and aspect of self-construction, the residents appreciated their unit as it represented a 'hybrid' between the typologies of the traditional single-family house and standard apartment. Mentioned as a reason to stay in the city (see quote 21), chosen for its flexibility (see figure 8), future adaptability (see quote 22 and figure 9) or possibility to spread costs (see quote 23), the typology is able to address a variety of housing preferences and needs.

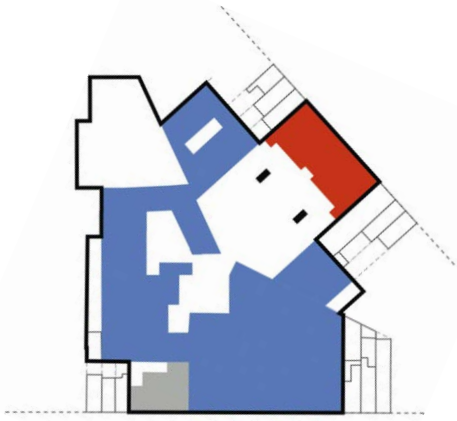
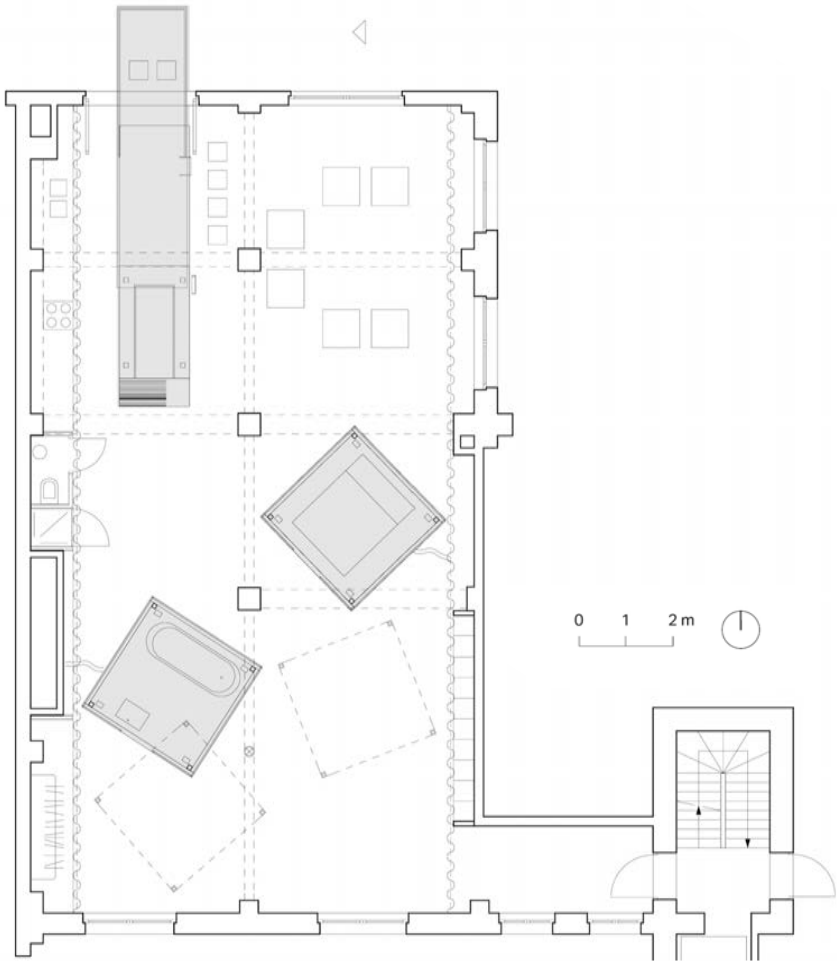


Figure 7 | **Housing types**
27 apartments (2-3 bedroom)
72 casco lofts



Source: dmva-architects

Figure 8 | **Layout of a casco unit. The open plan and flexibility of the casco design was maintained by the resident with the implementation of a movable bed- and bathroom.**

Source: Square Properties

Figure 9

> ***Quote 21 |*** *Mijn partner wilde in de stad wonen en ik wilde zelf een huis bouwen. Dit was* ***een goed compromis om in de stad te wonen*** *en ik kon dan het interieur inrichten. Het kon dus niets anders zijn dan een huis of dit en dit leek interessanter.*

> ***Quote 22 |*** *We hebben het ook helemaal kunnen inrichten zoals we wilden. Het is zoals u ziet ruim en aangenaam. We hebben het hier ook zo ingericht dat* ***we nog een extra kamer kunnen maken als we dat wensen****. Dus ja inderdaad we zijn heel tevreden.*

Figure 9 | **The casco design leaves the possibility to close off certain sections of the unit if preferred. This particular unit (2 bedroom, 250m², 2 parking spots, no private terrace) is expected to sell for 600.000 euro, almost doubling its initial price from 2005. This considerable increase indicates a high demand for this typology.**

> ***Quote 23 |*** *Financièrement c'est quand même un peu au-dessus de nos moyens mais le fait que ça soit casco que lui il soit architecte que ça soit dans un quartier qui nous faisait bénéficier d'un abattement fiscal, bon* ***le fait de faire soi-même ses travaux on peut les phaser donc on peut aussi phaser les dépenses*** *donc tout ça a rendu l'achat possible, même si au départ on s'est pas dit ce que il nous faut pour que on puisse acheter.*

> ***Quote 24 |*** *Het belangrijkste voor mij was dat* ***mijn dochter haar in alle veiligheid kan uitleven****. Het complex is hier volledig afgesloten, dus de kinderen kunnen niet buiten en er kan niemand binnen zonder badge. En je zit hier echt in het groen en de kinderen mogen echt spelen. Er mogen geen auto's op het complex komen. En hier wordt met de bal gespeeld en met krijt op de grond getekend, en dat was echt de bedoeling.*

Figure 10 | **Victoria lofts, fenced off from the neigborhood, increases sense of safety for children.**

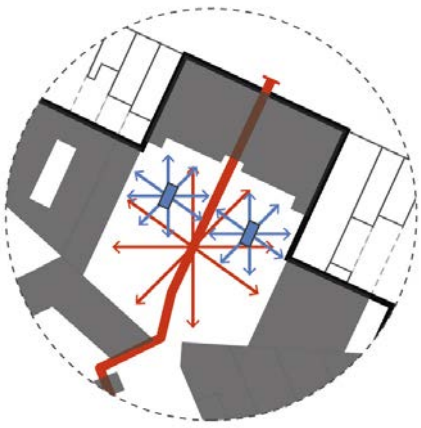


Figure 11 | **The courtyard functions as a passagge ánd entrance to the individual housing units, with outdoor pavilions giving access to the underground car parking.**

pedestrian access

underground car park exit

A courtyard typology with an inward orientation. On the scale of the housing project, Victoria Lofts is characterised by its inward orientation, with access to the collective inner parts only for residents. Some respondents indicated that the gated aspect and related - sense of - security was a determining factor when searching for a home (see quote 24 and 25, figure 10), especially when children are involved. The inward orientation is furthermore reinforced by its circulatory patterns. With the access to individual housing units oriented towards the collective inner space, the element that dominates is the courtyard, functioning as a passage ánd entrance to individual private spaces. Two pavilions (see figure 11 and 12 on the next page) in the collective garden give access to the underground car parking, effectively concentrating all circulation, regardless of transport mode, to the collective space, attributing the courtyard a central function in the housing project.

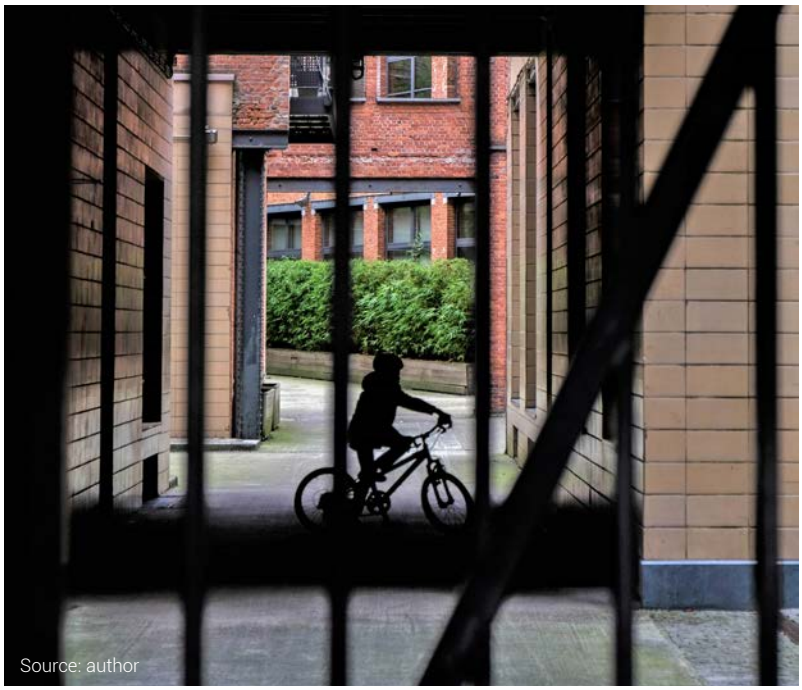


Figure 10

Maintaining individual privacy in a collective setting. The collective garden was valued by all respondents, however, only the residents with direct private entrances towards the collective garden mentioned frequent use. The design of the main collective garden (see figure 11) stands out within this respect; with individual entrances evenly spaced around the courtyard, any hierarchy is absent and possibilities for conflict related to it are reduced as much as possible. The collective garden acts as the main entrance for most of the apartments in the northern part, increasing possibilities for social interaction and chance encounters among neighbours. Privacy is maintained however, by the enclosure of private terraces and gardens adjacent to the collective garden by (small) hedges and trees. Residents indicated that these spatial barriers were complemented with some informal rules on social conduct (see quote 25) to maximally respect privacy.

> “ ***Quote 25 |*** *Als de gordijnen toe zijn, dan gaat nooit iemand komen kloppen. Maar als ze open zijn, dan durven de buren ook echt vragen achter boter of eieren, dat wordt hier nog gedaan. En als je op het terras zit, en als jij nu naar een buur kijkt die passeert, dan zeggen ze goeiedag, en* ***pas als je hen blijft aankijken, dan komen ze naar u toe****. Maar zoiets moet aangeleerd worden bv. de vrijdag als wij aperitieven, dan kwamen er eens kindjes op ons terras een chipske pakken. Wij vinden dat op zich wel grappig. Maar die ouders, nee nee nee he. Dus die zeiden echt, 'kom terug, dat is niet ons terras, je mag daar niet komen!'* ”

Figure 12 | **The courtyard. Easy access to the stairs encourages its use. The outdoor stairs create individual outdoor entrances that directly connect with the courtyard.**

Figure 12

2.2.2 | Jette Village - citydev.brussels (Jette)

See fiche §5.3.2

Typological adaptations to increase density. For the project of Jette Village, a smooth transition with the existing housing typologies in the residential block was an explicit starting point in the design (see figure 13). Primarily, the transition was made with single-family dwellings, adopting a more traditional typology linking the project with existing buildings within the residential block. Corners and parts not directly connected to existing buildings were densified with apartment buildings. On the street side, a setback of the upper two storeys (see figure 14) reduces impact and supports the transition with adjacent housing blocks.

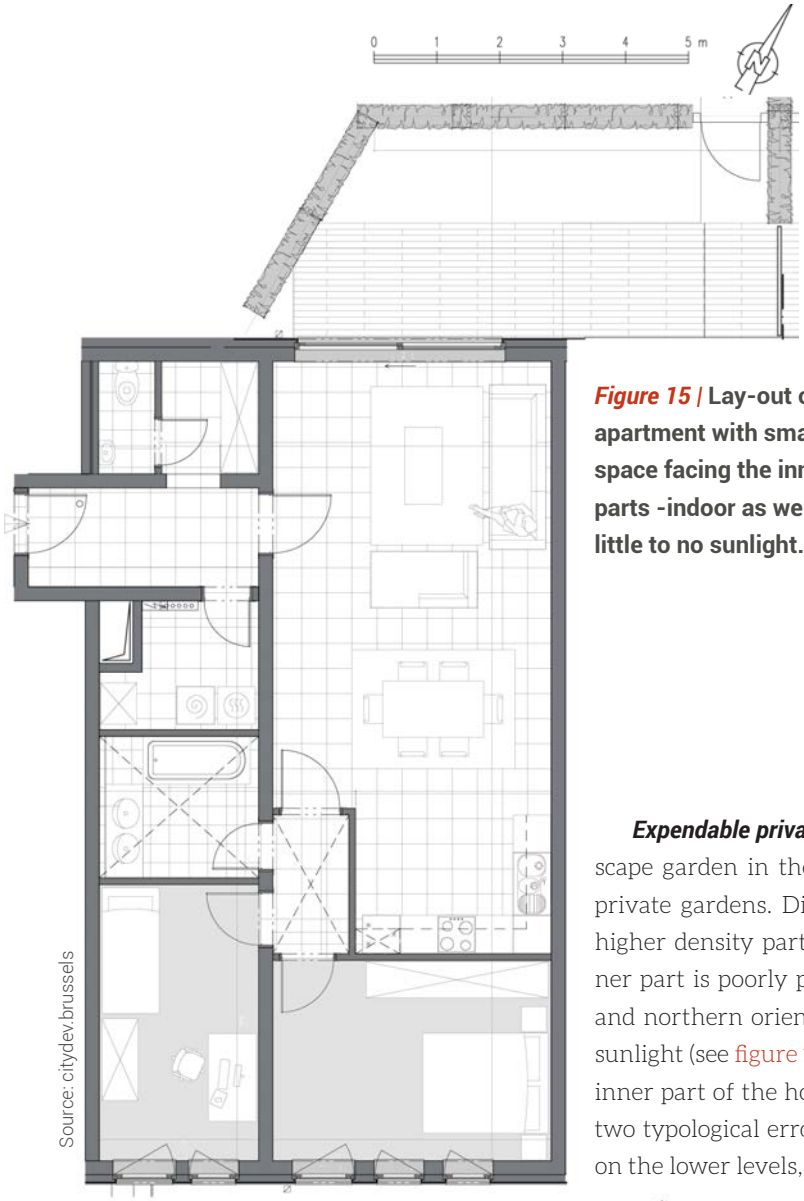
Figure 13 **| Housing types**

113 apartments (1-4 bedroom)

29 single-family dwellings (3-5 bedroom)

Figure 14 **| A progressively backward placement of the two upper storeys on the street side.**

Source: Bing maps



Source: citydev.brussels

Figure 15 | **Lay-out of ground floor apartment with small private outdoor space facing the inner courtyard. Many parts -indoor as well as outdoor- receive little to no sunlight.**

Expendable private outdoor space. Apart from the small collective landscape garden in the central courtyard, outdoor space is subdivided into private gardens. Disadvantages of this approach become evident in the higher density parts of the project. The interviews revealed that the inner part is poorly proportioned; due to its building height, limited width and northern orientation, most lower level apartments receive no direct sunlight (see figure 15) and private gardens suffer from privacy issues. The inner part of the housing project thus fails to function in part because of two typological errors: the choice to stick with standard apartment units on the lower levels, and the categorical use of privatized outdoor space.

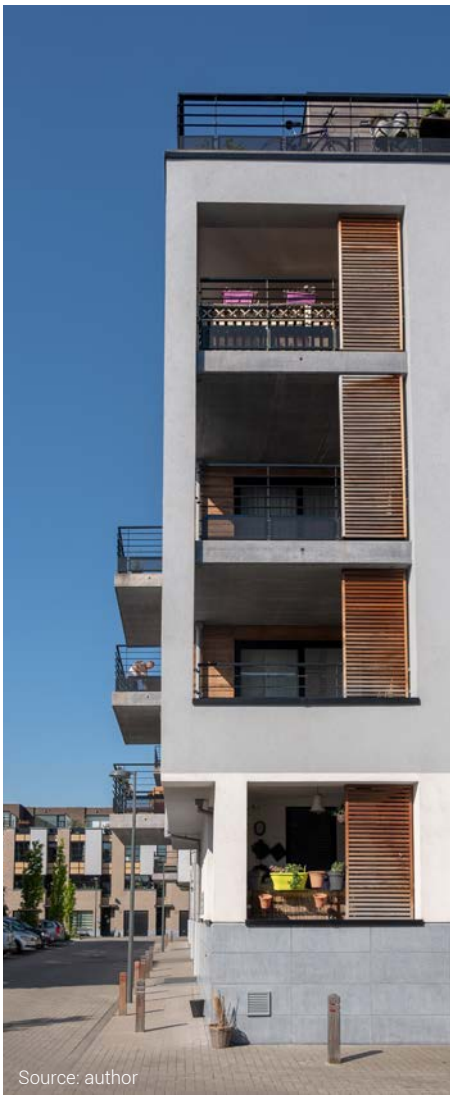

Source: author

Figure 17 | **Throughout the project, terraces are of the loggia-type. As opposed to conventional protruding terraces, the loggias are situated within the buildings main structure and are thus less exposed to public space.**

> ***Quote 26 |*** *Ici celle-ci la terrasse par exemple est abrité, pas comme les terrasses suspendues ou il n'y a jamais personne par ce que, vous voyez, ici on est dehors, en ayant un certain côté privé.*

Residual collective space. The central garden consists of a collective inner part, enclosed by private gardens (see figure 16). The central garden is purely of aesthetic value, with a conflict and maintenance-free design. As such, the space is not usable for residents, let alone for children as a playground. Respondents stated the developers initially chose this lay-out to protect the underground car park. Instead of a fully private subdivision of the central garden, the inner part was thus 'collectivised'. However, with the surrounding private gardens reduced to minimal sizes, the entire outdoor space becomes impractical. This reasoning illustrates how outdoor space, private or collective, is considered as residual space, was not valued and of central consideration during the design process, and had its ambition ultimately scaled down because of pragmatic considerations.

The benefits of secluded terraces. Private terraces on the other hand, show a more careful consideration towards privacy. Most terraces are of the loggia-type, partly secluded by the inner apartment walls. Extra wooden panels provide even a greater sense of privacy (see figure 17 and quote 26). This outdoor area is less exposed to the elements and thus lends itself better towards fixed installations and appropriation.

Figure 16 | **The collective 'landscape garden' sole functionality is esthetical. Despite the fact that each private garden has individual access towards the inner space, the garden was specifically designed to prevent any other use.**


Source: author

A semi-public internal street with a car-oriented design. The introduction of the U-shaped street made it possible to develop the inner area of the block and to increase the number of residential units. Although the internal street is officially designated as public space, some elements render the space semi-private. The name 'Magritte*gaarde*' (translation: courtyard, enclosed piece of land) refers directly to the private character of the residential project. This private character is maintained by its circulation (see figure 18); the u-shape encourages only internal circulation by residents. Consequently the internal street is not used by outsiders. Only residents of units that directly access the internal street displayed a functional and mental connection (see quote 27).

Despite the fact that some design elements aim for a mixed use (pedestrianized look according 'shared space' principles), the enclosed U-shaped street is primarily car-oriented with the majority of space dedicated to car parking and car traffic. The absence of seating furniture and functional greenery further defines the space as a passage space, rather than a dwelling space (see figure 19). This unclear definition of the outdoor space was evident in the interviews; the functionality and attitude towards the internal street varied for the respondents (see quote 28 and 29).

Source: author

Figure 19

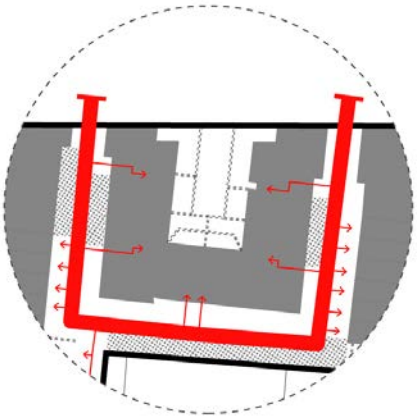


Figure 18 | **Despite being a public street, outsiders have no reason to enter.**

> ***Quote 27 |*** *I: Vous allez parfois dans le U, seul ou avec les enfants ?*
> *R: Non par ce que* ***c'est pas chez moi ça, moi je suis de l'autre côté****. Non on va jamais par-là.*

Figure 19 | **Despite that some spatial elements aim for a mixed-use, the majority of space is designated for car use, and functions primarily as a passage.**

> ***Quote 28 |*** *[...] et puis c'est un passage,* ***c'est pour les voitures c'est pas pour jouer*** *hein, moi je trouve ça dangereux quand même hein.*

> ***Quote 29 |*** *De temps en temps les 'kets' jouent, surtout en été on entend beaucoup les jeux des enfants, mais la rue n'est pas fermé, ça reste ouvert pour les voitures.*

2.2.3 | Residence Dewez - citydev.brussels (Jette)

See fiche §5.3.3

Standardising the apartment typology. The building of Residence Dewez is entirely subdivided into one to three bedroom apartments (see figure 20). Overall, these units provide standard quality and acceptable comfort levels. The apartments on the first 3 floors were bought by citydev-residents. Three 'penthouse' apartments on the fourth floor, more generously spaced (160 - 240 m², 3 bedrooms) were sold on the free market.

Figure 21 provides an example of a typical layout. The private terrace, oriented towards the collective garden, provides ample seclusion, is of acceptable size and is functionally related to the kitchen and living space. The bedrooms, oriented towards the backyard, also have sufficient privacy. Generally, citydev-apartments are considered to be generously spaced in comparison with apartments on the private market. However, even with the minimal size requirements of citydev (110 m² for a 3 bedroom apartment), residents in citydev units still remarked that these apartment typologies are designed to be as 'compact as possible' (see quote 30) noting an absence of sufficient storage room (see quote 31) or multifunctional rooms.

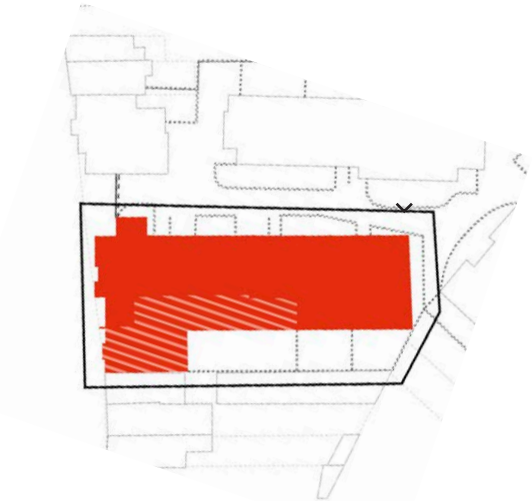
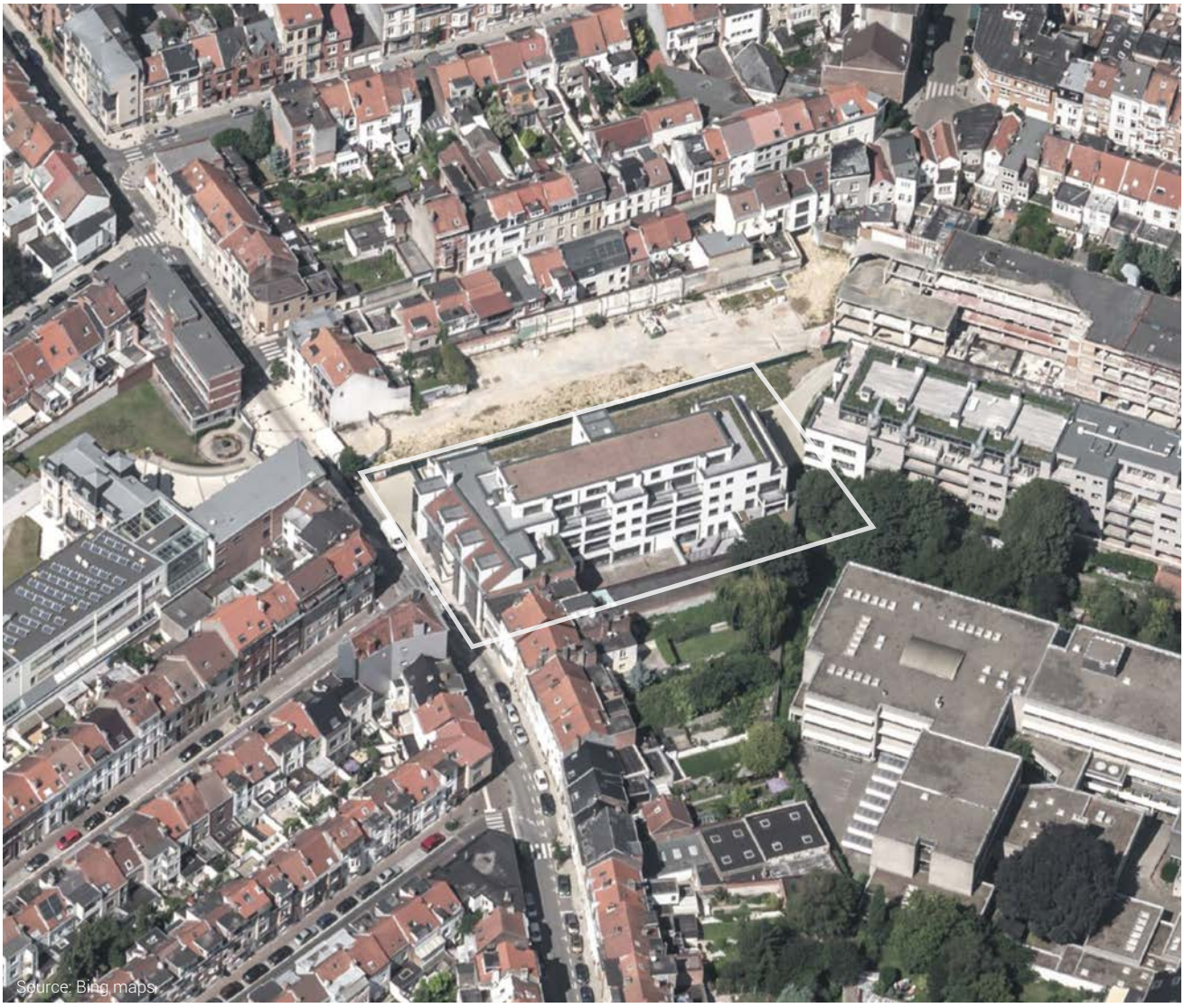


Figure 20 | **Housing types**
34 apartments (1-3 bedroom)
crèche on ground floor

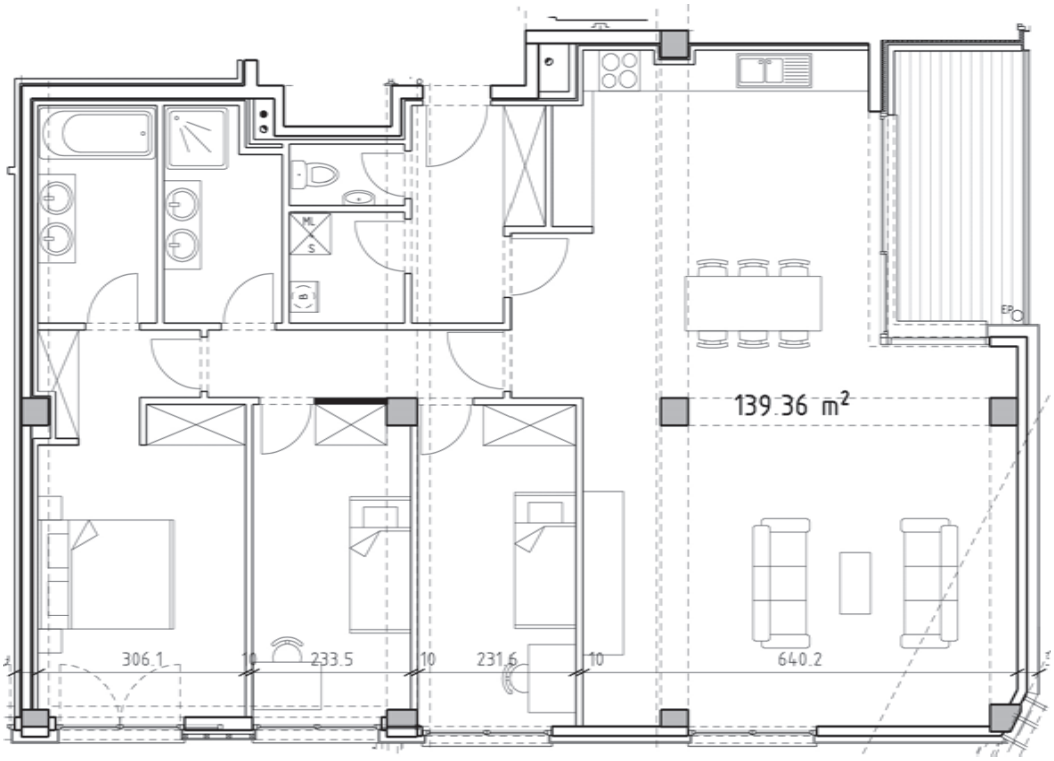


Source: Bing maps

> ***Quote 30 |*** *Wij hebben het grootste apartement, en ik vind het nog steeds niet ruim genoeg.* ***Nieuwe appartementen maakt men eigenlijk quasi nooit meer echt groot.*** *Die zijn altijd een bepaald vierkante meters afgetopt.*

> ***Quote 31 |*** *Je manque aussi d'espace de rangement donc* ***il n'y a pas de débarras, pas de buanderie****, Si j'avais eu plus d'appartements au choix, j'aurai pris celui avec un débarras. Ici je dois créer des espaces de rangements, là où ce n'est pas prévu.*

> ***Quote 32 |*** *Er zijn hier appartementen met een kleine tuin op het gelijkvloers, maar die zijn donkerder. Daarom ook, denk ik,* ***zijn de meeste appartementen op de benedenverdieping niet verkocht****, het is minder sympathiek, je hebt inkijk.*



Source: citydev

Figure 21 | **Layout of a citydev-apartment on the first floor.**

The inadequacy of ground floor apartments (1). Again, similarly to the example of Jette Village, most problems regarding typology occur on the ground floor. In the case of Residence Dewez, private gardens are too small and suffer from privacy issues, and are thus not able to offset the drawbacks that are present in ground floor apartments (less sunlight infiltration, no view, privacy issues) rendering them inherently unattractive (see quote 32).

Figure 22 **Ground floor apartments and private gardens are very exposed towards the collective passage way.**

Figure 22

Figure 23 **Apart from exposure and orientation, the functionality of private outdoor spaces depends on size. This terrace on the roof of the apartment below is approximately 3 m wide and provides ample space for outdoor activities.**

Figure 23

> ***Quote 33*** | *"Un des très grands compromis, quand j'ai montré à mon expert, il est resté silencieux. Il me dit le seul truc qu'il y a c'est que* ***c'est un appartement idéal pour une exhibitionniste****. Les buissons sont très bas, le piétonnier est juste derrière, donc le soir dès que la nuit commence à tomber je suis obligé à fermer pour avoir mon intimité sauf si je garde les lumières éteintes. C'est toute une logistique qui est parfois un peu énervante. Je dois aussi faire attention avec la porte fenêtre quand je suis dans une autre pièce qu'il n'y ait personne qui s'infiltre puisque c'est exposé quoi.*"

The inadequacy of ground floor apartments (2). Some problems cannot be attributed solely to typological errors, but to the context. In the case of the ground floor apartments (see figure 22), the private gardens and the majority of rooms are directly visible from the passage way (piétonnier). The overall sense is that of 'exposure' and 'insecurity' (see quote 33), partly enhanced due to the semi-public character of the passageway and interrelated unknowns (unfamiliar people passing, absence of control of passageway). Terraces on higher levels do not suffer as much from privacy issues, and if large enough, remain functional (see figure 23).

Figure 25 | **The pedestrian way connecting the seperate -high density- developments. The green fence marks the zone of another project of similar size. The residual space, squeezed in-between, is reduced to a passage with esthetical greenery and lacks elements that invite to use the collective space otherwise.**

Privacy conflicts due to the semi-private passageway. Part of the problems in Residence Dewez stem from the poorly conceived space 'in-between', its circulation patterns and design. The project of Dewez sits within a larger project development, with several housing 'slabs' separately lined along the inner passage way cutting through the housing block (see figure 24). The collective space in-between is conceived primarily as a passage way and not as a dwelling space, funnelling residents through the high density development (see figure 25). The project development intersects the housing block and connects two parallel streets (Wemmelse steenweg & Leon Theodorstraat). Despite possible advantages of a passage open to the public (halving the oversized housing block), the developers opted for privatisation given the predominantly residential programme and the target group (high-end flats). The passage way is however not fully private: it connects on either side municipal facilities (town hall & social services) and personnel have a key and are allowed to pass through. Despite the existence of a fence (see figure 26), the identity of the collective space is thus altered, its private character changed to a state of semi-publicness. As is evident from quote 33, this directly affects not only the functionality of the collective space itself, but also the private spaces adjacent to it. Respondents noted that this unclear definition created conflict among residents, some preferring an increase of security measures, others preferring the passage entirely open to the public.

Figure 24 | **The planned developments will increase density.**

Figure 26 | **The passage way has a semi-public character, fenced off, but open to personel of municipal facilities.**

2.2.4 | Les Jardins de Jette (Jette)

See fiche §5.3.4

An awkward attempt to increase density in a peripheral context. In accordance with core principles of New Urbanism, the design of les Jardins de Jette aims to create a singular identity on the neighbourhood scale. With density increasing towards the middle (see figure 27), its focal point is within, imitating organically grown villages in rural settings. Suburban-style windy roads, front gardens and single family homes (see figure 28) set the stage for the inner plaza, conceived as a square of 'urban' proportions. Both density (8 story apartment buildings), layout (circular plaza, little green) and intended functional mix (commercial areas on ground level), stress the squares central position within the neighbourhood and its urban character, aiming as a place of attraction and assembly. The apartment units (see figure 29) are used to increase density of the overall development. Their location (central parts of the neighbourhood) and design result however in a number of conflicts between the design and actual use.

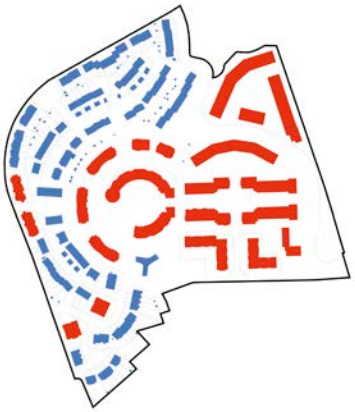


Figure 27 | **Housing types**
1032 apartments (1-4 bedroom)
150 single-family dwellings (3-5 bedroom)

Source: Bing maps

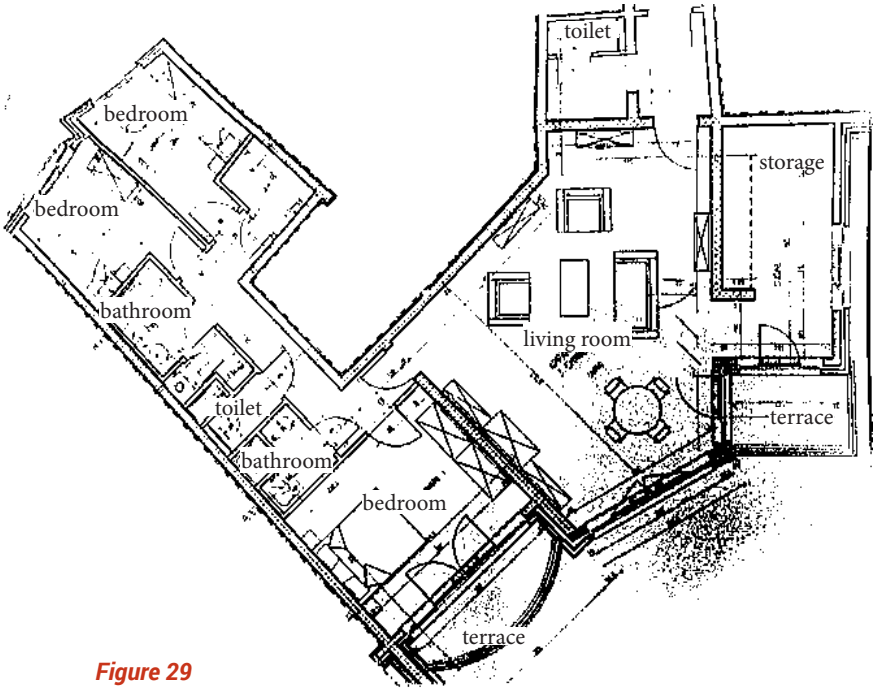


Figure 29

Figure 28 | **The single family houses create a distinct suburban feel, both typological and esthetical. Even the car parkings are almost like little houses.**

Figure 29 | **Layout of an apartment unit on the central square. The main bedroom and both terraces are oriented towards the public square, creating confusion on what is the back, and what is the front of the building.**

> “ ***Quote 34 | C'est vraiment une cité dortoir,*** *quelque part ou les gens viennent pour le soir chez eux, ne sortent pas beaucoup, ils vont travailler bon bien voilà il n'y a pas vraiment une vie animé.* ”

> “ ***Quote 35 |*** *Je suis Normande hein donc* ***moi je cherche la qualité de vie*** ”

Suburban typologies. The choice for a rigorous esthetical adoption of New Urbanist principles fits within the original intention of this late '90s green field development. Its suburban character (see quote 34 and quote 35) specifically addressed emigrating middle income households in search for larger, family-oriented housing types. This results in a development that has its merits, but because of its uncompromising new-urbanist nature, neglects its context and misses out on certain fundamentals of urban design.

Figure 28

> *Quote 36 |* ***Als ik iets moet kopen moet ik altijd met de auto.*** *Ik zou het beter vinden als we alles te voet kunnen doen. Maar dat is hier niet mogelijk.*

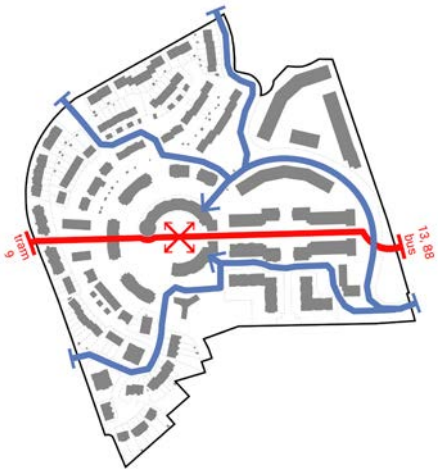


Figure 30 | **Mobility modes are spatially separate. Cars approach the central square via the outside (back). Pedestrians enter from the middle (front).**

pedestrian access

car access

Figure 31 -32 | **Mobility modes are spatially separate. Streets lack sidewalks. A walkway, pedestrians only, connects the central square with the main public transport stops.**

Circulation affects use. The main problems of les Jardins de Jette are related to its location, orientation and access. The notion of density reads differently on a location this peripheral. Residents noted that they had little reason to go to the central square, outsiders rarely visit, and the place overall feels hollow and out of place. Vacancy persists in the commercial spaces on the ground level, after the supermarket on the ground floor quickly ceased its activities. Questions on activity patterns of the respondents revealed the reasons: apart from a recreational stroll, residents orient themselves rather towards the centre of Jette or the Pentagone, depend on larger stores on nearby arterial roads and move primarily by car (see quote 36). The neighbourhoods peripheral location thus influences mobility patterns (see figure 30, 31 & 32), rendering certain design choices to be fruitless and even counterproductive.

This is particularly evident on the central square: Many households depend on the car for their daily tasks, and as such the car entrance in the back becomes their main entry point. The underground car passage bypasses the central square and the main hall with an underground passage towards the elevator. The central square, despite its intention to act as a place of entry, succumbs to a backward and awkward position.

The outer, low density parts of the neighbourhood are subdivided into private plots (see figure 33). In essence, the choice for single family and private gardens is not misplaced given the peripheral location. Respondents noted that this was their only option to stay in the capital region ánd have a individual garden, and therefore it responds to the inclination of some households towards suburban housing qualities.


Source: author

Figure 31

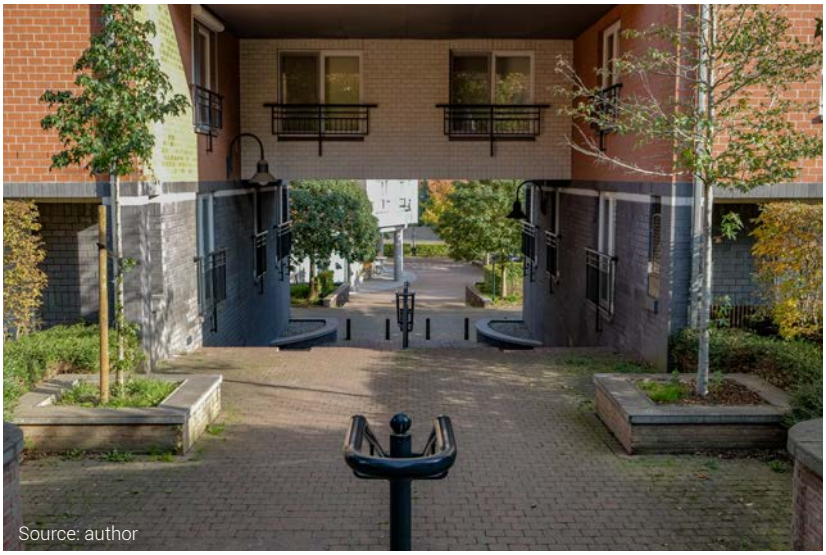

Source: author

Figure 32

> **Quote 37 |** *C'est pas très bien fréquenté, mais on aime pas trop que les filles jouent avec ces enfants-là et euh ils jouent au ballon en tapant toujours sur des vitres,* ***ça résonne par ce que ça fait un rond****. Cette place n'est plus une place de jeux mais là nos soirées* ***on peut jamais être sur notre balcon non.***

The absence of a clear back and front. Problems with regard to outdoor spaces arise however primarily in the higher density part of the central square (see figure 34). The inward orientation of the overall design was extended to the central square in particular. To highlight its central function, all private balconies face the so-called 'central square'. This creates unclarity between what is public and what is private, between what is 'inside' and what is 'outside'. In the case of Jardin de Jette, the presence of the balconies towards the 'public square' is so overwhelming, that it even 'privatises' the square. This also impacts the usability of this square as a public access to the project. In addition, the high-density set up also has acoustic repercussions (see quote 37), where private conversations echo through the 'public space'. In short, this space in Jardins de Jette is a strong illustration how poor design notions of what is public and what is private, of how access to the project really works, and what is inside and what is outside result in unusable and unpleasant spaces.


Source: author

Figure 33 | **The design aims for a pictoresque suburban feel, with single family houses, private back gardens bordered by hedges.**

Figure 34 | **The 'front' facades enclosing the central square.**


Source: author

2.2.5 | Wemmel Square (Wemmel)

See fiche §5.3.5

A conservative approach to market square design. Centrally located within the Wemmel agglomeration, the greenfield was important to the planning administration as the municipality lacked a square of sufficient size to organise activities, fairs and markets. To obtain a planning permit, the private developer opted to acknowledge the municipality's request to incorporate a market square into the development. With its uniform and neoclassical aesthetic and symmetrical layout, the design explicitly aims to evoke a feeling of prestige and grandeur, remarkably reminiscent of classicist Parisian squares (place Vendôme, Place des Vosges).

The typology of the housing units matches the intended density of a central square (see figure 35) ánd household configuration in the green belt surrounding Brussels. The development consists of single level apartments, suitable for an aging -but well-off- population (see quote 38), complemented with duplexes and triplexes (see figure 36, 37 and 38) addressing households who prefer the traditional layout of a single family house (see ***6***).

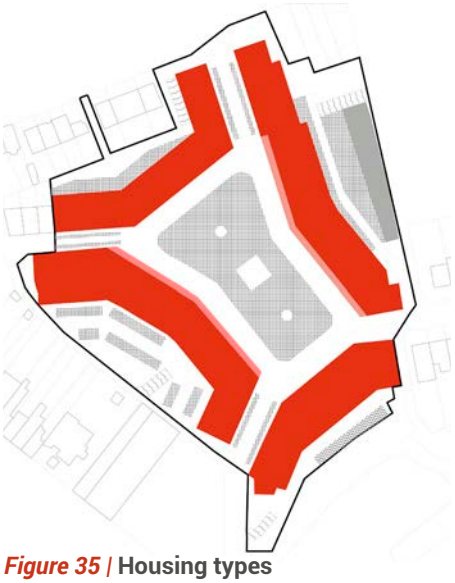
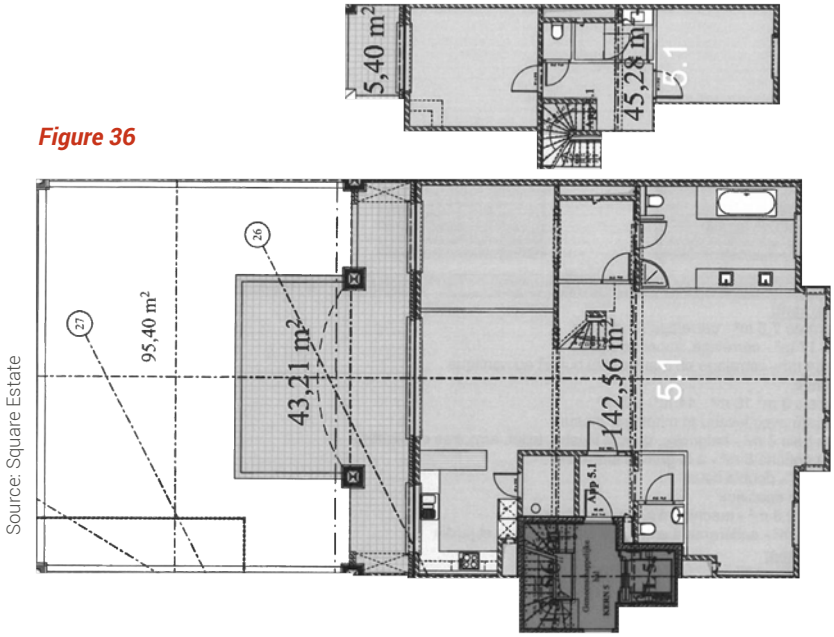


Figure 35 **| Housing types**

160 apartments (single level, duplex & triplex (2-4 bedroom)

Figure 36



Source: Square Estate

Figure 37

> **Quote 38 |** *Je me suis dit j'avance en âge,* ***ça sera ma dernière demeure, donc je n'ai jamais regardé les appartements duplex.***

Figure 36 | Layout of a duplex apartment. The terrace and garden are on the roof of the commercial spaces on the ground level. With a +-90m² rooftop garden, the outdoor private space becomes an important element of the overall unit.

Figure 37 | Throughout the project, commercial spaces occupy the ground level. Apartments, duplexes and triplexes are on the first, second and third floor.

Figure 38 | Living space of a duplex apartment.

> **Quote 39 |** *La réalité correspond 100% à mes attentes,* ***le duplex c'est un peu comme une maison*** *et l'appart est nouveau (première occupation). Pas de déception encore...*

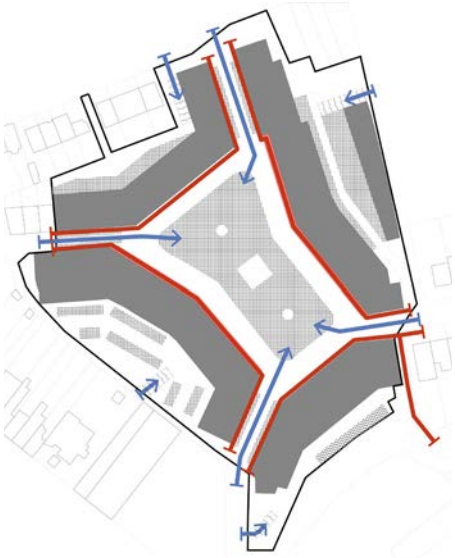


Figure 41 | **Apart from sundays, the square is used as parking space. The restoration in 2018 increased the amount of parking spots from 68 to 79.**

- **pedestrian access**
- **car access**
- **parking space**

Figure 42 | **Parking seems to be of paramount importance, with additional parking space to accomodate extra visitors on market days.**

Figure 39-40 | **The covered walkway imitates the Greek design of the 'Stoa', often found on market squares to provide access to services and shelter from the elements.**

Figure 39

Attracting outsiders through a car-friendly design. With approximately 70 commercial spaces on the ground level throughout the project, the development aims not only to serve local population but to have a wider outreach as a regional shopping center, with stores providing discretionary goods or services, visited only on weekly or monthly basis (see figure 39 and 40). The square sits well on a regional level, directly connected via arterial roads 'steenwegen' to Brussels and Merchtem. To attract outsiders, a car-oriented design was chosen and maintained (see figure 41). On weekdays, the square is designated for the most part as parking space. As the square is occupied on Sundays for market activities, additional parking lots are provided on a plot directly adjacent to the development (see figure 42). Despite its central location and direct advantages for local residents (see quote 40), these (conservative) design choices, designating the car as the easiest option, only further reinforce the car dependency on the regional level.

Figure 40

Figure 42

11 “ ***Quote 40 |*** *J'avais presque choisi Jardins de Jette et puis j'ai bien réfléchi. Je me suis promené plusieurs fois dans les Jardins de Jette que je trouve pas mal mais je trouve mortelle, dans le sens que dans la journée il y a personne là, dans le sens que c'est une ville fantôme, et puis les gens rentrent de leur travail, ils vont dans leur parking, ils montent chez eux, il y a aucune vie, il y a rien, il y a aucun magasin.* ***C'est ça qui m'a attiré ici aussi: moi j'ai pas de voiture, et ici directement sur la place il y a toutes les commodités****, les banques, une très bonne pâtisserie, Fonteyn the kitchen, le petit gb, des coiffeurs, …*
WM_76.1 ”

A formal orientation and generous design. Despite the apartment typology, the design offers private outdoor space that is generous in size and is, due to its elevated position on the first floor and sheltered design of the terraces, able to maximize its privacy from the public sphere. The design furthermore is clear on its orientation towards the public domain. The four housing strips surrounding the square bend backwards, aiming to complete adjacent housing blocks. Entrances and front facades face the inner central square and terraces and gardens are reserved for the back side (see figure 43 and 44).

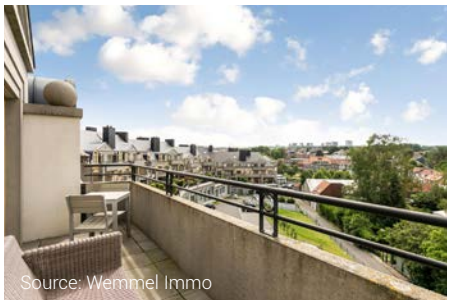


Figure 43 | **Terraces are all situated on the back side, maximizing privacy.**

“ ***Quote 41 |*** *Le marché du dimanche est chouette,* ***ça faisait un peu un esprit villageois.*** ”

Figure 44 | **The middle of the square, fenced off for renovation, will provide additional car spaces.**

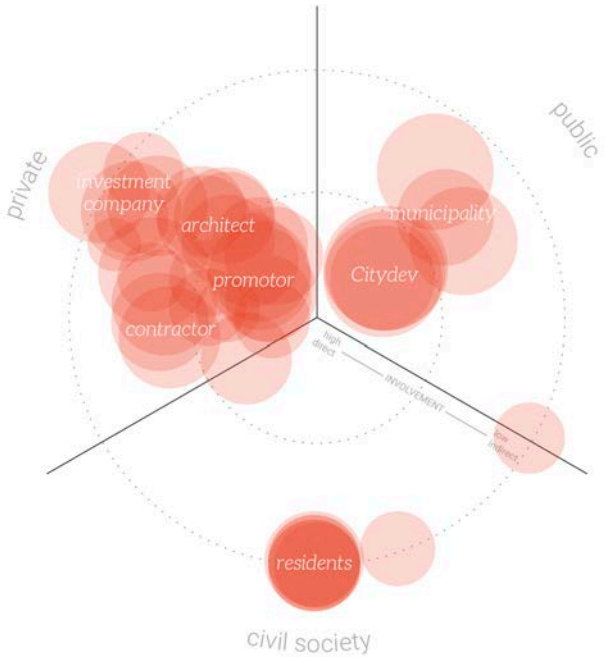
2.3 | Organisational structure of housing projects in the Brussels region

Just as residents may shape their dwelling environments based on their perception of facts, also policy decisions about which housing to realise, or assumptions of promoters on which type of housing is most profitable and marketable determine the actual material housing condition on offer. To what extent is the current housing supply influenced by private real estate promoters? To what extent do public authorities hold control over the programme and design? To what extent are residents involved in the production process, allowing them to shape their own dwelling environment? To shed light on the priorities and logics used by developers, promoters and public actors, the construction history of the housing projects was analysed, its organisational structure and development process, by consulting related policy documents, interviews with developers, government officials in housing, spatial planning and territorial development. For the housing projects in Brussels, we analysed which actors were involved, which partnerships were formed and how decisions on programme and design were taken.

Actors involved in housing production. We can distinguish three groups of actors that could contribute capital and/or initiate a housing project: private companies (investment companies, real estate companies, building contractors), public bodies (public authorities, pararegional housing companies) and individuals, collectives or organisations, here called 'civil society' (individual citizens, co-housing groups, non-profits, ...). The analyses on the organisational structure of a housing model is in this study largely confined towards those actors who hold power over the programme and design of the project, be it regulatory or financially.

A graphic summary of the organisational structure. The summary of the organisational structures of each housing project, graphically illustrates that the main actors involved are situated on the public and private side (see figure 45). Civil society (in this case residents) are generally not involved during the design and construction phase. The graphic summary depicts what can be called a typical scheme of promotion within Brussels, with the public authority adopting a regulating (and sometimes initiating) role while outsourcing design tasks and building capacity towards the private sector. Within this general distribution of roles, the cases show that two main development types currently prevail; private developments; initiated by real estate developers (as is the case in Victoria Lofts and Wemmels Square) and public developments, in this case both initiated by citydev.brussels (as is the case for Jette Village and Residence Dewez). In the following analyses, the main characteristics of these two development types are discussed, reviewing the organisational structure and the development process, accompanied with a brief historical outline to understand their dominance in the Brussels' housing landscape and the future prospects of the models. For details of the development process of each housing project specifically, see the fiches.

***Figure 45 | A summary of actors of the Brussels case studies*. The graphical summary of the organisational structure of the case studies shows a concentration of actors divided along the private and public axes.**



2.3.1 | Private developments (real estate promotion)

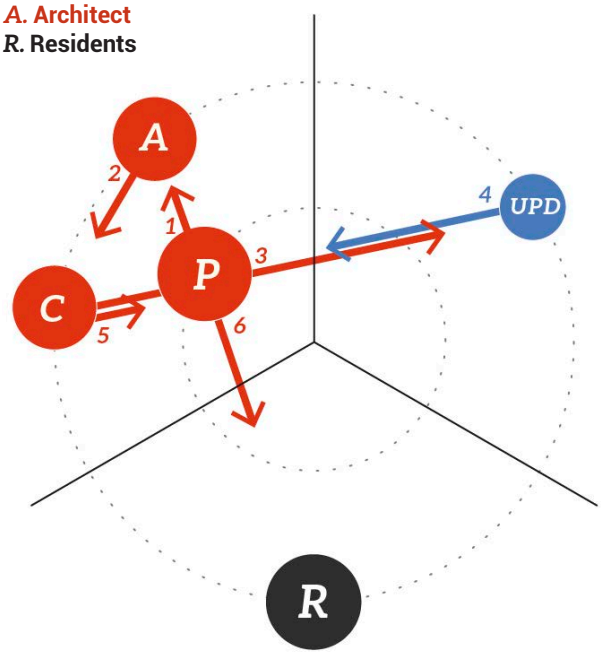
The private developments within the selection of case studies in Brussels (Victoria Lofts & Wemmel Square) are developed by '**real estate promotors'** (see figure 46), commonly understood as private agents who conceive, finance and (let) build real estate projects, to ***sell*** the units after completion (NACE2008-definition). A real estate promotor (P) commonly initiates a project by acquiring suitable building plots. Depending on market conditions and planning restrictions, the promotor defines the project programme and assigns an architect (A) to deliver a design proposal (arrow 1). The architect details the design in cooperation with a contractor (C) (arrow 2). The technical design and the building application (arrow 3) gets evaluated and, if in line with planning regulations, approved (arrow 4) by the Urban Planning Department (UPD). The contractor builds the project according to the design, and delivers it to the promotor (arrow 5). After completion, the units are put on the market by the promotor and sold to future residents (R) or investors (arrow 6).

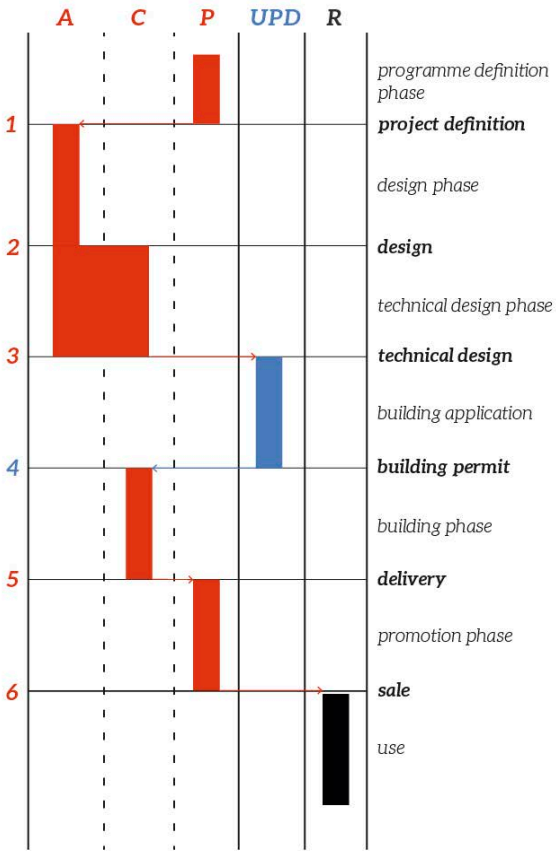
The dominance of real estate promotors. In Brussels, the development of housing has since decades been shifting from the individual (self-promotion) to the real estate promotor. Today, the majority of housing developments in Brussels (70%+) are developed via highly specialised actors such as the real estate promotor. Additionally, the market structure is skewed, with few developers responsible for a large part of the housing production (4% of the real estate enterprises producing 50% of all new housing units in Brussels (Romainville, 2017)). The degree of specialisation has tended to increase during the past century, increasing the number of actors involved within the development of housing and limiting the way in which development relates to the end-user (see box 1 for an overview of different production modes In the period of 1975 – 2012, already two thirds of housing units were produced by specialised actors such as promotors and to a minor extent landlord developers (Dessouroux et al., 2016; Dubois, 2002).

The advent of multi-dwelling housing. One reason for today's high degree of specialisation is the increased importance of multi-dwelling housing, in parallel with a steady decline of production of single family houses since the second world war. Since federalisation, housing production in Brussels consists primarily of the promotion and development of larger scale multi-dwelling housing, due to land shortages, urban renewal policies and densification

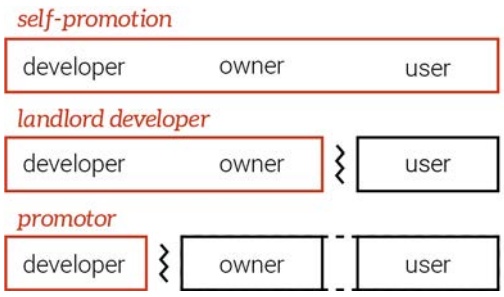
Figure 46 | **Real estate promotion development scheme.**

UPD. **Urban Planning Department**
P. **Promotor**
C. **Contractor**
A. **Architect**
R. **Residents**





***Box 1* | Types of private promotion (after Romainville, 2017)**



Generally, private actors initiating the development of a residential project can be subdivided in three main categories according to the extent of their involvement during the project's life span, and the way in which construction relates to the user (Gurran & Bramley, 2017; Romainville, 2017). The mode of production that has the fewest actors involved is generally the mode involving **self-promotion**. Within self-promotion, it is mostly individual households who acquire a site, build or procure a dwelling, and eventually inhabit the home themselves. Apart from the contracting of design and construction related services (architect, landscape designer, building contractor, …), the 'management' during development and 'exploitation' stays with the household. In the case of Multi-Dwelling Units (MDU's), however still rare, this role can equally be taken up by a group of households, bundling financial and human capital to develop a housing project for own use. Alternatively, when the eventual use is not taken up by the initiator, the developer takes up the role as a landlord, owning the housing unit(s) without occupying it. This second category is comprised of '**landlord developers'**, understood as private agents who conceive, finance, (let) build real estate projects and rent out their property after completion (Smith, 1979). Landlords could constitute single households, investing in real estate with individual savings, or take up the form of enterprises or organisations specialised in the development of a housing project ánd the management of tenants (such as the social housing companies & SLRB-BGHM). Finally, the most specialised group of developers consists of '**real estate promotors**', commonly understood as private agents who conceive, finance and (let) build real estate projects (UPSI-BVS, NACE 2008), to sell after completion.

strategies. The role of MDU's seems to continue to grow in importance; in the last decades, a steady rise of larger residential projects (+10 units) can be observed (Ananian, 2011). Multi-dwelling housing require in general a coordinated management, a specific set of skills and knowledge and a considerable amount of financial capital, and thus the development generally is not applicable for individual households. The shift to large scale residential projects has thus proved to be especially lucrative for private developers, promotors, and building contractors as the general interest in the construction of office buildings, warehouses or commerces declined after the overproduction in the 60's to 80's (Doucet, 2010).

A cultural shift from modernism to post-modernism. Several authors (Romainville, 2017; Dessouroux, 2008; Doucet, 2010; de Beule et al., 2017) have provided additional clues as to why the real estate promotor has become the dominant actor in today's housing production. In Brussels, the early rise of the private developer-promotor is related to the large scale transformations following the modernisation period initiated by the international expo '58. In the literature, the period of modernisation in Brussels is most often connected to office development and infrastructural works, however, modernisation equally influenced housing developments (Noël, 2009). High-rise residential housing became favourable within municipal governments and specialised developers came into existence (e.g. Etrimo & Amelinckx) profiting on the flexibilization of zoning regulations with respect to collective housing developments (de Beule et al., 2017). With the absence of a unified urban policy for the agglomeration of Brussels (Deboosere, 2014), the image of Brussels became equal to ad-hoc public-private deals comprised of scattered projects. 'Bruxellisation', meant, apart from its reference to the movements destructive nature, "an overall of powerlessness 'vis-à-vis transformations of which [inhabitants] are either the victim or witness', and with urban politics 'at the service of real-estate developers' " (Dessouroux, 2008; Doucet, 2010). During this modernisation period, the growth and dominance of a few large private developers, entrepreneurs, 'architectes-promoteurs' can be attributed to the institutional labyrinth of Brussels and its complex administrative structure. The '50's to '80's constituted a period of political contestation, informal and

technocratic plans (plans Alpha), temporary instalments of authority (e.g. Brusselse agglomeratieraad – Agglomération Bruxelloise) with little authority to procure a formal strategic vision on the metropolitan level within the field of spatial planning. This 'political void' created barriers for some and opportunities for those adept at navigating the institutional turmoil. For example, whereas large and internationally visible projects would normally attract the interest of renowned architects, the development of the northern quarter and the European institutions were largely taken up by local developers and building contractors (Doucet, 2010). The importance and growth of Brussels-based entrepreneurs would thus be due to a combination of local knowledge and skilful lobbying with municipal and regional actors across administrative borders, in private clubs ('loges' & 'cercles') or international real estate meetings (MIPIM). After federalisation (1989), the continued dependence on private developers was rooted in the region's budgetary cuts and a sustained bottom-up resistance against modernist projects. Rather than choosing for smaller architectural offices (of often more experimental nature), public and private building clients counted on well-established, efficient developers and architecture firms who delivered risk and resistance-free projects (Doucet, 2010). The cultural shift from modernism to post-modernism thus did not alter the existing organisational structure.

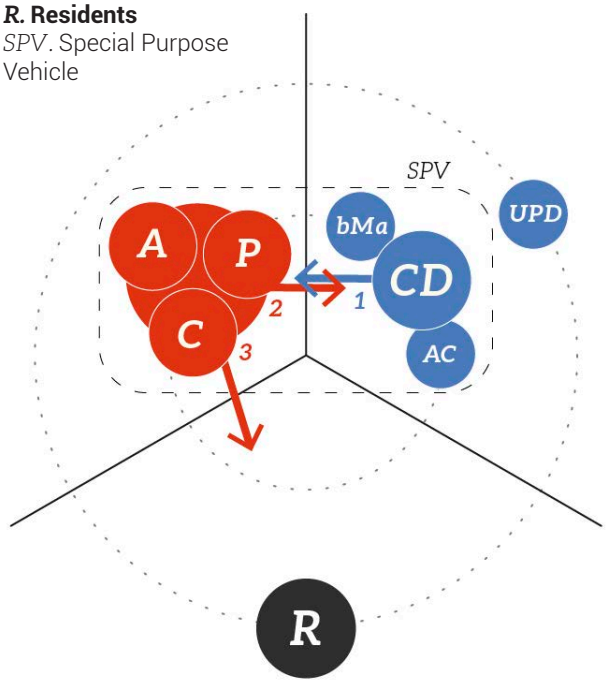
Future prospects. The growing importance of the real estate promotor is the result of social, economic and political evolutions such as the advent of (post-)modernist city planning, the arrival of Flemish and foreign developers, the reorientation of developers specialised in office developments to housing, and perhaps equally important, densification strategies and the crucial role of multi-dwelling housing types within large scale reconversion projects. As the importance of multi-dwelling units opposed to single family housing is only expected to increase with the further adoption of densification strategies - and if no major housing policy changes occur -, the overall dominance of the real estate promotor is expected to only increase in the future. If this is the case, public control over the programme and design is/will be limited to the regulatory framework within zoning plans and other spatial plans and the controlling capacity of the urban planning department.

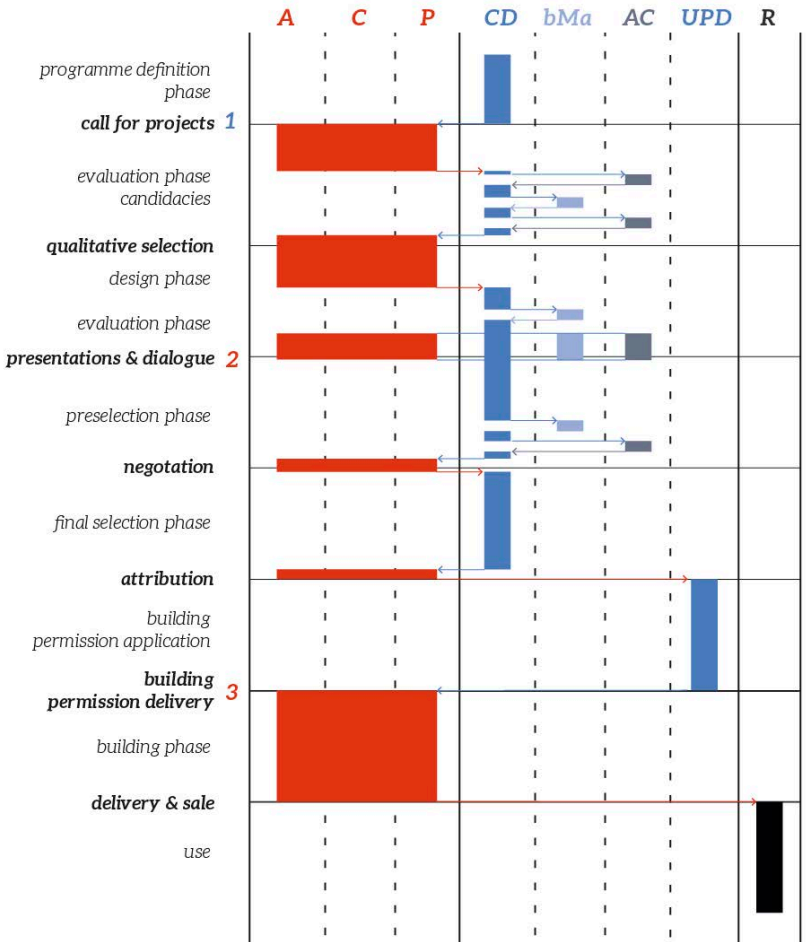
2.3.2 | Public developments (DBF (design, build & finance) model 'marché de promotion - promotieopdracht' citydev.brussels)

The public developments within the selection of case studies in Brussels (Jette Village & Residence Dewez) are developed with the use of a Public-Private Partnership between a public authority (in this case citydev) and several private actors. Citydev's main mode of promotion, the Design, Build and Finance (Promotieopdracht / Marché de Promotion) model (DBF-model) is shown in the scheme (see figure 47). Within this PPP, it becomes possible to outsource capacity towards the private sector not only regarding Design and Building tasks, but to add Financing, Maintaining and Operating services (fully known as DBFMO-model). In the DBF-model with a public tender procedure, a public authority (here citydev - CD) launches one public tender (arrow 1) combining a commission for design ánd construction works (hence the name Design & Build). Private consortia, generally consisting of a real estate promotor (P), an architect (A) and a contractor (C), draw up proposals answering the requirements and requests of the programme definition. The procuring government chooses the best project proposal, as motivated by the Advisory Committee (AC) based on a set of quantitative (price) and qualitative (urbanity, liveability, technicality) criteria. The team that wins is granted building rights, and constructs and delivers the housing project within an agreed amount of time (arrow 2). The public money is transferred after the delivery of the housing project. For the cases 'Jette Village' and 'Residence Dewez', the partnership involved the set-up of a Special Purpose Vehicle (SPV) and thus deviated from the open Public Tender Procedure that is today considered as standard practice. With an SPV, the public authority holds a minor share (+- 30-50%) in a joint-stock company together with a private enterprise. This hybrid set-up is unique to Belgium (Willems et al., 2017), and its origin has a number of reasons; firstly, as citydev owns only a minority of shares, this legal alliance permitted citydev to avoid having to organize a public tender procedure, and subsequently were able to partner up with preferred private companies and privately negotiate a financial arrangement (CROGH, 1993). Secondly, governmental subsidies were partly (typically 40%) paid upfront, after the approval of the building permission, and thus able to pre-finance the project and carry a share of the investment risk, otherwise fully for the private partner. Since 2008 however; due to EU-regulations on public procurements, this method had to be abandoned and was replaced by the standardized Public Tender Procedure.

Figure 47 | **Design, Build and Finance (Promotieopdracht / Marché de Promotion)**

CD. **Citydev**
bMa. **Bouwmeester Maître Architecte**
AC. **Advisory Committee**
UPD. **Urban Planning Department**
P. **Promotor**
C. **Contractor**
A. **Architect**
R. **Residents**
SPV. Special Purpose Vehicle





The housing model of citydev.brussels. Several authors (Kesteloot, Doucet, …) have stated that housing production in Belgium is based on 'entrepreneurial individualism'. From the 1867 expropriation act, aimed towards private developers to gain profit from zoning developments, to the 'Woonbonus/Bonus-Logement' in 2005, housing policies in Belgium primarily aimed to support local entrepreneurship and individual households through financing schemes, self-help solutions and (Aernouts & Ryckewaert, 2015; De Decker et al., 2005; Mougenot, 1988). The model of individual ownership was supported by catholics, liberalists and socialists with a series of housing policies promoting self-construction, providing cheap loans and ample building ground actively encouraging suburbanisation. The assignment of citydev to stimulate home-ownership acted as an 'urban' counterpart of the existing non-urban housing incentives. GOMB-SDRB (since 2013 citydev.brussels)* was, after housing policy became regionalized in 1989, ap-

** founded in 1974 as a pararegional institution focussing on the implementation of the region's economic policy. During the '60s the region developed itself mainly as the capital of tertiary services with monofunctional economic development, deindustrialization, decentralization and severe loss of jobs in the secondary sector. After the regionalization of economic matters in 1970, the main focus of GOMB was the acquisition and refurbishment of derelict industrial areas within the Brussels region (ARCH, 2020).*

pointed the extra responsibility of attracting and keeping middle-income households in the city and to support city rehabilitation. The deliberate focus on the middle classes aimed to create a framework to again attract investment and improve the local economy, as the suburbanisation process among the middle classes had a negative influence on the budgetary deficit following the economic crisis of the late '70s and '80s. However in contrast to former individual ownership schemes stimulating self-promotion, the importance of Multi-dwelling housing in Brussels resulted in an alternative focus, depending for the development not on individual households but mainly on specialised private actors using public private partnerships.

The role of citydev in public housing production. Since 2004, political ambition regarding public housing development has been formalised in the form of long term housing plans such as Gewestelijk Huisvestingsplan/Plan régional du Logement and Alliantie Wonen/Alliance Habitat. Both plans primarily aim to raise the amount of social housing, with a portion (30%) reserved for the production of housing for middle income households. The analyses by the Brussels housing referent (Perspective) makes clear that the production quotes demanded at the political level are not easily met within the proposed time frame of 5 year. For the Gewestelijk Huisvestingsplan/Plan régional du Logement, launched in 2004, only 43% of the total housing units have been delivered as of march 2019 (Van de Casteele, 2019). With regard to the quota established by the housing plan Alliantie Wonen/Alliance Habitat of 2013, there exist furthermore large differences between public housing providers (see box 2) concerning their progress. Citydev is the only public housing provider approaching the expected amount of housing units (78% of quota delivered, as opposed to 0,8 % by BGHM-SLRB, 1% by Woningfonds-Fonds du Logement and 8% by CLTB) (Van de Casteele, 2019). With an active land policy and its partnerships with private developers, citydev can be considered one of the biggest public housing producers, with a rate of delivery at times reaching 10% of all housing produced in Brussels (CROGH, 2011). To sum up; citydev is responsible for a significant proportion of the housing production and can thus be seen as representative for the public middle income housing that is produced in Brussels.

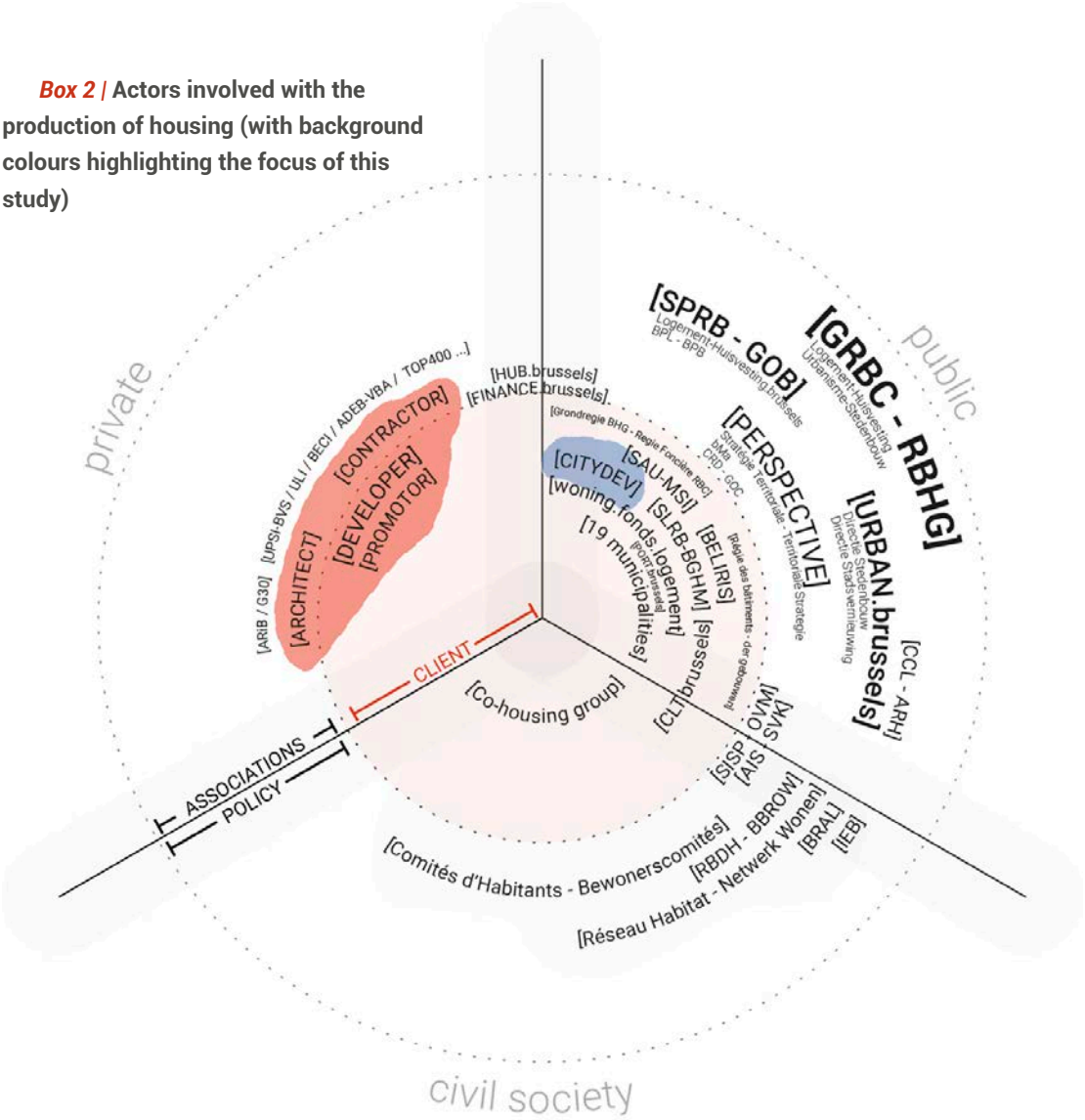
Public Private Partnerships as part of an advanced liberal urban governance. Today, most public housing developers in the Brussels region develop housing in partnership with the private sector. Although PPP's can be understood as any form of cooperation between a public authority and a private counterpart, the term is mostly used for the development of complex projects related to infrastructure, housing or public space. The DBF-model (see figure ?) was introduced, according to citydev, out of necessity (De Witte, 2004) and on political request*; as the new region started in 1989 on a limited budget, the realization of housing projects required extra financial resources which banks were initially reluctant to provide (Verhoest, 2015). Despite these pragmatic reasons, today's dominance of PPP schemes can be seen as a development mode that evolved in parallel with more general evolutions of the housing system in Belgium. The appointment of GOMB as an autonomous housing developer fitted with the devolutionary reforms after the economic crisis, the increasingly popular new public management models promoting deregulation and increased autonomy (corporatization) to improve efficiency and competitiveness. Equally, the political preference for public-private development models fitted within the re-liberalisation trend looking for private investment to overcome the region's budgetary deficit. The PPP's constituted 'a third way based on mutual obligation and trust, aiming to increase efficiency and competitiveness while keeping governmental control' and was politically praised as an efficient tool to produce middle class housing (CROGH, 1993).

Future Prospects of PPP's. As the case studies indicated, the DBF-model is currently the main mode of production by citydev. As other PPP-forms exist as well, with some being increasingly used by citydev, this however may change in the future. It is therefore important to shed light on the alternatives to the DBF-model and the differences in terms of organisational structure and development process to analyse in which way this may affect the programme and design of future housing projects. Citydev mainly uses two additional PPP-models: the 'regular public procurement'-model and the 'turn-key'-model (see figure 48).

A first PPP that is considered as standard practice for public authorities in general is called the 'Regular' Public Procurement model. This scheme involves a public authority launching two separate tenders for design and construc-

** Charles Picqué, prime minister of the Brussels capital region (1989 – 1999), ordered the GOMB-SDRB from its start to develop housing projects in partnership with the private sector.*

Box 2 | **Actors involved with the production of housing (with background colours highlighting the focus of this study)**



Brussels dependency on semi-autonomous public housing providers and PPP's is not unique. Today, the political system in many European cities have evolved into can be characterised as an 'advanced liberal urban governance' (Miller & Rose, 2008; Larsson et al., 2012), a system describing the interdependence of a local government upholding a certain level of regulation and a privately organised housing market. As Scheller (2018) points out, this governance mode combines (1) co-regulation via partnerships between public, private and civic partners (Harvey, 1989) and (2) responsabilization & de-centralization; outsourcing public functions towards private actors and civil society (Burchell, 1993). The 'advanced liberal urban governance' paradigm thus not only explains the importance of pararegional institutions such as citydev and its public-private partnerships, but also the increasing importance of regulatory and disciplinary functions such as the Bouwmeester-Maitre d'architecte (bMa), appointed to help public and private actors to ensure the spatial quality of projects in terms of architecture, urban planning and public space. In the context of an advanced liberal governance, an institution such as the bMa illustrates how the government deploys mechanisms to assure spatial quality in private and PPP housing developments. However, to effectively play this role, an office such as the bMa needs to have the necessary autonomy and independence of private ánd public parties who oversee the development process.

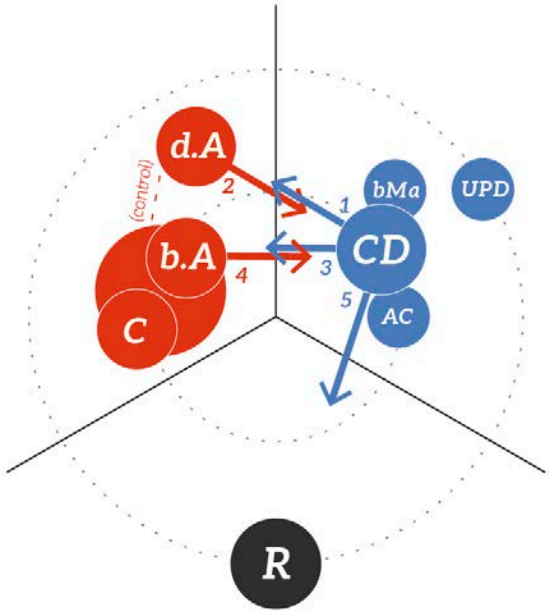
tion. The first tender, 'a commission for services' (arrow 1) invites architectural offices to submit design proposals. An evaluation and selection procedure focussing mostly on spatial quality is used to select the best contender. The second tender (arrow 3), a 'commission for works' calls for building contractors to construct the selected architectural design and, in contrast to the first tender, uses only quantitative criteria (price). A second model that increasingly is used is the Turn-Key model ('Call for Projects' or 'Planning Charges'). Both methods came into existence because of an increase in market value of land and subsequently a lack of affordable sites applicable for citydev developments. To keep production at a steady rate, citydev resorts increasingly to project calls directed at private developers to buy existing or to-be-built apartments turn-key. Private parties can respond to a 'call for projects' launched by citydev (arrow 1). The call for projects typically is divided into 3 subcalls; dependant on its size, citydev expects the project to incorporate a social and functional mixity (different types of housing units and functions other than residences). If these are in accordance with citydev's specifications, citydev agrees to acquire a percentage of units when construction is finished (arrow 2). A variation is possible via the method of 'planning charges'. After construction, a private party can offer to pay its planning charges 'in kind' by the transfer of housing units to citydev (arrow 2).

The differences in organisational structure have important effects on two main factors; the degree of efficiency (to what extent public resources are needed and the overall timeframe of the development), and public control (to what extent does the public authority maintain control over the programme and design of the project). In the following sections the different models are discussed, according to the rate of public control -from high to low- and efficiency -from low to high-.

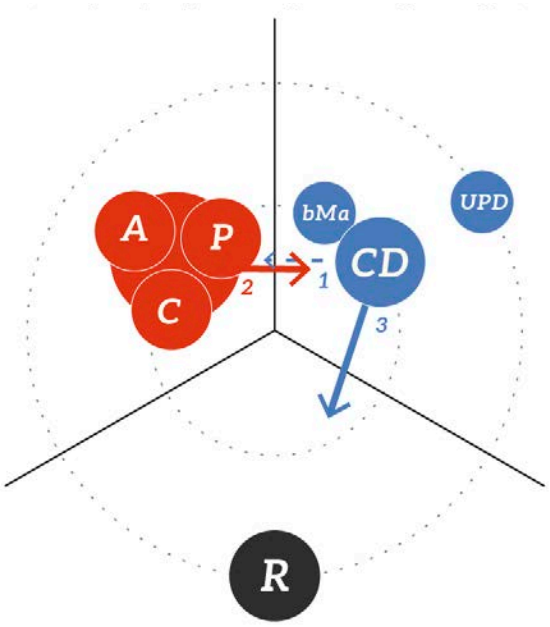
'Regular public procurement': high public control, low efficiency. Despite being least efficient in terms of time and resources, the 'regular public procurement' has advantages in terms of a potential increase in socio-spatial quality. Due to the division in two separate commissions (services and works) the preliminary design proposals are less influenced by financial and practical considerations otherwise imposed by contractors and technical architects. The initial program definition in the commission of architectural services can thus focus on the means rather than on expected results, leaving room for interpretation and creativity (bMa, 2017). In practice, this mode of operation potentially increases competitiveness regarding spatial quality and can make room for alternative spatial practices different from

Figure 48 **| Regular public procurement & Turn Key developments**

CD. **Citydev**
bMa. **Bouwmeester Maître Architecte**
AC. **Advisory Committee**
UPD. **Urban Planning Department**
P. **Promotor**
C. **Contractor**
A. **Architect**
d.A. **Architect (design)**
c.A. **Architect (construction)**
R. **Residents**
SPV. Special Purpose Vehicle



Regular public procurement



Turn Key
('planning charges' & 'call for projects')

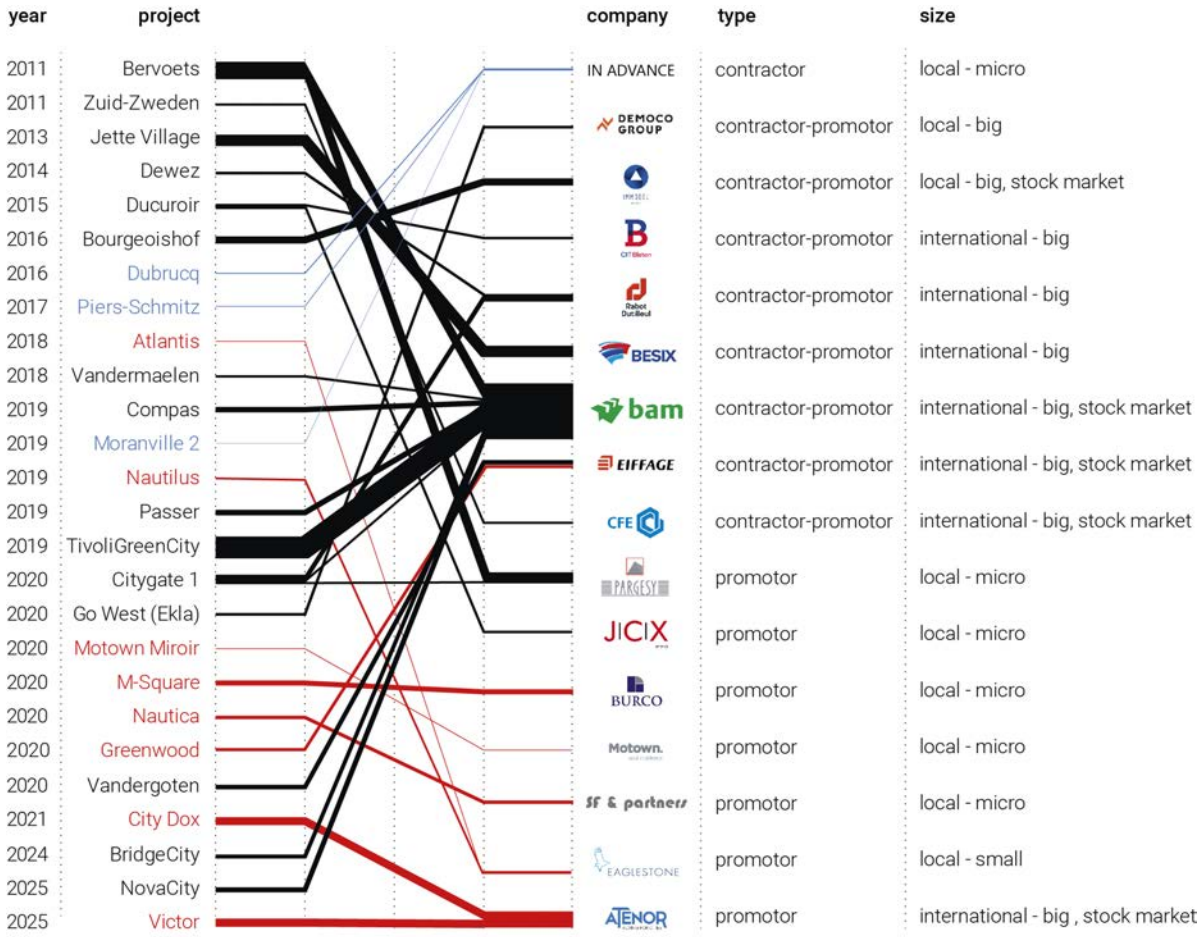
standardized housing production. However, the scheme reveals that this mode is only sparsely used by citydev.

The 'DBF-model': medium public control, medium efficiency. The 'DBF-model' mainly originated out of budgetary restrictions, and relates to the advent of larger scale housing projects and a need for increased efficiency. Some authors point out that this focus has forced DBF-projects to be dominated by a financial logic, experiencing difficulties in obtaining broader socio-spatial values (Siemiatycki, 2013). One aspect in the DBF-model that influences the overall quality is related to the projects definition, which is formulated by the public authority at the start of the procedure by means of a set of requirements. The project proposals of the private consortia tend to directly reflect the quality and nature of the programme definition, following the prescribed quality criteria whilst keeping a balance with financial expenses and profit margins. Consequently, it is paramount for the end result that the most desirable outcome is clearly defined from the start and outlined with great detail in the programme definition. While the initial amount of control can be high, the increased responsibility for the public authority can lead to conservative (safe) choices and lead to projects that are innovatively and creatively restricted. Another aspect that influences quality is related to the project proposal. As the consortium delivers one integrated project proposal, the architectural and urban design becomes partly dependent on the profit/cost evaluation of the overall project. With construction-based enterprises, the independence of the architect and designer is "often weak and needs to be addressed" (Willems et al., 2017). Promotors, investors and financiers have to find a compromise to deliver the economically best proposals, often at the expense of design quality (bMa, 2017). A third aspect is related to the evaluation criteria. Since the obligation of EU public procurements, a number of measures had to be taken to regulate public control on design quality. Since 2008, reform of the tendering process has led to the inclusion of qualitative criteria, namely 'urbanity', 'liveability' , 'technicality'. The inclusion of qualitative criteria has the potential to increase competition between the contenders regarding quality, innovation and creativity, however, these qualitative criteria are still not equally weighted in comparison to the financial criteria. Overall, within the DBF model, there is the potential that the design of a project is of lower quality if no sufficient public control is incorporated. Despite these drawbacks, the model is widely used by citydev (see box 3).

'Turn-key'-model: low public control, high efficiency. Turn-Key developments via 'Call for projects' and via 'Planning charges' offer the least amount of public control on spatial quality. For the call for projects, some control is maintained by stating the qualitative requirements to which the projects have to comply (general terms related to social and functional mixity). As the call mainly is intended for projects that are still in the conception phase, the call has the potential to influence somewhat the program. Depending fully on voluntary cooperation, the success of the call relies however on the market situation and the eagerness of the private developer to participate. The scheme (see box 3) suggests that the reluctance of private developers during the first call for projects in 2014 has subsided in recent years. With up to a total of 355 units or 39% of all projects in progress (as of Q1 of 2020), the turn-key model represents now a major part of present and future developments. Within the less used second turn-key development scheme (via Planning Charges), control is reduced to a minimum. As the project is already constructed, citydev does not possess any control over qualitative aspects, having only the ability to accept or refuse. Moreover, private developers tend to offer the least qualitative units; those less likely to sell on the private market.

A political delibiration between quantity and quality. The differences in rates of public control and efficiency have affected the use of each of the models in practice. Box 3 shows the use of the different models by citydev during the past decade. The scheme illustrates that the DBF-model indeed is the main mode of production. However, in recent years, the 'Turn-Key'-model is increasingly used, up to a total of 355 units or 39% of all projects in progress as of the first quarter of 2020. As each of these models represent a different balance between efficiency and control, the choice of model that is adopted must thus not be seen as solely a technocratic and pragmatic decision, but should be viewed as reflective of a political deliberation between quantity and quality. To what degree do we favour models that can provide public housing units rapidly and efficiently (such as the Turn-Key mode) or do we stress the importance of ensuring the quality of housing units by favouring models with a high amount of public control (such as the 'regular public procurement' model)? This deliberation should be made explicit as the analyses point out that with the increased adoption of alternative public-private partnerships favouring efficiency over public control, the government is at risk of losing control over the design and programme of publicly developed housing.

Box 3 **| Private partnerships within citydev's recent housing projects (black: Design & Build, red: Turn key, blue: regular public procurement). The thickness of the lines represents the amount of public housing units within each project.**



Next to the fact the 'Turn-Key'-model is increasingly used in recent years and future developments, the scheme also highlights the fact that the modes address different types of actors. The DBF-model commonly involves large construction-related enterprises, internationally active and sometimes active in the stock market. Smaller promotors only occur supported by a larger partner (as is the case for Bervoets & Citygate 1 with private partners Pargesy & BAM and project Ducuroir with partners JCX & CIT Blaton). The fact that only big construction-related enterprises are able to acquire the citydev-tenders, is related to the nature of the DBF-model and the size of the projects. Within the DBF-model, a project proposal integrates both the design and building operations. Large projects demanding a substantial investment are thus only applicable to a few actors on the private market, who have internalised both services (BAM, Eiffage, CFE, Rabot-Dutilleul, …), or formed a consortium (e.g. CIT Blaton & JCX). The regular public procurement (color blue), on the other hand is comprised of a limited number of smaller sized projects (such as Dubrucq, Piers-Schmitz, Moranville 2). The effort (extra time and resources) expected from the public authority results in practice that only smaller projects (<25 units) are developed. In turn the smaller scale projects mainly address smaller architectural offices and smaller local contractors.

2.4 | Housing production in Brussels: concluding remarks

In Brussels, high density housing projects have become the norm due to a decrease of land supply, population growth and densification strategies. This calls for higher standards concerning the design and lay-out of new developments in order to become attractive in a sustainable way. Research on high density urban housing introduced the notion of 'compensating qualities' (Schreurs et al., 1998; Ministerie van de Vlaamse Gemeenschap, 2002; Ryckewaert & De Meulder, 2009). According to this point of view, high density urban housing projects need to offer additional qualities that cannot be found in suburban environments in order to compete with these. They need to assure excellent privacy and a high quality of private and shared outdoor spaces. However, the analyses of the Brussels' cases on mismatches between the housing offer and housing preferences indicate that the current production of multi-family housing in Brussels is struggling to offer such compensating qualities. As each housing project is located within a different neighbourhood, attracts different households and tries to compensate for external factors on different levels, the research does not advocate for certain ideal morphotypological configurations. However, taking the interviews together, the analyses point to the existence of some ***essential parameters*** that influence the liveability of high density housing projects. Focussing on the design of the housing project (see Schillebeeckx & De Decker, 2020, for analyses on the neighbourhood level), these parameters are structured into two main sets, according to the level of analyses, that of the housing project, and that of the individual housing unit.

2.4.1 | Parameters on the level of the housing project

On the level of the housing project, the analyses indicated that residents across cases and household profiles state problems mainly with regard to four interrelated spatial elements; the ***form*** and ***sequence*** of spaces within the project and the general ***circulation*** patterns and ***access*** to the dwellings.

Form and sequence. The first parameters (**form and sequence**) relate to the relative position of private, collective and public spaces, its built and unbuilt structures. The sequences and forms of these spaces determine how a housing project relates itself to the public sphere, and how it tries to maintain a certain form of seclusion, and protect the individual and collective privacy of its residents. Sequence and form allow for a differentiation between a housing projects' (formal) front and its (informal) back. Generally, the location of public space relative to the housing project determines the project front, its formal presentation towards the territory outside. The back in turn is created when no direct relationship with public space is present and has an orientation towards the calm inside, often part of the private sphere (Panerai et al. 1980; Panerai et.al. 2004).

The differentiation between front and back is in the Brussels cases not always clearly defined. In particular, problems arise when private, collective and public spaces occur in illogical sequences, leading to privacy conflicts and poor usability of outdoor spaces. The inner square of 'les Jardins de Jette', for example, shows how the front and back of the residential apartment blocks are reversed and the absence of a quiet outside area results in a decreased functionality and causes a general feeling of dissatisfaction to the residents.

Particular problems can arise within densification projects. As they intervene and frequently alter the structure of the existing urban block, the differentiation between front and back can become entangled. Particularly, if a densification project aims to develop the inner part of a closed urban block, the (formerly) quiet and secluded back becomes a formal front, affecting both the functionality and privacy level of the remaining collective and private spaces within the project. In this case, 'Residence Dewez' has shown that public streets internal in the urban block disturb the logical order of a busy front vs quiet and comfortable back. As one resident of a ground floor apartment with large bay windows along the collective passageway testifies: 'This is an ideal apartment for an exhibitionist'. These type of design errors impacts the quality of the home and results in spaces that become obsolete.

Regarding the form of spaces, the Brussels cases illustrated that a specific focus is reserved for collective spaces. In inner-city densification projects, the available outdoor space is often scarce, and collective outdoor space is increasingly used as a substitute for private outdoor space. These collective spaces blur the traditional dichotomy between public and private space. Shared spaces are governed and regulated commonly, allowing for a variety of rules that deviate from regular forms of social conduct in public space. When spatial cues are absent and social rules are few or not outspoken, collective spaces are especially prone to failure. The interviews revealed that these shared spaces remain crucial to the functioning of the project as a whole, and thus must be designed carefully and in close relation to the housing types and private spaces.

Not all the cases feature an extensive use of collective

spaces. Some designs adhere to a -more traditional- subdivision of the outdoor space into individual, private gardens. With regard to these spaces, some of the Brussels projects (e.g. Jette Village, Residence Dewez, les Jardins de Jette) show that, when outdoor space is scarce, a subdivision for example into private gardens may be counterproductive, as they result in gardens that are too small, have privacy issues and receive little to no direct sun light. In contrast, suburban housing typically offers a high degree of privacy and ample private outdoor space (i.e. large garden). In high density urban housing projects, privacy and the quality of private outdoor spaces need to be achieved differently.

Private outdoor spaces above ground floor deserve equal attention; some residents indicated that terraces cannot be used effectively as they do not offer enough privacy because of high exposure to views from other homes or from the street (e.g. protruding street-side terraces). Sheltered 'loggia's' offer a greater degree of privacy, as indicated by residents.

Circulation and access. The second parameters '**circulation'** and **'access'** refer to where residents congregate, might pause or stay, or feel inclined to move along. Apart from the main circulation, additional pathways in a housing project can separate formal from informal flows. Additionally, routes that function on a higher scale might be included in the project and interfere with private or collective passage ways. Increasing the level of porosity in an urban block, for example with small internal streets, can thus alter significantly its inner core, and can sometimes negatively affect the quality of dwelling spaces directly adjacent to it (Apostel et al., 2008). Mapping out these formal from informal flows, along with highlighting where public, private and collective circulation takes place, is necessary to understand where privacy issues occur or zones of comfort and space for chance encounters can form and where potential zones of conflict might arise, via the overuse or underuse (and additionally, misuse or unintended use) of specific spaces.

Our observations in situ and testimonies from residents point out that collective spaces are particularly susceptible to failure when elements regarding circulation and access, and the material and social aspects concerning privacy and interaction are not considered. If the real circulation pattern deviates from the design, the project potentially fails to function, rendering spaces obsolete. The main entry points and interrelated patterns of circulation become important design aspects, as they define the buildings orientation towards public space, and define potential spaces for privacy, interaction, social control, and conflict. Telling examples are that of 'les Jardins de Jette', where a peripheral car-oriented neighbourhood renders the main entrances for pedestrians obsolete, and 'Residence Dewez', where a semi-public status of the collective passageway creates confusion and conflict amongst the residents about its intended use and access to outsiders.

Some cases do are considerate as to how circulation and access flows influence the functioning of the housing project. Courtyards typically are prone to abandonment if they are badly accessible. In Victoria Lofts, the courtyard is of central importance as it functions both as a passage and dwelling space with pavilions to the underground car park that are located in the centre of the collective inner garden. As entrances to the individual units are evenly spaced around the inner garden, usage remains high while minimising privacy conflicts with the adjacent private ground floor terraces.

2.4.2 | Parameters on the level of the housing unit

The parameters as defined above ('sequence', 'form', 'circulation' and 'access') operate on the level of the housing project and proved to be of importance across all case studies and households. On the level of the housing unit, the opinions of residents were more diverse. The interviews within the Brussels projects point out that individual housing preferences remain highly diverse with few shared statements. With the diversity of needs, tastes and lifestyles, it becomes difficult to deduct general principles on the level of the housing unit or speculate on ideal housing configurations. There exist a myriad of housing unit typologies, ranging from the free-standing house with private garden, to typical single floor apartment types with proportionally less functional outdoor space, and 'hybrids' between these two extremes, such as maisonettes with private terraces or loft typologies with flexible interior space. These typologies each have different characteristics and speak to different household types. For example, mainstream apartments, with 2- or 3-bedroom units, are appreciated by some because of their small size and ease-of-use, in terms of maintenance (yuppies, single parent households) or accessibility (such as lack of stairs for older people). However, other household types are put off by the tight floorplans since they offer little spatial flexibility. Residents of homes with non-standard floor plans stress the advantages of increased privacy, such as larger and secluded terraces, or the lack of direct neighbours. Some of the loft residents appreciate the increased flexibility, such as the adaptability of the open floor plan to household changes, and the possibility to 'self-construct' and spread the costs. Given that the interviews in Brussels show that a large diversity of individual housing preferences exist, advocating for specific 'housing unit typologies' is thus out of place.

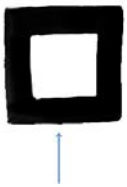
Diversity and flexibility. As housing preferences can vary infinitely, the remaining parameters instead are centred around the projects' ability to provide for and adapt to a variety of housing needs. The design should focus on ***diversity***, and should for example consist of a variety of housing unit typologies. Opposed to the current standardized housing production, a diversification of the housing production in terms of housing typologies and size in housing units would -theoretically- translate in a better fit for a broad range of households. Given that housing preferences are highly individual and difficult to predict, designs that try to maximize ***flexibility*** and adaptability naturally address this diversity of individual housing needs. For example, a high degree of flexibility in the organization of the dwelling plan in casco (empty shell) projects; or increased involvement of the future resident during the development phase, could decrease mismatches that are now associated with the standardized housing unit. In public housing, this flexibility can also be increased for example through residential mobility, with the possibility to move from one type to another, adapted to the life stage and changing household composition.

Typological diversity and flexibility in relation to the organisational structure and development proces of housing projects. The extent to which diversity and flexibility is allowed in new housing developments revolves around the ***organisational structure*** and the ***development process***, how residents are involved, what the priorities of the developers are and how the programme is defined. To derive some general understanding how a housing project can provide the necessary levels of diversity and flexibility, the analyses on the organisational structure and development process of the Brussels cases proved to be useful. In Brussels, the institutional structures that exist ensure only in certain ways to a necessary level of diversity an flexibility. The majority of housing construction is taken up by the private sector, and apart from an ad hoc assessment of the permit application by the urban planning department, little formal obligations exist to ensure a variety of unit typologies or involvement by future residents. Some private developments such as Victoria Lofts, with a choice for a mix of empty shell units, apartments and maissonettes, manage to incorporate a variety and adaptability naturally, however, this is left to private initiative and these alternative housing configurations remain often constrained to the upper market. In contrast, public housing development are subjected to more formal obligations with the use of public private partnerships. The ability to provide within the call for projects a detailed project definition, stipulating the quality, amount and variety of housing units ensures a basic amount of diversity. However, for example, the use of documents describing ideal apartment configurations for citydev-developments are equally contributing to the ongoing standardisation of unit typologies and limits the use of deviating formats. Despite this risk, the relatively high amount of public control on the programme and design of the housing projects in traditional public private partnerships (such as the general public procurement and the DBF-model) still holds possibilities to ensure qualitative housing projects. However, citydev increasingly turns to a new PPP-model: buying housing units turn-key, directly from the private sector, only minimally interfering with the programme and design. Analyses point out that with the increased adoption of alternative public-private partnerships that favour efficiency over public control (such as the Turn-Key model), the government is at risk of losing control over the design and programme of publicly developed housing. This goes hand in hand with a decreasing regulation and the construction of standardised housing typologies, maintaining the mismatch between what is built and what is needed and aspired for.

3 | Inspiration from housing projects in Amsterdam, Hamburg & Copenhagen

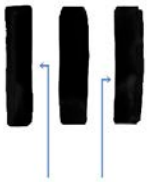
3.1 | Unraveling the importance of form, sequence, circulation and access

As the Brussels cases show, an evaluation of first four parameters (form, sequence, circulation and access) can seem very site and context dependent. To be able to draw inspiration from other housing projects (abroad), it is useful to create a level of abstraction and a more general understanding of the functioning of these parameters, without foregoing the importance of historical and situational context. Below, the most important archetypical configurations are presented, covering the main possible variations within the two parameters form/sequence and access/circulation. Together, they form the 4 main alternatives as to how a housing project orients itself towards public space. Within these housing project typologies, the two parameters (form/sequence and access/circulation) are strongly related with each other. The sequences of public, private and collective space determine the most appropriate positions for entrances and passageways (and vice versa).

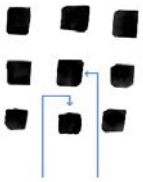


Urban block. A first archetypical configuration is the '**urban block**', frequently found in European cities. Within the urban block, the built structures define the border between private and public outdoor space. If the urban block is fully closed, the separation between the public and private sphere is often clear, sharp and strict. As the main access to buildings and housing units is on the street side, there is an outward orientation, and a clear hierarchy between the 'formal' front and the 'informal' back. With the buildings back towards the private or collective outdoor space, the garden is rendered a subordinate character. The main function of the backyard is that of a dwelling space, actively used by the residents only or passively maintained for esthetical purposes. Circulation flows are separated; the public domain functions as the primary conductor on the level of the block and the urban block acts as an island where circulation is restricted to the residents only.

Courtyard. The **courtyard** typology inverts the common setup of the (closed) building block. With the entrances towards the interior of the court, the courtyard typology has an inward orientation. As opposed to the 'enclave'-typology, access from public space to private spaces runs through the collective inner yard. Thus, its exposure towards the public sphere is held collectively, and with this added layer, the typology allows for a different, extended kind of appropriation; individual entrances in a collective setup have an extra layer of privacy as doors, porches and front gardens/ terraces become less exposed to strangers. The inner area thus functions as well as an entrance, passage and a dwelling place. As these circulation flows become intertwined, this constellation both increases interaction ánd risk of conflict. Due to this risk of conflict, courtyards in modern building complexes are prone to fail (Alexander, 1977). Often, they end up being abandoned or confined to its aesthetic functionality, equipped to demand the least amount of maintenance. In a collective housing situation however, the typology of the courtyard should provide a multitude of functions necessary to ease interaction between activities and people. The design of courtyards should in this sense create spaces where individual privacy is guaranteed, social control is enhanced, and informal places can be formed.

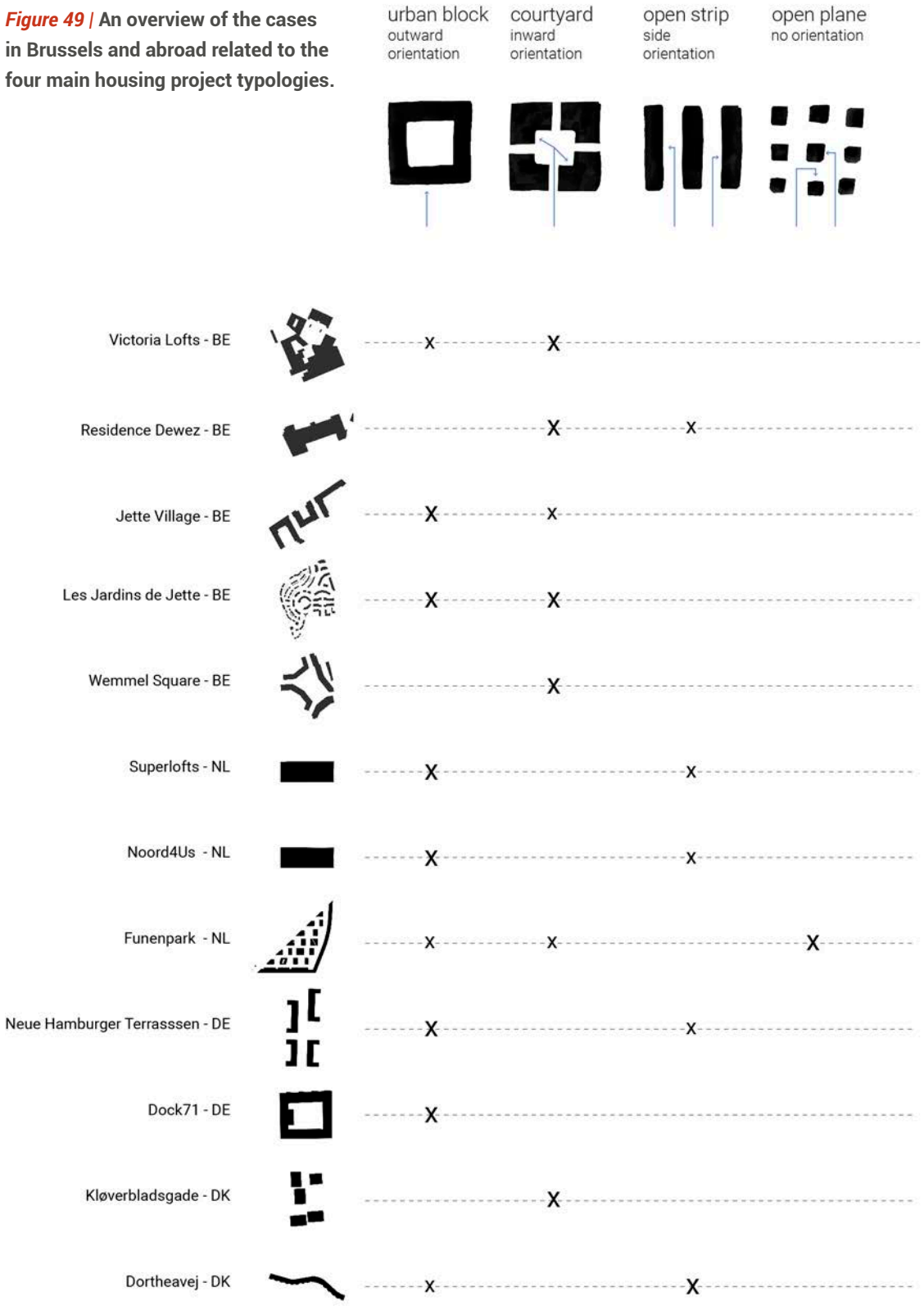


Open strip. The third typology ('**open strip**') can be seen as a conscious step towards the complete dissolution of the closed urban block. The advent of rectangular and uniform housing blocks during the '20 and '30 was part of a rationalisation movement and became particularly fashionable during the post-war years as a necessity to mass produce a large number of dwellings in a short time (Panerai et.al. 2004). The focus on rationalisation meant that dwellings where minimally sized and the courtyards where merged together to maximise efficient use of space. This has as a consequence that the public domain extends through on both sides of the rectangular blocks and a clear differentiation between the front and back, the formal and informal side is lost. As the entrances are typically on both sides of the blocks (side orientation), this means that private outdoor spaces (confined to protruding terraces or loggia's) always face the public sphere and lose a sense of seclusion and privacy. These internal streets are generally public domain, where individual or collective appropriation is not permitted, limiting the functionality of these internal side-streets to passage and entranceways. However, the orientation of the rectangular blocks, in typical cases perpendicular to the main street, reduces the use of the internal streets to local circulation and therefore are generally more calm.



Open plane. The fourth typology ('**open plane**') represents the complete disorientation of a housing project towards public space. As public space permeates entirely through the project, a logical position of individual and/or collective entrances is generally absent. Each building's side equally holds its formal representation and therefor any sense of hierarchy is absent, dissolving effectively the distinction between what is the 'front' and what is considered as 'back'. Consequently, each room within the housing units and additionally, any private outdoor space (on ground level or on upper levels), is directly adjacent to public space. Thus, especially in this typology, the added exposure calls for a careful consideration and design of extra elements that can enhance privacy and comfort of the residents. Additionally, the public space in between is sometimes considered as a substitute for private outdoor space, and therefore, the design of public space should be considered as an integral part in the design of the housing project.

Figure 49 | **An overview of the cases in Brussels and abroad related to the four main housing project typologies.**



3.2 | Best practices

The following part illustrates with the cases in Amsterdam, Hamburg and Copenhagen how these typologies are used and dictate different demands. Some examples, such as 'Dock71' (DE) and 'Kløverbladsgade' (DK) adhere closely to the archetypes as presented above. Others combine or incorporate different typologies at once (see figure 49). Both however provide insight into how these can be designed practically and what elements are important.

3.2.1 | Example 1. DOCK71 in Hamburg.

See fiche §5.3.10

(urban block)

Density limits of the closed urban block. Dock71, a housing project initiated by a 'Baugruppe' (group of 60 households), is part of the reconversion site of the Hafencity (157 ha), Europe's largest maritime redevelopment project to date and is located next to the Hafencity's central park 'Am Lohsepark'. The choice for the typology of the closed urban block was predetermined by the masterplan, drawn up in the late '90s by the municipality of Hamburg. The typology connects with the typology of the adjacent 17th century 'Speicherstadt', the warehouses and transhipment sites of Hamburg's historic port. Given the central location (800 m for the city centre), the masterplan foresaw a subdivision of the area into dense closed urban blocks, (8 building layers, 277 units/ha) with each urban block subdivided into three plots according to the 'mix-of-thirds', reserved for social housing companies, established - large-scale - cooperative building companies, and Baugruppen (such as Dock71).

Making maximally use of available open space. The communal inner garden is shared between the 3 residential projects in the building block and the children's day-care centre which has its own enclosed outdoor space. As the garden is shared among the three projects and the crèche, the residents expressed that the private balconies on the back side were less comfortable and less private due to noise & the high density. As a substitute for the absence of a calm and comfortable back side, the roof of DOCK71, on the other hand, was designed to provide an alternative for the adults, with shared facilities such as vegetable gardens, a container with kitchen for parties and outdoor furniture. There are clear agreements: the roof is for adults, and the garden for children. As such the central part was designed mainly as a green playground with hedges with picking berries. The subdivision between the roof and the central garden limits possible conflicts among the diversity of residents, and allows a differentiation of the use and different functions of the outdoor spaces.

A formal presentation towards public space. The typology of the closed urban block allows to differentiate between the back (and in this case the 'top') and the front. The formal presentation of the housing project towards the neighbourhood is taken up by the front with the ground level occupied by a multipurpose hall, a coffee bar and a crèche. The multifunctional space is positioned on the east side towards the park, deliberately accessible from the street side and with a transparent access, and open to the residents and -sometimes- the neighbourhood (weekly yoga sessions, dance and painting classes or children's parties).

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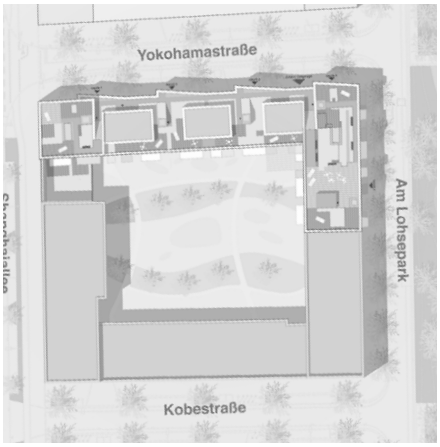

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3.2.2 | Example 2. Neue Hamburger Terrassen in Hamburg.

See fiche §5.3.9

(urban block)

The -sub-urban block. The Neue Hamburger Terrassen is a low density example (54 units/ha) of the typology of the urban block. The housing project, initiated as part of the International Building Exhibition Hamburg (IBA 2006-2013) was developed by a Baugruppe (32 households). Functionally, the design is based on the urban block, a typology that was frequently used in Hamburg during the organic urban growth of the 19th and 20th centuries. The private terraced house differentiates front and rear; entrances are directly on the street side where contact between passers-by and residents is facilitated, while private gardens at the rear guarantee the necessary privacy. Aesthetically however, it alludes to the post-war strip construction, the cooperative housing of 'brick expressionism' and the Hamburg Siedlungen. With its uniform façade, the distinction between individual dwellings is eliminated and the dwellings acquire a collective character.

Maintaining manageable, familiar collective spaces. The project is subdivided into 4 unities, as part of a strategy to limit the number of people in one 'community' and maintain manageable, familiar collective spaces. While all residents are part of the same cooperative structure, decisions on the separate collective courtyards are taken only by the residents that are directly adjacent to it. Each courtyard is thus differently designed and appropriated, depending on the needs and preferences of each 'micro'-community. While one courtyard decided to place features for children (e.g. sandbox), others preferred a vegetable garden or eco-garden. Each garden remains however accessible to all residents of the NHT, through the more informal, back entrance.

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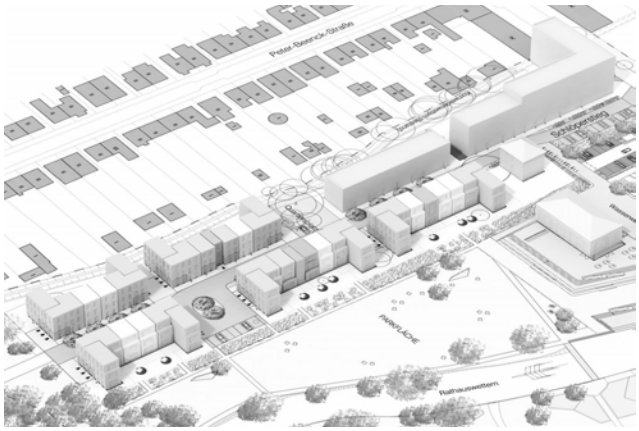

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3.2.3 | Example 3. Kløverbladsgade in Copenhagen

See fiche §5.3.11

A perfect example of the courtyard typology. The Kløverbladsgade residential project was completed at the beginning of 2018 and is part of the AB+ program's third large scale tender, at a time when the concept has outgrown its experimental phase and policy evaluations recognize the program as 'effective and successful' (Jensen & Stensgaard, 2017). ONV-architecten & JaJa-architecten chose for Kløverbladsgade a design based on the Danish 'fællesskab' (community). With a scattering of coupled and stacked modular housing units around a collective outdoor space, the housing project generates its own identity and a strong sense of community. The design builds on the tradition within the Danish public housing sector to consider the courtyard garden as the most important element. The buildings of Kløverbladsgade stand with their back to the street and with the front door to the courtyard garden; this orientation elevates the collective garden to the focal point of the site.

Crucial design elements to consider. To prevent that the space inside the courtyard becomes wasted and residual, some basic elements in the design have been incorporated to increase the intensity and variety of uses. There are (1) different zones between purely private and purely collective with the use of soft borders, hedges and little trees, (2) a high amount of functional entry points, spaced more or less evenly and (3) passages or see-throughs to prevent total enclosure and a locked-in feeling. Despite the strong focus on collective spaces, each residential unit contains a private outdoor space with the necessary privacy. The modular volumes create secluded terraces and on the ground floor private outdoor spaces. Moreover, within the design there are several possibilities for individual appropriation; as each residential entity has its own access, whether or not via a staircase to the first floor, the space at the front door can be appropriated individually.

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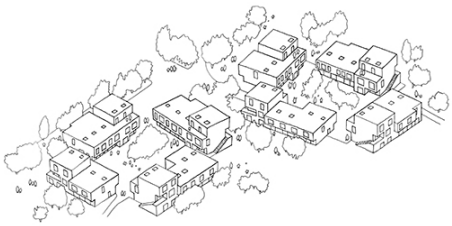

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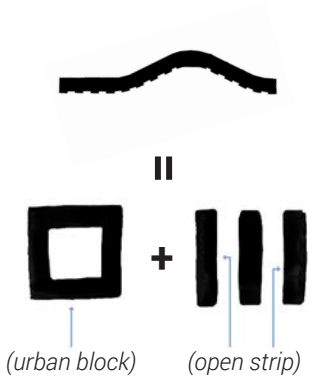
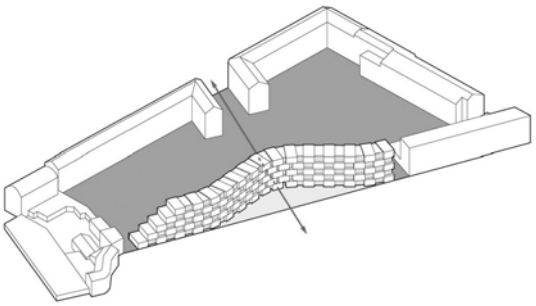
3.2.4 | Example 4. Dortheavej in Copenhagen

See fiche §5.3.12



Public benefits above private and collective needs. Dortheavej is a housing project initiated by the public housing company Lejerbo and designed by internationally renowned architecture office BIG. Given the urban location, a reinterpretation of the typology of the closed building block was chosen. The former storage site of DONG, which closed off the building block with a brick facade, was replaced by a corrugated and perforated strip. The undulation shifts the centre of gravity inwards and creates a public forecourt on the street side. The typology of the urban block is coupled with that of the 'open strip' due to the perforation of the residential block by a public bicycle passage. This public passageway passes through the inner core of the urban blocks, connecting both sides and the inner yard becomes partly collective (car park for residents) and public (cycleway and lawn). A clear orientation of the housing project is thus lost, and puts the interior and exterior living spaces at ground level in an uncomfortable relationship with the public domain. With the absence of transition zones (exterior barriers and greenery) that can break the hierarchy between the building and its surroundings, the public-private edges are sharp and confronting, and residents are forced to add their own barriers.



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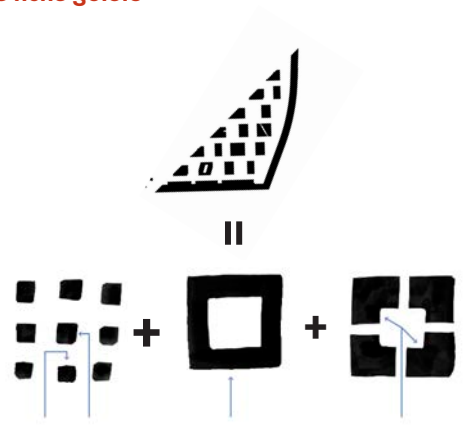
3.2.5 | Example 5. Funenpark in Amsterdam

See fiche §5.3.8



(open plane) *(urban block)* *(courtyard)*

A considerate typological mix. Funenpark, privately developed by real estate developer 'Heymans Vastgoed', combines three typologies ('horizontal plane', 'urban block' & 'courtyard'). Frits van Dongen opted for a masterplan that allowed for a highly diverse set of architecture projects, within a park-like setting. The inner part of the housing project adheres to the typology of the 'open plane', with a car-free public park that fully permeates through the free-standing housing projects. While the park remains publicly accessible at all times, a certain sense of seclusion was obtained by integrating two high density (6-storeys) residential strips on the south and east border of the site. On the east side, the residential strip creates a sound proof wall, effectively protecting the inner area from noise pollution from the adjacent railroad tracks. Here, the individual and collective entrances are oriented towards the interior, adhering to the courtyard typology. On the south side, the residential strip borders on an arterial road and holds space for commercial spaces to obtain a functional mix. On this 'public side', the typology of the urban block is used to relate functionally and morphologically to the neighbourhood, with an orientation that is explicitly turned towards the outside.

Careful design to manage conflicts. The public character of the housing project calls for some careful considerations. Some specific design elements contribute to the fact that the residential aspect, and a certain level of privacy and comfort within the park is maintained. (1) social control is high due to the absence of orientation, the relatively high density and the absence of hidden spots. (2) the park is designed as a passageway, not as a place to dwell, with few open green spots (pavement runs in the middle) and with few benches that only lend themselves for a short rest (hip height). (3) A symbolic fence that closes the park partly from the neighbourhood. While remaining public, the boundary implicitly makes clear that different rules apply within the area. (4) Some ground-level houses or ground floor apartments have an outdoor terrace or individual access, allowing for a certain level of appropriation of public space, and rendering the park a more private character. Terraces on the other hand, try to maximise privacy, as they could only be of the 'loggia' type (placed inside the volume).

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3.3 | Providing diversity and flexibility

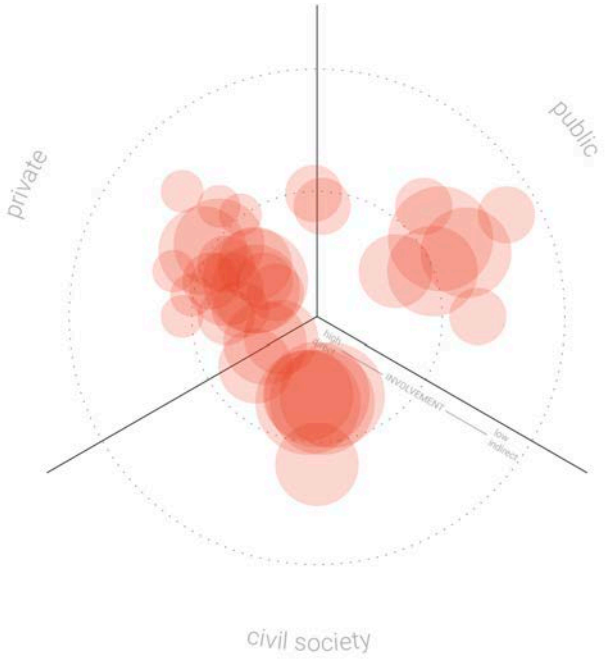
The interviews in the Brussels cases have shown that, given the high variety of preferences regarding the configuration of the individual housing unit, it remains necessary to provide for a high amount of different sizes and housing unit typologies. In Brussels, the housing production mainly is decided upon top-down by -public or private- developers, with a rough estimation on the type of the future residents and possible uses. While this method can provide for a necessary amount of diversity if subjected to regulation and public control, this method risks maintaining the ongoing standardisation of dwelling units.

Introducing residents. The following examples show that the selected cases abroad achieve this diversity differently, not via a preconceived estimation by the developers, rather through allowing flexibility during the development phase by increasing the responsibility of the future residents. The graphical summary of the organisational structure of the housing projects abroad (see figure 51) shows that most cases in Amsterdam, Hamburg and Copenhagen have established housing models where residents become more actively involved in the production of housing, during the development phase as initiators and/or as procuring authorities, or during occupation as shareholders and self-managing entities. The common underlying premise is that increased involvement not only enables residents to shape their dwelling environment to individual and collective housing needs and preferences, but also induces a greater sense of identity towards the project and neighbourhood.

A partial involvement. The different typologies and spaces that are present in the case studies illustrate the capacity of these alternative models to adapt to different demands, cultural variables and personal taste. Contrary to the 'regular' co-housing format however, where typically a group of residents is financially and organisationally in full control of the development process, the housing projects in Amsterdam, Hamburg and Copenhagen show housing models where residents are involved only in certain stages and/or mainly on the level of the individual housing unit. This is the case because of the following factors:

(1) The design and typology on the level of the housing project was already decided upon by the municipality/ housing developer or cooperative, as part of a masterplan or design concept. The involvement of the residents was thus restricted to the individual housing units -and sometimes the design of collective spaces-.

Figure 51 | A summary of actors in the case studies in Amsterdam, Hamburg & Copenhagen. **The graphical summary of the organisational structure shows a concentration of actors along the axes of the private sector and civil society. The summary depicts a trend among recent policy programmes to increase the involvement of groups of citizens and civil society organisations within the production of housing.**



(2) The housing models have been scaled up and/or institutionalised. The active support by the public authority results in an increased regulation and controlling mechanism by the government, ultimately reducing the degrees of freedom for the residents. Additionally, housing developers/public authority have set up systems to inform and advise residents and manage the development process, reducing the risk of failure and increase efficiency (issues that are common to the regular co-housing format).

The capacity of these models to adapt to different housing preferences and accommodate a diversity of housing unit typologies into one project remains essential to reduce mismatches (in these cases mostly on the level on the individual unit). The following analyses thus zooms in on questions regarding the level of involvement; in what phase and to what degree are the residents engaged? Which partnerships are formed, and is it based on participation or cooperation? Which new forms of actors become necessary to facilitate these alternative housing models?

3.3.1 | Example 1. Co-commissioning in Amsterdam (Mede-opdrachtgeverschap - MO)

See fiche §5.3.6 and §5.3.7

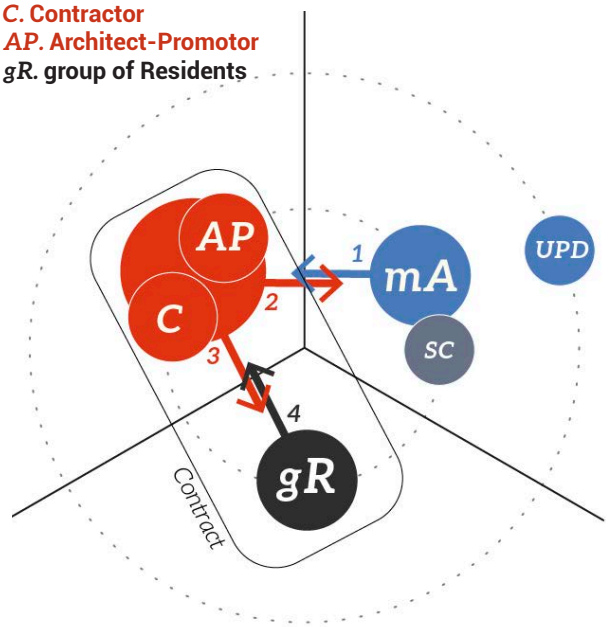
The 'MO model' (Mede-opdrachtgeverschap/co-commissioning) is a development mode where an architect-developer initiates a housing project, and develops it further in co-ownership with the end-users, integrating the residents' housing preferences and needs (Boelens et al., 2010). The process can be summarised as follows: the municipality (in the case studies Amsterdam) sets aside building plots for self-promotion projects and initiates a call for projects (arrow 1). A private consortium consisting of an architect and a contractor responds with a preliminary draft stating the architectural design and overall socio-economic concept of the project proposal (arrow 2). When the candidates haven been selected and the plots have been allocated, the architect-developer searches for interested households (arrow 3). After this, the design is worked out both by the private consortium ánd its future occupants.

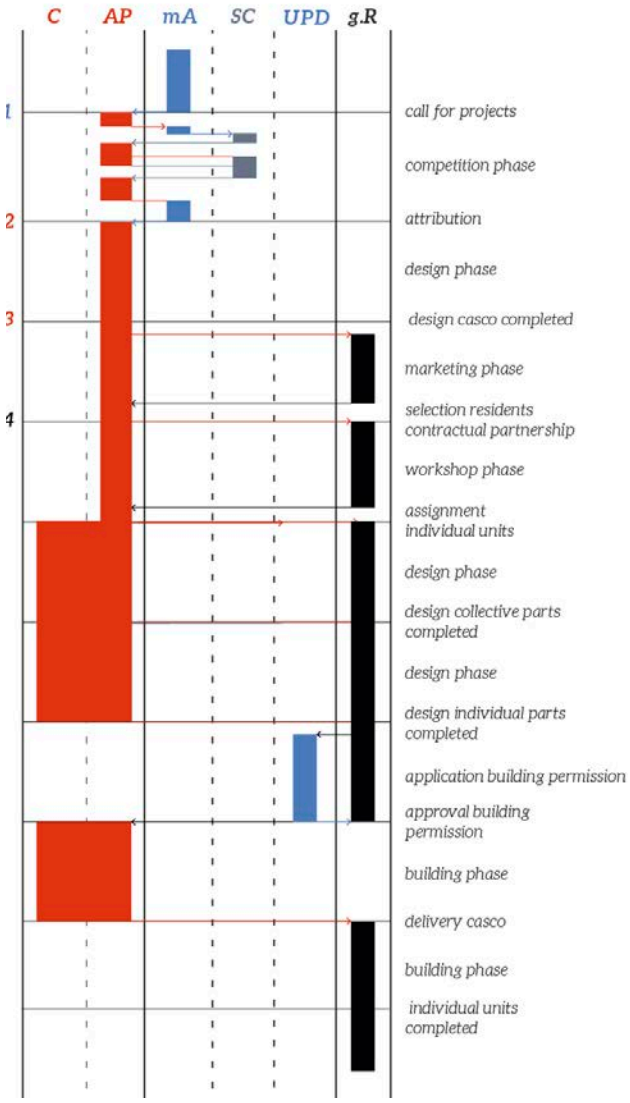
The architect as a developer (MO in Amsterdam). Within the MO-model, the architect is the central figure, combining several tasks that in regular housing developments usually are split up. the MO-model extends the traditional register of the architect*; in addition to being a designer, the architect acts as the main developer and is financially responsible through a co-ownership model with the future residents. Furthermore, as part of the design is co-created with the residents, the architect becomes partly process manager. This 'architect-developer' initiates the project, is financially invested, and becomes concerned with the search and mobilisation of a group of residents willing to develop the project together. The preliminary design concept thus becomes an important element to mobilise households. Superlofts is an illustrative example of how a design concept becomes an integral part of a marketing strategy, aiming to entice and attract residents:

"Superlofts is a revolutionary design and development model for co-creation projects that aim at the development of new and innovative homes, a radical improvement of our cities and of how residents live together. Superlofts are flexible and resilient buildings that can easily be adapted to accommodate new trends. [...] This offers a very broad target group the opportunity to match

** The MO model relates to the 'Unsolicited Architecture' movement of Rem Koolhaas and Ole Bouman. According to the movement, the role of the architect has been reduced to the provision of design and engineering tasks. The movement postulates that, to maintain control over the process and the outcome, the architect must take on the role of entrepreneur and producer (Bouman, 2008).*

Figure 51 **| Co-commissioning in Amsterdam.**





lifestyle and budget and results in a range from compact studios to luxury XL penthouses and from affordable 'do-it-yourself' to high-end luxury". ~ superlofts.co

The extended control of the architect in practice means that the result can vary greatly depending on the input of the architect-developer and the preliminary options that are offered by him/her. For example, the modular 'casco'-design of Superlofts communicates clearly its intentions, and possibly manages to entice people to self-design and self-construct part of their living environment. However, with a fixed concept there are some sacrifices on flexibility. Firstly, the 'casco' construction requires a considerable responsibility of the end-user, and thus is applicable only to people with sufficient knowledge and/or time. The architect's predefined design and programme, its communication tactics and marketing strategy thus pre-sorts and preselects, targeting specific segments of population. Furthermore, the concept of singular modular units predefines the project as built out of individual units, as was the case in Superlofts, restricting options to extend the area of shared space. An alternative approach is taken up by Noord4US. The architect-contractor coordinates not only group discussions on collective matters, but also offers to give support for the design and construction of individual units. The resident can chose; to buy turn-key, to self-promote or to self-construct. This offered flexibility can potentially reach a wider section of the population. The absence of a pre-given spatial concept provides further flexibility as the group of residents can collectively decide to what extent spaces are shared or privatised.

3.3.2 | Example 2. Upscaled co-housing in Hamburg (Baugruppe)

See fiche §5.3.9 and §5.3.10

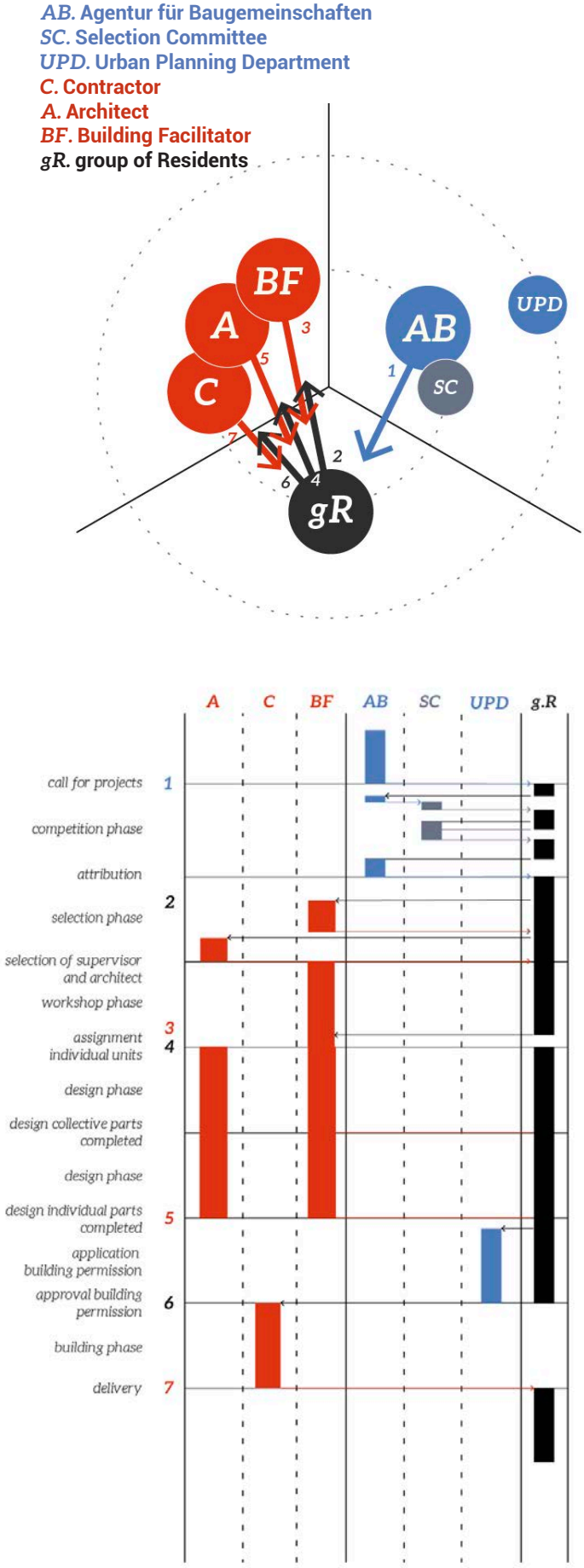
The 'Baugruppe model' of Hamburg (see figure 52) is essentially a scaled-up variant of the regular co-housing format. Similar as in Amsterdam, the city of Hamburg sets aside building plots for cohousing groups. The call for projects (arrow 1) is directed at groups of citizens only and is not open to private developers. The formation of building groups (Baugruppe) is facilitated by the organisation of a regularly held cohousing-fair initiated by the city of Hamburg. Households who have formed a group can collectively respond to the call with a project proposal, evaluated based on the financial plan, 'a social concept', an energy and ecological concept, and group stability. To ensure a qualitative end result, the city demands the use of an independent building facilitator, acting as an intermediary between residents and external actors and assisting the Baugruppe during the entire development process (arrows 2 & 3).

Independent building facilitators with a managing and mediating function. In Hamburg, the model of the Baugruppen is more directly related to regular co-housing examples, as the residents remain initiators, act as main developers and are fully financially responsible for the housing project. However, as regular co-housing developments are often deemed very resource and time intensive and prone to failure, an additional support-mechanism was installed by the city of Hamburg to upscale the regular model and make co-housing available for a wider section of the population. With the obligatory use of independent building facilitators such as 'Stattbau', 'Lawaetz-stiftung' or 'Conplan', the Baugruppen have direct access to practical information about the self-promotion process. Such intermediary actors are used to mediate between civil society, private actors and the public authority, and prove to be invaluable in finding a consensus between residents and external actors (Scheller, 2018). The outsourcing of responsibilities to these building facilitators comes however at a cost. For the case of DOCK71, Conplan's role as project manager was extensive due to the complex ownership structure within the housing block. As part of a citywide strategy to introduce social mixity, the housing block is subdivided along the principle of a 'third-mix' serving co-housing groups, social housing, and large scale housing cooperatives, with a collective garden accessible for all. In order to keep the entire project manageable, the collective parts and the overall concept (inner garden, urban development & choice of architect) were decided by Conplan. Although the interviewed residents recognise the need for a project manager in such a large-scale project (the co-housing community of DOCK71 alone inhabits 60 households), the hierarchical decision-making structure leaves a bitter aftertaste.

"For a time we were thinking they (Conplan) were dominating us too much, because we were paying everything and the employees of Conplan made a lot of decisions, but it is ok, because it is very difficult to build a house for a 100 people. [...] There weren't any architects with some background knowledge who could argue against Conplans decisions. [...] Well, we liked it more to be ours. In some ways, it was mostly Conplan's project and we could participate." ~ interviewed resident.

Public offices in support of co-housing. Both Hamburg and Amsterdam have set up public agencies in order to actively support co-housing initiatives, providing basic information, practical guidance and readymade roadmaps. The agencies function as a central platform, where interested building groups register and apply for available plots. With suitable building plots centrally organised and reserved for

Figure 52 **| Baugruppen in Hamburg.**



co-housing communities, the registration and allocation system relieves building groups from the -sometimes difficult- search process and removes competition with other private actors (Bosman, 2011). As co-housing projects are mostly developed on public land, the public agencies are able to impose requirements beyond the regular planning regulations. A formalised selection procedure aims to ensure quality and a successful outcome; predefined criteria regarding a financial plan, 'a social concept', an energy and ecological concept, and group stability, are imposed and function as a first test for co-housing group in the development process.

3.3.3 | Example 3. Cooperative public housing in Copenhagen (Almenbolig(+))

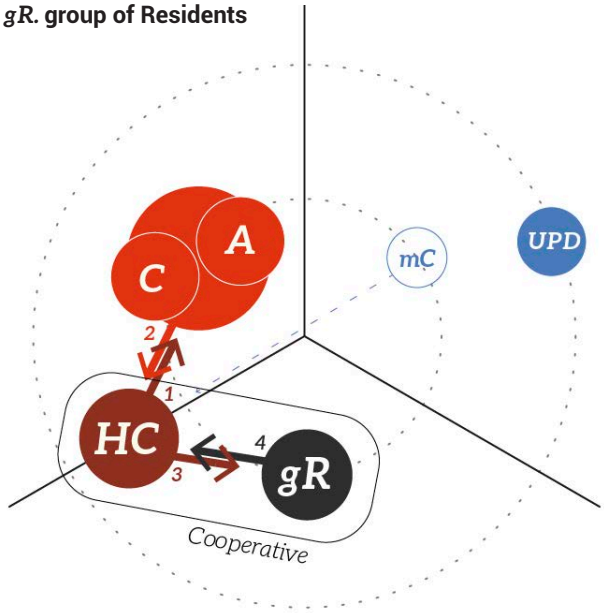
See fiche §5.3.11 and §5.3.12

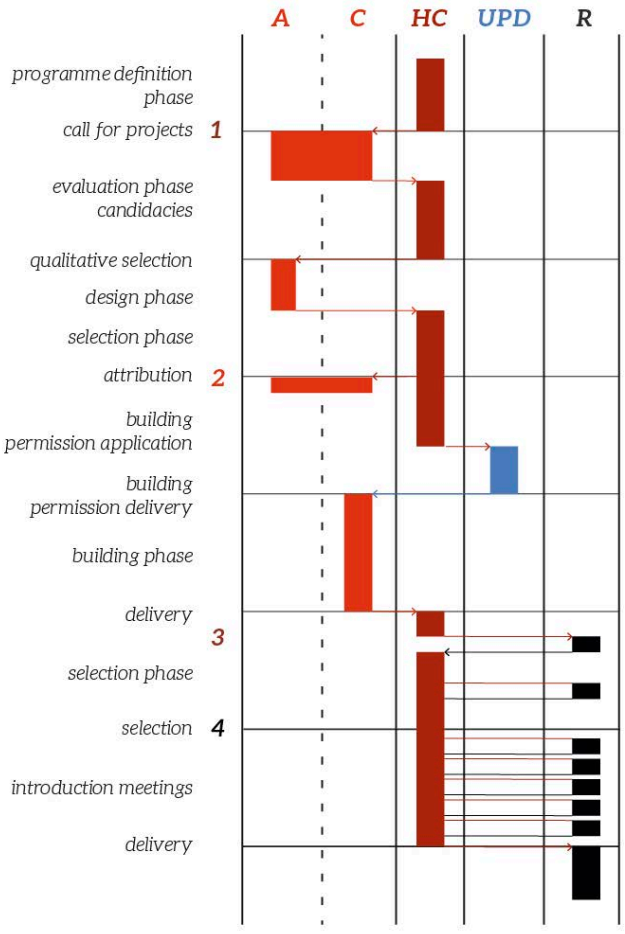
In the 'Almenbolig+ model' of Copenhagen (see figure 53) the public authority plays only a limited role. Housing corporations, recognized by the government for the provision of affordable housing, actively engage in the housing market, search for available plots and act as a procuring body commissioning private developers for the development of housing projects. These housing corporations do not receive direct subsidies, but aim to create affordable rental housing (cooperatively owned) by providing the units at building cost. The housing corporations are governed using a cooperative system led by the residents, with each housing project operating independently. The '+' in Almenbolig+ refers to a alternative selection procedure of residents and a newly adopted principle of 'self-regulation'. Interested households are selected (arrow 3) based on a number of qualitative criteria (age, household type, experience in maintenance, ...) with the aim to form a sustainable community able to manage the housing estate independently from the housing cooperative.

Housing Cooperatives; between private and civil society. Contrary to Brussels, housing cooperatives in Denmark have endured during the previous century, and still remain of central importance in the production of housing. As an actor operating between the private sector and civil society, the cooperative system effectively is able to comply with liberal political values, while being a resident-led, decommodified alternative to the private housing market. In response to an persistent housing crisis affecting the middle classes in the metropolitan area of Copenhagen, the Almenbolig+ programme (AB+, 'public housing+') was introduced in 2007 by the public housing cooperative KAB (Hansen et al. 2015). To create affordable housing, the Almenbolig+ concept (AB+) introduces an alternative management system, outsourcing some responsibilities to the end-users. In

Figure 53 **| Almenbolig (+) in Copenhagen**

mC. **municipality of Copenhagen**
UPD. **Urban Planning Department**
C. **Contractor**
A. **Architect**
HC. **Housing Cooperative**
gR. **group of Residents**





contrast with the MO-model and the Baugruppen, the focus is not on the development and design phase but mainly on the operational phase. AB+ is based on the principle of 'self-management/self-regulation'; when construction is finished, the housing estate is entrusted almost entirely to its residents. Contrary to regular social housing projects, the households become responsible for the maintenance of the gardens and reparations. Most decisions with regard to the collective parts (upgrades, alterations, renovation) are taken by the residents with minimal interference by the housing cooperative. The absence of maintenance and management staff therefore means a cost-reduction for the cooperative, saving ultimately in terms of monthly rent. The self-regulating system requires however the introduction of an alternative selection procedure, perceived as 'controversial' within the Danish public housing sector (Jensen & Stensgaard, 2017). Contrary to universal access* within the regular public housing sector, the AB+ program carefully selects households, giving preference to employed families with children, seniors and people with experience in garden or home maintenance. The selection phase is followed by a preparatory procedure with a set of informal meetings under professional supervision to ensure group formation and address areas of conflict (Jensen & Stensgaard, 2017). The adoption of qualitative selection criteria is justified by a number of arguments. Firstly, as a way to diversify towards the middle class in order to 'respond to universalist principles', as most public housing corporations tend to focus on vulnerable households only. Secondly, the principle of self-management requires more affluent households who can invest in the management of the gardens or additional facilities, thus reducing the risk of neglect. Thirdly, the selective allocation criteria are a way of creating a heterogenous group, aiming for an enduring mix of complementary social characteristics and capabilities.

* *Social housing in Denmark is accessible to all households, regardless of income.*

3.4 | Concluding remarks on the housing projects in Amsterdam, Hamburg & Copenhagen

Different typology, different approach to privacy. The description of the 4 typologies and the illustration of the different interpretations through the case studies show the importance of the parameters '***form***', '***sequence***', '***circulation***' and '***access***' in the design of a housing project. In particular, the examples show how these parameters can influence the degree of privacy on the level of the housing project and unit. From the typology of the 'urban block' to the 'open plane', collective and public flows increasingly become intertwined within the project and the differentiation between the formal front and informal back is gradually lost. For example, with its clear hierarchy and strict sequence, the urban block maximally focuses on individual privacy, in particular if the core is subdivided into private plots. In the other typologies that are more focused on the community aspect (courtyard) or try to maximise public space (open strip, open plane), private spaces are oriented towards collective or public spaces, and a more careful consideration has to be payed to the form of the different zones, the spatial expression of the borders in between and circulation patterns to maintain a similar level of privacy.

The merits of alternative organisational structures. Considering the two last parameters '***diversity***' and '***flexibility***', the selected cases in Amsterdam, Hamburg and Copenhagen present clear differences compared to the Brussel cases regarding the organisational structure and development process. As a strategy to prevent middle income households from suburbanising, most case studies depend on the active engagement of (groups of) citizens within the production and/or maintenance of housing. The common underlying premise is that increased involvement not only enables residents to shape their dwelling environment to individual and collective housing needs and preferences, but also induces a greater sense of identity towards the project and neighbourhood. The different typologies and spaces that are present in the case studies illustrate the capacity of these alternative models to adapt to different demands, cultural variables and personal taste, and introduce a level of diversity and flexibility that is not present in the Brussels cases.

A large range of resident involvement. The analyses show however, that between the cases abroad, a large difference in level of resident involvement exists. For example, in the cases in Amsterdam, the MO-model combines the model of self-promotion and the real estate promotor. On the one hand, capital- and knowledge-intensive aspects remain with the developer-architect during the initiation phase (preliminary design & (pre-)financing) and during the development phase (process management & consultancy). On the other hand, certain programmatic and design aspects are outsourced to the end user, deciding upon the specifics individually and collectively. The residents become thus involved in a relatively early stage, with a degree of participation that previously was only present in regular self-promotion development modes. This hybrid allows for an upscaling of the regular co-housing format, however, the advantages, such as a higher chance of success, shorter delivery time and an unambiguous and well-defined process, are offset with a decrease in the overall degree of participation. Similarly, the Baugruppen-model of Hamburg also could be addressed as a hybrid between the model of self-promotion and the real estate promotor, as it aims to upscale the regular co-housing format by limiting the responsibilities of residents. In both cases, independent building facilitators have a crucial role, managing the internal negotiation process and taking decisions involving external actors. In comparison with the MO-model, the Hamburg cases are however of closer resemblance to regular co-housing (fully self-promoted), since the building facilitators do not initiate and still are -officially- at the service of the group of residents. The cases in Copenhagen show another blend of types; the housing cooperatives bridge the gap between self-promotion and landlord development, as residents rent their units out to themselves, acting as a producer (self-promoting) and consumer (depending on the landlord) at the same time.

Institutionalising innovative housing models. No matter their internal differences and variations in residents involvement, all housing projects abroad are part of established housing programmes and illustrate how alternative approaches, at first innovative and experimental, can be institutionalised and implemented on a larger scale. The cases indicate that a successful implementation depends mainly on the stimuli provided by the public authority. Most important was a clear-cut policy framework and the establishment of centralised (public) services that inform the public, and actively coordinate and facilitate housing developments. These extra public requirements are compensated directly through an increase of public control on the programme and design of the housing projects, and on the long term as the plots remain property of a public authority or non-profit organisation (in the case of Amsterdam, with a city-wide public leasehold system, and in Copenhagen, with cooperative ownership structures).

4 | Conclusions & policy recommendations

Housing production in Brussels should change, both spatially and organisationally, in order to sustain its current population and quell the ongoing emigration flow of middle income households. As expressed by the residents of a selection of case studies in the North-Western part of the Brussels region, a number of spatial elements within their housing situation conflict with their prevailing housing preferences and aspirations. These 'mismatches' manifest themselves on the level of the individual home, housing project and neighbourhood, and contribute to the overall decision to stay or move (possibly out of the Brussels region). In order to answer adequately to the observed diversity in housing preferences and aspirations, the housing production needs to adapt, increase the quality and liveability, and diversify and democratise towards housing developments that are more demand-centred.

As far as the design-related aspects are concerned, the cases within this research have pointed to the existence of some essential parameters that influence the liveability of high-density multi-dwelling housing projects (***form, sequence, circulation & access***). These parameters of spatial design can be understood in terms of typo-morphological characteristics of housing projects that distinguish between what is public and what is collective, between front and back (or 'outside' and 'inside' of the building block or courtyard), between what is accessible for visitors as opposed to access that is restricted to residents. The spatial analyses and testimonials from residents show that poor design decisions regarding these elements can lead to dissatisfactions and mismatches, contributing to the overall decision to move.

The analyses indicate how the Brussels projects provide for some housing needs, but on several fundamental areas fail to function and lack qualities to sustain and attract certain household profiles. In high-density housing projects, public, collective and private spaces and the access to the dwellings must be considered carefully and in close relation to the housing types. For example, particular problems were evident with respect to the qualities of the private and collective outdoor spaces. Several of the Brussels case studies (e.g. Jette Village, Residence Dewez, les Jardins de Jette) feature private outdoor spaces with a (too) limited surface or high exposure, becoming obsolete or resulting in privacy conflicts (e.g. small street-side terraces, small shaded gardens, exposed ground floor apartments). Given the reality of an increasing need for high-density development, the provision of homes with individual gardens is considered not to be a priority in urban housing projects. The focus should rather be on projects combining compact, usable and sheltered private outdoor spaces with functional collective gardens or courtyards. Especially in high-density inner-city neighbourhoods, collective spaces within multi-dwelling housing projects can offer an added privacy gradient and seclusion, incorporating qualities that are traditionally associated with towns or suburbs. In some cases, these shared outdoor spaces can have a semi-private character, appealing to mindsets where residents value ties with the local community and interaction with the neighbourhood. For others, more secluded shared outdoor spaces might work better in providing a safe environment. Nonetheless, collective spaces are equally prone to failure when the main design parameters are neglected. Collective spaces occuring within illogical sequences or in inconsiderate relationship with private and public spaces, in combination with a misuse, underuse or overuse of certain areas and pathways, results in privacy issues and a decrease in functionality. Raising awareness on the importance and existence of these parameters is a first step to improve the spatial quality and decrease mismatches.

Within this reasoning, some of the 'best' practices within the cases abroad show how these parameters are important to create attractive living environments within high density contexts, and are able to provide alternatives to suburban typologies and neighbourhoods. The case studies in Amsterdam, Hamburg and Copenhagen show how the parameters of form, sequence, circulation and access can be considered in accordance with the typology of the housing project. The design of Kløverbladsgade for example, a housing project that explicitly uses a 'courtyard'-typology, illustrates how specific design elements can influence the functionality of the spaces within the project. Elements that proved to be essential were amongst others, the use of a soft transitions between different public, private and collective zones, a high amount of evenly spaced and functional entry points, and passages or see-throughs to prevent total enclosure and a locked-in feeling. The other cases show that the interpretation of these parameters changes according to the typology (for example within the configurations of the urban block or modernist examples of open strip or block buildings with a loss of orientation), and the spatial and cultural context.

Given the diversity in profiles of potential urban dwellers, the results show that it is equally important to provide a range of housing types to appeal to the diverse housing preferences. In combination with changing household sizes and composition in terms of age, it is clear that a good mixture between smaller and larger housing units and different typologies is needed in urban housing projects. The

cases showed that the potential to provide for this diversity within the housing project is related to the organisational structure and development process of the housing project. In Brussels, the diversity within a housing project is mainly decided upon by public and private developers through an estimation of the housing needs and preferences of the future residents. Without sufficient public control on the programmatic and typological outcome, this development model risks sustaining the ongoing standardization trend, with the current proliferation of the 2 bedroom apartment as an example. The cases in Brussels show the importance of ***diversity*** and ***flexibility***. A mix of different typologies and housing units of varying sizes, and a struture that provides the possibility to move from one type to another adapted to the life stage and changing household composition, might offer solutions for public housing developments (such as those of citydev.brussels). For public developments, control over the design and programme of the housing project remains paramount. Currently, the main public operator providing middle income housing -citydev.brussels- uses public-private partnerships (PPP's) to develop its housing projects, outsourcing the design and construction towards private actors. The majority of public housing today is developed with public tender models such as the 'marché de promotion' and to a minor part the 'regular public procurement'. Increasingly, citydev turns to a third PPP-model: buying housing units 'turn-key', directly from the private sector, only minimally interfering with the programme and design. Each of these PPP-models present differences in terms of efficiency and amount of public control. Analyses point out that with the increased adoption of public-private partnerships that favour efficiency over public control (such as the turn-key model), there is less opportunity to regulate housing production and to provide a diversified patrimony as an alternative to the existing standardised housing typologies. The mismatches between what is built and what is needed and aspired for, thus risk remaining unaddressed.

The case studies in Amsterdam, Hamburg and Copenhagen on the other hand, show some good examples of how, with the engagement of residents, an additional degree of flexibility is introduced and the housing units can be designed or can be modified throughout the development process. The cases show alternative ways in how the public authorities outsource responsibilities, how new actors are introduced and the role of existing ones have changed. With the introduction of what can be called Public-'Common' Partnerships (PCP's), future residents and civil society organisations become engaged in the production of housing, with added possibilities to intervene or participate in the management, design and maintenance of the housing project. In contrast to regular public-private partnerships, these PCP's offer the additional advantage of having the capacity to address specific individual and collective needs and preferences of the -known- end-users, and thus, aim to reduce the mismatch between housing preferences and what is produced. For example, forms of 'empty-shell'-building, where residents can have a final say in the actual subdivision and lay-out of the home can appeal to those residents who put value in actively shaping their own local environment. For some residents, this translates into a strong engagement with their local community, while others might search to shape their dwelling environment as a collective of like-minded urbanites.

These conclusions were discussed in stakeholder workshops in order to develop them into policy recommendations for the Brussels Capital Region, its public housing producers such as Citydv.brussel, the Brussels Housing Fund and the SLRB, the concerned administrations such as urban.brussels (spatial planning and building permit administration), logement.brussels (the housing administration) perspective.brussels (the strategic planning agency) and the office of bMa (the Brussels government architect). Stakeholders put forward three main overarching goals that Brussels housing policy should focus on;

1 | **housing quality and diversity**

without losing focus on (less the subject of this research, but equally important):

2 | **housing affordability**
3 | **diverse residential environments**

The first goal is closely related to the research presented in this report. The second goal relates to the research presented in Schillebeeckx & De Decker (2020). The third goal, the affordability of housing, is not dealt with explicitly in this report, but it is closely related to the development processes and the organisational structure of (public) housing, and to issues of tenancy and public land policy that appear in the foreign case studies.

A crucial prerequisite for these goals is a ***greater degree of control over housing development***. Foreign examples show that ***public land policy*** is key to achieve this. ***Leasehold systems*** allow to specify and control public goals for housing development. Therefore, the BCR should keep land in public ownership and even expand its portfolio.

For ***public housing*** projects a ***mix of affordable, cooperative and innovative housing*** solutions should be strived for. The needs and shares in low-income and middle-income housing should be determined based on ***neighbourhood analysis and local specificities***. To avoid rising housing prices on public land, leasehold contracts should stipulate clear ***conditions for rent, sale or cooperative tenures***. Public land for housing development should only be ***sold to non-profit housing developers*** who develop projects with open accounts of construction and management costs. Design quality of housing projects and sustainable design should be achieved via clear ***project definitions*** and ***public tenders*** based on competitions under ***supervision of the team of the bouwmeester-maître architecte (bMa)***. Develop systems to support and include future ***residents*** in the development process, and design good management and condominium contracts to determine the rights and duties of all residents. Provide ***subsidies for collective spaces*** (indoor and outdoor) in public housing projects and not just for the housing units.

For ***private developments***, a clear quality framework for housing projects should be established, on three levels: 1) a ***general zoning ordinance*** (RRU-GSV) that defines basic qualities of housing, 2) ***additional recommendations and references*** for qualitative housing and 3) a ***quality chamber*** that supports developers throughout the design and up until the delivery of construction permit.

The General Zoning Ordinance (RRU-GSV) should stipulate a mix in housing typologies and sizes, functionality and usability of floorplans and guidelines for accessibility. In particular, additional guidelines are needed for shared and collective spaces in housing projects. A 'priority lane' in terms of permit delivery for projects that are developed under the bMa supervision can be envisaged.

Recommendations should be established that can serve as a guideline to evaluate housing projects that in some ways deviate from the RRU-GSV or zoning plans (for example in terms of construction inside of building blocks) to achieve additional qualities such as increased social interaction, offer neighbourhood facilities or greenery, combine smaller housing units with shared facilities, or work with an increased involvement of neighbourhood and future residents.

It is advisable to enforce preliminary consultations between housing developers, the quality chamber and local and regional authorities in very early project stages or even before acquisition of land for housing projects of more than x housing units or of strategic importance. Further research should determine the size of housing projects and the number of housing units for which such consultations would become compulsory. As a comparison, housing projects are subject to urbanistic charges when the floor area is 1000 m2 or more. A similar treshold could be considered. Include neighbourhood analysis of housing needs in the consultation procedure.

Finally, we suggest two ***financial mechanisms*** to contribute to these goals. First of all, ***incentive zoning for the provision of high quality collective or public spaces*** in housing projects could be established via 'urbanistic charges'. Today, housing projects of 1000 m2 or more are subject to urbanistic charges. These can be realized in kind via the construction of affordable housing, public space, greenery or public amenities or via a financial compensation. The latter option is today preferred by developers. By enforcing a realisation of 'urbanistic charges' in kind and expanding the scope to collective spaces, the quality of collective spaces in housing projects could be increased. Secondly, to support cooperative housing solutions, the Brussels Housing Fund could expand its system of social mortgage loans to ***loans to obtain shares in cooperative housing*** projects.

These recommendations can be applied in various policy documents and planning regulations in the Brussels Capital Region

| in the housing construction regulations, for the Brussels Capital Region in general (as an input in the RRU or Règlement Régional d'Urbanisme), or for specific areas (RRUZ or Règlement Régional d'Urbanisme Zoné);

| as an inspiration for the drafting of project definitions and project briefs for priority urban residential development areas in Brussels (as included in the Plan Régional de Development Durable);

| in the charter for real estate development that will be developed by Urban.Brussels to serve as guidelines for large scale residential real estate development

| and finally as input for the selection criteria and development principles of the Sustainable Neighbourhood Contracts (Contrat de Quartier Durable) and the Urban Renewal Contracts (Contrat de Rénovation Urbaine) (see https://quartiers.brussels, 2020).

Next to these policy recommendations specific to public or private developments, the results of this research equally point to suggestions for current and future housing policy in general. These recommendations are hereafter linked directly with the research results ('key findings') and summarised within #7 principal directives:

#1 | Combine different affordable housing solutions in a balanced way

Key findings

| Our results show that Brussels runs the risk of losing profiles that are convinced of the city's virtues, but find it increasingly difficult to afford a house in Brussels that fits their budget, life stage and housing aspirations (see e.g. reluctant leavers, urban villagers).

| Brussels faces a high demand for affordable housing for low- and middle-income groups. As development opportunities become scarce, housing projects initiated by public authorities struggle to find the right balance between offering low-income or middle income housing.

Recommendations

| Pursue a housing policy with integrated and balanced (quantitative) goals for low-income and middle-income housing provision.

| Balance the offer of affordable and middle-income housing at project level, based on regional and neighbourhood analysis and local specificities.

| Housing projects initiated by public authorities offer a mix of affordable, cooperative, and innovative housing.

#2 | Support new approaches to affordable housing that guarantee long term affordability

Key findings

| Residents who benefit from middle-income housing developed by public authorities (such as Citydev) are initially bound by resale and occupancy conditions. This impedes them to move to housing that is adapted to a changing household size and composition. In the long run however, due to sharply rising housing prices, such residents can realise an important added value on their property. The original subsidy is lost as the housing unit is no longer available at a sub-market price cost.

| Foreign examples of cooperative housing show how residents are able to move to homes adapted to changing household sizes within cooperative housing.

| Foreign examples show that low- or middle-income housing provision in private or cooperative developments on public land can be achieved via regulations in leasehold contracts, by reserving a share of housing for these target groups.

Recommendations

| Use leasehold systems for housing development to avoid rising housing prices on (former) public land. Leasehold contracts should stipulate clear conditions for rent, sale, or cooperative tenures.

| Support cooperative housing solutions by allowing social mortgage loans of the Brussels Housing Fund for the acquisition of shares in cooperative housing projects.

#3 | Strengthen the governance of housing production in Brussels

Key findings

| The production of new housing projects in Brussels is dominated by private parties, even in projects initiated by public authorities. Public-private partnerships and turn-key developments create limited opportunities for housing development to meet housing policy goals and address the needs of specific target groups such as older people, large families, low- and middle-income households.

| The different public housing actors in Brussels focus on separate sub-markets and address different and sometimes conflicting goals in Brussels housing policy, even if collaboration among these actors increases.

| Foreign examples show that public land management and leasehold systems create leverage for urban governments to develop a housing offer that meets specific goals and reaches specific target groups.

Recommendations

| Focus on housing developments that aim for housing quality and typological diversity, housing affordability and diverse residential environments.

| Reinforce public land policy by keeping public land in public ownership, by expanding the portfolio of public land, and by applying leasehold systems for housing development on public land.

| Public land for housing development should only be sold to housing developers who agree to develop projects with open accounts of construction and management costs.

| Focus on the establishment of centralised (public) services that actively coordinate and facilitate housing developments in order to allow for a larger-scale implementation of alternative housing models (as successfully implemented in foreign housing models).

#4 | Improve procedures to safeguard the design quality of housing projects

Key findings

| As mentioned earlier, the production of new housing projects in Brussels is dominated by private parties, even in projects initiated by public authorities.

| Foreign projects and practices show that the design quality of housing projects is very often the result of transparent negotiation and close collaboration between public authorities and developers, rather than 'passive' zoning instruments and planning regulations.

Recommendations

| Develop all public housing projects with public tenders based on competitions with clear project definitions under supervision of the team of the bMa (Brussels Bouwmeester Maître Architecte) to achieve the highest standards of design quality for public housing projects.

| Develop a clear quality framework for private housing projects based on (1) the general zoning ordinance (RRU-GSV) that defines basic qualities of housing; (2) additional recommendations and references for qualitative housing; and (3) by establishing a quality chamber that supports developers throughout the design and up until the delivery of the construction permit.

| Enforce preliminary consultations between housing developers, the quality chamber, and local and regional authorities in very early project stages or even before acquisition of land for housing projects of more than N* housing units or of strategic importance. Include regional and neighbourhood analysis of housing needs in this consultation procedure.

| Envisage to establish a 'priority lane' for building permit delivery for private projects that are developed under bMa supervision.

| Develop guidelines to evaluate housing projects that deviate from the RRU-GSV or zoning plans. These guidelines can rely on the concept of compensating qualities that increase the attractiveness of urban housing and warrant deviations from regulations. Examples are projects that offer services to their wider environment such as neighbourhood facilities or greenery. Other compensating qualities can be found in typological innovation, such as projects that combine smaller housing units with shared facilities. Finally, projects that organize increased social interaction, or rely on an increased involvement of neighbourhood and future residents could also warrant derogations of the RRU-GSV. A collection of best practice examples can serve as a source of inspiration for designers and developers.

#5 | Assure typological diversity in housing projects

Key findings

| We have seen a lot of diversity in the way current and former residents of Brussels experience and perceive Brussels as living environment, and what they expect from the city. In the interview study the dynamic component of residence experiences has been manifestly demonstrated. Expectations and experiences are not static, but change and develop over time. However, new housing developments in the Brussels Capital Region show little typological diversity with a dominance of two-bedroom apartments.

| Housing projects often rely on standardised floor plans that are not adapted to the particular context and location within the housing project.

| Casco or shell-building and loft typologies allow a greater degree of flexibility for residents to shape their home to their needs and preferences.

Recommendations

| Reinforce regulations on functionality and usability of floorplans and on accessibility in the General Zoning Ordinance (RRU-GSV).

| Include regulations on mix in housing typologies and sizes for all housing projects with a minimum of N housing units in the General Zoning Ordinance (RRU-GSV).

#6 | Provide incentives for well-designed collective spaces

Key findings

| In many high-density housing projects, the usability and quality of private and collective outdoor spaces is low due to privacy conflicts. In particular, private gardens in high-density housing projects provide little added value due to their limited size and privacy conflicts.

| Well-designed transitions between public, collective, semi-private and private spaces in housing projects increase the usability of scarce space in high-density urban housing projects.

| Clearly defined and secluded collective outdoor spaces can provide safe playing environments for children.

Recommendations

| Include additional guidelines for shared and collective spaces in housing projects in the General Zoning Ordinance (RRU-GSV).

| Provide subsidies for collective spaces (indoor and outdoor) in public housing projects.

| Encourage the provision of high quality collective or public spaces in housing projects via 'urbanistic charges' (incentive zoning).

#7 | Involve residents in shaping their dwelling environment

Key findings

| Casco or shell-building and loft typologies allow a greater degree of flexibility for residents to shape their home to their needs and preferences.

* *Determining the exact size of housing projects to be subjected to this type of approach should be the result of additional operational research and political consensus.*

| Tenants and owners have different attitudes and a different level of involvement in the maintenance of collective housing projects, public as well as private. Tenants are poorly represented in the management of collective housing projects.

| Cooperative tenancy blurs the boundaries between renters and owners and assures equal representation.

Recommendations

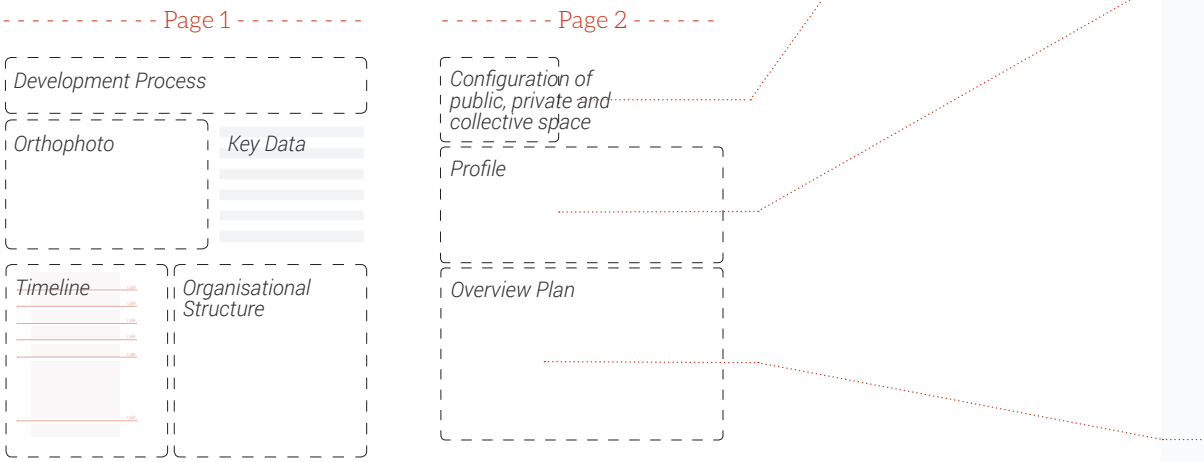
| Develop systems to support and include future residents in the development process of public housing projects developed by public housing actors such as Citydev. brussels, the Housing Fund, the SLRB, municipalities, CPAS and CLTB.

| Design and provide good management and condominium contracts to determine the rights and duties of all residents (tenants, owners, and residents in housing cooperatives) in all collective housing projects, both private and public.

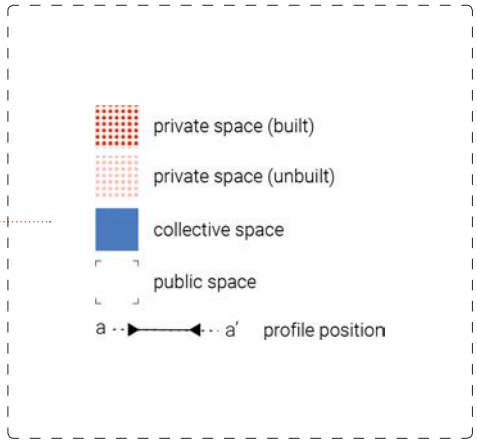
5 | Fiches

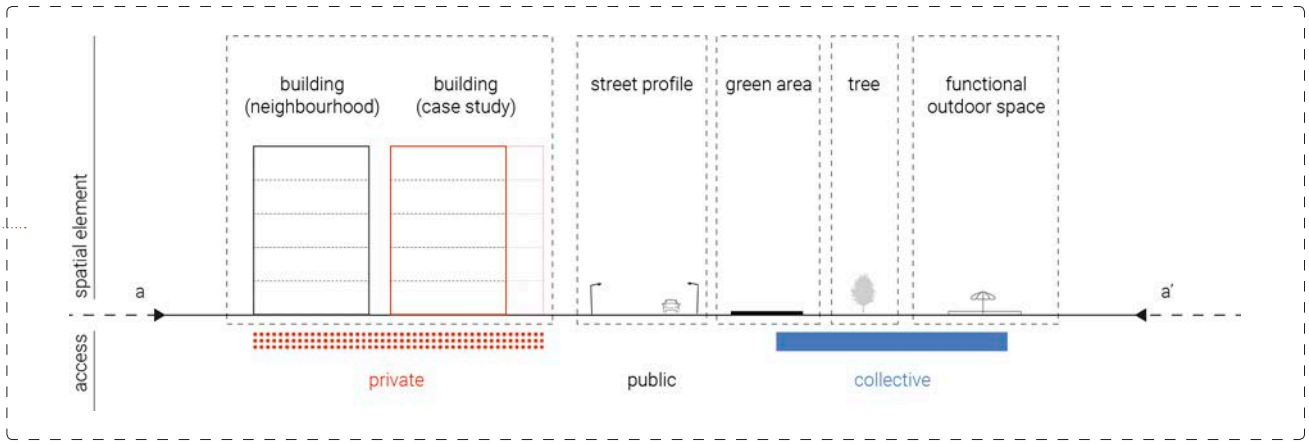
5.1 | Fiche structure

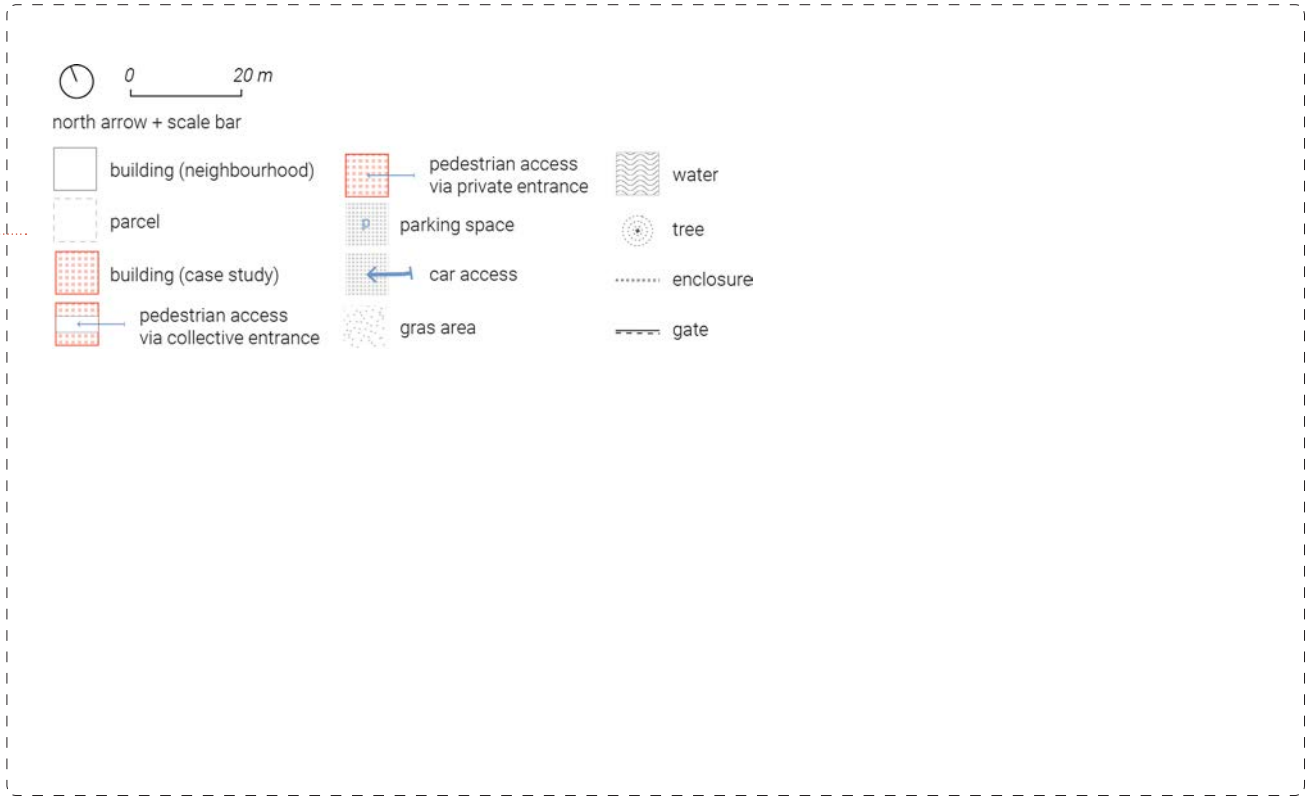
The following fiches provide insight into the key characteristics of the case studies in the Brussels region and those abroad. Each fiche contains two pages. The first page consists of the programmatic and organisational elements, such as the development process and timeline and the actors involved, as well as key data such as the number of housing units, extra amenities provided, and general measures such as density, height and surface of the building plot. Page 2 consists of a graphic presentation of the spatial elements, via building plans and profiles (for a explanation of the colors, lines and symbols used, see the legend below).



Legend


private space (built)
private space (unbuilt)
collective space
public space
a
a'
profile position

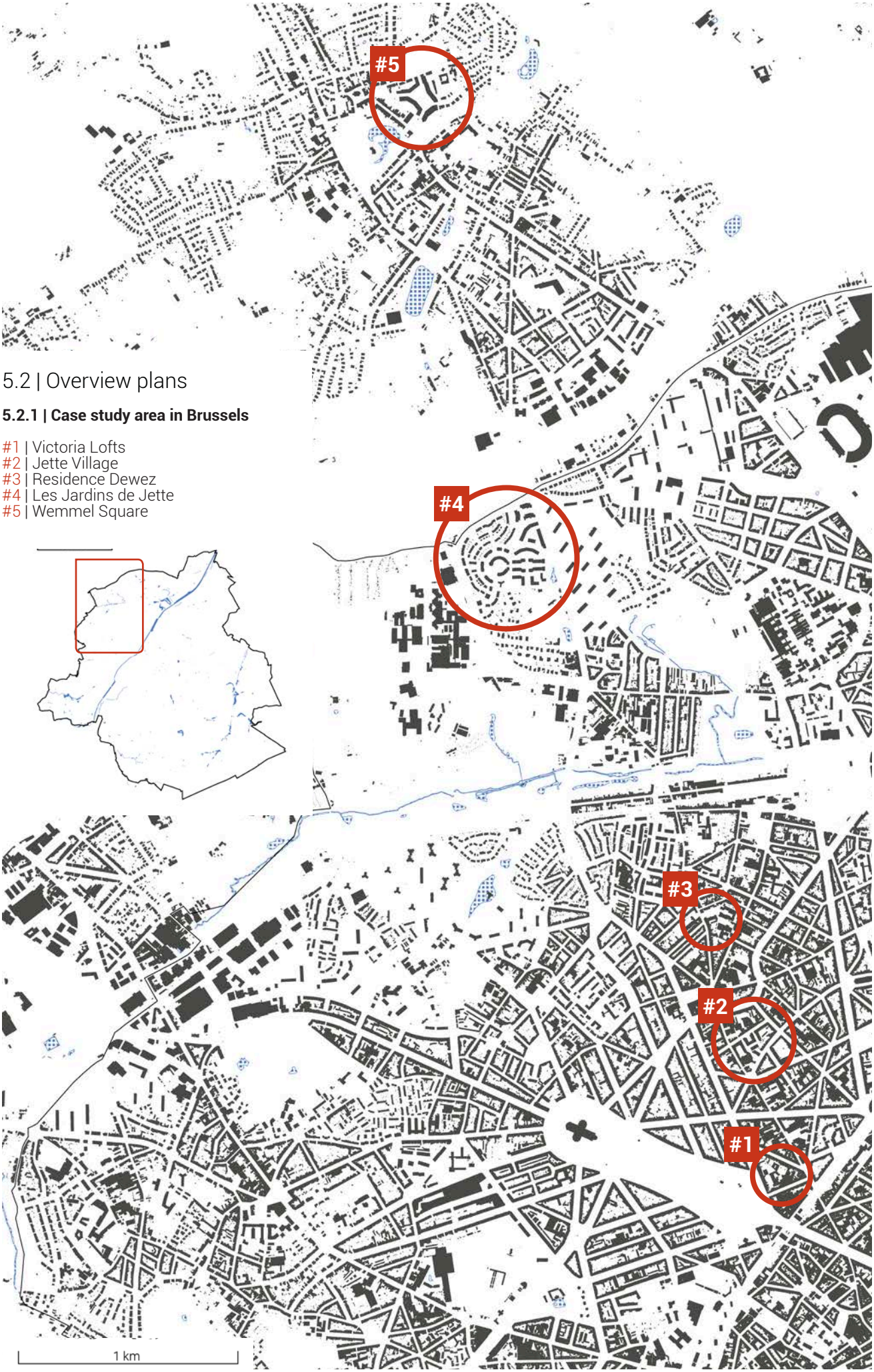

building (neighbourhood)
building (case study)
street profile
green area
tree
functional outdoor space
spatial element
a
a'
access
private
public
collective

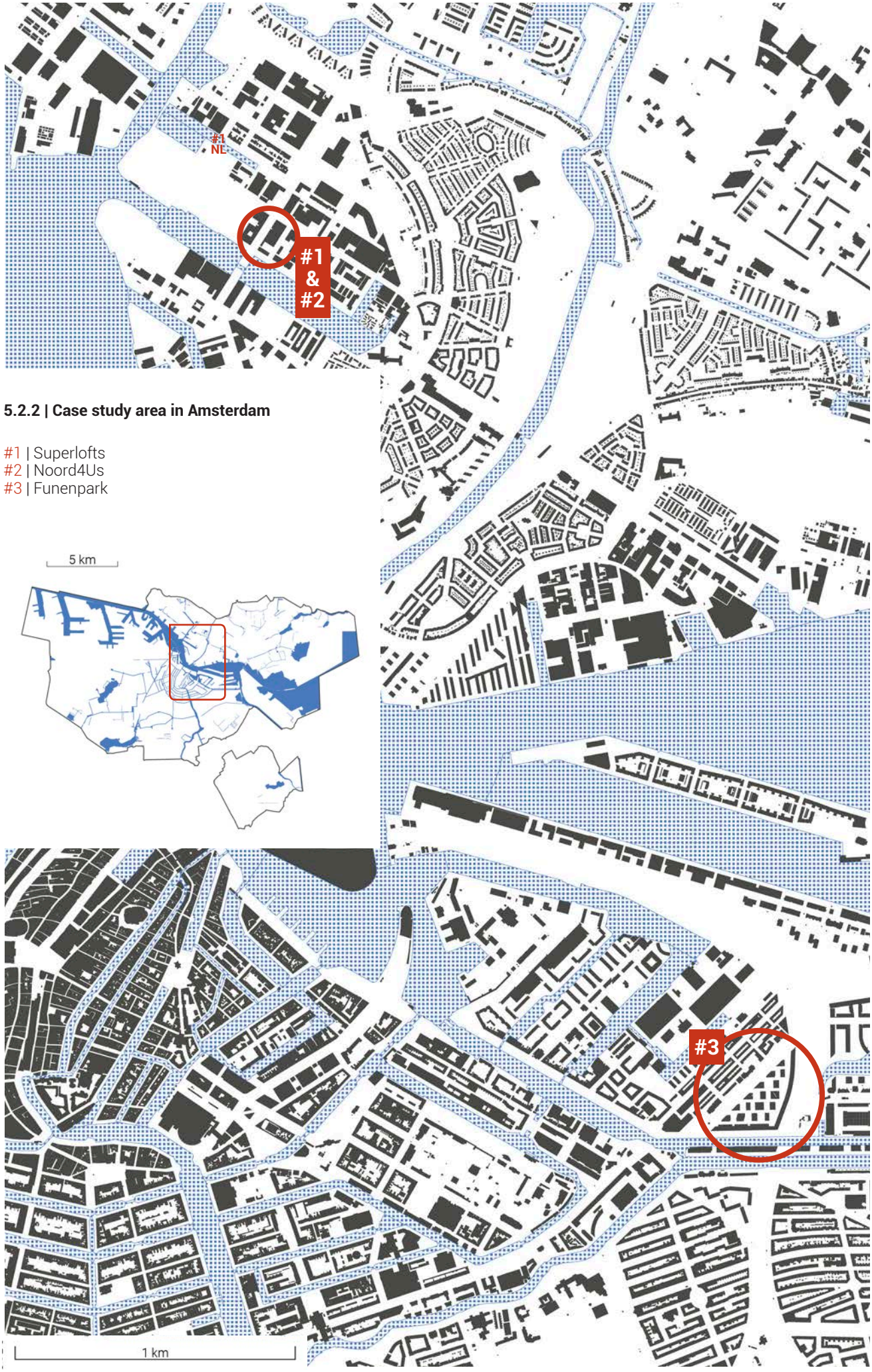

0
20 m
north arrow + scale bar
building (neighbourhood)
parcel
building (case study)
pedestrian access via collective entrance
pedestrian access via private entrance
parking space
car access
gras area
water
tree
enclosure
gate

5.2 | Overview plans

5.2.1 | Case study area in Brussels

#1 | Victoria Lofts
#2 | Jette Village
#3 | Residence Dewez
#4 | Les Jardins de Jette
#5 | Wemmel Square



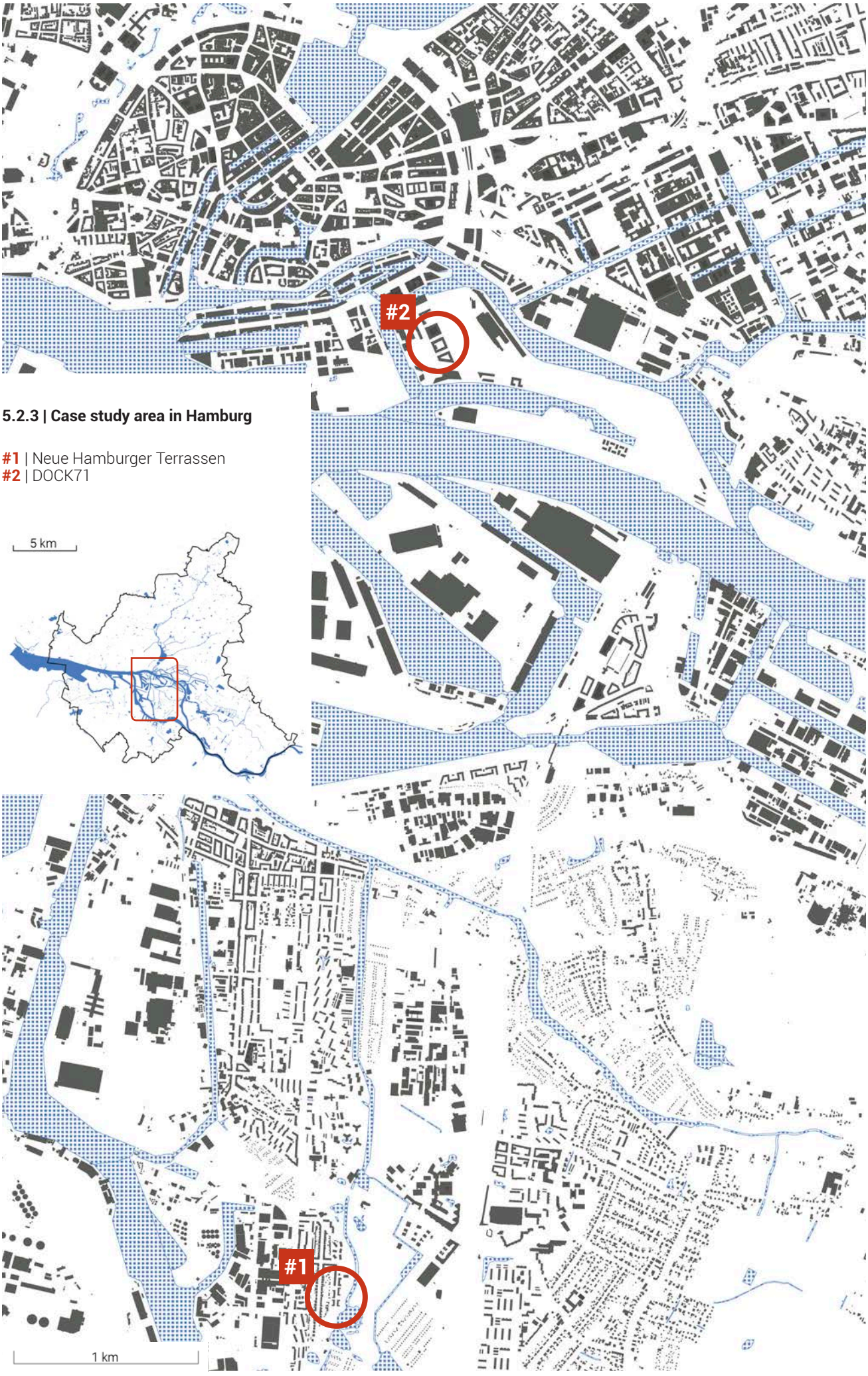


5.2.2 | Case study area in Amsterdam

#1 | Superlofts
#2 | Noord4Us
#3 | Funenpark

5.2.3 | Case study area in Hamburg

#1 | Neue Hamburger Terrassen
#2 | DOCK71



5.2.4 | Case study area in Copenhagen

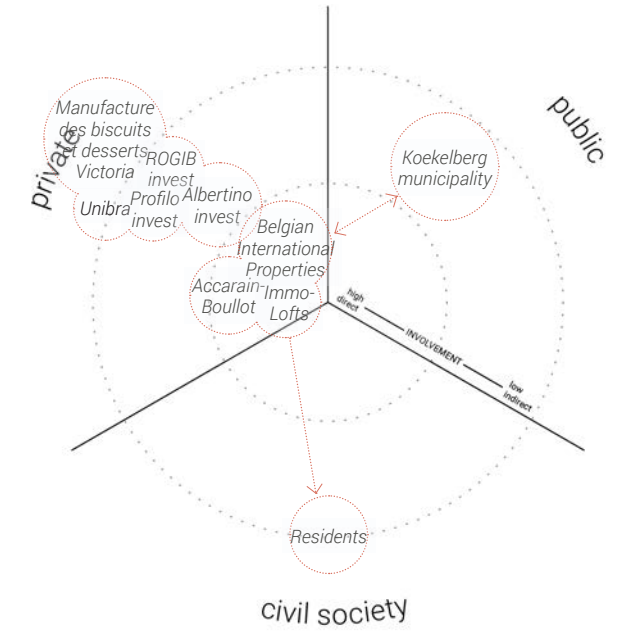
#1 DK - Dorthaevej
#2 DK - Kløverbladsgade

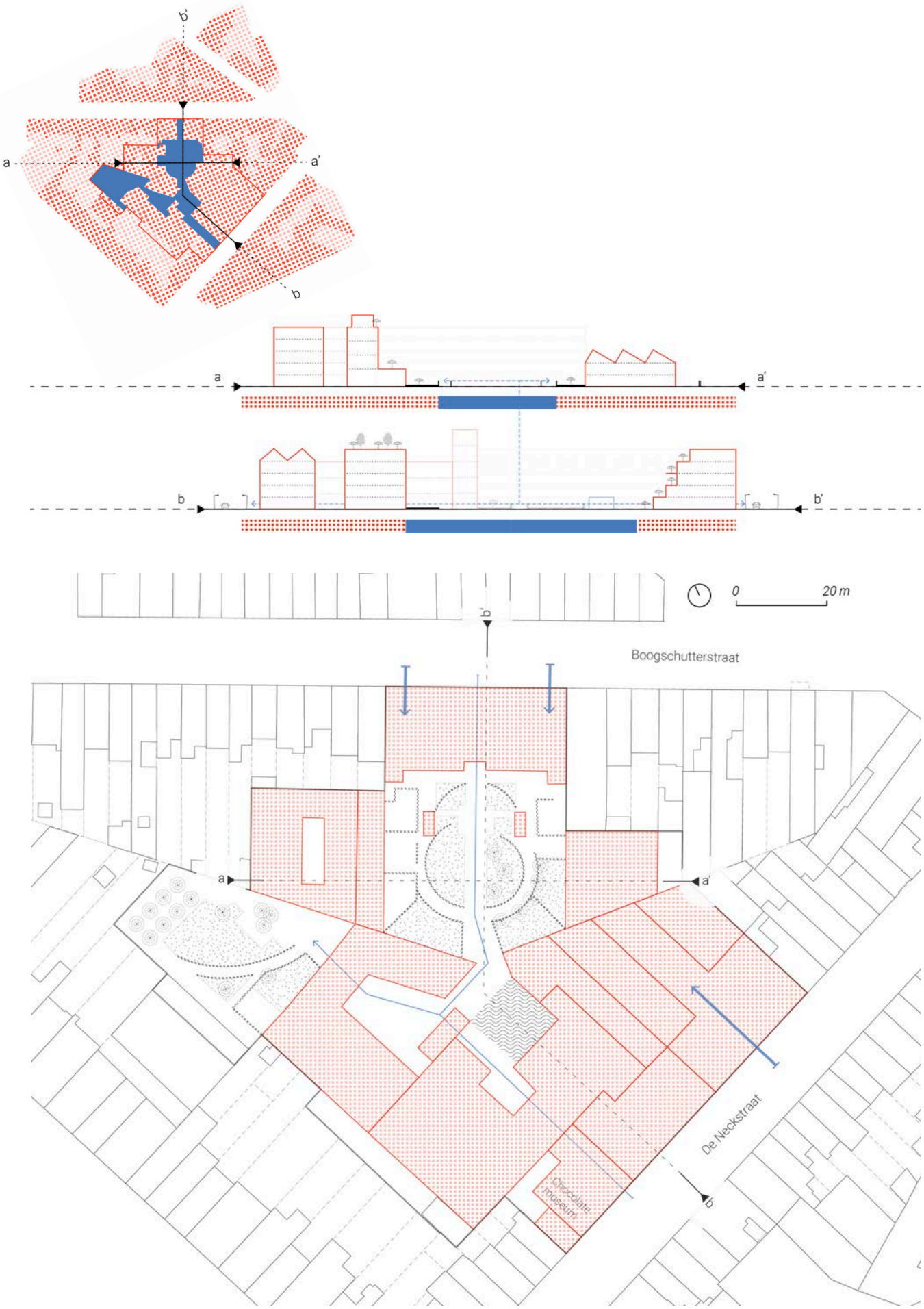
5.3 | Case study fiches

5.3.1 | Victoria Lofts (Brussels)

The housing project of Victoria Lofts is located within the buildings of former chocolate factory NV "Manufacture des biscuits et desserts Victoria", founded in 1896 in Koekelberg. The success of chocolate sales after WOII meant that the chocolate factory underwent a constant expansion; adjacent plots on Jetselaan and Boogschuttersstraat were gradually purchased, houses demolished and studios, warehouses and office space were added throughout the inner area of the closed building block (Sutter, 2008). After a series of mergers, chocolate production was stopped in Koekelberg and relocated elsewhere. The spaces were leased for a period of 15 years to various companies as warehouses, after which its condition deteriorated and after 1985 was resold to a series of investment funds and real estate agents. The site was eventually purchased in 2000 by Belgian International Properties, an originally Dutch company that founded NV Victoria Lofts specifically for the reconversion project. The development was split into 2 phases: the façade and internal structure of the production studios and old offices on the Neckstraat were retained because of their architectural value and transformed into lofts at the beginning of 2000. The less qualitative warehouses on Boogschuttersstraat were completely demolished at the beginning of 2003 for construction of apartments that close up the block on the east side and provide a second entrance to the communal courtyard. The municipality (mayor Phillipe Pivin) bought 800m² of the site, including the directors' offices and a few studios, to set up a chocolate museum "The Belgian Chocolate Village" to preserve the industrial past of Koekelberg in cookie and chocolate production.

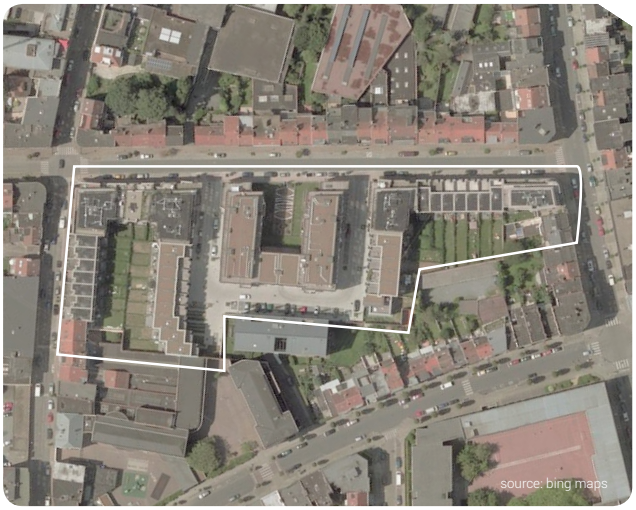
Adress:	De Neckstraat & Boogschutterslaan, 1081 Koekelberg
Previous use:	Chocolate factory & Storage facilities
Current Ownership Structure	Individual housing units in private ownership (mix owners & rentals)
Development by:	Victoria Lofts BVBA (subsidiary of Belgian International Properties)
Architect:	Accarain-Bouillot NV
Program:	26 apartments & 72 Lofts (+ private fitness & swimming pool)
Height:	5 storeys; +- 20 m
Terrain Surface:	10.352 m²
Density	95 units/ha
Cost:	/
Start project:	2000 - 2003 (begin construction)
End Construction:	2005 - 2006



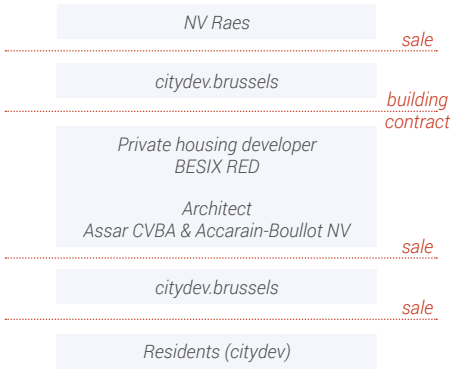

b'
a
a'
b
a
a'
b
b'
0
20 m
b'
Boogschutterstraat
a
a'
De Neckstraat
b
Chocolate Museum

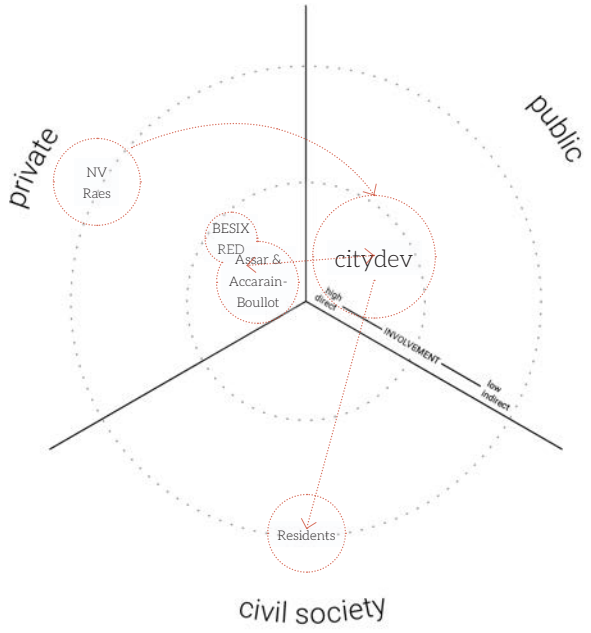
5.3.2 | Jette Village - citydev.brussels (Brussels)

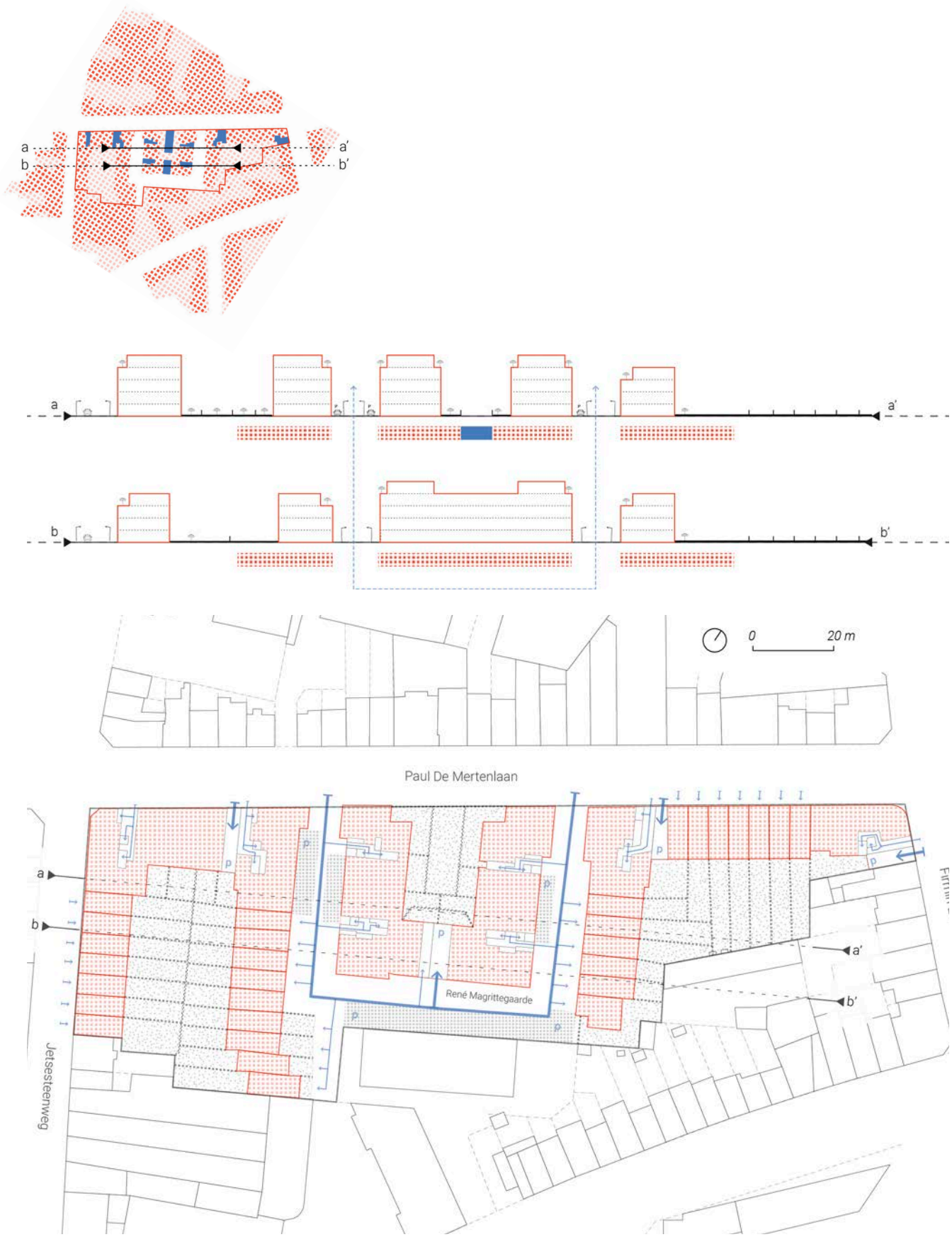
Jette Village, a residential project of 113 apartments and 29 single-family homes at 300 m from the Koningin Astridplein (Spiegelplein), was finalized in 2014 through a public-private partnership commissioned by citydev. The industrial site (warehouses of the Raes company) was purchased by citydev in 2002 to redevelop into a residential area. Following a call for partners, the internationally operating real estate developer BESIX Real Estate Developments (BESIX RED) was engaged for the development of the complex. With ten objections to the parcel license during the public inquiry and three appeals to the Council of State for the approved urban planning permit, the delivery was delayed by 5 years. The objections were related to the planned density and its impact on the adjacent plots (height of buildings, privacy issues and reduced light penetration) (Jette, 2014). With the top floor set back and the integration of single-family houses at the project's edge, the final plan shows its attempt to reduce its impact on the neighbourhood.



Adress:	Firmin Lecharlierlaan, Jetsesteenweg, Paul De Mertenlaan & Réné Magrittegaarde, 1090 Jette
Previous use:	Industrial site (storage facilities NV RAES)
Current Ownership Structure	Individual housing units in private ownership (mix owners & rentals)
Development by:	Jette Village NV (citydev + Besix Real Estate Development)
Architect:	Assar CVBA & Accarain-Bouillot NV
Program:	113 apartments & 29 single family houses
Height:	5 storeys; +- 20 m
Terrain Surface:	10.366 m² with public area
Density	137 units/ha
Cost:	1600 euro/m²
Start project:	2002 (year of purchase), 2009 (begin construction)
End Construction:	2014



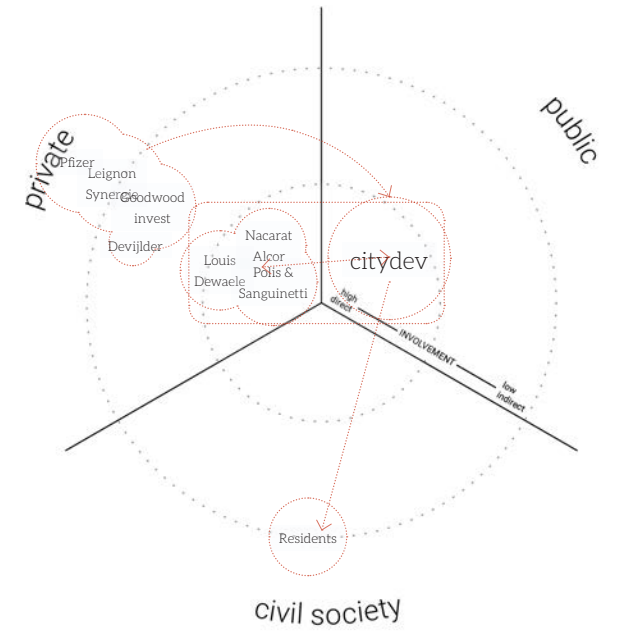


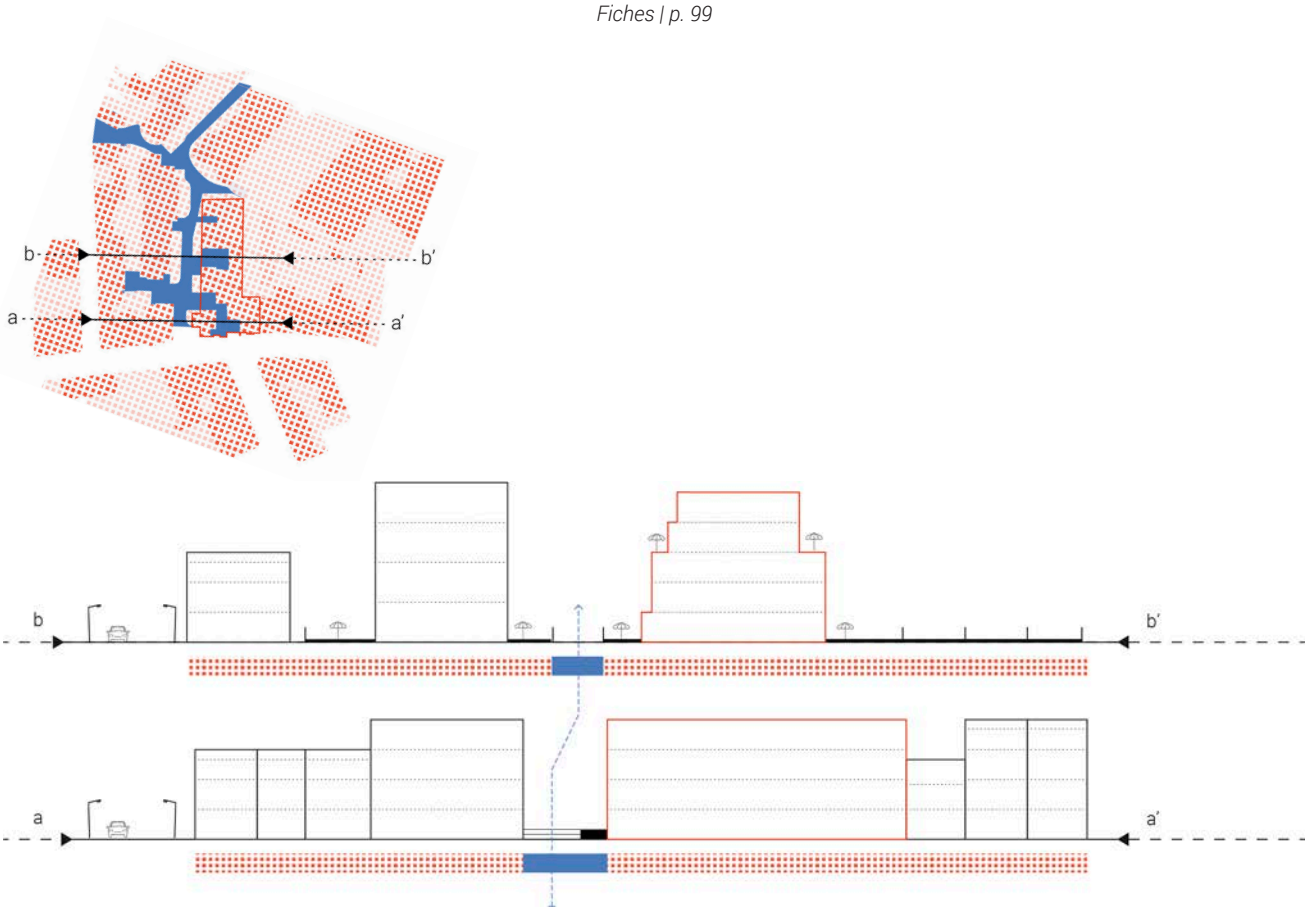

a
a'
b
b'
0
20 m
Paul De Mertenlaan
René Magrittegaarde
Jetsesteenweg

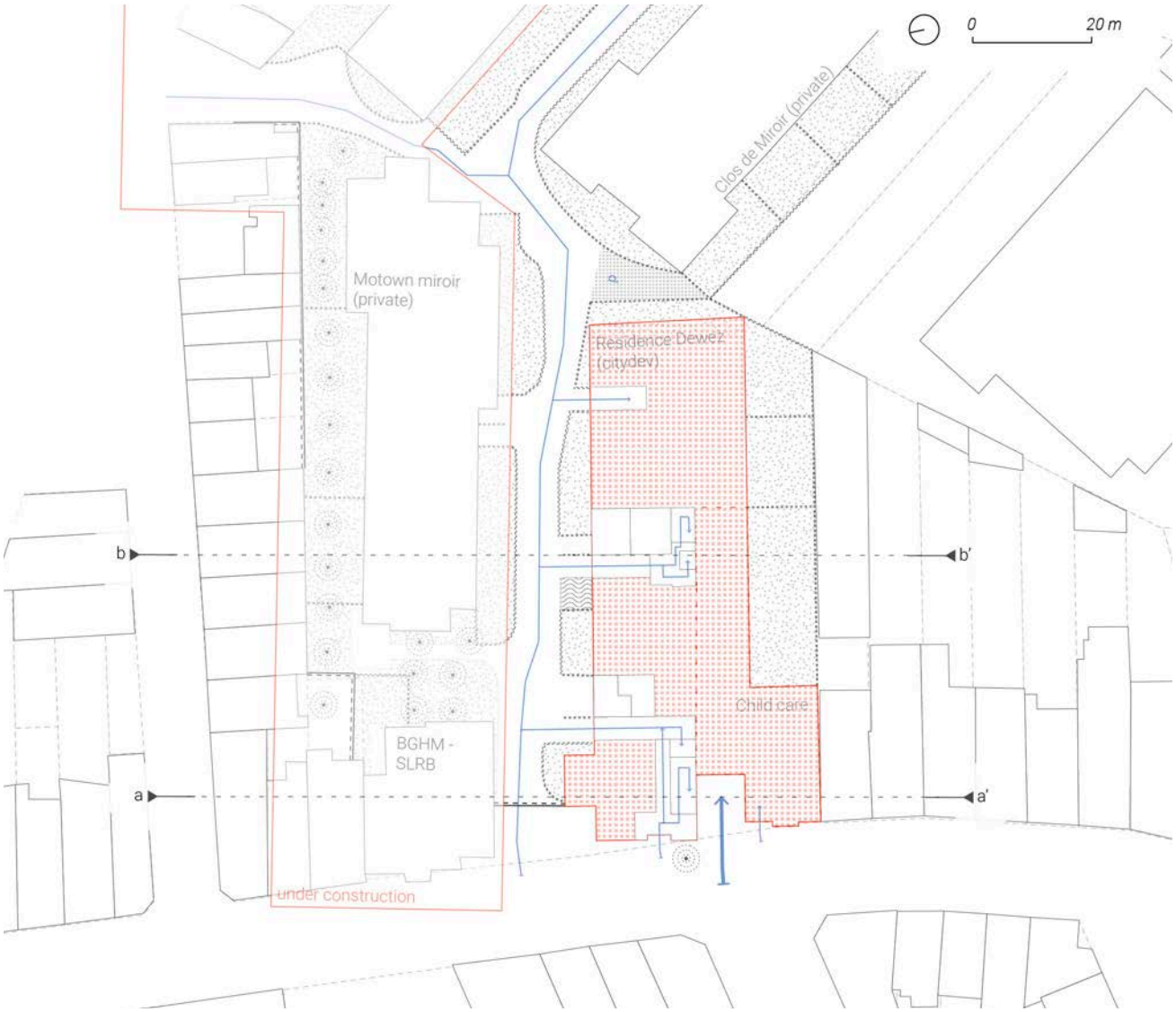
5.3.3 | Residence Dewez - citydev (Brussels)

The site of Residence Dewez originally functioned as the first production department of the American pharmaceutical company Pfizer in Brussels. With a growing production capacity and limited expansion possibilities in the residential area the facility was dismantled in 2002. After 2 years of vacancy, the site was resold to a series of real estate investors ("Leignon Synergie SA" in 2004 and resold in 2006 by Goodwood Investments, the Belgian division of an Amsterdam investment institution specializing in the sale of Brazilian hardwood bonds). Goodwood Investments applied together with Devijlder Invest for an urban development permit (2007) aiming to construct a complex of luxury residences. This was rejected after a negative advice from the municipality and objections from the neighborhood residents about the planned density. The site was eventually split up as part of the 'Carton de Wiart - Hart van Jette' neighbourhood contract (2006 - 2010) and the plot of the current Residence Dewez was sold to citydev (in 2008) (then GOMB). In 2010, citydev granted building permission for a period of 5 years to the temporary company SAS Nacarat - Alcor - Projet Dewez. Entreprises Louis De Waele NV was designated as the main contractor for the project. To preserve the architectural uniformity of the entire project, Artepolis architects was hired by all promoters to design Residence Dewez and the remaining privately promoted developments. Goodwood Investments eventually went bankrupt in 2010, following a fraud case, and was forced to sell the unfinished project to the Belgium-based Motown development, a new real estate company started in 2006. The lower apartments in the privately promoted building could be finished and META architects (Antwerp) was engaged in 2014 for the construction of the remaining buildings.

Adress:	Wemmelse Steenweg & Leon Theodorstraat, 1090, Jette
Previous use:	Production Site Pfizer Farmaceuticals
Current Ownership Structure	Individual housing units in private ownership (mix owners & rentals)
Development by:	Temporary Partnership "S.A.S. NACARAT – SA ALCOR - Projet DEWEZ"
Head Contractor	Les Entreprises Louis De Waele
Architect:	Arte Polis architecten & Aldo Sanguinetti
Program:	34 appartements (citydev) & Creche
Height:	5 bouwlagen; +- 20 m hoog
Terrain Surface:	1813 m² (Residence Dewez)
Density:	188 units/ha
Cost:	+- 1600 euro/m²
Start project:	2004 (year of purchase)
End Construction:	2014



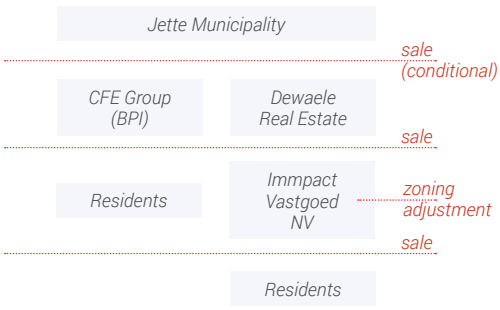

b
b'
a
a'
b
b'
a
a'

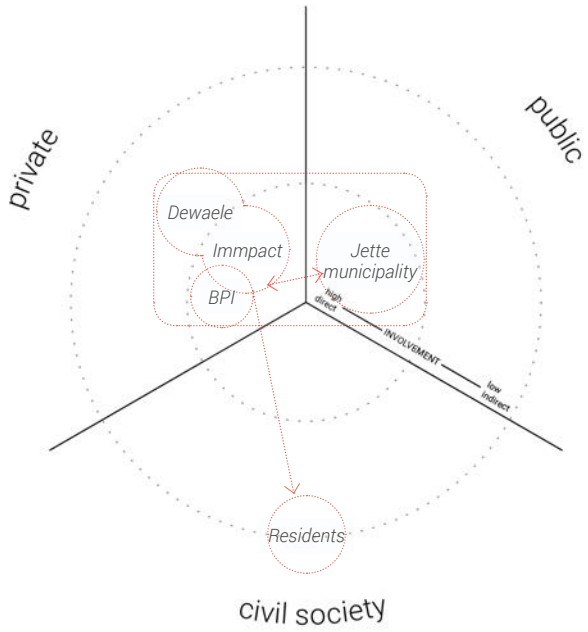

0
20 m
Clos de Miroir (private)
Motown miroir (private)
Residence Dewez (citydev)
b
b'
Child care
BGHM - SLRB
a
a'
under construction

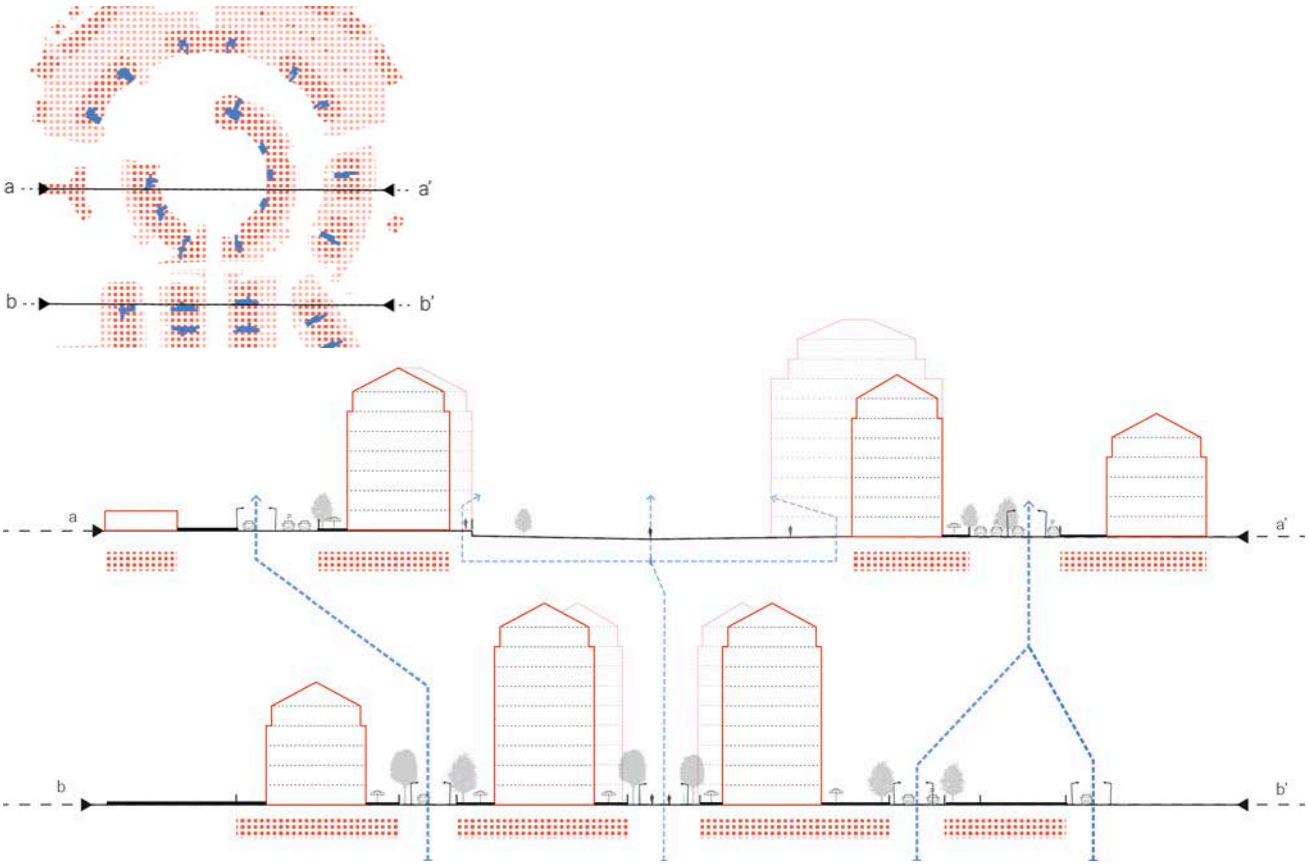
5.3.4 | Les Jardins de Jette (Brussels)

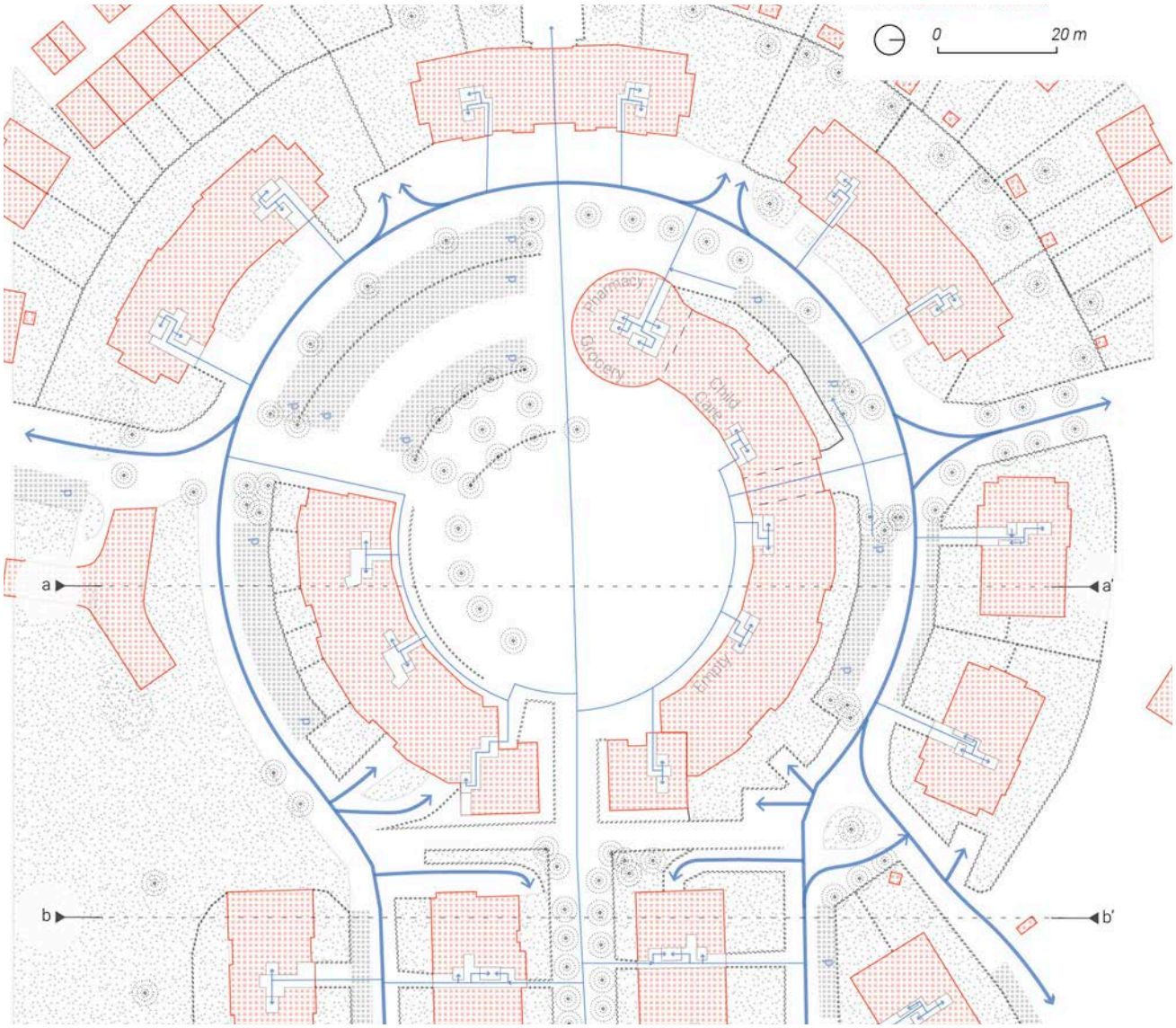
During the 1970s and 1980s, the Brussels region was in a housing crisis (Dessouroux et al., 2016); with a massive migration from the middle class to the outskirts, Jette experienced for the first time in decades a steady but continuous population decline, parallel with the regional average. Within this context, the large-scale suburban neighbourhood development of "Les Jardins de Jette" should be seen as a direct response to the urge of many Brussels households to suburbanise in the 1970s and 1980s. The project, at the initiative of Mayor Jean-Louis Thys and alderman Hervé Doyen, involved the sale of 140,000 m² of municipally owned farmland close to the regional border and the ring road. The development was monitored under the close eye of the municipal administration and the sale was subject to strict preconditions: the buyer - "Tijdelijke Vereniging Jette", cooperation between CFE group (BPI) and Dewaele real estate management - was obliged to sell 80% of the residential park as 'conventional homes' with limited access conditions and with the obligation for the residents to occupy the home for 10 years (Gabriel, 1998). The remaining 20% could be sold at market rate. 40,000 m² of the 140,000 was designated in the GDP as office space intended to bring a functional mix to the neighborhood and to compensate project developers for the limited profit margins on the conventional homes (Declève et al., 2009). The developer was responsible for the construction of the public domain; the streets, squares and public greenery. The residential part was carried out in 7 phases, with the outer parts (detached, semi-open and closed single-family homes) being delivered first, working towards the denser parts in the centre of the land development project. In the end, only 50% of the designated office zone was sold due to limited interest. The other half was left vacant for 10 years, and eventually sold to real estate promoter Immpact Vastgoed NV. There was a growing awareness among the municipality that the original regulations did not meet the demand for additional housing; under the pressure of the new owner, the part of the original GDP was abolished and the zone could be used for a residential real estate project (Jette, 2007).

Adress:	Dikke Beuklaan / Tentoonstellingslaan, 1090, Jette
Previous use:	Grassland (municipally owned)
Current Ownership Structure	Individual housing units in private ownership (mix owners & rentals)
Development by:	Phase 1: Temporary association JETTE (Groupe CFE & DE WAELE). Phase 2: Immpact Vastgoed NV
Architect:	Asssar CVBA & COOPARCH
Program:	1032 apartments & 150 single family houses (+ creche, pharmacy, grocery, office space)
Height:	10 storeys; +- 30 m
Terrain Surface:	137.517 m² with public area
Density:	75 units/ha
Cost:	+- 2400 euro/m²
Start project:	1992 & 2008 (begin construction)
End Construction:	2010 - 2014





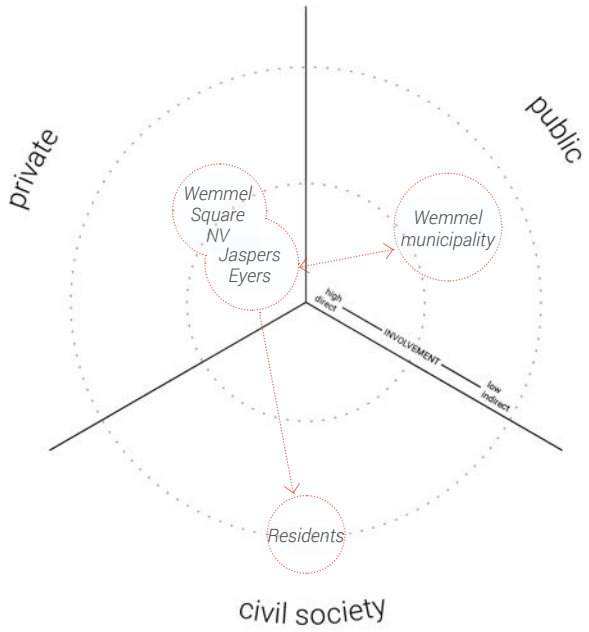

a
a'
b
b'
a
a'
b
b'

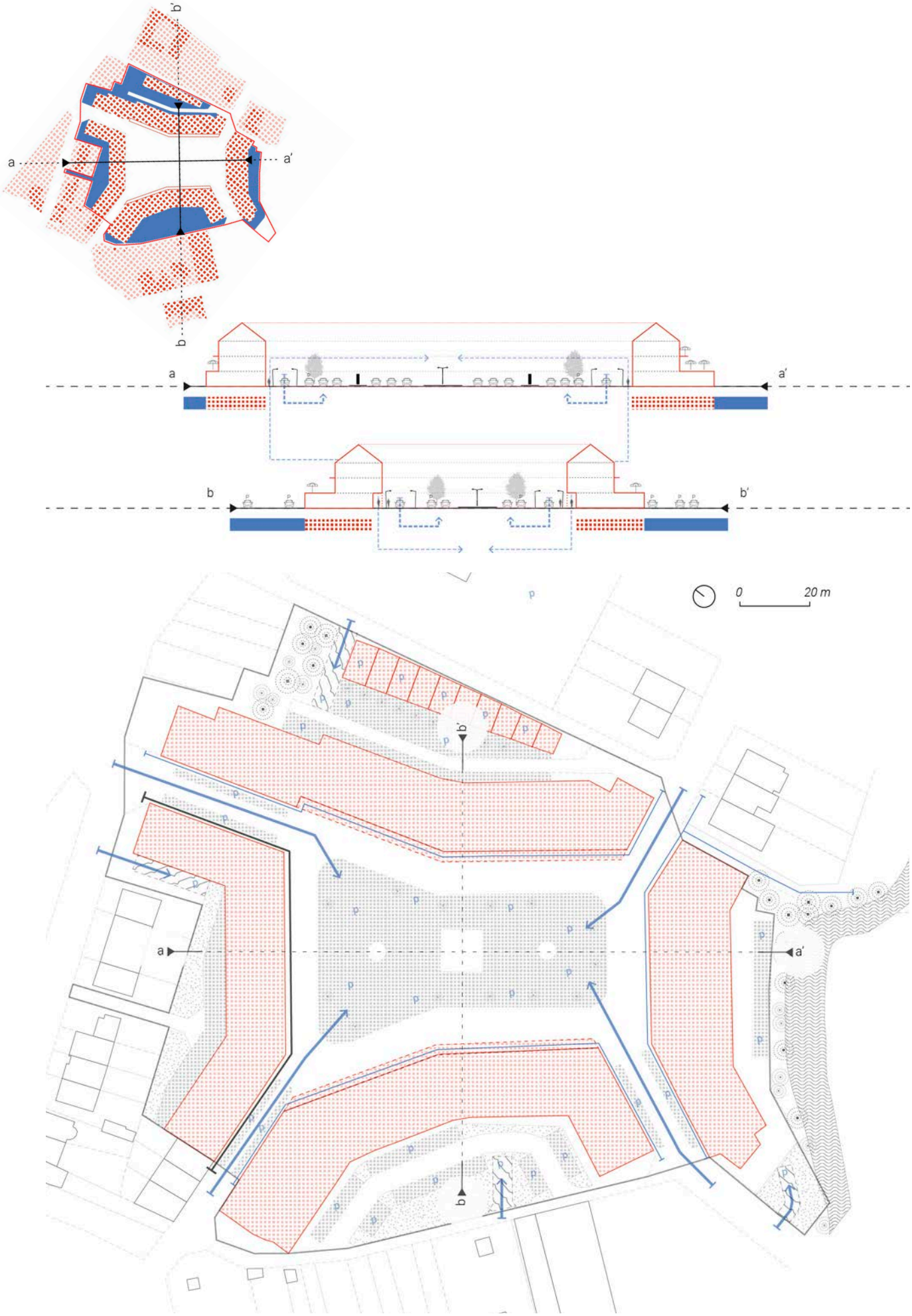

0
20 m
a
a'
b
b'

5.3.5 | Wemmel Square (Brussels region)

Wemmel, organically grown during the 19th and 20th century, was one of the few Belgian municipalities without a central square. The centrally located plot (formerly open grassland) of todays 'Wemmel Square' presented itself as an opportunity to install a commercial center for the municipality of Wemmel. Originally reserved on the regional zoning plan as building land, the municipality negotiated with the private owner (Pierre de Vuyst) to develop a multifunctional development around a central square. The ground floor is owned by Wemmel Square NV and rented out to commerces (mostly clothing and cosmetics shops). Apart from some apartments, the residential units were sold to individuals. Today, the central market square functions in weekends as a market place, and in weekdays as a parking space. Parking space was not be provided underground (flood risk), but was installed on the square and on a adjacent plot on the east side of the square.

Adress:	Markt, 1780, Wemmel
Previous use:	Grassland
Current Ownership Structure	Individual housing units in private ownership (mix owners & rentals)
Development by:	Wemmel Square NV
Architect:	M & JM Jaspers J. Eyers & Partners
Program:	160 apartments & 150 single family houses (+ commercial space on ground level)
Height:	4 storeys (+- 12 m)
Terrain Surface:	27.971 m² with public area
Density	57 units/ha
Cost:	+- 3300 euro/m²
Start project:	1998
End Construction:	2014

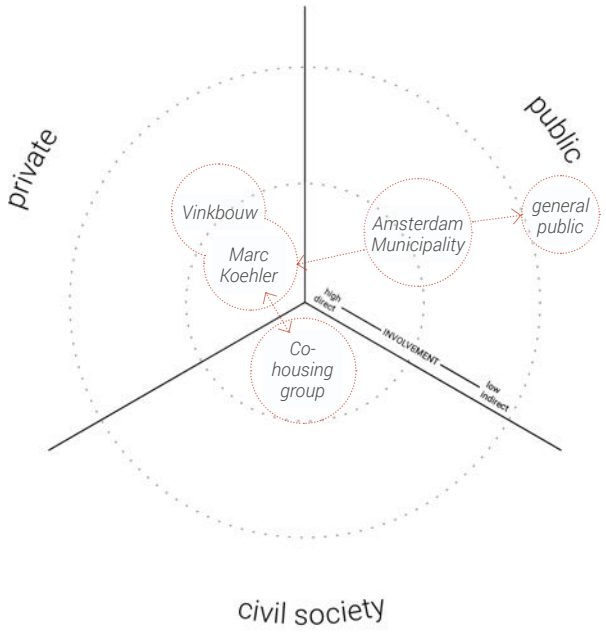


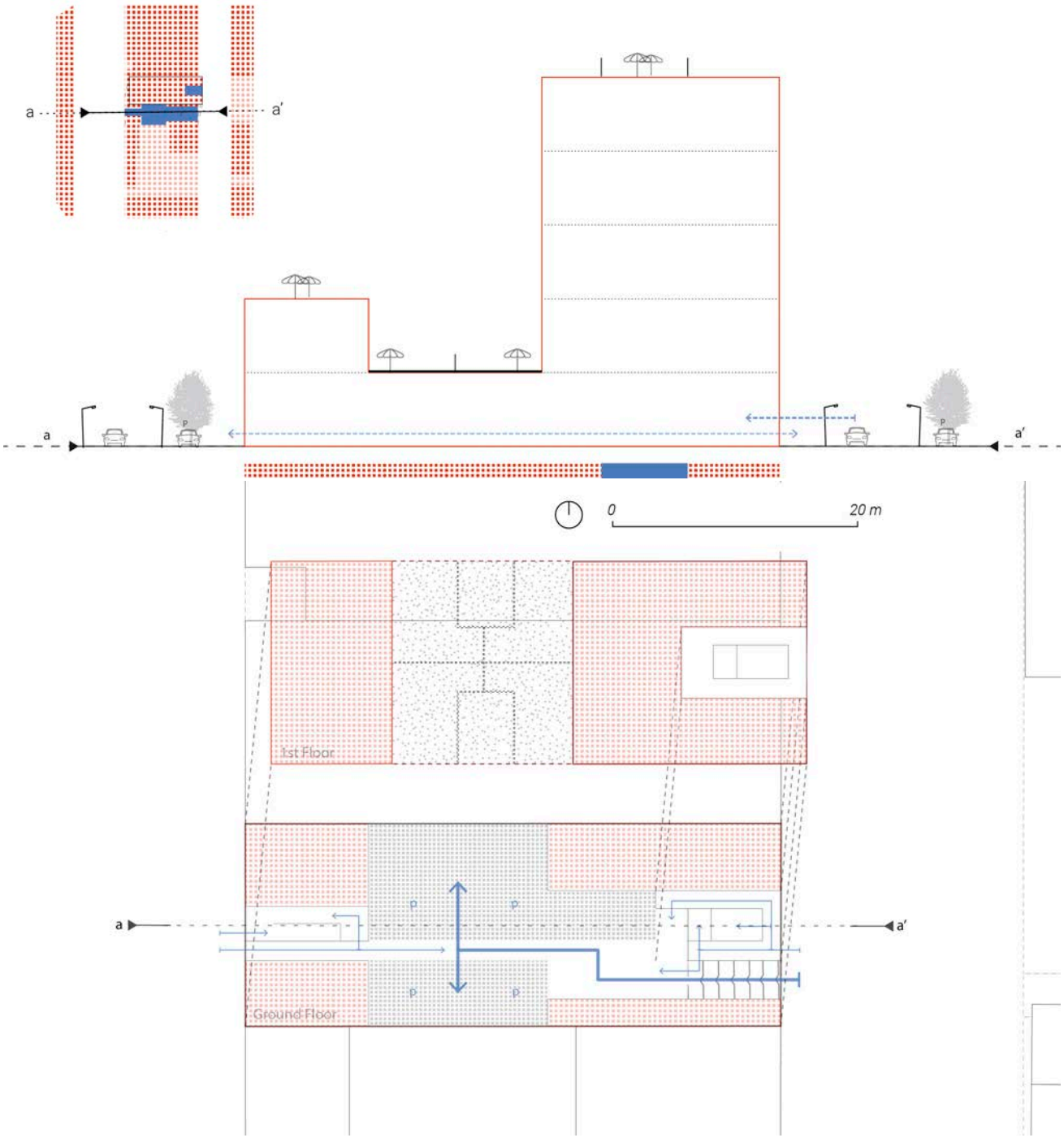

a
a'
b
b'
0
20 m

5.3.6 | Superlofts (Amsterdam)

In the large redevelopment zone to the north of the IJ, the municipality of Amsterdam has set aside 30% for 'self-build' initiatives. In order to avoid the financial risk of a regular Collective Private Clientship (CPO or 'regular co-housing'), Marc Koehler Architects (MKA) introduced co-contracting ('Mede-Opdrachtgeverschap' - MO) for the plot at Buiksloterham. In this adapted formula, a consortium between architect, construction supervisor and/or contractor takes initiative and, after obtaining building rights, launches a call for candidate buyers. The private consortium takes up the prominent role as project developer and pre-financer and the basic programme and design is predefined by the architect. For the plot at Buiksloterham, MKA used a design concept called 'Superlofts', the basic idea consisting of stacking up individual 5 m high empty-shell units. Candidate-purchasers can, after payment of €1000, indicate their preference in terms of orientation, size and storey of the individual unit, after which the architect refines the structure of individual and collective parts (roof terrace, design of the balconies and façade material) in consultation with the future occupants. The detailed design of the individual units (layout, use of materials and degree of finishing) is left entirely to the buyers. The residents can finish their own residential unit themselves, or call in an external interior architect and contractor.

Adress:	Ridderspoorweg 121, 1032 KE Amsterdam, Nederland
Previous use:	Industrial area
Current Ownership Structure	Private ownership (land owned by municipality of Amsterdam)
Development by:	Superlofts (Marc Koehler Architects, Vinkbouw & group of residents)
Architect:	Marc Koehler Architects
Program:	19 lofts (41 m² - 100 m²)
Height:	5 building layers; 29 m
Terrain Surface:	719,4 m²
Density:	267 units/ha
Cost:	+- 3800 euro/m² (empty shell)
Start project:	start 2015
End Construction:	summer 2016

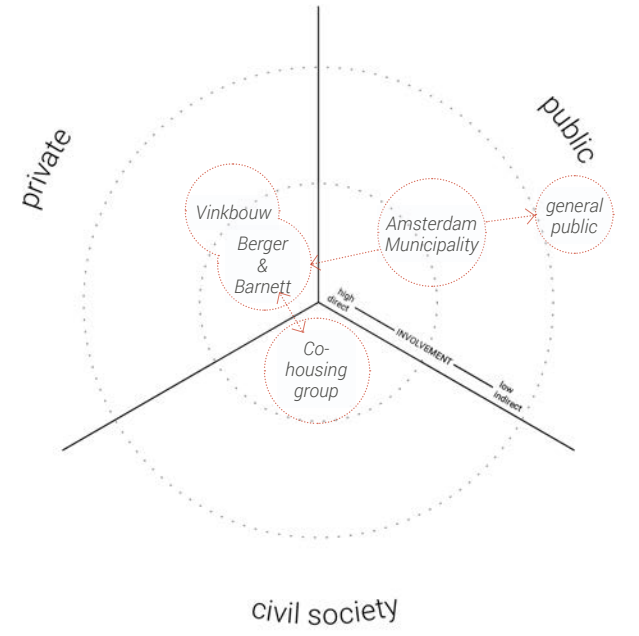


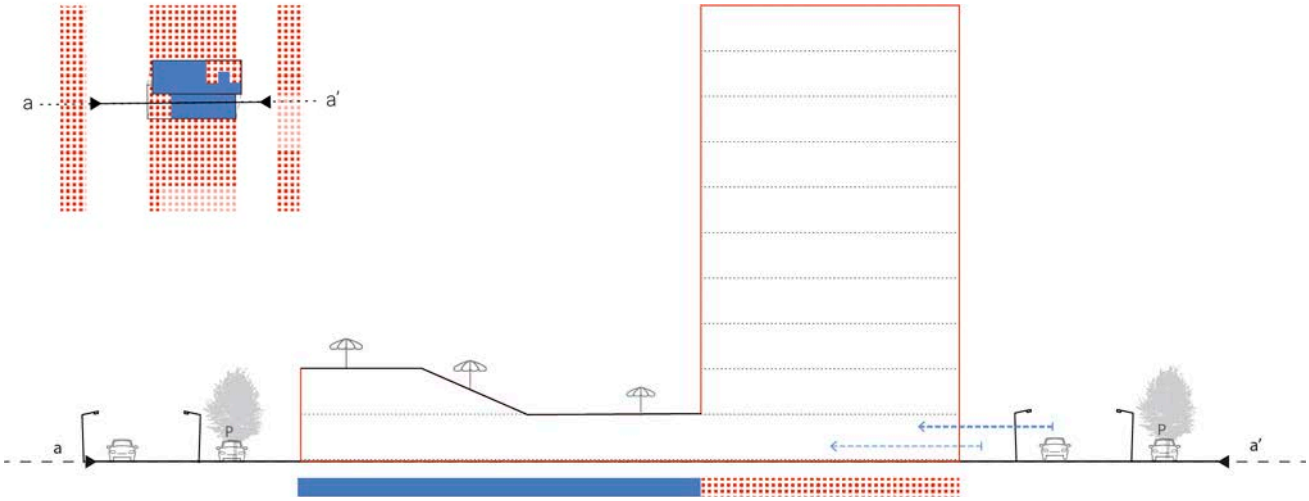

a
a'
a
a'
0
20 m
1st Floor
Ground Floor
a
a'

5.3.7 | Noord4Us (Amsterdam)

Noord4Us is a housing project located on the same 'self-built' zone as Superlofts, and is built using a similar development model. Berger-Barnett architects (BB-architects) in consortium with the contractor (Vinkbouw) were selected by Amsterdam because of their experience in CPO (co-housing) projects. For the plot of Noord4Us, BB-architects chose for a co-contracting structure (MO-model), involving the residents after the initiation phase. During a 'self-construction fair' the architect could actively look for interested parties. After enough candidates were found, monthly meetings were held to specify the details of the project. BB architects had an important role in the design and programme of the project; according to the residents BB-architects introduced the idea of sharing space to maximally benefit from the limited building area. Despite the similar conditions, Noord4Us is in contrast to Superlofts thus remarkably more collectively oriented, with several collective spaces, such as a shared guest room, a spacious hallway and a collective garden.

Adress:	Ridderspoorweg 115, 1032 KE Amsterdam, Nederland
Previous use:	Industrial area
Current Ownership Structure	Private ownership (land owned by municipality of Amsterdam)
Development by:	Berger-Barnett architecten & Vinkbouw with group of residents
Architect:	Berger-Barnett architecten (Peter de Jager, Lard Joor dens)
Program:	14 housing units (37 - 192m²) + collective garden + guest room + parking space + storage rooms + office space
Height:	9 building layers; 29 m
Terrain Surface:	719,4 m²
Density	197 units/ha
Cost:	+- 3350 euro/m²
Start project:	2013
End Construction:	2016

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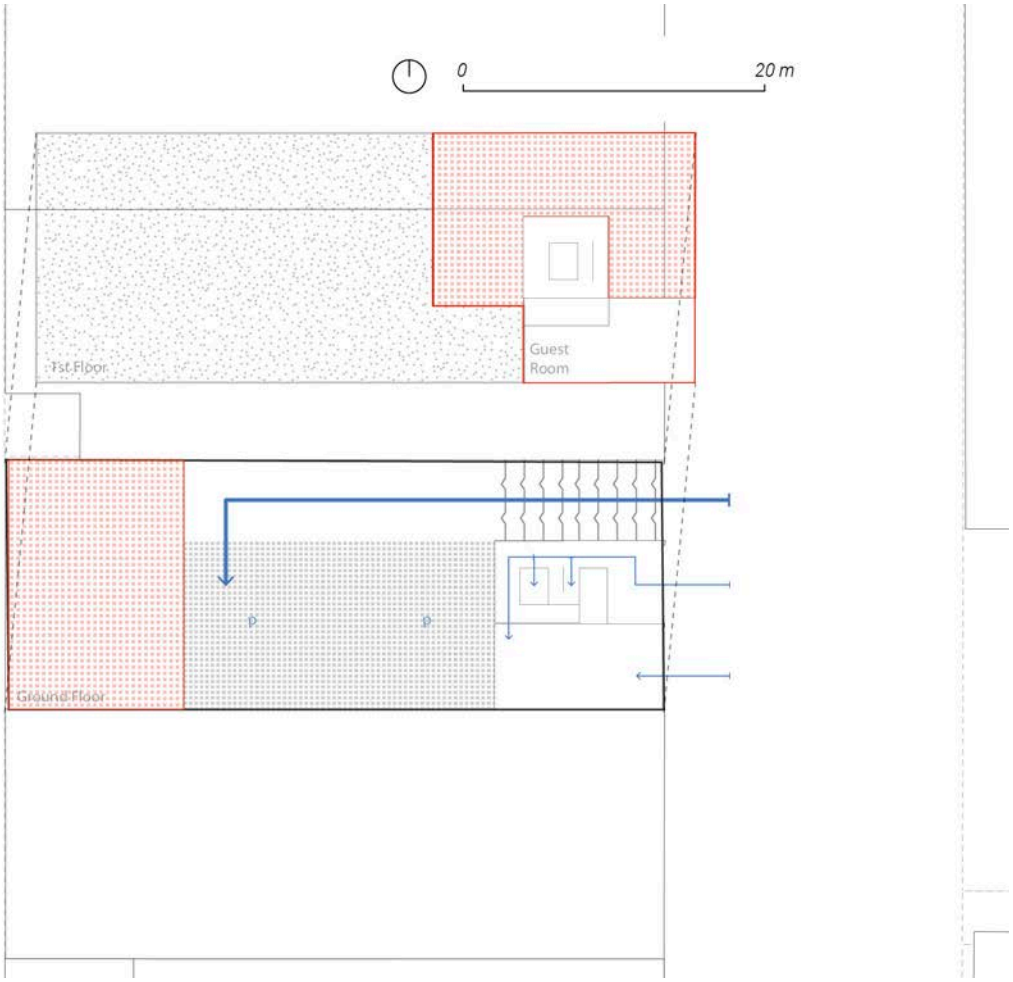
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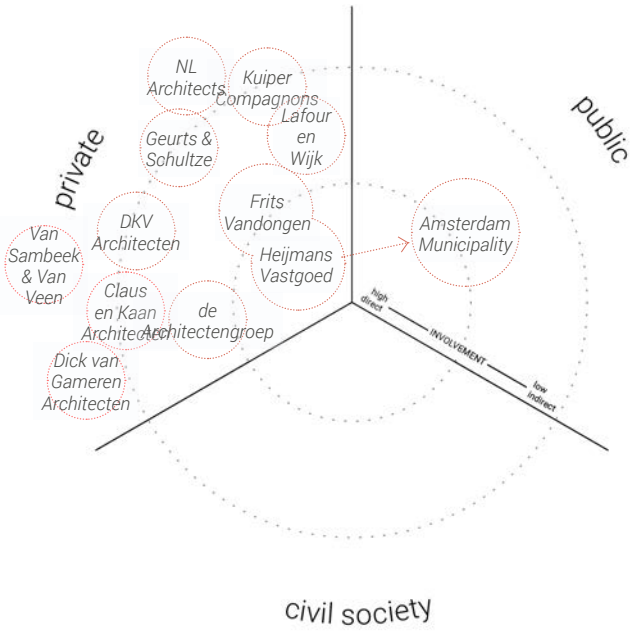
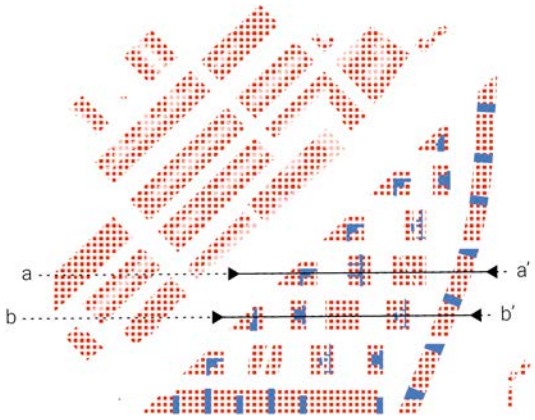
20 m
Tst Floor
Guest
Room
P
P
Ground Floor

5.3.8 | Funenpark (Amsterdam)

The site of housing project 'Het Funen', originally owned by logistics company DHL, was bought by real estate developer Heymans Vastgoed in the early 90s. Private ownership of a 3.5 ha site is an atypical situation for Amsterdam; Heymans Vastgoed takes the initiative, bears the financial risk and makes the final decision about the budget and large parts of the urban and architectural design. Heymans Vastgoed is known as a 'high-risk developer' and opts for an unusual master plan by former state-architect Frits van Dongen. The 8 different architects who designed the freestanding blocks in the inner area were chosen by Frits van Dongen himself. The architects knew each other and were open to the overall concept. With this strengthened negotiating position, Frits van Dongen was able to focus more on the architectural quality without compromising the overall concept. Hilde de Boer (then head of the Amsterdam urban development department) acknowledges that the current success of the district is largely due to Heymans Vastgoed and Frits van Dongen. "The choice not to work with private gardens required a great deal of persuasion from the municipality and the green service. (Luijten, 2011).

Adress:	Het Funen, 1018 AK Amsterdam, Nederland
Previous use:	Transshipment terrain of 'Van Gend & Loos' (DHL-logistics)
Current Ownership Structure	Built area: private; unbuilt: municipality of Amsterdam
Development by:	Heijmans Vastgoed in partnership with housing corporation 'The key' and 'Direct Wonen' Real Estate
Architect:	Frits Van Dongen (master plan); de Architecten Cie, de Architectengroep, Claus en Kaan Architecten Amsterdam, DKV Architecten bv, Geurts & Schultze, KuiperCompagnons, Lafour en Wijk, Van Sambeek & Van Veen, NL Architects, Dick van Gameren Architecten
Program:	private units + social units + various services (551 units, 3000 m² office space, 395 parking spaces)
Height:	exterior: 9 building layers; interior: 3 - 6 building layers
Terrain Surface:	36.000 m² (62.040 m² with public parc area)
Density:	89 units/ha
Cost:	+- 4000 euro/m²
Start project:	1998 (masterplan); 2001 (start construction)
End Construction:	2006

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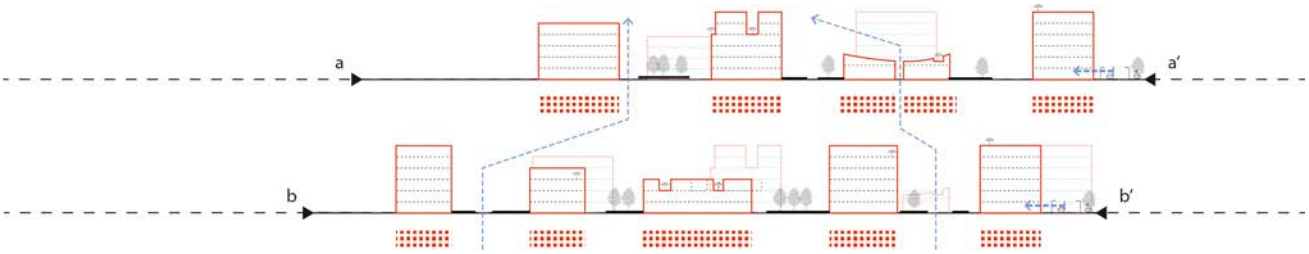
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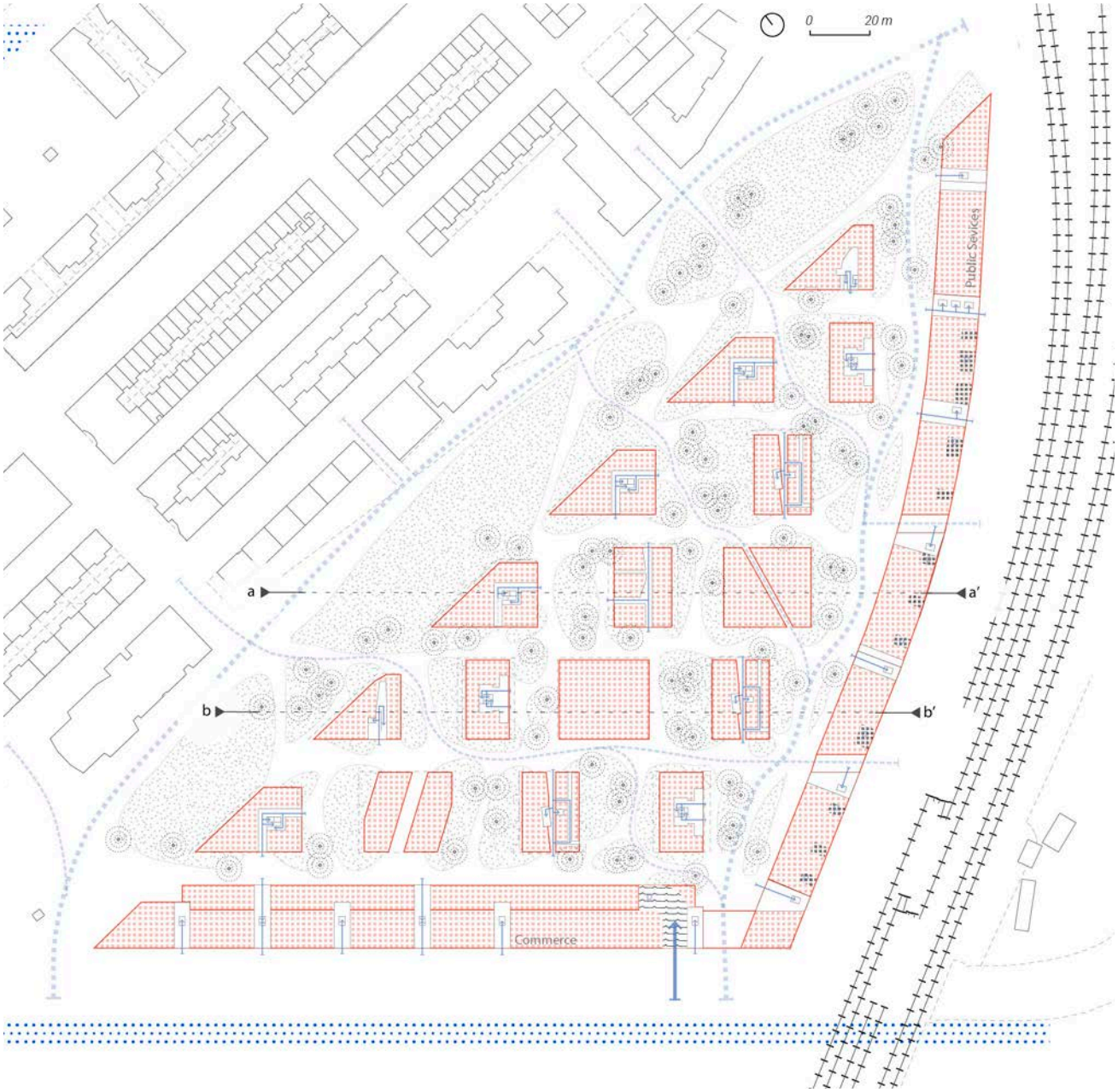
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Public Services
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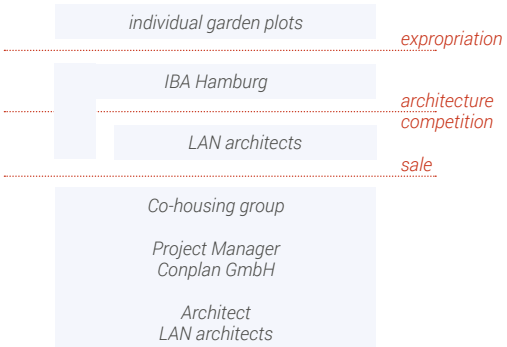
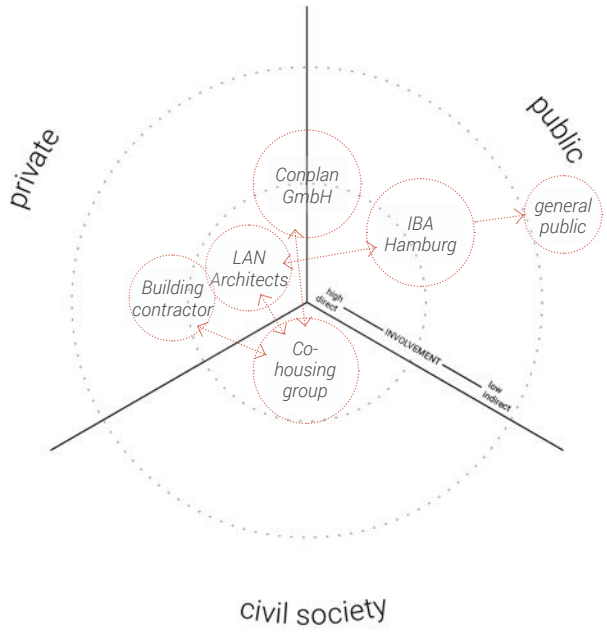
a'
b
b'
Commerce

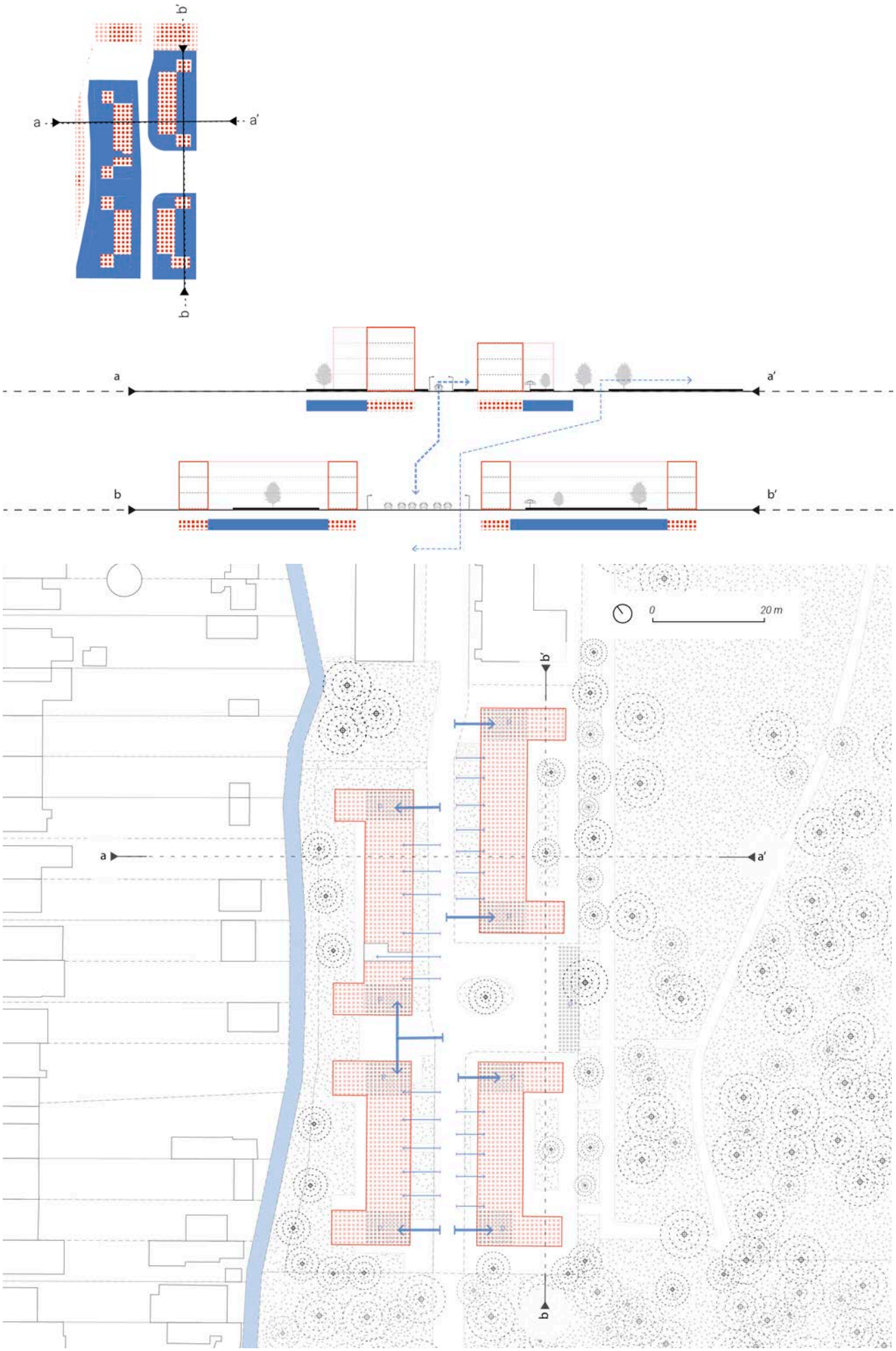
5.3.9 | Neue Hamburger Terrassen (Hamburg)

The Neue Hamburger Terrassen is located south of Hamburg in the district of Wilhelmsburg. The project was developed within the framework of the International Building Exhibition (IBA-Hamburg, 2006-2013) and makes the link with the public park that formed the stage for the International Garden Show in 2013. With a total size of 1.3 ha, the project area was divided into three and a 'mix of thirds' was applied to ensure diversity within the neighbourhood. The first part (northern entrance) contains social rental housing (with crèche), the second part contains classic owner-occupied housing, and the third part contains a cooperative housing project developed by a selected Baugruppe. As the project took place within the framework of the IBA, the development process for the Baugruppe deviated from the classic cohousing model. In this case, the initiative was taken by the IBA Board with the launch of an international architecture competition. The IBA Board thus financed the competition and the choice of architect. Following the architecture competition, an open call to interested Baugruppen was launched by the IBA Board and project supervisor (Conplan GmbH). As the final transfer of the land only took place after the building permit had been granted, the municipality retained a significant degree of control over the programme and design. On the one hand, the increased participation of the municipality ensured a quick delivery and a clear added value at neighbourhood level. On the other hand, the participation of the residents was limited to details. The management of the collective housing project largely follows the classical cohousing model. Through a cooperative organisational structure, structural defects with a shared bank account are jointly financed. The collective parts (outdoor garden) were purchased by the cooperative and the management is discussed at the members' meeting on a quarterly basis.

Adress:	Schlöperstieg, 21107, Hamburg, Germany
Previous use:	Private yards
Current Ownership Structure	Private ownership (Baugruppe)
Development by:	Baugruppe
Architect:	LAN architekten + Konerding Architekten BASE
Program:	32 housing units (58-150m²), guest apartment, multifunctional communal indoor space, communal gardens, roof garden
Height:	3 – 4 building layers
Terrain Surface:	4288 m² (5887 m² with roads)
Density:	54 units/ha
Cost:	+- 2500 euro/m²
Start project:	2008 (architectural competition)
End Construction:	2013



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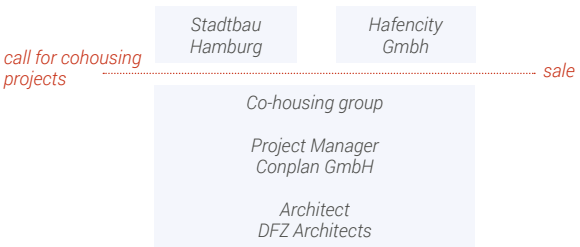
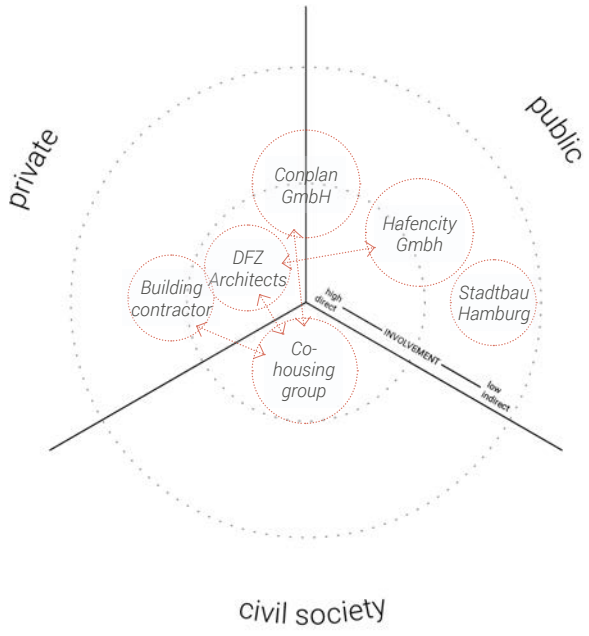
20 m

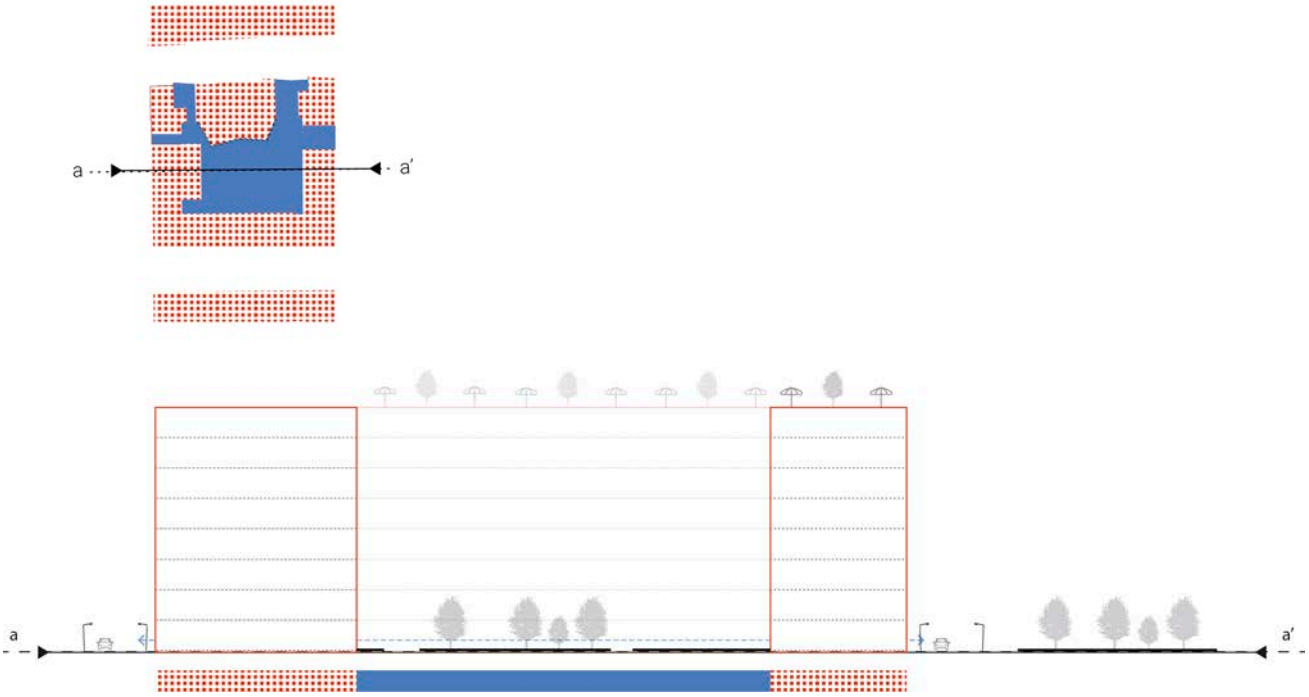
5.3.10 | DOCK71 (Hamburg)

The co-housing project of DOCK71 is located on the edge of the 'Am Lohsepark' and is part of the 'Hafencity', one of the largest reconversion projects in Europe. As the land ownership was issued by the City of Hamburg (through the Port of Hamburg), a social & functional mix and planning & architectural elements could be imposed. The development rights for the building block were allocated in advance to the development company Conplan. Conplan was then responsible for the search for partners to build on the three separate plots according to the 'mix of thirds; in addition to a social housing company and an established - large-scale - cooperative building company, a Baugruppe was selected via the regular open call of the public co-housing office 'Agentur für Baugemeinschaften'. Conplan, as project manager, takes over some important tasks from the Baugruppe (coordination with building partners and decisions on collective parts and the overall concept such as the inner garden, urban development & choice of architect). Within the restrictions imposed by the masterplan and Conplan, the residents could, through thematic working groups, further decide on their own plot of land.

Adress:	Kobestraße, 20457 Hamburg, Germany
Previous use:	Port area
Current Ownership Structure	Private ownership (Baugruppe)
Development by:	Baugruppe
Architect:	DFZ Architects
Program:	65 housing units, commercial space, shared multi-functional indoor area, child care, shared garden and rooftop terraces
Height:	8 building layers
Terrain Surface:	2342 (building plot with 1/3 garden); 5700 m² (building block)
Density:	277 units/ha
Cost:	3400 euro/m²
Start project:	2012
End Construction:	2016



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Yokohamastrasse
Child Care
Coffee Bar
Coffee Bar
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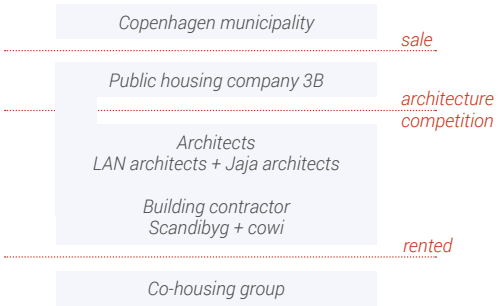
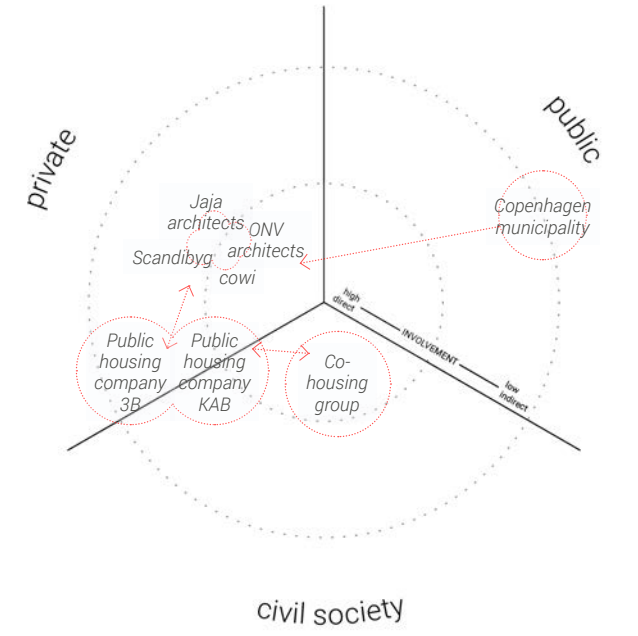
a'
Shanghaiallee
Am Lohsepark
Kobestrasse

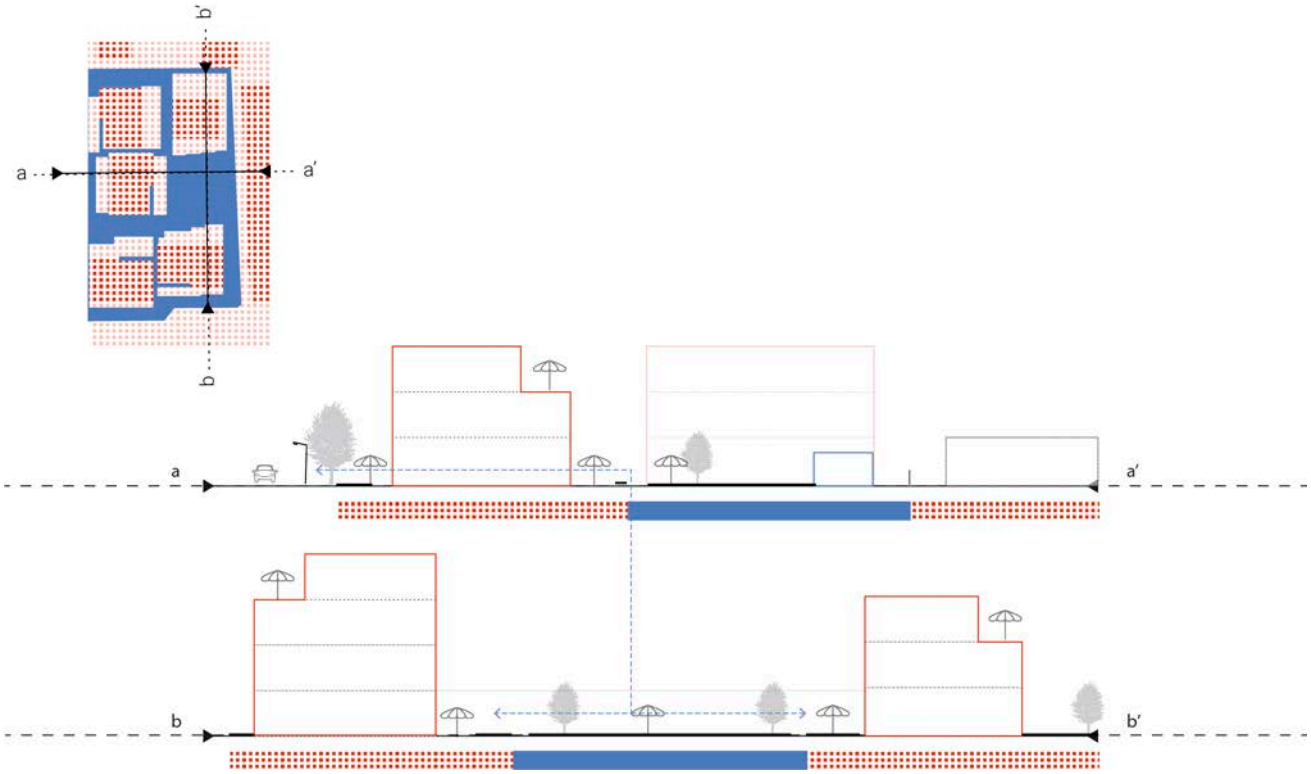
5.3.11 | Kløverbladsgade (Copenhagen)

Kløverbladsgade 51, a former industrial site in a suburban area west of Copenhagen, was purchased by the public housing company 3B to participate in a large-scale housing programme (Almenbolig+ - AB+), in order to cope with rising land prices in Copenhagen and the increased demand for affordable housing (Dagbladet Information, 2016). In order to save costs, the AB+ model is based on an industrialised production of modular units through large-scale tenders. For each tender (+- 500 residential units), an open competition is launched to which consortia of architects and contractors can subscribe. The winning design by ONV architects and Jaja-architects for the tender of Kløverbladsgade is based on the same basic design that is replicable but typologically different through variations in placement and stacking of modules. The type modules are prefabricated on a large scale and assembled at the building site. The finishing of the interior spaces is outsourced to the residents. Residents can, in consultation with the housing company, adjust the spatial layout (additional interior walls) and, if preferred, make other adjustments with regard to the wall cladding, floors, kitchen and bathroom. AB+ is based on the principle of 'self-management'. In contrast to traditional public housing projects, the maintenance of the gardens and minor repairs are entrusted to the group of households, removing the need for maintenance staff and thus reducing monthly rent.

Adress:	Kløverbladsgade 51, 2500 København, Denmark
Previous use:	Industrial zone
Current Ownership Structure	Public housing company 3B (rental)
Development by:	Public housing company 3B
Architect:	ONV architects & Jaja architects
Program:	60 housing units (86 to 130 m²)
Height:	4 building layers
Terrain Surface:	3600 m²
Density:	119 units/ha
Cost:	+- 1400 euro/m²
Start project:	2014
End Construction:	2018



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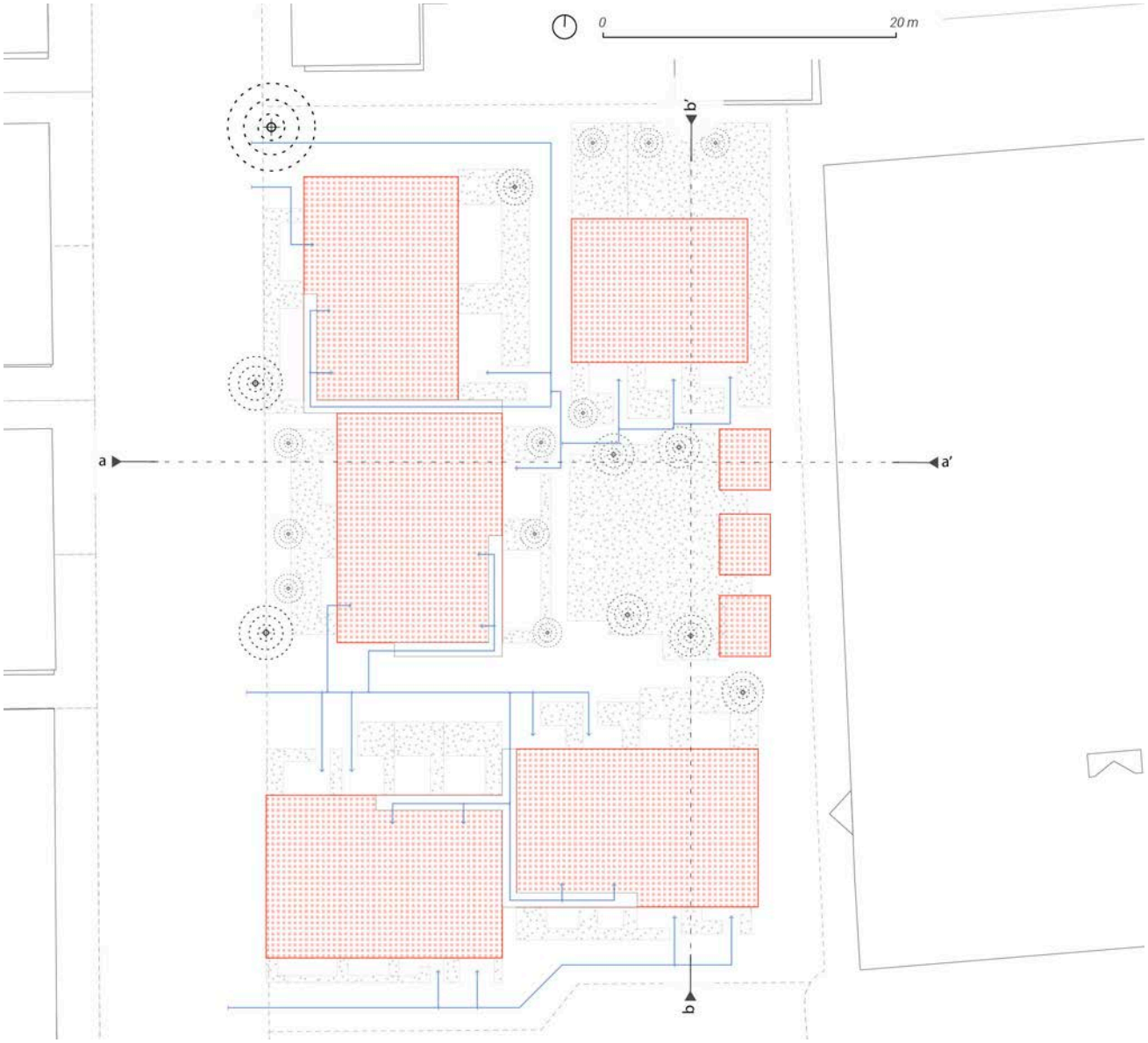
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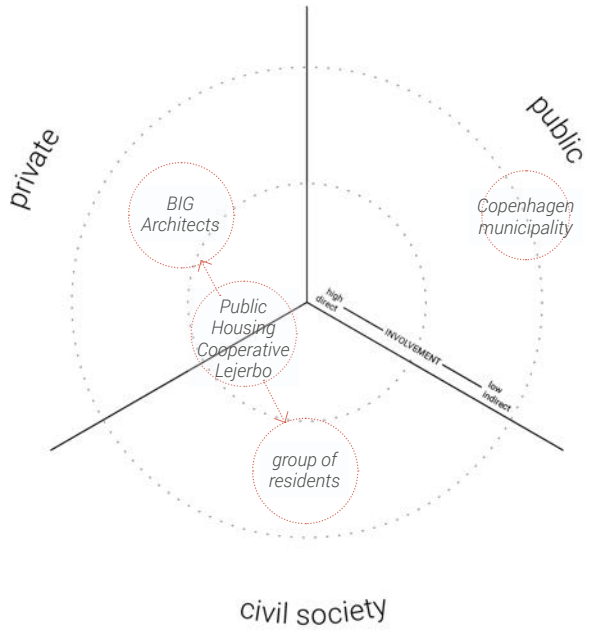
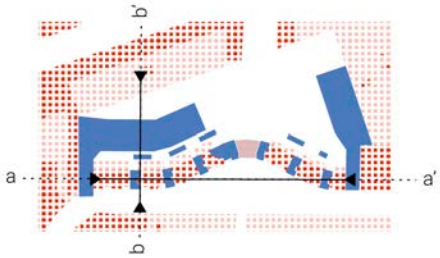
5.3.12 | Dorthaevej (Copenhagen)

The housing project of Dorthaevej is located in a suburban working-class neighbourhood in north-western Copenhagen, dominated by cooperative 20th-century multi-family housing and a mix of industry and housing. Lejerbo, the largest non-profit housing company in Denmark (Stender, 2019), bought warehouses from DONG for a redevelopment into affordable housing with the aim of 'redefining' the role of public housing. To this end, Lejerbo teamed up with Jan Gehl Architects to devise a long-term strategy for the production of affordable high-quality housing in combination with lively and meeting-friendly public spaces. The strategy could be tested for the first time in Dortheavej with the involvement of BIG- architects (Bjark Ingels Group). The project aims to serve as proof that public housing does not have to sacrifice on high quality architecture. However, the strategy differs mainly in terms of design and construction techniques (modular structure & minimal finishing); the programme and the organisational and management structure retain the characteristics of the regular public housing sector.

Adress:	Dortheavej 2, 2400 København, Denemark
Previous use:	Storage facilities Dong
Current Ownership Structure	Public housing cooperative Lejerbo
Development by:	Public housing cooperative Lejerbo
Architect:	BIG Architects
Program:	66 apartements: sociale housing (2,3,4 kamers, 60-115m2) + student housing (36m²)
Height:	5 building layers
Terrain Surface:	6.284 m²
Density:	90 units/ha
Cost:	+-1400 euro/m²
Start project:	2014
End Construction:	2018

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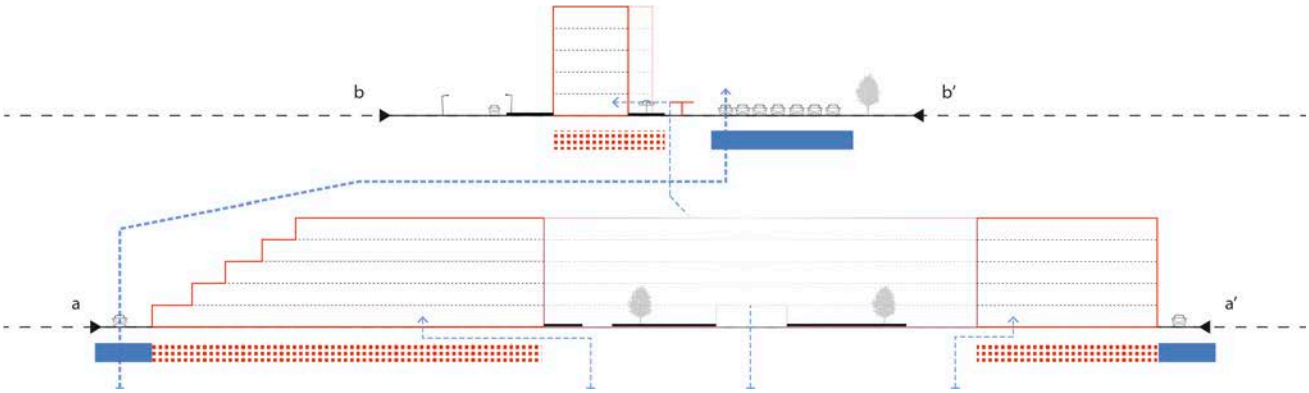
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b

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