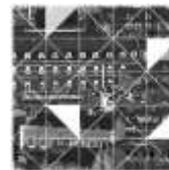# CIDADES, Comunidades e Territórios

Modernist High-Rises in Postwar Antwerp. Two Answers to the same Question

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Abstract

As recent international scholarship has shown, the Modern Movement was not as coherent as authors such as Sigfried Giedion or Nikolaus Pevsner have claimed. Post-war modernism in particular has many faces. Although architects produced similar housing typologies that are presented in collective works of social housing within the same category, the architects could still take different positions. By means of a comparative analysis of two radical modernist high-rise housing projects in Antwerp, this article demonstrates how the focus of the design of similar projects could still differ considerably. Designed by Renaat Braem, the Kiel housing estate (1953) in the south of Antwerp will be compared with Hugo Van Kuyck's Luchtbal housing estate (1954-1962) in the city's north. Although both complexes are social housing blocks raised on pilotis, they differ in size, concept, architectural quality and degree of detailing, but also in ideology and utopian content. Both architects shared a fascination for Le Corbusier's Ville Radieuse and for the Athens Charter (1933), and held a belief in progress and the need for a new idiom. At the same time, however, they have different ways of dealing with modernity. I will employ the analytical framework developed by architectural historian Sarah Williams Goldhagen (2000) to shed light on the architects' different positions on the social and political axes.

Keywords: high-rise buildings; modernism; Belgium; Antwerp; apartment; Luchtbal; Kiel.

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Antwerp, an exception in the Flemish landscape

In the aftermath of World War II, Belgium faced a serious housing shortage, like the rest of Europe (Caramellino, Zanfi, 2015; Bervoets, Hard, 2010; Van Herck, Avermaete, 2006; Betts, 2005). Although the majority of the surrounding countries resolutely chose for high-rise buildings to solve the housing crisis, this was not the case for Belgium. The Christian Democrats, who dominated the political landscape, argued for detached single-family homes in the countryside, their electoral territory. The De Taeye Act (29 May 1948) – named after its proposer, the Christian Democrat minister Alfred De Taeye – granted premiums to individual homebuilders and provided a state guarantee for mortgage loans (Theunis, 2006: 67-77). As a result Belgium, and especially Flanders, the country's northern region, witnessed an early rise in home ownership – today 70.4 % of Flemish households live in a home they own (Winters, et al., 2013: 28).[3] The Social Democrats, by contrast, mainly promoted high-rise buildings and large housing complexes in urban areas where the employment rate was high.[4] On 15 April 1949, a second housing act, the Brunfaut Act – named after the Socialist member of parliament Fernand Brunfaut and regarded as the Socialist counterpart to the De Taeye Act – made provisions, not only for regular annual financing in respect of the construction of housing clusters by semi-governmental and recognised social housing associations, but also for street layout, including paving, public utilities such as drainage, and open-space planning, etc. That act was an instrument to promote high-rises, but also clustered low-rise social housing estates. In 1980 about 25 % of the Flemish housing stock consisted of apartments, which shows how high-rise buildings kept a low profile in Flanders (De Decker, Ryckewaert, Vandekerckhove, Pisman, 2010: 42).

In Antwerp, a big harbour city in the north-east of Belgium, however, the Social Democrats, who had been in power since World War II and even before, opted radically for social high-rise housing (Bertels et al., 2010: 54). During the 1920s and 1930s, the Antwerp social-housing companies had realised several high-rises in the urban development form of a perimeter block. They were mostly in an art-deco style and contained communal courtyards (sometimes laid out as communal gardens), offering modern comfort and mostly communal facilities such as dry attics, dirt slides and shops downstairs (Laureys, 2004: 110). From the mid 1920s, the apartment building also became a popular typology among the Antwerp bourgeoisie, but in a more bourgeois version. As architectural historian Dirk Laureys (2004: 110) argues, during the economic crisis of the 1930s the apartment was a cheap and at the same time comfortable dwelling; moreover, a one-floor dwelling reduced the need for domestic servants, and it was a good investment as well. The art-deco apartment buildings were mostly situated near parks and broad avenues or on corners. About 1933 the first free-standing apartment buildings were initiated in the Antwerp region (Laureys, 2004: 112).

The plots of land on which the post-war high-rises were built had already been purchased during the 1920s by the city of Antwerp on the initiative of John Wilms, the alderman of city properties (Strauven, 1983: 65). As a Socialist, Wilms was concerned with the workers' harsh living conditions and pleaded for decent housing. The plots were quite cheap, because they were situated on the city's fringes, some even on the left bank of the Scheldt, the river which divides Antwerp in two. Although during the 1930s an international competition had taken place for the development of the left bank – which Le Corbusier, among others, had taken part in – that side remained untouched until the late 1960s. In the immediate post-war decade, the three recognised Antwerp social-housing companies built and financed a huge housing complex on the other terrains. The city offered each of them a terrain and became a shareholder of each company: Our Dwelling (Onze woning), Good Dwelling (the good house) and S.M. Housing-Antwerp (S.M. Huisvesting Antwerpen). The joint assembly of these companies consisted of Social Democrats as well as Christian Democrats, which resulted in a compromise. On the terrains, a mix was built of low-rise houses for the elderly and large families, on the one hand, and, on the other, apartment buildings for the others. Although the Christian Democrats were not in favour of high-rises, they

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[3] However, the percentage of Flemish homeowners has fallen by 4.6 % over the past decade. According to figures from the inter-university housing research group 'Steunpunt Wonen', home ownership rates decreased from 75 % to 70.4 % between 2003 and 2013.

[4] Of course, in reality the distinction is not as clear-cut. There were Socialist mayors who supported the construction of detached single-family houses, and Christian Democrats were also involved in social-housing projects. The Christian Workers' Movement even founded a Christian Central for Housing, an advice and study service and social-housing company, in order to have more influence on the social-housing sector (De Vos, 2012: 45). But these two (opposed) visions help understand the main driving forces of the housing policy.

agreed to them because they expected them to reduce the suburbanisation around Antwerp, including its corresponding loss of citizens.

The social housing company S.M. Housing-Antwerp commissioned the young modernist Renaat Braem, in cooperation with Viktor Maeremans (a Socialist) and Hendrik Maes (a Catholic), for the Kiel housing estate (in the south of Antwerp, near Petrolium South, a petrochemical industrial park); Our Dwelling commissioned the renowned Hugo van Kuyck to design the Luchtbal housing estate on a site in the city's north, near the harbour; The Good Dwelling commissioned the older Jos Smolderen, in cooperation with Hendrik Maes, to develop the Jan De Voslei housing estate (near the Kiel estate) (Strauven, 1983: 66). At first glance, the projects have a lot in common. And yet each project differs in size, design and degree of detailing, but also in ideology and utopian content underlying the project. By means of a comparison between the Kiel housing estate and the Luchtbal housing estate, this article reveals how their modernist architects gave a different answer to the same question of designing an avant-garde, modernist, high-rise social-housing project. I will make use of a framework for analysis developed by architectural historian Sarah Williams Goldhagen (2000: 302-323).

A framework for the analysis of the multifaceted Modern Movement

As recent international scholarship has shown, the early Modern Movement was not as coherent as writers and polemicists such as Sigfried Giedion or Henry-Russell Hitchcock and Philip Johnson have suggested. The modernist architects shared certain ideas and values, but were more diverse than certain canonical presentations of the Modern Movement claimed. This is even more the case for the post-war Modern Movement. In order to systematically analyse the historical reality and complexity of the Modern Movement, Sarah Williams Goldhagen (2000: 302-303) argues that we have to "dig beneath style to get at the movement's generative principles", which are "interlocking cultural, political, and social dimensions that together constitute the foundation of modernism in architecture". She developed an analytical framework to position the modernist protagonists on three different axes: cultural, political and social. On the cultural axis, all modernist architects and theorists agree that tradition bears no authority and they all reject the authority of classical precedents. However, some expect that their architecture might lead to a 'new tradition', while others are more in favour of a process of continuous invention. On the political axis, Williams Goldhagen (2000: 304-305) distinguishes three branches. First, there are the so-called consensuals, who agree with the existing political and economic order and see it as their task to "revamp architecture so that it effectively supported the extant political and economic institutions". By means of their modernist design, they have to make people aware of the changing conditions they are living in. The second branch consists of the so-called negative critics, people who disagree with the existing conditions and plead for revolution. The third and last branch, the reformists, are situated somewhere in-between, and they advocate considerable change within the existing political and economic structures. Alvar Aalto and Le Corbusier are placed in that category, because they accepted the conditions, but they believed it was their duty "to create an idiom that would, facilitate social progress and (…) diminish the social injustices, inequities, and conflicts and allay the cultural malaise that capitalism causes" (Williams Goldhagen 2000: 304). However, the three strains have in common that they are convinced of the fact that architecture has a political dimension. On the third axis, the social dimension, architects "agreed that the new architecture should dynamically reflect the essence of their new, industrial age, but they differed on which aspects of this Zeitgeist to celebrate; which, if any, to counteract; and which to ignore" (Williams Goldhagen, 2000: 306-307). Some highlighted the dominance of industrial technology and the machine, and hence, rationalisation, while others, such as Aalto, Gray or Taut, sought to situate the users of their buildings socially and historically, in place and time, to create what Williams Goldhagen (2000: 306-307) called "situated modernism". Stylistically the work of both – the machine-oriented architects and the situated modernists – can be very proximate, while their position on the social dimension can vary considerably. Whereas the former use the open plan for its tectonic rationalism, the latter use it for the spatial dynamism it afforded. To complicate things, one and the same architect can take different stances in his or her oeuvre. In his early work, for example, Le Corbusier focuses more on the machine aesthetic, while his later work, such as Plan Obus in Algiers or Unité d'Habitation in Marseilles, is more characterised by a situated modernism.

The Kiel estate, showpiece of an enlightened Socialist policy

In the Kiel neighbourhood (Zaanstraat), Renaat Braem had the opportunity to realise his version of the Unité d'Habitation of Le Corbusier, the architect with whom he did an internship in 1936-37. The design comprised three residential blocks (A, B & C) holding twelve floors which are positioned around a square, and six lower blocks holding eight floors which are placed two by two in a zigzag. While the former contain 120 apartments each, the latter contain 69, resulting in about 800 units (Agentschap Onroerend Erfgoed, 2016).

The first stage comprises the highest housing blocks along with a building for the oil-fired heating system for the heating of the whole estate, and a complex of five shops with a fourth lower building (block DE). During the first stage (1951-55), blocks A, B, C and DE with the shops were built. In a second stage (1955-58), the other lower blocks were built (D1-D4). In order to reduce costs, the heights of the apartments were reduced and an extra floor was added, bringing it to 9 floors. In a later phase, low-rise housing for seniors was developed. The social centre that Braem had provided was replaced by 40 flats for seniors, as they were more necessary, according to the social-housing company.

Figure 1. First sequence (excerpts) from the video Tedium. Study of sunshine on the buildings


Source: Braem, *Rythme* (1953), p. 13

The commission offered Braem the opportunity to materialise the social utopian ideas that he had developed during his student days. Influenced by the Russian constructivists, he believed that architecture could be a kind of "social condensator" that would lead people away from the pre-existing bourgeois living patterns to a socialist way of living in which communal life was the most important element of daily life (De Vos, 2010: 143). The apartments should be rather minimal, while the communal spaces should be maximised. That was also one of the reasons that he raised his apartment buildings on pilotis, massive columns. The famous Narkomfin Communal House in Moscow designed by Moisei Ginzburg (1928-30), Le Corbusier's Unité d'habitation (1947-52), as well as Braem's own designs from his student days (1934), more particularly his buildings from his linear city (Ryckewaert, 2011: 152), have similar features. The idea behind elevating the buildings was to return the ground level to the community as an open public space. While Le Corbusier provided public facilities on the roof of his Habitation, Braem envisaged collective services on the floor, such as a reception hall and conference room, an outdoor playground, a recreation room, and space for shops. Unfortunately, most of them were not realised, although they were important in encouraging community life (Strauven, 1983: 66).

Figure 2. Drawing of Braem's Linear City (student project, 1934)

Source: Renaat Braem Collection, Archives d'Architecture Moderne, Brussels.

Figure 3. View of a Kiel housing block, drawing by Braem (1934)
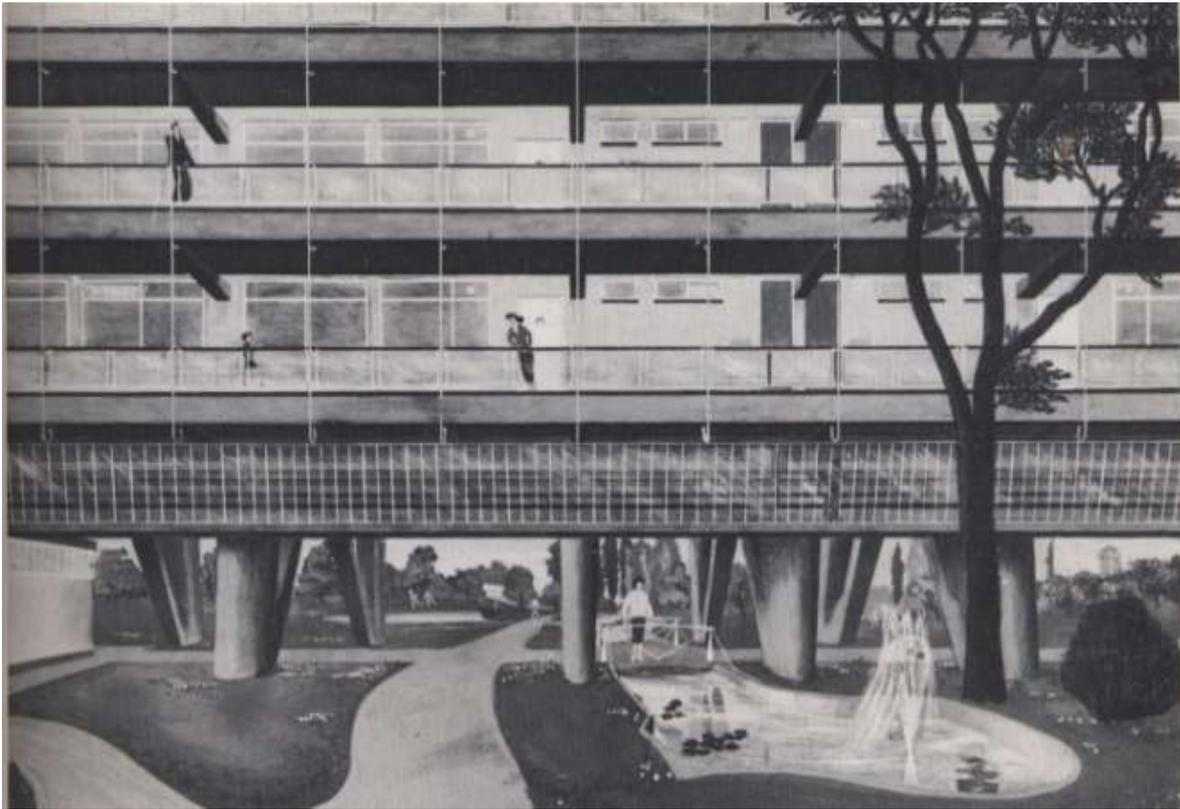
Source: Renaat Braem Collection, Archives d'Architecture Moderne, Brussels.

The project was very innovative in Belgium at the time. The zoning plan, which consisted of open housing blocks surrounded by greenery, was designed according to the CIAM doctrine codified by the Athens Charter (1933). However, Braem did not follow the interwar doctrine indiscriminately and did not place the blocks parallel to each other. As he explained, the zigzagged position of the blocks allowed maximum infiltration of light during "the most unfavourable season, winter", instead of too much sun in the summer and no light in the winter (Maes, Maeremans, Braem, 1954: 50). Also, the windows were proportional to the amount of daylight. He made use of fenêtres en longueur, a horizontal band of windows that offered a panoramic view on the landscape. They were applied in the Narkomfin Communal House of the Russian constructivists and were one of the elements that Le Corbusier defined in his famous Five Points Towards a New Architecture (1926). But while the apartments in Le Corbusier's Unité d'Habitation were rather small and long, Braem's were wide and stretched out along the façade. Braem consciously chose for broad apartments with big windows in order to encourage as much as possible the flow of air and (day)light, which was not a luxury in a country with a rainy climate like Belgium. Le Corbusier, on the other hand, preferred small apartments to keep out the blazing sun of Marseilles. For the same reason, among others, Le Corbusier chose for an inner street (an enclosed corridor), while Braem preferred open galleries that served the apartments. The circulation system of the apartment buildings A, B, C and DE happened by means of open galleries which were loosened from the façade and situated a few steps below the level of the apartments (see following image), so that daylight could enter the kitchen window freely along the split between the wall and the gallery. Because of this split level, visitors had no direct view into the apartment, and the residents could easily overlook the gallery from their kitchen window, as well as the green open space around the buildings. Moreover, sunlight could enter directly into the apartment, falling through the gap between the façade and the gallery (see figure 4) Braem saw the galleries as streets, placed for spontaneous social interaction between the neighbours. With colours and integrated art, he aimed to increase the vividness of the 'streets' (Sterke, 2010; Braeken, 2010: 186). He succeeded in doing so only

partially, because at the time a caretaker prevented the inhabitants from putting furniture on the galleries in order to sit there (Polaer, 204; De Busschere, 2004).

Figure 4. Study of the relation between the apartments and the open gallery in blocks A, B, C
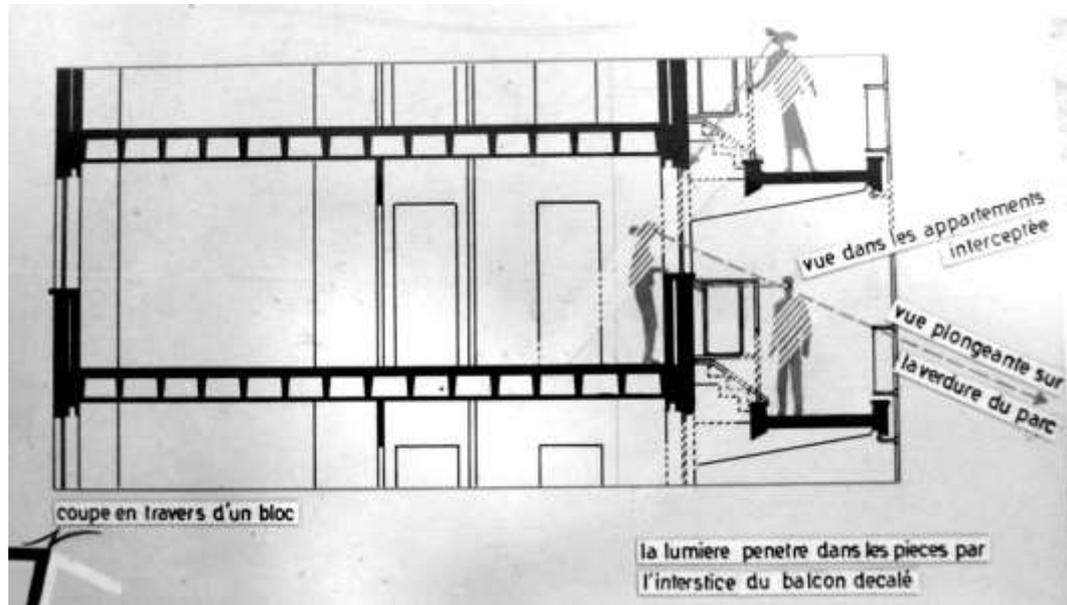
Source: Renaat Braem Collection, Archives d'Architecture Moderne, Brussels.

Figure 5. Split-level between the galleries and the apartments

Source: Photos by the author, 2006. Note also the use of primary colours in the galleries, creating a vivid atmosphere.

Another difference with Le Corbusier's Habitation was the use of traditional bricks for the façades. Although the bricks were coloured in the same primary colours as the concrete panels in the Habitation, the use of local materials can be seen as a way to connect his architecture with the local context. With the layout of his apartments, Braem tried to give the inhabitants "the greatest possible freedom: freedom of movement, a large view and a life in freedom by means of a comfortable arrangement of space" (Braem 1954: 50 quoted in: Sterken, 2010: 185). The equipment of the flats – including central heating and an equipped bathroom and kitchen with a water boiler – had to free women from household slavery. Braem had opted for a Cubex kitchen, designed by Louis-Herman De Koninck, one of the most famous Belgian modernist architects (Van Nuffel, 2014; Maes, Maeremans, Braem, 1954: 52).[5] The kitchen, shown for the first time at CIAM in 1930 and manufactured by the firm Van de Ven, was composed of standardised elements: four cupboard types that could be combined in ten different ways (Van Caudenberg, Heynen, 2004: 23-49; Ruegg, 1989: 187-216).

**Figure 6. The original Cubex kitchen in an apartment of the Kiel housing estate**

Source: Photo by the author, April 2015.

By the same token, the interiors were also designed according to these principles of freedom. Freedom of movement was achieved in the apartment thanks to the layout of the rooms and the furniture arrangement. Serving spaces such as the kitchen or bathroom were kept as minimal as possible, in favour of a large living room that included a dining area as well as a sitting area. Moreover, the dining table was placed with the smallest side against a wall, and not in the middle of the room as was typical for (petit-)bourgeois interiors (see images 7). This literally created more space in the living room. The kitchen was kept as small as possible in order to discourage eating in the kitchen, and to facilitate cooking and other kitchen tasks as in a real laboratory. During his student days, Braem was already fascinated by the laboratory kitchen. A clear division between a day part and a night part structured the layout of the apartment. The inhabitants entered the house through the rear entrance, as they entered besides the kitchen.

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[5] For an in-depth study of the Kiel's original interior layout, see Van Nuffel, 2014: 56-60.

Figure 7. A two-bedroom apartment in block DE
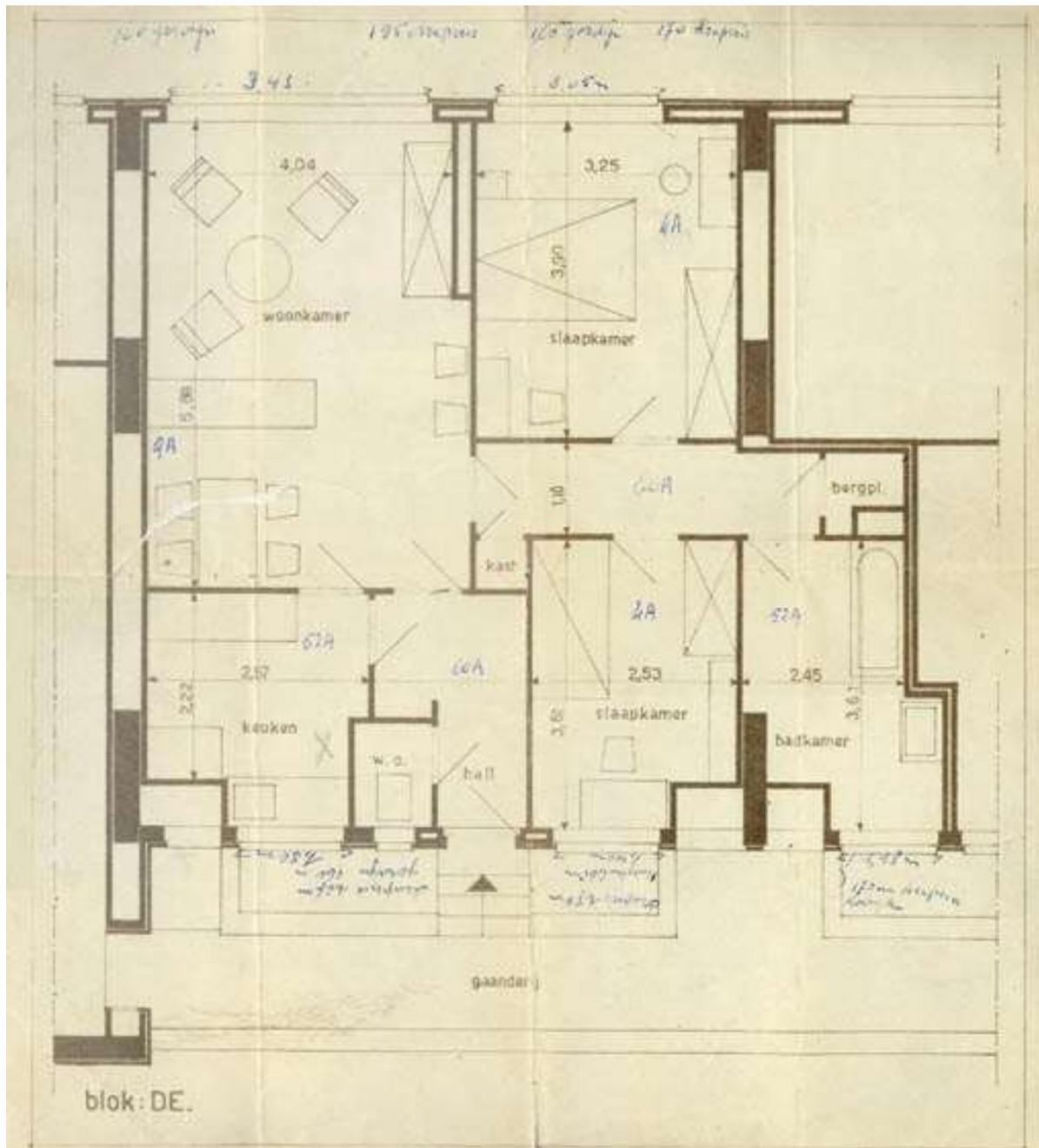
Source: Floor plan of the architects, private collection. Both kitchen and bathroom are fully equipped.

Community life was central, and art had to encourage this. The housing blocks had carefully designed, sculptural entrance halls with two healthy workers as caryatides to welcome the residents. Art sculptures were placed in the open space around the blocks because of their supposed healing effect on the residents. Primary colours such as yellow, red and blue were used to animate the corridors and entrance hall.

Figure 8. Entrance hall

Source: Photo by Jos Gysenbergs.

Like many Socialists, Braem had high hopes for this building. They believed that this architecture would free people from the "traditional parish structures" and would lead them towards socialism (Strauven, 1983, 71). Braem believed that his architecture could restructure the life of the future inhabitants. They could be freed from "heritage and wrong education". According to Braem, the highest goal of the architect was to "improve the human being by improving his or her environment" (Braem, 1954: 57). He expressed the opinion of Formes Nouvelles, a non-profit avant-garde group of (interior) architects, critics and artists, in which he took part (Floré, De Kooning, 2002). During June and July 1953, the association organised in one residential block an exhibition entitled The New Way of Living (Het Nieuwe Wonen), where model apartments were displayed to show the public how to live in modern times. These fourteen apartments were modelled by modernist avant-garde architects and artists like De Roover, Willy Van der Meeren, Emile Veranneman, W. Bresseleers and G. Schenck, among others (Sosset, 1953 a; Sosset, 1953 b; N.H., 1953: 26-27; Floré, 2010, 178-187).

Figure 9. The open public space between the 'legs' of the blocks

Source: Photo by Jos Gysenbergs.

The progressivity of the projects can also be deduced from its nicknames: the "blocks on legs" as well as the "margarine blocks". The latter name was given by local residents who believed that these apartments were so expensive that its inhabitants would only be able to eat margarine and not the real and more expensive butter. In the end, they were more expensive than the target group they were designed for. After all, the budget of the social-housing company was not fixed yet, because the complex was a pilot project of modernist high-rise social housing. That allowed Braem to invest seriously in the building and its finishing. The concrete skeleton frames of the highest blocks, for example, were cast on site. As a result, rent was quite steep, because in those days, the rent of public housing was related to construction cost, and not to the tenants' income, as is the case today. Consequently, the apartments were primarily inhabited by families with a proper middle-class income, instead of the lower-income, working-class families they were intended for. Civil servants from the city of Antwerp (such as teachers, police officers and fire-brigade officers) constituted the dominant population.

In short, the Kiel estate was designed on the basis of a social-utopian belief that the modernist building would emancipate the workers' families. It was conceived as a total work of art in which art and architecture were integrated. Politically, Braem took the position of a reformist who wanted to improve the life of his inhabitants. As the first modernist high-rise on that scale, it was perceived as a very prestigious, progressive, avant-garde project, although Braem also incorporated elements (materials and organisations) from the local architecture.

The Luchtbal estate of Hugo Van Kuyck (1954-62)

In the Luchtbal neighbourhood – a site in the north of the city, squeezed between, on the one hand, the harbour and the Albert Canal in the west, and on the other, the motorway (the Noorderlaan) and railway in the east – Hugo Van Kuyck realised a huge high-rise social-housing project (1954-62). The units were designed in the first place to accommodate the workers of the new General Motors car plant on the Noorderlaan.

Architect Hugo Van Kuyck was commissioned to develop the new neighbourhood. He was particularly well acquainted with US corporate culture and plant layout techniques through training he received in the United States and his work as an intelligence officer in the US Army (Ryckewaert, 2011: 91). From 1931 onwards, he lectured at Yale University, an invitation he received after some well-attended lectures of his in Scandinavia on Urbanism in Antwerp (Schelfout, 1988: 29-30). When he was offered a function in an American architectural office in New York, he started an architectural training and received his Master of Architecture at Virginia Union University. After World War II, he coordinated, as a technical advisor for post-war reconstruction in Belgium, study trips to the US organised by the Belgian Office for the Increase of Productivity (Devolder, 2011: 13-15).[6] The object of those study trips was the construction of buildings and the organisation of the building industry (Belgische Dienst Opvoering Productiviteit, 1957: 125). It was not surprising that Van Kuyck got the commission because he had already built in the Luchtbal neighbourhood before. In particular, he made the so-called Canada blocks (Canadablokken) erected in 1938-39 (Spitaels, Aerts, De Potter, 1995, 39; Vervloesem, Van Herck, 2013: 32).

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[6] That office with the Dutch name Belgische Dienst voor de Opvoering van de Produktiviteit existed from 1951 to 1978. It was established by employers' organizations and trade unions to raise Belgian productivity to the same level as in America. The office was partly sponsored through the American Marshall Plan (also known as the European Recovery Programme) until May 1956, when the Belgian government took over.

Figure 10. Overview of Luchtbal housing estate

Source: Photo by Frans Claes, Archive social-housing company *Onze Woning* (today, Woonhaven Antwerpen), 1961. Lang blocks at the bottom, the Canada blocks in the middle, and the housing towers at the top (which is the south side of the settlement)

For his post-war projects, more particularly between 1954 and 1960, Van Kuyck followed, even more than Braem, the interwar CIAM doctrine that championed housing blocks, surrounded by greenery, in order to provide 'the masses' with an affordable 'minimum-living wage dwelling' with sufficient sunlight and air and all modern comfort. His land-use plan was closer to the CIAM doctrine than that of the Kiel estate, as the buildings were placed in an orthogonal grid. In the south, six high-rise towers were positioned in two rows of three blocks, while his so-called Long blocks (Langblokken) in the north, are positioned parallel to each other. Between the two, a large sports field was situated. The Long blocks comprise 9 floors, which is the same number as Braem's lower blocks, while his towers comprise 19 floors (2 in the plinth and 17 in the brick volume), which is one and a half times higher than Braem's highest blocks.

Also, the Long blocks were constructed on pilotis. However, unlike the Kiel estate, the ground floor is not completely open, because, at regular intervals, there are cubic concrete blocks which include the entrance halls that lead to at least 16 apartments, 2 on each floor (Spitaels, Aerts, De Potter, 1995, 42). Instead of employing open galleries, Van Kuyck organised the circulation in a more individual and internal manner. Although the entrance cubes are glazed on one side, the buildings are less a-tectonic than the Kiel blocks and instead have a military appearance. The Long blocks in particular look like a military column. They measure 200 metres long, 11 metres wide and 30 metres high (Spitaels, Aerts, De Potter, 1995, 39). The cubes on the ground floor, as well as the projecting balconies at the back and the projecting kitchen volumes in front gave the Long blocks a certain rhythm.

Figure 11. View of the six towers with a playground and sports field in the front

Source: Photo by the author, 2015.

The structure of the blocks was composed by modulated, prefabricated and monolithically cast concrete. Van Kuyck also combined a modern typology of high-rise slabs and towers with a load-bearing structure of concrete, with brick architecture (Ryckewaert, 2011: 42). However, the bricks were not introduced to create a composition of coloured surfaces, as Braem did. They contributed to the more industrial appearance of the buildings. Indeed, Van Kuyck attached utmost importance to industrial construction methods. On the question of how to rebuild the country, the architect had high hopes of "the younger generation, abetted by some of its elders, [which] is receptive to newer ideas on a large scale", as well as builders and industrials which are interested "in examining the possibility of tackling the problem of reconstruction on a rationalised industrial basis." "These are probably healthy tokens, and maybe the time is approaching when our men, proud of the traditions of their Flemish and Walloon forefathers, like the great builders of cathedrals and palaces, will plan on a scale which is beyond the vision of the good bourgeois of today. Maybe tomorrow's towns, integrated with parks and roads, built with the tremendous technical means now at our disposal, will occupy an outstanding place in the history of architecture" (Van Kuyck, quoted in Bogaert, 2013:19).

The floor around the pillars of the Long blocks was paved with concrete tiles, while the ceiling between the beams measuring 1.2 metre high, were equipped with ribbed concrete slabs. Each ceiling of the gallery is painted in one pastel colour, which is hardly noticeable. Costs were reduced through the rationalisation of the construction method, which diminished in turn the number of working hours. That money was invested in the finishing of the building (the bricks), the equipment of the apartments and the technical apparatus. Each apartment contained a fully equipped bathroom and a rational kitchen in order to keep the living room as large as possible.

Figure 12. View of the Long blocks from the other side of the greenery

Source: Photo by the author, 2015.

In his design of the housing estate, Van Kuyck had adopted a similar architectural approach to that used in the industrial area of which it was an extension. As architectural historian Michaël Ryckaert (2011: 42) has explained, the publication photos of the housing estate and the industrial buildings in the architectural magazines of the time convey a mix of 1950s commercial roadside architecture with a traditionalist 'brick modernism'. The architectural magazines of that time praised that realisation with a fascination for functionalist industrial architecture.
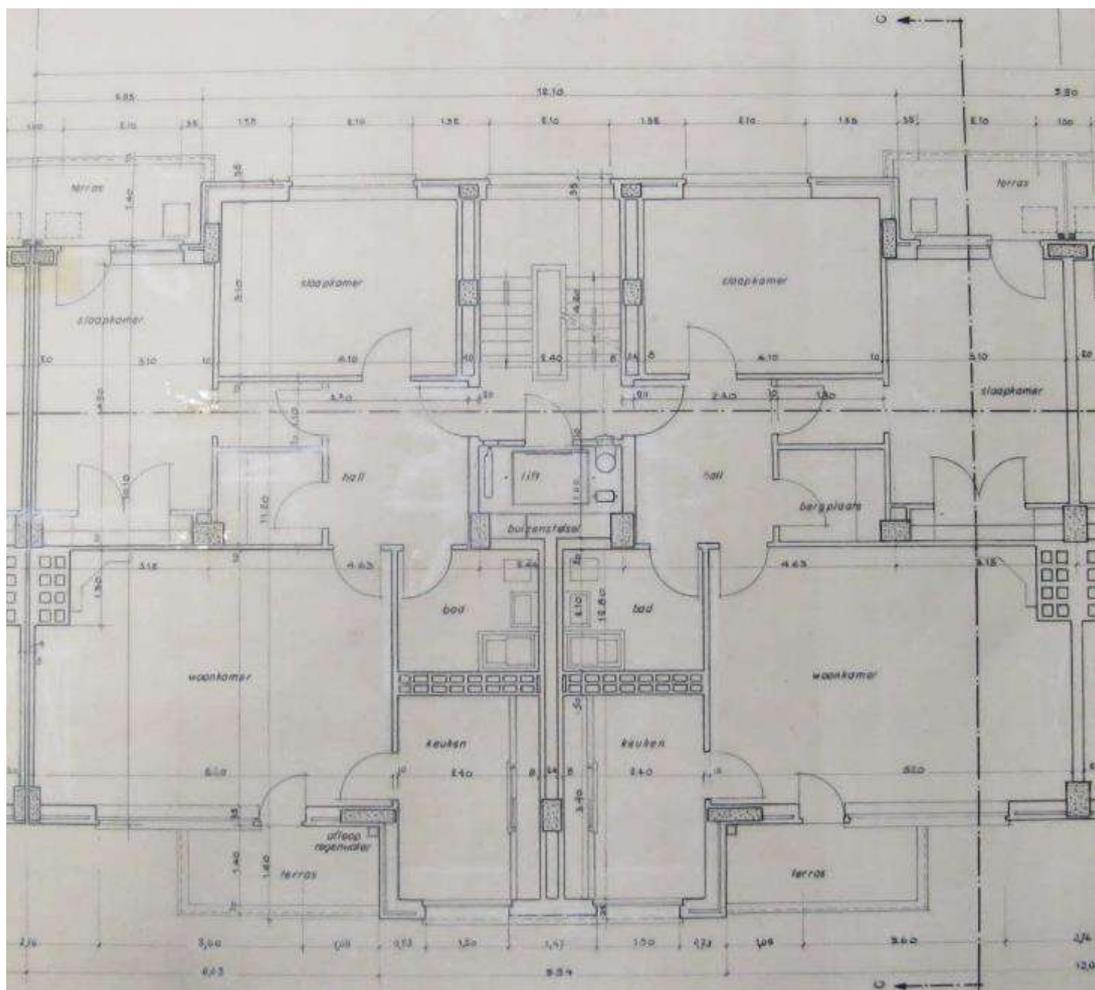
Figure 13. View of the Long blocks

Source: Photo by the author, 2015.

Figure 14. View between the legs of the Long blocks at the Luchtbal estate

Source: Photo by the author, 2015.

Figure 15. Plan of two apartments clustered around a combined elevator and stair shaft in Long block B4

Source: City archive of Antwerp.

All rooms, except the kitchen, are situated around a central (dark) entrance hall. The bathroom and living room are located at one side, while the bedrooms are at the other side. A storage space was also provided. The kitchen can only be reached through the living room. As at the Kiel estate, a small rational kitchen was envisaged in combination with a large living room, in order to encourage people to have their meals there. The kitchens that were fitted in the apartments had a lot of affinities with the Bruynzeel kitchens of Piet Zwart, which were in turn influenced by the Belgian Cubex kitchen. However, a mix of cupboards was used and no evidence could be found that it was really his design (Van Nuffel, 2014: 68-69). Nevertheless, it is an indication that Van Kuyck too opted for a rational, working kitchen that was similar to the Cubex kitchen.

Figure 16. Kitchen in a Long block.

Source: Photo by Mieke Van Nuffel, June 2014. The cupboards of the lower part are similar to the Bruynzeel kitchen (1938) designed by Piet Zwart. The left wing of the kitchen was later added by the inhabitants. Although not intended by Van Kuyck, the inhabitants placed a table in the kitchen.

The cooker worked on electricity, while the central heating was warmed with water from the electricity plant of Merksem, a town three kilometres away from the Luchtbal neighbourhood. That ecological way of heating was used until 1977, when they changed to natural gas (Van Nuffel, 1974: 70). Van Kuyck also attached a lot of importance to communal facilities, although the majority of them were more commercial. He designed a supermarket – the first in Belgium – with a car park, a milk bar and a small shopping centre. In 1957, a parish hall was built, and in 1965 a new church and a post office. Later, an urban sports hall, a public library and a cultural centre were added. Considering Van Kucyk's background, it is not surprising that the first supermarket

of Belgium was included in his project. However, because of its limited assortment and rather isolated location from the city and its surroundings, it was not a big success (Spitaels, Aerts, De Potter, 1995: 51).

Conclusion

This study confirms that the two social-housing projects under study had much in common, at least at first glance. Both the Kiel and Luchtbal estates were flagship projects commissioned and financed by two Antwerp social-housing companies. They both had to symbolise the progressivity of the Social Democrats in Antwerp. Stylistically, they are superficially quite similar as they both contain pilotis as well as fully equipped kitchens and bathrooms. The level of comfort in these buildings was unprecedented for its inhabitants, which consisted predominantly in both cases in civil servants of the city. Their apartments shared similar concepts of domesticity. Eating in the kitchens was discouraged in both projects, for example, but encouraged in the living room. In both projects, the surrounding public space was undefined. But in Braem's project, the public space was more organic in both layout and furnishing. Both designers were passionate about architecture, but nevertheless occupied different positions in the analytical framework of Williams Goldhagen. That is especially the case for the political and social axes. Van Kuyck was rather a consensualist modernist who was optimistic about the future of society and who believed that a modern architecture should support the new industrial culture. He was fascinated by industrial techniques and technological process in order to increase housing production and to reduce costs. He aimed to improve architecture so that the buildings would become more efficient instruments serving the existing political and economic structures of society, in this case: solving the housing shortage. Braem, by contrast, was a reformist, who, as a Socialist, criticised capitalist society, but who also believed that he could improve the life of the inhabitants by means of his architecture in combination with artworks. As a real social utopian he believed that his architecture could facilitate social progress and reduce social injustices. On the social axis, Van Kuyk was rather a machine-oriented architect, while Braem was much more a so-called situated modernist. Van Kuyck concentrated his design energies on mass production, rationalism and tectonic expression, while Braem was much more interested in creating an integrated relationship between building and site, and between building and inhabitants. The careful implantation of the Kiel housing estate in the landscape, for example, illustrates this very well. The caryatides at the entrance to one of his main housing blocks is a clear example of Braem's efforts to connect the building with the inhabitants he designed it for: the future workers. To a certain extent, Van Kuyck also connects the housing estate to the inhabitants (a worker in the car industry) by employing a similar industrial idiom as the surrounding industrial environment, but he was less focused on the emancipation of that worker than Braem.

In all Belgian social-housing projects, including the Kiel and Luchtbal housing estates, an important shift in population took place from 1978 onwards. At that moment, the rent of social housing became linked to the income of the inhabitants. That measure drove out the middle-class tenants, while it attracted people with a very low income. Migrant families and other vulnerable groups started to inhabit the social rental houses, resulting in neighbourhoods characterised by a high level of multiculturalism. The Luchtbal housing estate acts more as an enclave, because it is cut off from the city by infrastructure. The neighbourhood is stigmatised; however, the quality of life is pretty good and the green spaces are intensively used. In the Kiel housing estate, multiculturalism is also high. The smaller scale of the project and the cultural attention it recently received make it a more integrated part of the city. In terms of architecture, the Kiel estate has a high-profile architecture which is refined in its volumes as well as in its architectural details. The Luchtbal estate mainly owes its attraction and fascination to its scale and repetition of elements.

According to architectural historian Bruno De Meulder (1997: 39), among others, the Kiel housing estate was "an unrivalled international masterpiece", whose budget was quasi-unlimited, at least for the first phase. The budget of the Luchtbal housing estate was already more restrained, which is also detectable in the façades, while later modernist housing projects (such as Europark on the left bank in the late 1960s) were even cheaper, which resulted in very pragmatic architecture. Instead of improving the quality of modernist high-rise social-housing projects, an impoverishment of the projects can be noticed. During the 1970s, attention moved to the renovation of the historic city centre and apartment blocks retreated into the background (De Meulder, et al., 1997: 39-53).

Recently, the high-rises regained attention in discussions on how to deal with them: refurbishment or demolition? For the two discussed projects, the option of renovation was chosen as they are testimonies of a very specific past and policy, a specific answer to the modernist project. The Kiel housing estate was thoroughly renovated, with respect for the architectural quality. Moreover, the centenary of Renaat Braem in 2010 brought this project, among others, to the attention of a broad public (CVAa, 2010, Braeken, 2010). The renovation of the Luchtbal housing estate was done more roughly, whereby many details were lost.

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