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# Housing Builds Cities

Editors

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# Table of Contents

**New Perspectives on the II CIAM onwards: How Does Housing Build Cities?**
Alessandro Porotto and Chiara Monterumisi 76–82

**Part I. Housing Belongs to the City**

**The Modern Project: A Research Hypothesis**
Paola Viganò 83–89

**The Legacy of CIAM in the Netherlands: Continuity and Innovation in Dutch Housing Design**
Susanne Komossa and Martin Aarts 90–101

**Planning History of a Dutch New Town: Analysing Lelystad through Its Residential Neighbourhoods**
Lidwine Spoormans, Daniel Navas-Carrillo, Hielkje Zijlstra and Teresa Pérez-Cano 102–116

**Das alte Frankfurt: Urban Neighborhood versus Housing Estate, the Rebirth of Urban Architecture**
Silvia Malcovati 117–133

**Wilhelm Riphahn in Cologne (1913–1963): Urban Policies and Social Housing between Innovation and Conservation**
Andreina Milan 134–153

**CIAM Goes East: The Inception of Tehran's Typical Housing Unit**
Hamed Khosravi 154–166

**Housing-Based Urban Planning? Sir Patrick Geddes' Modern Masterplan for Tel Aviv, 1925**
Yael Allweil and Noa Zemer 167–185

**Part II. Typological Units**

**Moving on: Is *Existenzminimum* Still Relevant?**
Bruno Marchand 186–195

**From Ideal Proposals to Serial Developments: Victor Bourgeois's Schemes in the Light of Post-War Developments in Brussels**
Gérald Ledent 196–211

# Table of Contents

**Contested Architecture: The 'Woba' Residential Colony in Basel, 1930**
Rhea Rieben 212–222

**'The Towers of Terror': A Critical Analysis of Ernő Goldfinger's Balfron and Trellick Towers**
Nicola Braghieri 223–249

**Álvaro Siza's Negotiated Code: Housing with Citizens' Participation in the Urban Renewal of The Hague in the 1980s**
Nelson Mota 250–264

**African Housing Renaissance: The Case of Gacuriro Valley Satellite Settlements, Kigali, Rwanda**
Manlio Michieletto, Olatunde Adedayo and Victor Bay Mukanya 265–290

**Part III. Actualising CIAM Ideas**

**CIAM and Its Outcomes**
Eric Mumford 291–298

**Between Rationalization and Political Project: The *Existenzminimum* from Klein and Teige to Today**
Marson Korbi and Andrea Migotto 299–314

**Does the Homogeneous City Belong to the Past?**
Valentin Bourdon 315–235

**Reinterpreting *Existenzminimum* in Contemporary Affordable Housing Solutions**
Sara Brysch 326–345

**Part IV. Exhibition**

**"HOUSING Frankfurt Wien Stockholm": Exhibition of 1920s–1930s Housing Initiatives**
Chiara Monterumisi and Alessandro Porotto 346–355

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Editorial

# New Perspectives on the II CIAM onwards: How Does Housing Build Cities?

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**Abstract**
Far from nostalgically celebrate the 90th anniversary of the second CIAM, which indeed opened in October 1929 in Frankfurt, the present issue is intended as collective work, a springboard which aims to widen the debate over housing experiences beyond geographical and temporal frameworks. The focus of that event, the *Existenzminimum*, has often been cited as representing a fundamental contribution to the rational design of the modern dwelling. But the debates during that event went beyond the definition of this concept, because demonstrated, on the one hand, how the responsibility of architects would imply the resolution of multiple technical aspects, starting from the typological concern stretching towards the town planning aspects, and on the other hand, the calling to develop a multifaceted intellectual vision of society. Though the title selected for the present issue, namely 'Housing Builds Cities', denotes the different scales of the project, the aim is to achieve a something more. First and foremost, the objective is not strictly confined to a historical understanding of facts around the 1929 congress. Today a critically objective approach is useful to examine past contributions and, if applicable, their actualization. Secondly, this special issue intends to address the CIAMs' theoretical and architectural legacy. The hypothesis on their interpretation suggests that these are still topical issues today. The issue comprises fourteen articles which investigate, through different applied methodologies, the years from the first steps of the CIAMs to the 1929 aftermath, analyze the post-war production and explore many case-studies, of which some are also geographically far from a Euro-centric vision as well as contemporary realities.

**Keywords**
CIAM; city; dwelling typology; Existenzminimum; housing; morphology; social responsibility; urban policy

**Issue**
This editorial is part of the issue "Housing Builds Cities", edited by Luca Ortelli (École Polytechnique Fédérale de Lausanne, Switzerland), Chiara Monterumisi (École Polytechnique Fédérale de Lausanne, Switzerland) and Alessandro Porotto (École Polytechnique Fédérale de Lausanne, Switzerland).

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## 1. Introduction

Beyond the Bauhaus centenary, 2019 also marks 90 years since the second *Congrès International d'Architecture Moderne* (CIAM) held in Frankfurt in October 1929. At first glance, dedicating an issue of *Urban Planning* to this anniversary today, could appear as merely a nostalgic operation. The focus of that event, the *Existenzminimum*, has often been cited as a fundamental contribution to the rational design of the modern dwelling. However, this concept is still strongly tied to the architectural experiments of the 1920s–1930s. The nostalgic view then disappears altogether if the II CIAM is dissected from two further viewpoints.

Firstly, the Frankfurt congress globally attracted the largest interest in the housing debate and studies of the ensuing decades. Since the end of the 1950s, and principally throughout the 1960s, a young group of Italian architects employed examples of modern architecture, using mainly those conceived in the 1920s when the mass

housing buildings gained momentum. The understanding of urban studies would have lacked critical strength from an analytical and operative viewpoint without the brilliant commentaries of a group internationally known in the 1970s as *Tendenza*: Aldo Rossi (1966) on the *Siedlungen*, Carlo Aymonino (1965) on the development of European modern cities and Giorgio Grassi (1967) on the dwelling conception in Germany. It was not by chance that Aymonino was the first one to acknowledge the intrinsic value of the II CIAM. Beside the translation of the proceedings book released for the II (Frankfurt, 1929) and III CIAM (Brussels, 1930) conferences, his publication (1971) compares the multiple perspectives of the participants with some significant European housing experiences. Apart from the account of the I CIAM held in La Sarraz by Jacques Gubler (1975) in his extensive book dealing with the Swiss venture of modernity, Martin Steinmann (1979) offers a thorough picture of the 1928–1939 modern congresses. For the first time, he analyses and compares the congresses preparatory texts as well as those published.

The return to the centre stage of the CIAMs has been fostered by Eric Mumford (2002), whose account not only exhaustively reconstructs all the events until the last one in 1959, but primarily examines the debate around new ideas and their reception in detail. In addition, the proceedings book of the international symposium *Neues Wohnen 1929/2009: Frankfurt und der 2. Congrès International d'Architecture Modern* (Barr, 2011) celebrating the 80th anniversary of the II CIAM also provides fresh critical perspectives contributed by researchers who look at the multiple aspects of the congress. This summary shows how the interest in the CIAMs, particularly the one held in Frankfurt, has always been addressed towards a historical reconstruction of the events as well as a detailed exploration into the topics at the centre of the debate. The actualization (if applicable) of the *Existenzminimum* is the goal of the next 5th Bernardo Secchi working seminar held at the École Polytechnique Fédérale de Lausanne almost contemporaneously to the release of this thematic issue (for more information visit https://www.braillard.ch/fr/eco-century/journees-bernardo-secchi/existenzminimum-90-ans-2e-ciam). Under the title *Existenzminimum: 90 Years Since the 2nd CIAM*, the organizers Paola Viganò, Panos Mantziaras and Christine Lutringer aim to foster the debate on the 100-year-long path of the norms that rule the urban condition.

The second reason which goes beyond any nostalgia developed in this issue of *Urban Planning* derives directly from the programmatic text of Ernst May—a central figure of the congresses as well as promoter of the Frankfurt housing accomplishments—published in the catalogue of the exhibition *Die Wohnung für das Existenzminimum*:

> The most important part of the problem in fact is how to construct, in every detail and thoroughly, the individual dwelling cell. Apart from this task…architects have to solve the problem…how to incorporate the total of those cells, that is the neighbourhood, into the general aspect of the town in a way which will create equally favourable conditions to every section of inhabitants. (May, 1930, pp. 6–7)

The clarity and commitment in addressing the housing question here, is remarkable. The responsibility of architects implies of course the resolution of multiple technical aspects, but this also calls them to develop a multifaceted intellectual vision of society today and in the future. Taking cues from these words, Aymonino (1971) formulates one of the more brilliant definitions of the *Existenzminimum*, combining the analytical/cognitive aspect of urban phenomena, the practical/operative contribution of the design and then an observation of social conditions. "The implied meaning of 'minimum' in the concept of *Existenzminimum* corresponds generally to 'civic' or, anyway, necessary conditions not so much for the survival as for a social life" (Aymonino, 1971, p. 81, authors' translation), particularly regarding the lower classes of society. This refers not only to the reduced size of the dwelling, because already in the 19th and 20th centuries the speculators and developers built thousands of dwellings of considerably reduced size, making a profit to the dramatic detriment of sanitary conditions. Hence, the real value of the minimum dwelling needs to relate to the number of bedrooms and beds, which satisfy the layout of family or social group. Aymonino discusses that the *Existenzminimum* aims of relating the minimum individual surface (the dwelling) to the minimum social space (the city): "many beds form a dwelling, many dwellings form a typological unit, many typological units form a settlement, many settlements 'are' the city" (Aymonino, 1971, p. 82, authors' translation).

"Housing Builds Cities", the title of this issue of *Urban Planning*, has been formulated from this standpoint. Though this title denotes the different scales of the project, this issue aims to achieve something more. First and foremost, the objective is not strictly confined to a historical understanding of facts around the 1929 congress. Today a critically objective approach is useful to examine past contributions and if applicable, their actualization. Secondly, this thematic issue intends to address the CIAMs' theoretical and architectural legacy. The hypothesis on their interpretation suggests that these are still topical issues today.

## 2. Contents

The present issue comprises fourteen articles which investigate the years from the first steps of the CIAMs to the 1929 aftermath, analyse the post-war production and explore many case-studies, of which some are also geographically far from an Euro-centric vision as well as contemporary realities.

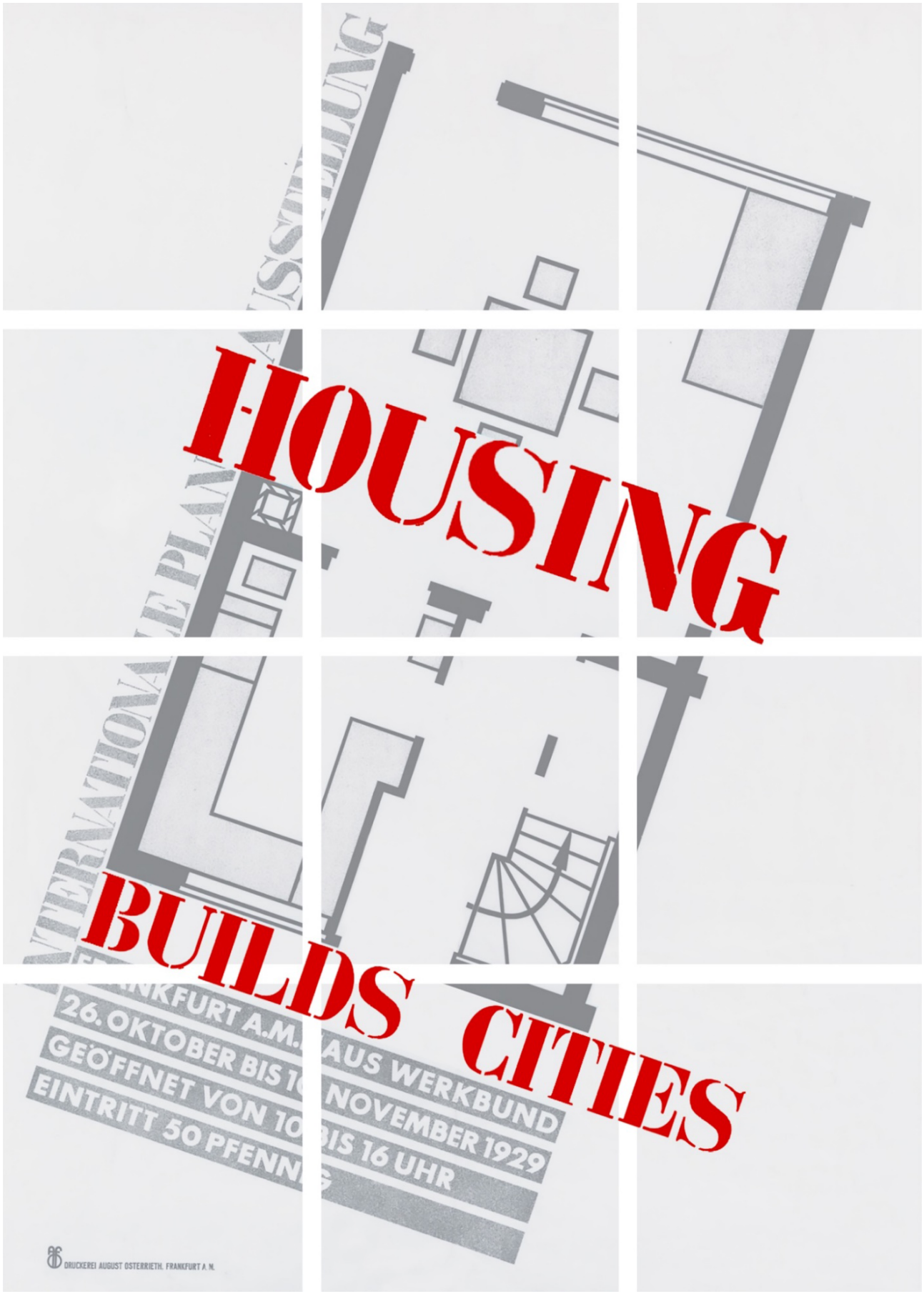



**Figure 1.** Graphic elaboration produced by the LCC starting from the poster of the exhibition *Die Wohnung für Das Existenzminimum*.

The rich variety of the fourteen articles demonstrates how—historical, social and cultural transformations notwithstanding—housing has always embodied a "social, morphological and structural unit for living" (Bauer, 1934, p. 15) which has affected, and continues to affect, the form and evolution of the city. The thematic arrangement in three macro-groups has not been done according to geographical or applied methodologies subdivisions. This tripartite structure implicitly sums up all the components of the title "Housing Builds Cities".

Part I is opened by Paola Viganò (2019), who explores the multiple developments and spatial formulations which tackled the project of the industrial modern city in terms of social and urban transformations. The group of authors analyse the complexity of the urban scales which the housing interventions were designed for and how these engage in a spatial dialogue with the city.

Susanne Komossa and Martin Aarts (2019) provide a thorough and temporally extended picture of the CIAMs multifaceted legacy in the evolution of Dutch urbanism. The typo-morphological method applied by the authors comprises the Italian perspective developed by Muratori and the French School of Jean Castex and Philippe Panerai. This effective approach pinpoints the continuity of certain key features as well as the innovations of some others throughout the ensuing years of stimulating debates spurred by some Dutch figures who gained global significance. The set of crucial residential interventions in Amsterdam and Rotterdam chosen between the timespan of 1920–1980 aims to investigate both the typological and morphological aspects, likewise, of understanding the future scenarios for urban expansion of the two cities.

Of the panorama of urban theory, the contribution of the group Lidwine Spoormans, Daniel Navas-Carrillo, Hielkje Zijlstra and Teresa Pérez-Cano (2019) focuses on a particular track when new spatial formulations at global scale, namely the New Towns, occupied the architectural debate from the 1960s onwards, questioning the interwar CIAM's principles of envisaging the city. The attention is oriented to the Dutch framework where substantial experiments were carried out with such configurations. The examination of the planning policies, spatial strategies and typological configurations behind the development of Lelystad right up to the present, is hence instrumental for understanding the overall Dutch interaction between the search for an ideal shape and the impact of political top-down decisions in the construction of New Towns.

Silvia Malcovati (2019) addresses a pivotal issue of the contemporary debate over planning the European city, particularly within the German context. For achieving such a purpose, the author presents two housing projects built in Frankfurt whose spatial models illustrate two extreme city planning conceptions. Against the low-density satellite neighbourhood model promoted by Ernst May and substantially built in the outskirts for low-income people, the author discusses the urban regeneration built with traditional techniques and language for the Dom-Römer area housing upper-middle-class, designed 90 years later. The comparative analysis from a morphological and typological point of view between *Das Neue Frankfurt* (the modernist side of the 1920s–1930s) and *Das Alte Frankfurt*—as the author wittily labelled the latter—entails an opposition between *Siedlungsbau* and *Städtebau* as well as *Trabantenstadt* and *Stadtquartier*. A thorough and broad contextualization of theoretical references and methodologies provide the necessary instruments to pinpoint analogies and differences within the case-studies.

Andreina Milan (2019) turns the spotlight on the German urbanist and designer Wilhelm Riphahn and his prolific interventions—a neglected side of his production—designed for the active GAG building and management cooperative of social housing in Cologne at the beginning of the 20th century. For the first time, the article examines some case-studies via significant archival items and contextualises these projects into the wider coeval framework of other projects in the same regard. Of particular interest is the peculiar Riphahn design development. Here the key concept 'city of short distances', as promoted by the housing cooperative, is characterized by reduced dimensions and a strong sense of identity of the new 'urban settlers'.

Hamed Khosravi (2019) sheds new light on two significant exponents of the Iranian theoretical and practicing housing debate: the secretary of I CIAM and well-recognized avant-garde figure Gabriel Guevrekian, who paved the way for ensuing major developments in Teheran fostered by the driving force of the Association of Iranian Architects; then Silvio Macetti (known as Noureddin Kianouri), whose contribution clearly illustrates the application and modification of the CIAM discourse in shaping the post-war neighborhoods and housing typologies in Teheran. Within a framework of social and political changes, their initiatives reformulated the concept of domesticity, the living unit and household, showing a real engagement which led towards the Middle East's first modern metropolis.

Yael Allweil and Noa Zemer (2019) offer a novel reading into Patrick Geddes's remarkable Tel Aviv modern urban plan (1925), particularly focusing on a less-explored aspect of his contribution. This fresh standpoint sees Geddes' work as a radical bottom-up plan in which the housing question and community of dwellers are cornerstones and the main motivators for the spatial configurations based on self-constructing of semi-autonomous urban blocks in a 'housing before street' development. New archival findings and a revised study of available sources underpin the article's arguments. Besides the historical contextualization and exploration of the source of references, the author investigates the real architectural qualities and adopted principles in the workers' neighborhoods in detail.

Part II initiates with the commentary of Bruno Marchand (2019), who examines certain key concerns of the conceptualization and design of the minimum

dwelling starting from the congress in Frankfurt till today's projects. The authors in this second part offer a wide range, though not complete, of case studies which comprises different ways of envisaging and, then, designing the typological unit, that is the dwelling.

Gérald Ledent (2019) dissects the Belgian modernist production and thinking around urban scale and housing configurations through the long-lasting experience of the key figure of Victor Bourgeois. The significance of his output is clearly visible in the development of Brussels since the III CIAM (actually held there) until the numerous euphoric post-war interventions. Of particular interest is the objective comparative method through which the author illustrates the case-studies; from a historical framework, he comprises ideas and principles to a typo-morphological analysis delivered by novel drawings and archival items aiming to stress analogies and differences in the (heroic) pre- and (pragmatic) post-war period. This thorough approach indeed goes beyond any ideological prejudices and then efficiently fills the gap between the ideals of modernism and its implementation.

Rhea Rieben (2019) explores the pioneering Eglisee residential colony for low-income groups in Basel, designed in accordance with the II CIAM arguments for typification, rationalization and standardization. Despite such promising premises, the different housing prototypes of thirteen Swiss avant-garde studio firms—fully equipped with pieces of furniture conceived as an expression of the new living needs—did not achieve the same international resonance as the Neubühl intervention in Zurich, vigorously promoted by Sigfried Giedion. From a such neglected corner, the author intends to contribute fresh knowledge about this example built for the Woba exhibition in 1930, focusing mainly on Hans Schmidt and Paul Artaria's outputs. A thorough examination of the Swiss press coverage demonstrates the contested reception of this project, as if this reaction reflected the increasingly fractured state of society itself.

Nicola Braghieri (2019) delves into the Hungarian-born Ernő Goldfinger's conception of the high-rise building for accommodating the masses since his first engagement at the IV CIAM onwards, with a particular focus on two iconic residential towers of the London townscape—the Balfron and Trellick Towers built in the 1960s–1970s. Assuming a non-functionalist realist and objective architectural approach, Braghieri's goal is to overturn some preconceptions formulated about the failure of public urban policies in the United Kingdom, where large complexes, especially the towers, are considered an inhuman form. Though in recent years these two buildings (sadly) encountered difficulties in compensating the extreme marginality of their location on the outskirts, the author convincingly demonstrates how Goldfinger's experiments in reducing the density through vertical construction and in emphasizing the technical and social aspects deserve further attention.

Nelson Mota (2019) discusses the particular relevance of Alvaro Siza's approach in tackling citizens' participation in the design decision-making for the project *Punt en Komma* in The Hague. His previous experience for the SAAL program here became decisive for a further development of a precise line of action featuring a fruitful dialogue between experts, inhabitants and stakeholders. The urban renewal of the area is achieved by a convincing negotiated code, the two sides teamed up in an efficient way, in order to re-connect housing policies to their social significance. Of the 1970s-1980s urban renewal projects executed through this design process, Punt en Komma constitutes a successful example, as the article thoughtfully explores through Siza archives and a systematic architectural analysis, as well as useful references for creating conditions of social sustainability and inclusion.

Manlio Michieletto, Adedayo Olatunde and Victor Muka Bay (2019) assert certain spatial analogies between the satellite city model promoted by Ernst May and two recent housing interventions, Kigali 2020 and Kigali Vision, in Rwanda. The transfer of such principles from Frankfurt to East Africa was driven by May himself during his almost twenty-year stay there, where he designed many housing complexes. Beside the historical reconstruction of May's design experience in Africa, the authors offer an intriguing typo-morphological analysis of how this spatial model was re-interpreted in the two satellite housing settlements 60 years later. These projects clearly illustrate how the future planning visions for the city of Kigali aim to rationalise the proliferation of informal settlements, especially via a dialogue between the landscape and development of the city.

Part III is introduced by a commentary from Eric Mumford (2019), who thoughtfully draws analogies and differences into the thought-provoking debates underpinned by the CIAMs long-lasting experience and how these ideas widely influenced planning and architectural production. Starting from the legacy of the CIAMs, the authors in this third part provide new theoretical perspectives and methodological approaches which ask if some key II CIAM topics could be actualized in housing design and debate today.

Andrea Migotto and Marson Korbi (2019) go beyond the mere historiographic comparison of the II CIAM and III CIAM official (but multiple) standpoints with those spurred by two remarkable conference participants—Alexander Klein and Karel Teige. Their alternative theories, pioneering social studies and design experimentations, based on life and movement abstraction through the application of Taylorism principles, led to further investigations carried out convincingly by the authors. Since the post-War technocratic approach pursued rationalization to create ready-made solutions for universal users, the authors assert that Klein and Teige's pragmatic method is a still valid, almost emancipating, tool for tackling the qualities of today's minimum affordable dwelling vis-à-vis the evolving relationship between households and the social-economic structure.

Valentin Bourdon (2019) ambitiously traces the transformations of the notion of 'urban homogeneity' and its

translation in architectural terms through four periods in France; the Haussmannian celebration of the bourgeois, the modern enthusiasm crystallized in the II CIAM, the trauma of the masses identified in the *grand ensembles* built from the 1960s and the future scenarios of non-differentiation. A selection of Parisian case-studies belonging to the four stages supports the core of the critical standpoint which assumes homogeneity both as result of the progressive densification of the city, but paradoxically it would also become a significant spatial formalization of 'living-together'.

Sara Brysch (2019) aims to explore a practically unbeaten side of the *Existenzminimum* concept. She asks what its current reception is, which design principles are absorbed, and which are hybridized in some selected cases of contemporary (re)interpretation(s) of this topical issue. A review of viewpoints, methods and outcomes of the II CIAM set the parameters that guided the development of the concept from an architectural perspective. The author analyzed today's case-studies including their diverse spatial configurations, dwelling typologies and geographical context, using a framework of three different architectural dimensions, namely *technical*, *spatial* and *social.*

Beside the multifaceted perspectives presented by the fourteen contributions, the fourth and last part of the thematic issue draws the attention to another kind of output come out from research studies: this is the case of the exhibition 'HOUSING Frankfurt Wien Stockholm' curated by LCC Lab and held at the EPFL, that demonstrated the multiple variations in designing and building the cities.

## 3. Conclusions

Looking at the variety of the fourteen contributions and the structure of this thematic issue, it is fair to note that no uniform understanding is possible and it is difficult to compare the iconography used in each article. Reaching the uniformity of the publication characterizing *Die Wohnung für das Existenzminimum* has not been the goal of the present issue, therefore the exceptional nature of the 1929 event comes across even more strongly. However, the multiplicity of articles points to our hypothesis: The topics discussed 90 years ago and in the ensuing CIAMs arise again today in new guises, or perhaps they have not yet received a definitive answer.

The issue is not intended as a finished work, rather, as Gubler (1975) observed for the CIAM held in Frankfurt, as collective work, a springboard which aims to widen the debate over housing experiences beyond geographical and temporal frameworks.

## Conflict of Interests

The authors declare there are no conflicts of interests.

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# PART I

# HOUSING BELONGS TO THE CITY

COGITATIO

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Commentary

# The Modern Project: A Research Hypothesis

Paola Viganò [1,2]

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**Abstract**
The project of the industrial modern city comprises many heterogeneous paths and stories, in particular those regarding the CIAM (*Congrès Internationaux d'Architecture Moderne*) Functional City. They all come together in a discourse that links the architectural form to positive urban and social transformations. Such a discourse was interpreted from two different perspectives: The first hypothesized the need for political change starting from the collectivization of land ownership as stressed in the declaration of CIAM at La Sarraz in 1928, whereas the second theorised the capacity of new architecture to improve living conditions irrespective of the political context as supported by Le Corbusier. Starting from these premises, the present commentary proposes a fresh perspective on the functional city project, where the research on the minimization of effort contributed to a different definition of work from the Marxist one and in the modern sense. Therefore, the design and the space of the *Existenzminimum* blatantly contributes to the construction of a new routine, inspired by minimum effort, with the creation of a new effort–relaxation–rest rhythm and repetition.

**Keywords**
economic efficiency; *Existenzminimum*; minimum working effort; *Siedlungen*; *Trabantenprinzip*; *Ville Contemporaine*; *Ville Radieuse*

**Issue**
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## 1. Experiments: Three Moves

In the early decades of the 20th century, in the Netherlands, Vienna and Frankfurt, districts and parts of the city were created that would take on an exemplary role in the European debate. According to Carlo Aymonino (1965), the urgency of the solution to the housing problem, established among other things by studies on poverty and sanitation, shifted the topic of urban design from the city as a whole to some of its parts and to specific housing themes. The city expanded through the addition of discreet elements, becoming a place of discontinuity, separation, heterogeneity and estrangement (Foucault, 1984; Secchi, 2000, 2005).

In a fitting reading of the progressive opening up of the block in the 20th century Panerai, Castex, Depaule and Samuels (2004) distinguished three main moves. The first move—explored in south Amsterdam by Hendrik Petrus Berlage between 1901–1905 (see Figure 1) and 1914–1917, and in Vienna by Karl Ehn in the Kark Marx Hof 1100 metres long, 1382 apartments—concerns the expansion of the block and the search for repeatable methods of collective living. The Amsterdam experience is one of the references used by CIAM as an example of the administration and architects working together to improve living conditions.

The second move refers to the opening up of the block. Between 1925 and 1926 Ernst May developed a regulatory plan framework for Frankfurt based on *Trabantenprinzip*, development for satellite towns influenced by Unwin and Karl Scheffler's (1913) text, *Die Architektur der Groszstadt*. May had already used it in a competition for the Wroclaw plan of 1921, accompanied by the motto "satellite".




**Figure 1.** H. P. Berlage, aerial view of the project for south Amsterdam, 1915. Source: Gemeente Amsterdam Stadsarchief (n.d.).

The principle of "satellite towns" was explored (under the influence of Unwin) in the districts of Frankfurt, where *Siedlungen* are proposed as alternative facts to the nineteenth-century city. We can make the hypothesis that the collection of satellite towns should have been connected by a network of roads and green corridors similar to the one that had already appeared, a few years earlier, in Eliel Saarinen's constructs for Greater Helsinki. May's framework can still be recognized in an image of present-day Frankfurt: among the "satellites" that Scheffler accepted "as the only positive and non-contradictory solution to the questions that the city asks itself" (Grassi, 1975, p. 18), large areas of free space create new continuities in the city. The relationship between satellites and open space is not only functional and ecological: it defines new spatial and architectural characteristics. Giorgio Grassi gave a shrewd interpretation of them that links designs such as that of the Nidda valley, Niddatal (see Figure 2), to a reflection on the role of open space in the construction of a city's architecture. Again, linking *Trabantenprinzip* to an idea of *embellissement*, rather than modern functionalist thinking, Grassi on the one hand lost sight of an important relationship, and on the other established and clearly confirmed the architectural unity between built complexes and open space:

> From an architectural perspective, in the classical city, the main function of these green areas related to the buildings, villas or palaces they belonged to, the monuments to which they were related, was to be an inseparable part of their architecture. (Grassi, 1975, p. 29)

For this reason, starting with the *Siedlungen* project along the river, Grassi reconstructed the fragments of a genealogy that links the building of neighbourhoods along a stretch of open space for the purpose of interrupting the continuity of the urban fabric, to the example of the large villas of the past or the complex of gardens of the Belvedere and Schwarzenberg palaces in Vienna (Grassi, 1975, pp. 29–30).

Frankfurt's *Siedlungen* still maintain a relationship with the road even if it is not traditional, for example in the Westhausen where the principle of *Zeilenbau* used for military camps offers the simplicity and repeatability required by industrial production methods. The "Frankfurt kitchen", social services, roof gardens and the



**Figure 2.** Aerial view of the Nidda valley with the Siedlung Römerstadt in foreground and the Siedlung Praunheim in background. Source: Das neue Frankfurt (1930).

parks designed by Leberecht Migge: the intention was to demonstrate the use of the assembly chain for "social-democratic" purposes. The choice to build almost exclusively low, single-family row houses with gardens, the seriality of many installed systems, rigorously anchored to the solar thermal axis and the construction of sequences, divided into public space and private space in which the role of open space turns out to be fundamental, define their main characteristics. Before the imperious choice of "high-rise buildings" established at the 3rd CIAM "Rational Buildings' Methods", specifically in the session "Low-, Medium-, High-Rise Buildings", held in 1930 in Brussels, Frankfurt's *Siedlungen* represented a sophisticated reflection on the different gradations of space which went from private and individual to public and collective.

The third move stemmed from the idea of a new type of space, definitively and radically different from the previous city: the Ville Radieuse by Le Corbusier which was proposed as "modern" and "revolutionary". In 1930, a competition was announced for a decentralized socialist Garden City for 100,000 people on a site of 15,000 hectares situated 37 kilometres from Moscow, understood as a city of *loisir* for workers who would have rested on their weekly day off (a vast proletarian model clinic). As is known, strong opposition arose between urbanists (supporters of collective settlements of limited size and shared services) and disurbanists (who propose linear settlements scattered along the transport lines of individual isolated homes; see Figure 3). After the competition, Le Corbusier was asked for his opinion. He lashed out against disurbanists claiming that density is the only guarantee of an economic, social and cultural life (*élites* inhabit the big city): Starting with his design for the *Ville Contemporaine* from 1922, Le Corbusier proposed a high-density core and living spaces in green areas. The Russians, interested in his criticisms, presented him with a long questionnaire on the future of Moscow. His *Réponse à Moscou*, from 8 June 1930, comprised of 66 pages and 21 drawings, was the first formulation of what would become the *Ville Radieuse* (the Radiant City).

## 2. Space and Society: Two Approaches

Speaking about the modern city, the city that formed starting from the Renaissance, but more specifically the

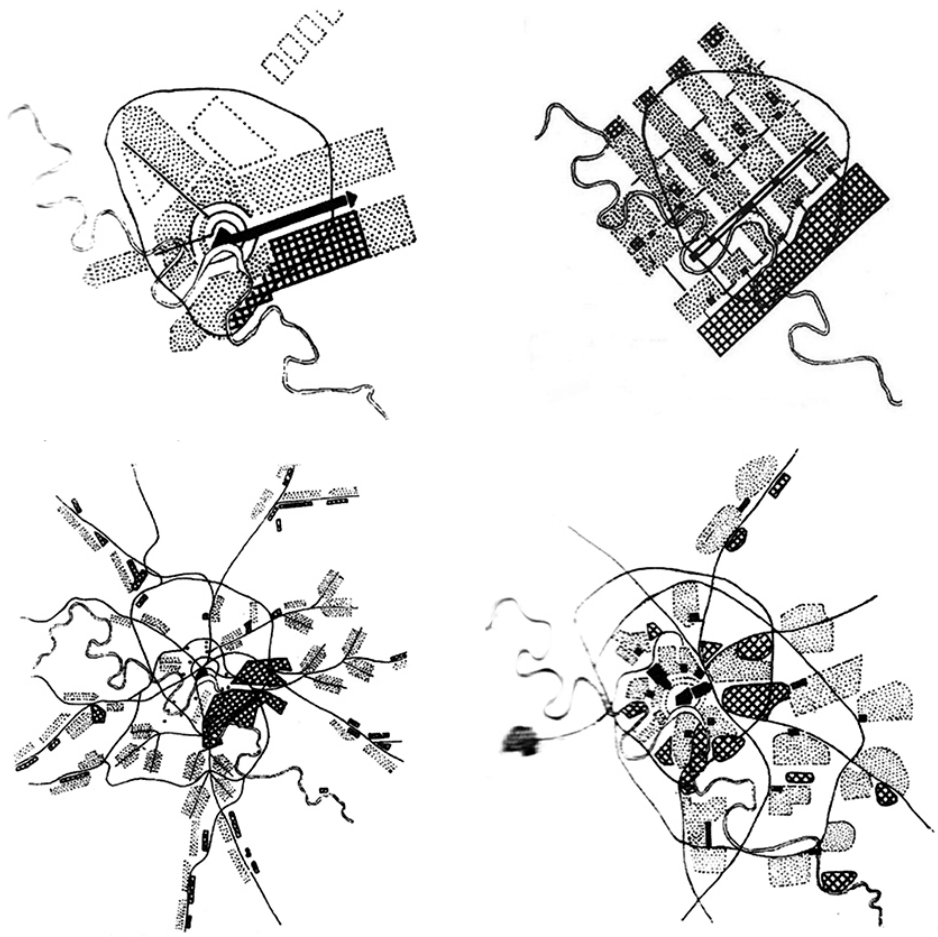


**Figure 3.** A selection of entries for the Moscow Green City competition. From left to right: brigade of Kratuk (urbanists), WOPRA brigade (urbanists), Hannes Meyer (disurbanists) and Ernst May (disurbanists). Source: Cohen, de Michelis and Tafuri (1930, pp. 143–145).

industrial modern city and, even more specifically, the city of the Modern Movement, is not easy. There are many heterogeneous paths and stories regarding it and concerning the Functional City in particular; they all come together to form a "discourse" according to the Foucault conception (Foucault, 1971; Mumford, 2000) that links the architectural form to positive urban and social transformation.

The discourse established a relationship between the form of architecture and the form of society which the Modern Movement, heir of the nineteenth-century reformist tradition and vanguard of the reflection on welfare developed between the two wars, and above all after the Second World War, interpreted taking two different approaches. The first, which hypothesized the need for political change starting from the collectivization of land ownership, was supported, for example, by the ABC group, formed in 1924 in Basel, and by Mart Stam. Architecture can change the world, as long as the world changes; architecture gives shape to change that has occurred, it is a form of its representation. Kenneth Frampton, in the preface to Eric Mumford's book *The CIAM Discourse on Urbanism, 1928–1960* (Frampton, 2000), recalls the declaration of CIAM at La Sarraz in 1928 which remarked on both the link between architecture and the general economic system and the need for a collective land use policy:

> The chaotic division of land, resulting from sale, speculations, inheritances, must be abolished by a collective and methodical land policy. This redistribution of land, the indispensable preliminary basis for any town planning, must include the just division between the owners and the community of the unearned increment resulting from works of joint interest. (Conrads, 1970, p. 111)

The second approach, which theorises the capacity of new architecture to improve living conditions irrespective of the political context, was obviously supported by Le Corbusier. Unlike the extreme left wing of the CIAM, throughout the 1920s Le Corbusier sought to apply the lesson of Taylor and Ford to the city and to architecture. Like Ford, Le Corbusier claimed that, since the code of mass production was neutral, it should have been possible to apply it in different regimes and types

of government. The physical design, more than political actions, would have brought a real improvement to living conditions in an industrial city: "Architecture or revolution", wrote Le Corbusier (1923/1946) in *Vers Une Architecture*. The research on *Existenzminimum*, presented at the second CIAM held in Frankfurt in 1929, concerned the search for a biological and not economic minimum and the development of new ways of living together, the hypotheses of which compared even radical ideas of shared spaces.

Was it an overestimation of the role of architecture and its design in society; a loss of sense of proportions, or an attitude of profound cynicism?

### 3. A Research Hypothesis

The hypothesis I put forward is that it was something different, and that Le Corbusier's attitude, like that of others committed to the same research programme, was rather guided by in-depth research on the minimization of effort in an attempt to contribute to a different definition of work from the Marxist one and in the modern sense, as the conquest of a new freedom: Being modern meant conquering a new form of freedom, being free, not so much from work, but from the effort of work. From the etymological point of view, "labour" and "work" contain two traditional characteristics of work: on the one hand occupation which brings suffering and fatigue (in French as well *labeur* is "charge" and *travail* derives from the Latin *tripalium*, an instrument of torture with three stakes); and on the other creation, implementation, not necessarily in opposition to leisure time, *loisir*.

Conquering a new form of freedom from the effort of work was a research topic, and not a generic positive intention, that gave rise to much of the conviction that architecture is capable of improving the world. In other words, social and political reformism through architecture acts at the level of great detail in which the different bodies enter into relationships and collide; through resistance from and to a specific type of space, the bodies are educated in the modern sense. On the other hand, the La Sarraz declaration also states: "The idea of 'economic efficiency' does not imply production furnishing maximum commercial profit, but production demanding a minimum working effort" (Conrads, 1970, p. 109). The reference to Taylorism is clear, but perhaps a broader interpretation of the terms "economic efficiency" or "minimum working effort" is necessary, capable of revealing the freedom that derives from research on the minimisation of effort and the consequences for spatial relationships between humans and objects.

In 1947, Rudolf Laban dedicated a text to the notion of effort. Laban breaks effort down into four components: space (direct/indirect), weight (strong/light), time (sudden/sustained), flow (bound/free). In *Modern Educational Dance*, which appeared in 1948 but accounts for the research carried out before the Great War (Laban's dance notation was published in 1928), he combines research on the new forms of dance (modern or free) with the application of these studies on movement to industry:

> Starting with this wide range of physical efforts, Laban revisited his notions of rhythm and dynamics in expressive dance to adapt them to an economic use of rhythm, aiming to obtain the best possible performance….Unlike experts in the study of time and movement, Laban refused to use a technique based on the stopwatch to accelerate workers' movements. (Laban, 1948, pp. 145–146)

The efficiency of the effort is not, for Laban nor for the CIAM, the product of faster movements, rather it consists of an improved and more efficient relationship between the movements, in the equilibrium between effort, relaxation and rest which brings novelty and new awareness to the actions carried out in everyday life.

The Frankfurt kitchen was designed by Margarete Schütte-Lihotzky in 1927 and was inspired by train kitchens, Laban's notation was published in 1928 and a photo of Laban's free dances in Ascona dates to 1914 (see Figure 4). Research by Margarete Schütte-Lihotzky continued and backed up previous research in the US by the Beecher sisters, in particular Catherine, in the second half of the 1800s, which led to the elimination of the central table, the introduction of the continuous worktop and ultimately to the reduction of a space still designed for hired help; by Christine Frederick, who taught domestic science and was translated and published in 1924 by Bruno Taut, or Lilian Gilbreth, engineer, who in the 1920s, initially with her husband, used diagrams and plastic to study in Taylorist terms the reorganisation of movement in the kitchen space. Paulette Bernège, founder and president of the *Ligue d'Organisation Menagère* in France, was invited to the CIAM of Frankfurt in 1929 dedicated to *Existenzminimum* (Clarisse, 2004; Hayden, 1981; Eleb & Debarre, 1995). The reduction and simplification of a housewife's movements in the kitchen, like the simplification and reduction of the pathways inside housing in Alexander Klein's famous plans, translate in the city into a simplification and reduction of the urban spatial complexity of the past through the separation of flows, the elimination of obstacles and possible conflicts, and the transparency of the space. The minimization of routes, in diagrams by disurbanists, upsets the organisation of the living space (Baburov, Djumenton, & Gutnov, 1968, p. 135).

Beyond the minimization of effort, the effort-relaxation-rest equilibrium is guaranteed by the introduction of the *loisir* space within the city: in profoundly different ways from the nineteenth-century and early twentieth-century city in which the role of the public park was to counterbalance factories and pollution, the large green carpet equipped for sport, games, treatment and relaxation of the body and spirit in the modern city emphasises, in its continuity, the complementarity, in the Functional City, between effort and relaxation.



**Figure 4.** Rudolf Laban and the performance of free dances at the Monte Verità in Ascona (Switzerland), 1914. Source: Johann Adam Meisenbach (1914).

The city of the Modern Movement blatantly contributes to the construction of a new routine, inspired by minimum effort, the creation of a new effort–relaxation–rest rhythm and repetition (Eugenides, 2002; Sennet, 1998): "Floating somewhere between socialism and social welfare", as Aldo van Eyck (1981, p. 17) said of the CIAM.

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**Conflict of Interests**

The author declares no conflict of interests.

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Article

# The Legacy of CIAM in the Netherlands: Continuity and Innovation in Dutch Housing Design

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**Abstract**
This article discusses how CIAM (*Congrès Internationaux d'Architecture Moderne*) influenced Dutch housing and urban planning. It starts by looking at programs and policies of the 1920s and 1930s Dutch housing design, and the way in which the new ideas of CIAM were there incorporated. In this history, the design of the AUP (*Algemeen Uitbreidingsplan Amsterdam*, or the General Extension Plan) is crucial, marking the transition into a new spatial model for large scale housing areas. CIAM thinking and its successor, TEAM X, strongly influenced the idea of the social-cultural city before and directly after WWII. This becomes evident in the urban extensions of Amsterdam and Rotterdam. This practice influenced urban planning and housing design and culminated during the 1970s in the design of the Bijlmermeer. Though legendary and still detectable in the urban developments of Amsterdam and Rotterdam, CIAM thinking came forward as both visionary and problematic. This article will trace the CIAM history in these two cities to depict concepts of innovation, but also continuities in modern housing design and planning practices by focusing on spatial models, typo-morphological transformations, and ideals vis-à-vis the urban public realm. In addition to relevant writings, typo-morphological maps, drawings and street photography also serve as tools of analysis and interpretation. The article will conclude with some future perspectives regarding the relationship between the CIAM legacy and contemporary urban issues.

**Keywords**
CIAM; historical perspective; housing design; integrated city; Rotterdam; TEAM X; urban densification; urban legacy

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## 1. Introduction

The Netherlands has a long-standing tradition in housing, or to be more specific, in what could be called the Dutch City of Houses, which can be traced back to the 14th century. In this model, the individual house is the basic building unit of the city. (Ledent & Komossa, 2019). The Amsterdam inner city and the extension area of the canals (the Grachtengordel), along with the extension areas of the 19th century, such as Amsterdam Oud-Zuid and De Pijp, are famous examples. The transition from the 19th century city and the pre-war Dutch city of the social reformers to the post-war social-cultural city in the late 1930s and 1950s is marked by the difference between Berlage's design for Amsterdam Nieuw-Zuid, in 1914, and van Eesteren's *Algemeen Uitbreidingsplan Amsterdam* (AUP), or the General Extension Plan, between 1929–1933. After WWII, Rotterdam became the most famous case as a Modernist urban experiment, not only in its extension areas but most of all because of

the reconstruction of the city centre which had been bombed. Here, Jaap Bakema's famous Lijnbaan ensemble was built. In this article, we will start with a reflection on Amsterdam, which we consider to have been paradigmatic for the shift to CIAM (*Congrès Internationaux d'Architecture Moderne*) thinking before WWII. After WWII, due to the bombing, the Rotterdam city centre became the laboratory of modernist thinking and planning.

In 1985, the CIAM concept of division of functions was replaced by new ideas regarding the "integrated city" which pleaded for a fusion of functions. Even during the financial crisis, a series of complex and hybrid buildings were completed. Rotterdam was the only city in the Netherlands that was offering new building types and hybrid experiments (a+t Research Group, 2011; Fenton, 1985; Floris et al., 2011). The international press arrived and 'discovered' an exciting city. Later, Rotterdam became European city of the year 2015, not only because of the so-called new icons, but also because the city's public realm was experienced as 'lively' for the first time since the end of the war. The number of inhabitants who had opted for the city centre had increased considerably and, therefore, allowed them to leave their mark on the urban atmosphere. Since then, more people have wanted to live in Rotterdam.

The article will conclude by discussing the post-war transformation of the inner city of Rotterdam that was marked by CIAM thinking and the successful transition to the concept of the "integrated city".

### *1.1. A Multifaceted Method*

Regarding the method of typo-morphological research, we make use of a mixed approach based on the Italian ideas of Sergio Muratori and the French School of Jean Castex, which try to link typological change to social-economic developments. These approaches are not only relevant for housing, but also the typology of public buildings and hybrid combinations within condensed urban blocks:

> The sheer extent of residential space means that it has a major role in determining cities' identities. It has been frequently explored through the concept of type. The Italian school of typo-morphology thoroughly explored type as an analytical tool to understand the transformation processes of urban form in respect of building configurations. According to this school, a type can be described as a common root…a limited set of spatial attributes of form…..While studying processes of typo-morphological evolution, Caniggia defines the "foundation type" (*tipo di base*) as "*a type of building which, in a certain time and place, represents the majority of buildings because it identifies the codified family residence standard''*….Within these definitions, function and purpose remain implicit. (Caniggia & Maffei, 2001, p. 244; italics in original)

Typo-morphological research developed into a vast field which combines different approaches depending on local needs and questions. All over Europe and the West Coast of the United States, typo-morphological research groups are active, such as Carlos Dias Coelho in Lisbon and Anne Meudon in Seattle. Only recently, Benoit Jallon, Umberto Napolitano, and Franck Boutté compiled the atlas and exhibition of "Paris Haussmann; A Model's Relevance" at the Pavillon de l'Arsenal 2016. According to these authors: "The corpus is grasped through drawing and classification to reveal the rules and constants that govern its form, while a dimensional and comparative analysis points to the logic and efficiency of this form" (Jallon, Napolitano, & Boutté, 2017, p. 13).

## 2. The Dutch (Hi)story

### *2.1. De Pijp, Amsterdam*

The former 19th century embellished Dutch cities of the civil engineers, Rotterdam and Amsterdam, were characterised by perimeter blocks that followed the ditch pattern of the agricultural landscape surrounding the existing city. The De Pijp neighbourhood is a typical example of this urban practice. Housing in De Pijp also shows the classical merchant house type and its derivate, stacked housing, above a ground shop and dwelling. Usually, this type has a double entry to the shop house on the ground floor and the upper apartments starting on the first floor, as seen in Figure 1. The upper apartments may consist of one layer or a layer split into front and back house. These apartments are reached via a shared indoor staircase.

The urban pattern of De Pijp basically follows the radials of the existing tissue that lead to the city centre. These streets are usually lined with shops. The more modest apartment houses are located on the side streets, while the central Sarphati-park is surrounded by single-family terraced housing in the classical typology with a lifted *bel-etage* overlooking the park in the front. This fabric was based on a real estate developers' model, in which plots around a park and streets leading to the inner city were the most expensive ones. Towards the rear, the houses became cheaper. Notwithstanding financial motives, this model basically represents a socially mixed city where poor and rich live in each other's vicinity. Today, this model is extremely successful due to its flexibility, which allows housing in various sizes, from one room to a complete terraced house and its programmatic neutrality, because the rooms do not have a clearly delineated function. Being relatively neutral in its programmatic articulation, this type is also able to accommodate economic change.

### *2.2. The Amsterdam Zuid of Berlage, 1914*

The extension plan for Amsterdam Zuid by P. H. Berlage is, in a way, grounded in the 19th century tradition of urban extension. So, for example, the streets leading to the



**Figure 1.** De Pijp, Amsterdam. From left to right: Ground floor plan 1:500; housing area, typical street view with 19th century stacked housing; access system directly from the street. Source: Authors.

centre are lined with shops and very carefully arranged. However, there is one big difference. Berlage's ambition was an urban architecture, "a modern metropolitan architecture" influenced by the German theories of Stübben, Brinckmann and Sitte (Polano, 1988, p. 54). Using the historical plan of Amsterdam as a reference, Berlage, in fact, reaches an interpretation that stresses the big building block as an entity that has to create a complete and consistent townscape, as visible in Figure 2. In this townscape, urban space had to be articulated precisely. Superblocks format streets and squares 'enclosed' by the architecture of housing facades. At the same time, Berlage was conscious that in a modern city a vast number of affordable housing units had to be built.




**Figure 2.** Berlage's Amsterdam Zuid city extension. Top: Ground floor plan 1:500. Bottom, left to right: Aerial image of Amsterdam Zuid city extension; streets lined by shops and the boulevards linking the city extension areas of the south and the quiet living quarters grouped around squares. Notes: The hierarchy is clearly distinguishable, and the last photograph shows an urban corner between the boulevard and the street leading to the inner city. Source: Authors.

This meant that the building blocks had to be bigger than before, and the land had to be efficiently parcelled. Moreover, the facades had to express greater unity and conformity. The conventional architectural detail, such as tile ornamentations and coloured brick stripes of the 19th century, were no longer suitable. According to Polano, "the building block containing houses speculatively developed by investors, the so-called 'mass housing', forces the architect to roughly design bigger units along general lines" (Polano, 1988, p. 47) The whole approach to housing design became more rationalistic and with less ornamentation.

The former City of Houses, including Berlage's extension plan for Amsterdam, is closely related to the idea of a public interior. In this tradition of direct access to houses, the of the perimeter block corner and the consistent use of red brick as a material produces, especially during the day, a feeling of being outside 'inside'. This was increased since the backyards were mainly used as gardens and were not intended for any public use. The street was intended as a stage setting with a clear hierarchy from green boulevards to main streets leading to the centre and back streets for mainly housing and schools, which were usually connected to a square.

### *2.3. Berlage and CIAM: Van Eesteren in Amsterdam*

> In Le Corbusier's ideal city, the public realm, and hence public life itself, practically disappeared. In a sense, the end of the public realm also meant the end of the issue of how to house the working and middle classes and their respective cultures. This was replaced by the notion of the ideal dwelling, and perhaps even an ideal human being living in non-descriptive parkland. (Komossa, 2010, p. 49)

CIAM thinking and methods arrived in the late 1920s with C. van Eesteren as their representative and most productive protagonist. During the 1930s and 1950s, this thinking led to the division of functions at the scale of the city (extensions). The new city was divided into areas where one of these functions was predominant. Moreover, the perimeter block crumbled in a block composition of different volumes combining high and low building slabs. Often, this division was based on statistics, calculating the percentile size of each group based on age and family composition.

The AUP, also designed by De Graaf and Van Loohuizen, is a plan *op grondslagen* ("on basic lines"), that does not define the city extension in detail. Each area was dedicated to a main function, like housing, work/industry, leisure, or infrastructure (see Figure 3). Urban green was located between these areas. In that sense, the AUP was very flexible during its realisation and the division made it possible to change one part without interfering with another, and to develop different characters of separate urban entities. Notwithstanding previous urban extension plans, the AUP propagates statistical research, industrial planning, and production as prerequisites. All decisions were supposed to be based on demographic and additional data. Neighbourhoods were designed with their own facilities/amenities to reduce dependency on the urban centre. As such, shops, schools, parks, sports fields, and graveyards were carefully distributed in the functionally organised neighbourhoods:

> In the parts of Amsterdam that would not be built until after the Second World War, only fields were specified within the road and green structure. However, a striking detail of the General Extension Plan was



**Figure 3.** The Amsterdam AUP by Van Eesteren de Graaf and Van Loohuizen, 1939, which shows the field for new construction (red) divided by connected urban green zones (green). Source: Wikipedia (2019).

> that van Eesteren drew a series of high-rise "slabs" along the edge of Rembrandt-park and the park in Buitenveldert. These marked the "through" roads and the transition from housing district to green space….The 1950's garden cities, like Buitenveldert and Osdorp, marked the end of a (well-functioning) public realm in new expansion areas. Owing to declining density, a socioeconomically one-sided population structure, the lack of public facilities that were not directly geared to housing, the role of green space as a dividing device, and the lack of spaces for the urban economy, the new districts became large "housing estates in leafy surroundings". (Komossa, 2010, pp. 185–187)

Though the city's population did not grow as expected, around 1955, it became evident that the target of the AUP, the existence of sufficient dwellings for the population of Amsterdam until the year 2000, would not be reached. New building sites had to be found in Amsterdam-Noord, Amstelveen, and the Bijlmermeer polder in Amsterdam Zuid-Oost. Density dropped once again due to the extensive urban models and an increasing amount of dwelling space of square meter per person. During this period, the city's built area extended more and more.

### *2.4. CIAM Thinking: The Lijnbaan Ensemble in Rotterdam*

After WWII, the rebuilding of the bombed city centre of Rotterdam was based on the so-called Basic Plan—Basisplan voor de Wederopbouw van Rotterdam 1946, a scheme for the whole inner-city area, designed by Van Traa, who worked for the municipal planning office. The starting point of the scheme was a shift to the west. The heart of this new centre was composed of the architectural ensemble of the Lijnbaan. Next to the shops, there are apartments, reached by galleries on the upper floor, garages, collective bicycle stores, and individual storage rooms on the ground floor level. The architects involved were Van den Broek & Bakema Associates (for the shopping mall) and the Associated Architects Van Gool, Van Tijen & Maaskant, Krijgsman (for the houses).

Though owners of the destroyed shops in the former centre were financially compensated, the amount of money was usually not enough to re-build on newly distributed plots and on a bigger scale than before. As a consequence, in post-war Rotterdam, various models of ownership and financing were put into practice. The Lijnbaan-project was collectively financed by the association of shop owners. Operating in this way, the small units allowed shop owners to participate in the building. The model of the Lijnbaan is the most radical because it separates the program of shops, housing, and offices into different building volumes, as can be seen in Figures 4 and 5. The shops were mostly housed in volumes of two layers, which form the first traffic-free pedestrian shopping area in Europe. Behind the low-rise volumes, the 8-14-layer slabs with dwellings were situated, which were owned and rented out by professional investors.

The highest slabs line the north sides and the medium-height slabs line the east sides of the three-dimensional composition of building volumes. The apartments with two to four rooms (85 to 100m2) were intended for shop owners and 'professionals' such as doctors, lawyers, architects, and the like. In the space between the low-rise Lijnbaan pavilions and the medium-height housing slabs, expedition streets were located to reach storage rooms of shops and dwellings by car. The adjacent spaces were intended not only for shop supply and storage of the apartments but also for parking. The ensemble is completed with two-layer-high slabs of dwellings above shops, lining the west side, allowing sunlight to enter the public gardens and courts.

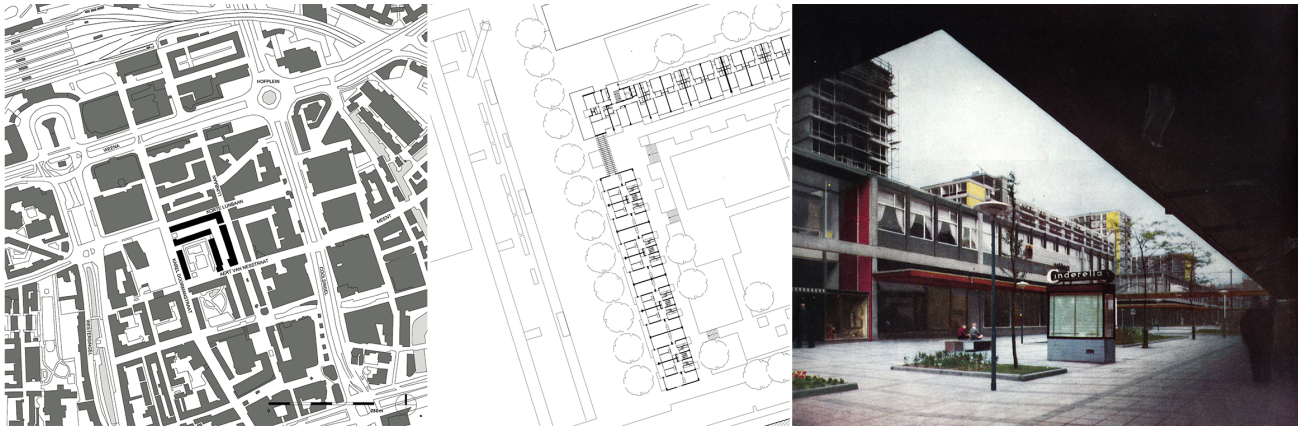


**Figure 4.** The model of the Lijnbaan. From left to right: Floor plan 1:5000; fragment first-floor plan 1:500; the Lijnbaan ensemble as a three-dimensional composition of high-rise slabs, medium-height, and low-rise volumes, which forms the shopping street designed as a public interior. Notes: The sketch shows the coherent measurement system in the shopping area; the colour scheme of yellow, red, and blue refers to the De Stijl movement and stresses unity and identity. Source: Authors.

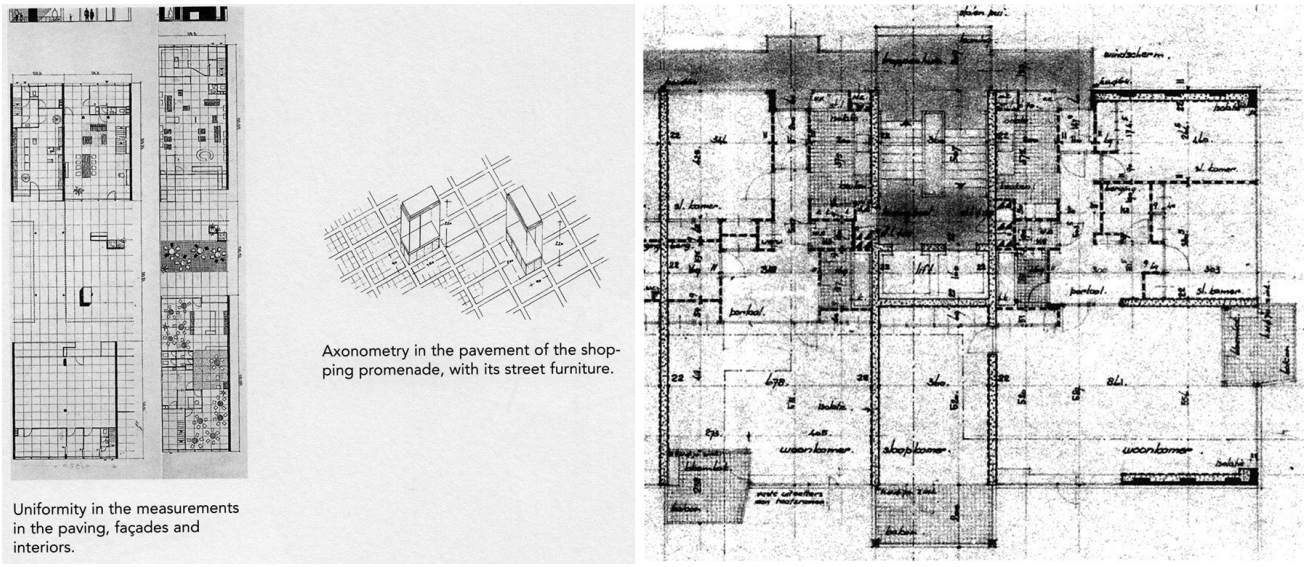



**Figure 5.** Original drawings of a floor plan of the apartments by H. A. Maaskant, 1:200 scale, with interior measurement system. Source: Komossa, Meyer, Risselada, Thomaes and Jutten (2005, pp. 164, 169).

*2.5. TEAM X*

In reaction to, and critique of, the results of CIAM thinking, namely the separation of functions, Dutch TEAM X architects, such as Aldo van Eyck and structuralists like Herman Hertzberger pleaded for a return to low-rise housing, i.e., building heights and type in compliance with the urban context. This often led to village-like housing areas, sometimes even in the centre of the city, such as the Blaak Overbouwing by Piet Blom, and the Heliportterrein of Jan Verhoeven (Hertzberger, 2014, pp. 56–76; Lüchinger, 1981). Basically, these were anti-urban projects that could not be 'absorbed' by the public life of the city. They remained isolated islands.

However, Aldo van Eyck got actively involved in the protests of the Nieuwmarktbuurt in the city centre of Amsterdam. The protest opposed the intended demolition and rebuilding according to CIAM principles of the neighbourhood (De Loches Rambonnet, 1995). His reaction can be recognised in the design of the Pentagon block that tried to reconcile the City of Houses with modern principles while allowing high density. In a way, the work of Aldo van Eyck and others in the early 1980s opened up a new interest in urban architecture, as seen in Figure 6. The need to condense the city became evident and the concept of the "integrated city" was promoted in the Netherlands, which advocated a functionally and socially mixed city with a high degree of social inclusion, not depending on car transport but on bikes and pedestrian movement.

*2.6. The Tradition of Grounded-Ness*

Derived from the City of Houses in the Netherlands, there is a long tradition of "grounded-ness", i.e., dwellings that are directly accessed from the public domain of the street. Giovanni Fanelli called this *al gusto Olandese*, "the Dutch Taste" (Fanelli, 1978, pp. 16–17), as shown in Figure 7. From the 19th century until today, various Dutch housing types show this preference



**Figure 6.** The Pentagon project in the Amsterdam Nieuwmarkt area, 1981. Top: Ground floor plan 1:500 by TEAM X and Aldo van Eyck. Bottom: Photograph of the Pentagon. Source: Authors.

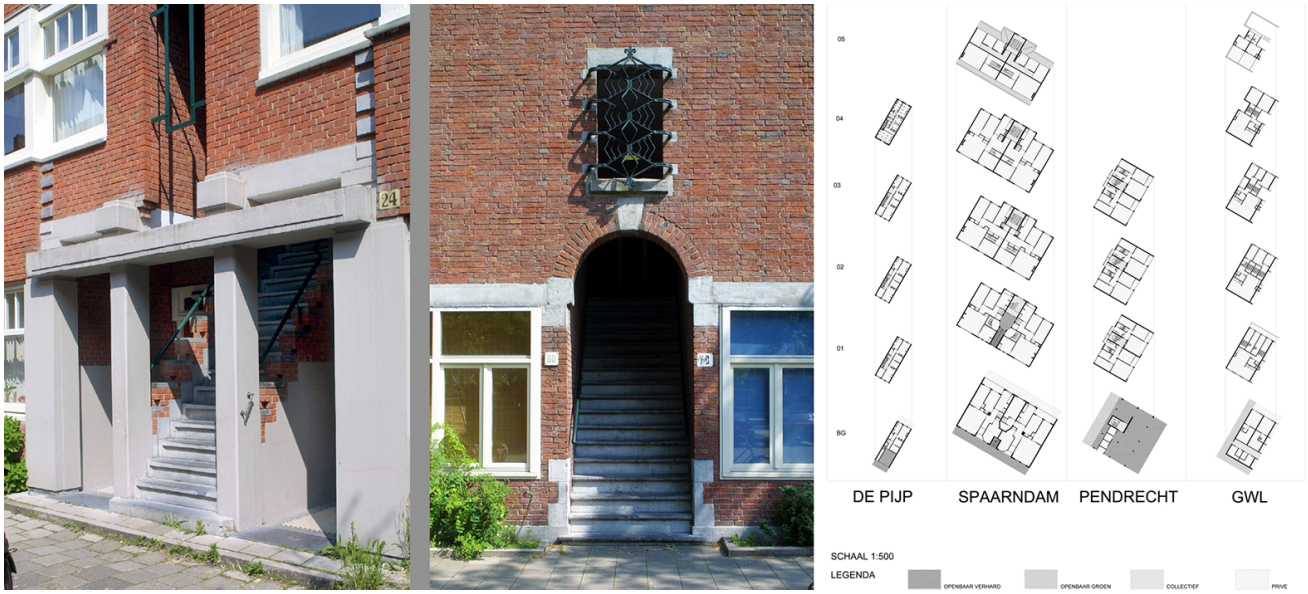



**Figure 7.** Grounded-ness, the tradition of the own front door. From left to right: Photographic examples of the own front door in in Amsterdam Zuid; comparison of Amsterdam access types ranging from De Pijp, Spaarndammerbuurt, Pendrecht, and GWL terrain in Amsterdam and Rotterdam. Source: Authors.

in different ways. It seems to be a recurring question, how to connect (or disconnect) the individual dwelling to the public realm of the street and ultimately the city. In the 19th century, the so-called "under house/upper house" type was introduced, which features two front doors next to each other. One door gives access to the two-story dwelling on the ground and first floor, the second climbs directly to the double-layered dwelling on the second/third floor. This way, there was enough room for a shop as part of the ground-floor dwelling.

From the beginning to the middle of the 20th century, this system transformed into what we call "the battery of front doors" and the "Hague portico" as the most distinguished variants. The "battery" may include four front doors next to each other. Here each dwelling has its own staircases directly leading to the first floor and second/third floor. The ground floor usually has a separate door directly onto the street. The so-called "Hague portico" is characterised by an open staircase to a public balcony on the first floor. Here, four separate front doors depart for the two houses on the first floor, and two or four front doors for the second/third floor. Here, the ground level also has its own door.

CIAM planning would result in a disruption of this tradition by moving the collective staircases into the middle of the building where two front doors are usually reachable from each staircase landing. So, in this way, the direct relationship between the public realm of the street and the dwelling had been broken because of two instead of one door, which separated these realms.

However, from the 1970s and 1980s onward, grounded-ness reappears in TEAM X's dwelling designs. They emerged not only in the proposals of Aldo van Eyck for the Nieuwmarkt neighbourhood in Amsterdam, but also in the urban renewal designs for Zwolle, Alvaro Siza's Transvaal project in The Hague, and Neutelings Riedijk architects on the former GWL housing estate (Water Factory Terrain) in Amsterdam.

This grounded-ness was also reflected in the relationship between the living rooms of the ground floor dwellings and the street because of the direct view the pedestrian would have into the interior space of each house. Basically, this meant that during the day the street would constitute the public realm of the city. At night, this relationship inverts, as soon as the lights inside are turned on. Now the living room is the stage where the *flaneur* of the streets is welcome with his/her gaze.

What did not change, regarding all urban models and ideologies, is the Dutch sensitivity for the materialisation and design of the public realm and collective spaces. Ranging from the 19th century ornamentation of brickworks and tiled entries up to the inner city Lijnbaan, the street is always included in the (housing) design. As a whole, the Lijnbaan was conceived as a three-dimensional architectural composition of building volumes. The original colour scheme indicated the high-rise slabs as yellow, in fact, yellow bricks, the canopies of the shops and some of their facade elements painted red and the lampposts blue. This scheme, as shown in Figures 4 and 5, is influenced by the Dutch De Stijl movement. In fact, the Lijnbaan was considered a shopping arcade without a roof that alluded to the Coolsingel Shopping Arcade that had been demolished before. The shops and the walking area in between share the same measurement system, as if it were one single space like inside an arcade, lined by the adjacent low-rise volumes of the shops. Also, displays and showcases follow the same overall measurement system. The choice of materials regarding pavement and showcases, in fact, transform the walking space into a public interior

space (Komossa, Meyer, Risselada, Thomaes, & Jutten, 2005, pp. 160–171).

### *2.7. The Specific Case of Rotterdam*

Due to the fact that around 1900, the port of Rotterdam became the largest in Europe, Rotterdam wanted to transform its typical Dutch city of Houses into a more metropolitan environment. At that time, the modern city of Haussmann-Paris was a convincing example. Following Jallon: "Devoid of its function and varying in its uses, each architecture reveals its true nature and, paradoxically, its identity", and Paris "revealed capacity encourages us to reconsider the axioms of current urban planning and design within a context where performance requirements exist harmoniously with the pleasure of habitation, where resilience becomes architecture" (Jallon et al., 2017, p. 5).

However, after WWII, another concept of modernity, very different from that of Paris, became a new source of inspiration: cities like New York or Chicago, with their downtown districts exclusively for business, shopping and cultural events, served as an example. However, the American dream and CIAM did go hand in hand and were therefore easy to adapt. So, without any opposition, a brand-new layout was projected upon the then completely bombed city of Rotterdam, based on the accessibility by cars. Only a few houses were allowed for shopkeepers and some very dedicated city dwellers, but for most people, a home in the suburbs was provided. Although the reconstruction of the city was not a success, even after 40 years, the idea of this concept was so politically correct that no one dared criticise it. Moreover, people started to get used to it and defended the inner city as a typical port-city identity. In the meantime, students left the city after their study, theatres hardly had any audiences and there were almost no cafes or restaurants. In fact, the result was the exodus of middle-ranking professionals to other cities (Schrijer & van der Zwan, 2004). However, there was a turning point in 1985 (Aarts, 1987). For the first time, the question emerged: why can't people live in the inner-city? In those days this actually meant: why only social housing, why not also middle-class housing for people who longed for an inner-city lifestyle?

The historic decision to become a radical CIAM city was questioned during those years. From 1985 onward it was possible to build some houses for higher income groups. The first steps taken were plans that were made and carried out to develop the neglected old city harbours for this typical inner-city audience. Rotterdam's cherished identity may have been modern, but the fact that the city had an interesting history was almost forgotten. This newly discovered history meant relief for most residents who were proud of the 'old' and the 'new'. Meanwhile, all plans developed for the inner city were explicitly based on adding housing. More residents moving to the inner city was undoubtedly part of the success that gave the city its current fame (Tillie & Aarts, 2012).

Nevertheless, in order to be successful, there should be around 60,000 inner-city dwellers instead of 30,000. This figure is the result of research that shows that in the larger cities of the Netherlands about 10% of the city dwellers actually inhabit the inner city.

During the financial crisis of 2008–2013, studies showed that synergy is important for a successful city: synergy between the enterprising inhabitants of inner cities, employment, culture and, for example, culinary meeting points (Marlet, 2009); or as Jacobs (1969) put it: "In successful cities, everything is about people who challenge, compete, and stimulate each other so that innovation can come about". As a result of that, more research was done to accelerate the densification process by looking for more, alternative strategies. Two of the most important indicators for achieving this goal were: more differentiation strategies and better public space (Tillie & Aarts, 2012). The study showed that it is very plausible to build extra housing for 30,000 inhabitants. The overall computer assessment also showed that more inhabitants lead to more bicycles and pedestrians and less car use, more cafés, restaurants and culture, better use of the urban space, and 30,000 new jobs.

Despite the financial crisis, Rotterdam by now was determined to make the city centre a success and refinanced housing projects with the slogan "Never Waste a Good Crisis". As there was a shortage of projects that were too complex to build even before the crisis, the city helped to realise them. Some examples are the Market Hall by the MVRDV, Calypso by Alsop, and The Rotterdam by OMA. Upon completion, these projects were seen as icons of the 'new' attractive city in 2014. They turned out to be the symbol of the ambition to become an integral city.

#### 2.7.1. Criteria

Nowadays, not only are the old harbour areas in the inner-city and the historic centre up to densification, but so is the icon of the CIAM-city: the Lijnbaankwartier. Altogether, the number of inhabitants in this area has doubled. This is a very important fact because the densification-process introduced urban life in this area and thereby defines the atmosphere of a vital city.

#### 2.7.2. Identity

A look at the recent experiment made in the urban development of Rotterdam indicates that the inner city is very important for the identity of the whole city. When a city centre has a bad reputation, it affects the entire city and even the region (Marlet, 2009). To become a convincing city centre, all CIAM ideology had to be rotated 180 degrees. Instead of dividing functions, they should be mixed and reaching for synergy, which makes inner cities exceptional. Despite the adaptation of a series of densification schemes, the Lijnbaan-quarter is still a monumental part of Rotterdam. It retains its strong identity,

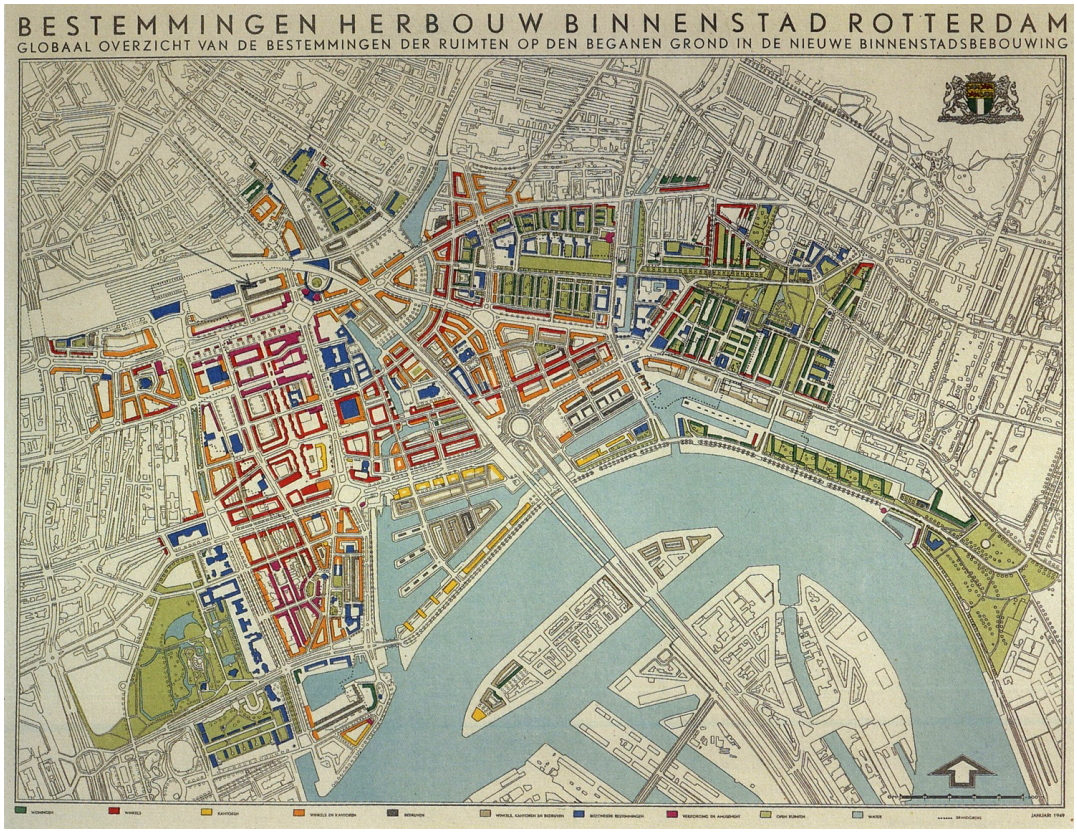



**Figure 8.** Bestemmingen herbouw Binnenstad Rotterdam, by Van Traa in 1946. Source: Van de Laar and van Jaarsveld (2004, p. 60).




**Figure 9.** Investigation of on-going and future urban densification in Rotterdam, 2010. Source: Tillie, Borsboom-van Beurden, Doepel and Aarts (2018).

but now as part of a vital urban inner city, as seen in Figure 10.

2.7.3. Density (Inhabitants and Jobs)

As mentioned, to achieve the goal of a successful critical mass in the inner-city, enough residents will have to live there. These inhabitants only want to live in inner cities with all the amenities possible and public transport facilities which connect them with other (international) places. As a result, the computer model showed that 30,000 more inhabitants would also result in 30,000 jobs. Later on, the annual city monitor showed the same result.

2.7.4. Resilience Programmatically and Socially

The aim of a condensed city is not only based on an inspiring atmosphere but also on the demand for comfort. This means a healthy environment for grownups and their children, which also includes parks, green rooftops, and courts. As a matter of fact, this leads to a new lifestyle in which cars are less and less important and in the future: no more fossil fuel vehicles and heat islands, but more space for bicycles, pedestrians, terraces, playgrounds, and other green areas as part of the inner-city design.

2.7.5. Connectedness

The result is already visible in Rotterdam. The parking garages in the high-rise in walking distance from the train station are empty. The people who live there feel cosmopolitan and do not understand why they should have a car. On the other hand, they will only settle in cities with a good connection to an international airport.

## 3. Conclusion

Taking into account the long history of housing in the Netherlands, it becomes clear that it is marked by a high degree of continuity regarding urban planning. Urban extension plans, ranging from the Grachtengordel in Amsterdam to the 19th century embellished city of the civil engineers show an integrated city. Only in the 20th century does urban planning diverge. Berlage's extension plan of 1914 still tried to integrate the city, and even TEAM X returned to a low-rise tradition that maintained the existing city fabric. However, this (hi)story shows that urban transformation is an on-going process. CIAM ideas were a moment in history and finally became incorporated into today's urban planning.

The inner city of Rotterdam is an example of how CIAM ideas were not a sustainable urban concept. Moreover, it was unavoidable to change the city into a place where people can find their way. It meant transforming from a car-orientated reconstruction plan into a pedestrian and biking orientated inner city. Nowadays, it is mainly about a mixture of living, working, pleasure, culture, and in addition, more and more about a healthy environment. That means no more fossil-based traffic, a greener environment, and lots of meeting places in the future.



**Figure 10.** Photograph of the Schouwburgplein with the Lijnbaan ensemble on the left, indicating the identity, continuity and change of the area. Source: Rotterdam Make it Happen (n.d.).

To achieve a successful city centre, the administration had to reset planning practice from a sector-orientated to an integrated policy. Instead of separately planning housing, traffic, public space, working facilities, and other amenities, the goal should be to get challenging, inspiring, and comfortable, "integrated" cities. This was not just a break with the former planning tradition: it set a completely new goal, namely, to realise a liveable city. Basically, this meant synergy between CIAM and the "integrated city".

## Conflict of Interests

The authors declare no conflict of interests.

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**Martin Aarts** has worked for the city of Rotterdam for more than thirty years, twelve of which he has been Head of the Urban Development Department. In this position he was responsible for the reconstruction of the city centre and ultimately for the future of the city and region. Martin Aarts teaches at the Academy of Architecture in Rotterdam and Amsterdam.

COGITATIO

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Article

# Planning History of a Dutch New Town: Analysing Lelystad through Its Residential Neighbourhoods

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**Abstract**
This article seeks to analyse the reciprocal influence between the post-war urban planning policies and the development of residential neighbourhoods in Lelystad between 1965 and 1990. This city has been designed 'from scratch' as the urban centre of the IJsselmeer Polders, the largest land reclamation project of the Netherlands. Lelystad's neighbourhood development will be described and contextualised in the Dutch New Towns planning policy (1960–1985), which intended to avoid increasing congestion in the most densely populated area in the Netherlands: the Randstad. Lelystad is seen as a significant case. This New Town exemplifies the evolution in urban planning in The Netherlands in the second half of the twentieth century. Cornelis van Eesteren, who had presided over the CIAM (Congrès Internationaux d'Architecture Moderne) from 1930 to 1947, was responsible for the urban design in 1964, based on the principles of the Modern city and the functionalist design of residential neighbourhoods. However, Van Eesteren was dismissed, and his plan was modified. The successive urban plans, elaborated by the IJsselmeer Polders Development Authority (a public body for the development of the polders), adopted a technical and practical approach, and later moved to functionally integrated neighbourhoods, based on more organic 'Woonerf' theories. The research investigates the relationship between the general and the particular by studying the socioeconomic and political context that conditioned the Dutch New Towns and the specific urban and architectural characteristics of a selection of residential ensembles in Lelystad's neighbourhoods. Furthermore, the research seeks to illustrate the relevance and the influence of both urban planning policies and the effective design of residential configurations.

**Keywords**
CIAM; Cornelis van Eesteren; Groeikernen; housing ensembles; New Towns; residential configurations; urban design; urban planning; urban theories

**Issue**
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## 1. Introduction

A New Town is a town that has not developed organically but was planned and created. The International New Town Institute (n.d.), a platform for research, education, and knowledge exchange for New Towns, gives the following definition:

New Towns are cities or towns that are designed from scratch and built in a short period of time. They are designed by professionals according to a Master Plan on a site where there was no city before. This distinguishes a New Town from a 'normal' city that gradually grows and evolves over time. Also, New Towns are mostly the result of a political (top-down) decision.

> The building of a new city 'from scratch' is a heroic enterprise that challenges the architect or planner to find the ideal shape for the urban program according to the state of the art planning ideas. A New Town is always a reflection of one moment in time and the ambitions of that moment.

This article is about Lelystad, a post-war New Town in the Netherlands. It is presented as an example, among many others, of a New Town development where the reciprocal influence between the urban planning ideals (according to the evolution in 20th-century Dutch urban theories) and the residential neighbourhoods' final execution acquired special significance.

Lelystad is a city located in the polder Oostelijk Flevoland. It is part of the *Zuiderzeewerken*, the largest land reclamation project of the Netherlands, created between 1930 and 1968. The *Zuiderzeewerken* included the creation of four polders in the former IJsselmeer: Wieringermeer (in 1930), Noordoostpolder (in 1942), Oostelijk Flevoland (in 1957), and Zuidelijk Flevoland (in 1967). The planned Markerwaard has never been realised. As the creation of new land can be seen in a long tradition of reclaiming land, the foundation of Flevoland's new towns can also be seen in the wider Dutch, and even European, planning policy of the post-war years. In other countries in Northwestern Europe, similar developments took place, such as the New Towns in the United Kingdom and *villes nouvelles* in France. Although there are important differences in planning policy, culture, and scale of the towns, these programs also aimed at solving the housing shortage in post-war European cities and preventing unrestrained expansion and suburbanisation. As the counterpart of large-scale developments of earlier years like the Grand Ensembles around Paris, they share the characteristic low-rise suburban living environment mainly comprised of single-family homes (Nio, 2016, p. 11).

Currently, these cities face new challenges. The energy transition to sustainable sources, which is a main issue all cities have to anticipate, will put pressure on the low-density and car-oriented urban models of post-war New Towns like Lelystad. Moreover, the Dutch Minister of Internal Affairs, concerned with housing policy, expressed the need to build 1 million houses before 2030. A reoccurring housing shortage, which was the origin of the New Towns, is again relevant in their development.

The historiographical analysis carried out has highlighted wise and poor decisions in the planning and urban development of Lelystad and has generated knowledge that could help upcoming planning policies. Therefore, this article aims to find in the past, that is, in the decision-making processes and urban-residential relationships that underlie the urban development of Lelystad, the keys to understand the present and imagine the future, for Lelystad and other New Towns with similar characteristics.

## 2. Method

The research has been structured in four main phases. The first one focuses on the analysis of the principal milestones that underlie the Dutch New Town planning policy (1960–1985). The second phase seeks to make a synthesis of the historical development of Lelystad based on the successive urban plans that were approved. The next research task has been to find the keys that have defined the growth process of Lelystad through the identification of the residential neighbourhoods and the temporal sequence of its construction. According to the research question, the last phase discusses the possible synergies that have existed between urban planning and the design of housing estates.

The research requires an important search of bibliographical references linking the knowledge generated by other researchers. In addition to the review of research publications or legislative documents, experts on the matter have been consulted. Besides, a continuous consultation of the current and historical planimetry has been acquired, as well as planning documents in several scales. For a study of urban evolution like this, it is essential to work simultaneously with orthographies and images as well as with the geographic information systems available. This process has involved indispensable work of documentary review in different archives. Among them, the Flevolands archive (*Het Flevolands Archief*) should be highlighted since it has a large part of Lelystad's neighbourhood planning projects. Finally, the detailed analysis of these urban ensembles has required recognition in situ for a better understanding of their evolution. It has been necessary to accompany this process with a photographic and cartographic documentation process.

## 3. Dutch New Town Planning Policy

A series of ministerial memoranda are characteristic for the leading role of the national government on spatial planning in the post-war Netherlands. Large-scale land development planning started with the reclamation of land in the Zuiderzee project and was continued in national plans to cope with reconstruction after WWII. The Dutch national government has had a more significant influence on housing policy than other Western European countries due to subsidy programmes and active land policy, as well as the vast amounts of public domain lands (Faludi & van der Valk, 1990, pp. 19, 26). In the 1958 memorandum "The Development of the West of the Country" (Werkcommissie Westen des Lands, 1958), the population of the country was projected from 11 million people in 1958 to 13.5 million in 1980 (Faber, 1997, p. 9). This document officially introduced the concept of Randstad to refer to the most densely populated area in the Netherlands (see Figure 1). Horseshoe-shaped, it runs from Dordrecht to Utrecht and includes the three largest Dutch cities: Amsterdam, Rotterdam,

and Den Haag. According to Statistics Netherlands (CBS, 2018), their population in 1960 was 869,602, 729,852, and 606,110 inhabitants respectively.

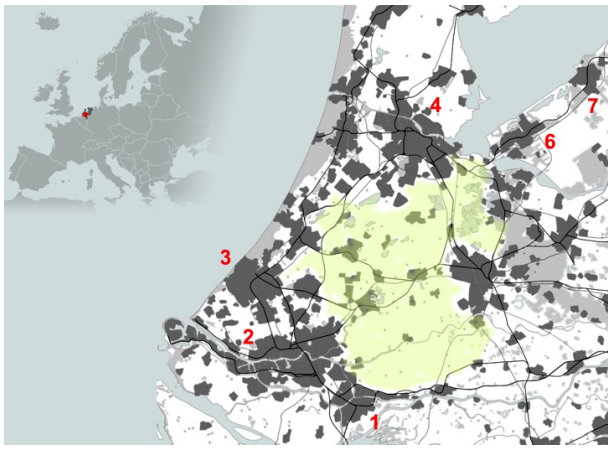



**Figure 1.** Randstad and Green Heart. Notes: (1) Dordrecht, (2) Rotterdam, (3) Den Haag, (4) Amsterdam, (5) Utrecht, (6) Almere, and (7) Lelystad. Source: authors.

To regulate the problem of overcrowding and congestion, it was proposed to keep buffers open between towns and cities, preserve a central open area, Green Heart (*Groene Hart*), and concentrate urbanisation in a limited number of locations elsewhere in the country. In 1960, the First National Spatial Planning Policy document sketched out an outwardly-focused model for growth for the Randstad around the central open area. It can be considered as an archetypical example of a polycentric metropolis (Maas, 2012, p. 7). Existing small or medium-sized cities were to be expanded and even new cities could be introduced to accommodate the 'surplus' of inhabitants of the big 'donor' cities. These overflow cities should grow to independent cities and house 50,000 to 100,000 people each. They were suggested close to the Randstad to prevent high commuting traffic costs (Pantus, 2012, p. 18). This was the kick-off for the Dutch New Town planning policy.

In the Second National Spatial Planning Policy document of 1966, things became more urgent. The growth of prosperity and population was expected to be stronger than assumed in earlier plans. The Dutch population reached twelve million in 1965. That same year, Statistics Netherlands (*Het Centraal Bureau voor de Statistiek*) predicted 21 million inhabitants in the year 2000 (Pantus, 2012, p.18). Furthermore, cities in the Randstad were expanding, which was seen as inconsistent with the concept of 'Green Heart' of the 1960 Spatial Planning Policy document. Therefore, more attention was needed for the possibilities of combining the benefits of urban life and a quiet residential atmosphere. A new concept was introduced: bundled de-concentration. This was the happy medium between concentration in large metropolises and total de-concentration as urban sprawl. The *Blokjeskaart* accompanied the Second National Spatial Planning Policy Document. Yellow, orange, red, and brown blocks on this map represented four types of urbanisation (A, B, C, D) and indicated how 20 million inhabitants could be housed in the year 2000 in diverse living environments, ranging from village environments to cities (see Figure 2). The coloured blocks indicate the location, size, and a density between 15 and 60 dwellings per hectare. This type of map showing blocks was innovative and would become influential in Dutch urban planning in later years (Maas, 2012, p. 18).



**Figure 2.** *Blokjeskaart* in 1966. Notes: Type A in yellow (5,000 inhabitants), type B in orange (15,000 inhabitants), type C in red (60,000 inhabitants), and type D in brown (250,000 inhabitants). The first urbanisation type had local bus service, while the rest had a railway station and intercity bus or express train service (Maas, 2012).

Contrasting to the Second, in the Third National Spatial Planning Policy document of 1974, the expected population growth for the year 2000 shrank to 16 million. But the strategy of bundled de-concentration was continued and elaborated in this document. The term *Groeikern* (growth centre) was introduced and defined as: "a *Groeikern* is a nucleus that should experience strong growth, especially for the benefit of a nearby (larger) city, in case this growth is exceptional compared to the size of the nucleus itself" (Faludi & van der Valk, 1990, p. 96, emphasis added). The relation between the older and bigger 'donor' city and the appurtenant *Groeikern*, was delicate. They should be independent, but not compete with the donor city. On the one hand, the *Groeikern* should not affect the development of the central functions of the

big city. On the other hand, they should not turn into a dormitory suburb and include facilities, services, and generate employment to not depend entirely on the donor city. In a few stages, the following cities were appointed as *Groeikern*: Purmerend, Hoorn, Alkmaar, Lelystad, Huizen, Almere, Zoetermeer, Spijkenisse, Hellevoetsluis, Nieuwegein, Houten, Capelle a/d IJssel, Duiven-Westervoort, Helmond, Hoofddorp, Hoekse Waard, Leusden-Hamersveld, Pijnacker-Nootdorp, and Barendrecht-Smitshoek. Except for Almere and Lelystad, the origin of these growth centres was a small village. So, strictly, Lelystad and Almere are the only new towns being developed on new land. However, all of them were appointed and planned (from scratch) to constitute a new territorial system based on new urban centres. Tasks for every city were defined in terms of location, number, and time planning. By listing names and numbers, the 1972 document made a practical and instrumental start to the planning policy. As written by the authors: "after the 'brain and soul' (first), the 'flesh and blood' (second), now the Spatial Planning Policy has got 'hands and feet'" (Faludi & van der Valk, 1990, p. 96)

The Dutch New Town planning policy has been very successful in assessing the number of built dwellings. After a laborious start in the period 1972–1979, when, because of municipal organisational reasons, for example, the production of dwellings, employment, infrastructure, and social-cultural facilities was behind schedule, in the period 1979–1985, almost all *Groeikernen* had fulfilled or gone beyond their growth task. From 1972 to 1985, 1.6 million dwellings were built in The Netherlands, of which ca. 182,000 (11.3%) in a *Groeikern*. This has made an enormous contribution to solving the post-war housing shortage (Faber, 1997, pp. 1, 58, 62). Moreover, the strategy of bundled de-concentration has successfully protected the Green Heart from overbuilding. The *Groeikernen* served the green areas and the cities. Housing the overspill of their population enabled the donor cities to renew their old inner-city neighbourhoods. The 1983 memorandum "Outline for the Urban Areas" included a preference for new developments at shorter distances to the donor city. Lelystad loses the *Groeikern*-status, but Almere continues expanding.

## 4. Cornelis Van Eesteren and the CIAM

In 1916, after the successful reclamation of De Beemster and De Haarlemmermeer, the first plan was made for the reclamation of the Zuiderzee. These IJsselmeer polders were primarily intended for agricultural purposes but could, in addition to recreation, also offer a solution to address the pressure on large cities to offer more housing. The Dutch Institute for Housing and Urban Planning (1925–1933) examined the possibilities (Hemel, 1994, pp. 30, 45). During the planning stage of the first polders in the Zuiderzee, the Wieringermeer and the Noordoostpolder, opposing visions played a role. M. J. Grandpré Molière, who was the protagonist of the traditionally-oriented Delft School was responsible for the aesthetics, later succeeded by S. J. van Embden. T. K. van Lohuizen represented the Modern Movement and was responsible for urban design. In 1929, the report *The Future Landscape of the Zuiderzee Polders* presented the first overall plan for the polders in the former Zuiderzee. From 1942, Cornelis van Eesteren became involved in the development of the IJsselmeer polders. Consequently, the ideas of The Modern Movement and the CIAM (Congrès Internationaux d'Architecture Moderne) became leading ideas.

In parallel to the reclamation plans for the Zuiderzee, an expansion plan for Amsterdam was initiated in 1921. The Public Works Department (*De Dienst der Publieke Werken*) and the Urban Development Department (*Afdeling Stadsontwikkeling*) were established in 1928. Van Lohuizen was appointed deputy director of Public Works Department and Van Eesteren was the director of the Urban Development Department in Amsterdam from 1929 to 1959 (Hemel, 1994, p. 46). Van Lohuizen and Van Eesteren have cooperated on the General Extension Plan (*Algemeen Uitbreidingsplan*, AUP) of Amsterdam (see Figure 3). This was completed after a number of steps in 1934 and approved in 1939 by the official implementation agencies. In 1939, the first constructions started in the Bos en Lommer/Landlust. Their linear blocks around a semi-public courtyard were an innovation compared to the earlier perimeter city blocks. The AUP is characterised by urban patterns of buildings and ensembles in open urban blocks and a strict division of functions in living, working, recreation, and transport. Public greenery and water formed the structuring urban elements, the starting points for the later CIAM principles.

Van Eesteren was closely involved with CIAM from 1928 to 1960. He became president in 1930 on the recommendation of W. Gropius. The first plan for the expansion of Amsterdam from 1931 was discussed at the fourth congress of the 1933 CIAM in Athens. The Dutch CIAM members, including Van Eesteren and Van Lohuizen, were closely involved in the preparations for this congress. At the request of Le Corbusier, Gropius, Steiger and Giedion, their research "The Functional City" was elaborated into "The Athens Charter", the ultimate guideline for the design principles of the CIAM (Somer, 2007, p. 86). The implementation of the AUP came to a halt at the beginning of the Second World War but planning on a national scale continued.

## 5. Lelystad's Urban Planning

In 1942, the Zuiderzee Works Department decided that a detailed urban plan was needed for the IJsselmeer polders, such as the AUP for Amsterdam. Van Eesteren was asked to take on this task. In 1933 Van Eesteren had visited De Wieringermeer polder in a CIAM context. He had been inspired by the result of the Wieringermeer and was particularly impressed by the coherency of the de-




**Figure 3.** AUP of Amsterdam in 1935. Source: Amsterdam archive image bank.

sign, the regularity of systems and the rectangular patterns (Hemel, 1994, p. 151).

In 1958, Van Eesteren was commissioned by the National Office for the IJsselmeerpolders (*Rijksdienst voor de IJsselmeerpolders*, RIJP) to design the urban plan for Lelystad, which was to become the urban centre of the IJsselmeer Polders. The design initially allowed for 50,000 inhabitants, with the possibility to grow to a total of 100,000. The issue of phased growth would become a problematic aspect for Van Eesteren's plan (Brouwer, 1997, p. 24). Already in 1949, Van Eesteren had worked on the urban plan for Lelystad. In the first designs for the 'ideal' city of the 20th century, the centre was positioned in a bay and elevated to the level of the dyke. The creation of a strong city silhouette would form a 'crown' for Lelystad as the polder capital, relating to Bruno Taut's Stadtkrone (Hemel, 1994, p. 177). It can be regarded as the expression of the artist/urbanist Van Eesteren. However, his ideas about the location at the waterfront and the raised ground level of the centre were not accepted. In Van Eesteren's final design, presented after many adjustments in 1964, the city centre is east-west oriented, located south of the main road leading westward to the planned polder of Markerwaard. The infrastructural plan combined elevated main roads with a separate system of secondary streets at ground level. Neighbourhoods were planned on both sides of the centre (see Figures 4 and 5).




**Figure 4.** Van Eesteren's structure plan, July 1964. Source: Flevolands archive.

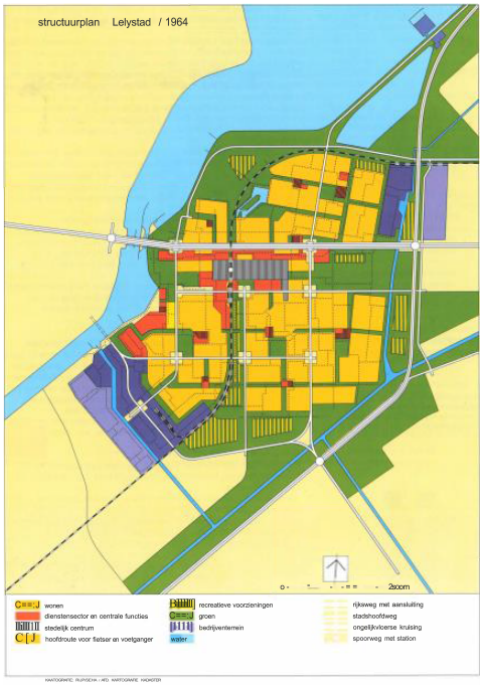



**Figure 5.** Structure plan 1964 (see also Figure 4).




**Figure 6.** Structure scheme 1969.

But because of major disagreements regarding the urban design and planning process, Van Eesteren's plan was rejected in mid-1964 by the Planning Committee (*Planologische Commissie*) and Van Eesteren was set aside in early 1965. The main argument was the continuous growth to 100,000 inhabitants that this plan assumed, which was thought improbable by the authorities (Brouwer, 1997, p. 49). Although Van Eesteren was dismissed, the construction of the first neighbourhood was started in 1966, according to his plan. The Zuiderzeewijk included dwellings, parks, a school, green structures, and a commercial centre. However, Van Eesteren's infrastructural system was reversed and therefore cheaper: main roads at ground level and slow traffic crossing by bridges. For a long time, nothing was published about the plan for Lelystad. Pierre Merlin, director of the Institute d'Urbanisme in Paris, described it in 1972 as a plan in which the general principles of the CIAM, based on the functional city, are recognisable (Hemel, 1994, p. 255).

In need of a more flexible development plan, the authorities commissioned the urban advisors De Bruijn, Van Embden and Kuiper to set up their "structure scheme" (1969; see Figure 6). This scheme allowed for an open planning process and phased growth by complete self-sufficient neighbourhoods. Different from Van Eesteren's functionalist ideals, the leading principle was the *Wijkgedachte* (the neighbourhood unit), based on Clarence Perry's neighbourhood unit theory. The plan consists of four self-contained neighbourhoods around the city centre. This centre was north-south oriented now, and able to expand southward towards Randstad. Van Eesteren's ideal design was replaced by pragmatism (Brouwer, 1997, p. 93). Later, the structure scheme (Figure 6) developed into a structure plan (1978; see Figure 7). Based on the same principles, the plan included some reconsideration. Instead of the former district centres attached to the central zone, all commercial and societal functions were concentrated in a main central zone. A lower density resulted in more expansive residential areas (Constandse, 1980, p. 67). The railway in the central zone had been planned from the start but was only delivered in 1988.

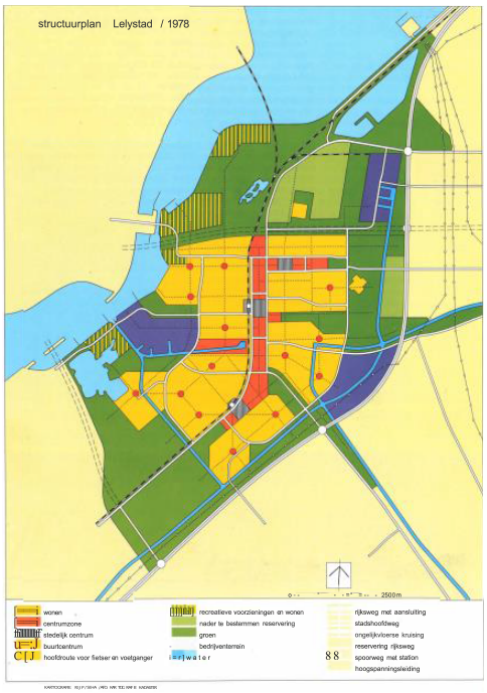



**Figure 7.** Structure plan 1978. Source: Constandse (1980).

## 6. Lelystad's Neighbourhood Development

During the planning and construction of the Dutch New Towns, there was a rather sudden turnaround of ideals, described by De Vreeze:

> Until 1972, the high-rise was dominant, surrounded by long straight blocks of multifamily houses and terraced houses, following the tried and tested schemes of the successive collections of standard floor plans. Then suddenly, in every neighbourhood or even every street, an enormous variation appears in the composition of housing types, the form of streets and squares, planting schemes, the shape of building blocks, facades and materials, but predominantly low-rise! (de Vreeze, 1993, p. 406)

This movement was strongly influenced by the Forum-group of architects, under the inspiring leadership of Aldo van Eyck. As the new board of Forum-magazine in 1959, they accused architects and planners of making The Netherlands 'unliveable' and pleaded for a new architecture that would create 'liveable cities' and coherence between people and things (van Heuvel, 1992, p. 12). Although generally influential in the architectural climate of that time, it was especially in this suburban environment of the *Groeikernen* that the new architectural and urban design of the Forum group could prosper (de Vreeze, 1993, p. 405). Important and innovative themes were flexibility, participation, shelter, appropriation, the 'in-between', duo-phenomena, industrial production, and interconnected repetitive structures.

In later stages of the *Groeikernen* development, leading design ideas changed again. In 1979, the urbanist and architect Carel Weeber advocated the rehabilitation of an urban discipline that was autonomous, based on formal principles, ordering the urban space mainly by two-dimensional compositions, and when financial support for *Groeikernen* was reduced in the 1980s, Weber's plea for simple straight-line urban structures suddenly received a great deal of support in practice (de Vreeze, 1993, p. 407).

The research has identified that these two general transitional moments in urban and architectural Dutch planning have clear influence in our case study. This fact allows us to divide the analysis of Lelystad's neighbourhood development into three phases that will be described in the following paragraphs.

### *6.1. First Phase: Orthogonal-Structure Neighbourhoods in the 1960s*

The urgency to start developing housing led to the planning of the first neighbourhood by Governmental request, before the official dismissal of Van Eesteren's plan (Brouwer, 1997, p. 52). This early urban development was to house the first 4,800 dwellings, in addition to the central services and infrastructure for the first 17,000 inhabitants of the city (Geurts, 1995, p. 63). It is located south of the main road and protected by a large tree screen. This first district (Wijk 1) is made up of two neighbourhoods, located respectively north and south of the central area (currently called Lelycentre) which was to be comprised of commercial premises, offices, and other community services for the first inhabitants of the city.

Following a rational and orthogonal layout, based on the neighbourhood-unit, the design sought to create an attractive living environment and generate a certain urban complexity by avoiding excessive dispersion and concentrating urban uses. Paradoxically, it was planned with a density of approximately 30 dwelling units per hectare, significantly higher than other residential areas of the polder. Both Van Eesterens' plan and the later *Structuurschema* had supported high-rise buildings, especially in the residential areas near the centre. However, the RIJP would defend low-rise construction based on the population's interest in living in single-family homes and, therefore, their opposition to high-rise buildings (Constandse, 1989, p. 45).

The construction of the first houses began in March 1966 in the north of Wijk 1. The Zuiderzeewijk is an area of approximately 71 hectares and about 1600 houses, of which 200 units are apartments (12.5%). Most of these flats are located in three-storey buildings with gallery access on the first and second floors. The communal storerooms and garages and some small dwellings are on the ground floor. The majority of the residential units are single-family row houses (87.5%) that respond to three different architectural designs (see Figure 8). The first are called 'drive-in' houses, with a garage on the ground floor. The kitchen and living room are on the first floor and the bedrooms on the third floor.

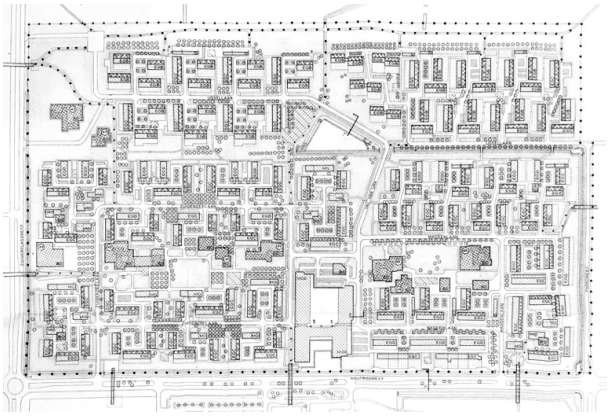


**Figure 8.** Zuiderzeewijk's urban layout. Source: Flevolands archive.

The second type is called 'piano house' due to its section design (see Figure 9). The kitchen and living room occupy the ground floor, the bedrooms are on the first floor, and the second floor is set back, generating an outdoor terrace. The third is a two-story type that can be considered as a variant of the previous one. Despite the low density of the neighbourhood, all dwellings were initially

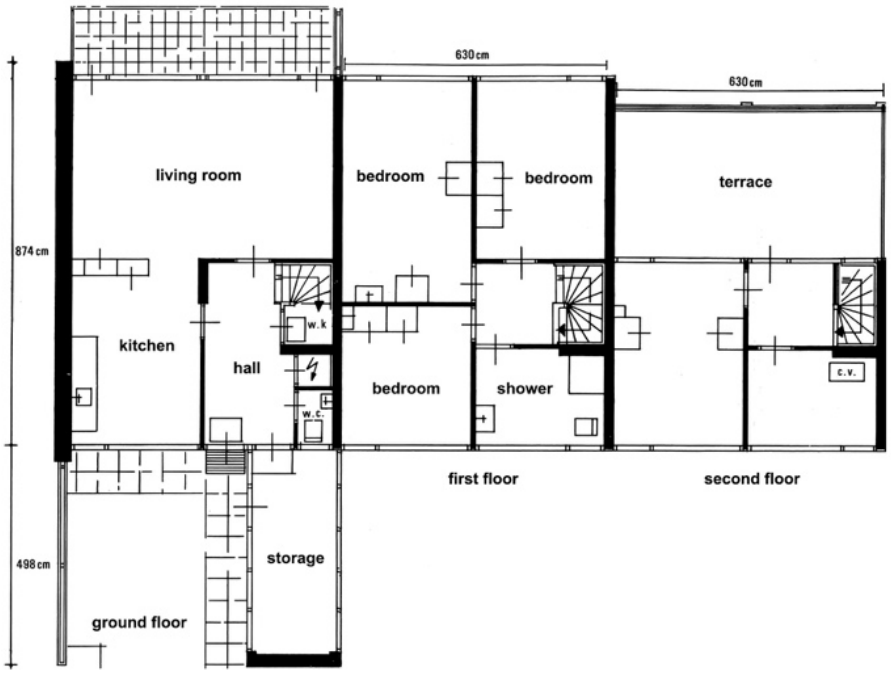



**Figure 9.** Zuiderzeewijk's piano house's floor plans. Source: Flevolands archive.

designed with flat roofs. This fact gives it a modernist urban character. Likewise, all of the houses are grouped around an area conceived for car parking. These areas are accessed through slow traffic roads that respond to a rational and hierarchical mobility design. A large east-west green zone was planned in the neighbourhood core, where different facilities would be placed, mainly schools and a large apartment complex called Rode Klif.

The first houses south of the shopping centre were built in 1968. The Atolwijk was designed to house 5,300 dwellings (see Figure 10). The 165-hectare western area would initially be reserved for the construction of higher-density buildings close to the new centre and the north-eastern boundary for the development of detached houses. The central area would repeat the previously used residential types (see Figure 11). Apart for the dwellings located in front of the shopping centre, which are apartment blocks (2%), most of the neighbourhood is made up of single-family dwellings (98%). In this case, the houses are not gathered around parking lots, but around internal circular roads which facilitate direct access to all the neighbours. In general, the two-storey row houses are in the interior of these ensembles, and the three-storey row ones on the perimeter. The pedestrian paths, courtyards, and open areas are located on the other side. Unlike the northern zone, the different school and sports facilities will be grouped to generate different community centres or meeting points throughout the neighbourhood.



**Figure 10.** Atolwijk: aerial map. Source: authors.



**Figure 11.** Atolwijk: view of 'piano' houses. Source: authors.

Although Atolwijk's urban design is aligned with the rationality of modern planning, the constructive development of its dwellings introduced a differential vector that somehow anticipated the coming change in neighbourhood design. In 1970, the RIJP allowed building sloped roofs. Until this moment, the housing construction in




**Figure 12.** Neighbourhoods that had been built in 1970. Notes: (1) *Zuiderzeewijk* (phase 1) and (2) *Atolwijk* (phase 1). Source: authors.

Lelystad was the responsibility of this public agency, which commissioned private architects and contractors to design and build the homes. However, they should operate under the supervision of RIJP. Not only the new structures would be affected, existing flat-roofed buildings would also be replaced by pitched roofs (Heeger, 1992, p. 35). Currently, this fact is noticeable in many of the piano houses. The first family settled in Lelystad in October 1967. By January 1968, 120 families had moved in and 1,200 by the end of 1970 (see Figure 12). In 1971 a total of 1,744 dwellings had been built: 263 'drive-in' houses, 901 'piano' houses, 441 two-storey row houses (171 sloped-roofed ones), 10 one-storey homes (2 sloped-roofed ones), and 129 apartments (RIJP, 1971, p. 124).

### *6.2. Second Phase: Organic Urban Form and Flexible Planning Process*

According to population growth forecasts, RIJP deemed that it was necessary to start planning Wijk 2 before completing Wijk 1 (RIJP, 1975, p. 19). This new district would be located west of the new central zone planned in the *Structuurschema*. The urban plan would replace the district centres with smaller neighbourhood nodes. The aim was to promote the development of this new north-south central axis. Likewise, the limits of this second development area would extend towards the north and west. This extension allowed to maintain the foreseen number of houses (7,000–8,000 units), although the density was reduced. The result is a 900-hectare district divided into five areas or subzones.

The north zone, made up of the neighbourhoods of Karveel and Boeier, is separated from the main road by a large green screen that had been included in the *Structuurschema*. Close to the new city centre in the central zone, Kempenaar, Kogge, Gondel, and Schouw were conceived as 'villages' around a large car-free park (see Figures 13 and 14). To the East, we found Punter, Jol, and Galjoen. The littoral zone was reserved for a small residential complex and a leisure area, currently occupied by a shopping centre and a city museum. In the southeast end, we found Schoener, Botter, Tjalk, and Landstrekenwijk. An industrial estate holds the fifth zone in the southwest end.



**Figure 13.** Kempenaar: aerial map. Source: authors.



**Figure 14.** Kempenaar: view of staggering houses. Source: authors.

The development of the district, although partially designed by different architects, was supervised by RIJP's planners (van der Wal, 1997, p. 176). The residential areas, although physically separated by the main city roads, share specific urban and architectural characteristics. Except for the littoral zone, these neighbourhoods, with approximately 400–600 dwellings, would be designed with semi-detached houses endowed with a courtyard (see Figures 15 and 16). The construction of apartments was abandoned. As in previous cases, houses are grouped around a community and parking area. Nevertheless, in some of the neighbourhoods, this open space was replaced by a street which had the same function. Following Radburn's principles, priority would be given to pedestrians within the residential areas, encouraging bicycle lanes and pedestrian paths.



**Figure 15.** Tjalk: aerial map. Source: authors.



**Figure 16.** Tjalk: view of row houses. Source: authors.

The design of these neighbourhoods would seek to break with the monotony produced by the orthogonal layout of the 1960s to generate a unique spatial experience. Moreover, it would provide shelter, appropriation, and collective space, as well as a shared urban image that would allow residents to identify themselves with the neighbourhood. This transition was gradual. The first housing ensemble built in the neighbourhoods of Kempenaar would maintain the orthogonal design of Wijk 1, as well as the flat roofs, but introduce a slightly diagonal direction (see Figure 17). In the second phase of this same neighbourhood, the alignment of the facades is broken by staggering the dwellings (see Figure 14). Furthermore, Kogge follows a radial layout with semi-detached and slope-roofed houses.

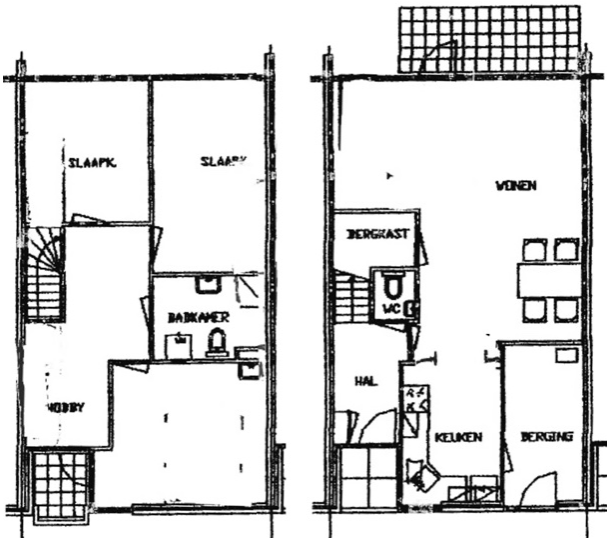



**Figure 17.** Kempenaar's house plans. Source: Flevolands archive.

The development of neighbourhoods such as Jol, Tjalk, Galjoen, or Botter, and also Archipel (Wijk 4), were a decisive step in the transition from orthogonal patterns towards organic schemes close to Woonerf (residential zone in which slow traffic has a priority over motorised traffic) theories. These examples are made up of large groups of dwellings describing roughly circular and non-geometric shapes where car access is limited (see Figure 18). The meandering street patterns are more complex than in previous cases, being "reached by a road that provides access to several of them and that is subordinated to them" (Wagenaar, 2015, p. 493) They share many of the morphological and pathological features with the so-called *bloemkoolwijk* ('cauliflower' neighbourhoods, with organic urban structures).

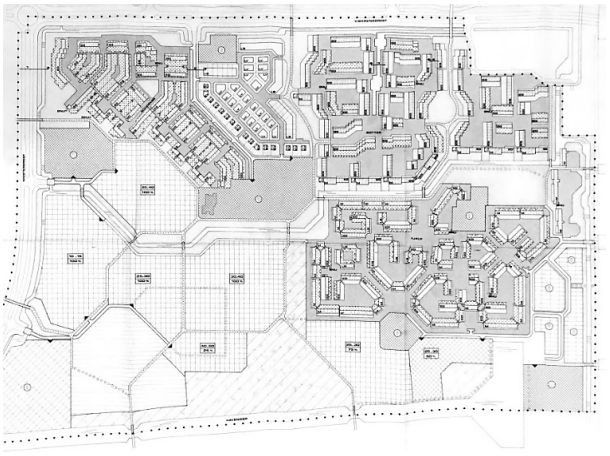


**Figure 18.** Botter and Tjalk's urban layout. Source: Flevolands archive.

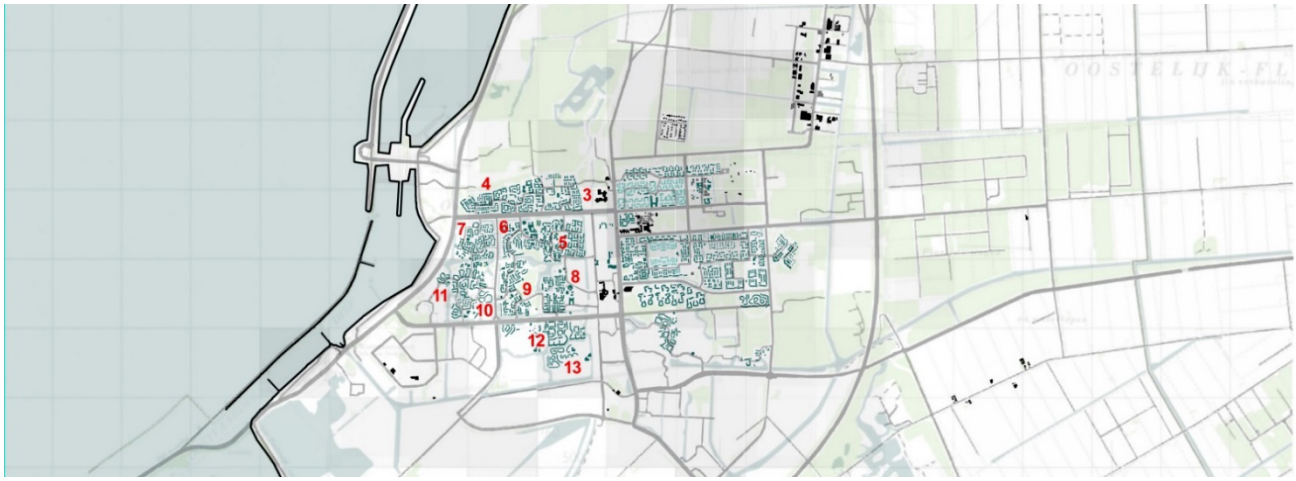



**Figure 19.** Neighbourhoods that were built between 1970 and 1980. Notes: (3) Karveel, (4) Boeier, (5) Kempenaar, (6) Kogge, (7) Punter, (8) Schouw, (9) Gondel, (10) Jol, (11) Galjoen, (12) Boswijk (phase 1) and (13) Tjalk. Source: authors.

This process coincides with the set-up of the Housing Development Foundation (*Stichting Woningbouw Lelystad*, SWL) in 1972. This public housing foundation was created as an intermediate solution between direct promotion and the housing-association model due to the government's desire to eliminate ministerial spending on housing. In addition to government subsidies for housing promotion, this organisation could be financed with capital market loans guaranteed by the Ministry of Public Housing and Spatial Planning (van Woensel, 1995, p. 22). The SWL was to assume the functions of the RIJP. However, it took charge of the project management for the first two years and did not achieve financial autonomy until 1974. It was at that time that there was an exponential growth in housing construction in Lelystad with the development of neighbourhoods of up to 700 dwellings (see Figure 19).

The high number of dwellings promoted by SWL would lead to an increase in the construction rate of private houses (Geurts, 1993, p. 76). According to the Annual Statistical Summary of Lelystad, 3,260 residences (330 private ones) were built from 1967 until 1973 while 1,118 dwellings (434 private ones) were built in 1974 (Gemeente Lelystad, 1987, p. 65). Although the 1974 National planning document reduced the need for housing, the construction rate continued to grow until 1977, when the number of private houses (985) exceeded those developed by the SWL (890). In that year, the functions of the SWL would be assumed by two housing associations: the SWL and the Christian Housing Foundation (*Christelijke Woningbouwvereniging*) *De Opdracht* (van Woensel, 1995, p. 26).

### *6.3. Third Phase: Returning to an Orthogonal Layout*

The third of the districts (Wijk 4) is located to the east of the new urban centre and to the south of Wijk 1, separated by a green buffer zone. The district is divided by one of the main roads into two zones. The urban plan for this area includes earlier developments, such as the previously mentioned Archipel, but was approved in 1976.

The size of the district, approximately 370 hectares, made it unfeasible to consider it as a single residential unit. On the other hand, the neighbourhood size tested in Wijk 2 had proved insufficient to reach the necessary social cohesion to build a real neighbourhood community. These reasons led to the division of the district into larger neighbourhoods of 1,500–2,000 families, with an approximate density of 35 units per hectare. Each of these neighbourhoods, Boswijk, Waterwijk, and De Landerijen, has shops, schools, social facilities, and other primary services at a maximum distance of 100 meters from all houses (see Figure 20). In our opinion, this approach seeks to recover the urbanity lost in the second phase by the reintroduction of facilities and proximity that foster neighbour relations. However, it does not renounce the benefits of being surrounded by a natural surrounding (albeit artificial). Again, the Garden City ideals were used to unite the best of urban and rural environments.



**Figure 20.** Waterwijk (phase 1): aerial map. Source: authors.

Many of these ideas were at the base of the Structure Plan, which was being developed at the same time

(see Figure 7). Although it was approved in 1978, the Structure Plan had been used since the beginning of 1975 (van der Wal, 1997, p. 181). This new plan emphasised the central zone, which was to become a connecting element among the different districts. At the same time, it promoted neighbourhood nodes according to the characteristics described above. Besides, the plan clearly distinguished the central axis which should be characterised by an urban image, as opposed to residential neighbourhoods characterised by their low density (approximately 20 dwellings per hectare).



**Figure 21.** Waterwijk (phase 1): view of flat-roofed row houses. Source: authors.

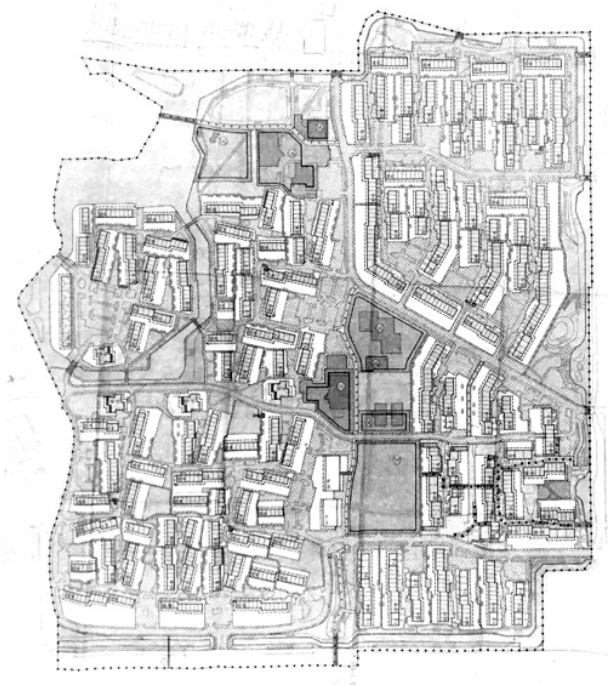


**Figure 22.** Boswijk's urban layout. Source: Flevolands archive.

As far as the design of this urban fabric is concerned, the inverse of the development process of Wijk 2 can be identified. In other words, there is a progressive abandonment of organic planning, seeking to return to a more rational approach based on orthogonal patterns (see Figures 20 and 22). The first houses built in Boswijk maintain roughly the previous scheme. However, the dwellings constructed later in this neighbourhood or others such as Waterwijk (Wijk 4) and parts of Schoener (Wijk 2) return to urban layouts that resemble those of Wijk 1 (see Figure 24), although some of the dwellings still show more organic and traditional features (see Figure 23). Other developments even reintroduced the flat roof characteristic of Modern Architecture (see Figure 21).

## 7. Discussion and Conclusions

This research has presented Lelystad as a significant case to illustrate the challenge of creating a New Town and explain the interaction between the search for an 'ideal shape', the realisation of the 'heroic enterprise', and the impact of political top-down decisions in the construction of a New Town, referring to the definition in the introduction. Subsequently, the article has highlighted the multiple synergies that have existed between the general planning and design of neighbourhoods. In no case are these independent processes, but in this particular case, this relationship has been especially significant. On the one hand, both have been developed under the supervision of the same public entity. On the other hand, urgent residential needs have meant that the design and construction of several neighbourhoods have been carried out ahead of the approval of the general planning, which requires long periods for its endorsement and implementation. Therefore, not only has urban planning conditioned the neighbourhood's development, but housing estates have also come to influence the execution of Lelystad's urban model. The consequence has been a gradual change in Lelystad's urban morphology. It has been noted that since 1972, neighbourhood layouts have shifted from orthogonal to more organic patterns, recovering the lost orthogonality at the end of the 1970s and especially during the 1980s. However, the morphological-urban analysis made evident that this change affects the urban form but not the general planning concept.

The main plan for Lelystad is a low-density model made up of different neighbourhoods connected to the urban infrastructure and services through large communication roads, an intermediate solution between urban large cities and small rural towns. One could conclude that the flexibility of the 1969 Structure Scheme has proven its worth. The open plan allowed to accommodate consecutive neighbourhood concepts and provided a structure for unpredictable growth.

Some of the main criticisms that the *Groeikernen* planning policy (including Lelystad and Almere) received during its implementation concern the monotony of housing and neighbourhoods, the unbalanced household composition and the energy waste for commuting. The urban planners of RIJP aimed for an urban model




**Figure 23.** Schoener's house plans. Source: Flevolands archive.




**Figure 24.** Neighbourhoods that were built between 1980 and 1990. Notes: (14) Schoener, (15) Boswijk and (16) Waterwijk. Source: authors.

based on single-family row houses but aspiring to a certain level of urbanity by incorporating central service areas. According to the 1978 Structure Plan, neighbourhood nodes were introduced for social and economic services and generate a certain social cohesion among citizens. However, low-density models hardly create conditions that would promote opportunities for meeting and exchange, that is, they do not ensure spatial relationships that facilitate not only social links, but also functional ones. Social cohesion implies fostering urban proximity (Tumini, Arriagada Sickinger, & Baeriswyl Rada, 2017, p. 41.), as well as variety and complexity of the urban environment (Monclús, 2014, p. 31). Moreover, the interaction among residents plays an important role in the establishment of social and cultural identity, as it generates an important feeling of belonging to the place and the community where they are going to live. We will never know how Van Eesteren's plan would have performed. But it is clear that the abandonment of formal urban design, in favour of flexible planning, resulted in a loose patchwork of various neighbourhoods, without a coherent and recognisable urban identity. Van Eesteren's ambition for a strong city silhouette has not been realised.

Apart from the aforementioned lack of social, cultural, and employment facilities, the *Groeikernen* face new challenges. They must not only respond to energy transition in 2050, but they are indicated to contribute to the housing shortage of the Randstad again. What is at risk is the loss of present qualities and characteristics, or as Pantus (2012, pp. 12–13) states: "Because of a lack of knowledge about the development of the Groeikern-phenomenon, valuable cultural-historical components that provide insight into the modernity of that time might disappear". Therefore, the current challenge would be responding to 21st-century urban chal-

lenges, without forgetting that these cities and their neighbourhoods are the results of the modes of urban production that have characterised 20th-century Dutch urban planning and, hence, constitute a significant urban legacy to be recognised and preserved.

The study has made it possible to contextualise the case of Lelystad within a historical moment when governments take the initiative to alleviate the severe housing deficit situation existing in the whole of Europe after WWII. Lelystad's urban growth not only shares characteristics with the rest of the Dutch Groeikernen—which were built during the same period and under comparable circumstances—but also with many other residential developments—neighbourhoods, housing estates, *grossiedlungen*, *villes nouvelles*, *bairros sociais*, *poligonos residenciales*—that were built throughout Europe. Although heterogeneous, they can be considered as part of the physical and cultural expression of a specific epoch of urban history. This fact means to resort to the already consolidated historical value in the terms included in the Washington Charter on the Conservation of Historic Towns and Urban Areas in 1987. Accordingly, the research inexorably leads to the recognition that these urban pieces constitute the particular story of urban and housing planning in this particular context, as well as to verify its social relevance.

In short, the detailed analysis that has been carried out in this work has sought to find the milestones—both positive and negative—of the urban evolution of Lelystad through the analysis of its residential neighbourhoods. This study not only aims to shed light on this process from a perspective that had not been addressed to date, but is shown as a necessary step to move forward in building the future of the city; reliable and in-depth knowledge that would make it possible to better address 21st-century challenges while recognising the historical relevance of these neighbourhoods and, consequently, the cultural value of the resulting urban morphology.

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**Conflict of Interests**

The authors declare no conflict of interests.

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Article

# Das alte Frankfurt: Urban Neighborhood versus Housing Estate, the Rebirth of Urban Architecture

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**Abstract**
On the eve of the celebration of the 90th anniversary of 1929's CIAM, the city of Frankfurt is again the center of international attention thanks to a project related to housing and the city, which represents, however, the opposite of the experience of *Das neue Frankfurt*. I refer to the Dom-Römer, the heart of the historical city, destroyed by bombing during WWII, replaced in the post-war period by the *Technisches Rathaus*, and now "rebuilt" in total adherence to the historical parcel plan as a new residential and commercial district. Regarding mass public housing, with minimal individual dwelling cells and standardized construction conceived by Ernst May, an equally public intervention is now opposed, but with a few individual houses and owned apartments for upper-middle-class customers, unique in their exceptionality, constructed with traditional techniques and finished with craftsmanship, case by case. The modernistic idea of low-density monofunctional satellite neighborhoods on the edge of the consolidated city, based on repetition of typed elements and on correct orientation of buildings in order to grant air and light, at the expenses of a clear definition of public space, is replaced today, in the core the city, by the medieval plan, with its irregular parcels and the narrow, winding dark alleys, high density and multifunctional buildings, and a strongly characterized public space. The positions are of course diametrically opposed also with respect to the roof dispute, which animated architects at the beginning of the 20th century: strictly flat roofs in the new Frankfurt of the 1920s and pitched roofs in the gabled houses of the ancient contemporary Frankfurt. From the parallel between these two experiences, so different from one another that they are almost incomparable, important elements emerge to understand the current debate on the architecture of the European city, particularly in Germany.

**Keywords**
architectural typology; European city; Frankfurt; German architecture; housing estate; housing in the city; urban design; urban morphology; urban neighborhood

**Issue**
This article is part of the issue "Housing Builds Cities", edited by Luca Ortelli (École Polytechnique Fédérale de Lausanne, Switzerland), Chiara Monterumisi (École Polytechnique Fédérale de Lausanne, Switzerland), and Alessandro Porotto (École Polytechnique Fédérale de Lausanne, Switzerland).

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## 1. Introduction

The coincidence of the 90th anniversary of the Frankfurt CIAM (*Congrès Internationaux d'Architecture Moderne*) in 1929, dedicated to *Die Wohnung für das Existenzminimum*, and to the concrete experience of *Das neue Frankfurt*, with the inauguration of the new ancient city center in the Dom-Römer area—just awarded as the MIPIM Best Urban Regeneration Project—offers an interesting starting point for a reflection on the current state of the discussion on architecture and the European city, particularly in Germany. These two experiments, in fact, embody the two extreme positions that characterized the debate on the role of housing in urban design from the start, at the end of the nineteenth century, and which are today again at the center of the discussion:

they identify the opposition between *Siedlungsbau* and *Städtebau*, between *Trabantenstadt* and *Stadtquartier* (settlement construction and urban development, satellite town, and urban neighborhood) which is still the crucial problem of architecture when confronted with growing cities.

## 2. Research Question

The purpose of this article is to reflect on the current state of urban design, especially in Germany, by following the common thread of urban architecture (*Stadtarchitektur*). To consider urbanity as a methodological tool for the design of the contemporary city means to question most of the current positions dominated by the globalization of architectural languages, in which building technology and sustainability are exhibited as an aesthetic value, and to focus conversely on the spatial values of urban architecture and the production mechanisms of the public space in the city. This is primarily a cultural issue, but it is also a political and economic issue, which directly affects the principles and forms of construction of the European city over time.

This common thread, which characterizes the history of European architecture as an urban phenomenon, gradually dissolves at the beginning of the 20th century with the advent of modern urbanism, then it disappears drastically in the second post-war period and emerges again, in theory, starting from the Sixties and comes back to the center of attention today, in practice, thanks to some projects proposing urbanity as a spatial and cultural value, essential for the future of the European city.

Until the WWII, *Siedlungsbau* and *Städtebau*, *Gartenstadt* and *Großstadt* (settlement construction and urban development, garden city, and big city) coexisted as two possible alternatives to the uncontrolled and speculative development of growing cities. Although the historiography of international modernism, from Giedion onwards, tended to give a unilateral reading of early twentieth century architectural history, centered on the individuality of the "Masters" and their architectural work conceived as an object propagating the dissolution of the city into the landscape (Giedion, 1941; Scalvini & Sandri, 1984), it has been definitively demonstrated that it is a partial interpretation. The most recent studies have shown that the urban proposals for collective living which deal with urbanity and density, with the urban block and the neighborhood as a medium-scale multifunctional unit, are equally numerous and significant, especially in the field of mass housing (Bullock & Read, 1985; Rodriguez-Lores & Fehl, 1988; Sonne, 2009, 2014, 2016).

Urban projects by Alfred Messel, Albert Gessner, Paul Mebes or Paul Jatzow for urban residential ensembles in Berlin play a prominent role in the German panorama anticipating the vision of the 1910 *Groß Berlin* competition (Gessner, 1909; Posener, 1979, pp. 240–263, 319–368; Sonne, 2009). This competition represents a milestone in the discussion on urban architecture. The cultural climate in which it was conceived was marked by an international urban discourse, a science-based, multidisciplinary, theoretical approach, and cross-scale design practice. Thanks to this complex cultural and disciplinary situation, a comprehensive, integral urban planning method emerges, with the aim of concretely prefiguring the modern metropolis up to the architectural scale (Tubbesing, 2018; see Figures 1, 2 and 3).



**Figure 1.** 1908–1910 *Groß Berlin* competition, A. Gessner. Perspective from the *Südbahnhofstraße* to the *Müggelsee*. Source: Tubbesing (2018).

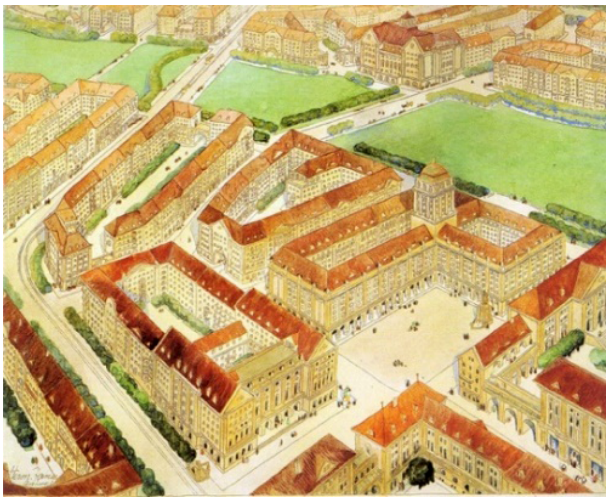


**Figure 2.** 1910 Greater Berlin competition, H. Jansen. Aerial view of proposed development, Tempelhofer Feld. Source: Tubbesing (2018).

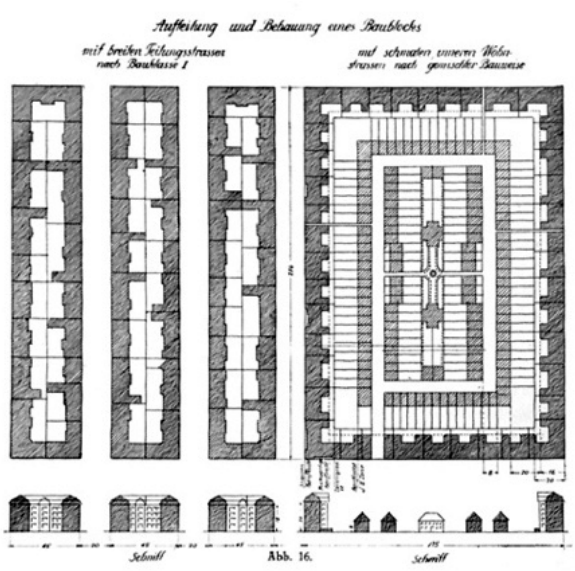



**Figure 3.** 1910 *Groß Berlin* competition, B. Möhring, R. Eberstadt, R. Petersen, 1910, Subdivision and construction of a building block. Proposal for mixed housing typologies. Source: Wettbewerb Gross-Berlin (1910).

Also the urban expansion of Hobrecht's plan for Berlin, strongly criticized since its approval in 1862 and then drastically planned in the 1920s (Arminius, 1874; Bruch, 1870; Hegemann, 1930; Voigt & Geldner, 1905), has been re-evaluated since the 1960s and definitively rehabilitated by the most recent studies shifting the focus from the ideological dimension to that of the urban and spatial values that characterize it (Bentlin, 2018; Bernet, 2004; Bodenschatz, 1987; Dolff-Bonkämper, Million, & Pahl-Weber, 2018; Geist & Kurvers, 1980; Lubowitzki, 1990; Strohmeyer, 2000).

Similar experiments of urban architecture characterize all the great European cities up to the 1920s and 1930s in parallel to suburban settlements (Porotto, 2018; Sonne, 2014; see Figures 4 and 5).

The two models coexist with different outcomes and objectives, both fundamentally linked to the presence of the historical city, of which they represent the completion or the overcoming, but never the negation [Incidentally, in Giedion's book, *Das neue Frankfurt* and Ernst May are dismissed in a few sentences without images (Giedion, 1941, p. 477).

The real crisis of urban architecture occurs with the destruction and devastation of war post-war modernization. Here the urban dissolution process is programmatic and radical, above all where—as in Frankfurt or Berlin—the ancient city had disappeared and, together with it, its counterweight of history and memory, replaced by a kind of peripheralization of the center. The problem is, therefore, not constituted by Ernst May's

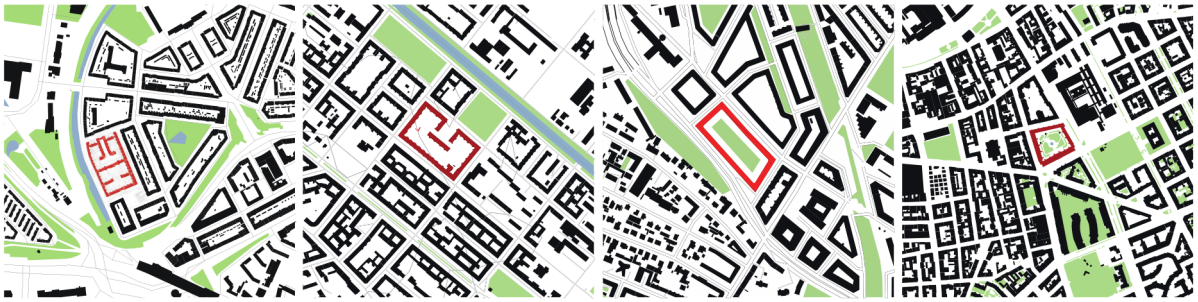


**Figure 4.** Drawings of the *Elemente der Stadtarchitektur* course at Potsdam School of Architecture, winter semester, 2018–2019. From left to right: Michiel Brinkman, *Justus van Effen Block in Spangen*, Rotterdam, 1919–1921; Paul Mebes, *Werrablock*, Berlin, 1924–1926; Kay Fisker, *Hornbaekhus*, Copenhagen, 1922–1923; Karl Ehn, *Bebelhof*, Wien, 1925–1926. Source: Redrawings by students at Potsdam School of Architecture, academic year 2018–2019, unpublished.

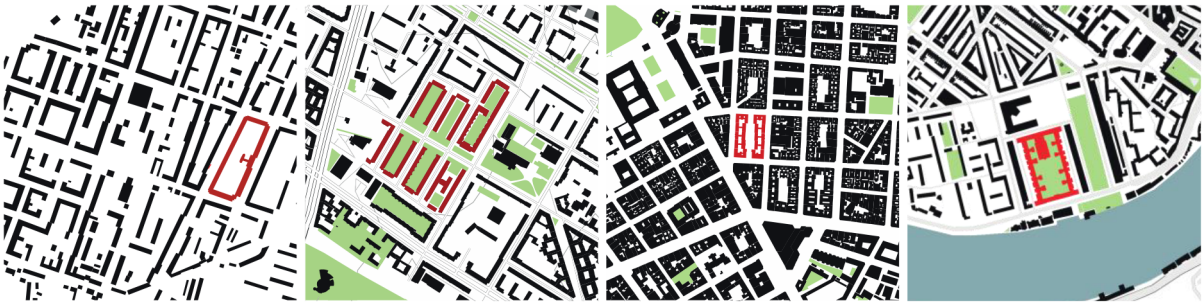


**Figure 5.** Drawings of the *Elemente der Stadtarchitektur* course at Potsdam School of Architecture, winter semester, 2018–2019. From left to right: Erwin Anton Gutkind, *Sonnehof*, Berlin, 1925–1927; Bruno Taut, *Wohnstadt Carl Legien*, Berlin, 1928–1930; Secundino Zuazo, *Casa de las Flores*, Madrid, 1930–1932; Stanley Gordon Jeeves, *Dolphin Square*, London, 1935–1937. Source: Redrawings by students at Potsdam School of Architecture, academic year 2018–2019, unpublished.

*Siedlungen* in Frankfurt or Bruno Taut's in Berlin, but by the *Großsiedlungen*, the large estates of post-war reconstruction, whose radical anti-urban ideology also affect the city centers. At the beginning of the 1960s, Dietrich Wilhelm Dreysse, an architecture student at that time, described his impressions of a visit to the Frankfurt *Siedlungen* accompanied by Ernst May in this way:

> Although the apartments were small and the motorization streets in no way increased, the settlements appeared cheerful and cosmopolitan—the opposite of what is offered us the eye in many post-war settlements. We recognized the real qualities, at that time just felt, later by comparing them to the large estates of the 60s (also planned by May): the accentuated design of the public space, the mutual linking of social and formal projects, the intensive connection of city, house, and nature as well as and the appropriability of the spaces. (Dreysse, 2001, p. 3)

The comparison with the huge residential settlements built after the WWII is essential to focus on the problem: At the mere juxtaposition of *Siedlung* and *Stadtquartier* (housing estate and urban neighborhood), the problem of the loss of the historical city center and the question of scale are added. In a car-oriented city, low density takes the place of the high density, buildings are located according to functional principles and are not oriented towards public space, an undefined public space replaces the clearly structured collective places surrounded by buildings, monofunctional large estates deny social and functional diversity, repetition becomes the paradigm instead of variety, the address no longer has any relation to the identity of a place but is like a combination of coordinates on a chessboard and requires instructions to be found. The large-scale settlement replaces the urban district, the center becomes the periphery (see Figure 6).

### 3. Theoretical References

As a reaction to these interventions and to the loss of identity of European cities, the discussion on urbanity is resumed in the 1960s. Italian architectural culture plays an important role in this debate, thanks to an early awareness of the consequences produced by the dissolution of the city, operated by modern urbanism and of the problems of post-war reconstruction at the urban scale. It is interesting to note that this reflection develops clearly on a cultural axis of mutual influence between Italy and Germany, where Germany represents the most advanced position of modern architecture on a theoretical level and at the same time the most dramatic position in terms of post-war reconstruction. It is, therefore, no coincidence that much of the Italian debate of the sixties and seventies had to do with German architecture before and after the war, so this discussion could be defined as an Italian-German discourse on the rebirth of urban architecture.

Recall Ernesto Nathan Rogers's commitment in the name of continuity, i.e., of the impossibility to think about the current state of architecture without directly dealing with its past, ancient and recent. At that time, in the late 1950s and early 1960s, continuity basically meant revision of (North European) modernism: overcoming the dogmatisms of naive functionalism and orthodox rationalism, but also of the many ideological prejudices that hindered a serious critique of architecture in the second post-war period, starting from the reconnection with the broken thread of history. In particular, the years of Rogers's direction of the magazine *Casabella*, from December 1953 until January 1965, are decisive. The magazine was renamed, not surprisingly, *Casabella-Continuità* and themes such as the memory of places, the meaning of cities, the reality of architecture, and the character of buildings return to the agenda (Rogers, 1968). Thanks to Rogers and the young collaborators of the editorial staff—among others Vittorio Gregotti, Guido Canella, Aldo Rossi, and Giorgio Grassi—a new focus on the rational dimension of architecture and its constitutive essence as an urban phenomenon emerges along with the critical reading of international modernism.

The outstanding production of publications dedicated to the theme of the city and urban architecture in those years reflects the depth and richness of this debate. I refer here, as an example, to the titles appearing in the two book-series, respectively by the publisher Marsilio (Padua) and by the publisher Officina (Rom), which covered the span of a decade between the mid-sixties and the mid-seventies, summarizing the extremes of the debate (see Figures 7 and 8). Titles such as *L'architettura della Città* (*The Architecture of the City*) by Aldo Rossi

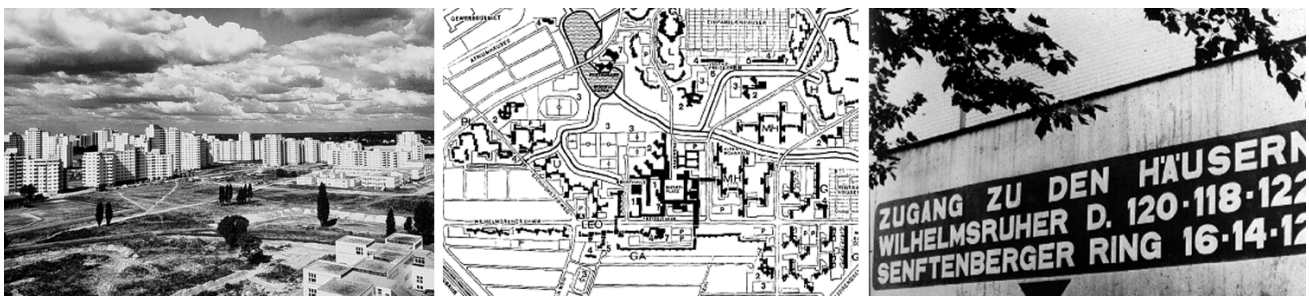



**Figure 6.** The post-war car-oriented city in Berlin: Märkisches Viertel. Source: Wilde (1989).




**Figure 7.** Publications dedicated to the theme of the city and urban architecture. From left to right: Giorgio Grassi, *La Costruzione Logica dell'Architettura* (*The Logical Construction of Architecture*), 1966; Carlo Aymonino, *Origini e Sviluppo della Città Moderna* (*Origins and Development of the Modern City*), 1971 and 1975 (2nd edition); Giuseppe Samonà, *La Casa Popolare degli Anni 30* (*Social Housing in the 1930s*), 1972.




**Figure 8.** Publications dedicated to the theme of the city and urban architecture. From left to right: Aldo Rossi, *L'architettura della Città* (*The Architecture of the City*), 1966; Carlo Aymonino, *La Città di Padova* (*The City of Padua*), 1971; Carlo Aymonino, *Le Città Capitali del XIX Secolo* (*The Capital Cities of the Nineteenth Century*), 1975; Carlo Aymonino, *Lo Studio dei Fenomeni Urbani* (*The Study of Urban Phenomena*), 1977.

(1966) or *Origini e Sviluppo della Città Moderna* (*Origins and Development of the Modern City*) by Carlo Aymonino (1971a), bring the theme of the city back to the core of the debate on architecture, emphasizing the centrality of housing in the construction of the city, its role as an element of "norm" and "normality" in the definition of the urban form. Two of these books, in particular, refer to Frankfurt, Carlo Aymonino's *L'abitazione Razionale* (*Rational Dwelling*), dedicated to the CIAM of 1929 (Aymonino, 1971b) and *Das Neue Frankfurt 1926–1931*, by Giorgio Grassi, dealing with a critical analysis of Ernst May's magazine in the light of the post-war theoretical reflections on architectural typology and the relationship between architecture and city (Grassi, 1975; see Figure 9).

In these books, the reflection on the historical city is critically intertwined with the projects of the modern city, in the attempt to find the experiences that reproduce the complexity of the European tradition: Hausmann's Paris, the Red Vienna, Fritz Schumacher's Hamburg, Berlage's Amsterdam or Oud's projects for Rotterdam. Also, the *Siedlungen* of Frankfurt, with those of Taut in Berlin, are included in the positive examples alongside the properly urban models:

Between 1925 and 1930, Frankfurt, along with a few other cities, with the experience of the *Siedlungen* and the entire structure of the city, is in the center of Europe. Just as the Germanic area in those years is where the limits of architectural and artistic debate in general are renewed, cities like Hamburg or Berlin, like Stuttgart or precisely Frankfurt, are the benchmarks




**Figure 9.** The definition of urban form: Frankfurt. From left to right: Carlo Aymonino, *L'abitazione Razionale* (*Rational Dwelling*), 1971; Giorgio Grassi, *Das neue Frankfurt 1926–1931* (*The New Frankfurt 1926–1931*), 1975.

> for the new architecture and develop the most original and important idea of the city at that time. (Grassi, 1975, p. 10)

It could, therefore, be said that this discussion in a sense starts precisely in Frankfurt and inextricably intertwines theories and realizations in an overall reflection on the problem of designing the city. In the writings of Aymonino, Rossi and Grassi, the names of Stübben (1890), Eberstadt (1909), Baumeister (1911), Scheffler (1913), Brinkmann (1920) or Wolf (1919) recur, in an attempt to reconnect the concrete tradition of the European city with the treatises and manuals, that is, with those attempts to codify the constituent elements of architecture and the city, to deduce rules from reality and define methodologies for work. Through a historical analysis, these writings try not only to define a city theory, but also to provide the outlines of a design methodology.

### *3.1. Methodology*

A central element regarding the present reflection on urban architecture is represented by the question of the ground issues and ground parcellation. This is a topic that is present throughout the manuals of urban design and in particular in Eberstadt (1909), to which the famous and quoted study by Hans Bernoulli *Die Stadt und ihr Boden* (*The City and its Ground*) refers (Bernoulli, 1946). The question of land ownership, parcels and, essentially, the division between public and private in the construction of the city becomes the cornerstone of both theoretical reflection and architectural methodology (see Figure 10).

Starting with these studies, since the end of the 60s, the reflection is based more and more on a typological and morphological approach to the problems of architecture and the city, leaving in the background the ideological issues, which are those that still today, in fact, inspire the supporters of the legacy of post-war urban planning. In particular, the graphic tool of the typological survey of the ground floors, introduced by Muratori (1960, 1963) and widely used by Rossi and Grassi, highlights the close link between ground division and buildings and therefore between architectural typology and urban morphology (see Figure 11).

As a second instrument—almost complementary to the typological plan of the ground floors in the graphic

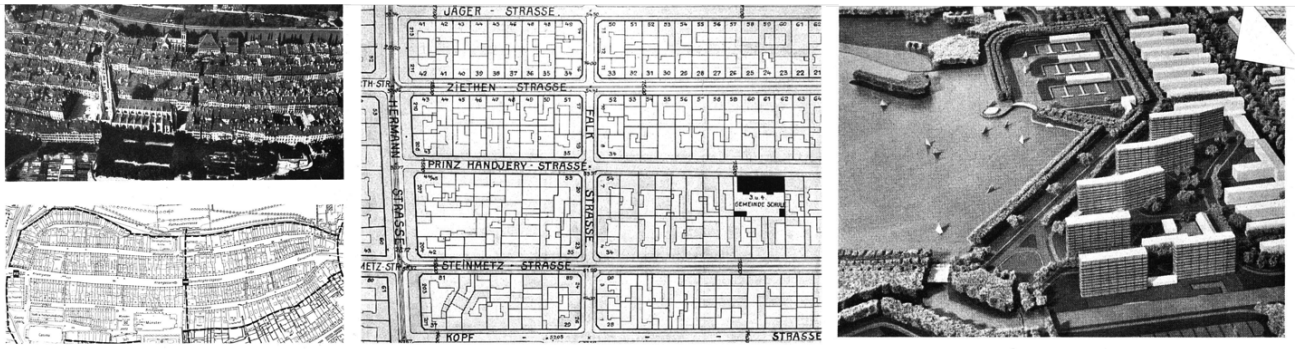



**Figure 10.** The city and its ground. From left to right: Zähringer foundation, Bern, scope of the plan from 1291 and of the first enlargement; an area with five-storey building construction, Berlin-Neukölln, house after house treated as a single building task, completed by 25 meters high firewalls against the neighbors; Amsterdam. Source: Bernoulli (1946).

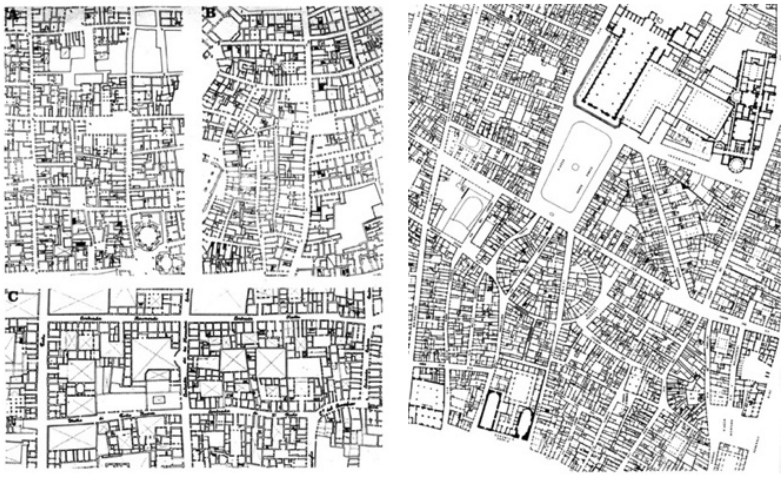


**Figure 11.** The typological survey of the ground floors. From left to right: Saverio Muratori, wall surveys in Genoa and Como (Muratori, 1963); Aldo Rossi, typological survey of the S. Croce district in Florence (Rossi, 1966).

reading of urban fabrics and in the interpretation of the relationship between private and public, architecture and city—the solid-void plan is also introduced in the 1970s, becoming canonical with the book *Collage City* by Rowe and Koetter (1978). The solid-void plan shows, as a *Gestalt* diagram illustrating the fluctuations of the figure-ground phenomenon, that the city of modern architecture is, in every way, so much the opposite of the traditional city that:

> The one is almost all white, the other almost all black, the one an accumulation of solids in a largely unmanipulated void, the other an accumulation of voids in a largely unmanipulated solid; and, in both cases, the fundamental ground promotes an entirely different category of figure-in the one object, in the other space. (Rowe & Koetter, 1978, p. 62)

This form of drawing, used by Colin Rowe to interpret the relationship between buildings and public space in the city becomes the privileged reading tool for destructions and functionalist reconstructions after WWII, showing with absolute evidence the contrast between textures and built objects (see Figures 12, 13 and 14).

In the seventies, this discussion develops internationally and the problem of contemporary urban design overlaps in a single discourse with that of reconstruction, first on the theoretical level and then on the level of projects and architectural achievements. On the one hand, the awareness of the loss of urban space in the urbanism of the 20th century emerges dramatically and on the other, the need for the reconstruction of destroyed urban spaces is imposed (Krier, 1975). In the German experience, in particular, construction and reconstruction are intertwined in an indissoluble bond. As a paradigmatic example, we can mention the debate on the urban block, inaugurated by Joseph-Paul Kleihues in 1977 with the construction of block 270 at Vinetaplatz in Berlin and assumed as a paradigm of the international debate (Kleihues, 1978, 1979; Lotus International, 1978).



**Figure 12.** Modern city versus traditional city: Le Corbusier's project for St. Dié and the historical city center of Parma. Source: Rowe and Koetter, 1978.



**Figure 13.** Before and after the war: Solid-void plan of the city center of Dresden. Source: Curdes (1993).



**Figure 14.** Traditional city versus post-war city: *Hansa Viertel* and *Stalin-Allee* (today *Karl-Marx-Allee*), Berlin. Source: Stimmann (2002).

Furthermore, the *Internationale Bauausstellung Berlin* (IBA; the International Building Exhibition), 1984–1987, section *Neubau* ("new building"), under the direction of Joseph-Paul Kleihues, proposes that "the historical basic structure of the city must become the fundamental constant for urban development" (Senator für Bau- und Wohnungswesen, 1978, pp. 3–4; see Figure 15).

The historical memory of the city joins here with the research on housing types and the theme of the urban block develops in parallel with the investigation on the architectural typologies that can compose it (Kleihues, 1973a, 1973b). However, even the IBA clearly shows the typical post-war problem of a city built exclusively through housing without any functional and social mix: a city without owners and without monuments (Rowe, 1984).

Despite this, thanks to the close relationship between historical city and project, between urban morphology and architectural typology, the IBA as an overall experience can once again be linked to the tradition of manuals for urban design, of the works that try to systematize the knowledge of the city in order to define a design methodology. An operation similar to that carried out by Ernst May—the magazine *Das neue Frankfurt* can be read as "an architectural handbook deduced and constructed starting from the city itself" (Grassi, 1975, p. 10)—or to the more recent critical revision of the urban planning theory of the last century (Magnago Lampugnani, Albrecht, Bihlmaier, & Zurfluh, 2017), accompanied by the type-morphological and architectural analysis of the examples of history (Magnago Lampugnani, Stühlinger, & Tubbesing, 2018).

Going back to the initial research-question, the difference between *Siedlungsbau* and *Städtebau*, between the suburban housing estate and the urban neighborhood as a constituent element of the debate on the European city, it is possible, in light of these reflections and examples, to analyze some projects starting from morphological and spatial elements to define reference points for a future-oriented methodological discussion. Frankfurt, with the two diametrically opposed examples of *Das neue Frankfurt* and the Dom-Römer, can be seen as the framework for this debate.

## 4. The Reality of the City

### *4.1. Das neue Frankfurt*

In the brief period from 1926 to 1930, the majority Social Democrat-led city government in Frankfurt tried to thor-

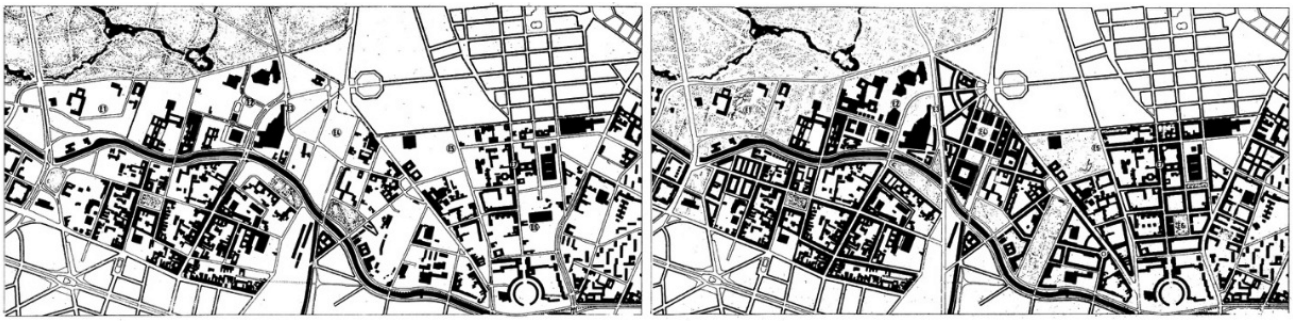


**Figure 15.** IBA Berlin: Solid-void plan, actual state at the time and proposed design. Source: Kleihues (1981).

oughly modernize the city and society. The essential conditions for the realization of this ambitious project were a good political direction and a good housing policy, guaranteed respectively by Ludwig Landmann as Mayor and Ernst May as almighty deputy for the entire construction industry:

> What was the new Frankfurt? First and foremost, it was a housing program designed to eliminate the material and cultural housing shortage….But it was also a new spatial organization of the city, a zoning plan whose basic ideas are still visible in the city today: industrial zones along the Main and railways; a cultural and administrative center in the city center; Reduction of the population in the inner city and settlement of the surrounding area in suburban housing estates and satellite towns; Urban green areas with promenades, public parks, sports facilities, agricultural green, and finally a hierarchical network of traffic routes with trams and highways. It was also an attempt to convey new and emancipatory social and cultural behavior through a new idea of living in the city. (Dreysse, 2001, p. 3; see Figure 16)

The two most important themes of the experience of *Das neue Frankfurt* are: the conception of an overall plan for the whole city, of which the new *Siedlungen* are a part, and the idea of the house as a basic unit that embodies the modern idea of living. In this context, the initiative of a monthly magazine dedicated exclusively to the new Frankfurt—*Das neue Frankfurt*, 48 issues between 1926 and 1930—should be read as an attempt to scientifically document the experience in an urban design manual: from the idea of the plan (the satellite cities) to the idea of satellite (the *Siedlung*), from the idea of *Siedlung* (the *Anger*, settlement around a collective space) to the single house (*Existenzminimum*; Michieletto, 2008). These are the elements that still make *Das neue Frankfurt* a positive reference.

The core of the discussion on the new Frankfurt—and the topic of the CIAM of 1929—is however at the scale of the house, in the name of the *Existenzminum*. The aim was to design the typical house for the typical family, the space of which was intended to organize daily life in all its details. In this sense, the new Frankfurt was a success: quantity (12,000 apartments built in five years), quality and price of housing. The strategy: rationalization, standardization, prefabrication and typification.

From the point of view of architectural design, the new Frankfurt found its most visible expression in the uncompromising shape of its buildings and everyday products: break with the past in line with the aesthetics of classical modernism, no ornament, the authentic form, pure materialization of contemporary production that reflects the reality of the new way of life. In the combination of the elements there is an attempt to create visual axes and spatial sequences, but just for the first period until 1929. Later, the repetition of absolutely equal individual elements has become the rule (see Figure 17).

Despite the heroic dimension of the new Frankfurt operation, and in comparison with other contemporary experiences of mass housing, such as that of Vienna (Porotto, 2018), the analysis shows that at all these three different scales (city/settlement/house), three types of problems are generated concerning the urban character of the *Siedlungen*: dependence from the city center, monofunctionality, undefined public space and lack of identity. The same problems that Ernst May's postwar production in the field of housing estates presents in an amplified and dramatic manner, as shown by the retrospective exhibition organized by the *Deutsches Architektur Museum* in 2011 on the occasion of the architect's 125th birthday (Quiring, Voigt, Cachola Schmal, & Herrel, 2011).

### *4.2. Dom-Römer*

Ironically, just as Ernst May's *Siedlungen* became again the center of discussion for the 90th anniversary of the 1929 CIAM with a new exhibition at the *Deutsches Architektur Museum*—which, as is already evident in the title, "New Human, New Housing", underlines the avant-garde dimension of the social project (Voigt, Deschermeier, & Cachola Schmal, 2019)—the city of Frankfurt returned to international attention thanks to a project related to housing and the city, which repre-

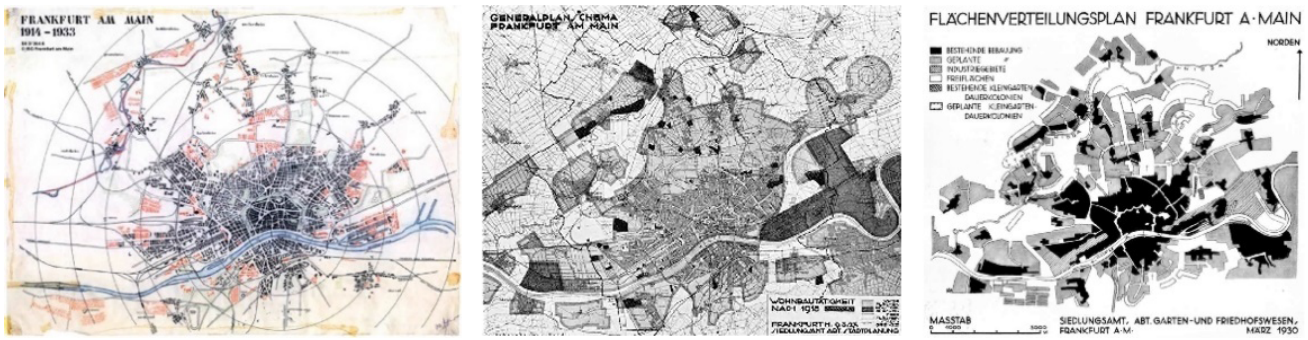



**Figure 16.** Frankfurt am Main. From left to right: housing construction 1914–1933; general construction plan after 1918; surfaces distribution plan of 1930. Source: Porotto (2018).

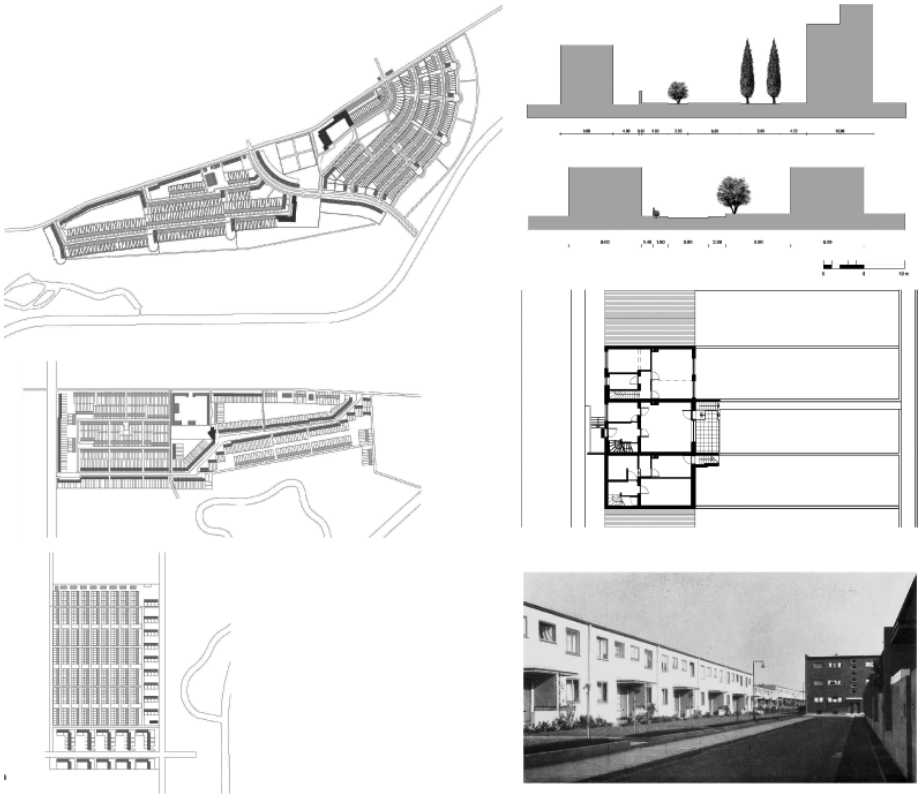


**Figure 17.** Frankfurt am Main. Left, from top to bottom: Site plan of the *Siedlungen* Römerstadt, Praunheim and Westhausen. Right, from top to bottom: Cross section of Hadrianstraße and Am Burgfeld in the *Siedlung* Römerstadt; floorplans of the house types A and D of Im Burgfeld; photo of the street. Source: Michieletto, (2008).

sents, however, the opposite of the experience of *Das neue Frankfurt*: the Dom-Römer "reconstruction".

The contrast between the two cases could not be more evident. In the heart of the historical city, between the Dom and the Römer, the two symbolic places of origin of the city, the war and post-war destructions generated that tabula rasa that allowed the creation of a fragment of the modern city. The Technical Town Hall built symbolically in this historical place is its manifesto: an out-of-scale megastructure, with a huge underground parking garage and a metro station, regardless of the historical parcels and the surrounding urban fabric, celebrating efficiency, functionality, and the new construction techniques. In the early 2000s, the city of Frankfurt decided to demolish this building and rebuild the historic city (see Figure 18). After the first competition in 2005, won by KSP Jürgen Engel Architekten, there was, within the framework of a heated political discussion, the decision to embark on a project which fully reproduces the historical structure of the city. In 2009 the Dom-Römer GmbH, a company of the Frankfurt municipality, was founded, a new competition was announced and in 2018 a new residential and commercial district was inaugurated (Sturm & Cachola Schmal, 2018).

Regarding mass public housing, with minimal individual dwelling cells and standardized construction conceived by Ernst May, an equally public intervention is now opposed, but with a few individual houses and



**Figure 18.** Frankfurt am Main: The old city. From left to right: Historical city center, Frankfurt am Main; Aerial view, 1936; Dom-Römerberg-Area, view from the Cathedral, 1961; the Technical Town Hall, 1985 ca. Source: Sturm & Cachola Schmal (2018).

owned apartments for upper-middle-class customers, unique in their exceptionality, constructed with traditional techniques and finished with craftsmanship, case by case. The modernistic idea of low-density monofunctional satellite neighborhoods on the edge of the consolidated city, based on the repetition of typed elements and on the correct orientation of buildings in order to grant air and light, at the expense of a clear definition of public space, is replaced today, in the core the city, by the medieval plan, with its irregular parcels and narrow, winding dark alleys, high density and multifunctional buildings, with a strongly characterized public space. The positions are, of course, diametrically opposed also with respect to the roof dispute, which in the 1920s animated architects: strictly flat roofs in the new Frankfurt of the 1920s and pitched roofs in the gabled houses of the ancient contemporary Frankfurt (see Figure 19 and 20).

The characteristics of a high-density multifunctional urban neighborhood are evident and have convinced even the most skeptical critics. Nevertheless,




**Figure 19.** Frankfurt am Main. Top: Dom-Römer, sections; bottom: Dom-Römer ground-floor plan. Source: DomRömer (2011).



**Figure 20.** Frankfurt am Main: The new Dom-Römer district. Source: Sturm & Cachola Schmal (2018).

the rules imposed by the design advisory committee (*Gestaltungsbeirat*) and the number of philological reconstructions in relation to the amount of new buildings do not clear the field from the doubt of an "historical falsification" or an "architectonical fiction". Above all, the question arises regarding the repeatability of such an operation, of its validity on a larger scale, of the possibility of bringing its principles back to a general form: the form of a manual for the contemporary design of an urban neighborhood. This project is the right solution for this place, but it is not a program, nor is it meant to be.

### *4.3. WerkbundStadt am Spreebord Berlin*

The case of the *WerkbundStadt am Spreebord* in Berlin, on the contrary, represents, or rather could have represented—the project is unfulfilled—the answer to this question and a valid proposal with respect to the dialectic between *Sidelungsbau* and *Städtebau* in general. The project, conceived by the Berlin section of the Werkbund in 2014, under the chairmanship of Paul Kahlfeldt and then of Claudia Kromrei, was aimed—in the tradition of the historic association of architects, artists, and industrialists, founded in München in 1907 that radically questioned the idea of housing between the two wars (Kahlfeldt, 2016)—to the realization of an exemplary housing project in response to the crucial questions of the contemporary era. Thus, not a *Werkbund Siedlung*, a low-density suburban settlement in the green, as in the 1920s and 1930s, but a high-density urban neighborhood in a central area of the city, the first *Werkbund Stadt* indeed: 1100 apartments for 2000 residents of different social backgrounds on just 2.9 hectares of an abandoned industrial area on the banks of the Spree in the Charlottenburg-Wilmersdorf district. The result was not the only aspect expected to be exemplary; so were the processes of conception and realization: collective, participatory, dialectical. A shared general plan, 39 building plots, 33 architects, an internal competition procedure, with the involvement of the owners of the area, the district technical planning office, residents, politicians, landscape architects, evaluators, and experts. After two years of work, coordinated and directed by the Berlin Werkbund through meetings and workshops, the *WerkbundStadt* Berlin project was presented to the public on 23 September 2016, with an exhibition, a conference, and a publication (Deutscher Werkbund Berlin, 2016; see Figures 21 and 22).

As described by Wolfgang Sonne in his essay (Sonne, 2016, p. 79), the project presented itself as the most advanced solution to the problem of the contrast between *Siedlungsbau* and *Städtebau*, with a ten-point program, aimed to research a design methodology based on morphological elements constituting the urban space: Clear definition of public spaces through the location of houses within the urban project, alignment of the houses on the street or square (each identifiable with its own house number) without any semi-public path or area, subdivi-



**Figure 21.** *WerkbundStadt am Spreebord* in Berlin. From left to right: masterplan; models. Source: Kahlfeldt (2016).



**Figure 22.** *WerkbundStadt am Spreebord* in Berlin, projects by Bernd Albers and Paul Kahlfeldt. Source: Kahlfeldt (2016).

sion of the building into individual housing units with different types and cuts of apartments, configuration of front and rear elevations, each with the appropriate character, definition of common elements of individual houses at the scale of the neighborhood, integration of different functions on the ground floors, and creation of a neighborhood center with public buildings.

All of these elements can be traced back to the historic city, but they are also an integral part of the Leipzig Charter on sustainable European cities from 2007, which outlines the constituent features of the European city of the future:

> An important basis for efficient and sustainable use of resources is a compact settlement structure. This can be achieved with spatial and urban planning, which prevents urban sprawl by strong control of land supply and of speculative development. The strategy of mixing housing, employment, education, supply and recreational use in urban neighborhoods has proven to be especially sustainable. (EU member states, 2007)

The reasons for the failure of this project—which we hope will find space elsewhere—are to be found in urban politics and in the real-estate market, but also in the unsolved node of contemporary urban design, divided between architecture and urban planning, between a technocratic urbanism and a morphological approach to the spatial problems of the city (Malcovati, 2018). From the point of view of the issue dealt with here, the urban architecture in European cities, the *WerkbundStadt* would have been able to represent the test bed of that idea of a dense, multifunctional, and formally articulated city, which has occupied the center of German architectural discussion in recent decades: a city based on the close relationship between street, block, and building plot.

This idea of the city is not just a formal idea: it also includes the attempt to adapt regulations and procedures to the needs of the present as well as the will to act on the economic mechanisms of real-estate investments and on the relations between public and private in the construction of housing, according to the model that had already been tested in typological terms in Berlin at the end of the nineties with the *Planwerk Innenstadt* and the construction of the Townhouses district in Friedrichswerder (Senatsverwaltung für Stadtentwicklung, Umweltschutz und Technologie, 1997a, 1997b).

### *4.4. Königsufer and Neustädter Markt, Dresden*

As the last example, I would like to mention the very recent competition for the *Königsufer* and *Neustädter Markt* in Dresden, the results of which were announced a few weeks ago (in February 2019) regarding the urban design of the historic neighborhood on the north bank of the Elbe. The presented projects cover the full spectrum of possibilities, from the most "modernist" solutions defined by a free configuration of architectural elements up to the literal repetition of the historical parcels structure, as in the Dom-Römer in Frankfurt. The winning project, by the architectural office of Bernd Albers, with Vogt Landscape Architects, represents an interesting balance between reconstruction and new construction, we could say between Dom-Römer and *WerkbundStadt* (see Figure 23).

From the project report:

> The project offers Dresden a double chance to regain the banks of the Elbe with its significant townhouses on the *Elbterrasse* and at the same time to reactivate the baroque space of the *Neustädter Markt*….Thanks to the parallel shift of the historic building structure to the south, a neighborhood of independent houses can be built anew. The original structure is typologically assumed and architecturally reinterpreted….In sum, a new version of the city morphology succeeds,

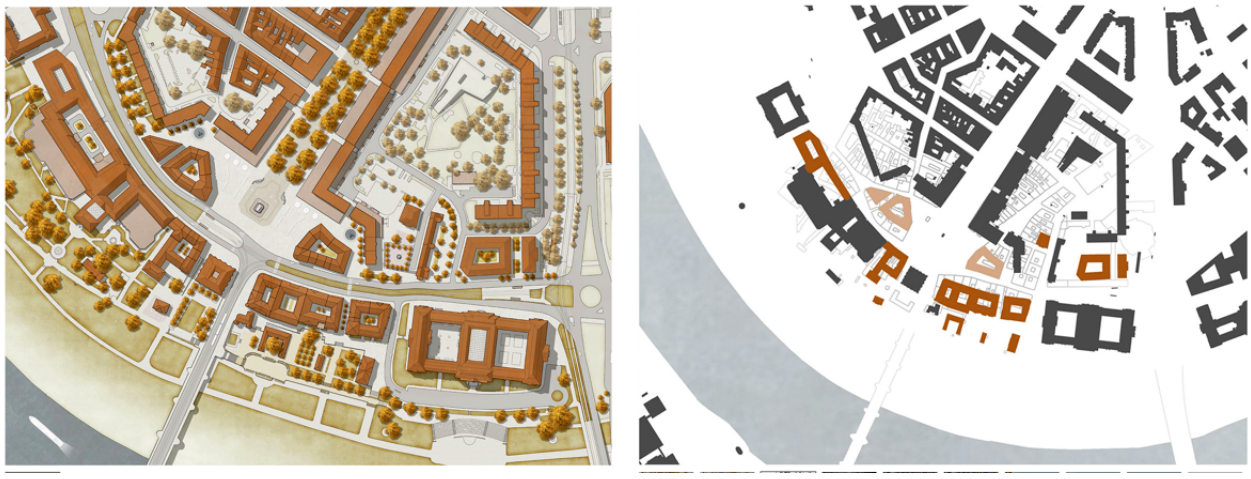


**Figure 23.** *Königsufer* and *Neustädter Markt*, Dresden, Bernd Albers. From left to right: masterplan; overlay on the historic fabric. Source: Albers (2018).

> in which present and past time layers complement each other productively. Thus, the connection between the Dresden Neustadt and the historic old city center can be experienced again. (Albers, 2018)

The theme of reconstruction and historical memory merges here with the intention of designing a new urban neighborhood, contemporary in contents and forms, with all the spatial and cultural qualities of the European city: High-density, multifunctionality, variety, orientation of the buildings towards the public space, address on the street/square, clear definition of the public space as the identity of the place. In contrast to Frankfurt, reconstruction is not the aim of the project. The relationship with history is, as always should be, a tool for a contemporary design (see Figure 24).

## 5. Conclusions

The *Siedlung* is based on a functional and rational model, which also includes, in a sense, a mechanistic declination of the way of life. The *Stadtquartier* presupposes, in addition to rationality and functionality, a cultural model based on the conventions of collective living. Both have to deal with the understanding that a big city is a cultural achievement with a long history, and the task of architecture and urban design is to implement its value and bring it into the future. If the experience of history teaches something, we must be wary of avant-garde manifestos and slogans. However, sometimes, in their immediacy, they indicate a path that is worth following.

If in the 1930s, the desired evolution was from the block to the bar, today it would seem that the famous May diagram should be mirrored, from the bar back to the urban block. The promised city of the post-war period that had to bring light and order, instead of the darkness and disorder of the ancient city, has not stood the test of time (see Figures 25 and 26).

The contemporary research on urban architecture is programmatically and decisively abandoning the *Siedlung* experience and returning to the search for a residential neighborhood with the traditional urban qualities of European cities. In this process, architects and urban designers can refer to a history spanning more than a century in the construction of urban architecture in big cities, with the aim of creating a contemporary, dense, plural, multifunctional and sustainable urban neighborhood, based on the close relationship between street, block, and building plot where architecture is the protagonist of the urban project.



**Figure 24.** *Königsufer* and *Neustädter Markt*, Dresden, Bernd Albers. Perspective from the old city center. Source: Albers (2018).

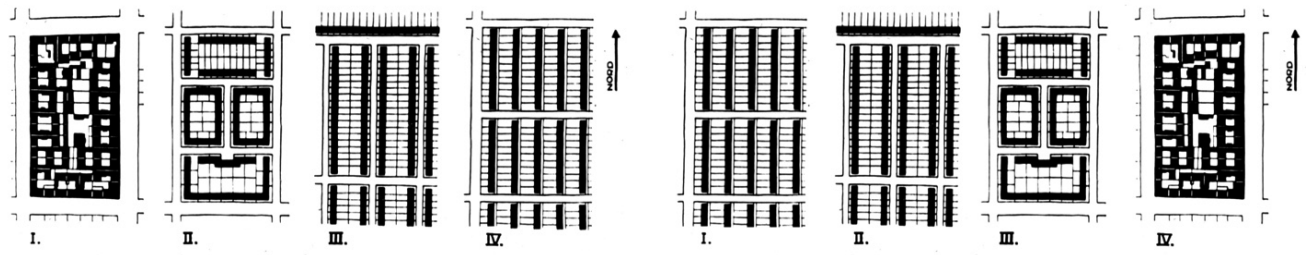



**Figure 25.** Entwicklung des Blocks in der Stadt [Development of the block in the city], 1930, original and mirrored diagram. Source: May (2011).

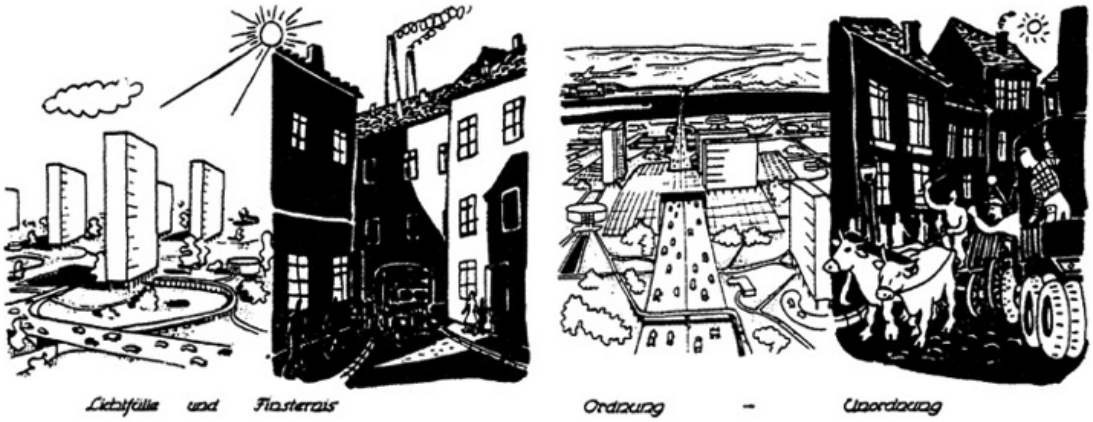



**Figure 26.** Reconstruction of Mainz, 1946–1948, Marcel Lods. Source: Cohen and Frank (2015).

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**Conflict of Interests**

The author declares no conflict of interests.

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COGITATIO

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Article

# Wilhelm Riphahn in Cologne (1913–1963): Urban Policies and Social Housing between Innovation and Conservation

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**Abstract**
An urbanist actively involved in social housing, a prolific designer and a rigorous developer, Wilhelm Riphahn (1889–1963) fulfilled the controversial role of 'modern architect'. An intellectual and professional who can be included among the most interesting—yet least studied—members of the German *Neues Bauen*, he was one of the protagonists of the exemplary neighbourhoods of Dammerstock (1929) in Karlsruhe. He designed several neighbourhoods on behalf of *Gemeinnützige Wohnungsbau AG* Köln. In the 1920s, his pragmatic and operative attitude enabled him to initiate a functional and aesthetic revolution in the conservative world of affordable construction, the outcomes of which went well beyond the period after World War II. From 1918 to 1938, Riphahn brought to completion social neighbourhoods that had a remarkable urban impact in the troubled political context of the Rhineland between the two wars. His tireless energy led to a profusion of work in the infrastructural reconstruction of the battered city of Cologne up to the years of the German economic boom. Riphahn left significant and vibrant construction projects, such as the *Britisches Kulturinstitut* (1950), the fine urban complex of the *Kölner Oper* (1954–1957) and the *Schauspielhaus* (1962). The article focuses on the *Siedlungen* of Cologne and compares their original compositional features and exemplary character, which continue to have an impact within the context of social housing.

**Keywords**
*Blauer Hof*; Cologne; Dammerstock; *Grüner Hof*; social housing; urban policies; *Weisse Stadt*; Wilhelm Riphahn; Zollstock

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## 1. Introduction

In recent years, along with Rudolf Schwarz (1897–1961), Wilhelm Riphahn (1889–1963) has rightly been recognised as one of the most prominent figures on the Rhenish architectural scene of the first half of the 20th century. However, his work remained in the shade for a long time, often ignored by local criticism and German historiography. On the occasion of the Bauhaus's centenary, a re-reading and appreciation of his works—ranging from the 1910s to the 1960s—have secured his recognition and location on a European level in the Modernist panorama. Despite the immense losses of building heritage caused by the wars, the suburbs of Cologne have mostly retained the public and private housing complexes—commercial, residential and entertainment-related—built by Riphahn between 1913 and 1963. For reasons of synthesis, this article will exclusively deal with his planning activity in Cologne between the two wars, in the context of his principal achievements in subsidised housing.

## 2. Methodology

The elaboration of this article follows, almost a decade later, the completion of a multi-year study on German urban reconstruction—carried out in the 2002–2003 semester at the Institut für Baugeschichte and Denkmalpflege of the FH Köln and subsequently continued at the Department of Architecture of the

University of Bologna. The study resulted in multiple publications, including the monograph *Tradition and Modernism of Urban Places: The Reconstruction of German Cities, 1945–1960* (Maahsen-Milan, 2010). This work focused on the study of spaces of representation and involved an analysis of the pre-existing building fabric and post-war reconstructive work in the cities of Cologne, Düsseldorf and Bonn. The investigation identified artistic personalities of primary importance and interest, among them figures of the Lower Rhine milieu, of whom Riphahn represented an exemplary case of methodological coherence, through his urban practice and, in particular, *Großstadt* building. His role in the history of ideas, as well as in the spread of the Werkbund and the Modern Movement, is entirely comparable to that of the most famous protagonists of the *Neues Bauen*.

It should be pointed out, although it is only briefly dealt with below, that the works and residential complexes by Riphahn presented here were the result of important artistic collaborations. The research included studies and documentary collections in libraries and municipal and private archives in the cities examined, as well as visits to Riphahn's buildings.

The appreciation of this author was possible thanks to Wolfram Hagspiel's (1981) PhD thesis. The architect's production was ignored after his death in 1963 and it was partially bridged by the first exhibition in Cologne (MAK | Museum für Angewandte Künst, Köln, September 2004–February 2005, B. Funck ed.). An important review of the exhibition (Hebler, 2004) highlighted how the declared neutrality towards the work of the architect—presented there as a simple *Bestandaufname* (catalogue)—did not lead to a full evaluation of the figure of Riphahn. The review, in effect, only initiated a discussion and critical analysis of works that developed over a period of five decades. That reconnaissance, however, allowed us to confirm the works' consistency: the residential buildings, mostly private or public properties, were in part destroyed due to war or were at risk of demolition or alteration.

It is remarkable that, after the exhibition, Riphahn's work was re-evaluated positively by public sector operators. Thanks to the new awareness, *Gemeinnützige Wohnungsbau AG Köln* (GAG)—the owner of the Cologne housing complexes—has revived Riphahn's housing complexes with great effectiveness and sensitivity.

## 3. Wilhelm Riphahn: Civil Architecture and Social Commitment

Born in 1889 in Cologne, the son of a building contractor, Wilhelm Riphahn interpreted and followed an educational path common to many architects of his time. In the years between 1898 and 1912, he began his formal education at the local *Oberrealschule*, confirming his cultural and professional choice with architecture studies at the universities of Munich, Berlin and Dresden. The young Riphahn was as open to sociological topics as urban planning and transport engineering, passing through the seminars of Cornelius Gurlitt (1850–1938), Theodor Fischer (1862–1938) and Karl Hocheder (1854–1917).

His first apprenticeship in Berlin, at the technical office of Siemens & Halsske, was followed by years of professional practice in the workshops of Bruno Taut (1880–1938), Otho Orlando Kurz (1881–1933) and Hans Herlwin. He began his independent professional activity in Cologne in 1913, working in his father's business, which was committed until 1920 to the construction of large government-subsidised building complexes (Hagspiel, 1978). In view of the 1914 Cologne exhibition, Riphahn enrolled in the local section of the Deutsche Werkbund, establishing contact or consolidating close relations with Gropius, Taut and Van de Velde, the most prestigious figures on the German architectural scene. In his long and successful career, some traits emerged that remained throughout the entire design process, such as a holistic design concept, aimed at enhancing the comfort features of housing, obtained through an abundance of natural light and effective thermal and acoustic insulation. Riphahn revealed a precocious—and not obvious—attention to the performance and quality of accommodation. He was one of the first designers to install a private bathroom, separate from the toilet, in all housing units. The sensitivity of his design can be seen in the pursuit of urban quality, with generous standards of public and private greenery, made easily accessible by wide driveways and pedestrian paths. He showed a pragmatic attitude, devoid of intellectualism and attentive to the economic aspects of a property, including consideration from the point of view of the marketability of housing (Maahsen-Milan, 2010, p. 107).

Thanks to his constant collaboration with progressive artists, Riphahn pursued, from a sociological point of view, a completely innovative conception of the living space, favouring a sense of community and contributing to the psychological well-being of the inhabitants through the search for a harmonious composition of volumes and chromatically pleasing surfaces. Riphahn was a brilliant and versatile designer, able to approach both private and public clients in an original and effective way, satisfying prestigious high-bourgeois and entrepreneurial clients with the production of elegant villas and commercial and tertiary complexes of disruptive modernity (see Figure 1)—an example of this is his pavilion for the *Kölnische Zeitung* at the *Pressa*-International Press Exhibition (Cologne, 1928; see Figure 2)—while his cultural contribution can be seen above all in the production of social housing of major urban impact (Riphahn, 1929).

### *3.1. Cultural Models and Architectural References: Between Experimentation and Concreteness*

Despite the tense political-economic situation and the prolongation of the Allied military occupation of the Rhineland and the Ruhr, in Cologne as elsewhere in




**Figure 1.** From left to right: W. Riphahn and H. Hansen, Entrance hall and corridor of the *Varieté Cavalu* theatre, Cologne, 1922 (Hoffmann, 1927); W. Riphahn, Bastion on the banks of the Cologne Rhine, Panorama restaurant on former *Kaponniere/Rheinbastion* (Superbass, 2008).

post-World War I Germany, the cultural climate of the Weimar Republic was impetuous and original. In 1923, both Bruno Taut and Walter Gropius were in Cologne, the former for the conference '*Frühlicht* (morning light): Architectural demands of contemporaneity' (Taut, 1923), the latter to print *Idee und Aufbau des staatliches bauhaus Weimar* (*Ideas of the Bauhaus*), the fundamental writing that theorised the synthesis between art and industry with the re-founding of the school in Weimar (Gropius, 1923)

In 1925, in the midst of a design commitment to social housing cooperatives, Riphahn and twelve colleagues made a study trip to Holland to exchange experiences with De Klerk and Kramer in Amsterdam and Dudok in Hilversum (Behrendts, 1911, pp. 63–103; Engelberg-Dočkal, 2011, p. 4; Kruschwitz & Allmers, 1925, pp. 63–64). In particular, Riphahn was focused on the Siedlung Tusschendijken of J. J. P. Oud in Rotterdam (1920): under the motto *Klar und wahr* (clear and authentic), the Dutch model would subsequently provide Riphahn with the main architectural-typological reference in the competition for housing interventions in Zollstock, Cologne, which he would win (Hagspiel, 1981, p. 156).

Riphahn's architectural work was prominently featured in a collective volume edited by the architect and critic Heinrich de Fries, published in Berlin in 1926 and considered the manifesto of the German Modern Movement (Jaeger, 2001, pp. 45–91). In the volume, twenty-five architects were called on to represent the new course of the *Junge Baukunst* in Germany, among them architects emerging at the moment of transition between Expressionism and Purism. The names of Otto Bartning, Emil Fahrenkamp, Otto Haesler, Hugo Häring, Ernst May, Adolf Rading and Hans Scharoun stand out. According to the editor, the review proposed itself as a 'transversal reading through the development of the new design of the contemporary era'. A year later, the same individual signed the introduction to the monographic volume on Riphahn (Fries, 1927) in the series *Neue Werkkunst*, describing his most recent achievements: the Siedlung Bickendorf, the Filotramviarie work-

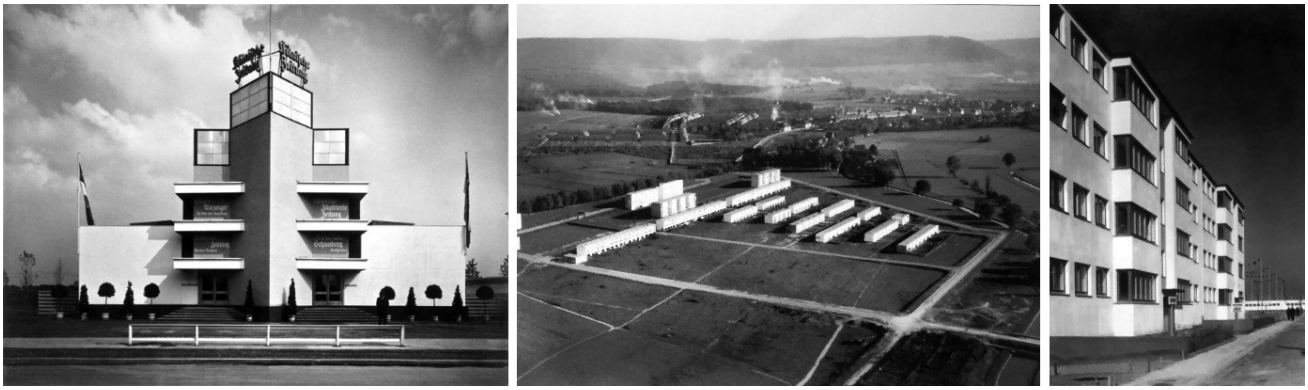


**Figure 2.** From left to right: W. Riphahn and C. M. Grod, Pavilion for the Kölnische Zeitung at the *Pressa*–International Press Exhibition Cologne, 1928 (Mantz, 1928); W. Riphahn and C. M. Grod, Dammerstock-Siedlung, aerial view from northwest, Karlsruhe, 1931 (Sträle, 1931); W. Riphahn and C. M. Grod, Dammerstock-Karlsruhe, eight family houses, oblique view, Karlsruhe, 1928 (Sander's private).



**Figure 3.** W. Riphahn, Haus Riphahn, Köln-Braunsfeld, 1923–1924, garden and front street view. Source: Fries (1927).

shops of Köln-Merheim, the restaurant Bastei and various examples of housing construction in Köln-Braunsfeld (Läuferts, 2004, pp. 24–29; see Figure 3).

In 1928, Riphahn came third in the competition to design the model district of Dammerstock-Karlsruhe (Figure 2, middle). The direction of works of the low-cost terraced houses was entrusted to Otto Haesler and Walter Gropius (Franzen, 1993, pp. 256–260). This was nonetheless a worthy achievement for Riphahn that gained him great fame, helping to consolidate his status as an important exponent of the Modern Movement. On this occasion, he had proposed a terraced housing model with no compromises, fully adhering to the principles of the Neues Bauen, which attracted the harsh criticism of Fritz Schumacher and Paul Schmitthenner, supporters of traditional architecture. The typological model proposed by Riphahn in Dammerstock-Siedlung can nevertheless be considered one of the most important contributions to the topic of social housing in the 1920s in Germany (Klemmer, 1989, p. 74; Schmitt, 1997, p. 20–210).

The project was developed according to the requests of the public commissioner: five small, low-cost, terraced houses and multi-family buildings with flat roofs, placed in axial continuity with the unit designed by Gropius. The general orientation, according to the east-west heliothermal axis, presented some critical issues, which were resolved ably by Riphahn and Grod through an accurate arrangement of living spaces. The multi-storey buildings located on the Ettlinger Allée in front of the entrance to the neighbourhood were arranged on four levels and presented the characteristic distributive solution at the stairwell, with a slightly set back entrance and strip windows, with respect to the symmetrical order of bay windows running the entire height of the building (Bier, 1929; Funck, 2004, p. 70; see Figure 2, on the right).

The terraced buildings are particularly sober and constrained within the volumetric arrangement, resolved, on the west facade, with the expediency of a deep loggia, glazed laterally on the corners in order to intercept the solar radiations on the south side (Figure 4). The interior was carefully designed for the most rational use of simple lacquered furniture, designed by Franz Schuster (Kutting, 2010, pp. 23–25; Schuster, 1929, pp. 4–32; see Figure 5). The kitchen was equipped according to the principles of the *Frankfurter Küche* by Margarethe Schütte Lihotzski. The inauguration of the neighbourhood, in the summer of 1929, earned Riphahn and Grod the job in Cologne for the design of the Weisse Stadt (Funck, 2004, p. 71).

However, the typological model proposed in Karlsruhe was derived from a previous design experience, that of a terraced settlement presented in 1921 by the Siedlung for miners in Brühl and Moers (Jahn, 1921, pp. 85–106), won by the team of Tessenow, Schmitthenner and Mewes (Funck, 2004, p. 239; Voight

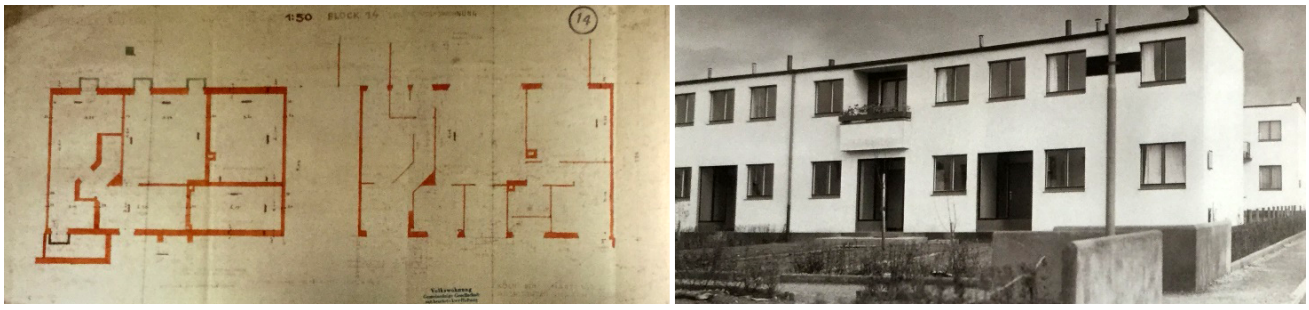


**Figure 4.** From left to right: W. Riphahn and C. M. Grod, Dammerstock-Siedlung, two-family houses floor plan basement and ground floor, Karlsruhe, 1928; West view photograph. Source: Atelier Bauer (1929a).

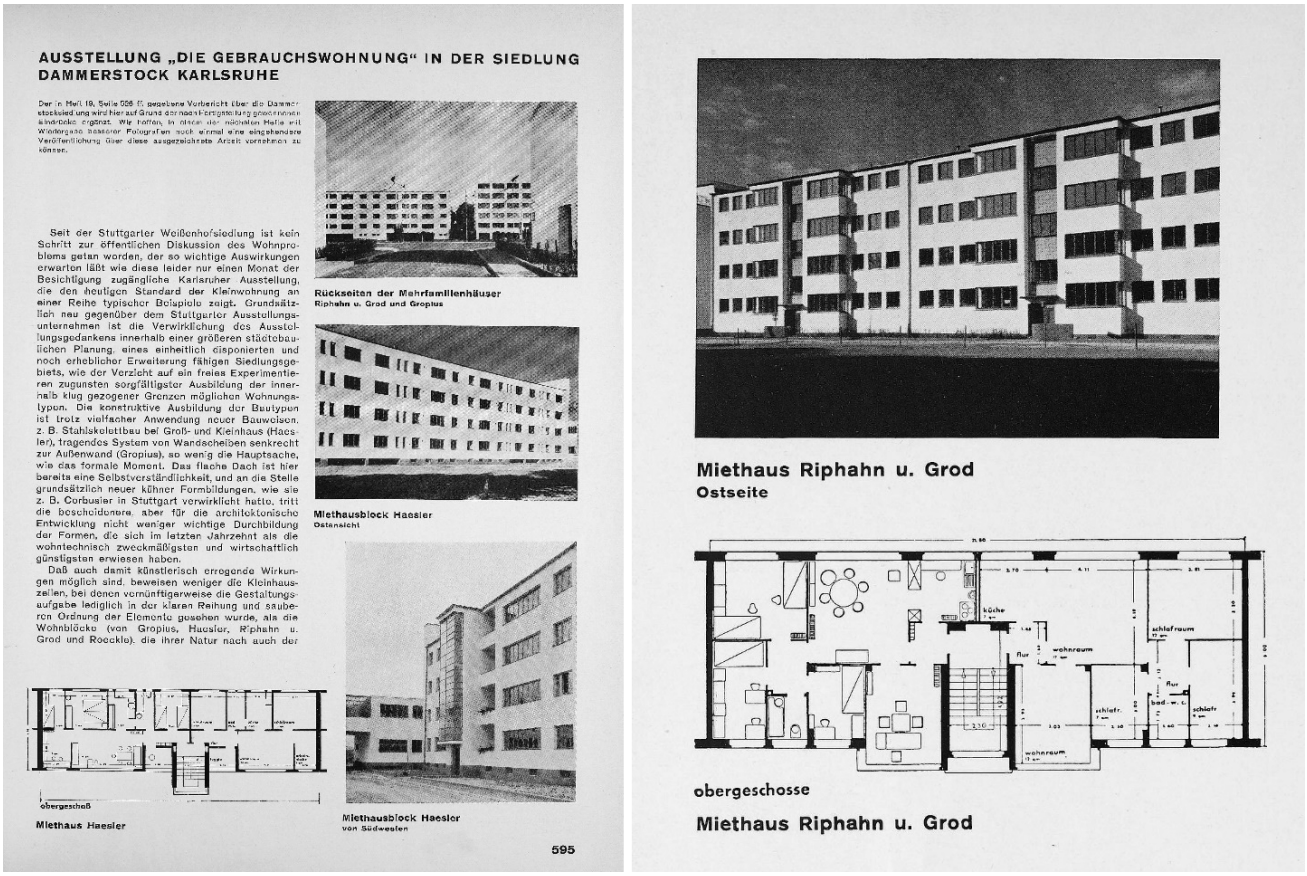



**Figure 5.** W. Riphahn and C. M. Grod, Dammerstock-Siedlung, multi-storey buildings, rental house. Source: Atelier Bauer (1929b).

& Frank, 2003, p. 132). It was a low-cost building, but with an interesting and lively volumetric articulation that alternated a one-storey service building with a four-level housing volume (with cellar floor and attic included): the overall effect, with the graceful proportions of Biedermeier taste, was completed by the simple articulation of the south-facing facade, on which the small windows of the *Stube* and the bedrooms opened.

## 4. Social Housing: The Cologne Case

### *4.1. The Foundation of Gemeinnützige Wohnungsbau AG Köln*

Throughout the Rhineland, and in the city of Cologne in particular, the phenomenon of industrialisation at the beginning of the 20th century had caused a rapid increase in population, with a consequent lack of low-cost housing. In the wake of a formidable social emergency, in March 1913, Konrad Adenauer (1876–1967)—later German chancellor but then deputy mayor of Cologne—conceived and set up GAG, a building cooperative for the construction and management of social housing (Greven, 1928, p. 23). The project was based on the idea of using private capital and public participation for the construction of rented, affordable housing, responding to the serious *Wohnungselend* (housing poverty) among the marginalised segments of the urban population. The share capital, amounting to 1.22 million *Reichsmarks*, came from private investors and the city of Cologne, the latter with 52% of the share value.

### *4.2. The Cultural Legacy of the Gartenstadt*

The first public competition organised by GAG, in 1914, was aimed at creating a model housing complex, located in the Cologne suburb of Bickendorf. The realisation of the winning project—awarded to the team of Caspar Maria Grod (1878–1931), Riphahn and Leo Kaminski—stood out for its motto, *Licht, Luft und Bäume* (light, air and trees), which from that moment became the programmatic and distinguishing theme of all social housing in Cologne (Heinen & Pfeffer, 1988, pp. 77–97).

Completed just after the end of World War I, the Bickendorf district consisted of a residential complex of 578 dwellings grouped into small building units (Figures 6 and 7) and inspired by the Margarethenhöhe model by Georg Metzendorf (Maahsen-Milan, 2007, pp. 152–163), the fairy *Gartenstadt* built by the Krupp industrialists in Essen. At the same time, from 1914—again in a project by Grod, Kaminski and Riphahn—GAG started the construction of the Nibelungensiedlung am Nordfriedhof (1919–1928) in Mauenheim, consisting of 676 single-family buildings (Riphahn, 1922).



**Figure 6.** W. Riphahn and C. M. Grod, Bickendorf I. Architectural model for the 1914 competition. Source: Läuferts (2002).

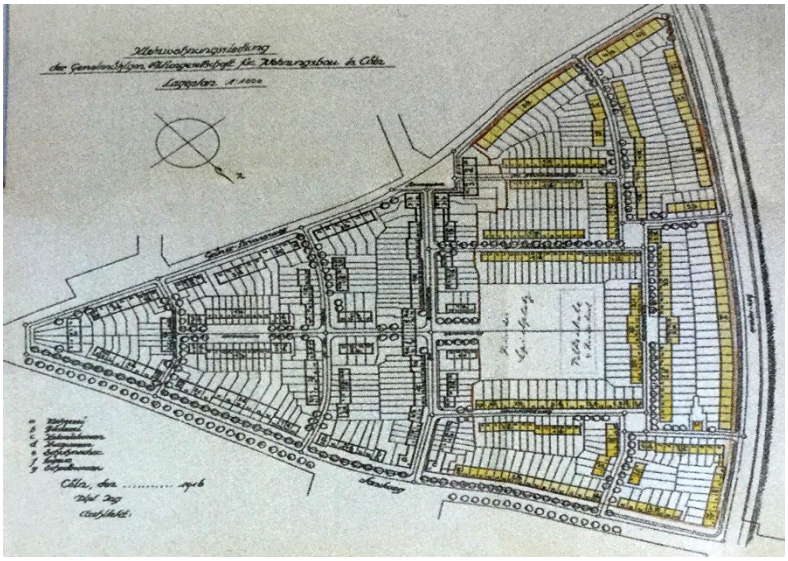


**Figure 7.** W. Riphahn and C. M. Grod, Bickendorf I. Plan (April 1919). Source: Riphahn's private archive, Cologne.

*4.3. The Weimar Years and Riphahn's Project Activity for GAG*

After the First World War, the general lack of housing was the main problem in the city, and the construction activity of GAG reached impressive numbers: once again, Riphahn and Grod's professional collaboration was at the forefront, imposing on the city, between 1920 and 1936, standards and styles openly referring to the *Neues Bauen* (Heinen & Pfeffer, 1988).

It was above all the innovative visions of Riphahn—who had been steadily engaged since 1916 in the construction of large residential complexes—that became a model throughout the national territory. In particular, the spatial concept of urban housing, already successfully tested in settlements, was appreciated in the suburbs, led by GAG in Höhenberg's Germaniasiedlung (1919–1928).

**5. Siedlungsbau: The GAG Social Neighbourhoods in Cologne (1914–1938)**

*5.1. Nibelungensiedlung (Cologne-Mauenheim)*

The Nibelungen district—whose name came only in 1921, after a public competition—comprises the full and coherent application of the urban and residential planning criteria defined by the social policies of GAG. In the

formal language still inspired by the *Heimatstil* (regional style), the new neighbourhood accentuated the rural character and food self-sufficiency typical of the difficult years immediately after the war. The influence of the *Reformbewegung* (Reform Movement) in the urban planning of the early 20th century was unmistakable: the role of forming the basis of the 'New City' theorised at this time was entrusted to public housing. It was a mixture of rurality and sociality, with large private green spaces—for the domestic cultivation of vegetables and the breeding of small farm animals—and collective service facilities to promote a spirit of community life in the settlement. The characteristics of the settlement model therefore provided for the possibility of leading a dignified but low-cost way of life, with the acquisition of entirely new levels of family and personal privacy. In this way, the concept of a 'city of short distances' was expressed, characterised by a contained physical dimension and a strong sense of identity on the part of the new 'urban settlers'. These principles were already to be found in the design guidelines indicated by GAG, which recommended the achievement of 'uniformity in the design of gardens and services, in front of and behind houses' but in ways that discouraged the isolation and emergence of individualism, in the name of the 'general laws of beauty' understood as the achievement of social harmony (Bertram, 1999, p. 46; Kunze, 1992; see Figure 8).

The result obtained was measured in the construction of a complex characterised by simple and functional shapes but, at the same time, varied and of high aesthetic quality. To this end, the elaboration of the urban plan foresaw a careful planning of public spaces, softened by squares, courtyards and curvilinear road routes, as well as by artistic furnishing elements, such as benches and fountains. In the design of the fronts, the criterion of variety was favoured, adopting diversified building types, ranging from one to three floors, with altimetric profiles varying from west to east, in order to obtain the optimal solar exposure for both the settlement and the individual building units. The buildings were characterised by the distinctive profile of the steep double-pitched roofs, accompanied by the lively and picturesque composition of staircases, arches, dormer windows and bow windows with curved profiles that recalled the architecture of the castles. Particularly modern for the time, each housing unit had its own water and gas supply.

In 1925, following the prevailing expressionist taste, all the houses were painted in bright colours, thus earning the playful name of the 'parrot's quarter'. War damage from Allied aerial bombardments in 1944 caused a level of destruction estimated at 90%; the district had been built in immediate proximity to a railway line of strategic importance. Despite partial privatisations and inevitable modernisations, the uniform character of the historical settlement is still partially recognisable.

Today, the large settlement of Mauenheim corresponds to one of the most popular districts of Cologne, located in the north quadrant of the city, between the railway station and the Nordfriethof and well connected to the city centre. The general layout anticipated the Viennese experience of *Gemeindebau* (K. Ehn, 1923) and the *Berliner Hufeisensiedlung-Großsiedlung Britz* (M. Wagner, 1924), both synonymous with a collective housing form of utopian community inspiration, with integrated services placed in relation to collective green spaces (Kunze, 1992, p. 44). The complex was entirely renovated between 1995 and 2000.

### *5.2. Germaniasiedlung (Cologne-Höhenberg, 1917–1928)*

Höhenberg's Germaniasiedlung is an outstanding example of cooperative housing built during the Weimar Republic. Development phases and changes in the concept of social housing construction that occurred during building can be seen. Germaniasiedlung—established on the grounds of an abandoned industrial complex of the same name—can be considered one of the most important housing experiments in the city, thanks to the participation of 38 local architects. In 1917, GAG acquired the site of the former Germaniahütte foundry in order to establish affordable housing for low-income users; the general urban plan—developed by the technical director of GAG, Fritz-Hans Kreis—was ordered according to the principles of the *Gartenstadt*, creating a new type of Reformhaussiedlung. It became a multi-



**Figure 8.** From left to right: W. Riphahn and K. M. Grod, Mauenheim school (Unknown, 1925, p. 128); Nibelungendsiedlung School, gatehouse, Nibelungenstrasse, Cologne (Kramer, 2012).

storey building placed along the perimeter of the lots but with internal green courtyards, services and common areas. The settlement was originally designed as a residential complex consisting of single-family units, but these could only be built in the first phase of construction (1920–1921, Germaniastrasse/Meiningerstrasse). In the second phase, multi-family buildings were built in units for five to six families. The revision in the design, caused by the difficult economic situation of those years, was exacerbated by the phenomenon of monetary inflation, which rendered the construction of single-family buildings, financed with public money, unsustainable (Roeseling, 2003, p. 104).

The pentagonal shape of the lot, with diversified road sections, created a particularly pleasant effect, intentionally inspired by the urban landscape and medieval architectural language, recalled, for example, in the use of arches, battlements and bow windows. The district draws fully on the expressionist repertoire in vogue in the early 1920s, with geometric ornamentations, an abundance of sharp spires and edges and the combination of exposed brick surfaces and plaster. In addition, the varied composition in the construction of the roofs and the care in the individuality of the accesses contributed to accentuating the autonomous character of the settlement and of the single housing units, differentiated for the various social and professional roles—workers, employees and officials of the nearby industrial enterprises of tertiary services—for which they were intended. Community infrastructure—a school, department stores, shops—were built as integral parts of the settlement and found their centre in the Weimarer Platz. In 2009, the neighbourhood underwent modernisation and renovation (by Böttger Architekten BDA, Köln), according to philological criteria, respecting the original typologies and finishes (Heinen & Pfeffer, 1988, pp. 77–84).

## 6. Elaboration and Transcendence of the Models of the Gartenstadt: Riphahn, Forerunner of the Neues Bauen

In 1919, while Konrad Adenauer assumed the role of Technischer Bürgermeister of Cologne, the architect and urban planner Fritz Schumacher (1869–1947) won the competition for the design of the immense range of fortifications disused since 1907 (Schuckmann, 1965; see Figure 9), ahead of the proposals of Alfred Stooß and Hermann Jansen. Between 1920 and 1923, Schumacher prepared the general town plan with long-term growth prospects in mind, conceiving the idea of the city as a social *Gesamtkunstwerk* based on the creation of large green belts (*Innere Grüngürtel*) 500 meters wide and developed for more than 7 km (Gebert, 2013, p. 119). It was in that context that all the major social housing projects developed and took shape, comprising the new jurisdictional definition of the *Großstadt* Köln, which included all the small towns and neighbouring villages in the new urban perimeter.

From 1922, with the resumption of the building activities of GAG, Riphahn designed and built the most significant housing complexes in Cologne: the *Grüner Hof* of Mauenheim (1922–1924), Bickendorf II–Rosenhofsiedlung (Cologne, 1922–1938), the *Blauer Hof* of Kalkerfeld-Buchforst (1926–1927) and finally the Weiße Stadt in the suburb of Zollstock-Buchforst (1929–1932).

The new and extraordinary abundance of greenery allowed for the construction of a housing project with modern building hygiene criteria conceived according to the motto *'Licht, Luft, Sonne!'* The urban vegetable gardens included or adjacent to the *Siedlungen* allowed families to overcome the harsh economic situation of the post-war period. The advantages of horticulture and family poultry and rabbit farming became widespread thanks to the experiments conducted in Worpswede at the '*Sonnenhof'* social farm during the same period by the landscape architect-Leberecht Migge (1881–1935).

### *6.1. Grüner Hof (Cologne–Mauenheim, 1922–1924)*

Riphahn's *Grüner Hof* was realised in just two years and was fully consistent with the principles of expressionist aesthetics; it received recognition and publicity in the following years (Hoffmann, 1927). The residential courtyard, whose typological system refers explicitly to

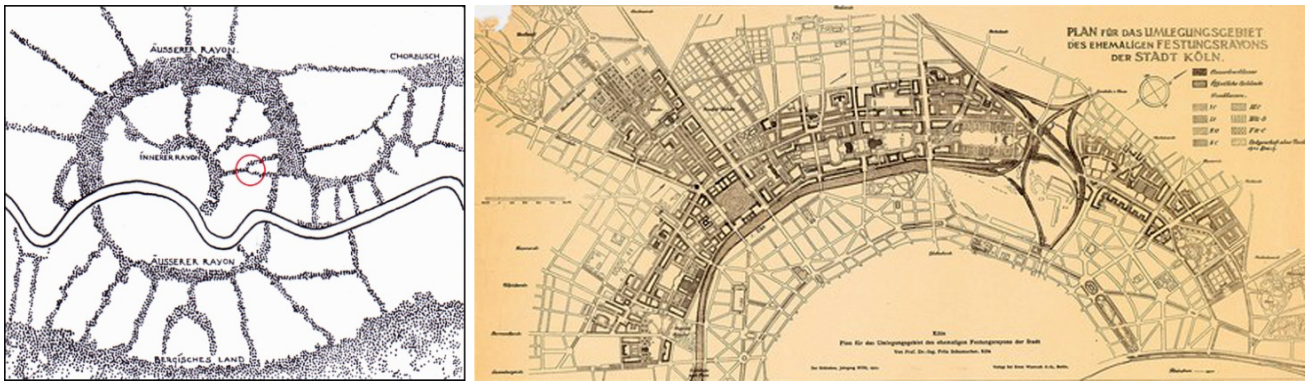



**Figure 9.** From left to right: F. Schumacher, *The Green Belt of Cologne: Concept*, Cologne, 1919. Source: (Curdes, 2000); F. Schumacher, Competition for the development of the inner district, Cologne, 1920. Site plan 1:10000 (Schumacher, 1920).

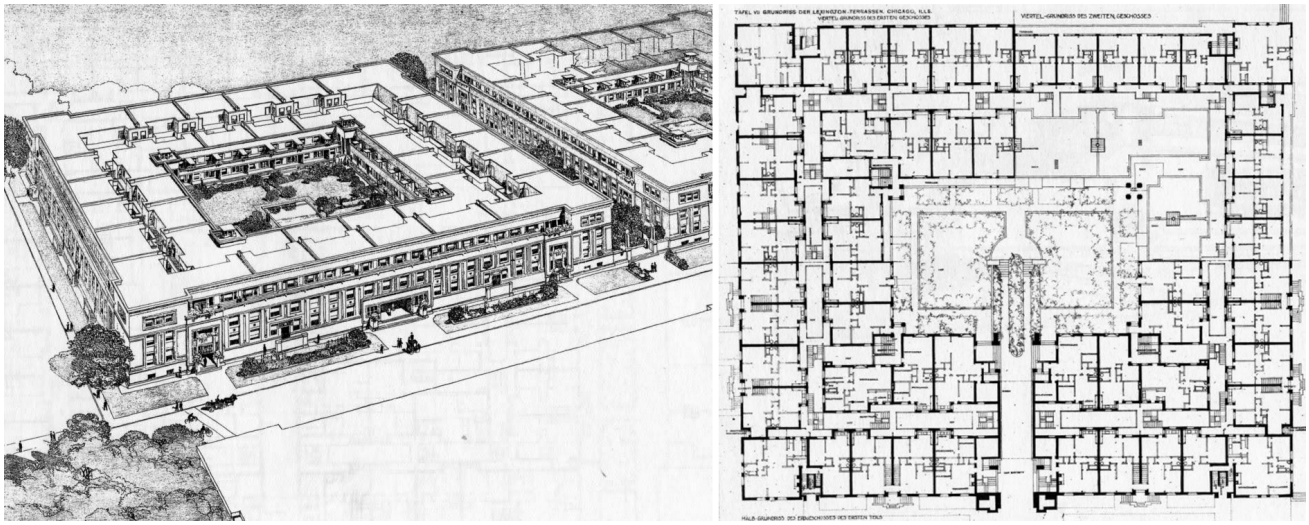


**Figure 10.** F. L. Wright, Lexington terrace apartments, Chicago, 1894–1901, bird's eye view and ground plan. Source: Wright (1909).

the Lexington Terraces apartment houses of F. L. Wright (1894–1901; see Figure 10), consisted of three intermediate courtyards, delimited by four open rows; the massive character of the building, originally painted in dark red and ochre, expanded into a green space of unusual dimension (Hilberseimer, 1927, pp. 26–34).

Meadows, playgrounds, hedges and—long ago—flowerbeds created a peaceful island of peace in the urban fabric (Figure 11). The sequence of the windows, the deep arcades and the stairwells, made up a singular vertical order on the façade, which—arising from a 'shoe-like' plinth—culminated in a blind arcade. On the roof slopes, small triangular-shaped dormers opened in groups. The reference to medieval stylistic elements dear to the expressionist movement was evident, symptomatic of a cultural climate balanced between over-excited sensitivity and sarcastic realism, typical of the Weimar years. The irruption of the anxiety that ran through the insecure world of those years could also be found in the original closing of the arcades by rectangular-grid grilles, which resumed the partitioning of the windows, accentuating the vertical course of the *Risaliten* (avant-corps). The housing layouts, based on six different dimensional cuts, were combined in eleven typological variants.

### *6.2. Bickendorf II–Rosenhofsiedlung (Cologne, 1922–1938)*

The second extension of the residential village Bickendorf II, also known as Rosenhofsiedlung, was designed by Riphahn and Grod and built in 1923. The settlement, designed to form an island of quietness among urban traffic, was characterised by the asymmetrical layout and the generous endowment of green areas placed on the road fronts, with restful gardens in the inner courtyard. The central tree-lined square, called 'Rosenhof', gave the neighbourhood a serene country setting, delimited by service buildings of higher formal and chromatic quality, whose combination—in shades of yellow ochre, earth of Siena and beige—gave vivacity and pleasantness to the whole complex, despite the simplicity of the façades (Figure 12). The entrances were marked by stair-



**Figure 11.** From left to right: W. Riphahn, historical image of *Grüner Hof*, Köln-Mauenheim (1922–1924 (Schmölz, 1926); Interior of the courtyard (Heinrich, 2010a).



**Figure 12.** W. Riphahn and C. M. Grod, *Rosenhof-Siedlung*, Akazienweg-Venloer Straße, Cologne. Source: Joauth (2012).

wells protruding slightly from the façade, with giving a pleasantly rhythmic effect to the façade on the road front. The buildings rose three to four floors at most, with cuts of housing based on four basic building types, which combined to develop eleven possible variants: the living rooms and kitchens overlooked the arcades facing east and south to get the maximum sunshine.

The neighbourhood, now protected heritage, was renovated in 2012, with services and functional equipment refitted and the original colour plan restored.

### *6.3. Kalkerfeld-Blauer Hof (Cologne-Buchforst, 1926–1927)*

This settlement, built in 1926 and 1927 for GAG and designed by Riphahn and Grod, attests to the achievement of the aesthetic and functional canons avowedly Neues Bauen. The municipal building cooperative had acquired in 1926 a lot of 18 hectares of land in the suburb of Kalkerfeld, wooded and uninhabited but opportunely connected to the city centre and to the periphery via the railway line.

Due to the construction of the Mülheim Bridge on the Rhine and the related demolition of residential buildings, the city of Cologne urgently needed living spaces for low-income tenants. The design of the complex followed the dictates of Dutch Social Housing, with 'courtyard'-type settlements (Maahsen-Milan, 2010, p. 108; see Figure 13).

The buildings were laid out on four floors on an almost square plan; at the corners were access blocks to the courtyards that rose, in cubic form, for five floors. The smooth façade on the street side was marked by the backward volume of the stairs and the alternating height of the upper windows. In the corner buildings, the balconies opened onto the external front. The façade overlooking the courtyard was characterised by galleries built in every three or four alternate floors per house. The Cologne artist Heinrich Hoerle (1895–1936) was entrusted with the design of the chromatic plane: the external front was painted white, with red square windows. The façade facing the inner courtyard was decorated with two different shades of blue and punctuated by white sash windows (Hagspiel, 1981, p. 181; Heinen & Pfeffer, 206–212; see Figure 14). For the more than 200 new apartments, the architects designed custom-made furniture at low cost, optimally adapted to the housing plans. The settlement was completed in 1927 and immediately occupied.

Heritage-listed since 1988, the settlement was completely renovated in the years 2006–2010. The living space was adapted to today's needs. All the residential buildings were equipped with new flat roofs, wall and roof insulation and central heating systems that replaced the original stoves. The internal courtyard, which was completely redesigned after the construction of an underground car park, is now a lawn and has a public, tree-lined playground.

### *6.4. Zollstock–Weisse Stadt (Cologne-Buchforst, 1929–1930)*

Riphahn and Grod's most celebrated residential district was the *Weisse Stadt* (white city), built between 1928

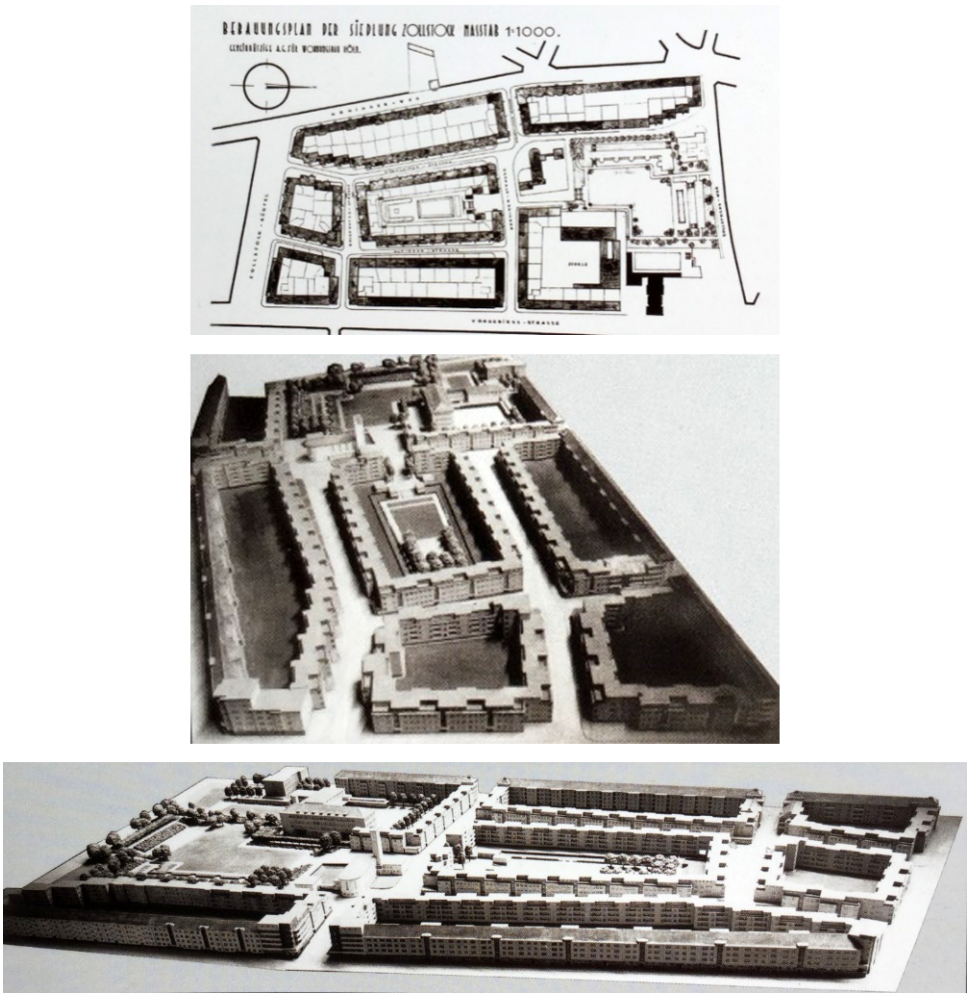



**Figure 13.** Top: W. Riphahn and C. M. Grod, *Zollstock Siedlung*, general plan 1929 (Riphahn, 1929). Middle and bottom: Zollstock Siedlung, model 1929 (Mantz, 1929).



**Figure 14.** W. Riphahn, *Blauer Hof*, Cologne-Buchforst, 1926–1927. Interior courtyard. Source: Heinrich (2010b).

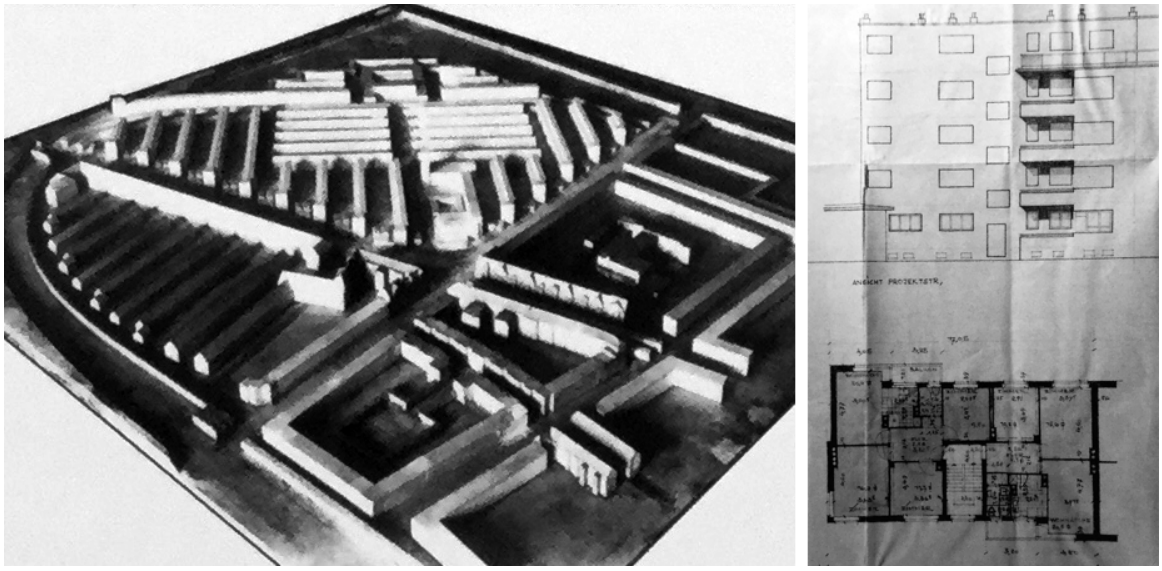


**Figure 15.** From left to right: W. Riphahn, Cologne-Buchforst, Siedlung Kalkerfeld with *Blauer Hof* and *Weisse Stadt* (1929–1930; Mantz, 1928); Cologne-Buchforst, Siedlung Kalkerfeld with *Blauer Hof* and *Weisse Stadt* (1929–1930; Schmölz, 1929).

and 1932 in the suburb of Kalkerfeld, called Buchforst after 1932. The housing complex—which experimented with a mix of residential blocks of flats and terraced houses, in alignment with the dictates of the *Neues Bauen*—was characterised by an original volumetric articulation, based on the 45-degree rotation of the terraced houses, which, instead of aligning with respect to the axes of Heidelberger Strasse and Waldecker Strasse, appeared in a foreshortened view (Figure 15). The general effect, having a strong visual impact, was further accentuated by the chiaroscuro effect of the slightly staggered heads, narrowing the appearance of the façades on the street; on the ground floor, small volumes are aggregated for neighbourhood shops and 'collective services' (Gemeinschaftshaus; see Figure 16).

The large spaces between the houses were designed to allow, in addition to an optimal amount of sunshine, the efficient ventilation of open courtyards, equipped with generous amounts of greenery to help residents relax. For the first time, Riphahn renounced traditional pitched roofs to adopt modern flat roofs and luminous, two-sided integrated balconies, which enlivened the façades of the blocks with vigorous volumetric contrasts.

In order to promote the social mix, single-family residential types were also built in rows, arranged on one or two levels next to the multi-storey blocks of flats. The multi-storey blocks around the garden courtyard combined with the flat roofs and the rhythmically structured façades, arcades and backward balconies to consolidate a purist plasticism, devoid of decoration and now free of any formal loan to the Gartenstadt's vernacularism (Figure 17). The stylistic path and urban conception gradually moved away from the model of the single-family house in the village: in a few years, Riphahn would be recognised as a genuine and authoritative representative of the Neues Bauen (Funck, 2004, pp.76–85).



**Figure 16.** From left to right: W. Riphahn, Cologne-Buchforst, Siedlung *Weisse Stadt*, 1929–1930 (Fries, 1930); Heildelberger Straße corner ("Heildelberger Straße corner", 1929).



**Figure 17.** W. Riphahn, Cologne-Buchforst, *Weisse Stadt* (1929–1930). Source: Hatzfeld (2017).

The neighbourhood planning also included the construction of a new parish church (1928–1931), dedicated to St Peter Canisius and built to a design by Riphahn himself. Although the church was located at the heart of the new community, it was set back from the urban road axes. The church had a simple basilica structure but the project was repeatedly reworked and eventually stripped of the most original and innovative solutions due to the refusal of the Cologne Catholic authorities to approve them (Körner & Wiener, 2008; see Figure 18, left). After the heavy war damage, the hall was rebuilt in 1947 by Dominikus Böhm (Schlombs, 1991, p. 203).

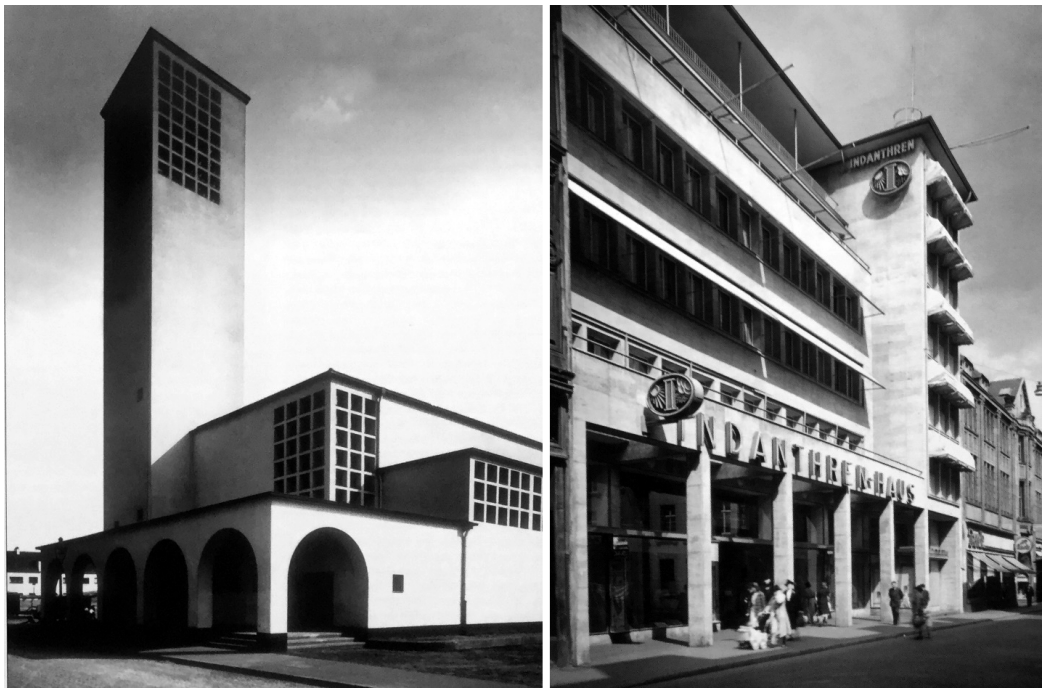



**Figure 18.** From left to right: W. Riphahn, Cologne-Buchforst, *Weisse Stadt*. Church of St. Peter Canisius (1929–1930). View from southwest (Mantz, 1931); W. Riphahn, Office and commercial building 'Indanthren'. General view from Breite Strasse, Cologne 1939 (Mantz, 1939).

*6.5. The Return to Conservative Modernism (1938–1940)*

In the years of the National Socialist dictatorship, the Weisse Stadt was considered an expression of the International Style and was therefore branded *undeutsch*, i.e., not typically German. As a result, Riphahn was marginalised and excluded from any public contract until 1938. Thanks to the friendly involvement of Clemens Klotz (1886–1969)—an influential architect of Cologne engaged in the major tenders of the regime—Riphahn was included again among the public housing designers of GAG (Kier, Liesenfeld, & Matzerath, 1999, p. 115). In the same year, he realised two elegant buildings in the centre of Cologne: a corner block with a tower for the *Teilschenbeschleuniger* and the *Indanthren-Haus*, a commercial building with a gallery of marked Italian taste in Breiter Strasse (see Figure 18, right). He also designed and produced a multi-storey block for individuals at Volksgarten, a suburb of the Kölner Südstadt. For GAG, he resumed the construction of two building blocks on Venloer Strasse, in the Bickendorf II district, and at the intersection of Birresborner and Bitburger Strasse, in Köln Lindenthal. These were residential complexes in line with the requests of clients: austere, conservative volumes in taste as well as construction, aligned to the street front and marked by squared *Erker* (bow windows) at the entrances to the blocks of flats (Funck, 2004, p. 252).

*6.6. War Planning: Ideas for the New Cologne*

The outbreak of war on September 1, 1939, did not slow down Riphahn's construction activity. From 1940, despite the first aerial bombardments, he was busy with the construction of elegant commercial buildings in the centre of Cologne. The elaboration of the second variant of the building complex of Martinsfeld, which started in 1934, continued too. He then specialised in the construction of air raid shelters, and his activity revolved around conceiving a new urban layout for the city centre after the bombardments. His activity culminated in the conception of the monumental *Dombunker* (1941) in the southern area of the cathedral, with the discovery of the so-called mosaic of Dionysus (third century AD), which would become the future constitutive nucleus of the RGM | *Römisch-Germanisches Museum* (1961–1974). In 1942, the dramatic evolution of the war forced Riphahn to evacuate and abandon his professional activity entirely (Funck, 2004, p. 253).

**7. The Post-War Experience: Residence and Infrastructure for the New Beginning**

Between April and May 1945, Cologne was occupied by Allied troops and Germany's unconditional surrender to the Allies was signed. Riphahn resumed the design of the new city layout with the most brilliant local technicians, such as Karl Band, Eugen Blanck, Michael Fleischer, Hans Lomeyer and Gerd Lohmer (Maahsen-Milan, 2010, p. 112). In 1946, Rudolf Schwarz was appointed head of the renovated reconstruction planning office. From that moment on, Riphahn devoted himself to designing innovative, formally shabby residential buildings, i.e., the Hahnenstrasse complex (1945–1952; see Figure 19)—the first pedestrianised commercial and public street in Europe. The Cologne example was probably the reference for the creation of the blue zone *Lijnbaan* (1949–1953) in Rotterdam, developed by J. H. van den Broek and Jacob Berend Bakema (Funck, 2004, pp. 166–173).

The cultural centres of the Britisches Kultur Institut *Die Brücke* (1948–1950) and *Franzosische Kultur Institut* (1951–1953), promoted by the Allied military administrations, followed shortly after. Throughout the 1950s Riphahn's professional activity continued, with an ever-increasing commitment to the construction of buildings for tertiary use—from the *Deutscher Herold* and the *Concordia Haus* (1950–1952) to the *Dresdner Bank* (1958–1961), now indispensable in supporting the country's economic recovery—and to reconstruction, with the extension of the Faculty of Economic and Social Sciences at the University of Cologne (1954–1960) (Maahsen-Milan, 2010, p. 140).




**Figure 19.** W. Riphahn, Hahnenstrasse complex (1945–1952). Source: Spekking (2014).

From 1946, Riphahn started the process of designing and reconstructing the theatre complexes in Offenbachplatz, proposing five different variants and managing, between 1952 and 1957, to complete the Opera Theatre (Kölner Oper). The four-year period 1958–1962 also saw the annexed Theatre of Prose (Schauspielhaus) completed, including its restaurant (Funck, 2004, pp. 226–232).

## 8. Conclusion

Five decades of inexhaustible activity allowed Riphahn to experiment, during the first half of the 20th century, with the most important styles of German architectural culture: from the *Jugendstil* of the early years of his career with Grod to the very lively and reckless expressionist season; then, from 1927, with the dry language of the *Neues Bauen*. At this stage, Riphahn did not renounce typological invention, especially in the urban resolution of the great *Siedlungen* of Cologne (Goethe, 1772; Grod, 1928). The creative parabola ended in the heroic years of the Second World War, in a civil commitment that went beyond the professional: perhaps these are the later and happiest works, which expressed the perfect synthesis of elegance and formal cleanliness (see Figure 20).

Over the course of his professional life, Riphahn received honours and recognition. In 1950, the Technische Hochschule Carolo-Wilhelmina zu Braunschweig awarded him an honorary doctorate, and three years later, the Land of North Rhine-Westphalia proclaimed him the 'first prize winner' of the Architecture Prize, declaring that:

> *Der Architekt Dr. e.h. Wilhelm Riphahn steht unter den Baukünstlern unseres Landes an hervorragender Stelle. Er hat in einem Lebenswerk von unbeirrter Folgerichtigkeit Bauten aller Art geschaffen. Sie zeichnen sich durch einfallsreiche Frische und Kraft der Gestaltung aus. Vorwärtsdrängende Ursprünglichkeit und Sinn für Einordnung verbinden sich glücklich in seinen Werken. So wurden sie vorbildlich für das Bauschaffen der Gegenwart.* [The architect Dr. hc Wilhelm Riphahn played a role of excellence among the artists of our land. During his professional life, he created buildings of all kinds, in a life of absolute consistency. His works are characterized by great imaginative freshness and power in design: an originality that blends happily into a sense of order and harmony and represents contemporary creativity.] (Hagspiel, 1981, p. 394; Klemmer, 1989, p. 74)

The reasons for the late recognition of Riphahn's work can be found, first, in the shy and frank character of the architect who—engaged full time in the activities of designer and builder—had no public tasks at any time in his professional life. Moreover, the legacy of a continuing critical hostility towards the most significant works of the German Reconstruction, of which Riphahn was certainly one of the most prestigious and original interpreters, weighed against him. The legacy of his thought, investigated by a small number of scholars (Hagspiel, 1981), is linked to only two written works: a chronicle of his travels in the United States in 1939 and a concise but valuable reflection on the guiding principles for the reconstruction of the city of Cologne, dated July 14, 1945, only two months after Germany had surrendered to the Allies (Riphahn, 1945). However, from these few elements arise a first-class intellectual and a civic personality, competent and passionate, attentive to the definition of the basic concepts for the structuring of a modern metropolis that was to be rebuilt while enhancing its surviving architectural remains and without losing the



**Figure 20.** From left to right: W. Riphahn, Crew buildings, GAG Siedlungsbau Raderthal-Volkspark residential skyscraper, north-west view ("Besatzungsbauten, GAG Siedlungsbau Raderthal", 1951); W. Riphahn, Residential skyscraper, west front view, 1951 (Konservator der Stadt Köln, 1951).

opportunity to renovate and rationalise an urban layout still conditioned and restricted by medieval precursors.

Given the complexity of such a high-level but completely underestimated artistic figure from the period of post-war reconstruction, it is surprising that some of Riphahn's most precious works—i.e., the Nordfriedhofsiedlung—were demolished in recent times (and it was only with difficulty that the Kölner Oper (1954–1957; see Figure 21) and the Schauspielhaus (1962) could be saved from demolition (Maahsen-Milan, 2010, p. 114). After the exhibition held in Cologne in 2004, an appropriate critical re-reading of his work began at the MAK | Museum für Angewandte Künst Köln, with the necessary reconsideration of the role that this great artist played in the city of Cologne and in German architecture between the two wars (Funck, 2004). In 2015, after years of restoration work, marked by a long debate between the supporters of renewal and of respectful conservation, the theatrical architectural complex was re-opened, becoming, together with the figure of Riphahn himself, a true icon of German post-war architecture.




**Figure 21.** Top: W. Riphahn, Historical image of *Kölner Oper*, 1957 (Vakdad, 2018). Middle and bottom: Modern image of *Kölner Oper* (Spekking, 2010).

The recent redevelopment of Riphahn's *Siedlungen* took place in the context of the energy retrofitting, functional adaptation and renovation of the technological systems of GAG's real estate assets. The building restoration was entrusted to teams of architects and scholars, who contributed to enhancing Riphahn's housing complexes with rigorous procedures of preservation and philological restoration of volumes, facades and original colouring. Visits to the restored complexes are possible on the *Tag des offenen Denkmals* (Open Monuments Day), which takes place annually thanks to the Deutschen Stiftung Denkmalschutz of the city of Cologne. The visits, usually attended by architects, are highly appreciated by a diverse public, including citizens and tourists interested in learning about Modern Movement heritage.

Noteworthy, and evidence of the growing interest in Riphahn's work, is the series of conferences and guided tours *Perlen Moderner Architektur & Moderner Bauens* in Köln (1 June–30 October 2019), aimed at enhancing the architectural heritage of Riphahn on the 130th anniversary of his birth.

The bibliographic sources on the work of Riphahn are many, some of them contemporary to the construction of his works. Recent critical evaluations are still based on the reconnaissance generated by the sensitivity and work of Hirtrud Kier, who, with Wolfram Hagspiel, contributed to the rediscovery of the personality and architectural and urban work of Riphahn, providing a precise cultural and historical framework. However, incisive international comparisons that might place Riphahn's work in the context of the urban renewal of the 20th century are lacking.

We hope that further studies will delve into and disseminate the work of this distinguished exponent of modern architecture. This article is a first step in spreading his work and teaching in Europe.

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**Conflict of Interests**

The author declares that there are no conflicts of interest.

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Article

# CIAM Goes East: The Inception of Tehran's Typical Housing Unit

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**Abstract**
The aftermath of WWII not only marked the beginning of a new geopolitical order but also once again brought discourses of architecture and planning back to the frontline of the confrontations between the West and the Soviet blocs. Although the immediate need for post-war reconstruction left almost no time for contextual theoretical development in architectural and planning principles, the "occupied" and "liberated" territories became laboratories in which the new concepts of urban form, domestic architecture, and forms of life were tested. During 1945–1967 Tehran became one these experimental grounds in which these planning principles were tested and implemented; a battleground where the socialist and the capitalist ideologies met. The key to this urban development project was an ideologically charged repercussion of the CIAM (Congrès Internationaux d'Architecture Moderne) discourse, specifically on *Existenzminimum* (1929) and *Rationelle Bebauungsweisen* (1930). While the CIAM's agenda had already found its way to Iran through one of its founding members, Gabriel Guevrekian, it became operative through the activities of the Association of Iranian Architects who were in charge of major housing developments in Tehran since 1945. Thus, CIAM guidelines were translated into building codes, regulations, and protocols that had the fundamental role in shaping the Middle East's first modern metropolis. New housing models were developed and proposed by the Association of Iranian Architects that cut ties with the traditional typologies and proposed a radically new urban form, architecture, and forms of life. This project at large, of course, was not politically neutral. This article reviews the role of two protagonists in introducing and revisiting the CIAM discourse in shaping the post-war neighbourhoods and housing typologies in Tehran.

**Keywords**
affordable housing; Association of Iranian Architects; CIAM; Existenzminimum; Gabriel Guevrekian; mass housing; Silvio Macetti; Société Générale de Construction en Iran; Tehran; Tudeh Party

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## 1. Introduction

The early CIAM (Congrès Internationaux d'Architecture Moderne) manifestos, specifically on *Existenzminimum* (1929) and *Rationelle Bebauungsweisen* (1930), have been extensively discussed in the context of the European Modern Movement and its agency in the post-WWII reconstruction of the war-torn cities in Europe. The extent of the implementation of such ideas, however, was not limited to the European cities of course; they were often instrumentalised as geopolitical apparatuses in post-colonial developments as well as the state-initiated projects of modernisation. In Iran, the First Pahlavi period (1925–1941) could be seen as one of the most explicit examples of such processes, framed within a wider and more inherent cultural project: the project of modernity.[1]

In Reza Shah's immediate reforms, cities were no exceptions. Tehran's municipal government was among the institutions that the Shah immediately established, how-

[1] In Max Weber's theory, the project of modernity is characterized in terms of "the separation of substantive reason, formerly expressed in religious and metaphysical world-views, into three moments, now capable of being connected only formally with one another (through the form of argumentative justification)". He further elaborates on those three moments as spheres of scientific and knowledge, of morality and of art (Habermas, 1997, p. 45).

ever, it was not until a decade later that the municipality's administrative structure, its institutional autonomy, and the extent of its spatial practice were fully outlined. Indeed, parallel to that, an idea of city was developed. Between 1927 and 1933, the octagonal boundary and gates were destroyed (Figure 1). All the moats were filled in an effort to reconceptualize the image of the city. Tehran no longer required symbolic representations of religion and power (the reason for the walled city), because it was now completely dependent on its own power of productivity—the mobility of the new capital—which was enhanced through the new regulations and infrastructural interventions linking the city centre to its developing industrial periphery. This state-initiated project was also conducted through various construction regulations that were forcefully applied to buildings. The focal point of the new project was housing, aiming to neutralize the old neighbourhoods' socio-political structure by imposing a new urban form, comprised out of open-ended grid of streets and infrastructure, and new plotted lands, stretched north-south adjacent to the streets. As a result, the architectural typologies of the city were radically changed in a shift that directly impacted the city's social structure.[2]



**Figure 1.** Arial view of Tehran, eastern border of the city, 1942. Source: author's personal archive.

Despite the ever-growing housing needs of Tehran, the post-WWII housing projects seemed to also carry a political agenda. They were designed to instigate the public—in particular, working class and lower middle-class—to fulfil their political duties. The seeds of a revolution were planted in those domestic spaces. One of the main goals of these projects was to reform the traditional role of the housewife. By separating the functions and reducing the flexibility of the space, women were encouraged to go outside the house and work alongside men. Paradoxically, this approach not only criticized the traditional role of Iranian women in an Islamic society but also targeted the new Western role model, which was promoted by the state. The architecture of domestic space was not, in fact, the only instrument for this project; it was widely expressed through the leftist media.

The article revisits the application and modification of the CIAM discourse in shaping the post-war neighbourhoods and housing typologies in Tehran by discussing the role of two protagonists who were fundamental in both initiating the discourse theoretically and ideologically and putting it in practice of urban development in Iran: Gabriel Guevrekian and Silvio Macetti (aka Noureddin Kianouri). Through their initiatives the post-WWII urban development of the city were reduced to simple spatial protocols that have not only shaped the entire urban form of the city up until today, but also have had direct impact on the social form of the city. In fact, very much in line with the CIAM principles, they reformulated the concept of domesticity, living unit, and household, through which the entire city could be built.

## 2. Gabriel Guevrekian and the *Société Générale de Construction en Iran* (1935–1937)

The inception of the CIAM's discourse on *Existenzminimum* (Minimum Housing Unit) was rooted in multifaceted economic, political, and social factors; from the post-Revolution Russia's New Economic Policy, to the 1923's Weimar Republic crisis, reorganization of workers' unions and collectivization of labour across Europe, that all were ultimately driven by the 1929's economic recession. In parallel, architectural experimentations such as Hannes Meyer's co-op architecture, or Margarete Schütte-Lihotzky's Frankfurt Kitchen, along with emblematic social housing projects of the time, such as Ernst May's New Frankfurt in 1926 and J. J. P. Oud's Scheepvaartstraat in 1927, boosted architectural discourses on the question of affordable housing, new construction techniques, and minimum living conditions. The subjects of those new spatial organizations were mainly the workers, migrants, and residents of war-torn cities (WWI); specific subjectivities that all can be understood as nomadic and precarious.

Learning from the Middle Eastern forms of habitations, Gabriel Guevrekian, the secretary general of the first CIAM, had already been working with minimum housing since the design of his first project, Hotel Touring-Club, in 1923. His Hotel Touring-Club was a prototypical model that could be expanded in any direction, horizontally or vertically, and that replicated ad infinitum in any region of France. Spaced along the highways at intervals of 300 to 400 kilometers, the hotels were designed to form a network of minimum habitation machines, reduced to the barest formal expression, and distinguishable from each other only by their two-part identifying code, made up of the road number and a letter, for example, A20-A, A4-B, or A8-C (Du Bercel, 1923, pp. 9–10).

[2] Quite opposite to the traditional courtyard house typology, or urban villas and gardens, the new urban typologies were facing streets, and had direct opening into the public space, their size and orientation were regulated mostly following a module of 7×30m stretch of land.

The Hotel Touring-Club was completely self-sufficient, like a small city. In addition to accommodation units, it contained restaurants, a cinema, theater, shops, garages, and car repair workshops. On each level there was a common hall that doubled as a library, with walls decorated with regional maps and bookshelves laden with publications of potential interest to the motorists. Leading off from both sides of the hall were identical series of rooms—smaller ones on the lower floors for the chauffeurs, and suites with bathrooms for their employers on the floors above. Regardless of type, all were fitted out with the minimum of furniture.

A few years later, in the preface to his book on *Hôtels et Sanatoria* (1931), Guevrekian—the urbane nomad—would locate the origins of the contemporary hotel in the caravanserais and monasteries of the Middle East, pointing out that a certain idea of collective short-stay accommodation had endured, despite the revolution, in the means of transportation. Expanding on the theme, he writes: "Recent social changes have given rise to a new way of living inspired by the idea of staying in a hotel, where a minimum private habitation unit is served by common spaces of work, fun and relaxation" (Guevrekian, 1931, p. 2). This was the kind of collective living embraced by the Hotel Touring-Club de France.

Guevrekian further developed his ideas of minimization of living unit and maximization of collective spaces in his experimental social housing development in Rue du Débarcadère, Paris, in 1929. The project took shape within the framework of Louis Loucheur's new plan to build low-cost housings in Paris.[3] It was proposed for a deep plot, sided by two typical Parisian apartment blocks. Guevrekian's proposal consisted of four eight-story-high slabs placed one after the other parallel to the street. Between the slabs were 10-meter-wide light wells, through which daylight could be provided to each unit. He provided common facilities on the ground floor where all the units can have access to. However, his innovative design trick was to lift the two middle slabs up on pilotis so that the open spaces of light wells could expand horizontally as a collective platform on the ground level (Figure 2).

Guevrekian designed 186 minimum units in this rather limited plot. The most dominant type was the minimum en-suite studio apartment with an average size of $4.8 \times 7.2$m. The units had been equipped with a kitchenette and a small bathroom. In the last two floors the units were duplex. The living units were all south facing. The northerns slab had studio units with shared facilities; kitchenetts and washrooms were provided in each floor for collective use. On the first slab, facing the street, the larger units were placed on top 6 small shops on the ground floor. Staircases and lifts together with the corridors were linked to the units on the north side. This rather straight-forward organization of the space within an infill Parisian urban block was not anything common back then. It was only two years after that such arrangement of the blocks were discussed the in third CIAM congress where Guevrekian was present as one of the founding members of the organization, handing the organizational responsibilities of the congress to Sigfried Giedion.

At the age of twenty-eight, Gabriel Guevrekian stood in the front row of a group photograph commemorating the founding of CIAM in La Sarraz, Switzerland, in 1928 (Figure 3). Immediately recognizable by his bald head, sharp double-breasted suit, and confident, upright

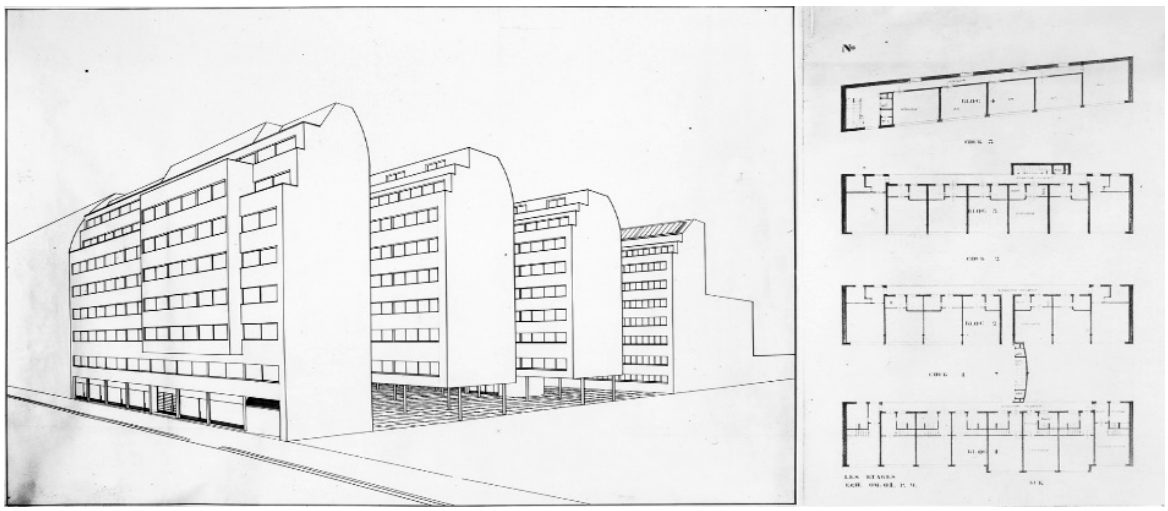


**Figure 2.** Guevrekian's design for low-cost housing in Paris, 1929. Courtesy of the University of Illinois Library Archive.

[3] Louis Loucheur (1872–1931) came from north-eastern France, where he had substantial holdings in the railroads serving the mining regions. Immediately following the war, he served as Minister of the Liberated Zones and led reconstruction efforts in the north. In 1920, he proposed with Bonnevay a law for the construction of 500,000 units of low-cost housing. Although rejected at the time, the proposal later became the basis of the 1928 Loucheur Law, which created the *Habitations à Loyer Modéré* (rent-controlled housing). For his influence in Le Corbusier's project see McLeod's (1983) *Architecture or Revolution: Taylorism, Technocracy, and Social Change*.



**Figure 3.** Official group photograph, CIAM I, La Sarraz, 1928. The full list of people in the photo includes, from left to right, top row: M. Stam, M. E. Haefeli, R. Steiger, P. Artaria, F. T. Gubler (press); middle row: R. Dupierreux (Institute Cooperation-Intellectuelle, Paris), P. Chareau, V. Bourgeois, E. May, A. Sartoris (obscured behind Guevrekian), H. Schmidt, H. Häring, J. de Zavala, Le Corbusier, P. Rochat (press), H.R. von der Mühll, H. Hoste, S. Giedion, W.M. Moser, J. Frank; third row: P. Jeanneret (hand in pocket), G. Rietveld, G. Guévrékian, L. Florentin, H. de Mandrot, A. Lurçat (hand in pocket), G. Maggioni; seated: F. G. Mercadal, N. Weber, C. Tadevossian. Source: ETH Zurich, gta CIAM Archive (n.d.).

posture, Guevrekian radiates an obvious assurance—all the more remarkable given that he was standing shoulder to shoulder with many of the leading lights of the modern movement, among them Max Ernst, Mart Stam, Sigfried Giedion, Josef Frank, Gerrit Rietveld, and, skulking toward the back of the group, Le Corbusier. Not yet thirty, Guevrekian was now recognized as one of the protagonists of the European avant-garde. But other roles awaited him. Before another decade was out, Guevrekian had hopped continents to work on a series of monumental buildings and housing projects that were designed to present to the outside world the modern face of Reza Shah's Iran. Then, after a career drought coinciding with WWII, he again moved thousands of miles to take on his final guise, as a genial professor at a Midwestern university.

In an interview with Martin Steinmann, in June 1970, Guevrekian looked back to his early works as the secretary general of CIAM. He recalled how the Swiss art collector and designer, Madame Hélène de Mandrot approached him in 1927 with the idea of organizing a group of avant-garde architects to be able to discuss the crucial issues of the discipline. Guevrekain (1970) voiced:

> I knew Madame de Mandrot quite well for many years. She had a nice apartment in the same building at the Rue Champerret in Paris where my brother-in-law the historian Carl Einstein lived. So I met her occasionally. At our first meeting with Le Corbusier at her place—it must be some time in 1927—the overall aims and objectives of the La Sarraz meeting was discussed and Madame de Mandrot with agreement of Le Corbusier insisted that I take care, secure, and carry out the necessary preparations and the secretarial job of the La Sarraz convention. Although at that time I had a very small office and, as a matter of fact, no help whatsoever, I accepted it with pleasure.

He was then named the Secretary General of the congress and charged with the task of assembling the working committee. By April 1928 he had compiled the draft program, which (after some minor revisions by Le Corbusier) would define the structure of the first meeting. In just a few short weeks, modern architecture had reasserted its authority. Being an architect—as Guevrekian ably demonstrated—was now no longer simply about designing buildings; it was a matter of cultivating a political persona, proselytizing an ideology, and keeping a shared spirit alive.

In 1932, European economies were in free fall, yet visitors to that year's Vienna Werkbund exhibition would have witnessed the realization of an utopian project—a model housing estate presenting prototypes for much-needed low-cost compact living units. Where the *Existenzminimum* typologies formulated at the 1929 CIAM Congress reduced costs by means of mechanization and standardization, the Werkbund relied on clever design, in keeping with its core principle of ensuring that

the less well off, the lower middle and working classes are offered only products that provide joy through their fitness for use and which foster the culture of domestic living (Stuhlpfarrer, 2015).

Thirty-three architects were invited by the Werkbund's director Josef Frank to develop designs for the exhibition. Guevrekian was among a handful of foreign names—along with Gerrit Rietveld, Hugo Häring, and André Lurçat—on a list of participants that otherwise reads like a Who's Who of Austrian modernists, including, among others, Josef Hoffmann, Adolf Loos, Richard Neutra, Oskar Strnad, and Hans Vetter. Guevrekian had no prior experience of building compact living spaces. Up to then his proposals for collective housing and hotel accommodation had remained solely on paper. The commission from Frank, then, was a stimulating challenge, inviting him to develop his ideas for minimum housing units and to apply them in a real-life situation.

First planned as an extension of the housing blocks of Red Vienna, the model estate would eventually be sited in Lainz, a leafy suburb on the outskirts of the city. Josef Frank devised the master plan, dividing the area into seventy plots of 200 square meters, each geometrically outlined in relation to adjacent streets. Strict regulations governing height (a maximum of three stories) and site ratios (the building could occupy up to 40% of the plot) ensured that the typologically diverse units had a visual coherence.

Assigned two adjacent plots, Guevrekian developed two symmetrical houses—numbers 67 and 68—which were seamlessly joined, as if to form a single unit (Figure 4). Each had a radically simple form, a perfect cube (in some ways developing further the premise of his earlier design for the Ferroconcrete Villa). Each was also raised on pilotis, with a narrow staircase connecting the utility area (laundry, storage, WC) near the entrance with the upper floors. The first floor contained the living room and kitchen, the second floor two bedrooms and a bathroom. The smooth finish of the façades was gently pierced by modulated openings, each one syncing perfectly with the interior composition of the space. Freed from the influence of Mallet-Stevens, Le Corbusier, or Loos, units 67 and 68 expressed an architecture that was entirely Guevrekian's own.

A year after, in 1933, Guevrekian and his wife set off for northeast Asia, stopping first in Tehran to visit family. Immediately, Guevrekian was asked to design two urban villas—one for a family member, the other for some friends, Persian aristocrats. Later that year, Reza Shah appointed Guevrekian as Chief Architect of Tehran. At the time, the city was in the midst of large-scale urban reconstruction as part of the Shah's effort to refashion Iran in a modern image, clearing away all traces of its Qajar past. Guevrekian's first public project was the design of the National Theater. He was then asked to prepare the master plan for Tehran, but when city officials asked for numerous revisions, he refused. Preferring to be his own boss, Guevrekian redefined his relationship with the government, setting himself up as an independent contractor. With a group of French, Swiss, and Iranian architects and engineers, he designed the Ministry of War and an amphitheater for the military school, and he also supervised the construction of the Ministry of Foreign Affairs and the Central Bureau of Records and Archives. Perhaps the most important project to come out of this period, however, was the design and construction of the Officers' Club, a collaborative project with the French engineer, Pénalié, and the Iranian-Armenian architect Vartan Hovanessian, a colleague from his brief time at Henri Sauvage's office (Figure 5). Similar to his

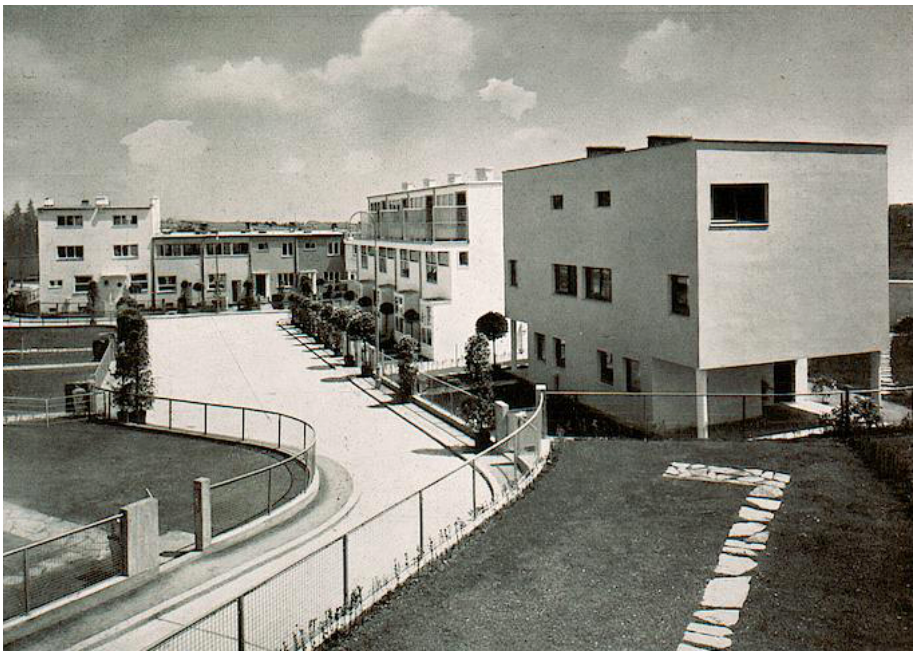


**Figure 4.** Vienna Werkbundsiedlung, houses numbers 67 and 68, 1932. Source: Innen-Dekoration (1932).

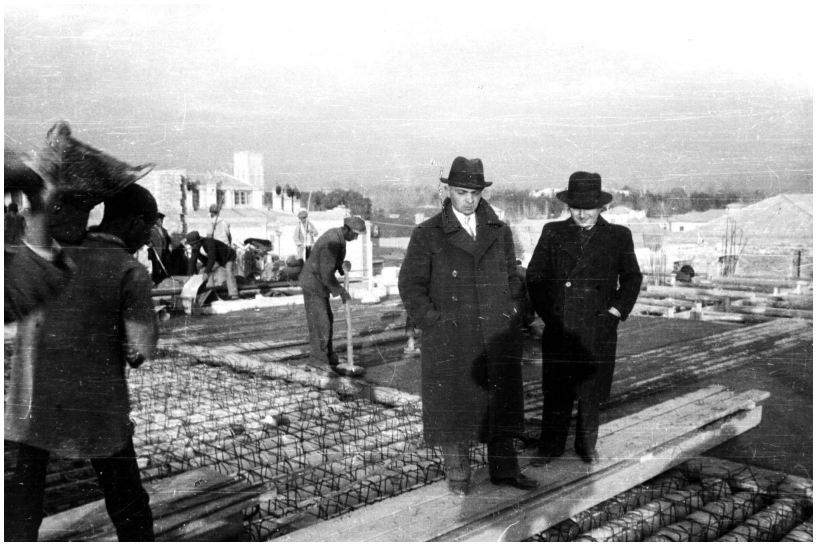


**Figure 5.** Gabriel Guevrekian on the roof of the Officers' Club, 1937. Source: Le Groupe d'Architectes de l'Ere de Evolution en Iran (n.d.).

European projects, Guevrekian designed every last detail of the crisp five-story building, right down to the bricks, which were custom-made to achieve the correct proportions of walls and openings. Lavishly appointed, the club was decked out with the most advanced building services: the elevators, central heating system, and sanitary fittings were all imported. To balance construction costs, Guevrekian combined these imports with local skills and materials, developing many innovative construction techniques in the process.

Two years into his Persian sojourn, Guevrekian was invited by the Minister of Finance, Ali-Akbar Davar, to run the technical department of the *Société Générale de Construction en Iran*, which coordinated all public building activities in the city. In this capacity, Guevrekian designed the masterplan of Tehran governmental quarter together with the French architect Marcel Dubrulle. They also proposed schemes for the Palace of Justice and the Ministry of Industry and Mines. The activities of the Société Générale de Construction were all suddenly stopped with the suspicious death of the Minister in the February 1937. Right after the dismissal of the office Guevrekian faced another unexpected problem; his wife, Henriette-Aimee, had been diagnosed with Malaria. They left Tehran immediately in March 1937. Although Guevrekian's career in Tehran lasted only four years he enjoyed the most productive period of his professional career. He later expressed his deepest regrets to live the country where he had initiated an architectural movement and had left behind fascinating body of works, most of which are not known outside Iran. As Guevrekian himself pointed out, his Iranian projects cannot be compared directly with the European ones; firstly because of the particular geographical and environmental condition of country and secondly due to limited building materials and traditional construction techniques. Indeed, it was impossible to copy or to transpose any European architecture to Tehran, but what Guevrekian achieved through his projects was to establish an Iranian Modernism Architecture. Rather than a top-down imposition of the Royal will, Guevrekian saw the social changes in Iran as the most influential driving force behind the general support and acceptance of the modern architecture of the city (Guevrekian, 1938).

These social changes accelerated in the years after. Although outshined by the war and the occupation of Iran by the allied forces, but the aftermath of the WWII once again brought discourses of modern architecture and planning back to the social, political, and economic agendas of the country. Although the immediate need for post-war reconstruction left almost no time for a contextual and theoretical development in architectural and planning principles, the big cities, and in particular Tehran, became laboratories in which the new concepts of urban form, domestic architecture, and forms of life were tested. Such experimentations consequently put Tehran on the frontline of the confrontations between the West and the Soviet blocs; an ideological battleground where the joint socialist modernism and the capitalist one met.

### 3. Silvio Macetti and the Association of Iranian Architects (1945–1967)

In August 1941, the Anglo-Soviet invasion of Iran had inaugurated an interregnum that lasted a full twelve years. It was the beginning of a period in which the new monarch, Mohammad Reza Shah, continued to hang on to much of the armed forces but lost control over the bureaucracy and the system of patronage. This interregnum lasted until August 1953 when the Shah, through a coup engineered by the Americans and the British, re-established royal authority, thereby recreating his father's regime and enabling him to act as an executive

monarch for the next twenty-five years. In this twelve-year interregnum, power was not concentrated in one place. On the contrary, it was hotly contested between the royal palace, the cabinet, the parliament, and most importantly the urban masses, whom were mobilized first by socialist movements and then by a nationalist one. Indeed, in this period the masses, mainly made up of the urban middle class and working class, constituted a major threat to the Pahlavi Dynasty.

The first real challenge to the state came from labour movements. On 29 September 1941, within a month of Reza Shah's abdication, a group of recent graduates from European universities and former political activists announced the formation of an Iranian communist party: the Tudeh Party (the Party of the Masses). Besides their political activities in the form of demonstrations and gatherings, they set out to train and educate the public, specifically the working and middle classes. During 1946 the Tudeh Party extended its activities with a view to mobilizing middle-class, working-class, and intellectuals. The mission resulted in the formation of numerous groups, circles, and clubs as sympathizers of the Tudeh Party or associated organizations, namely Women's Association, Youth Association, Officers' Organization, Students' Association, Writers' Association, and Association of Iranian Architects.

The role of Association of Iranian Architects was quite fundamental; the discourse of domesticity was at the centre of their political programme to mobilize urban society, addressing women (workers) in particular as a forgotten half of the active political mass. Their ideology was influential in the design and construction of mass housing projects in Tehran during the late 1940s and 1950s. The association launched its own journal, *Architect*, in order to reach a larger audience. It soon became quite popular and were distributed country-wide. The association was composed of figures who collaborated with Guevrekian or were introduced to his discourse as young students in Europe. The founding members were Vartan Hovanessian (Guevrekian's collaborator and graduate from École Spéciale d'Architecture of Paris in 1923), Mohsen Foroughi (graduate from École des Beaux Arts in Paris in 1934), Ali Sadeghe (garduate from Académie Royale des Beaux Arts in Brussels in 1936), Keyghobad Zafar (graduate from Royal College of Art in London in 1936), Manouchehr Khorsand and Abbas Ajdari (both were graduates from École des Beaux Arts in Paris in 1937), and Noureddin Kianouri (graduate from Technical University of Aachen in 1939).

Among the founding members, Kianouri was a key figure that theoretically and ideologically laid out the mission of the association. He was a graduate of Tehran University. He later moved to Germany and obtained his doctorate in architecture from the Technical University of Aachen in 1939. A year later he returned to Iran and in 1945, together with the other founding members, he co-founded the Association of Iranian Architects. Despite his academic career at the University of Tehran and his professional work as an architect, he was a left-wing activist. Kianouri was one of the founding members of the Tudeh Party in 1941. However, on 4 February 1949, Tudeh was accused of the assassination attempt on the Shah during an annual ceremony to commemorate the founding of the University of Tehran. The party was subsequently banned and most of the party leaders were imprisoned (Figure 6). After two years in jail Kianouri escaped from prison and fled first to Iraq and then to Italy. There, with the help of the Italian Commu-



**Figure 6.** Noureddin Kianouri (centre) and Morteza Yazdi (left) from Tudeh Party are being taken to the court, 1949. Source: Afsaneh Gidfar family archive.

nist Party he was given a new identity as Dr Silvio Macetti. In 1952, he moved to Moscow, there Silvio (aka Kianouri) worked with the architect and urban planner Georgy Alexandrovich Gradov for two years, during which time the first phase of a larger institutional research project began. In 1956 Macetti moved to East Germany and was later appointed as one of the research directors of the Bauakademie to collaborate with the research institute at the Academy of Architecture in Moscow, directed by Gradov.

The two research institutes, the Academy of Architecture in Moscow and the Deutsche Bauakademie in Berlin (DDR), were put in charge of running this extensive research project. The project was to establish and promote the theory of what was to be called "socialist architecture", aligned with the new social structure and technological advancements of the time and a vision for the future. The two architects were tasked with revising the fundamental ideology of socialism and applying it in a Neufert-like handbook of socialist architecture, proposing new typologies of collective habitation, public institutions, and urban form, and developing new planning principles for the territories.

The twenty-year research collaboration resulted in the publication of two books: *Großwohneinheiten* (1968) by S. Macetti and *Stadt und Lebensweise* (1971) by G.A. Gradov. Both authors published many journal articles and research reports, a number of which appeared in *Deutsche Architektur*. However, the joint research project was never finalized: many manuscripts and proposals remained on paper and were never published. Thus, it is difficult to evaluate to what extent such a theoretical project was actually implemented and promoted by the two institutions in planning new settlements and developing architectural typologies for minimum unit and mass housing. However, the migration of the ideas and application of these principles of co-habitation and a new socialist way of living could be traced along with the multi-faceted life of the leading figure.

For Macetti the key to make any social and political change in the society lied in the question of domestic space; a space that no more about fulfilment of the necessities, desires, and needs of the individuals, but rather is about the collective mobilization of those lives through maximization of the communal facilities and minimization of the living units to the bare essential infrastructures. The city and the society indeed were the ultimate targets of the project; where political dimension of life can be exercised. He directly refers to the CIAM principles in his book, and suggests that although they are currently serving the capitalist societies however they could be read differently and instrumentalised for the mobilisation of the society:

> Responding to housing demands remains the original task of building science and architecture. According to the theses of the CIAM, outlined also in the 'Athens Charter' in 1933, housing is associated with one of the four major functions of the city: work, housing, recreation, and transport. However the concept of living and housing in the 20th century, as a result of the development of social life, has gone beyond the mere function of the dwelling to which it was formerly limited. Today living no longer encompasses only the private part of human life, but is an essential and dynamic part of the entire system of life. Living no longer takes place in isolated homes, but rather in an active encounter with the associated communities and their facilities (city)….The habitation factors and the material-technical and cultural backwardness of the capitalist past are overcome fundamentally.…House should be a space for a meaningful life, for the economy of the time, for reaching a higher cultural level, for better working and living conditions, for emancipation of the woman, for better conditions for the care and education of the children; These are considered by many outstanding architects of the capitalist world as well, and are taken up in their works to fulfil them progressively. This is how the work of Le Corbusier should be understood and judged. (Macetti, 1968, pp. 11–13)

Although Macetti (aka Kianouri) was not personally involved in designing and planning the mass housing projects in Iran, he served the architectural movement through his theoretical and ideological input. Indeed, it could be claimed that he established, if not developed, the CIAM discourse of minimum unit and mass housing in Iran parallel to the progression of the research project. The other members of the Association of the Iranian Architects, such as Manouchehr Khorsand, Ali Sadeghe, Mohammad Elahi, Mohammad-Ali Sheybani, Abbas Ajdari, Iraj Moshiri, Siavash Kasraei, and Nasser Badi'e, most of whom were official or affiliated members of the Tudeh Party, took the lead.

The Association soon became the only organization the systematically criticized, envisioned, and discussed the problems and the possible futures of architectural discourse and discipline in the country. For them the urgent problem to be addressed was housing. In the first issue of the *Architect* journal (from August 1946), Abbas Ajdari outlined the mission of the association in the article "The Problem of Housing in Tehran, and other Cities". There he pointed out that the post-war migration and industrialization have caused overpopulated areas in the outskirt of the city with no proper infrastructure and living facilities. Planning affordable mass housing for the working class and the lower middle-class was the answer. Ajdari's proposed solution was new forms of urban development according to the modernist principles of planning (Ajdari, 1946). These models were discussed more in detail in another article in the same issue of the journal, "First Ideas for Collective and Affordable Housing in Iran". Mohammad-Ali Sheybani, the author, describes his meeting with Louis Loucheur, former French minister of Labour, Hygiene, Welfare Work, and Social Security

Provisions, who had famously helped Le Corbusier solving some legal problems surrounding Pessac and had supported his investigations on low-cost mass housing typologies and construction techniques: Dom-ino, Monol, Citrohan, and the Immeuble-Villas. Sheybani writes that he had compiled a preliminary proposal for planning affordable mass-housing in Tehran—based on Loucheur's ideas and the French experiments—and discussed it with Ali-Akbar Davar, Minister of Finance (Sheybani, 1946). The plan had the full support of the Minister and was commissioned to the Société Générale de Construction, under Guevrekian's supervision, for further development and implementation. However all the plans were halted following the death of the Minister and Guevrekian's return to Europe. The author sees the Association of Iranian Architects as the successor of the former attempts in order to systematically develop low-cost mass housing project for the country (Sheybani, 1946).

Following the enactment in 1944 of the *Law of Affordable Housing for Working Class and Governmental Employees* initiated in the parliament by the Tudeh Party fraction, the Association of Iranian Architects developed a series of social housing projects in Tehran: the *Chaharsad Dastgah* (1944–1946), the *Kuy-e Narmak* (1951–1955), the *Kuy-e Nazi Abad* (1951–1958), the *Kuy-e Nohom-e Aban* (1961–1963), and the *Kuy-e Kan* (1961–1964). The new neighbourhoods were all planned according to the modernist principles of hygienic facilities, sufficient daylight, clean water supply, and vehicular accessibility. The new typologies were collective housing with minimum units. The total areas of these new neighbourhoods combined were more than the size of the city itself (Figures 7 and 8).

Not surprisingly, these projects were planned next to the industrial areas and factories around the city in order to accommodate the working class. Following the ideas propounded by Macetti's visionary socialist architecture, most of these housing projects were equipped with communal spaces at both the block and neighbourhood scales, where meetings, social exchange, and political gatherings and demonstrations could take place.

The initial idea of these projects was to build high-density quarters with tall slabs, quite similar to the typologies that Macetti had proposed. However, owing to a lack of financial support and sufficient executive power to be able to afford and introduce such technologies for large-scale blocks, the Association of Iranian Architects decided to develop the projects with low-tech construction and low-cost building materials and techniques. The plan of the dwelling units was reduced to a bare minimum of spaces, series of bedrooms with almost no living room or spacious kitchen, as used to be the case in traditional Iranian houses (Figure 9). The projects were provided with day-care centres, public laundry facilities, and, of course, community spaces most of which were later converted to Tudeh Party clubs. For them the social, political, and economic performance of the projects




**Figure 7.** Tehran's Urban Growth (1940s to the 1970s) and the locations of the early social housing projects. Source: author.

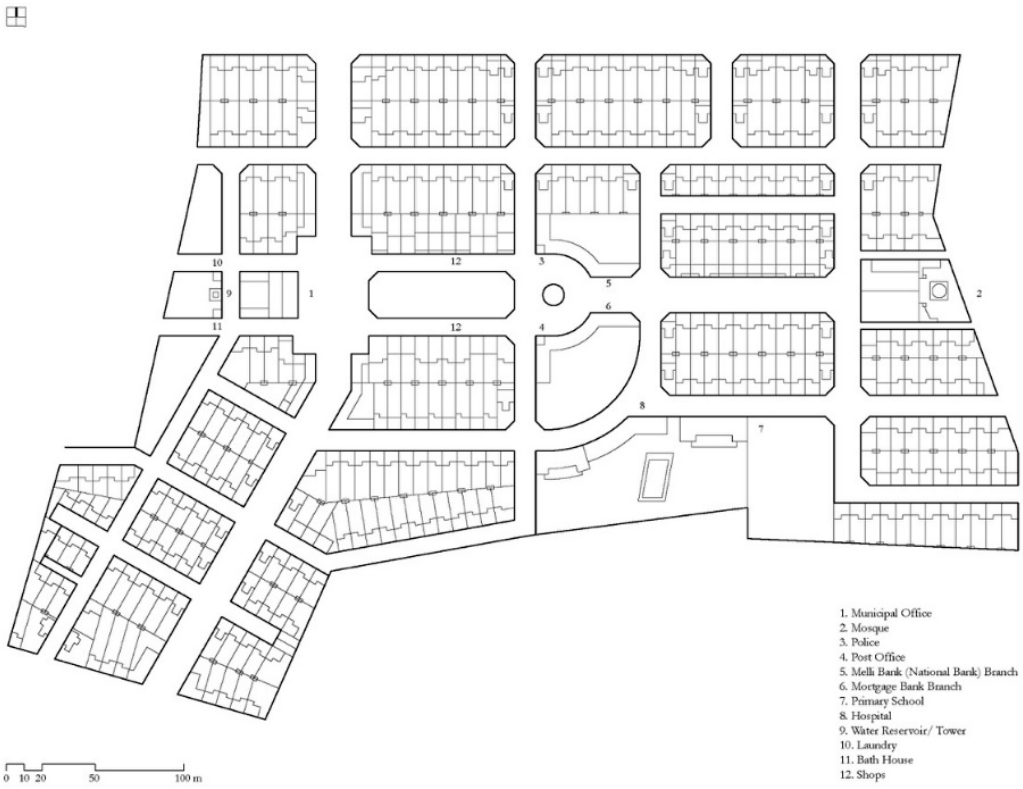



**Figure 8.** Plan of Chaharsad Dastgah housing project. Source: author.



**Figure 9.** Kuy-e Nohom-e Aban, mass housing project in Tehran, 1962. Source: IICHS (n.d.).

was the absolute priority. The design of the housing typologies thus strictly followed the ideas for the socialization of the household tasks promoted by Silvio Macetti (Kianouri):

> Today we live in a great era; it is the era of revolutionary transformation for the whole society, the age of a worldwide transition from capitalism to socialism. This transformation of the world opens up new perspectives on the spiritual and material conditions of human life….Like every realm of human activity, architecture is also under the decisive influence of these overall processes. As architects and urban planners [our] first and foremost duty is to adapt the built en-

vironment of the society to the demands of the socialist way of life….To constantly provide housing for more people and to offer them such a cultural and living milieu as affects the development of individuals as well as society. This [new] form of living must comply with the requirements of our time and the socio-economic performance of the space in order to foster a high degree of socialization in household tasks. (Macetti, 1968, p. 8)

## 4. Conclusions

In these projects, which were mainly made for the working and the lower income classes, architecture was reduced to its barest form, and facilities were at the minimum. In this way, the dwellers' lives were administered, controlled, and shaped through series of spatial protocols and concrete measures. These ideological projects were later turned into codes and regulations, proposed by the 1963–1967 masterplan of the city; simple protocols of minimum housing units through which an entire city was formed. Within three decades the typologies experimented in those mass housing projects occupied the entire extent of the territory; an expanding lava of urbanisation spread between the mountains in the north and the desert to the south (Figures 10 and 11).

Tehran's typical apartment was in fact born out of such ideological recuperation of the modernist princi-



**Figure 10.** Kuy-e Kan, mass housing project in Tehran, 1964. Source: Iran National Library Archive (n.d.).



**Figure 11.** Kuy-e Kan's residents using the side-walks as a collective space for gathering and eating, 1964. Source: LIFE (n.d.).



**Figure 12.** Islamic Revolution, February 1979. Source: Michel Setboun.

ples of urban development. Bare frames that expanded Corbu's dom-ino into a five-story apartment, raised on Guevrekian's common pilotis, equipped with Schütte-Lihotzky's Frankfurt kitchens, and laid out following to Gropius's Zeilenbau's grid; an infrastructure that could accommodate any form of life. Such characteristics—namely domestic space as an infrastructural frame—blurred the strict division between public and private space, between the space of living and space of political action. Consequently, the practice of citizenship is not anymore limited to the city but also flourished within the interiors of the domestic spaces. When public space is policed and controlled, domestic interiors become not only art galleries, clubs, spaces for rituals, cultural centres, workshops, and offices, but spaces for political action. Interiors cease to be the exclusive domain for individual life and family matters; houses become the spaces in which new forms of collective life are experimented and nurtured, and the battleground for social conflicts and political constituencies. Such a specific collective dimension proper to Tehran—more than private, but not yet public. At the same time some of the domestic activities extend their domains to the public realm, where the life itself becomes a political project (Figure 12).

As Macetti aimed for, these generic frames have enabled a dialectical relationship, deliberately mobilizing the city and the society through the conditions of isolation and association, paving the way for a continuous revolution that in fact begins at home.

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**Conflict of Interests**

The author declares no conflict of interests.

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Article

# Housing-Based Urban Planning? Sir Patrick Geddes' Modern Masterplan for Tel Aviv, 1925

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**Abstract**
This article studies Sir Patrick Geddes' housing-based urban planning, pointing to a less-explored aspect of his groundbreaking work, while proposing ways to rethink the history and theory of modern urban planning towards a "housing builds cities" planning agenda. Focusing on Geddes' modern urban planning for Tel Aviv in 1925 as housing-based urbanism, this article conceives urban structure and urban housing as one single problem rather than disconnected realms of planning. Based on new findings and revised study of available sources, we look into three planning processes by which policy makers, planners, and dwellers in Tel Aviv engaged in this housing-based urban vision: (1) The city as a housing problem; (2) the city as social utility for reform and reconstruction; and (3) housing-based urbanization as self-help. We show how Geddes' modern urban plan for Tel Aviv employed the city's pressing housing needs for urban workers to provoke planning by way of cooperative neighborhoods based on self-help dwellings. This approach was grounded on Geddes' survey of Tel Aviv's early premise on housing and extends beyond Geddes' period to the brutalist housing estates of the 1950s and 1960s. The result is a new historiographic perspective on Tel Aviv's UNESCO-declared modern urbanism vis-à-vis housing as the cell unit for urban living. Further, insights regarding Tel Aviv's housing-based planning are relevant beyond this city to other examples of the town planning movement. It proposes rethinking modern urban planning before the consolidation of CIAM (*Congrès Internationaux d'Architecture Moderne*) principles, namely when planned settlements were explicitly experimental and involved diverse processes, scales, methods, practices and agents. Housing—a key arena for the modernization of the discipline of architecture, as well as for the consolidation of the discipline of urban planning—is studied here as the intersection of sociopolitical, formal, aesthetic, and structural elements of the city.

**Keywords**
city planning; Garden City; housing; modern planning; Patrick Geddes; Tel Aviv; urban theory; urban workers

**Issue**
This article is part of the issue "Housing Builds Cities", edited by Luca Ortelli (École Polytechnique Fédérale de Lausanne, Switzerland), Chiara Monterumisi (École Polytechnique Fédérale de Lausanne, Switzerland) and Alessandro Porotto (École Polytechnique Fédérale de Lausanne, Switzerland).

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## 1. Introduction

This article discusses Geddes' urbanism beyond regional planning. It examines Geddes' less-discussed idea of a housing-based city, built by its own dwellers based on semi-autonomous urban blocks. We focus on Tel Aviv's urban history as a manifestation of Geddes' housing-based urban theory to rethink the role of housing in shaping cities, and the ways in which housing "builds" cities. Housing-based urbanism is Geddes' less-studied idea. Scholarship about Geddes' urbanism focuses primarily on his anarchist notion of regional planning forming free confederations of autonomous regions—as opposed to planning the giant metropolis, the nation and

the empire, and developing methods of detailed specific survey of built environments and populations (Hall, 1988; Meller, 1990). Geddes' ideas were influenced by French geographers Reclus and de la Blanch, and by sociologist Le Play—whom he met with at the Paris Exhibition of 1878—and spread as far as Hong Kong and America to influence the formation of regional cities like Sunnyside Gardens and Radburn (Allweil, 2016; Law, 2005; Meller, 1995). Even so, his ideas were overarchingly not executed, not even by his most well-known successors Mumford and Abercrombie (Hall, 1988; Mumford, 1925; Tyrwhitt, 1949).

In order to explore the development of this non-conventional idea and its evolution in Geddes' work across time and space, we examined his archive, published writing and many planning reports. Archival research of Geddes' Archive at the Strathclyde University includes historical photographs, drawings, plans and pamphlets starting with his work in Edinburgh, and panels of his celebrated travelling Cities Exhibition (Figures 1, 2 and 3). These archival findings, as well as Geddes' published work and many planning reports for cities and neighborhoods for communities across the British Empire, attest to housing as the starting point in Geddes' planning theory, survey method, and urban plans.

The revolutionary idea of housing-based urbanism underlies Geddes' 1925 masterplan for Tel Aviv—his only work ever realized. Geddes' plan was based on a detailed survey of the town as housing estate and accepted Tel Aviv's use of housing as building block to produce a "Housing Before Street" urban planning. This plan for Tel Aviv as a city of 100,000 people was the cornerstone of three planning processes that characterize Tel Aviv's urban history as a 'housing before street' urban development process. This planning approach defines housing as the building block for cities to the city's post-war development by way of brutalist housing estates. Geddes' plan, still in effect, was the city's only approved overarching masterplan until the masterplan TA5000 of 2016, its urban planning and urban design principles consolidating and determining the city's urban foundations. Yet, its housing-based principle is still largely understudied.

Geddes' Tel Aviv plan poses an alternative to accepted models of modern planning: technocratic-capitalist Haussmanism, aesthetic City Beautiful, Corbusian "radiant cities", or utopian Garden City (Hall, 1988). At the same time, contrary to the phenomenon of makeshift housing predating formal settlement and creating the city de-facto—as in the auto-constructed peripheries of Cairo, Brasilia or Calcutta—Tel Aviv's formation via housing was the result of a conscious planning process where Geddes fully realized his ideas: not merely challenging top-down mechanisms but disrupting the very dichotomous perspective of modern urbanism as a clash between top-down planner-ideologues and bottom-up urban citizens (Allweil, 2016). Moreover, Geddes' planning principle has been dominant in the city ever since, reflected in the city's post-war development of brutalist housing estates into large neighborhoods and segments of the city (Hoffmann & Nevo-Goldberst, 2017; Marom, 2009).

This article focuses on three planning processes by which policy makers, planners, and dwellers in Tel Aviv engaged in this housing-based urban vision: (1) The city as a housing problem; (2) the city as social utility for reform and reconstruction; and (3) urbanization as act of self-help.

## 2. Methodology

The methods applied in this research are predominantly the methods of architectural and urban history, namely archival research of architectural and planning documents, historical photographs, and analysis of planning reports. The archives studies include the Geddes Archive at University of Strathclyde Special Collection, Tel Aviv City Archive, Tel Aviv Technical Archive, and David Azrieli Archive of Israeli Architecture. In addition, our inquiry included identifying historical elements in the built environment, site documentation, and architectural reading of plans and facades.

## 3. The City as a Housing Problem

Since Geddes' interest in urbanism revolved around his conception of housing as the building block for cities, his approach to urban planning involved seeing housing and urbanism as one single problem. A founding member of the city planning movement, Geddes was nonetheless marginal to the movement for his challenge of the very idea that new cities form due to the powerful actions of statesmen, capitalists, and planners (Law, 2005; Rubin, 2009). Like many Garden City planners, issues of housing in the industrial city affected Geddes' urban vision. Yet compared with other theorists of urban planning, Geddes insisted that:

> Urban Planning cannot be made from above using general principles…studied in one place and imitated elsewhere. City planning is the development of a local way of life, regional character, civic spirit, unique personality…based on its own foundations. (Geddes, 1915, p. 205)

At Edinburgh's Old Town Tenements, Geddes developed his famous method of the survey. Based on a three dimensional aerial drawing, Geddes traced simple logical connections regarding the built environment; overcrowding and under-housing, with high rents and high land values, result from the restrictive defensive walls of the medieval city, while the notorious filth, from poor water supply, in turn comes from its hill site (Leonard, 1999; see Figure 1). Geddes' valley section was imbued with Le Play's trinity of Lieu, Travail, Famille, stressing the family as the basic social unit in the context of its environment (Meller, 1990, p. 35). For Geddes:



**Figure 1.** Edinburgh Old Town Tenements, 1911, by Patrick Geddes. Source: Patrick Geddes Papers (n.d.).

> The natural eugenic center is in every home; its young go out to make new homes; these make the village, the town, the city small or great….Federate homes into co-operative and helpful neighborhoods. Unite these grouped homes into renewed and socialized quarters…and in time you have a better nation, a better world. (Geddes, as cited in Defries, 1927, pp. 218–219)

Peter Hall termed Geddes' important contribution to planning theory the "city of sweat equity" approach to urban housing, proposing that men and women could make their own cities (Hall, 1988). Having himself lived in a tenement in Edinburgh in the 1880s, "taking a very poor flat among the workers", Geddes' outlook was deeply affected by issues of housing in the industrial city (Kropotkin, as cited in Boardman, 1978, p. 87). For Geddes, the problem of slum housing was scientific on one hand and self-organizational on the other. Geddes recounts:

> Facing and tackling of dirt and overcrowding and disorder of even more infernal slumdom than now exists in Edinburgh; and to begin such changes as might be, thus became problems as scientific, as technical, as had been those of living nature and its science. (Geddes, as cited in Boardman, 1978, pp. 86–87)

In order to improve these conditions, the tenants started "within…limited range, with flower-boxes for dull windows and color-washing for even duller walls…we soon got to fuller clearings and repairings, next even to renewals, at length to building" (Geddes, as cited in Boardman, 1978, pp. 86–87; see Figure 2). Yet Geddes did not limit himself to tenement repairing. He soon started thinking about alternatives for the tenement as the dwelling solution for urban workers, gravitating from social reform to urban planning.

Geddes' archive at the University of Strathclyde includes a large collection of plans for worker housing that depart from the tenement type (part of his 1918 Cities Exhibition). These indicate that his explorations of city planning were not limited to regional planning and repairing of public space, but rather invested great effort in exploring worker house types as the building block for cities (Figure 3). This attention to detailed house design points to Geddes' transition from urban design repairs to urban planning based on typological explorations of houses and urban blocks. In his masterplan for the city of Indore, Geddes explored worker housing as an architecturally-designed unit, his planning report including drawings for potential house types and their groupings into urban blocks (Figure 4). Geddes' celebrated proposal for Indore identified housing for poor workers as the element structuring the urban block, proposing houses to be self-constructed by the city's urban workers, and expanded on over time (Geddes, 1918; see Figure 5).

In 1925, Geddes was invited to attend the opening ceremony for the Hebrew University. Tel Aviv's mayor Dizengoff took the opportunity and approached Geddes for designing a masterplan for the city's development (Rubin, 2009). Then, Tel Aviv found itself at a major cross-



**Figure 2.** Repairings of Edinburgh Old Town Tenements, 1911. Photograph by Patrick Geddes and drawings by Nora Mears. Source: Patrick Geddes Papers (n.d.).

road: its population quadrupled in the four years following the transition from Ottoman to British rule and the beginning of ethnic-national clashes in Palestine in the 1920s, which generated mass urban migration and the formation of tenements and substandard housing (Biger & Shavit, 2001; Marom, 2009). The town was submerged by the sudden mass construction of tents and shacks filling every undeveloped tract, transforming the town into a crowded agglomeration of neighborhoods with no clear structure. Rising land prices

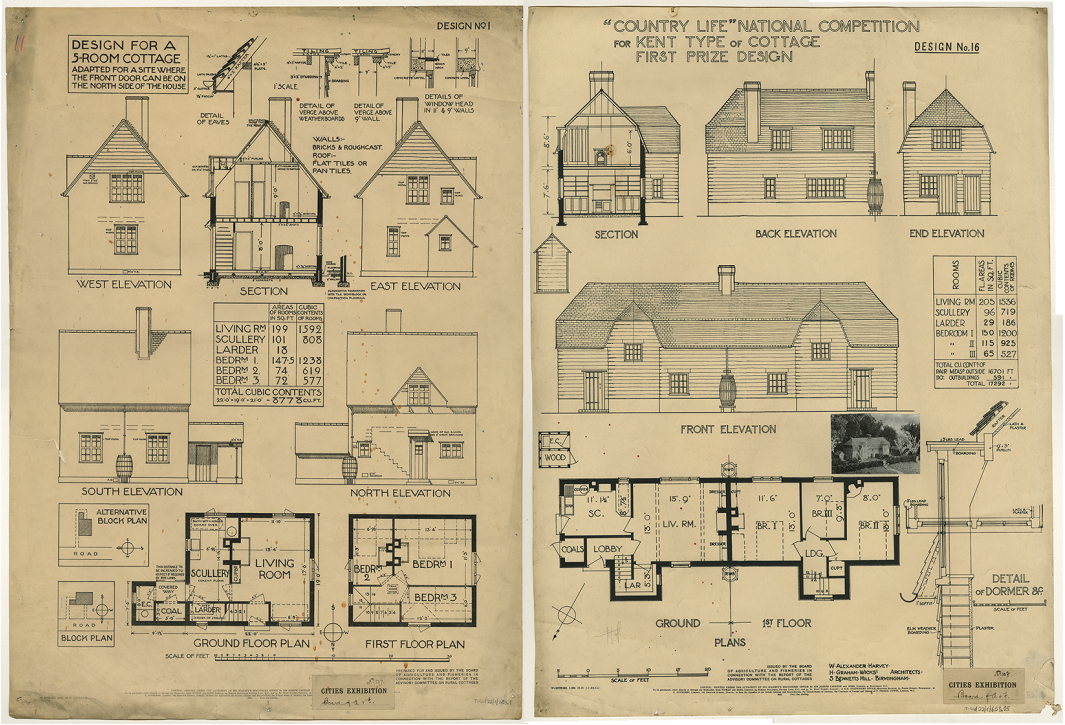



**Figure 3.** House type drawings by the Board of Agriculture and Fisheries, in connection with the Report of the Advisory Committee on Rural Cottages. Source: Patrick Geddes Papers (n.d.).

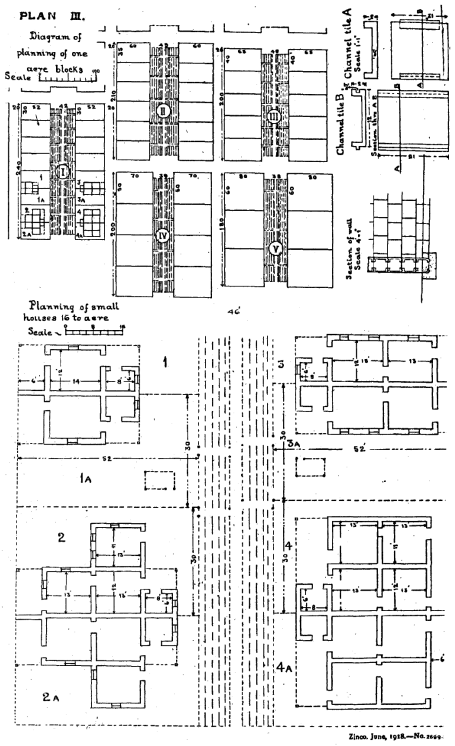



**Figure 4.** Indore expanding worker housing proposal. Source: Geddes (1918).

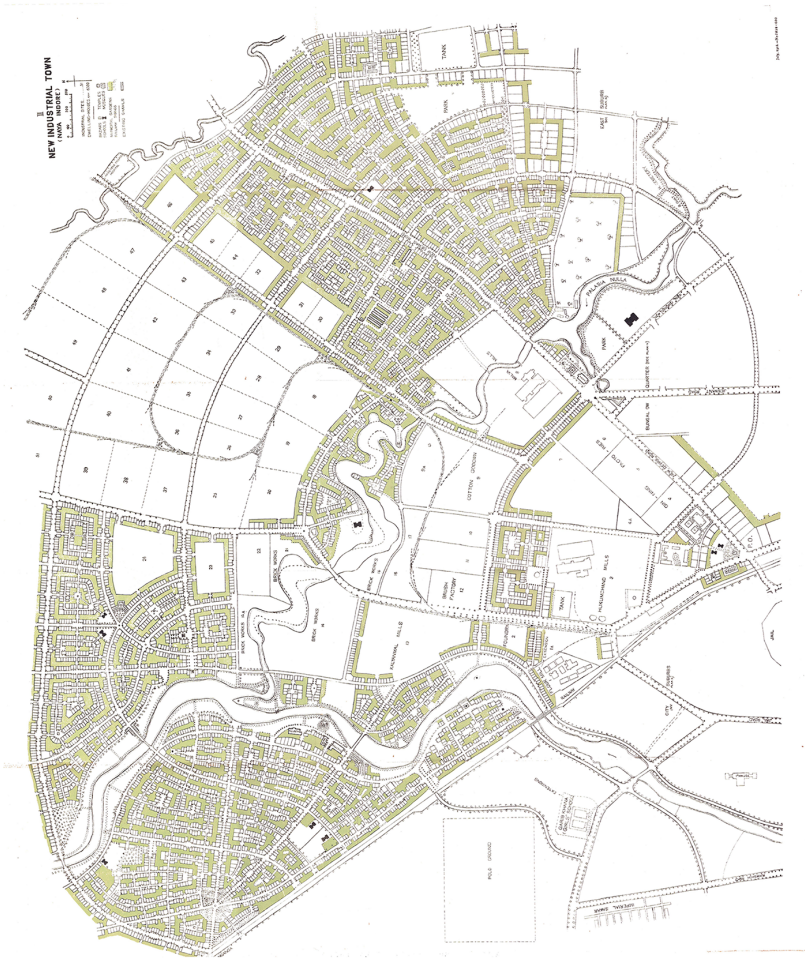



**Figure 5.** Indore urban block explorations. Source: Geddes (1918).

led to overcrowding, with disregard for construction regulations. These dwellings had no running water or sewage, no streets, electricity or social services. Shack neighborhoods changed Tel Aviv from a homeowner community to one composed of a large population of poor renters and self-constructed shacks (Allweil, 2017). All this bore drastic political consequences and threatened Mayor Dizengoff's domination of urban politics. Dizengoff tried to meet this challenge with urban planning (Marom, 2009).

Geddes spent two months surveying the city and region and produced a 64-page town planning report and a plan for Tel Aviv as a city for 100,000 inhabitants which he defined as his most ambitious plan (Geddes, 1925; Weill-Rochant, 2008). In his report Geddes addresses Tel Aviv in its region, including a survey of Jaffa. Yet Geddes' clients aspired to employ modern city planning in order to distance Tel Aviv from Jaffa. Geopolitical conflicts between Jews and Arabs, the transition to British rule, and landownership by Western settlers confined the plan to the south and east, and its home-block orientations (Marom, 2009; Rubin, 2009).

The focus of Geddes' survey was Tel Aviv's housing condition, "at a crossroads between two types of housing development: its original detached cottages with small gardens—and tenement 'human warehousing"' (Geddes, 1925, p. 13). Geddes presented this crossroad in his report by analyzing two nearby housing types in the Shapira alley: detached cottages with small gardens and a nearby warehousing tenement block. For Geddes, these two housing types "represent the essential contradiction between the two types of planning" (Geddes, 1925, p. 13; Figure 6). Tenements, Geddes declared, contributed to high mortality rates, especially in children. He therefore defined housing a moral issue, "a measure of good citizenship, for our care not only or mostly for our own lives but…for each other and the entire human beehive". Understanding housing as such, Geddes declared his planning purpose as "continu[ing] the Garden Village Tel Aviv began with and bettering this as far as may be" (Geddes, 1925, p. 15). The house plot in Geddes's report was 560 square meters, with construction area limited to one-third and building height to 9 meters, to contain a single, semi-detached house with no more than two residential units, leaving much of the plot for subsistence farm. The city's building block, the house, was the cell composing urban units, what Geddes termed the "home-block", structuring the city's large-scale urban scheme (Allweil, 2017; Geddes, 1925). Geddes' proposal for worker housing in Tel Aviv matches the type explorations identified at the Geddes archive, discussed above, and extend his proposals for house types and urban block types in earlier plans like Indore.

To provide an uncrowded dwelling environment, Geddes proposed a structured linear extension of the city northward to its municipal border on the Yarkon river, disregarding land ownership and the likelihood of immediate development. This was a long-term vision for



**Figure 6.** The Shapira Alley cottages versus nearby tenement (author unknown). Source: Patrick Geddes Papers (n.d.).

urban development rather than the continuation of Tel Aviv's concentric development as a collection of neighborhoods around the city center. Geddes' urban structure for Tel Aviv laid down a non-orthogonal grid, based on the region's geography and existing routes and landmarks in the landscape. This made possible urban blocks of varied size and character within a unified urban structure for the city. The home-block idea had appeared in Geddes' work as early as his 1915 Cities in Evolution (Welter, 2009). Geddes examined cases of superblock design and made an active departure from the cul-de-sac blocks to the use of "homeways" that distinguished main from local roads yet kept inner-block parks and civil facilities as part of the city's civic system (Payton, 1996; see Figures 4 and 5). Geddes' explorations of the urban block in multiple planning schemes for cities in India, especially in his Indore plan discussed above, culminated in his Tel Aviv plan into well-articulated home-block urban units: urban blocks composed of two rings of detached houses, around the inner circumference and the outer circumference of the block. Each block included a small public park with communal facilities such as playgrounds and tennis courts. "Mainways" through traffic surround the home-block. Narrow "homeways" and pedestrian ways lead to the inner block without traversing it (Geddes, 1925; Meller, 1990; see Figure 7).

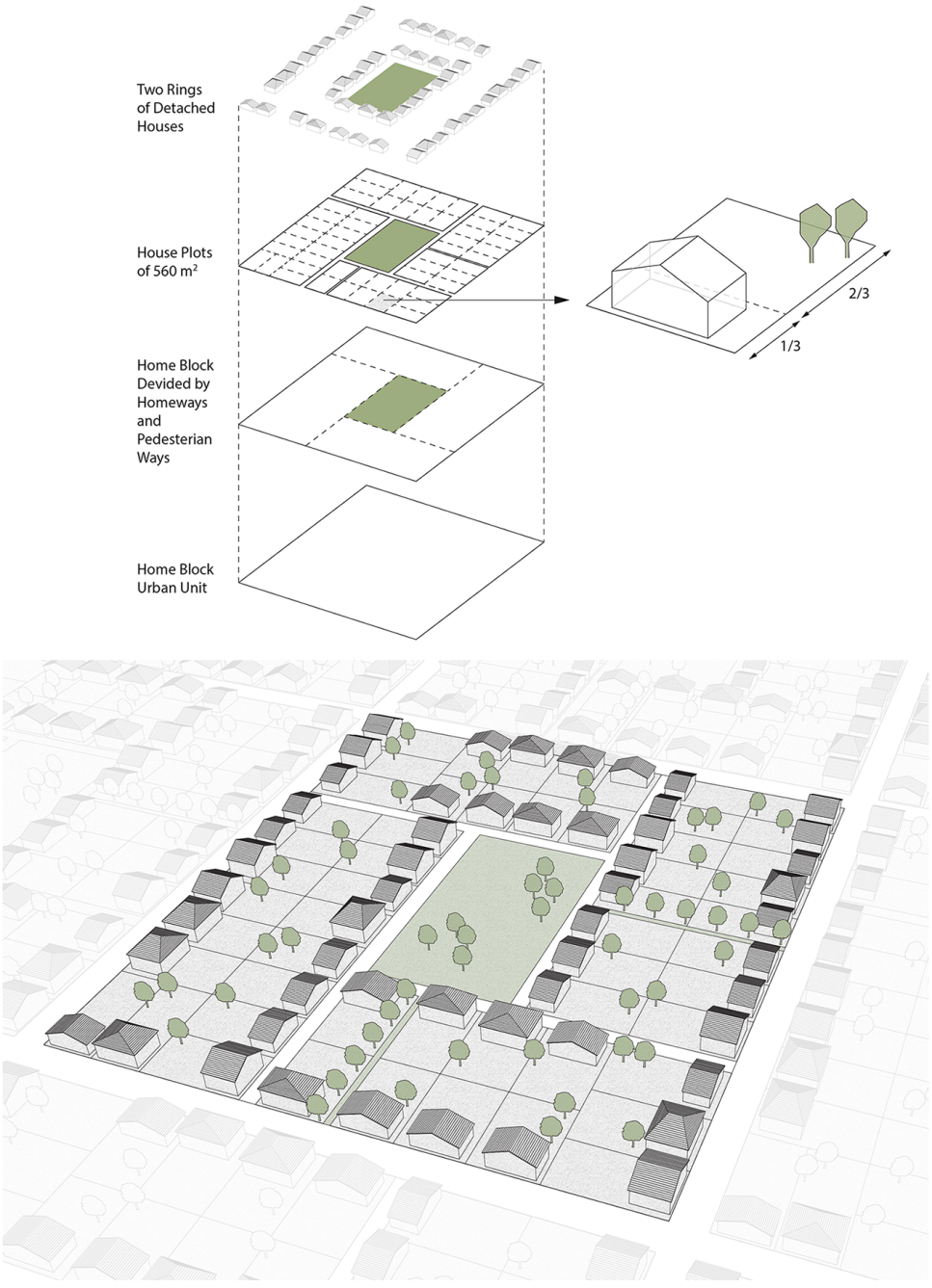



**Figure 7.** Block scheme after Geddes. Source: Authors.

Geddes' town planning report was adopted into a masterplan whose recommendations were incorporated by the Technical Department of the Tel Aviv municipality and approved by the city council on 6 April 1926. In 1927, the Planning Board of the Mandatory Authority approved a legal document containing a colored map and written by-laws, drafted in accordance with the British Mandatory *Town Planning Order* of 1921 (Marom, 2009). Plan adaptation included a detailed street layout and parcel allotment plan, prepared by the engineers of the Tel Aviv's technical department (Weill-Rochant, 2008). Discussed primarily as urban layout, based on the assumption that Geddes' worker housing was never constructed (Meller, 1990; Weill-Rochant, 2003). Most of the research and discourse of Tel Aviv's worker housing revolves around the few well known Meonot Ovdim (worker residences) designed by Arie Sharon. Self-built "worker neighborhood" home-block dwellings all over the city were largely forgotten since they were not designed by architects (Greicer, 2017; Sharon, 1937). However, findings uncovered in the archives and the built environment prove that Geddes' housing scheme was fully realized by the mid-1930s, its realization founded on worker housing via the sweat of the city's disenfranchised worker community. Unlike many other cities for which Geddes produced masterplans, Tel Aviv adopted his planning principles and specific design implemented into a statutory plan (see Figure 8).

The city as a housing problem and the concerns for Tel Aviv's housing-based urbanism carried over into the 1950s and 1960s. Israel's "first generation" architects critiqued CIAM (*Congrès Internationaux d'Architecture Moderne*) urban principles by adopting and appropriating the social values of European New Brutalism (Karmi, 2001; Shadar, 2014). Influenced by Team X, who in turn were influenced by Geddes, architects aimed to create viable communities related to their own culture and environment (Hoffmann & Nevo-Goldberst, 2017; Karmi, 2001; Yaar & Eitan, 2016). The concepts of "neighborhood" and "neighboring unit" were highly used in




**Figure 8.** Scheme after Geddes' plan area within contemporary Tel Aviv-Jaffa area, with the location of Worker Neighborhood A, Neighbors' Neighborhood B, Camel Leaders Neighborhood and Be'eri Estate. Source: Authors.

the planning professional discourse in Israel. Often discussed revolving post-war new towns in Israel's periphery (Shadar, 2014), little attention is given to the significance of these planning concepts to the extension of housing-based urbanism in Tel Aviv beyond the scope of the Geddes plan area. Scant research of Israeli Brutalist housing estates revolves around estates developed in Tel Aviv, incorporated as home-blocks in the East and North of the Geddes plan area, as part of the city's post-war expansion (Hoffmann & Nevo-Goldberst, 2017; Marom, 2009).

Seeking an architectural language to express local culture, post-war architects referenced Geddes' architectural legacy, addressing the Geddesian grid and home-block urban unit as a local historical planning approach (Hoffmann & Nevo-Goldberst, 2017; Yaar, 2016). This process involved the development of neighborhoods as groups of dwellings and communal open spaces that encourage humane interactions and establish local communities (Shadar, 2013), echoing Geddes' critique of modern urban planning yet based on higher dwelling density (Boyer, 2017; Shadar, Orr, & Maizel, 2011; Team X, 1968; Van den Heuvel & Risselada, 2005).

Beit Be'eri, a cooperative housing estate, exemplifies extra-large housing built in the eastern edge of Tel Aviv in 1965, on Sarona lands incorporated into the city in the 1950s (Marom, 2009). The estate consists of 192 units in two horizontal blocks and two towers, four parks, parking and a service road, totaling 13 square kilometers (see Figures 9, 10 and 11). Several of Israel's prominent architects—Sharon, Karmi, Idelson, Melzer, Zur, and Yahalom—collaborated in designing the estate as an urban matter (Hoffmann & Nevo-Goldberst, 2017). The architects' team designed the estate on the entire urban block defined by the city's streets and hospital complex. By utilizing the extra-large plot and forming a compre-

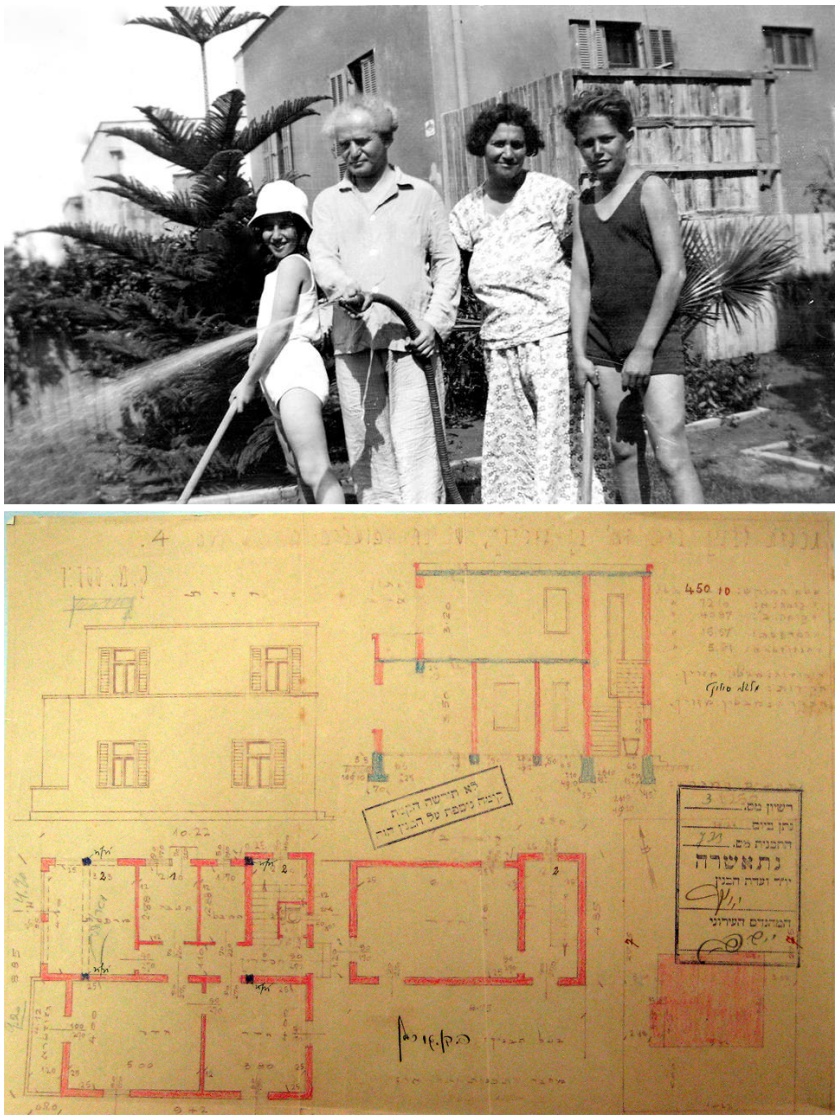


**Figure 9.** Workers' Neighborhood A. Top: Ben Gurion family in front of their house, Worker Neighborhood A, 1935 (Aner, 1988). Bottom: Building permit for the house of David Ben-Gurion, Municipal Worker Neighborhood plot number 4 ("Building permit for the house of David Ben-Gurion", 1931).

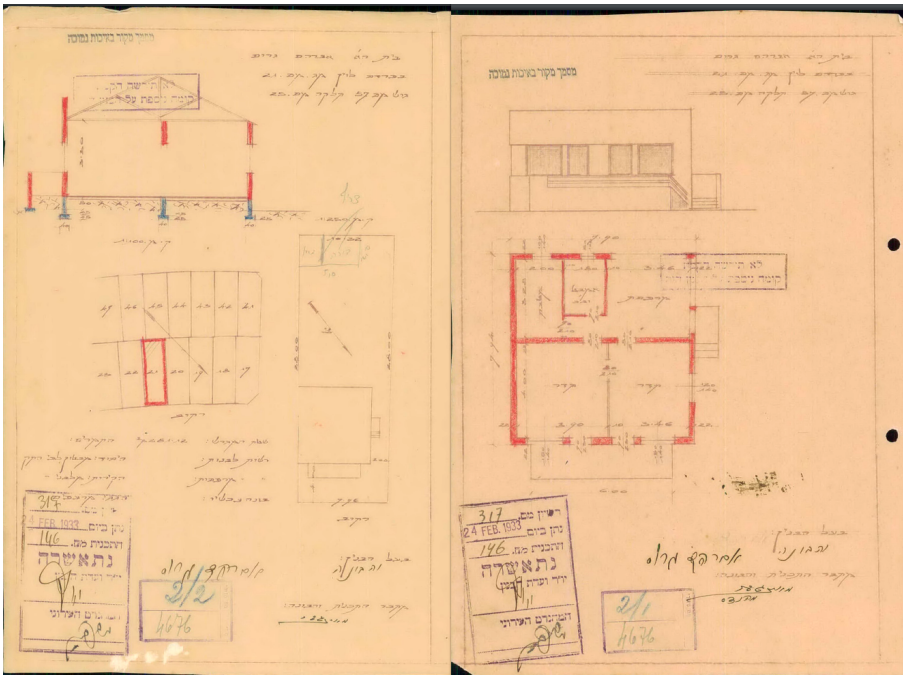


**Figure 10.** Building permit for the house of Abraham Gross, Levin Orchard plot number 21. Source: "Building permit for the house of Abraham Gross", 1933.



**Figure 11.** Neighbors' Neighborhood C. Source: Unknown [ca. 1934].

hensive architectural group, they aimed to critically oppose the gradual break down of the city's home-block urban layout—an outcome of a market-led process, replacing the Geddesian cottages with multi-story apartment houses.

The architects indicated their aim to plan the city as a 'big house' (Team X, 1968) by designing urban layout and urban housing as one single problem and designing what they defined as "bigger projects" in central Tel Aviv (Sharon & Karmi, 1960, p. 3). They therefore designed an entire urban block as one comprehensive home-block, rather than an assembly of self-standing multi-story apartment houses. Evidently echoing the Brutalist estates of the time—as well as the work of Clarence, Stein, and Mumford in such Garden City estates as Sunnyside Gardens in New York City—the estate

embeds Geddes' idea of urban development by way of residential semi-autonomous home-blocks, rather than industry, commerce or governance structures (Karmi, 1965; Mumford, 1925, 1995; Team X, 1968). Be'eri estate won the Rokah Award for architecture, awarded by the City of Tel Aviv in 1970, in recognition of its contribution to the city's development. The award stated that the estate's planners explicitly approached "the problem of an urban housing scheme" by relating "the overall form of the complex (estate) to the scale and character of the city, while at the same time creating a more intimate environment appropriate for the individuals…living within the boundaries of the site" (Gilbert, 1970, p. 1).

## 4. The City as Social Utility for Reform and Reconstruction

For Geddes, social reconstruction consisted of the efforts of millions of individuals in the "creation, city by city, region by region, of a utopia" (Geddes, 1912, p. 183), rather than sweeping governmental measures like the abolition of private property. Geddes agreed with Reclus and Kropotkin, who in turn were influenced by Proudhon and Bakunin, regarding individual property ownership as the essential guarantee of a free society, providing the basis for a decentralized, non-hierarchical system of governance (Proudhon, 1969). Housing was, for Geddes, the basic grounds for social reconstruction using associations and guilds: the educational program, the public open spaces committee, and significantly the Housing Guild. The Social Union's Housing Guild Geddes initiated in Edinburgh set up a fund by managing property for owners and organizing rent collection by volunteers. This idea was developed during Geddes' visits to India, starting in 1914, where he developed 24 planning reports for 24 different cities. Critiquing the British administration's fixation on sanitation and racial segregation to prevent disease, and fraught planning methods ranging from the Haussmanian opening of vast roads by clearing parts of the densely populated Indian city to water closets that cost twice as the value of the houses. Geddes thereby critiques the modern colonial planning mechanism altogether: assumptions, methods, goals, and knowhow (Tyrwhitt & Geddes, 1947).

Geddes' idea that cities should be built and governed by their poor dwellers—and that there can, and should, be planning for this purpose—was far more radical than his idea of the city in the region, identifying the question of housing (rather than commerce or industry) as central to the very aims and idea of planned settlements, their raison-d'être as well as economic bases and formative mechanism (Mumford, as cited in Howard & Osborn, 1946). While social reform activists and planners proposed housing solutions for and on behalf of the poor via top-down schemes, Geddes' approach to urban housing was termed by Hall a "city of sweat equity", namely "contributing to planning theory the idea that men and women could make their own cities" and the idea of the role of planning in leading a civic reconstitution of society and cities (Hall, 1988, p. 263). Comparing Geddes' ideas for city planning with Howard's Garden City, we see they are strikingly different in the role assigned to the people's own actions in construction of their homes and the city, the latter model based on purchase of cheap farm land by industrialists as investment in a city of good worker housing to be paid back as rent and property values go up. It was planned for and on behalf of the workers, using industrialist entrepreneurial money for philanthropic social reform. This "peaceful path for real reform", as the subtitle of the first edition of Howard's *Garden Cities of Tomorrow*, was a pacifying attempt to avoid revolutionary reform by planning good worker housing in better cities (with a backdrop of worker attempts to take the city in the 1878 Paris commune, and later the 1905 Russian revolution). Geddes' planning strategy disrupts the dichotomy taken for granted by modern urban planning, between the planned city produced by professional experts and governing institutions and the unplanned city produced by poor dwellers, primarily due to industrialization and urban migration. Needless to say, Geddes' ideas and design proposals for local populations were met with impatience and anger among British planners (Hussey, 1953).

The design and approval of Geddes' Tel Aviv masterplan occurred at a period of great conflict between workers and capitalists in Tel Aviv against a backdrop of grave housing conditions. Rental costs ranged forty to 50% of a worker's average wage in the early 1930s (Lavon, 1974). Tel Aviv's ordinances made only homeowners eligible to vote for municipal government, leaving workers with little representation as mere tenants of the city (Greicer, 2017). The political conflict between workers and capitalists in Tel Aviv reached a climax during the Geddes plan approval process with Mayor Dizengoff's resignation in December 1925. Tel Aviv's iconic mayor represented the city's homeowners and developers, with agendas of property-based urban citizenship and concentric land development for maximizing profit (Greicer, 2017; Marom, 2009). The workers' party, headed by the new mayor, David Bloch, held power between 1925 and 1928 at the crucial moment of British Mandate approval of Geddes' plan (Marom, 2009). Worker leadership realized the immense consequences of the plan for their struggle over the production of the city in terms of provisional access to housing as well as the political consequences of homeownership (Allweil, 2016; Greicer, 2017; Lefebvre, 1991). The direct relation between housing and urban political citizenship marked the masterplan central for workers' struggle over the production of the city in terms of access to housing.

Workers responded by unionizing into cooperatives in order to obtain loans for land purchase and construction, cooperatives similar to Tel Aviv's homebuilders' association model (Lavon, 1974). Urban workers could only afford cheap land at the edge of the Geddes plan area, far from the city center. Approving leapfrog development,

the worker-led urban government permitted development of small self-built home-blocks at the edge of the plan area, before the infrastructure development of the Geddes plan layout: roads, electricity, water, and sewage. Following construction of worker housing, mayor Bloch's working-class administration used public funds to service these remote worker neighborhoods with roads and public services, thereby creating the Geddes Tel Aviv plan layout in a "housing before street" framework (Druyanov, 1936). Housing construction at the edges of the plan was therefore the decisive act in forming the infrastructure and layout of the Geddes plan. By 1937, there were sixteen worker neighborhoods in the Geddes plan area, marking the entire area a "worker's quarter" (Allweil, 2017; see Figure 8). Some of the original buildings still exist, standing as a testament to the existence of a workers' neighborhood with subsistence farms in what is now the heart of the city.

The Worker Neighborhood, unlike the Me'onot Ovdim (worker residence) model, declared itself an urban unit and a means for urban workers to become proper urban citizens of Tel Aviv. The first home-block, "Workers' Neighborhood A" (1930–1931) was formed by collective purchase of a cheap three-hectare plot at the northern tip of the Geddes plan area, un-serviced and far from the city center at a period of ethno-national violence. Findings at the Tel Aviv Municipal Archive indicate that engineer David Tobia designed the neighborhood layout and its 35 identical houses, each with a subsistence farm, on 0.05-hectare plots. Houses included two rooms, a porch, a kitchen, and a bathroom (see Figure 12). Poorer workers of the Camel Leaders Neighborhood first built wooden shacks for themselves and only in the late 1930s gradually began issuing building permits for the construction of small permanent houses. While meagre, the houses enabled dwellers of the city's shack neighborhoods to gain access to proper permanent housing and subsistence farms, and transformed workers into homeowners and therefore proper citizens of the city (Gur, 1992; see Figure 13). White-collar urban workers, who could afford tenement-apartments, also chose the self-help management of the home-block, forming such neighborhoods as Neighbors' Neighborhood A, B and C (see Figure 14). Geddes' complete blurring of the top-down bottom-up, planners-ideologues versus infill-citizenry has in fact contributed to the realization of his plan in full. It is the only example worldwide. This idea—refusing a total-control plan-

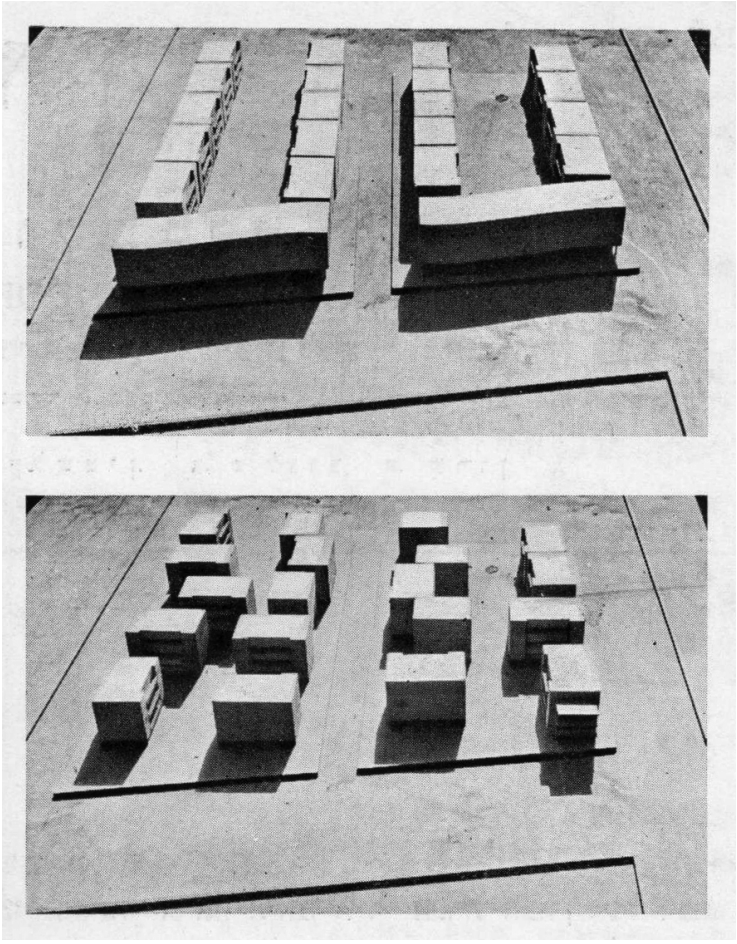


**Figure 12.** Arie Sharon's proposal for Me'Onot Ovdim (worker residence) in response to Tel Aviv home-block densification, 1937. Source: Sharon (1937).

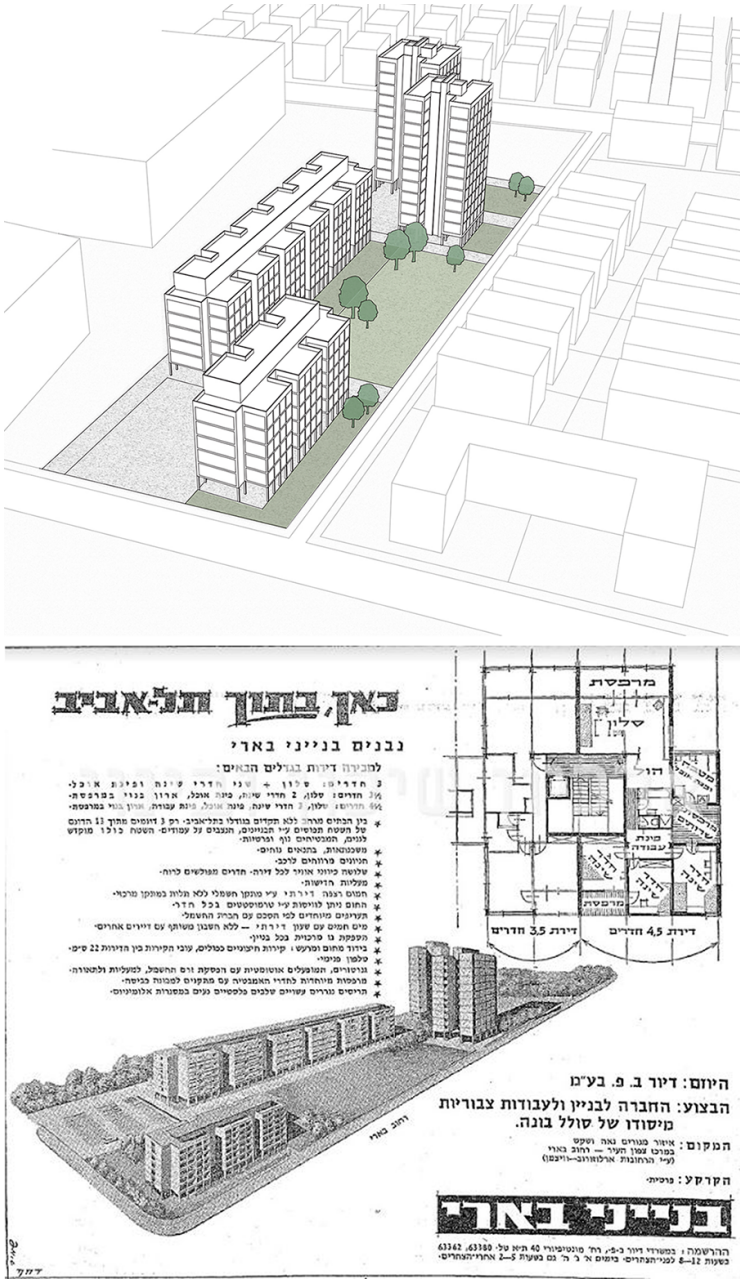



**Figure 13.** Be'eri estate. Top: Scheme by the authors. Bottom: Advertisement for the estate from 1963. Source: "Be'eri Dwellings", 1963.

ning that "knows best" and incorporating what residents of this specific city viewed as their self-defined goal—enabled dwellers to form Tel Aviv as a "city of sweat equity" (see Figure 13).

With immigration and real estate pressures in the 1940s and 1950s many home-block houses were gradually replaced with multi-story apartment houses, what Geddes termed "warehousing", and the home-block as an urban unit lost many of its communal characters (Karmi, 1946; Sharon, 1937). Karmi criticized post-war Tel Aviv's market-led development as a monotonous network of repetitive buildings, standing closely one to each other—forming insufficient open spaces and provoking poor neighboring relations. Subsequently, he suggested re-thinking existing city by-laws—assembling several adjacent plots and providing residents with wider communal spaces—thus improving social and environmental conditions (Karmi, 1946; see Figure 15).

Beit Be'eri designers explicitly responded to this process by producing a new model of urban home-block that enables the urban density levels required in Tel Aviv, yet providing the home-block collective infrastructure of shared parks, pedestrian walkways, and roof terraces that foster Geddes' original principles. Be'eri designers Sharon and Ram Karmi, who both served in key positions in the Ministry of Housing, along with Be'eri designer Dov Karmi and landscape architects Yahalom and Zur, expressed their ideas about the city as an essential

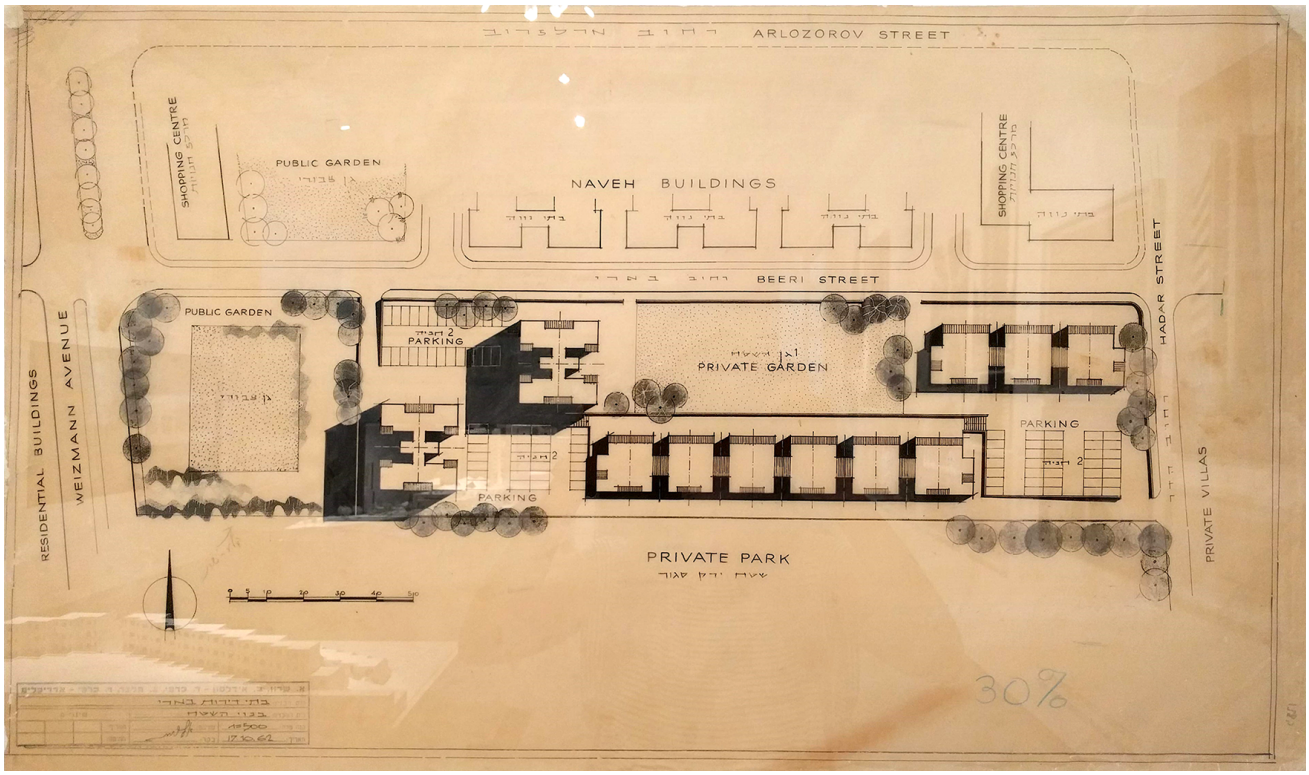



**Figure 14.** Be'eri estate. Source: Sharon (1962).

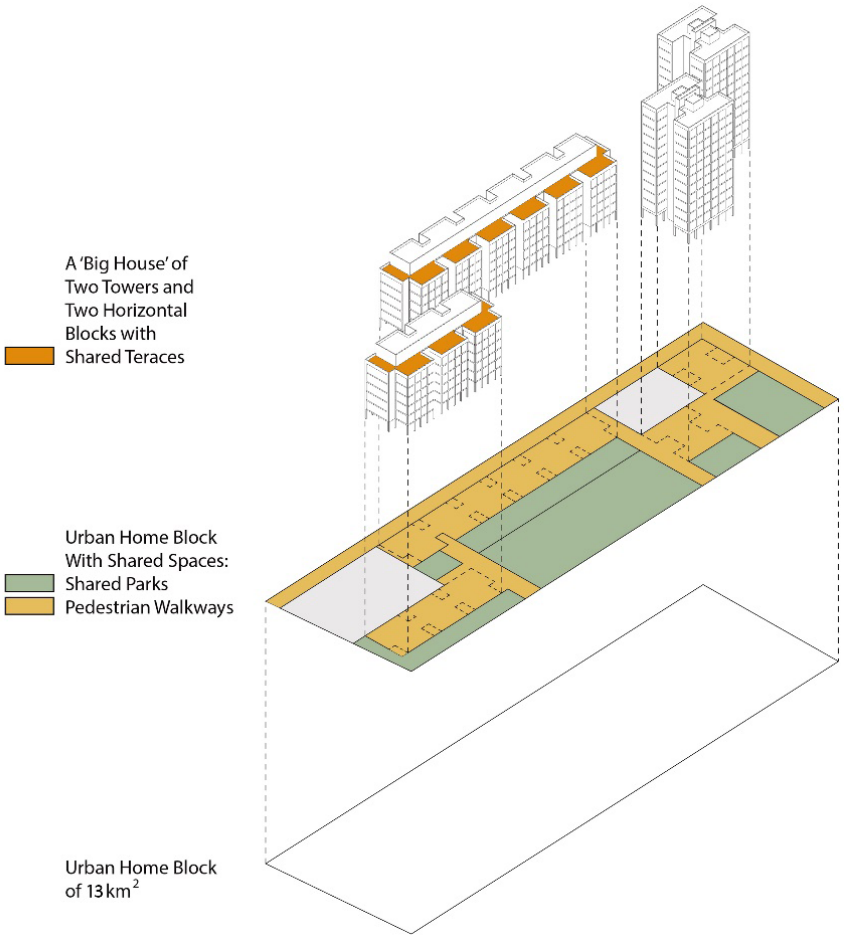



**Figure 15.** Be'eri estate home-block. Source: Authors.

arena for humane interaction, and approach to architecture as a tool to consolidate functioning communities (Hoffmann & Nevo-Goldberst, 2017; Karmi, 1946, 1965; Lissovsky & Dolev, 2012; Sharon, 1937). Be'eri's outstanding cohort of leading designers addressed Tel Aviv's social deficiencies as a housing problem, by designing Be'eri estate as a "big house" and envisioning the city as an assembly of home-blocks. The Be'eri approach extends Sharon's critique of the densification of Geddes' home-block, and proposals for dense worker housing on undivided home-block urban units to provide broad communal spaces, thus improving inter-neighbor interactions (Sharon, 1937). At the same time, this approach echoed Team X's Geddes-inspired critique of CIAM modernism at the 1953 and 1956 meetings on habitat and the Team X Primer, reflected in Ram Karmi's (1965) call to plan "the city as a big house, the house as a small city" (Team X, 1968, p. 27).

Be'eri's urban block meshes Geddes' home-block principles with brutalist housing architecture. The planning team decided not to subdivide the large plot but to maintain one self-managed community, a "big house" as an urban unit of the city. Planning Beit Be'eri on an area equivalent to twenty-four typical city plots and creating comprehensive communal spaces enabled them to realize, and to further, develop their social objectives of housing and open space organically—designing buildings and gardens together as holistic urban entities—thus emphasizing communal space's importance in promoting humane interaction. Beit Be'eri is therefore both an extra-large collective house and an urban block in the framework of Geddes' home-block masterplan, based on housing as the city's urban cell. With its two explicit references being the Geddesian home-block and Team X's neighborhood unit, the Be'eri estate responded to the twin challenges of housing density and the home-block as social utility fostering urban reconstruction (see Figures 9, 10 and 11).

## 5. Housing-Based Urbanization as Self-Help

In his report for Indore, Geddes argued that British top-down planning schemes should be replaced with actions made by the residents themselves, via actions of self-housing. For Geddes, "simplifying the building itself, to a reasonable minimum to start with, yet with incentive to improvement [using temporary materials for labor] can often, at least partly be given by the worker himself" (Geddes, 1918). The whole plan, he stressed, "must be realized with the real and active participation" of the citizens, warning against the "dangers of Municipal Government from above" resulting in "detachment from public and popular feeling and consequently…from public and popular needs and usefulness" (Geddes, 1918, pp. 70, 104).

Geddes' definition of good housing in the home-block befitted Tel Aviv's urban workers: Restrictions on housing size and height made self-construction a realistic possibility, and construction limited to a third of the plot met the workers' need to maintain small subsistence farms to provide at times of unemployment ("Building permit for the house of Abraham Gross", 1933). Moreover, the leapfrogging approved by Bloch's administration allowed development of cheap land at the edge of the plan for small self-built workers' housing in the home-block framework (Bloch, 1927).

Worker Neighborhood A (1930–1931) was the first worker neighborhood, involving collective organization for purchase of a three-hectare plot disconnected from the city, by the contaminated seashore ternary, considered dangerous at the time of violent clashes between Jews and Arabs (breaking out in 1929 and culminating in the 1936 Arab Revolt). Land purchase and house construction were financed by a loan from Bank Ha-Poalim (workers' bank), founded as a collective self-help institution within the General Federation of Workers in the Land of Israel, the Histadrut ("Building permit for the house of David Ben-Gurion", 1931; Greicer, 2017; Lavon, 1974;). Worker Neighborhood A residents included the elite of worker leaders, in the first place David Ben-Gurion, Secretary of the Histudrut and later on Israel's first prime minister. The neighborhood layout and 35 identical houses were designed by engineer Tobia in functional minimalism (Aner, 1988). Each one-bedroom house contained a living room, a kitchen, a bathroom, and a backyard sized two thirds of the plot used for vegetable garden and workshop. Tobia's design divided the worker house in three separate areas: the living area and bedroom at the front of the house, and a service area of kitchen, bathroom, and porch, facing the yard and subsistence farm ("Building permit for the house of David Ben-Gurion", 1931; see Figure 12). Due to Ben-Gurion's public position he was granted a permit for an additional room on the roof for library and study, accessed by stairs from the main entrance, which served Ben-Gurion for his public and political activity.

The much poorer Camel Drivers' Neighborhood resulted from the unionization of camel drivers in 1932 to obtain a loan for land purchase from the Histadrut housing company (Shikun) against their future earnings (Greicer, 2017). The camel drivers' meagre means sufficed to buy the Levin Grove by the Yarkon River, on the northeast edge of the Geddes plan area. They divided up standard 0.056-hectare plots to construct two attached units, each on 0.028 hectares. These 32 square meters houses had two rooms, a kitchen, and a washroom. All structures were built by the residents themselves, as indicated in reports of the municipal technical department which inspected construction to ensure that it met minimal standards. Inspectors reported that some of the houses used scrap metal for reinforcement rather than construction-quality materials (Figure 13). As a result, the municipal technical department specifically banned construction above one floor in this neighborhood ("Building permit for the house of Abraham Gross", 1933). The backyard served families for subsistence farm-

ing, and many contained workshops and chicken coops (Tene, 2013).

Alongside collectivist worker neighborhoods like Worker Neighborhood A and Camel Drivers' Neighborhood, four neighbors' neighborhoods were founded by white-collar workers as Neighbors' Nationhood. Their higher socio-economic status afforded them land closer to the city center, which was safer and closer to services such as schools and employment. Residents nevertheless identified themselves as workers and chose to construct home-block houses on their plots rather than three-floor apartment houses which they could let for profit. These residents demonstrated their worker identity and socialist politics by rejecting use of land and housing as means of production and transferring title to their plots to the Jewish National Fund (Greicer & Gonen, 2009). Neighbors' Neighborhood B, on the eastern edge of the Geddes plan area, had houses with three bedrooms, a living room, a kitchen, and separate rooms for toilet and washroom. Back yards included vegetable gardens, chicken coops, and workshops. The house at 4 Latrice Street, still standing on the inner ring of a home-block facing Gan Ha'em inner park attests that home-block housing was realized across the Geddes plan area, even where land values were high, rather than rejected by Tel Avivians ("Building permit for the house of Yehuda Levi", 1935). Development of home-blocks so close to the city center attests to Geddes' housing-based urbanism as a political act of worker self-help and right to the city in Tel Aviv's modern development (Figure 14).

Realizing the Geddes plan in Tel Aviv was significantly the result of "sweat equity" actions of its working class, self-constructing the home-block, and thereby extending plan layout throughout the planed area, in a housing-before-street development. Geddes' "sweat equity" modern planning was deeply invested in concrete housing solutions, including the question of housing as central to the very aims and idea of planned settlements. Tel Aviv's 1925 plan was the result of conscious, anarchist planning processes where Geddes fully realized his ideas, not merely challenging top-down mechanisms but disrupting the very dichotomous perspective of modern urbanism as a clash between top-down planners-ideologues and bottom-up urban citizens.

These forms of housing were largely forgotten in the city's urban history. Scholars claim that the home-block was realized in layout alone, while house units were built in the 1930s by Bauhaus-educated architects as multi-story apartment houses, what Geddes termed warehousing (Meller, 1990; Sharon, 1937; Weill-Rochant, 2003). In response, Sharon proposed the Me'onot Ovdim (worker residence) type, based on cooperative ownership of the entire block and the design of "finger" blocks influenced primarily by German Siedlungen, which remains the only form of worker housing in Tel Aviv in mainstream historiography (Greicer, 2017; Weill-Rochant, 2003; see Figure 12). Nonetheless, examining the historical development of the Geddes area closely, findings indicate that Geddes' housing scheme was materialized en masse in the 1930s. Moreover, the significance of these houses as urban building blocks revolved around home-block construction before urban infrastructure and urban layout—namely, in an opposite process of urban development to that the one offered by CIAM and applied by most modern urban plans. Home-block housing in the Geddes plan area was formed by workers before the plan's layout reached them, forcing the city to extend Geddes' layout and materialize his full urban vision in a relatively short period (Allweil, 2016; Biger & Shavit, 2001).

The planning of Be'eri estate as a cooperative housing estate of 192 units, legally registered as a single shared-house under the Israeli shared-houses law, was an explicit design decision intended for fostering a self-managing community in the estate. The estate has been self-managed in the past sixty years by a three-tier elected body of elected residents who represent the interests of each entry within the blocks, each block/tower, and the home-block at large vis-à-vis neighboring urban blocks and the adjacent hospital. The Be'eri home-block structure provides the built framework for a community in constant negotiations over the uses of the four parks, homeways, and other shared spaces. Constructed by Solel Boneh—a semi-public construction company part of the worker Histadrut—rather than by its own residents, the dense Brutalist estate has proved the shared-ownership of the "big house" to be fertile ground for the residents to carry out actions of self-help vis-à-vis their community members as well as the city. As members of the "big house", each member of the community of 192 households has a hold on an area as large as an urban block. Residents therefore have stakes in the use, design, and future planning of the estate itself, as well as the built environment surrounding the block. Within the block, continuous negotiations over everyday use, alterations and management, run by elected representatives, shape the estate. Further, collective ownership of the urban block allows the residents to organize as a political community and voice their concerns and objections to changes to urban landscape of the city.

The Be'eri Brutalist design agenda—focused towards resident self-management of housing, inspired by Geddes and explicitly critiquing CIAM modern planning (Team X, 1968)—is also a continuation of Tel Aviv's 1925 Geddes masterplan, premised on self-autonomous home-block urban units, sustaining the high housing density required in the city (Karmi, 1965; Sharon, 1937). Be'eri planners designed the estate's facades and landscape partly left open to resident interpretation. The landscape design consists of several concrete-made surfaces, framing a series of gardens, each garden attached to each estate's building. The series of differently self-designed gardens demonstrate residents' ability to spatially-dominate their surroundings, determining communal space usage and controlling the entrance to the estate gardens (Figures 14 and 15). Beit Be'eri's architectural design, complementing its cooperative manage-

ment, enables and promotes resident bottom-up actions as a means of self-help.

## 6. Conclusion

Pointing to the centrality of housing-based urbanism in Geddes' planning theory, manifest throughout Geddes' oeuvre, this article proposes housing builds cities as a central theme in the history of modern planning. Unravelling Geddes' housing-based urbanism in Geddes' archival material, published work, and planning proposals for cities in the UK, India and Palestine, this article proposes rethinking the history and theory of modern urban planning towards a "housing builds cities" planning agenda.

Focusing on Geddes' housing-based urbanism as the formative mechanism of Tel Aviv's celebrated modern urbanism, this article exposes the relationship between housing and modern urban planning in Geddes' only realized plan. Unlike cities planned by such forces as government, for-profit capital or philanthropy, Tel Aviv's urbanism was formed by its urban workers as a tool for self-help and social reconstruction. They produced a metropolis whose premise is dwelling rather than industry, commerce, governance, or social engineering. As shown here, Tel Aviv's housing-based urban planning was developed through negotiations among its dwellers rather than imposed by planners-ideologues. Exposing the extent of home-block construction in the early 1930s and its role in Geddes' sole realized plan, this research not only contributes to Tel Aviv's urban historiography but also to display the significance of housing for the very principles of Geddes' visionary urbanism, as well as of Tel Aviv's urban legacy. The continued legacy of Geddes' housing-based urbanism in Tel Aviv's post-war and post-independence development in Brutalist home-blocks challenges CIAM conceptions of modern planning by which housing is subject to urban layout and transportation schemes, rather than infill for top-down new-town schemata and design.

Housing based urbanism corresponds to the basic premise of planned settlements by the city planning movement in response to dire dwelling conditions of the industrial city. This article calls for reconsidering the historiography of modern urban planning beyond this city, reassessment of the history and theory of modern planning, and reconsideration of contemporary planning agenda vis-à-vis the global housing crisis.

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## Conflict of Interests

The authors declare no conflict of interests.

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# PART II

# TYPOLOGICAL UNITS

COGITATIO

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Commentary

# Moving on: Is *Existenzminimum* Still Relevant?

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**Abstract**
In the inter-war period, progressive architects confronted the building of mass housing with an analogy with rational and functional workplaces. At the 2nd CIAM (*Congrès Internationaux d'Architecture Moderne*), held in Frankfurt in 1929, this was tested against the formulation of space standards for a vital minimum, in order to increase the quantity of housing and reduce construction costs. This approach presumed the search for optimal living conditions and hygiene. The analogy with the world of work is particularly striking in the case of design of kitchens, removable furniture and storage spaces to maximize the use of space. In rational—and above all minimum—housing, the size of the rooms mainly depends on the size of the furniture. In this perspective, today in Switzerland new housing projects face the same issues, caused by a housing shortage that has plagued the country in the last decades. This suggests that *Existenzminimum* is still current for contemporary design.

**Keywords**
*Existenzminimum*; rational housing; removable furniture; Switzerland

**Issue**
This commentary is part of the issue "Housing Builds Cities", edited by Luca Ortelli (École Polytechnique Fédérale de Lausanne, Switzerland), Chiara Monterumisi (École Polytechnique Fédérale de Lausanne, Switzerland) and Alessandro Porotto (École Polytechnique Fédérale de Lausanne, Switzerland).

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## 1. Introduction

In the 1951 movie *An American in Paris*, the American actor Gene Kelly plays Jerry Mulligan, a young romantic artist who supposedly lives in Montmartre in a very small apartment, practically a single room at the top of a building. The opening scene of the movie highlights Kelly's dancing skills as, barely awake, he prepares breakfast with synchronized and elegant gestures (Figure 1).

Let's visualize the scene:

> Someone knocks on the door. The person sleeping wakes up, opens the door ajar from his bed and takes a small paper bag containing croissants through the narrow opening. Then he gets up, lifts the bed up to the ceiling with the help of ropes, opens the wardrobe pulling out a table and chair, looks for a cup and a knife in a drawer with his left hand while taking his jacket from the wardrobe with his right hand, closes the drawer with his knee and turns towards the table. That's it, that's it, breakfast is served. (Muller, 2005, p. 79; Franzinetti's translation)

## 2. Dancing and Taylorism

The movie was directed by Vincente Minnelli and Gene Kelly was the choreographer: Kelly used the theme of minimum space and its habitability, transforming everyday domestic tasks into a continuous flow of synchronized movements. It is interesting to compare Kelly's movements to the repetitive and synchronized gestures designed by Frederick Winslow Taylor. This parallel between dance and Taylorism has a famous precedent: the ballets of the *Die Rosy* girls in Berlin (Figure 2), whose synchronized movements were reminiscent of the factory assembly lines.

It is not only the ballets of Gene Kelly and the *Die Rosy* girls that echo the effectiveness and aesthetics of



**Figure 1.** Gene Kelly, a scene from Vincente Minnelli's movie *An American in Paris* (1951). Source: Freed and Minnelli (1951).



**Figure 2.** *Die Rosy* girls in Berlin. Source: Murard and Zylberman (1978, p. 385).

Taylorism. In the inter-war period, progressive architects also confronted the building of mass housing with an astonishing analogy with rational and functional workplaces. According to the Viennese architect Margarete Schütte-Lihotzky (1927), "We transpose the economic principles of the work of labour and company management, into the organisation of domestic work, which when applied to factories and clerical work lead to an unsuspected increase in efficiency" (Schütte-Lihotzky, 1927, pp. 120–121; Franzinetti's translation).

At the 2nd CIAM (*Congrès Internationaux d'Architecture Moderne*), held in Frankfurt in 1929, this was tested against the space standards for the vital minimum of living, an approach whose objective was to increase the quantity of housing and reduce construction costs. However, minimum housing presumes the search for optimal living conditions and hygiene (Figures 3 and 4). For Walter Gropius, the problem of minimum apartment—*Minimalwohnung*—consists of defining the "minimum of space, air, light and heat, necessary for men to develop their own vital functions without restrictions due to lodging, namely a minimum *modus vivendi*, instead of *amodus non moriendi*" (Gropius, 1995, p. 77; Franzinetti's translation).

### 3. Breaking down Movements and 'Routing'

The analogy with the world of work is particularly striking in the case of design of kitchens. Architects were focused on them with a view to switching from the *Wohnküche*—the large farm kitchen big enough to eat—to a working kitchen, at the side of the living or dining room too small to eat meals there. But how could kitchen appliances be organised to reduce housewives' burden?

The irrational nature of domestic work was at the heart of Christine Frederick's research. She was an American feminist who published in 1915 a book on the subject entitled *Household Engineering: Scientific Management in the Home*. As this title indicates, Frederick advocates the application of the principles of work rationalization set out by Taylor to the organisation of the house, and specifically to households without servants. She focused in particular on the layout of household appliances and equipment in the kitchen, which she analysed, comparing a "good" to a "bad" example, using a picture to illustrate routing (Frederick, 1915).

The method broke down the range of movements when preparing meals inside a kitchen and thus proved that the rational and linear layout of the appliances and equipment made it possible to identify and subsequently shorten the routes to save energy. Christine Frederick's book was translated into German in 1922 and quickly became a source of inspiration for German architects, who transposed her routing method to the organisation of domestic spaces. Berlin architect Bruno Taut was the first to adopt the comparative method between a "good" and a "bad" housing plan, analysed according to the relationships between the rooms and routing.

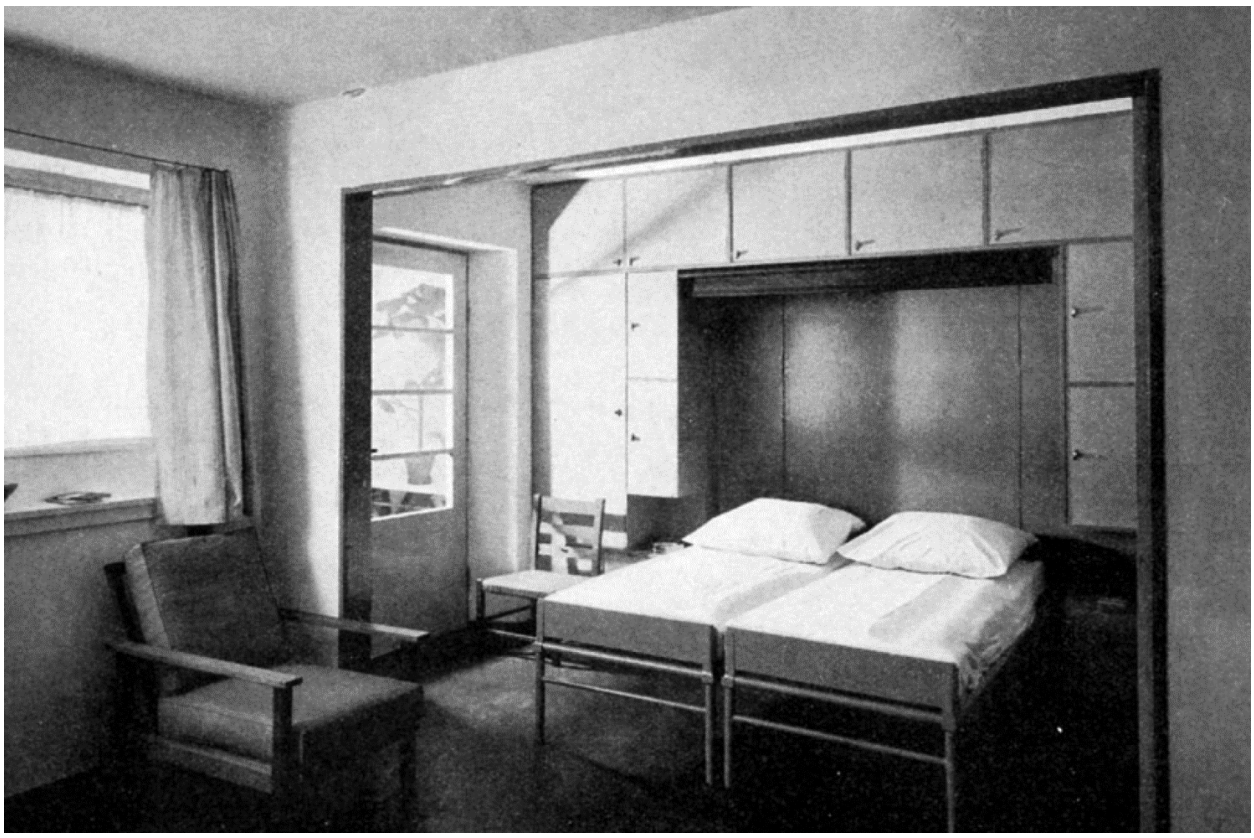


**Figure 3.** Ferdinand Kramer, housing in Frankfurt, beds in position in the living room. Source: Borngraeber (1978, p. 377).

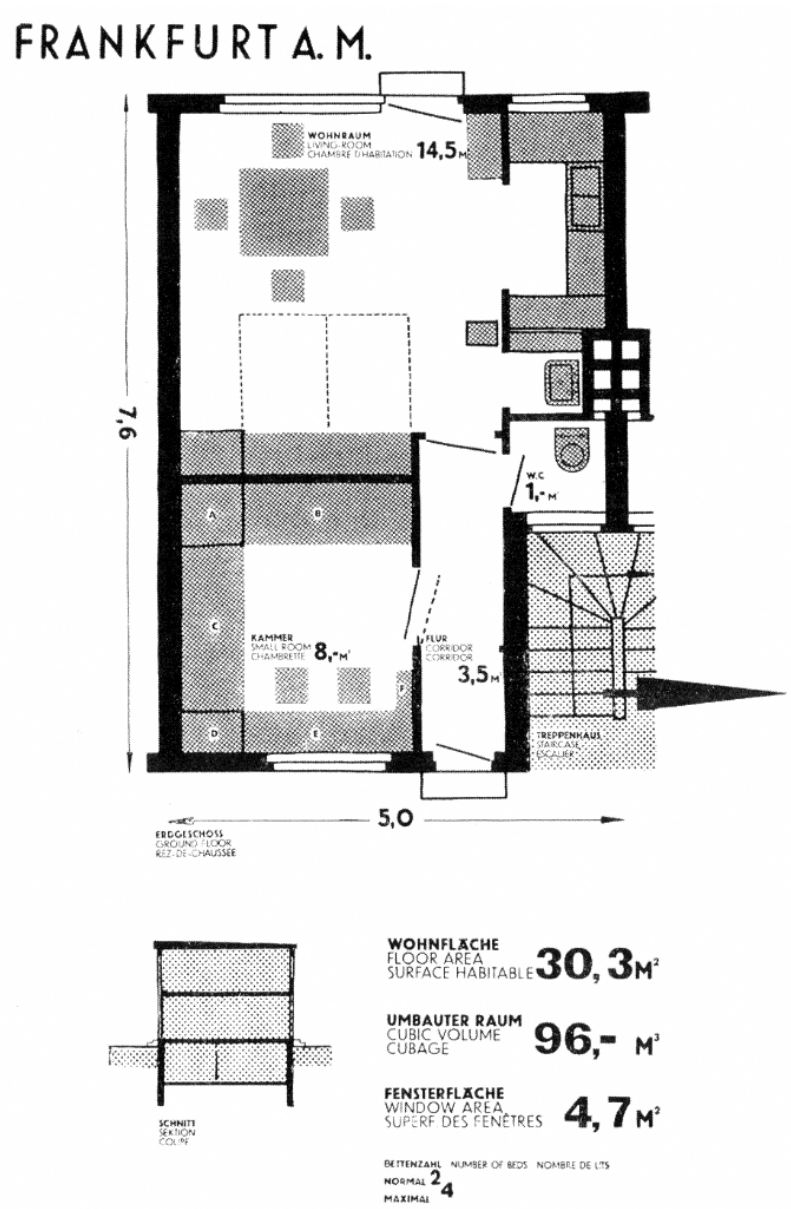



**Figure 4.** Dwelling type exhibited at the 2nd CIAM in Frankfurt with the foldable bed indicated with dashed lines. Source: Quiring, Voigt, Cachola Schmal, and Herrel (2011).

The housing plan proposed by Taut (1924) in his book *Die neue Wohnung: Die Frau als Schöpferin*, dedicated to women, was to become a kind of ideal cell, bringing together both the principle of routing economics and the hygiene principles linked to sunlight. Accommodation was organised around a collective and an intimate sphere commonly (and reductively) called "day" and "night" zones, their positions being dictated by the course of the sun: The rooms to the east benefited from the morning sun, while the living room and the kitchen, to the west, were positioned to catch the evening rays.

The collective and intimate spheres of dwellings were distinct, and the rooms connected by short *chains of steps* without intersections. In rational housing, every space was used to the best: no more "cold rooms" (*kalte Pracht*) that were only used on Sundays to receive guests. Likewise, the various members of the family were separated: the parents' rooms from the children's, the girls' rooms from the boys' rooms. Different activities were not allowed in the same room at the same time.

### 4. Removable Furniture

The opening scene of *An American in Paris* tends to prove that the mechanization of removable furniture and the logical organization of storage spaces are essential to maximize the use of space. In rational—and above all minimum—housing, the size of the rooms mainly depends on the size of the furniture: As standardized pieces, the dining table, bed or wardrobe become the yardsticks, the basic modules that determine the how domestic spaces are laid out.

The optimal use of available space also required removable and built-in furniture which, as Ernst May stated, makes it possible to arrange:

> The main rooms for two purposes: For instance, the small living room will be transformed into a bedroom by operating a simple handle to make the beds appear or disappear. The tables in the bedroom are all folding; the non-folding children's beds are bunk beds. (May, 1930, p. 8; Franzinetti's translation)

Le Corbusier also asked the same question in a completely different context, that of the Weissenhof in Stuttgart in 1927. In the two-storey (duplex) family house (Figures 5 and 6), each apartment was along a narrow corridor; he imagined occupying the same space during the day and at night thanks to innovative and mobile furniture at the back of the rooms:

> In each room a special and economical construction of reinforced cement, making it possible to hide the bed, and providing cabinets calculated exactly to offer each occupant of a unit, a place to hand clothes, the shelves for underwear and bed linen, for hats, shoes, etc.…, in short, a complete organization of well shelves to replace all the furniture which usually fill rooms. (Le Corbusier, 1928, p. 13; Franzinetti's translation)

This implementation of the Dom-Ino system is based on a steel pilotis structure and sliding walls which, with the permanent locking joints and "servant spaces", make it possible to organise the same room differently by day and night. Le Corbusier extended the mechanics of a single piece of furniture—the Frankfurt bed—to the housing unit, an analogy to the railway couchette carriage with its minimum compartments connected by a corridor.

Considering that these proposals led to misunderstandings among the exhibition public and to harsh criticism from architects, it could be argued that after all this housing was not for workers but rather for a wealthier tier of the population that accepts to live in this way. Le Corbusier was aware of this situation and reiterated the applications of his flexible interior design system in other projects to prove that Stuttgart's experiment could also be applied to workers' housing.

The first was a project for a rental building, dated 1928–1929, that was never to be built. It consisted of several housing units grouped according to a back-to-back principle around a vertical node bordered by hanging gardens to move. The units were non-through, enclosed at both ends by bathrooms and kitchens. The units had a single open long space which acted as a living room during the day turning into bedrooms at night. Sliding walls were pulled out to make the bedrooms with beds that were stored under the slightly elevated corridor by day.

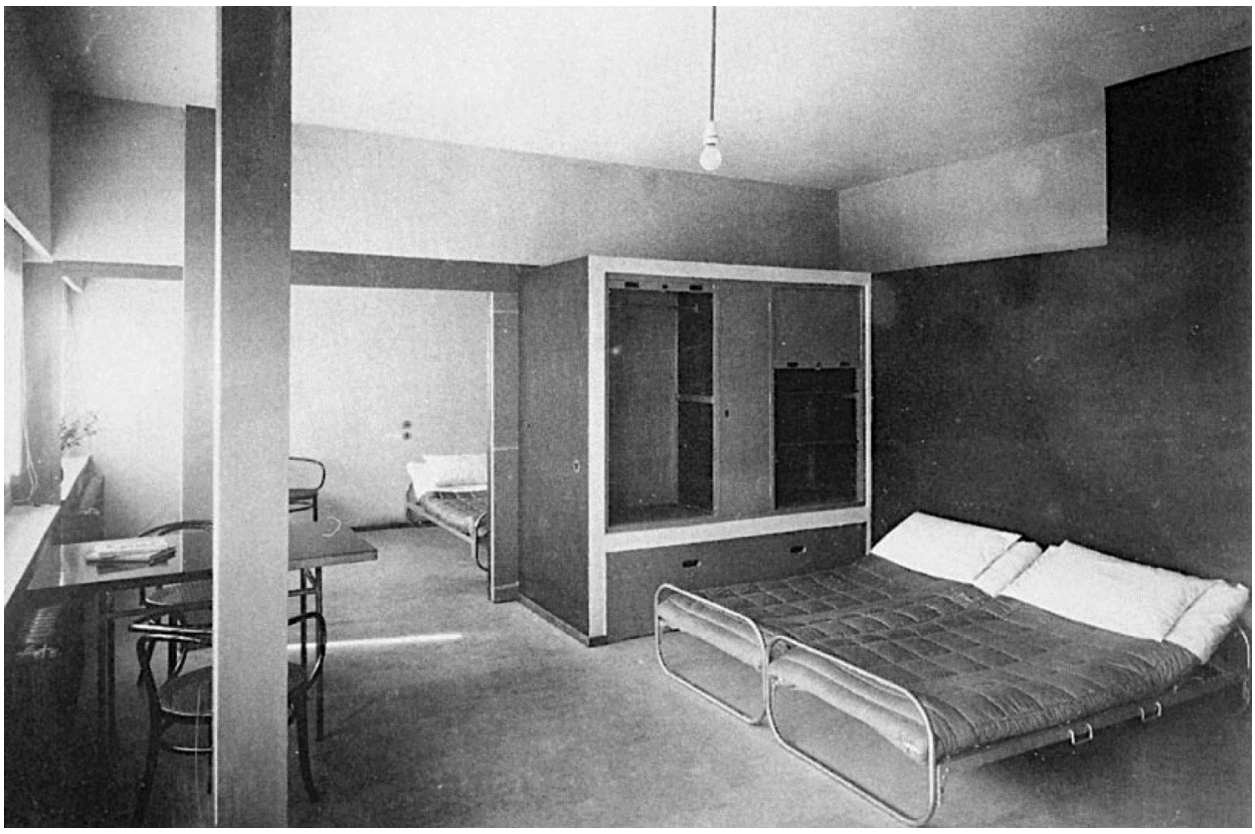


**Figure 5.** Le Corbusier, two-storey (duplex) housing units at Weissenhof, night layout, 1927. Source: Le Corbusier Pierre Jeanneret (1927, p. 41). Image copyright: © FLC/2019, ProLitteris, Zurich.

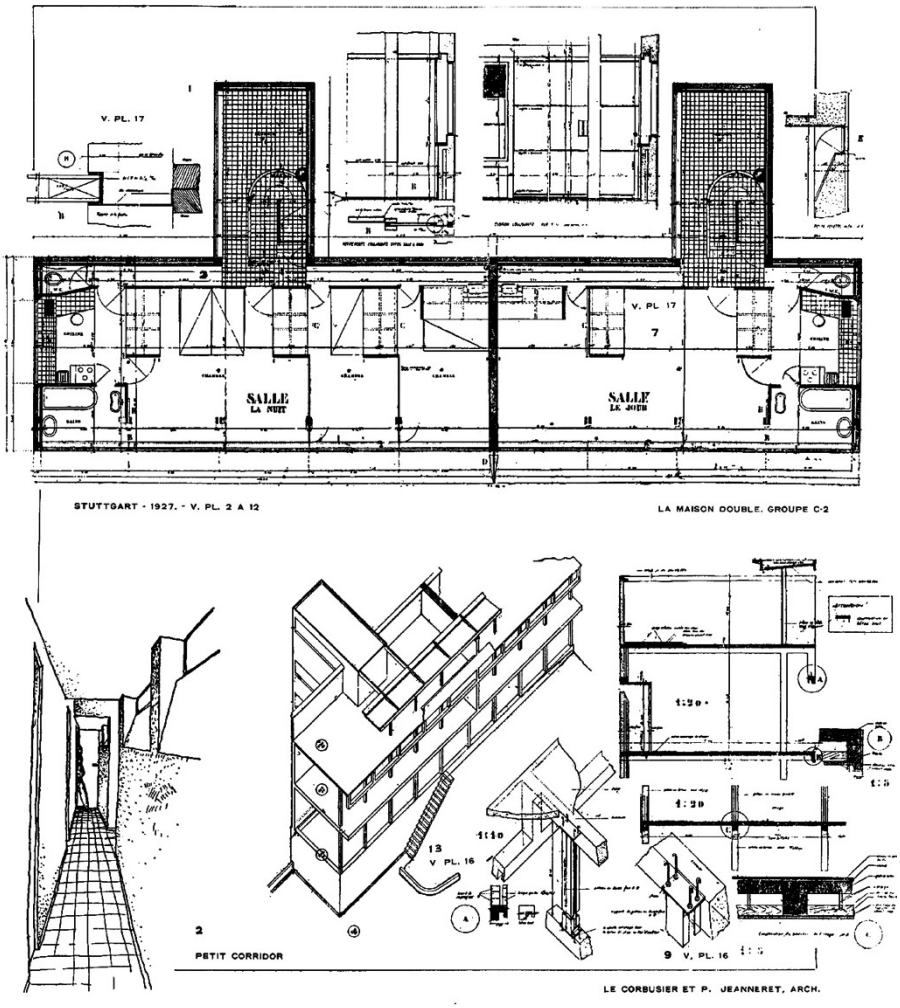



**Figure 6.** Le Corbusier, two-storey (duplex) housing units at Weissenhof, plan and details, 1927. Source: Le Corbusier (1928). Image copyright: © FLC/2019, ProLitteris, Zurich.

According to Le Corbusier, the study of this rental building is "the continuation of the houses made in Stuttgart" (Le Corbusier & Jeanneret, 1964, p. 184). The Loucheur two-storey units with steel pilotis or pillars and separated by a party or curtain wall made of rubble is also worth mentioning. It was presented in 1929 at the CIAM (Taylor, 1987, p. 239) in Frankfurt, and they too had convertible day-night facilities. Finally, Le Corbusier's obsession with a mechanicistic view of society also led him to design a Maximum Car (*Voiture Maximum*; Monnier, 1987, p. 52), a minimum prototype, like a Citroën 2 CV where the seats could transform into bunk beds—and become what we can call a "minimum house on wheels" for day and night.

## 5. A Century Later: Is *Existenzminimum* Still Relevant?

It would be a stretch to compare the problems of the 1920s and 1930s to the current Swiss collective housing industry. Indeed, almost a century later, the political and economic contexts are quite the opposite: One cannot strictly speak of a crisis situation in Switzerland, but rather of a housing shortage that has plagued the country for decades.

However, we can venture to suggest *Existenzminimum* is still current in Switzerland, and two recent events stand to prove it: The first concerns the surge in property prices which means that, both in terms of purchase and rental, the middle classes—and the more so workers—can no longer afford to access housing of a certain size and comfort. One of the solutions consists in reducing the dwelling's size, while safeguarding a certain quality, quite a challenge in itself, given that in the past the Swiss, on average, were used to a floor space of 50 sqm per person. The second one is related to changing lifestyles, given more and more people have a "nomadic" lifestyle, where single people or couples have ever shorter housing occupancy periods.

The two above are included in the basic data of the MIN MAX residential and commercial building design—Glattpark—in Opfikon, 2013–2016, by EMI Architekten following an invited study contract to competition won in 2013. The compact inner courtyard construction contains collective spaces—such as a laundry room, a com-

mon kitchen and meeting spaces—arranged around the courtyard, so that the dwelling unit requires a minimum footprint. Units should not be perceived as smaller conventional apartments: The architects sought to make up for the relative compactness of spaces, by increasing the sense of space and creating new architectural features, such as the artist's studios where one can live and work (a nod to Le Corbusier).

The approach is best illustrated in Type MIN 1, with nearly 40 sqm of usable floor space (Figures 7 and 8). In this case, the spatial development is the result of a diagonal view from the entrance to a conservatory and to the high ceiling (3m in height). The impression of fluid space is further enhanced by interior glass strips above the kitchen and bathroom, which make the ceiling appear as one leaving the room to be considered as a whole.



**Figure 7.** EMI Architekten, type MIN 1 of the Glattpark building (2013–2016), Opfikon, architectural model of the interior space. Image courtesy of EMI Architekten.

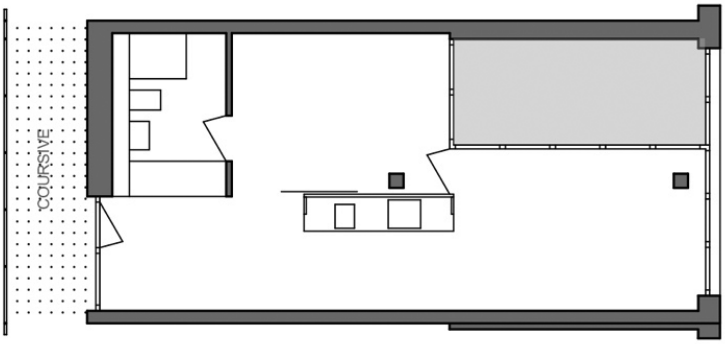



**Figure 8.** EMI Architekten, type MIN 1 of the Glattpark building (2013–2016), Opfikon, plan. Re-drawn by EPFL students for UE B architectural critic course.

In Switzerland, the quest for maximum use of limited space also informs the MOVEment module by Halter (Figures 9 to 11). Its philosophy, as Terence Coran puts it, is that "plans for small units require a different approach compared to the ones used in large ones. Instead of associating each function to a space, each part of the unit has to be organized in the most flexible way possible" (as cited in Inauen, 2017, Franzinetti's translation).



**Figure 9.** Halter, flexible MOVEment system, removable furniture in the living room-bedroom. Image courtesy of Halter.




**Figure 10.** Halter, flexible MOVEment system, removable furniture in the living room-kitchen. Image courtesy of Halter.

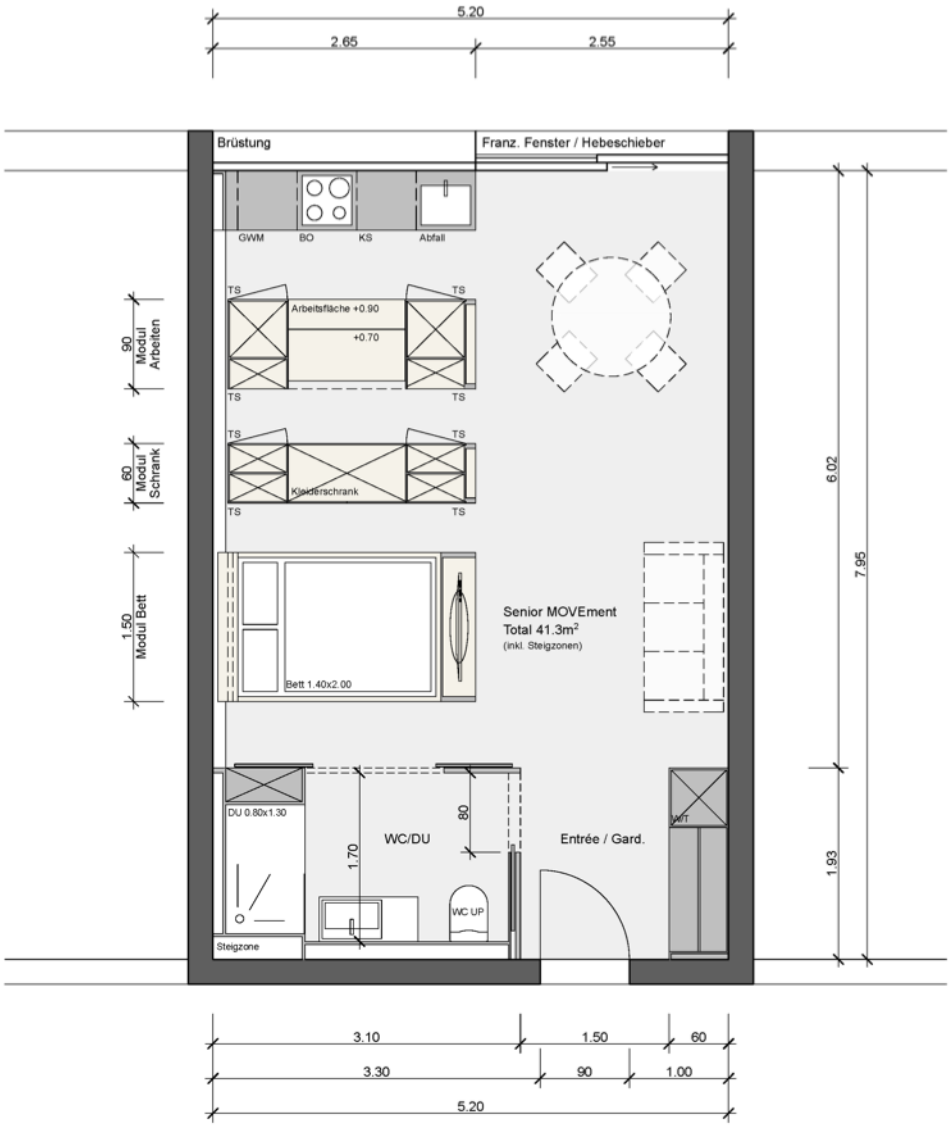



**Figure 11.** Halter, flexible MOVEment system, plan of the main type. Image courtesy of Halter.

The system is based on specific modules for beds, cupboards and a working area, framed by the bathroom, adjoining the entrance, while the kitchen furniture is located on the front. The water accesses are fixed, the other modules are mobile and according to their location; space layout varies, according to need, 32 sqm for young people and 42 sqm for senior citizens.

There are two ways of approaching the idea of minimum housing: EMI's work, which is essentially architectural, based on exploiting the spatial development of housing with compact surfaces, that is establishing diagonal views. This was one of Wright's themes—the continuity of horizontal planes and the high height of the livable area/volume. Minimum surfaces, maximum architectural quality. The other is Halter's view without any great architectural expectation, returning to the theme of flexibility and spaces that can be reconverted by using removable furniture: Gene Kelly's dance scene continues, crisscrossing time.

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**Conflict of Interests**

The author declares no conflict of interests.

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Article

# From Ideal Proposals to Serial Developments: Victor Bourgeois's Schemes in the Light of Post-War Developments in Brussels

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**Abstract**
Three essential elements of modernism consolidated through war: a centralised welfare state, a serial industrial apparatus and, often, a territorial tabula rasa. Hence, for many modernist architects and urban planners, post-war Europe became the ideal ground to put their ideas to the test. However, there is a genuine discrepancy between the proposals of the first four *Congrès Internationaux d'Architecture Moderne* (CIAM) and what was massively implemented throughout Europe after 1945. To explore this divergence, Brussels proves to be an interesting case study for two main reasons. First, it hosted the third CIAM in November 1930, where Victor Bourgeois presented his views on housing and cities, in line with the ideals of the time. Second, after the war, Belgium, like many Western countries, experienced a period of euphoria, during which the modernist ideology attained a sudden and broad consensus. In the capital over the following three decades new infrastructure was built, as well as housing developments that derived, at least formally, from the CIAM ideals. This article explores the gap between the ideals and the reality of modernism through a comparison on two scales: the city and housing. Bourgeois's *Grand* and *Nouveau Bruxelles* proposals are compared to the *Manhattan Plan* and Etrimo's housing developments. Understanding the gap between the ideals of modernism and its implementation may help identify characteristics of the modernist movement but also, as Lacaton-Vassal pointed out when citing Habermas, complete the "unfinished project" (Habermas, 1984) of modernism.

**Keywords**
Brussels; Etrimo; Groupe Structures; Manhattan Plan; modernist architecture; modernist housing; Victor Bourgeois

**Issue**
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## 1. Building Modernism?

### *1.1. A Fertile Ground*

Modernist architects considered the city an inseparable body, tying in the same reflexion the scale of furniture, domestic spaces and territory (Gropius, 1925a). Accordingly, architects had to be the "organizers of all the human needs in the city" (Bourgeois, 1931b, p. 169). Urban planning and housing design were adjusted to the social progress of modern societies. Like never before, architecture was to reshape society comprehensively.

Although reflection on cities had been a leitmotiv in architecture history, modernism elaborated for the first time a thorough and explicit consideration of ordinary domestic architecture. Whereas theorists—Serlio, Le Muet, Blondel, Brisieux, Jombert, etc.—had considered domestic architecture in the past, it had never been a central issue (Ledent, 2014). By the end of the 19th century, the "housing crisis" had become so acute that it literally became the battle cry of the architectural avant-garde (Teige, 1932).

This determination to reshape both housing and urban planning was developed comprehensively in the

first four *Congrès Internationaux d'Architecture Moderne* (CIAM). The congresses summed up the views of modernist architects on housing and urban planning, albeit with a few discordant voices (Mumford, 2002). However, if modernist architects developed radical and innovative solutions regarding urban planning and housing design, their ideas were only implemented marginally in the interbellum due to economic crises, political unrest and a lack of understanding among the population. In these troubled times, modernism remained primarily rhetorical (Heynen, 2000). Hence, it is no coincidence that Huib Hoste, one of Belgium's leading architects in the interwar period, wrote the play *If I Was a Dictator* (Hoste, 1937), illustrating the frustration of modernist architects to carry out their ideology.

World War II brushed aside these hindrances. Along with the economic boost provided by the Marshall Plan in Western Europe, the conjunction of three factors enabled the execution of modernism (Voyé, 1998). First, the modernist ideology relied on powerful regimes since "urban design cannot be realised without a strong authority" (Verwilghen, 1934). This strong political lever emerged in the form of centralised welfare states. Secondly, a serial industrial apparatus was developed through war that could easily be redirected to the construction industry. Thirdly, war-torn territories offered the long-coveted tabula rasa. Hence, upon the end of the war, everything was in place to carry out the modernist project.

### *1.2. Discrepancies*

Nevertheless, when the conditions finally met the needs of the modernist rhetoric, a distortion seemed to occur. Indeed, there is an undisputable discrepancy between the pioneering ideas of the first four CIAMs and what was massively implemented throughout Europe after 1945. A comparison of Le Corbusier's *Unité d'Habitation* and the French *Grands Ensembles* clearly illustrates this difference.

This article seeks to identify and understand the discrepancies between the ideals of pre-war modernism and what was actually built. This distinction is essential since the critics of modernism often erroneously confuse what was produced on its behalf with the ideology itself. Identifying these differences allows for a clearer definition of modernism and how its production can be addressed today.

### *1.3. Brussels*

To assess this question, a comparison of the first four CIAM proposals and their effective implementation is drawn in the case of Brussels. This city is paradigmatic for several reasons. First, Brussels's traditional housing and urban planning completely contradict the precepts of modernism (Ledent & Komossa, 2019). Second, Brussels hosted the third CIAM in November 1930 in which debates focused largely on housing (Steinmann, 1979). Victor Bourgeois, who organised the congress, presented his plans for the *Nouveau Bruxelles* in line with the ideals of the time, elaborating further on the *Grand Bruxelles* developed a few years earlier. Third, Belgium experienced a period of euphoria after the war, in which the pre-war modernist ideology enjoyed a sudden and broad consensus. This trend led to vast urban destruction; as Bourgeois declared before his death in 1962, Brussels "was never destroyed by the war itself but rather by its own people" (Hanrion, 2015), a phenomenon embodied by the term *Bruxellization*.

## 2. Comparison of Modernism in Brussels

This analysis of modernism in Brussels is twofold. It explores its interbellum proposals with its actual post-war construction at urban and domestic scales.

On the one hand, modernism is identified through the precepts advocated by the first four CIAMs. These ideas are illustrated in proposals for the capital by Victor Bourgeois. The choice of Bourgeois is not accidental. He was a central figure of modernism in Belgium and abroad through his writings, visionary schemes built projects (Strauven, 2015). He advocated a clear rupture with academism, as he literally "tore his diploma apart in front of the school jury" (Strauven, 2015, p. 60). As a practitioner, his *Cité Moderne*, from 1925, and later his participation in the *Weissenhof* in Stuttgart helped establish Belgium on the modernist architectural scene (Strauven, Culot, & De Gobert, 2005). Moreover, Bourgeois was one of the few Belgian architects of his time to develop schemes at the scale of both housing and that of the city. In addition, he was a founding member of the CIAM and attended most CIAM and CIRPAC (the *Comité International pour la Résolution des Problèmes de l'Architecture Contemporaine*) meetings before 1945. He even chaired the *La Sarraz* meeting (Bourgeois & Flouquet, 1952), replacing Karl Moser as president. Furthermore, the third CIAM, which Bourgeois hosted in Brussels in 1930, was undoubtedly the main architectural event of the interbellum in Belgium. Finally, Bourgeois was not only a practitioner and a theorist but also a communicator. He cofounded *7 Arts*, a journal intended to communicate revolutionary thinking about the arts (Bourgeois & Flouquet, 1952).

One the other hand, post-war modernism is evaluated through two paradigmatic projects: the *Manhattan Plan* and Etrimo's real estate developments. The *Manhattan Plan* was selected for its symbolic impact on the city, generating fervent debates for the next 50 years (Martens, 2009; Romańczyk, 2012) and eventually prompting alternative thinking regarding city planning through participation (Schoonbrodt, 2007). The plan, moreover, provides the ideal counterpoint to Bourgeois's *Grand Bruxelles* since it is set in the same area of the city. Etrimo, for its part, was chosen because it was the largest post-war housing developer in Brussels,

in terms of quantity but also in the collective psyche. Even though Etrimo was founded in the 1930s, producing a series of elegant residential buildings, its most paradigmatic production occurred in the 1950s and 1960s (Broes & Dehaene, 2016).

In order to be compared objectively, all of the above schemes were redrawn in a similar fashion. The literature on the projects was also thoroughly analysed to dissect the underlying motives of the various stakeholders (architects, developers, politicians, etc.).

## 3. Interbellum and Post-War Schemes

### *3.1. From Rhetorical to Pragmatic Modernism*

After World War I, many people strongly believed that modernist architecture could revolutionize human societies (Strauven et al., 2005). The need for housing was acute and the first CIAM congresses explicitly addressed this issue. In Belgium, the CIAM exerted an important influence through its leaders Victor Bourgeois, Huib Hoste, Louis-Herman De Koninck, Renaat Braem, Raphaël Verwilghen, etc., but also through the editorial line of *L'Equerre* and *Opbouwen*. Nevertheless, most projects remained unbuilt and theoretical (Beekaert & Strauven, 1971) such as the linear city of Braem in 1934, the competition for the east bank of Antwerp in 1933 and the administrative buildings on the central avenues of Brussels by Jasinski in 1930. As an active member of the CIAM, Bourgeois developed and exhibited several proposals illustrating his visions of both urban planning and housing. Like those of his peers, his proposals remained rhetorical.

Hence, however innovative, modernism did not enjoy any interbellum large-scale implementation. Nevertheless, after 1945, in most Western countries, the whole state apparatus endorsed modernism with a technocratic vision of reconstruction. The 1958 World Fair marked a turning point for modernism in Brussels, as Belgium had clearly set standards for its reconstruction ambitions, resolutely and unanimously moving towards modernity. The capital underwent a vast modernisation process (Hubert, 2008). Brussels was seen as the "crossroads of the West" (Ministère des travaux publics et de la reconstruction, 1955) and began playing a major international role as the provisional host of the European institutions in 1958 and, a decade later, headquarters of NATO, in 1967. In Brussels, two main construction fields opened up. On the one hand, new infrastructure was built. Everything was based on the automobile and major roads were created to make everything car-accessible. The interbellum theories of the functional city were applied to (re)designing Brussels, separating functional zones and dismantling entire neighbourhoods in the old city centre (de Saulnier, 1963). On the other hand, housing was produced on a large scale, in accordance with, at least formally, the principles of modernism.

The pre- and post-war schemes and their theoretical underpinnings are analysed here, explaining which contexts, spatial and programmatic levers they relied on. To identify their shifting features easily and allow for a comparative reading, they are presented successively on urban and housing scales.

### *3.2. Urban Schemes*

#### 3.2.1. *Grand* and *Nouveau Bruxelles*

While Bourgeois built several state-of-the art projects in the early 1920s, commissions started decreasing by the end of the decade (Strauven, 2015). Bourgeois focused subsequently on theoretical plans for Brussels, to illustrate his views on urban planning to his CIAM peers. They were not meant as definitive plans but rather a "base for discussion" (AAM, 1971) to renew the urban planning tradition. Bourgeois produced then the first Belgian urban projects in line with the CIAM. In these schemes, he distinguished two modes regarding urban planning (Strauven, 2015): a reforming mode in the city centre, and a revolutionary mode in the suburbs or destroyed territories.

Two exploratory projects illustrate clearly these modes: *Grand Bruxelles*, from 1929, and *Nouveau Bruxelles*, from 1930. While Bourgeois' ideas on urban planning for Brussels date back to a few years earlier (Bourgeois, 1927), his first comprehensive reflections are demonstrated in his 1929 project for *Grand Bruxelles* (Figure 1), exhibited at the *Cercle Artistique et Littéraire* and published the following year (Bourgeois, 1930). It originated in the debate around the north–south railway connection, a long-time problem in Brussels. According to Bourgeois, the solutions developed at the time (and executed 30 years later) were too limited, old-fashioned and inefficient in terms of mobility. Moreover, they destroyed large parts of the city centre, cutting through the first Brussels city walls. His proposal relied on three main elements. First, he drew a new railway along the *Boulevard du Midi* and then parallel to the canal through the centre, outside the first city walls, on the extension of the *Allée Verte*. In doing so, Bourgeois preserved the inner centre, which was being targeted for demolition. Meanwhile, he reconsidered the entire traffic system by creating a hierarchy of "efficient" roads between *autostrades* for fast traffic and *canaux de promenade* for pedestrians (Bourgeois, 1930). Second, Bourgeois created two distinctive railway stations for which he provided a meticulous description: an international hub was created in the north of the city, coupling rail, air and road networks and hosting new urban developments, while the existing North Station itself was moved closer to the canal and devoted only to national traffic; there was no trace of what was to be the Central station, which today lies in the middle of the city centre. Third, while streets and stations were represented comprehensively, the domestic fabric was only briefly described. Bourgeois designed a new neighbourhood of small high-rises to replace an entire district of the North Quarter, just as his

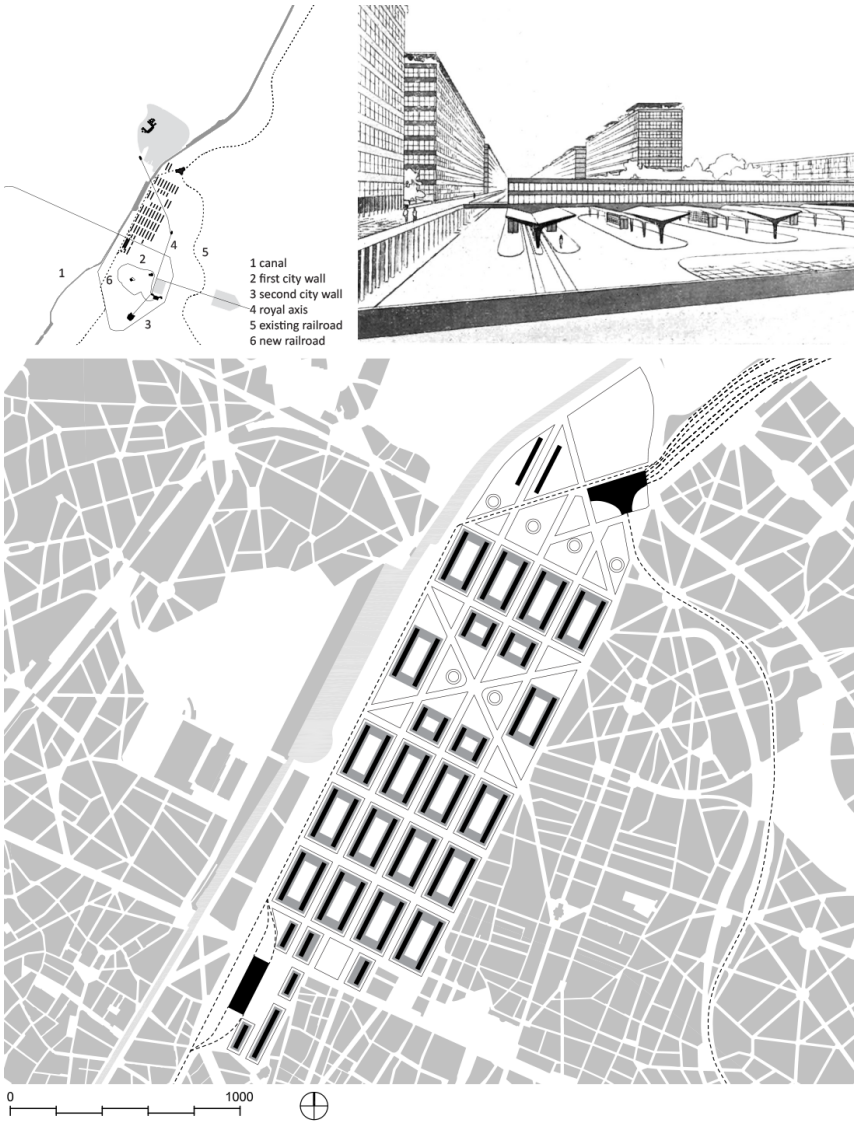



**Figure 1.** Bourgeois, *Le Grand Bruxelles*, 1929 (drawings by the author; perspective drawing by Bourgeois, 1930, p. 175).

CIAM peers advocated substituting "the existing urban pattern in favour of widely spaced high-rises" (Mumford, 2002, p. 58). Dwellings are contained in 11-storey buildings oriented north-south and linked in pairs by double-height plinths to create genuine urban blocks. Bourgeois insisted on the "cost effectiveness of this public development" that was only possible through "high and important constructions" (Bourgeois, 1930, p. 176).

While *Grand Bruxelles* illustrated a reforming mode, Bourgeois adopted a revolutionary mode in *Nouveau Bruxelles* (Figure 2) that was presented at the CIAM 3 in 1930 (Bourgeois, 1931a; Giedion, 1931). Rather than reorganising the existing circulations in the centre, Bourgeois suggested adding a new neighbourhood to the city. This new urban development was based north of the city, along the Senne Valley, on the western bank of the canal. Its structure was in complete opposition to the traditional city. Bourgeois proposed a 25,000-dwelling development divided into four residential zones by a large cross-shaped public green zone featuring leisure and community facilities. Housing is accommodated in long ten-story buildings, free-standing in green spaces in the immediate vicinity of services such as kindergartens, playgrounds, parking lots, etc. Commercial spaces are sheltered in the ground floors of these buildings. Interestingly, the four quadrants of the "functional city", which became the "dominant concept on urban planning after the Brussels' meeting" (Mumford, 2002, p. 59), can be traced back to Bourgeois' urban schemes and more specifically to his *Nouveau Bruxelles*. Indeed, there is a clear zoning in Bourgeois's plan, identifying four urban functions. Similar to Le Corbusier's *Ville Contemporaine de Trois Millions d'Habitants* (1922), streets are drawn according to a hierarchical grid, assigning specific place to cars and pedestrians. Housing is clearly defined in the four zones. Leisure activities are also very well identified at the heart of the plan, in the shorter branch of the central cross-shaped green zone. Finally, work areas are not specified in the neighbourhood plan. However, as Bourgeois men-

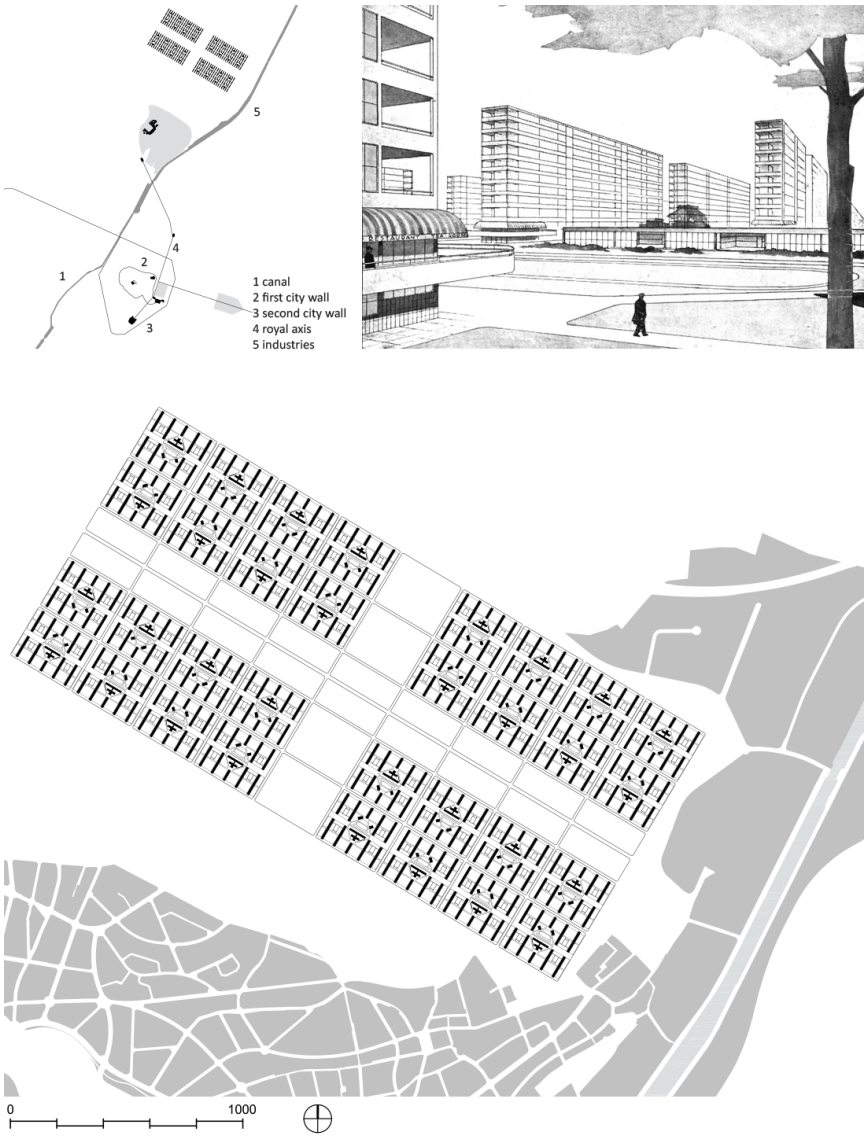



**Figure 2.** Bourgeois, *Le Nouveau Bruxelles*, 1930 (drawings by the author; perspective drawing by Bourgeois, 1931a, p. 412).

tions in his description of *Nouveau Bruxelles* that "the work areas are generally set to the east of the canal, hence, our residential neighbourhood should be set to the west, to be protected from the smoke of factories" (Bourgeois, 1931a). The factories' location is also visible in a perspective drawing complementing the urban scheme of *Nouveau Bruxelles* (*Bourgeois*, 1931a, p. 411).

Between Bourgeois's reforming and revolutionary schemes, a series of differences can be noted. Firstly, the second scheme no longer acknowledges pre-existing alignments. While *Grand Bruxelles* recognises the city's main axes and uses the existing railway routes as a project lever, *Nouveau Bruxelles* has an independent circulation system of its own—Bourgeois offered no clue about its links to the city. Secondly, this next development is suggested as an autonomous ensemble. While *Grand Bruxelles* has a clear connection to the centre, *Nouveau Bruxelles* could be set anywhere and pays little attention to the existing urban fabric. Thirdly, the 1930 project does not consider the existing topography, presenting an isotropic scheme on a piece of land that is, in reality, far from being horizontal. Fourthly, the city block and the street structures that could still be found in *Grand Bruxelles* disappear completely and are replaced by freestanding buildings on open and grassy land in *Nouveau Bruxelles*.

Bourgeois's consideration of the city did not end with *Nouveau Bruxelles* and were further pursued in the *Cité Mondiale* (Otlet, 1931), where he established Brussels as a major international centre. Later, Bourgeois even created a journal named *Bruxelles* that focused on urban issues.

### 3.2.2. The *Manhattan Plan*

The *Manhattan Plan* is exemplary of the many urban projects that were carried out in Brussels after World War II. Interestingly, it is set in the same area as

Bourgeois's *Grand Bruxelles*. Before the war, it was a lively neighbourhood due to its proximity to the centre and the industries along the canal (Dessouroux, 2008). However, at the end of the 1930s, the wealthiest population started leaving the neighbourhood and was replaced by first-generation migrants (Martens & Vanden Eende, 1994). In addition, already isolated from the city by the canal to the west and train tracks to the north, the North Quarter became even more secluded in the late 1950s. In 1956, its eastern side was demolished to build elevated train tracks, creating a border to the east. In addition, an automobile viaduct was built on the inner ring road in 1957, cutting off its southern connections. The enclave then became a speculative object for real estate tycoons such as Charly De Pauw, and two plans were set forth by Groupe Structures (Braeken, 2003). The first plan (from 1962) displayed ten office towers and luxurious apartments on the extension of *Boulevard Jacqmain*. However, it was quickly rejected by Brussels's strongman and Belgium's prime minister Paul Vanden Boeynants because it was "not grand enough" (Martens & Vanden Eende, 1994). In 1964, Groupe Structures presented a second plan—the *Manhattan Plan* (Figure 3)—that was unanimously approved by the three affected municipalities, building on the euphoria of the time. It comprised a much larger scope (53ha) and was based on the principles of the pre-war CIAMs. First, it staged a clear distinction between pedestrian lanes—resting on a 13-meter-high plinth—and automobile traffic. Second, the new area was developed around a motorway interchange. These 60-meter-wide motorways were designed on the extension of *Boulevard Jacqmain* and in direct connection to the ring road around Brussels. Eventually, the buildings were projected on the site as towers and slabs,

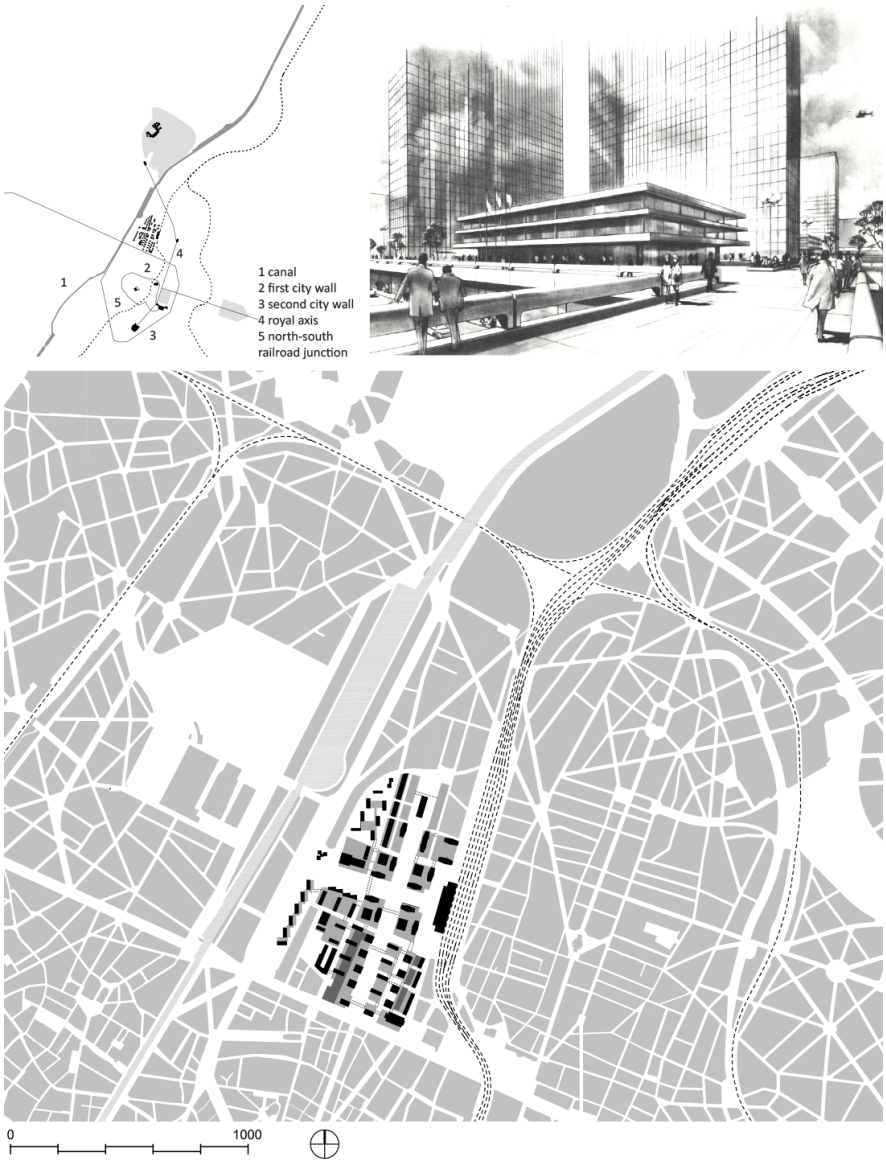



**Figure 3.** Groupe Structures, *Plan Manhattan*, 1964 (drawings by the author and perspective drawing by Groupe Structures, 1967; Demey, 1992, p. 28).

54 in total and towering between 18 and 162 meters. The quarter was meant primarily for office buildings. Despite protests from inhabitants, expulsions started in 1969 and a vast majority was never relocated. However, while the neighbourhood was entirely torn down in a few years, the crises of the 1970s put an end to construction, generating a desolated area in the heart of the city. It was not until the second half of the 1990s that this project was completed.

Interestingly, when the 1958 World Fair opened, Bourgeois was very dubious about the actual levers of the welfare state, since "eventually facing construction deadlines, the state is not free to take important decisions…because big business is not willing to negotiate" (AAM, 1971, p. 11). Bourgeois's late prediction would prove right as "urban planning from 1955 to 1979 resembles the quintessence of untrammelled liberalism" (Dessouroux, 2008, p. 114).

### *3.3. Residential Schemes*

#### 3.3.1. Victor Bourgeois

With industrialisation, (mass) housing became the priority of modernist architects (Gropius, 1925b). Two trends are advocated by the first three CIAMs. On the one hand, dwelling surfaces should be *(Existenz)*minimum, produced in large series and complemented by collective equipment (CIAM II, 1930). On the other hand, even though this aspect was fiercely debated in Frankfurt and Brussels, housing should be in "high houses in the quiet and greenery" (Steinmann, 1979, p. 101).

Bourgeois's views on housing were clearly illustrated at the second and third CIAMs. In Frankfurt, Bourgeois presented a design (Figure 4) that he drew in 1927 as an extension of the *Cité Moderne* (CIAM II, 1930). The scheme displays a series of low-building slabs with a

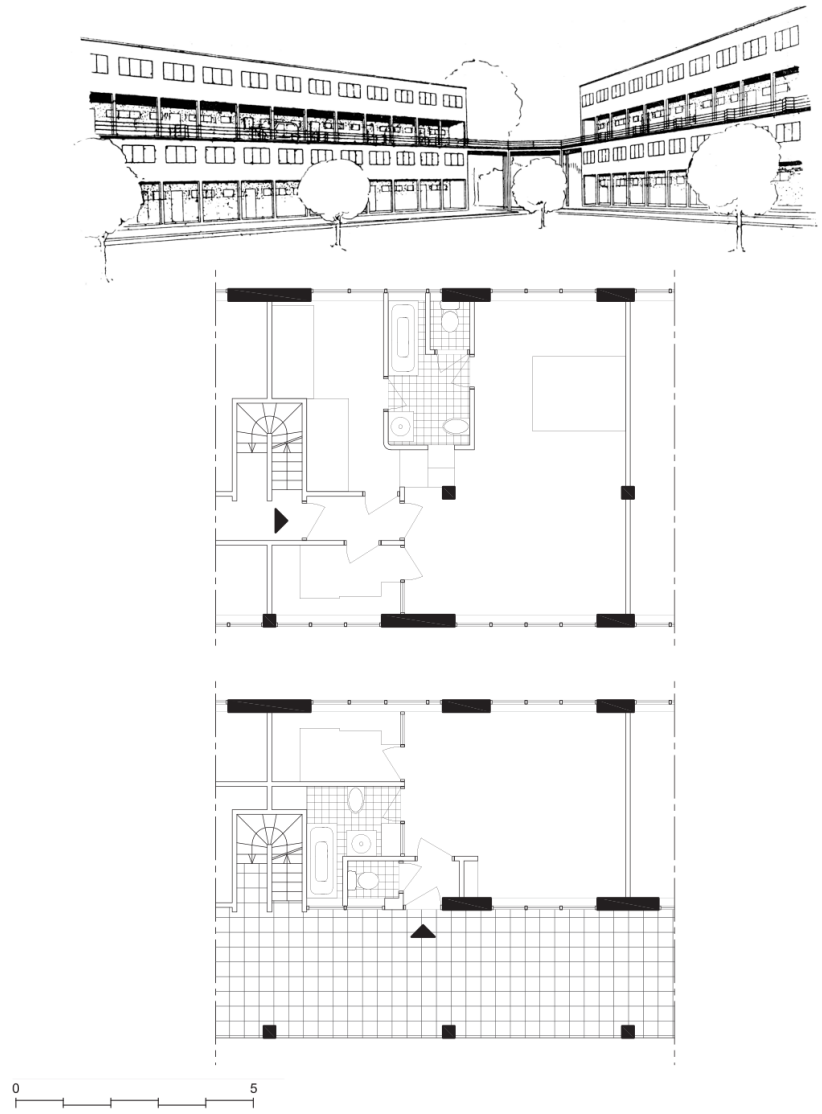



**Figure 4.** Bourgeois, *Project for a garden city*, 1927, later published in *Die Wohnung für das Existenzminimum* (drawings by the author and perspective drawing by Victor Bourgeois; Anonymous, 1929, p. 152)

car-accessible gallery on the second floor (Anonymous, 1929). This gallery gives access to two types of housing: four- and two-person dwellings. Both types are minimal (27.5 and 47m$^2$) and everything is designed rationally, from the narrow kitchens to the 8.8m$^2$ bedroom shared by two children. Built-in cupboards are located throughout the apartments to limit the use of imported furniture. The dwellings are characterized by a complete absence of corridors or hallways. Moreover, there is no separation between the main sleeping places and the living rooms. Finally, the buildings are very narrow (around 7m) to allow as much light as possible in the dwellings.

Later, in his schemes for *Nouveau Bruxelles* (Figure 5), the apartment buildings recall the designs of Ginzburg and Le Corbusier. Each building consists of a simple "neutral structure" enabling a "wide range of spatial arrangements" (Bourgeois, 1931a, p. 396). The first two floors are intended for commercial use. Above, the dwellings are organized in duplexes accessible on every other floor by a wide interior corridor in the middle of the buildings. Wide terraces off the living spaces allow light to enter directly this collective circulation. All modern comforts are foreseen: "rational kitchen equipment", bathrooms, but also a supply line for goods. Finally, gardens, sports facilities, and sun decks are on the roofs.

Both Bourgeois's proposals oppose the traditional Brussels housing type. First, they dismiss the closed urban block that provided front-back positions for each dwelling. On the contrary, the projects display isolated buildings surrounded by greenery, following a north-south orientation as advocated by Gropius (1931). Second, collective living replaces the individual character of the traditional houses, because "the regime of isolated habitations is obsolete" (Bourgeois, 1931a, p. 402; Steinmann, 1979). Hence, individual living is reduced to its core and counterbalanced by a series of collective amenities: laundry, shops, guest bedrooms, sport facilities, solaria, etc. (Steinmann, 1979). Third, the relatively high skyline of *Nouveau Bruxelles* contrasts with the low-rise character of traditional Belgian cities. While the subject of debates on efficiency (Smets, 1977), high-rise residential buildings bear the symbolic mark of the

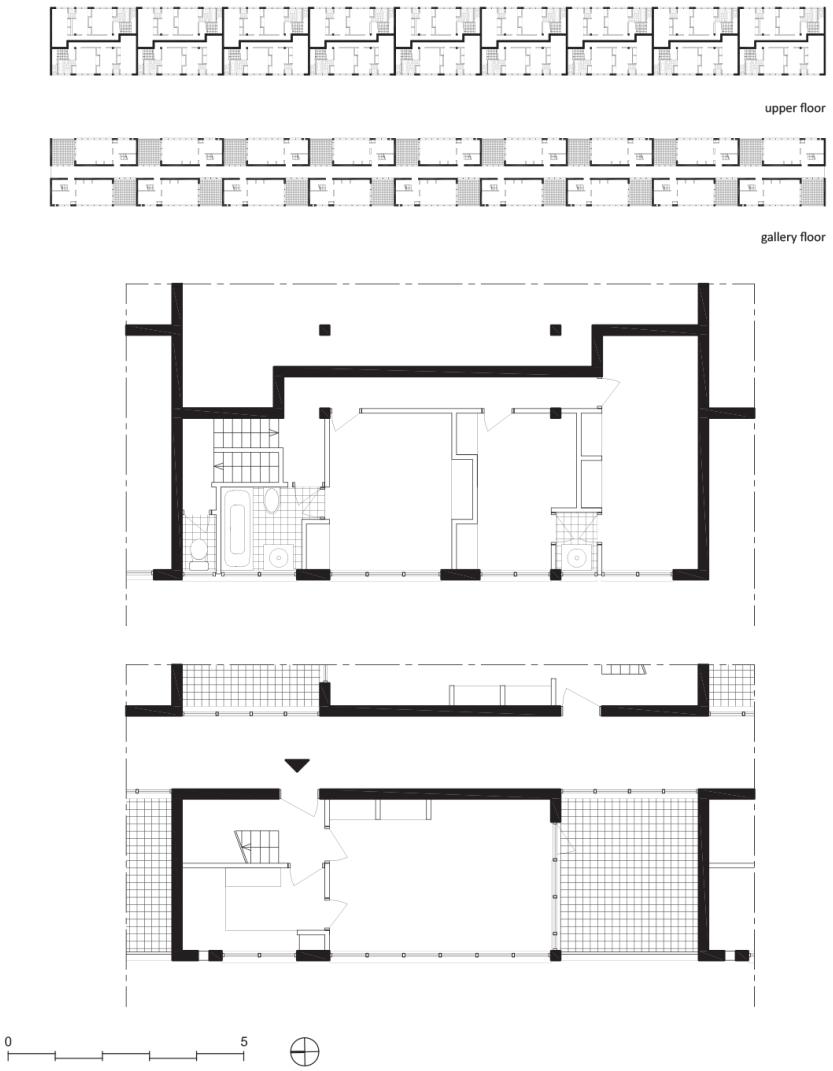



**Figure 5.** Bourgeois, *Le Nouveau Bruxelles*, 1930 (drawings by the author).

proletarian revolution; until then high buildings were reserved for the bourgeoisie (Bourgeois, 1931a). These multi-storey buildings are considered community houses. Finally, Bourgeois's arrangements are defined according to their domestic functions. Each room's dimensions and location are determined by its purpose, which is deduced from ergonomic studies (Bauer, 1934; Steinmann, 1979). Circulation space, too, has to be rational; as Pierre Jeanneret puts it, "economic and smooth circulation is the key to contemporary architecture" (Steinmann, 1979, p. 60).

#### 3.3.2. Etrimo

In terms of housing, the reconstruction period addressed a shortage of about 300,000 dwellings (Noël, 2009). Two major laws attended to this issue, either promoting private property—Law De Taye 1948—or encouraging public housing—Law Brunfaut 1949. A few years later, another regulation—Law De Taye 1953—was passed in order to fight unhealthy living conditions. In addition, from 1956, state interventions were limited to developments of 25 or more dwellings (Schoonbrodt, 1979). This series of laws led to the construction of large estates. In the city centre, mass demolition of working-class neighbourhoods was carried out and, on the outskirts, large properties were sold to provide space for tall and isolated buildings set in green surroundings. Housing was grafted directly onto the newly built road infrastructure (Dessouroux, 2008), allowing people to live among greenery while staying directly connected to the centre. In the public sector, the *Cité Modèle* literally incarnates modernism. It was organized according to CIAM principles as an "island of order and clarity", in opposition to the "chaos" of the traditional city (Strauven & Braem, 1985, p. 75). It was meant to be an autarkic "model", but eventually most of its collective amenities were not built. However exemplary, the *Cité Modèle* remains an exception in Brussels.

Post-war modernism in the housing sector is best illustrated in the private developments of apartment buildings, because of their higher impact on the city in terms of number (more than twice as many dwellings were erected in the private as in the social sector). Beginning in the 1950s, a series of private developers produced housing of exceptional homogeneity that clearly impacted the collective consciousness (Brauman et al., 1982). These developers worked on large lots, chiefly on the city outskirts. Among them, Etrimo stands out. It was founded in the 1930s (Etrimo, 1949) and became a major actor on the housing scene from the 1950s through the 1970s. Its founder, Jean-Florian Collin, wanted to revolutionise the housing market by providing a comprehensive service to "customers", from the purchase of the land to the management of trustees. Etrimo's sales brochures relentlessly repeated the motto: "A dwelling in a park…accessible by car" (Etrimo, 1963). This formula was a resounding success: in the golden sixties, every other person leaving the trade booths had bought a dwelling.

In the 1950s, Groupe Urbanisme—Etrimo's in-house architectural firm—elaborated architectural products that would undergo very few changes. All building configurations were identical apart from variations in the finishing materials according to the social target groups. Collin was a staunch liberal who believed that the key to emancipation was homeownership for all social classes (Collin, 1938). In Brussels alone, Etrimo built over 14,000 dwellings at a pace of more than 1,200 units per year (Etrimo, 1963) in three kinds of estates: villas, bungalows and buildings in a park (Etrimo, 1963, 1965). In general, they consisted of unitary developments on large lots. In the absence of legislation concerning building heights or density, or simply ignoring them when they existed (Broes & Dehaene, 2016), Etrimo negotiated directly with local authorities, playing therefore a decisive role in the second belt development of the city (Figures 6 and 9).

For technical and economic reasons these apartment blocks were generally limited to 12 floors above an underground garage. In the beginning, several common services such as laundries, community rooms and a caretaker's dwelling were attached to each circulation core. The rectangular buildings repeatedly had a north-south orientation, with narrow balconies along their two main facades (Figure 7). Four identical flats, often mono-oriented, were organized around a minimal vertical nucleus in a much broader building than Bourgeois's. This arrangement was replicated two to four times in a row depending on the possibilities of the plots. Several dozens of these identical buildings were built throughout the city.

Etrimo's expansion ended in a resounding bankruptcy in 1970, engendering a new law to protect homeowners from off-plan purchases—Law Breyne 1971. However, the vacuum left by Etrimo was quickly filled by other real estate tycoons such as Amelinckx, Broens and Ruttiens. Their housing developments proved very similar to Etrimo's in terms of dwelling arrangements and consolidated the grip of pragmatic modernism in the city (Figure 8).

Despite its utterly pragmatic plans and identical buildings, Etrimo did achieve one of modernism's heroic dreams at the scale of the city. Indeed, the "buildings in a park" were designed in such a way that only a "maximum of 10% of the lots were built" (Etrimo, 1963, p. 18). Hence, the multiplication of Etrimo and Etrimo-like developments in the second belt of the city (Figure 9) contributed to the elaboration of a park-city of housing, providing "cures of fresh air" for everyone (Etrimo, 1963, p. 16).

## 4. From Innovative Models to Serial Products

Although Bourgeois declared that the 'salvation of architecture is scarcity' (Bourgeois, 1922), it is precisely the

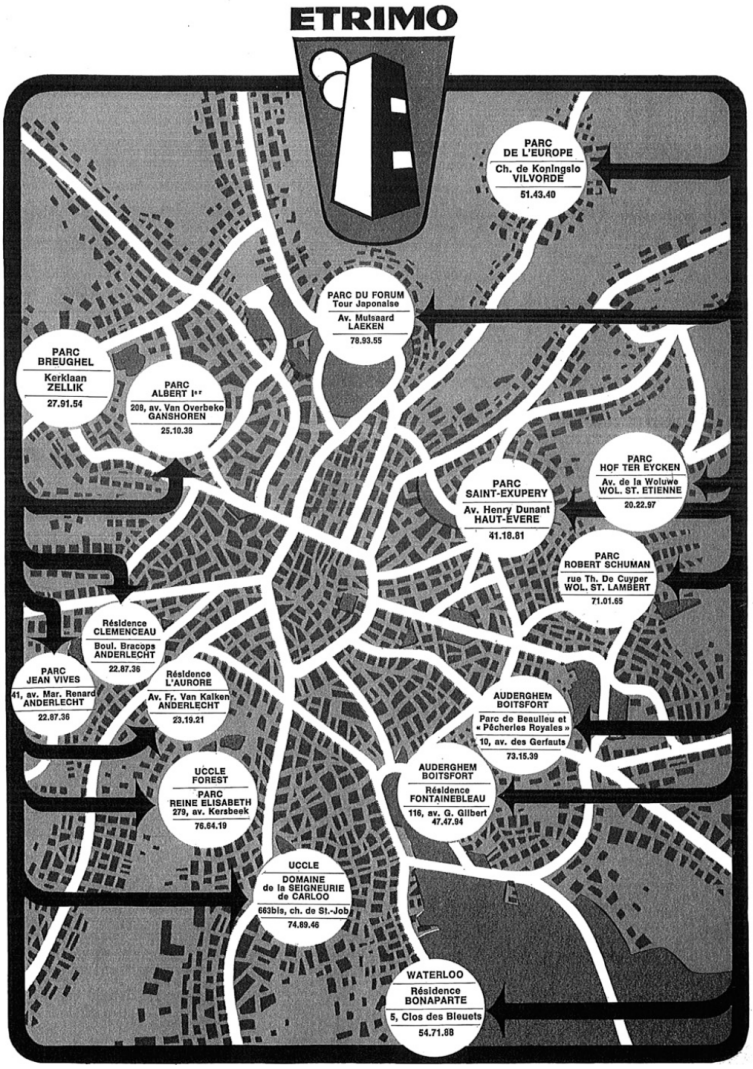



**Figure 6.** Etrimo, *Sales brochure*, 1960s. Source: courtesy of Pol Mertens, a former Etrimo administrator.

lack of economic means and political support that restrained its interbellum implementation. In Brussels, the modernist rhetoric was called upon to (re)construct the city after the war, affecting its territory in terms of urban planning and housing. However, the tangible projects differ from the initial rhetoric.

*4.1. Urban Scale*

The urban proposals of Bourgeois of the late 1920s and the *Manhattan Plan* differ significantly. Firstly, the agendas of the projects are entirely different. While *Grand* and *Nouveau Bruxelles* were meant to fuel the debate over the city's future, private developers saw in the *Manhattan Plan* very real and financial opportunities (Strauven, 2015). Secondly, the programs differ completely. Bourgeois's proposals relied primarily on housing as the fabric of the new neighbourhoods, faithful to the ideas of the CIAM in which dwelling was "the primordial element of urbanization" (Mumford, 2002, p. 90). Conversely, the *Manhattan Plan* was essentially meant as a business district with very little housing. Thirdly, the collective amenities planned in the first modernist projects were "left aside" to produce mono-functional venues deprived of their "original social idealism" (Smets, 1977, p. 148). Fourthly, the project stakeholders also varied. Indeed, modernist pioneers counted on strong public authorities to carry out their ideology. However, post-war projects were usually implemented by private developers because of anaemic urban planning policies designed to line individual pockets rather than benefit the city. Eventually, the tabula rasa advocated by modernist architects was implemented differently. Bourgeois suggested two attitudes: radical (*Nouveau Bruxelles*), and reforming (*Grand Bruxelles*). In the latter, even though an entire neighbourhood is torn down, he acknowledges the city's key axes (such as the diagonal Royal Axis or the *Allée Verte*). Thus, in *Grand Bruxelles*, the city centre was preserved and the "future was left open" (Bourgeois & Flouquet, 1952). The *Manhattan Plan*, however, did not take the city's existing structure into account, only using the

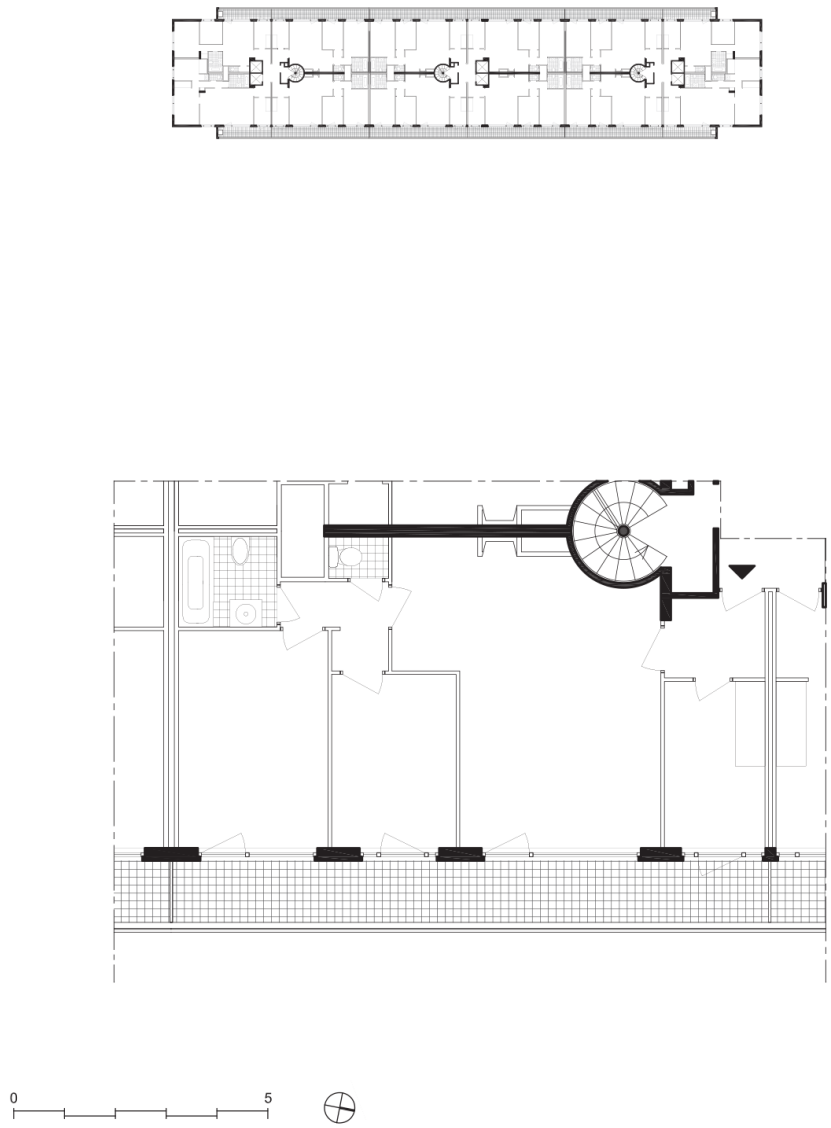



**Figure 7.** Etrimo, *Parc Schuman*, 1964 (drawings by the author).

*Boulevard Jacqmain* as a pretext to build a motorway along its axis. Finally, in the reforming plans of *Grand Bruxelles*, the features of the traditional city (streets and city blocks) were preserved, whereas they completely disappeared in the *Manhattan Plan*. Remarkably, the four functions of the functional city promoted by the CIAM—living, working, recreation and circulation—are addressed very differently by pre-war schemes as compared to post-war schemes. Indeed, while there is a balance between the four functions in the interbellum schemes, the *Manhattan Plan* places particular emphasis on work and circulation.

Similarities, however, also appear. Firstly, both pre- and post-war schemes embody the idea of Brussels as an international capital with all the requisite amenities. Secondly, both tear down an entire neighbourhood in the name of modernity. Thirdly, transport is a key element for both schemes, even though the proportion of public and private transport varies.

### *4.2. Residential Scale*

Real estate developers made use of the ideas of modernism in the field of housing just as in urban planning. However, once again, several differences can be noted. Firstly, the pairing of *Existenzminimum* with a series of collective amenities was never implemented thoroughly. Post-war constructions simply piled up dwellings with little reflection on their collective nature. Secondly, as a corollary, post-war designs display larger dwelling surfaces than do *Existenzminimum*, enabling residents to stay at home rather than inducing them to experience collective amenities. Thirdly, the post-war interior typologies are a lot less innovative than their predecessors were. To reduce the technical shafts, the layouts of post-war apartments usually display clear night-day separations, with bedrooms gathered around the bathrooms and separate from living areas, which is technically efficient but not based on actual dwelling practices. Fourthly,

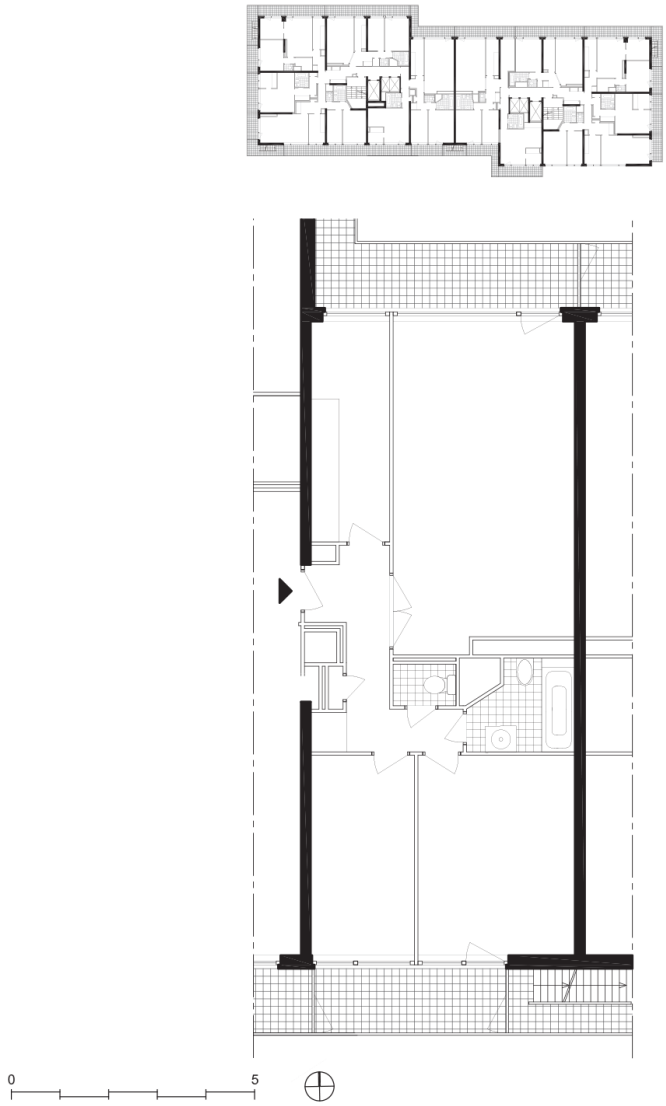



**Figure 8.** Amelinckx, *Héliport*, 1971 (drawings by the author).

all the multilevel innovations developed in pre-war layouts are replaced by mainly single-storey apartments. Finally, post-war buildings are usually a lot broader in order to maximise the number of built square meters and increase profit. These elements indicate a clear shift from inventive design in the interbellum to normative design in the post-war era. To build rapidly and in great numbers, post-war production was organized in series and based on norms (Delhaye, 1946; Mombach, 1948) that confirmed the modernist conception of the nuclear family as the basis for housing production. Nevertheless, despite these differences, post-war housing proved to be much more diverse and innovative in the public sector, as evidenced in the *Cité Modèle* or in the emblematic *Ieder Zijn Huis* in the North of Brussels. The *Cité Modèle* (Bernard, De Pange, Leclercq, & Moutury, 2012) was built in the wake of the 1958 World Fair with the ambition to promote modernity in Belgium. It was built by a team of architects chosen from the country's three regions and obeyed the precepts of modernism to the letter. *Ieder Zijn Huis*, for its part, is a free-standing housing slab built by Willy Van Der Meeren (De Kooning, 2012). The building was originally commissioned to Le Corbusier, who declined, offering Van Der Meeren the opportunity to design one of the most exemplary modernist buildings in Belgium. In both projects, features of the CIAM housing principles can be found: buildings raised on stilts, circulation areas as 'streets in the air', innovative duplex typologies, collective amenities on roof terraces, etc.

Yet, several formal and aesthetic similarities can be noted. Most important, both pre- and post-war housing typologies attempt to contradict traditional types. In Brussels, this is relevant in the morphology of the free-standing buildings, in the dwelling layouts that respond primarily to functions, and in the fact that dwelling becomes a "heteronomous production" (Pinson, 1989, p. 220), that is, completely detached from its future user.

Altogether, this evolution in urban and housing conceptions could be summarized as a shift from innovative models to serial products. The forms of modernism

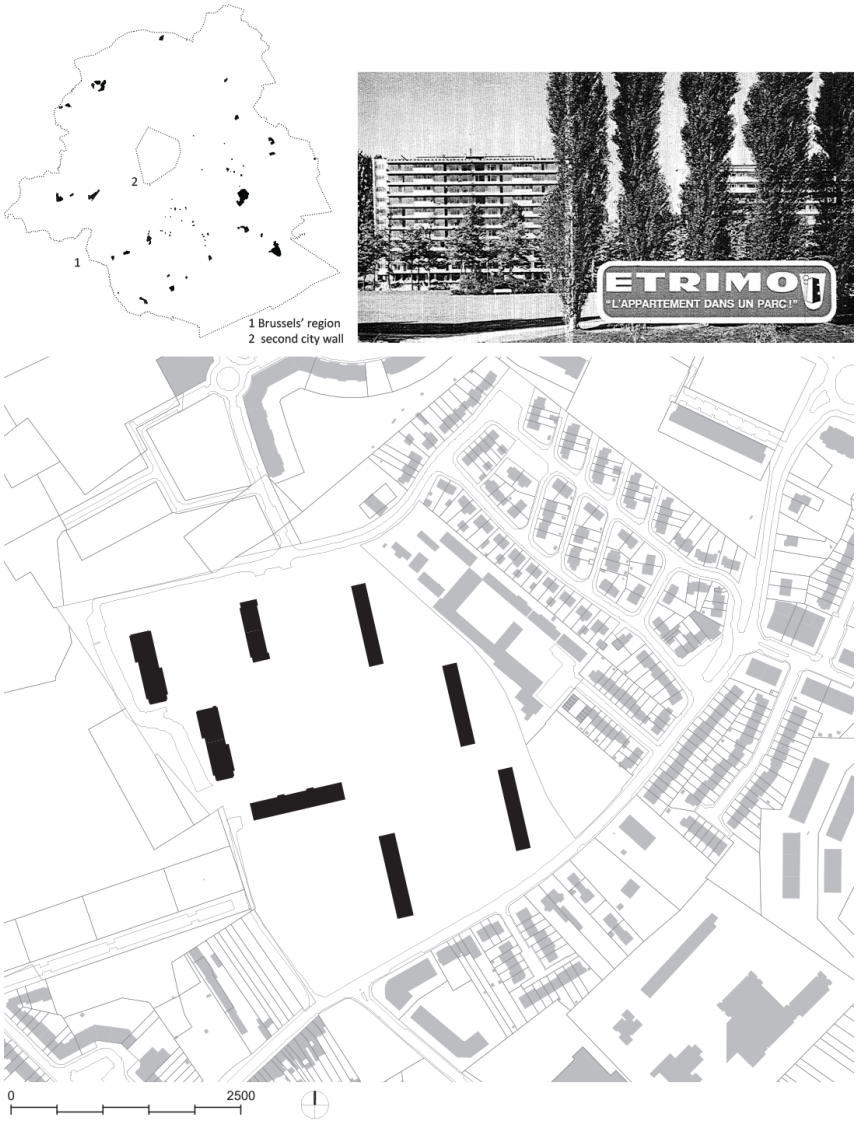



**Figure 9.** Etrimo's parcels in Brussels; Groupe Urbanisme, *Parc Schuman*, 1964 (drawings by the author; advertisement by Etrimo, 1965).

served to give the stamp of modernity to the reconstruction. In the "glorious thirties", rhetoric gave way to pragmatism, and the construction sector was primarily the business of state functionaries and private developers rather than architects. In these conditions, the "buildable replaced the habitable" (Chemetov, 2004, p. 10).

## 5. Conclusion

Modernist ideology turned its back on the conventions of the past, rejecting both traditional urban morphologies and housing types that echoed local conventions. In Brussels especially, pre-war CIAM ideas concerning urban planning and housing opposed the conventional ways of building in all respects. Modernism developed in two main stages in the city (Ledent, 2018). The first phase—heroic modernism—was mainly rhetorical, endeavouring to revolutionise ways of living. But the Great Depression hampered construction in the 1930s and heroic modernism impacted Brussels only marginally. The second wave—pragmatic modernism—relied mostly on systematization and codification, generating products according to norms. It was widely adopted to address post-war challenges but it "had lost its revolutionary meaning" (Smets, 1977, p. 164) and led to a "dull and grey pragmatism" (Beekaert & Strauven, 1971). Although this reading might seem Manichean given that some protagonists were active in both periods and experienced a genuine evolution in their production (e.g., Etrimo), the comparison provides a useful tool to understand the issues of pre- and post-war housing and urban planning.

The CIAMs are exemplary of modernism not so much because they set the tone of how housing and urban planning were to be conceived, but because they were an "effort to more sharply delineate and promote directions already under way" (Mumford, 2002, p. 268). The first four meetings were very successful in the sense of defining the general views of modernism on housing and

urban planning. However, and very paradoxically, while most pre-war CIAM members occupied "key positions in many Government Departments" in their countries after the war (Mumford, 2002, p. 169), they failed to unify their positions in the post-war meetings and put forward the underlying principles of reconstruction.

Two observations arise from the discrepancy between heroic and pragmatic modernism. On the one hand, modernism was diverted and remains therefore an "unfinished project" (Habermas, 1984). The ambitions and the generosity of the initial ideology, and more particularly the collective nature of the urban and residential projects, were left aside. This is mainly due to the stakeholders of post-war projects, who were mainly private. Indeed, as Bourgeois stated, modernism was supposed to serve the "common good" and "supersede private interests" (Smets, 1977, p. 150), but it did just the opposite: it served mainly the interests of large-scale developers that dismantled entire zones of the city. This phenomenon of *Bruxellization* represents this "profit-driven destruction of a city" (Doucet, 2012). Yet however good or evil the stakeholders were, their achievements need to be analysed rather than solely condemned. In addition, this opposition between the two eras could also simply be a sign of evolution in the ideas conveyed by modernism. While the collective nature or architecture and urbanism were prevalent in the pre-war period, individualization emerged after World War II, generating less collective projects.

On the other hand, heroic modernism contained flaws that would be confirmed in its execution. Among these is its relationship to the user. Indeed, while modernist ideology entrusted technique, comfort and hygiene to emancipate humans, its reality proved the opposite. From the end of the 1960s, social crises exemplified the failure of modernism to address the diversity of society (Pinson, 2006). In Brussels, several projects were contested for their inability to generate urban inclusion, leading to the creation of grass-roots movements that claimed the "right to the city" (Patrimoine, 2017). In addition, lulled into the illusion of an undisputed answer to all human needs, modernism left little place for evolution. Its post-war offspring bore the same principles, blocking any possible evolution. Hence, modernist products were often unable to accommodate the variations of cultural conventions and their subsequent practices. These fundamental issues, coupled with the often poor quality of construction and energy consumption, led to a wide stigmatization of post-war projects and hence of modernism altogether. The CIAMs themselves addressed this specific shortcoming in their post-war congresses. In particular, the *Constations* of CIAM 4 which had become "the defining text of CIAM urbanism" (Mumford, 2002, p. 86), reducing urban planning to work, housing, recreation and transportation, became a major fixation. This four-pronged approach was severely criticized after the war by many CIAM members, including those of TEAM 10, who advocated thinking in terms of "living" and "scales of association" (Mumford, 2002, pp. 226–243). From then on, a new trend emerged, giving more attention to neighbourhood, community and people-centred design.

Nonetheless, the modernist project could be reconsidered without prejudice if the initial ideology was distinguished from what was built. Moreover, the actual potential of these projects must be recognized (robust construction, surrounding unbuilt spaces, efficient circulation, well-lit spaces, open views, hygiene, visual landmarks, etc.). Once these are acknowledged, it is possible to act with discernment and "build momentum on their unfinished aspects" (Druot, Lacaton, & Vassal, 2007, p. 91). In this respect, the collective amenities that were left out could be added to the projects, though doing so effectively would require great political will on the part of public authorities. In addition, the design of such supplements should consider actual use. At the scale of housing in particular, attention to use recalls the first ambitions of modernism, which were to guarantee specific, minimum space for the household, alongside collective amenities. Interestingly, this attitude re-emerges in contemporary projects that reduce dwelling to its core while creating communal equipment. For the latter, however, lessons have to be learnt from the past by producing a great variety of dwelling typologies that address society's growing diversity, and creating collective amenities which were but a promise in the modernist project.

These elements point the way toward a possible rehabilitation of modernism through an objective rereading of both its heroic and pragmatic tendencies.

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**Conflict of Interests**

The author declares no conflict of interests.

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Article

# Contested Architecture: The 'Woba' Residential Colony in Basel, 1930

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**Abstract**
In 1930, a housing exhibition called 'Woba' took place in the city of Basel. Unique for Switzerland, the commercial aspect of the furniture industry was complemented by a newly constructed residential colony. In accordance with discussions held one year before at the II CIAM congress in Frankfurt a. M., the *Wohnung für das Existenzminimum* was brought to life. Thirteen architectural offices experimented with different spatial designs in order to develop cheap and hygienic housing for the working class. For one month, some of the houses were open to the public. In the Swiss press, a vivid and controversial debate arose. On one side, its supporters advocated for standardized and rationalized housing as an appropriate way of living for modern individuals. On the other side, conservative forces saw a communist scheme at work in this housing in the style of *Neues Bauen*. By analyzing contemporary press articles on the Woba, this paper shows that the question of society's future was being negotiated through architecture and furniture.

**Keywords**
anti-communism; Baubolschewismus; Hans Schmidt; minimal housing; modern society; Neues Bauen; social engineering; sociology of architecture; Typenmöbel; Woba

**Issue**
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## 1. Introduction

We are on *Im Surinam*, a long, straight street in a flat-roofed residential area at the rear of a railway station on the outskirts of Basel. A lively scene unfolds in front of us. Walls are being repainted, furniture moved around, curtains installed—even an old electric Therma stove has been set up in the kitchen. Entering through the garden, we pass a small shed on the left, and find ourselves right in the middle of the kitchen as we step into the house. Doors lead to bathtub and laundry room, and the modestly furnished living room. It is surprisingly bright for a back-to-back house, even though there is only one large window in the living room. The two bedrooms and small toilet on the upper floor are equally flooded with light, illuminated from above by a carefully placed skylight. We search in vain for wall cupboards or storage space. There is just enough room for the essentials: a bed, a chair, a table, a cupboard. The house is small, very small. A 45-m2 home for a family with two children, including a garden (Figures 1 and 2). It was built in 1930 by Paul Artaria and Hans Schmidt as part of a housing exhibition colony. Today it is inhabited again, and yet open to the public as a museum house, equipped with the original furniture (www.ein-haus-woba.ch).

The small size of this house is programmatic, a prototype for the "low-priced working-class apartment" (Baukommission der Schweizer Wohnungsausstellung Basel 1930, 1929, p. 1). Most working families of the late 1920s lived in poor conditions, crammed together in damp, narrow rooms with little light and ventilation. Hygienists and doctors voiced increasing concerns about such living conditions, and the pressing housing shortage after the First World War prompted a new generation of architects to design a new, better kind of home for the masses. The Eglisee residential colony, which our house on *Im Surinam* is part of, is one of but a few of these projects which actually came to fruition in Switzerland.

Although the street's name evokes images of exotic lands in distant countries, and could give grounds for speculations about exoticizing the flat-roof settlement, the street was formerly called *Gotterbarmweg* and only renamed in 1941 (Schnetzler, 2005).



**Figure 1.** The 'Woba' Residential Colony Eglisee, 1930. Block 8, Artaria & Schmidt Architects. Bedroom, upper floor. Source: Spreng (1930).

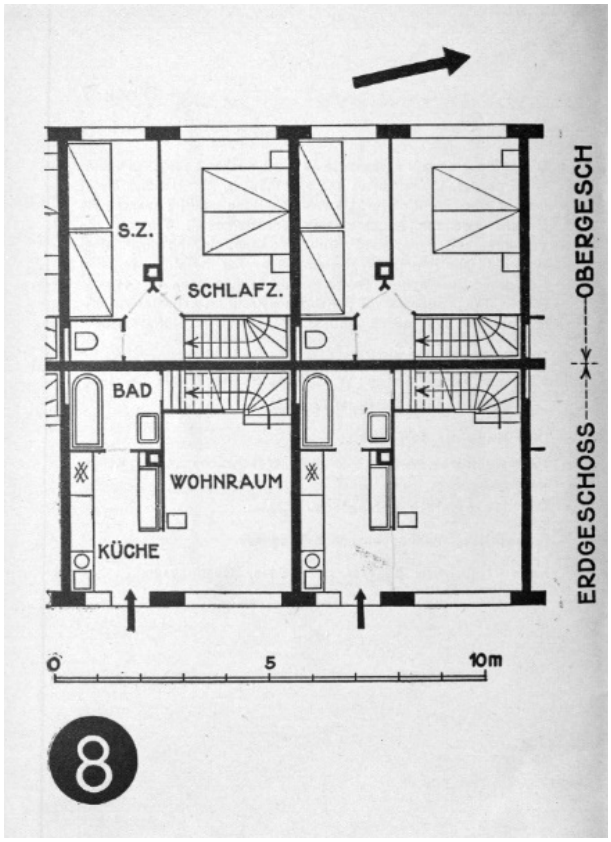



**Figure 2.** Floor plan, block 8. Source: Woba (1930, p. 20).

Construction management for the Eglisee housing project was taken over by the Basel architect August Künzel, who had completed neighbouring cooperative housing projects together with Hans Bernoulli, an important Basel-based architect and city planner. The realization of the Eglisee residential colony marked the endpoint of a larger urban development project of the *Hirzbrunnen* area on the outskirts of Basel (Mooser, 2000; Pola & Frischknecht, n.d.; Wohnbaugenossenschaften Nordwestschweiz, 2012). During the heyday of the cooperative housing movement in interwar Basel, around 250 houses were built in garden city fashion by Bernoulli and Künzel—all of them with steep roofs. It was only in 1928 when Hans Schmidt and Paul Artaria took over Hans Bernoulli's position as co-planners of the housing cooperative's *Lange Erlen* and *Rüttibrunnen* that the flat roof first appeared in Basel's residential areas (Figure 3; Artaria & Schmidt Architekten, 1928; Pläne der Wohngenossenschaften Lange Erlen, 1928).



**Figure 3.** Siedlung Schorenmatten, 1929, and WOBA-Siedlung Eglisee, 1930 ("Siedlung Schorenmatten," 1930).

In comparison to the earlier cooperative housing projects, it is worth taking a closer look at the Eglisee settlement as a special case for two reasons. Firstly, the Eglisee residential colony was complemented by an apartment exhibition in the halls of the *Mustermesse Basel* called 'Woba', short for *Schweizerische Wohnungsausstellung Basel*, which, in addition to showcasing the latest trends in Swiss furniture design, also dealt with historical, statistical and scientific aspects of Swiss housing. Visitors were invited to compare completely furnished rooms tailored to the individual needs of the potential resident, such as the apartment for "The Time Conscious" or "The Growing Family". A makeshift Woba-Hotel, complete with restaurant, bar and a dancing hall, presenting the latest achievements in the hotel business was set up during the four weeks of the exhibition. Secondly, the designs of the permanent housing were considered as experimental and therefore developed by several Swiss architects. The idea was to compare different room layouts and examine their advantages and disadvantages. Thirteen architectural firms were invited to submit designs for an apartment building with three to four storeys, a two-storey single-family house, and a two-

family house (Figures 4 and 5). Basements for the houses were optional, the flat roof mandatory (Baukommission der Schweizer Wohnungsausstellung Basel 1930, 1929, p. 2). The apartment building was supposed to contain around 50 two or three-room apartments and the terraced houses about 70 flats, each with its own bathroom and laundry facilities. The total construction costs were not to exceed 15,000 Swiss francs (Baukommission der Schweizer Wohnungsausstellung Basel 1930, n.d., p. 2) because different housing solutions were wanted for low-income groups.

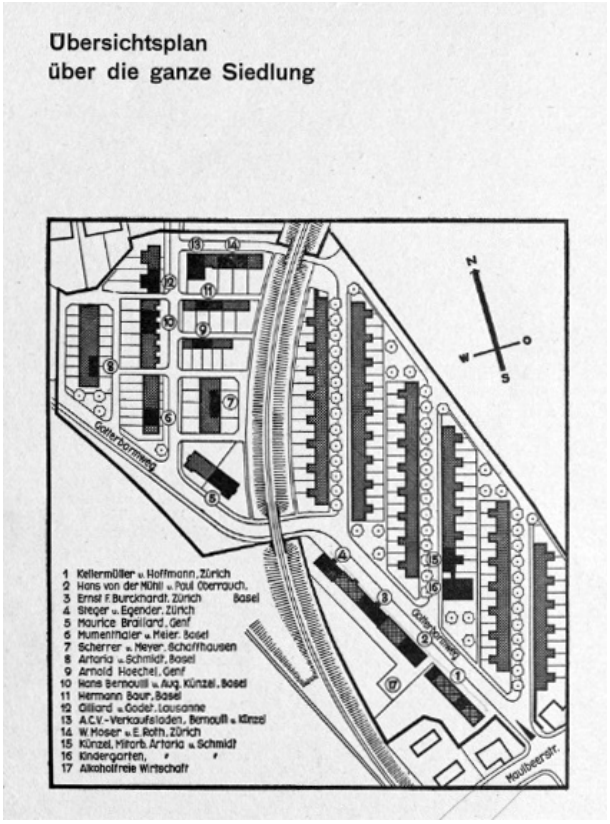



**Figure 4.** Situation plan of the Woba residential colony. Source: Woba (1930, p. 1).

The idea for the 'Woba' was first conceived in 1926 and envisioned as a commercially oriented exhibition that would highlight the dynamism of the Swiss furniture industry (Gruntz, 2016, 2017). The local government agreed to support such an exhibition, and invited Hermann Kienzle, Director of the *Gewerbemuseum* in Basel and representative of the *Schweizerischer Werkbund* (SWB) to draw up a concept. Kienzle's position quickly became clear. In accordance with SWB guidelines, he criticized the furniture industry, which above all, would produce cheaply produced items and decorate them with ornaments in order to sell a bookshelf to people who perhaps did not have more than four books. Kienzle thought that:

> These new simple construction methods and rising manufacturing costs should go hand in hand with a simplification of the furniture. For [artists and architects], furniture is not a showpiece, but a commodity. The comfort and homeliness of a room does not depend solely on the furniture or even on a single beautiful piece, but on the practical design and arrangement of a room.…Today we know the problem of the new home is not merely an artistic one, but just as much a technical, economic and socio-ethical one. (Kienzle, 1926, pp. 3–4, 7–8.)



**Figure 5.** The 'WOBA' Residential Colony Eglisee, 1930. Block 10, Hans Bernoulli, August Künzel. From the garden. Source: Ochs-Walde (1930).

A modern approach, Kienzle proposed, would require furniture to be exhibited in real living situations. By referring to the *Weissenhofsiedlung* by the *Deutscher Werkbund* (DWB) in Stuttgart, Kienzle concluded that an exhibition as proposed by the management of the *Mustermesse* could merely satisfy the commercial interests of the industry. If solutions for a modern form of housing and living were to be sought, then the exhibition at the *Mustermesse* would need to be supplemented by a real apartment, built especially for this purpose (Kienzle, 1926, p. 8). Thus, the idea of a residential colony was born.

## 2. International Context

The Eglisee project should be placed in a larger context, where the exhibition in Stuttgart 1927 can be taken as a starting point. During the 1920s, in a series of exhibitions in Zurich's *Kunstgewerbemuseum*, the topic of adequate living and furnishing was introduced to the Swiss public. It was the exhibition *Das Neue Heim* (The new Home, in 1926), which laid the groundworks for Swiss involvement in the *Werkbundsiedlung* in Germany in 1927. The success of the Zurich exhibition prompted the DWB to invite a group of Swiss architects to design the furniture and interior of six apartments for Mies van der Rohe's house in Stuttgart in 1927 (Bürkle & Eidgenössische Technische Hochschule Zürich, 1994). Based on *Weissenhof* in Stuttgart, further housing exhibition projects by national associations of craftsmen rapidly developed not only in Switzerland with

Eglisee and Neubühl (1928–1932), but in Brno (in 1928), Wrocław (in 1928), Prague (in 1932) and Vienna (in 1932). An important element seems to be the personal connection between the Swiss avant-garde and the project in Germany: seven of Eglisee's architects were part of the 1927 exhibition. Besides, the architecture collective for the Neubühl project in Zurich, which is far better known than the Eglisee housing colony due to Sigfried Giedion's active promotion in the international architecture scene (Marbach & Rüegg, 1990), was formed during the work on the Stuttgart exhibition. These architects, taking part in both projects, were at the forefront of the Swiss avant-garde and well connected with international modernist architects.

Swiss architects were also actively engaged in the *Congrès Internationaux d'Architecture Moderne* (CIAM). Since 1928, modernist architects had gathered at CIAM in order to find solutions for modern housing and city planning. Rudolf Steiger, Werner Max Moser and Hans Schmidt, who worked both on the Eglisee and Neubühl projects, were founding members of CIAM. The architects of various European countries gathering at CIAM thought of themselves as an international movement and sought to coordinate their efforts across national borders. The same year the Eglisee project took off, the II CIAM Congress entitled *Die Wohnung für das Existenzminimum* took place in Frankfurt am Main. CIAM members discussed sociological and biological aspects of housing for the working poor and developed models on how to solve this construction task. As the experience of the Stuttgart exhibition has shown, concentrating merely on new construction methods and materials would not reduce the construction costs to a sufficient minimum. The solution would be the rationalization of the living space (Schmidt, 1930a). Therefore, a touring exhibition was opened in parallel with the congress, which exhibited floor plans of various housing in European cities, including our house *Im Surinam*, providing the public with feasible solutions. The exhibition also found its way to Basel in 1929. The 'Woba' was therefore the practical realization of a much-discussed theoretical problem among European avant-garde architects. This assumption is underlined by the fact that Basel architect Hans Schmidt (1893–1972), who presented a clear construction schedule for the Eglisee residential colony, played a crucial role both at CIAM and the 'Woba' (Steinmann, 1979, pp. 35–71). Schmidt was a pioneer of the so-called *Neues Bauen* in Switzerland, and, together with his office partner Paul Artaria, had been experimenting with various materials and construction methods for several years. Schmidt's basic idea for creating affordable housing for low-income groups was, in accordance with the CIAM conclusions, to concentrate on small living units. The smaller the flat, Schmidt contended, the lower its costs. Yet Schmidt and his colleagues did not simply seek to reduce the size of the standard flat, but to develop a completely new type of flat, an entirely new housing concept (Schmidt, 1965).

For modern architects, the problem of minimal apartments was not just a matter of design, but of social responsibility. The living unit—the *Ration 'Wohnung'*—was to satisfy the "minimal biological and sociological demands of the residents" (Schmidt, 1929, p. 51). "A more compact and at the same time more appropriate layout of the floor plan", Schmidt argued, "changes in the use and size of rooms, and more sensible furnishings make the apartment cheaper without making it worse. On the contrary—saving space saves work" (Schmidt, n.d., p. 3). Typification, rationalization and standardization were key principles for the design of both flats and furniture. This was not just due to ideological or programmatic concerns, but had a practical dimension: conventional furniture was far too bulky for these small apartments. In a series of essays entitled "City and Apartment", appearing in the *Basler National-Zeitung* between February and October 1930 on Schmidt's initiative, he stated as follows: "Are you shocked by the small size of the bedrooms? Please—we've abolished the washstand with marble top and divided the three-part mirror cabinet into two small type-cabinets" (Schmidt, 1930b). A new form of living also required a new kind of furniture.

Behind the discussion on minimal housing, the size of apartments and the right kind of furniture, a much larger discourse loomed. Divergent concepts of individuality, personality and family and especially of the role of women in family and household clashed in these debates. Below, I will show how the question of society's future form was being negotiated through architecture. These debates can be reconstructed from articles of over three hundred Swiss newspapers collected by the 'Woba' office between 1929 and 1930. As my analysis proves, the debates were not only influenced by the architects themselves, but discussed by the general public. These most vivid and emotional reactions to the 'Woba' residential colony reflect that through the questions of new housing concepts for the masses, political discussions and fears were being negotiated.

## 3. Housing is Political

The invention of type-furniture (*Typenmöbel*), a piece of furniture designed for serial production and versatile in its reduction to its basic function (Rüegg & Tropeano, 1995), proved key to the development of a new living concept: type-furniture as the embodiment of a modern way of living, because it gives an answer to the question of how to live in order to develop a new attitude to life. Modern individuals, as it was envisioned, no longer purchased a complete set of furniture at the beginning of their adult life, but instead supplemented it according to their needs and stage of life. Flexibility, lightness and effectiveness were the principles along which type-furniture was to be designed. Apartments would become lighter and less time-consuming, granting their residents more time for relaxation and self-development:

> The practicality of the organization of the space and the form and nature of the furniture is suited to give the gainfully employed person, who in the haste of our work pace consumes himself more and faster, a greater measure of rest, relaxation and recreation, through the comfort provided by simple means and through the linear harmony [of the furniture's design], which has a calming effect on human beings. (St. Galler Tagblatt, 1930a)

The workers' newspaper *Das Volk* argued more militantly. It was the working class in particular which could benefit from the housing reform, as the author of this article writes. Because above all they were the ones suffering under modern production conditions and were increasingly exploited through "accelerated production speed" and "intensified rationalization" (Das Volk, 1930). The home as a space of leisure and recovery thus became an urgent issue in workers' class struggles:

> In dull, grey, lightless tenements, in the midst of uncomfortable furniture that seeks to appear 'noble' by the poorest means: in such an environment self-confidence and proletarian power simply cannot unfold; this is the right milieu to force the worker into resignation, to hold him down in dullness and mental dependence. (Das Volk, 1930)

On the subject of furniture, the question of the appropriate contemporary, modern way of living was being negotiated—not just for the working class. Apartment and furniture were to be a unit, a complementary overall concept, tailored for the life of the modern individual in general. The development of new housing should be based on the furniture itself and not the other way around. Whereas type-furniture was considered as a gateway to modern life, the *petit bourgeois* household with its curtains, decorative blankets, vases and especially the parlour (*gute Stube*), in contrast, became an object of ridicule (Janser, 2001).

In the Swiss press discourse on the 'Woba', there was no agreement on whether the residential colony was a success, and whether it was the appropriate solution for future housing. Whereas *Das Volk* praised the plain design of the furnishings in particular because it would fit in well with the hard sobriety of a workers' life (Das Volk, 1930), an article in the newspaper *Der Bund* criticized the "mini-size apartment" (Der Bund, 1930). Is the Eglisee residential colony really the only solution and should architects approach modern housing only from an economic point of view, it asks. The author's lamentation of the monochrome and monotonous colour palette and the lack of space for personal belongings, refers to two closely related discussions. The first touches the question of aesthetics and already gives an idea of the *Heimatstil* debate coming to its full height during the 1930s. It was less the flat roof, as one would expect, but rather the uniformity of these houses, the monotonous colour scheme and the standardized doors and windows, which did not quite fit the Swiss landscape. "In the future, should these mundane buildings provide foreigners coming from the north with their first impressions of Switzerland?", asked a visiting journalist from the *Emmenthal*. "Our solid and beautiful architecture [Bauart] should not be replaced by this foreign living machine [Wohnmaschine], because our house is still our home" (A. V., 1930). This leads us to the second discussion, which took up much more space than the question of aesthetics. The author of the above-mentioned article in *Der Bund*, further stated: "Yet that is the family's sore spot. After all, what good is the cleanest living machine [Wohnmaschine] if the individual is not encouraged by being somewhat himself?" (Der Bund, 1930). The *St. Galler Tagblatt* went even further by stating that the houses' extreme, oppressive narrowness would ultimately lead to a breakdown of the family unit (St. Galler Tagblatt, 1930b). Marcel Pilet-Golaz, Member of the Federal Council and President of the Honorary Committee of the 'Woba', pointed right at it when he wrote in 1930:

> The apartment—the home—is the foundation of family life, and is the family not the germ cell [Grundzelle] of human society? Society is nothing more than what families are, and families, in turn, are what women—honor where honor is due—and peoples' homes have made of them. (*Schweizer Gewerbezeitung*, 1930)

As these statements show, a strong connection has been made between the well-being of the family and society as a whole. The development of a person's individuality proved key to this concept. The home, and architecture in general, was thus attributed with a "constituent" quality: individuals were formed by their environment, by the milieu they live in. This semantic change was a specific feature of modernity, as Makropoulos (2003) describes it. Architecture was no longer thought of as having a representative function, but as a "constitutive medium of social reality" (Makropoulos, 2003, p. 577). The conservative voices in the Swiss press discourse were therefore worried that if this home, the "germ cell" of society, no longer grants people a sense of security, no longer educates them to individuality and personality, but promotes "egalitarianism"—understood as synonymous to collectivization in a socialist or communist sense—then the entire social fabric is at the risk of collapse:

> If someone lets his individuality be completely replaced by 'class consciousness', he will lose the ability of making his own judgements….Whoever contemplates the complete egalitarianism which reigns both in the terraced houses and in the single-family houses here [in the Eglisee colony], will almost inevitably feel the spiritual monotony, the lack of any personal feeling and experience, like a heavy burden on his conscience….Is there still the possibility of a family life in such an apartment?...*Cliché*-apartment, which will

> have lost its homeliness after a short time of use! This is the ideal of the Marxist 'housing culture' [marxistische 'Wohnkultur'], the 'communal ideal', which finds its greatest impact in trade union and party….The unity of the family will be systematically destroyed and replaced by the communist ideal. These housing colonies provide the means for it. (Solothurner Zeitung, 1930)

The discussion in the press was fuelled by the article "Individualistische oder Sozialistische Wohnkultur?" appearing in mid-August 1930 in *Volksrecht*, a social democratic trade union newspaper. Its author rejected the idea of the garden city as a bourgeois dream of the villa in the park and instead called for the construction of residential complexes with public service features, concluding that, in the field of housing culture, the individualistic principle had to be gradually replaced by the socialist principle (Volksrecht, 1930). A different article took up this argument: "Today's question is: Individualistic or socialist housing ideal! Under the pretense of housing costs and housing comfort, the flattening of people's minds, and the depersonalization of the individual is being promoted". Socialists and "their comrades in arms, the communists" (G. H., 1930) would demand communal housing solutions to forge their political agenda. "As we can see, the question of housing culture should—according to the red brothers—be solved in such a way that the individual housing principle is being transformed into a collective, Marxist-socialist one by means of standardized furnishing". (G. H., 1930). He continues: "Some see it as the style to come, others as a work of Bolshevism that exploits the influence of buildings on people in the sense of depersonalization" (Schweizerische Arbeitgeber-Zeitung, 1930). The author of the article in the *Schweizer Gewerbe Zeitung* struck the same chord, but concluded that there is little to fear, as the brave Swiss housewife and daughter do not let themselves be "depersonalized" so easily (G. H., 1930).

The fact that women played an important role in the design of the family home was reflected in various press articles concerning the 'Woba'. The apartment exerts a decisive influence on women's character and emotions, one author contended (Aargauer Tagblatt, 1930). Particularly in discussions of the innovations of the "kitchen diner" (*Wohnküchen*) and rationalized small kitchen, the use of the housing reform for women was brought up. Financial hardship in working families leads to multiple burdens for women, it was observed: women would work for eight hours, and also have to do the chores when they come home:

> This makes it all the more important that the workers' apartment is designed to be as labour-saving as possible: the woman should not devote all her free time to housework, but should instead be able to relax or at least find time for her children. In other words: small and simple furniture that does not cause much work, a small kitchen, a dining room in very close proximity to the kitchen, in order to prevent excessive walking around but still to avoid living in the kitchen (which is not a living room, but a working room). (Das Volk, 1930)

Another article focuses on the aspect of housework as work in particular. Since the housewife considers her work to be her profession, her workplace must be designed according to the principles of rationalization. Basically, kitchen work can also represent a "production line", in which the "tools" are arranged practically in the smallest space so that the work can be carried out "as effortlessly and quickly" as possible (Luzerner Neueste Nachrichten, 1930). The idea of *Taylorization* and rationalization had left the factories and entered the private home. Surprisingly, the press coverage did not refer to the famous *Frankfurter Küche* invented by Margarete Schütte-Lihotzky in 1926. Rather, it referred to the exhibition in the *Gewerbemuseum* in Basel earlier the year on the "the practical kitchen" (Die praktische Küche, February and March 1930) and the SAFFA exhibition on women's work in 1928. In one article, the author highlights the fact that despite the construction law of Basel, which does not allow rooms smaller than eight square meters, rationalized standard kitchens were being installed in the 'Woba' houses. This refers to an often-overlooked aspect prominently discussed at the II CIAM congress. The main obstacles for the realization of minimized and standardized houses were the outdated construction laws, which did not keep up with the new construction possibilities. That is why much effort was put into this rather dry technical aspect. Schmidt argued in several articles that the task of creating the new "rational minimal housing" (*rationelle Kleinwohnung*) could only be solved in a cost-effective way if existing construction laws and standards were amended (Schmidt, 1929).

The article "Marriage Avoidance and Housing Reform" (*Eheflucht und Wohnungsreform*), written by the 'Woba' press committee itself, built on the earlier argument by Pilet-Golaz. As the title implies, "marriage avoidance" was a legitimate point of consideration in the design of the modern living unit. Many women, especially the "so-called 'modern' ones…choose the freedom of living alone" over marriage, which, as the author stated, was not to be blamed on women alone, because:

> Today's marriage asks too much of the woman. She ought to be a homemaker, possibly a mother and—since the costs of living require it—also working at the same time. Is such versatility ever required of a man? No. He is an earner—outside the home—but an earner only. He does not have to split his powers into a thousand things. (Eheflucht und Wohnungsreform, n.d., p. 1)

If marriage is to become more appealing to women again, then housing must be simplified. Superfluous things

like the parlour should be abolished, dust-collecting ornaments replaced by smooth surfaces, and a practical small kitchen should be provided for quick cooking. All in all, a small apartment would reduce the amount of work, and thus have a positive effect on married life in particular. "The new way of living does not know a worn-out woman; a worn-out woman is always in a bad mood, she does not tie a man to herself" (Eheflucht und Wohnungsreform, n.d., p. 2). Although the article sounds rather progressive, there was no discussion about freeing women from housework. Rather the opposite was intended: a woman's place is in the kitchen, even if it is a rationalized and standardized one. That is where she should carry out her civic duty and contribute efficiently to the stability of modern society—by providing families with functional homes.

As shown, various discourses can be tracked down in the Swiss press coverage of the 'Woba' and they all lead to the question of the form, nature and needs of modern society. On one side stood the idea of the unity of state, family and nation, on the other the unity of party, community and class. The will to reshape society through architecture and interior design expressed by the supporters of *Neues Bauen* was a provocation to many, who saw a communist scheme at work in their efforts at standardization, rationalization and minimization. In his programmatic article *Das Bauen ist nicht Architektur* published in 1927, Hans Schmidt had already proclaimed that building was no longer to be art, but a social task waiting for a solution (Schmidt, 1927, p. 139). *ABC Beiträge zum Bauen*, a Swiss avant-garde architecture magazine co-edited by Schmidt, was framed by the two slogans "ABC demands the dictatorship of the machine" and "ABC fights against the bourgeois era" (Schmidt, Stam, Lissitzky, & Roth, 1927, pp. 1, 12). To Schmidt, the question was not what kind of house was built, but rather, what kind of society. Conservative forces accusing *Neues Bauen* and the political left of "egalitarianism" had correctly identified their opponents' goal: the break-up of the existing order and the creation of a new society. The little man, the worker, men and women—that was the future. Class differences were to be overcome in favour of social justice.

Indeed, the leftist architectural modernists were looking eastwards to achieve this goal. At the same time in Soviet Russia, far more extreme proposals were discussed than in Switzerland. The idea of the *dom kommuny*, the so-called communal houses intended to accustom people to a collectivized life, were starting to be built by the end of the 1920s. The most famous example was the so-called Narkomfin communal building. The architectural structure of the house and the spatial design was supposed to encourage its inhabitants to become accustomed to a collectivized lifestyle by providing them with a communal kitchen, laundry and a nursery, where their children lived and were brought up by professionals. The complex also included a library and sports hall for the New Man's physical and mental cultivation (Buchli, 2000; Cramer & Zalivako 2013). Because of Soviet Russia's pioneering task, the IV CIAM Congress was to take place in Moscow in 1932. Due to the outcome of the competition for the Palace of the Soviets, in which a classicist building won first place, the congress was postponed and instead held one year later on a cruise ship on its way to Athens. This event was a huge disappointment for the international modern avant-garde and made clear in which direction Soviet Russia was heading as a result of Stalinist cultural revolution.

At the end of the 'Woba', Hans Schmidt published an article with the title *Arbeiterwohnungen* (Schmidt, 1930c) in the communist-oriented newspaper *Basler Vorwärts*. Schmidt expressed an extremely critical attitude towards the 'Woba' and drew a gloomy conclusion. The problem of workers' housing, Schmidt wrote, were of the same kind as other problems that one tried to solve "on the ground of today's order". "As long as the workers' apartment remains the 'workers' apartment", Schmidt argued, "and not the apartment for everyone, all efforts in this area will be in vain". The housing question should be understood as an "expression of general necessity" and should therefore be given top priority. The dream of a small detached house was a *petit bourgeois* ideal, not a worker's ideal, and the entire housing question continues to be solved without the worker in mind. "One won't stop solving the housing question of the worker in a petty bourgeois sense until one really makes an effort to know what the modern worker actually needs for living" (Schmidt, 1930c). If conservative forces asserted that a Russian worker's living standard was not even close to the one of a Swiss worker, they should bear in mind that Russia had "acknowledged the task of creating appropriate living and working conditions for an entire society by the means of a systematic approach" (Schmidt, 1930c). By the time Hans Schmidt published these reflections, he already knew that in no less than four weeks he and his family would move to the Soviet Union. Schmidt was not the only one who tried his luck in the East. With the beginning of the first Five-Year Plan in 1928, the Soviet Union engaged many foreign specialists to master the task (Flierl, 2012; Muscheler, 2016; Suter, 1993).

Schmidt and his colleagues were convinced they could change workers living conditions by providing them with good housing. Their self-understanding was very much tailored by a top down perspective on society's problems, a phenomenon described as "social engineering" (Etzemüller, 2009). Etzemüller highlights that exactly this fetishization of order through standardization and rationalization served as metaphors for a functioning society. It was not only a matter that was addressed by the social planning experts, but also discussed broadly and controversially in the general public.

## 4. Conclusions

During the 'Woba', socio-political discourses gained concrete shape in the form of the housing question. On the

one hand, there was the left architectural avant-garde, who conceived of their construction program as a social necessity. On the other hand stood conservative forces, who perceived this kind of architecture as a threat to the social order. The *Heimatstil* debate and the question of *Baubolschewismus*, which shaped the reception of this project, had already been underway previously, as much as the *Neues Bauen* (Dogramaci, 2019; Kohlrausch, 2019), influenced by developments in neighboring countries. Despite claims to a greater international outlook, the German scene remained the main point of reference for Switzerland's architectural avant-garde, and developments in other countries received comparatively little attention (Kuchenbuch, 2010; Rudberg, 1999).

Taking cues from abroad, the Swiss discourse on *Neues Bauen* also spilled over the borders of the federation. The pamphlet "The Architecture Crisis" (*Krisis der Architektur*), published in 1928 by Swiss architect Alexander von Senger (1928), proved foundational for the introduction of racist notions into the international discussion on *Neues Bauen*. With this publication, Von Senger, who regarded the movement as disguised communist propaganda controlled by Moscow, popularized the term *Baubolschewismus*—bolshevism by architecture (Blümm, 2013, p. 25)—which later gained notoriety especially in Nazi Germany. Racist notions soon also became pervasive in Switzerland itself—not least at the 'Woba', which Marcel Pilet-Golaz opened with a passionate speech praising "will, drive and endurance" as inherent qualities of the Swiss people, which prevailed despite war and political upheavals. "These are racial characteristics [Rassenmerkmale]!", Pilet-Golaz declared, "thanks to them there's hope, and through them we will succeed" (Schweizer Freie Presse, 1930).

The discussions that surrounded *Neues Bauen* in Switzerland, for example on the occasion of the competition for the Kunstmuseum Basel (Birkner, 1995, p. 22; Heim, 2016) and the exhibition in the Werkbundsiedlung Neubühl in 1932 (Marbach & Rüegg, 1990, p. 46), have so far been studied exclusively as specialist discourses within architectural circles (Schnell, 2005). Yet, *Neues Bauen* resonated far beyond the architectural scene, evoking strong reactions from all sides of the political spectrum. In 1930, the year the 'Woba' took place, political radicalization in Switzerland and all of Europe had intensified sharply. The political left was deeply fractured, the conservatives unwilling to give up their positions and, in addition to the fear of the 'red plague', National Socialism and Italian fascism gained more and more adherents. My analysis of press coverage on the 'Woba' has shown that the discussion of the architecture and interior design of the Eglisee residential colony was inseparable from such larger social conflicts. The question of what the apartment of the future should look like was closely tied to the question of where the future society should be heading towards. The polarized reception of the 'Woba' reflected the increasingly fractured state of society itself.

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The author declares no conflict of interests.

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Article

# ‘The Towers of Terror’: A Critical Analysis of Ernő Goldfinger’s Balfron and Trellick Towers

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**Abstract**
When J. G. Ballard published his masterpiece *High-Rise* in 1975, many readers in London automatically identified the apartment building that is the protagonist of the dystopian novel as the infamous Trellick Tower at Kensal Town, certainly one of the most controversial and ambiguous figures of British architecture after World War II. Designed by Ernő Goldfinger, the tower, which had recently been completed, was already considered a symbol of the brutality of contemporary architecture, to the point of gaining the nickname ‘Tower of Terror’ coined by its own inhabitants. Actually, in public opinion the nearly twin sister of the earlier Balfron Tower at Poplar embodied all the ills of urban planning and of the housing policies of the post-war reconstruction. The large size of the project, the uniformity of its facades, the presence of bulky stairwells separated from the main volume, connected by elevated bridges and brandishing the big chimneys of the heating system, the complex apartment layouts on multiple levels, and the intensive use of fair-face reinforced concrete are the factors that shape the extraordinary character of this work of architecture, examined in a relatively small quantity of critical writings, despite the building’s widespread notoriety. The Balfron Tower, commissioned in 1963, and the Trellick Tower commissioned in 1966 have become, for better or worse, icons of British public housing policy, and today they are inseparable parts of the London cityscape. Critical analysis of the original project documents reveals how the typological and constructive reflections at the end of the 1960s had reached a level of extreme sophistication and quality, also in the development of large social housing complexes created for the urban proletariat. Thanks to their outstanding constructed quality and the efficacy of their residential typologies, the towers have stood up to the destructive fury of the last few decades, even becoming Grade II* listed buildings. In recent years, they have gone through a remarkable process of social and generational turnover, coveted as investment properties and involved in processes of real estate speculation.

**Keywords**
Balfron Tower; Brutalist architecture; Ernő Goldfinger; high-rise buildings; social housing; Trellick Tower

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## 1. Introduction: A Good Angry Architect

> There are good and bad architects. I’m a good architect. (Ernő Goldfinger, as cited in Warburton, 2006, p. 6)

Ernő Goldfinger was born in Budapest in a middle-class family of timber merchants, the owners of forests and sawmills in Transylvania, then a ‘circle’ of the Austro-Hungarian Empire (Major, 1973). When the empire collapsed, Ernő Goldfinger was sent to continue his studies at Le Rosey, an exclusive college in the Swiss Alps. In the early 1920s he moved to Paris to study architecture at the École des Beaux-Arts. During the years of his training in Paris, he came into contact and developed close ties with leading European architects, from

Le Corbusier to Auguste Perret, whom he always considered his mentor. He spent time in avant-garde cultural circles and was particularly acquainted with some of the outstanding figures of the Rive Gauche, such as Fernand Léger, Amédée Ozenfant, Max Ernst, Man Ray, Georges Braque and Tsuguharu Foujita. After a short but intense experience working in the studio of Auguste Perret, he received his first commissions and completed some remarkable works, mostly interiors of stores and offices. His first commission of a certain importance in England came in 1926, a facade in glass and steel for the Helena Rubinstein store in Mayfair. It was in Paris, however, that he met the love of his life, the English artist Ursula Blackwell. In 1933 Ursula and Ernő were married. That same year, as secretary of the French delegation, he took part in the CIAM (*Congrès Internationaux d'Architecture Moderne*) congress on the SS Patris II cruise ship. After his return, the couple moved to England. Ernő opened a professional practice and Ursula made an active contribution to the intellectual life of London, from their prestigious apartment in the 'modernist' complex of Highpoint I, just completed based on a design by Berthold Lubetkin. Erudite and refined in terms of talent, wealthy and elegant by background, as soon as they arrived in England Ursula and Ernő became regular fixtures of the London intellectual scene. Their surprising fluency in many languages, quite rare in England at the time and an earmark of refined cosmopolitan culture, made them a point of references for many visiting architects. They had long-term ongoing contacts with Eric Mendelsohn and Ludwig Mies van der Rohe. In spite of these close personal relationships with the most important architects and artists of his generation, Ernő Goldfinger would remain an outsider, both with respect to the circles of English Modernism and to the circuit of major commissions. That fact of the matter is that Ernő Goldfinger was often far from diplomatic.

During the war he worked mainly on small projects, including many furniture prototypes, some villas, store interiors and window displays. In 1937, thanks to the personal assets of Ursula, they built what was to be considered their masterpiece: the three houses on Willow Road facing the park of Hampstead Heath. Harshly criticized for its 'unconventional' image seen as lacking in respect for the architecture of the Georgian neighbourhood, in 1996 this complex became the first 'modern' building acquired by the National Trust.

Ernő and Ursula had just moved to Willow Road when the war began. The first year was marked by the German invasion of Poland and the westward advance that would culminate in 1940 with the evacuation of Dunkirk and the surrender of Paris. When Winston Churchill delivered his famous "This Was Their Finest Hour" speech announcing that the battle of France is over and that the battle of Britain is about to begin, London was already being firebombed. Ernő had not enlisted, but was on civil reserve duty, and Ursula was in the nursing corps. The couple, between a benefit auction for the Red Army and some surrealist projects for the Industrial Camouflage Research Unit that had set up shop in their office, worked on a committed pamphlet that already predicted the form of the future city. It was titled *Planning Your Neighbourhood*, and was printed in 1944 by the Army Bureau of Current Affairs. With a good deal of optimism, the two presented their proposal for the reconstruction of areas "heavily damaged through enemy actions and overcrowded and disfigured by slums" (Abercrombie & Forshaw, 1943). The proposal, with particular reference to the Shoreditch district, contains maps, aerial photomontages, and many diagrams designed to visualize the features of the new city, a city "for home, for work, for play," but above all the idea was that anyone, young and old across different social classes, would enjoy living in the "vertical city" (Blackwell & Goldfinger, 1944).

The vertical city, in fact, was Ernő Goldfinger's main fascination, almost a fixation. The dream of a city of skyscrapers was a constant in the visions of architects in the years between the two World Wars. Le Corbusier's iconic image of the contemporary city of three million inhabitants (*ville contemporaine de trois millions d'habitants*) and of the *Plan Voisin* for Paris at the Pavillon des Temps Nouveaux, with 18 and 24 sixty-story skyscrapers, had been envisioned over twenty years earlier, but had remained merely a drawing on paper. Their premises contained the provocative awareness that it was a choice that could not be made in the realm of immediate possibility. The pre-war CIAM main attention was not on the debate on the height of the settlements but on the proposal of *Existenzminimum* units. On his lecture at CIAM II, Walter Gropius touches directly the theme of the high-rise building for the working class:

> Internal structure of the industrial family makes it turn from the one-family house to the multi-storey apartment house, and finally toward the centralized master household...the biologically important advantages of more sun and light, larger distances between neighbouring buildings, and the possibility of providing extensive, connected parks and play areas between the blocks. It thus appears necessary to develop the high-rise apartment building technically, incorporating into its design the ideas of the centralized master household. (Mumford, 2000)

Nevertheless, the material and moral devastation wreaked by war was to make the 'total visions' of radical architects seem much closer to reality than they did just a few years earlier.

Ernő Goldfinger's commitment for the 'vertical city' would return, one year later, in 1945, when he was hired by Penguin Books to coordinate an important mass-market publishing project: the informative publication of the colossal plan for the reconstruction of London presented to the London County Council by Sir Patrick Abercrombie (Abercrombie & Forshaw, 1943), during the bombing of 1943. The project, known as the Potato Plan




**Figure 1.** Illustration from Colin Ward's *The Child in the City* (Ward, 1978).

due to its characteristic cartographic representation, was an injection of labour(ist) hope as an antidote to the program of austerity and deprivation the Conservative Prime Minister Winston Churchill had urged throughout the war. In one of the darkest moments of English history, the city council had approved a visionary, gigantic project. The future metropolis would contain at least 10 million inhabitants and would rise over the ashes and ruins of the agonized capital city. The associated maps illustrated the reconstruction and revitalization of the city by districts, in a 'city of villages,' through localized and specific interventions. The plan called for the construction of local centralities of individual character, density no less than 100 inhabitants per acre, liberation of public space and the concentration of commercial and administrative functions. The edition coordinated by Ernő Goldfinger had the aim of informing the population exhausted by wartime destruction about the basic principles behind the vision of the new capital. The operation, alongside the construction of eight new satellite cities and the tracing of a 'green belt,' called for an arduous reorganization of many residential zones, some of which had only been partially destroyed by the bombs. In practice, many Victorian neighbourhoods of terraced houses would be reconstructed in keeping with a new scheme that involved the conservation only of the monumental buildings, while the services for the population would be inserted in urban parks, with housing organized in apartment blocks of varying height. The faith and enthusiasm with which Ernő Goldfinger promoted the plan of Sir Patrick Abercrombie were total. The general public was emphatically presented with sketches and diagrams of radical 'reconstruction' of the damaged zones of the city. With the motto of "Putting Theory into Practice," as an example, the publication illustrated the almost total replacement of the urban fabric of the Borough of Shoreditch, not far from the future location of the Balfron Tower, in keeping with what had been recommended one year earlier in *Planning Your Neighbourhood*. The attached *Survey of the Present Conditions* shows that the wartime destruction was effectively related with respect to the slums, whose recovery was suggested by making a totally clean slate. The goal was to uproot the dense Victorian city known around the world thanks to the etchings of Gustave Doré (Jerrold & Doré, 1872), in order to install a new idea of the city as quickly as possible. The first priority of the London County Council, after the unexpected Labour victory in

the elections of 1945, was public housing, of course. Time was short and the emergency was clear:

> We all know how the great Russian Plans were actually named by the number of years of work they involved—the Stalin Five-Year Plan—so in due course the County Plan must be divided up into periods and, if we secure sufficient means and powers, we can get for the planners a real confidence that each stage will be completed within a limited and stated time. (Carter & Goldfinger, 1945)

But it was not just a housing crisis; it was also a cultural emergency, that of giving a new image to the city as rapidly as possible, to foster optimism and hope, while making a clean break with the England that existed prior to the war, mired in its traditions and incapable of operating on the front lines of international architecture.

In the years following the war, Ernő Goldfinger began to receive important public and private commissions. An active supporter of the English radical left, he was hired by the Communist Party of Britain to reconstruct its headquarters, as well as the offices and printing plant of the party organ, the Daily Worker. This same period also saw the construction of the Alexander Fleming House at Elephant and Castle for the Ministry of Health, where Ernő Goldfinger was finally able to develop on a large scale the compositional principles previously applied only in individual buildings of lesser size and complexity. In 1956 he took part in the famous exhibition "This is Tomorrow" at the Whitechapel Art Gallery in London, organized by the Independent Group of the Institute of Contemporary Arts. Just a few months earlier, in December 1955, in *Architectural Review*, the up-and-coming young critic Reyner Banham had published his famous essay *The New Brutalism*, which finally sang the praises of the new generation of English architects, of which the young Smithson couple had become the symbol, for personality and talent. The exhibition was structured so as to present the collaborative efforts of architects and artists in parallel, in the manner of the previous *Parallel of Art and Life* in 1953.

Though his studio designed many buildings, and though Ernő Goldfinger was a member of the Royal Academy of Arts and a regular contributor to *The Architectural Review*, his works are overlooked in most publications, and his name is rarely mentioned among the protagonists of the English scene in the 1960s. The remarks gathered at the time of the publication of his first biography reflect substantial agreement regarding his extroverted, often irascible and arrogant personality, aptly garbed in his refined and unconventional elegance that bore little comparison to either the established generations or their more alternative successors. Brandishing a strong foreign accent, a mixture of Hungarian, German and Polish, he proudly displayed his stateless background, nonchalantly provoking the most wretched and indecorous reactions. Among them one has gone down in history, namely the argument with Ian Fleming, who perhaps mostly by chance had called the villain of his *007*-episode of 1964 Auric Goldfinger, a rather veiled tribute to the despised architect who was his neighbour in Hampstead. Auric was a "fearless, alcoholic, womanising, psychopathic fictional character" (Duncan, 2015), and like Ernő he was of course a Marxist Jew who had migrated from an eastern country and then become a British citizen. Ian Fleming, who in the same novel had saddled his female protagonist with the ribald name of Pussy Galore, was no stranger to sexist and racist pitfalls, and bigoted remarks of all kinds. The affair ended up in court, and above all on the pages of the tabloids. Ernő Goldfinger demanded a sizeable sum for damages, to be contributed to the socialist cause of the *Daily Worker*. The judge awarded him only a few free copies of the novel in question.

In 1963 Ernő Goldfinger was commissioned by the London County Council to design the first large subsidized housing tower, the Balfron Tower in the East End, which five years later would be replicated with the construction of the Trellick Tower (Figure 1) in the north-eastern part of the city. Imagined as the concrete achievement of the dream of reconstruction of greater London over the ruins of the war, the towers were built too late, when the visionary thrust of the initiative had faded, and when it was already clear that the social policy of segregation of the disadvantaged classes in peripheral zones would not be able to tolerate settlements of such size outside institutional control. Violently attacked by the popular press, Ernő Goldfinger's towers became the symbol in the 1980s of the vanity and cynicism of architects, a scapegoat for the conservative disengagement from urban policies of social integration. Not until the gentrification of the industrial districts of the outskirts of London and the revaluation of public resources were the two towers finally able to achieve their real mission, that of becoming a symbol and model for a 'different' idea of the city. Today, protected by heritage regulations, they have cast aside the dreadful nickname of the 'Tower of Terror' and have become coveted places for life and work (Figure 2).

During the last years of his career Ernő Goldfinger moved his office into Trellick Tower. When he finally decided to go into retirement, he made certain that his recommendations would have a suitable place in order not to be forgotten. Today over 500 boxes of notes and correspondence are catalogued in the archives of RIBA.

Ernő Goldfinger died in 1987 at the age of 85 in his house on Willow Road, without being able to finally see the later appreciation of his dream of a lifetime: to construct a vertical city.

Ernő Goldfinger's personality is so fascinating and his character so intrusive that no publication on his work has managed to break away from his personal biography. His character theatrically represents the cliché of the British architect, poised between aristocratic decadence and great social passion (Cadbury Brown, Dunnet,

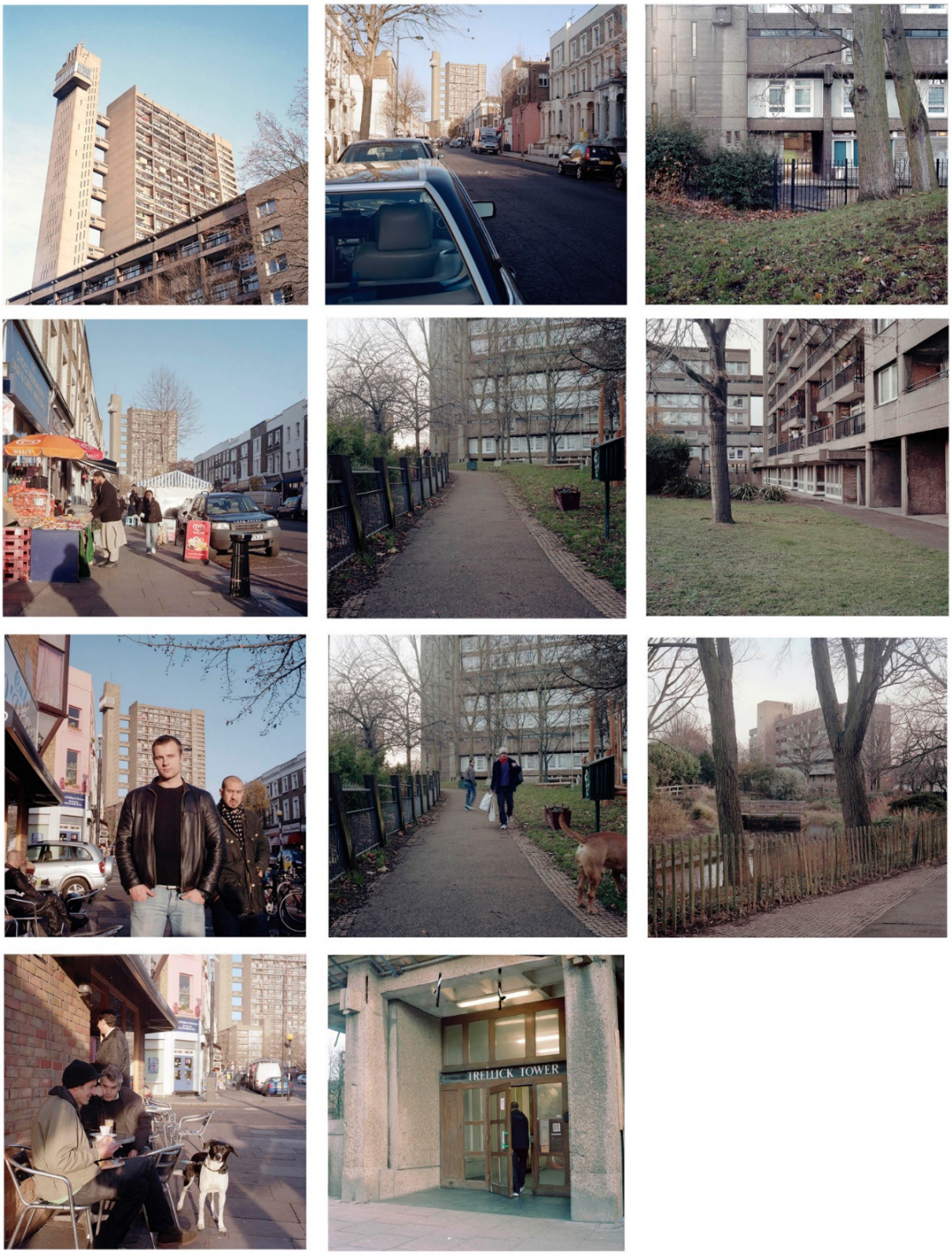



**Figure 2.** Anna Positano 2012, Trellick and Balfron Towers. Images courtesy of Anna Positano, Genova.

& Winter, 1982; Stamp, 1982). His architecture has often become the stereotypic illustration for political and social debate on residential development and urban policies. This damnation has, until now, kept architectural historians away from an exhaustive treatment. However, it attracted critics, novelists, anthropologists, political and social scientists. A narrative approach of the architect's micro-stories is nevertheless a way to understand and transmit many reasons for his prodigious architectures. Perhaps more than just another archival research.

It is indeed surprising how much the Ernő Goldfingers works have been the object of a relatively modest scientific literature (Hofer, 1992) compared to the great notoriety and attention that has always had on the popular press. In the last twenty years little has been published on them (Dunnet & Stamp, 1983; Elwall, 1986;

Major, 1973) with the exception of fleeting passages in some scientific work which, however fundamental, treats the question in general terms (see, among others, Glendinning & Muthesius, 1994; Harwood, 2015; Higgott, 2007; Powers, 2009; Swenarton, Avermaete, & van den Heuvel, 2014). Concerning the preservation and restoration of the Grade II* listed buildings, only few specific contributions on the two towers have been published to date (Crawford, 2015; Dunnett, 2015; Mark, 2015; O'Rourke, 2001, among few others). A large number of volumes and texts have instead proliferated, some of these almost self-printed, others in form of popular article for glamor magazines, divulging press, coffee table books or non-scientific blogs (Beanland, 2016; Calder, 2016; Campkin, 2013; Chadwick, 2016; Cohen & Rustin, 2008; Hatherley, 2012; Orazi, 2016; Phipps, 2016, among others). It is symptomatic that the main source of easily accessible documents, not only for fans and onlookers but for researchers too, is an open website, part of outstanding doctoral research at the Bartlett School of Architecture (www.balfrontower.org).

## 2. Non-Functionalist Realism and Objectivity

Ernő Goldfinger usually presented his projects by concentrating on the analysis of the problems to be solved and the operative methods through which to satisfy primary needs. He described the forms of architecture and the techniques of its construction as tools of efficiency and efficacy. Without compromises, he laid out the reasons for every choice and each solution formulated, leaving no margins for the expressive side of his work. He despised the sophisticated language of art critics, and at the same time he avoided constructing the discussion through intellectual underpinnings. He emphasized the technical and social aspects, without delving into the subjective choices. Throughout the span of his career, besides some letters and specific contributions, he basically published only three essays in a series for *The Architectural Review* (Goldfinger, 1941a, 1941b, 1942), in 1940–1941. They were analytical reflections of a general character on the perception of urban and architectural space, setting out to define a working method on different scales. Though they are interesting for the originality of the approach, they do not explicitly reveal the intellectual universe of their author, and they manifest—together with the inevitable self-citations and considerations on the psychology of perception—the usual figurative repertoire that was the reference for architectural culture in the first years after World War II (Goldfinger, 1948). The many interviews granted to the generalist press (Warburton, 2006) reveal a concrete approach and an explicit intention to raise questions in a 'realistic' and 'objective' manner. Realism and objectivity, after all, are the straight track that constantly guides the work of Ernő Goldfinger, leading to its maximum concrete expression in the construction of the two towers in London. *Realism* is significantly the name of the *Journal of the Artists' Group of the Communist Party* (Berger & Goldfinger, 1955), an organization with which the architect had ties, though he was never an active member, ever since his arrival in England, and for which in 1946 he designed the headquarters and the building of the official party organ, the *Daily Worker*.

The realistic approach of Ernő Goldfinger is without formal compromises or stylistic mediations: The plastic and expressive force of architecture lies in constructive principles and the intrinsic reasons of materials. This is an extreme interpretation of the principles absorbed during the years in Paris in the atelier of Auguste Perret, more than an exalted interpretation of Le Corbusier's collection of essays *Vers une Architecture*, from 1923. The primary, constant principle, from the works of the early years, is the tension between the simplicity of the individual elements, geometric forms shaped by the essential functions to be performed, and the complexity of their composition, an assemblage of mechanical components to be left visible. Ernő Goldfinger stubbornly rejects any decorative element, any superficial cladding, radically pursuing this principle, to the point of categorically excluding any colour, any facing, any treatment that is not the result and expression of the constructive system (Goldfinger, 1955a, 1955b, 1955c). There is a clear tribute to Auguste Perret (Goldfinger, 1954, 1955a, 1955b, 1955c, 1975), about whom Ernő Goldfinger wrote several essays over the years, leaving the translation of his aphorisms incomplete: "He transformed reinforced concrete from a structural system like the steel frame into an organic element of a new architecture with its laws of monolithic continuity, different from any that came before" (Goldfinger, 1956). Works of architecture thus become perfect legible rational machines, in which the parts of the layout, the individual cells, the communal parts, the open spaces, services and installations, conserve their material and formal autonomy. An autonomy that is consistent not only with the useful function, but also with the symbolic mission to be carried out.

Eric Mendelsohn, in a letter in which he sent his congratulations for the series of articles published in *The Architectural Review* in 1940 and 1941, hailed him as a "guard of functionalism, pure and true" (as cited in Walburton, 2006, p. 119) Ernő Goldfinger responded:

> With regards to functionalism pure and true I think you are completely mistaken about me, if you associate this term with the efforts of some of your friends. I have been fairly unpopular for the last ten years amongst these very advanced gentlemen as I still believe that architecture is an art, although not of the order termed dynamic propagated by some other friends of mine. (Warburton, 2006)

The non-functionalist realism of Ernő Goldfinger implied the focus on defining the relationship between the concrete necessities of the building and its 'urban decency.' A decency that at the time of the construction of Willow Road had been hotly contested by the commission of the

Borough of Hampstead, and had prompted the protests of the inhabitants of the affluent district, due to its long panoramic ribbon window, the presence of fair-face reinforced concrete and its squared forms. At the end of the 1950s, precisely on the subject of facade design, Ernő Goldfinger pointed out in a letter:

> The character of Eighteen Century domestic architecture resides in the rhythm of its façades: ground floor, *piano nobile* and two or three upper floors. That is to say, the balancing of their horizontal rhythm of function with a vertical system of windows. This no longer exists in modern institutional, commercial or domestic buildings....What is needed is to marry our new structures with our new functional requirements to the fact of urban decency. (Goldfinger, 1958)

The facade is an element of the composition, not the mechanical result of the functions it contains: "It is my belief that the function of a facade, from the aesthetic point of view, is not to 'express' something which is behind it, but to form the enclosing vertical membrane of the street (Goldfinger, 1957a). This is a clear position, intended to reassert the autonomy of the facade with respect to the mechanical function of the building and, therefore, the role of the architect as an artist. In continuity with the urban tradition of London, the facade is thus an element that has to civically belong to the city, designing the rhythm of the streets and defining its decorum.

The composition is thus a process of assemblage of independent, completed elements. Elements whose forms have been studied down to the smallest details, not in order to indulge in the pleasure of geometry as an end in itself, but in order to fully respond to concrete objectives, in which he believed more than in any 'aesthetic consideration.' In this compositional attitude, we can perceive the 'objective' approach to the questions raised by the architecture.

On many occasions, Ernő Goldfinger indicated Auguste Perret as his spiritual mentor, alongside Le Corbusier and Hermann Muthesius as the intellectual reference points for his work.

Regarding Le Corbusier, the debt is evident in the figurative repertoire, the compositional choices, the details, the parts of the construction:

> This book [Vers une Architecture] had such an enormous effect on me....Then, it appeared to be something quite different from what we had before. Here was Le Corbusier advocating aeroplanes (sic) and motorcars and whatnots, and this was of course a terrific revelation for me. We are going 'towards' an architecture; that's all it is. Not a new architecture, not an old architecture, but 'towards' architecture. (as cited in Pidgeon, 1980)

As for Hermann Muthesius and *Das englische Haus*, "the most fundamental book on British domestic architecture", he wrote in a letter to Ernst Plischke dated March 1965, the question is less predictable (Warburton, 2006). The stated intent and commitment made in his time by Hermann Muthesius (1904) was to define, with "realism and objectivity," the features of a 'new house,' the fulcrum of a new salubrious 'bourgeois' life, re-introducing from England two specific and original characteristics of German construction: *Raumplan* and *Handwerk*. The legacy left to Ernő Goldfinger by *Das englische Haus*, observing the works of architecture it contains, is not immediately clear. The question demands a reflection which Ernő Goldfinger leaves enigmatically open in an interview conducted by Monica Pidgeon in 1980:

> My family was a family of lawyers, doctors, business people. None of them were interested in architecture. But in 1917, when my father came back from the war, in Budapest, he commissioned a wonderful architect to design a house for him, on a plot which we had already on a mountain overlooking the Danube. And in order to interest my father and mother, who had no interest in architecture, he bought them a book called *The English House* by Muthesius. My mother wasn't very interested in it. My father was busy otherwise. It somehow became the centre of my interest. And since 1917 to this very day, I have the three volumes of Muthesius' book which is the most authoritative history of the English house. I didn't know much about what architecture was. (Pidgeon, 1980)

Pidgeon co-edited the first complete monograph on the work of Ernő Goldfinger, released in 1963 by *Architectural Design* (Lowrie & Pidgeon, 1963), containing segments of a long-filmed interview, where lots of space is devoted to the primary book of his background, namely *Das englische Haus*.

*Das englische Haus* was thus acquired in approximately 1916 by Oscar Goldfinger, Ernő's father, to prepare for his meetings with the architect Àgoston, probably the Emil of the *Astoria Hotel* and thermal baths, hired to renovate the family home recently purchased on the slopes of Gellert Hill, just outside Budapest. The book was to pursue Ernő Goldfinger like an enchantment throughout his life, first in Paris and finally, emblematically, in London. In effect, the compositional principle of independent parts that guides the English residential architecture described and illustrated in all its details by Hermann Muthesius is the matrix behind Ernő Goldfinger's 'objective' method.

Muthesius—probably for the first time associated with architecture (Frampton, 1980)—uses the term *Sachlichkeit*. In the histories of art and architecture *Sachlichkeit* is generally translated as 'objectivity,' which leads to not a few misunderstandings (Benevolo, 1960). We should remember that the literal meaning is: "that which belongs to the essence of things," therefore 'realistic,' not to be confused, in any case, with *Wirchlich* (Reichlin & Steinmann, 1976). The 'rational objectiv-

ity' admired here is defined by the "absence of style" (Muthesius, 1904) that, for Hermann Muthesius, is a characteristic of the English 'country' constructions, which are the entire focus of *Das englische Haus*. The principle of *Sachlichkeit* is that of "a harmonious elegance based on the functional and the essential" (Muthesius, 1902). In the dwelling we can see that severe and scientific *sachliche Schönheit* derived from principles of practicality and hygiene that the 'modern' architects would admire shortly thereafter, with amazement, in the constructions of the transport and industry. On a par with Ernő Goldfinger, Hermann Muthesius is not fascinated by the functional aspect of the new constructions, or more precisely he is not interested in the external reality produced by the world of the machine. The honest *Sachlichkeit* belongs to the deeper, intrinsic essence of the construction, its acquired meaning and characteristics of generality confirmed in the repetition of forms and habits:

> Architecture, like all other artworks, must seek its essence in content to which the external appearance must adapt. We must also insist that its external form serve only to mirror this inner essence, whereby the kind of formal detailing, the 'architectural style,' plays a minor role—if it is not wholly insignificant. (Muthesius, 1902)

This is the principle of *künstlerische Enthaltsamkeit*, which might be effectively translated as 'artistic reticence':

> On the path towards the absence of ornament, towards concreteness, bare simplicity, a *Zeitgeist* is explicitly marked, defined by a scientific nature, research, incisive thinking, the framing of the masses in a single unitary order. This is precisely the spirit of our time....Individual labour passes into the background, precisely as the individual has to subordinate himself to the society. Though all this unfortunately produces a loss of individual personality, we must consider the positive advantages that can be gained in other directions. (Muthesius, 1917)

According to Muthesius (1904), the English house fully responds to the problems of mass housing, thanks to its characteristics of essential simplicity: "English houses, as we can see, are reduced to the essential and adapt to any circumstances." Likewise, particularly with reference to the architecture of C. F. A. Voysey, he observes that contemporary architects "limit themselves in simplicity and conserve an imprint of primitivism" (Muthesius, 1904).

These characteristics of essence and simplicity are not determined only by matters of economics and functional efficacy that can be provided by mass production, but also by the widespread involvement of the society in the problem of housing. The antidote to superfluous ornamentation and style is the continuity offered by craftsmen:

> The Englishman builds his own house, by himself and only for himself. He does not take aspects of image into consideration, the possibility of holding parties, and nothing could be further from his mind that the idea that the house should display itself, for its external appearance. He avoids drawing attention to the house with eccentric forms or excessive architectural decoration, just as he feels seem out of place in extravagant apparel. (Muthesius, 1904)

The explicit goal of Hermann Muthesius was to bring the concept of the free layout, the *Raumplan*, into Europe, namely the architectural composition as the sum of independent elements. In the case of the residence, the elements are the various rooms.

The second book of *Das englische Haus* begins with a famous quotation, the maxim of Francis Bacon: "Houses are built to live in, and not to look on" (as cited in Muthesius, 1904). This motto sums up the essence of the concept of *Sachlichkeit* and, definitively, well exemplifies the 'elective affinities' between Hermann Muthesius and Ernő Goldfinger.

### 3. Bush-Hammered Concrete and French Fizz

In 1962 Ernő Goldfinger finally received the commission from the London County Council to design and implement a public housing facility on a large, complex scale. The area selected for the project, along Rowlett Street in the industrial district of Poplar, was far from ideal: to the north it contained the access to the busy Blackwall Tunnel, and around it stood formless industrial construction and some disorderly lines of Victorian row houses. Poplar is known for having welcomed a large Scottish community in the previous centuries, attracted by the waterfront operations at the nearby West India Docks. Balfron—the name given to the tower—is in fact a suburb a few kilometers north of Glasgow.

Ernő Goldfinger's plan called for the construction in phases of residential blocks of different heights, organized orthogonally in such a way as to result in a unified complex: the Balfron Tower, two relatively lower volumes—Carradale House and Glenkerry House, respectively 11 and 14 stories in height—and a set of other service buildings and special residences, including a straight volume of two-story homes set aside for senior citizens. While the Glenkerry House is a smaller copy of the Balfron, the Carradale House is composed of two asymmetrical volumes connected by means of the elevator shaft. The three imposing towers, two of which display the chimneys of the heating systems, the four smaller turrets of the service stairs, the elevated walkways for access to the apartments, the raised footbridges for access to the reinforced concrete gates, the houses for senior citizens and the communal facilities are arranged orthogonally and connected to form a collective identity. The arrangement of the volumes constitutes a true urban structure in which different levels intersect and public spaces are organized (Figure 3).

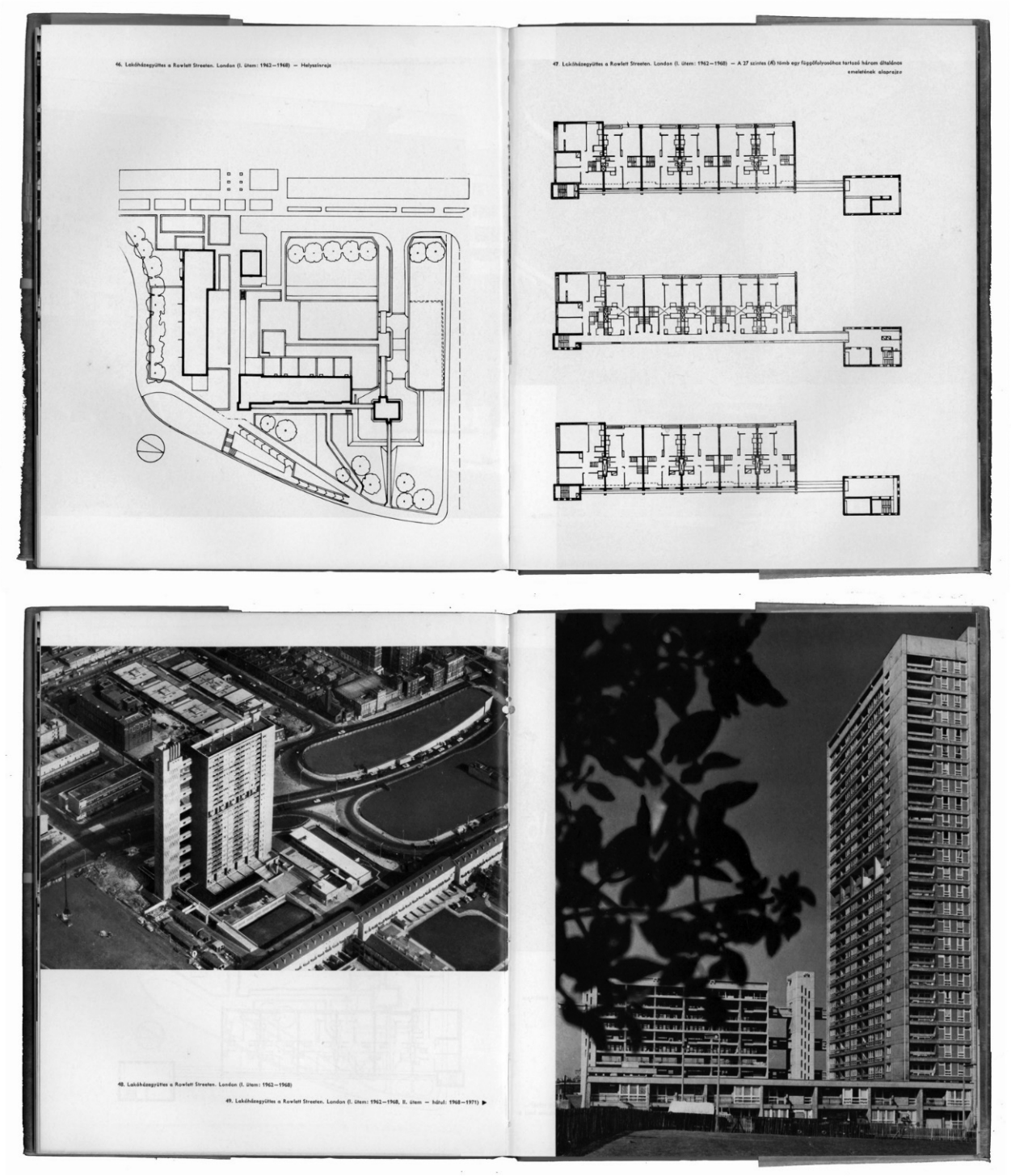


**Figure 3.** Major M. (1973), *Goldfinger Ernő*, Akadémiai Kiadó, Architectura sorozat, Budapest.

The imposing bulk of the buildings, marked by homogenous materials and the repetition of equal modules, conveys the martial image of a fortress that stands out with its compact presence against a formless part of the city, where Victorian row houses alternate with empty spaces, infrastructures and industrial sheds.

At the time of construction, the Balfron Tower, with its 27 floors, was the tallest public residential building in Europe. The project was done in three phases, over a span of eight years, from 1964 to 1972, when across the city in North Kensington a 'twin' was already under construction, the Trellick Tower, commissioned by the Greater London Council in April 1966. Shortly thereafter it was to rise even higher (Goldfinger, 1957).

The Trellick replicates the urban scheme of the Balfron, but in this case the main tower is directly connected to a seven-story volume, rotated by 90 degrees, containing shops on the ground floor (Figures 4–9).

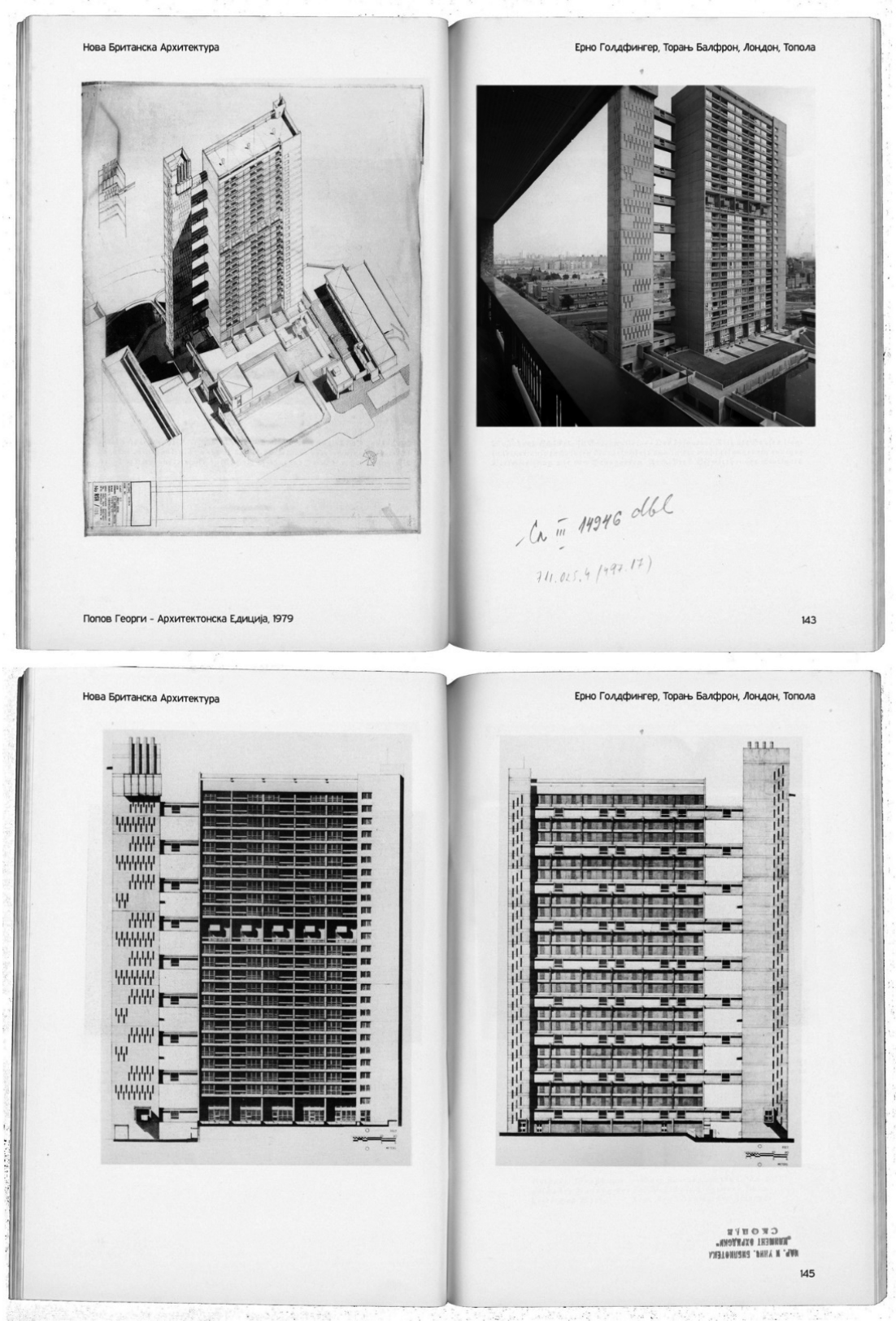



**Figure 4.** Georgi P. (1979), *Nova Britanska Arhitektura*, Architektonska Edizia, Novoselo.

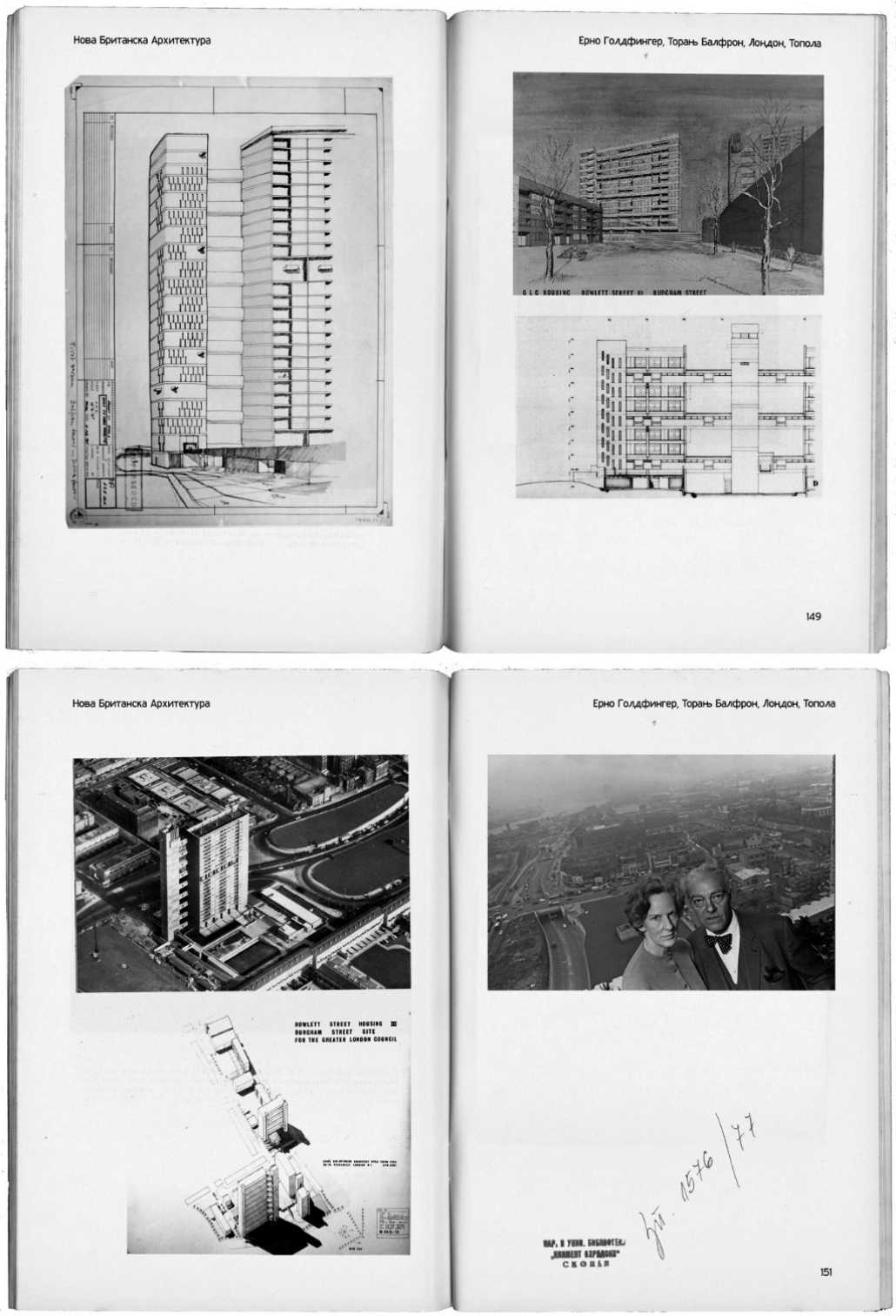



**Figure 5.** Georgi P. (1979), *Nova Britanska Arhitektura*, Architektonska Edizia, Novoselo.

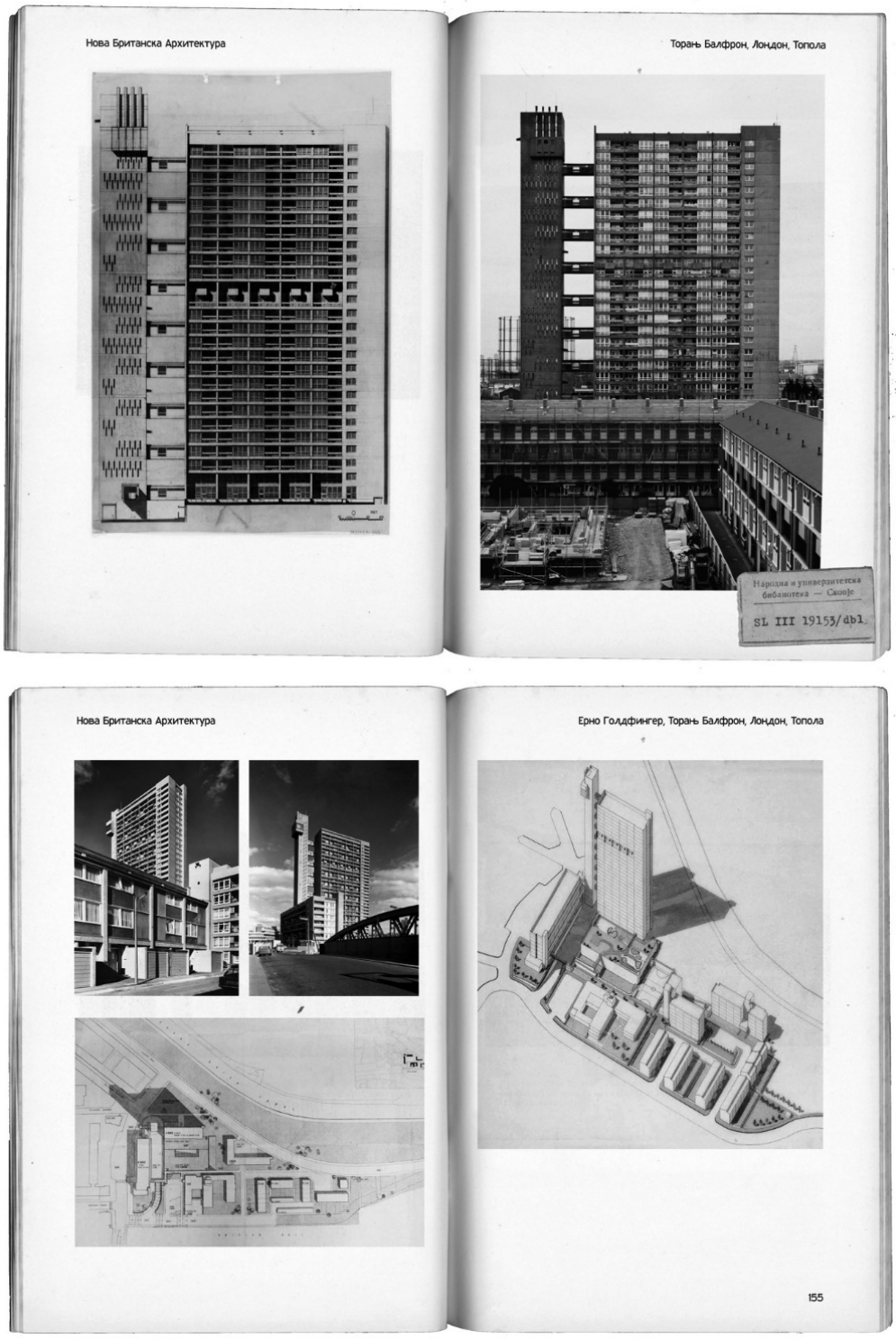



**Figure 6.** Georgi P. (1979), *Nova Britanska Arhitektura*, Architektonska Edizia, Novoselo.

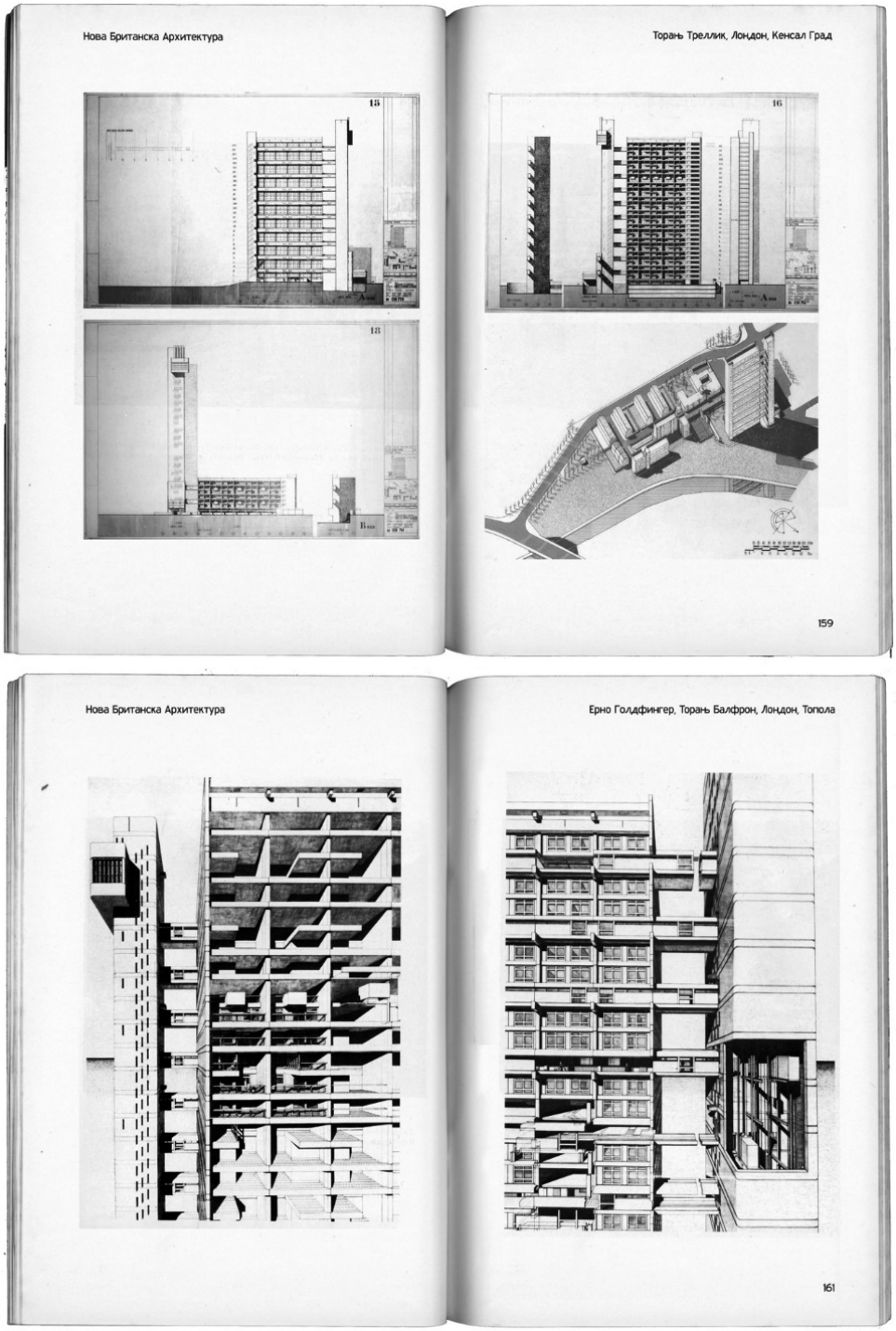



**Figure 7.** Georgi P. (1979), *Nova Britanska Arhitektura*, Architektonska Edizia, Novoselo.




**Figure 8.** Georgi P. (1979), *Nova Britanska Arhitektura*, Architektonska Edizia, Novoselo.

At the foot of the tower Ernő Goldfinger designed and built the Edenham Way Estate, a complex composed of two larger six-story blocks, a series of two-story row houses with pitched roofs, and some communal facilities. The typological and morphological analysis of the towers scheme is exhaustively reported in the *Architectural Journal* (Cadbury-Brown, 1973), where plans, cost records, structural elements, services, finishes and fittings descriptions are copiously reproduced and commented by Martin Richardson (1973; Figures 10–15).

The projects by Ernő Goldfinger, at a distance of over twenty years, applied the recommendations of the overall plan of Sir Patrick Abercrombie. They had already been applied in the construction of many developments on the outskirts of London, but without ever achieving such force and character, which only the 'bourgeois' Barbican of Chamberlin, Powell and Bon would be able

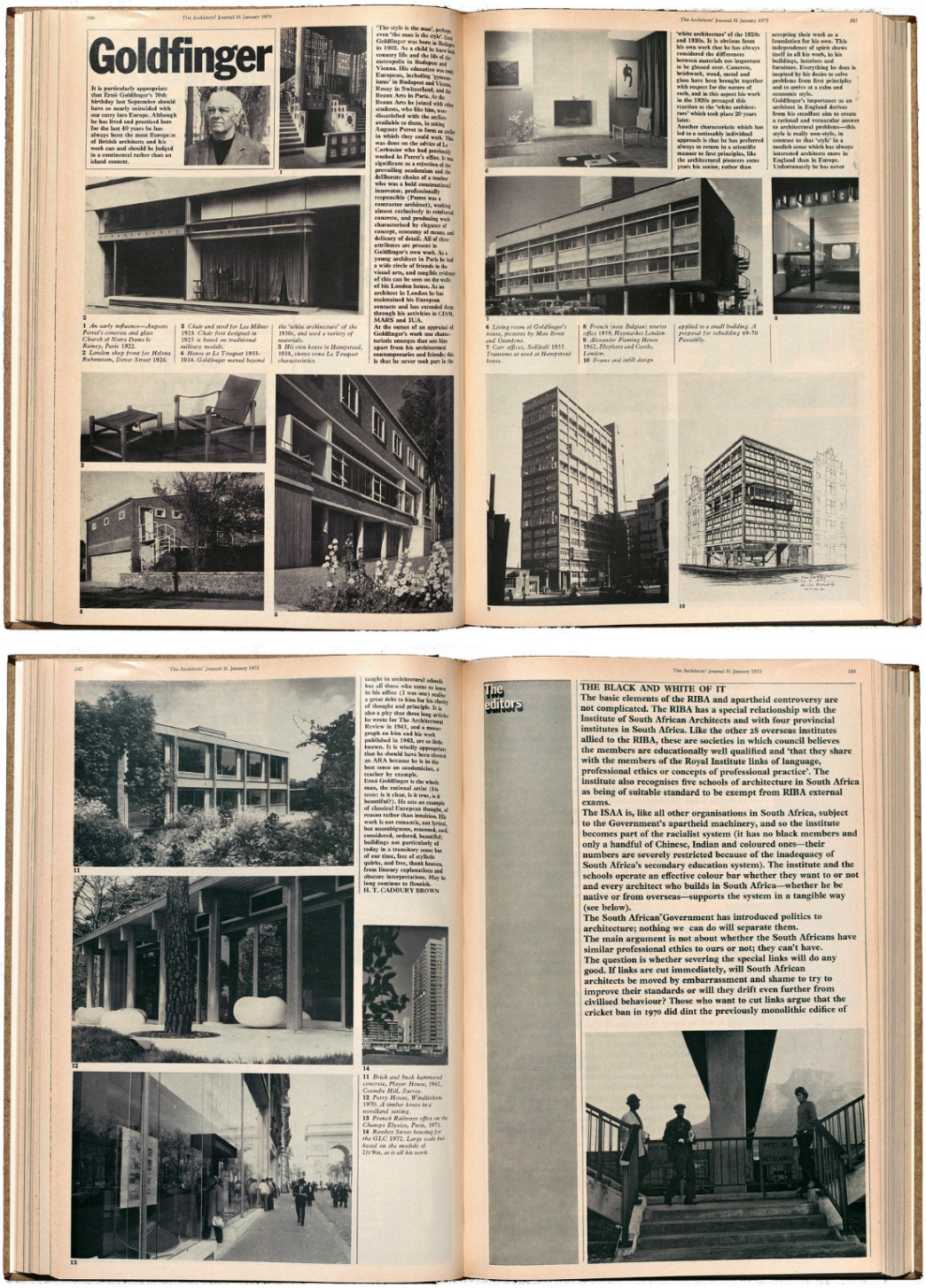
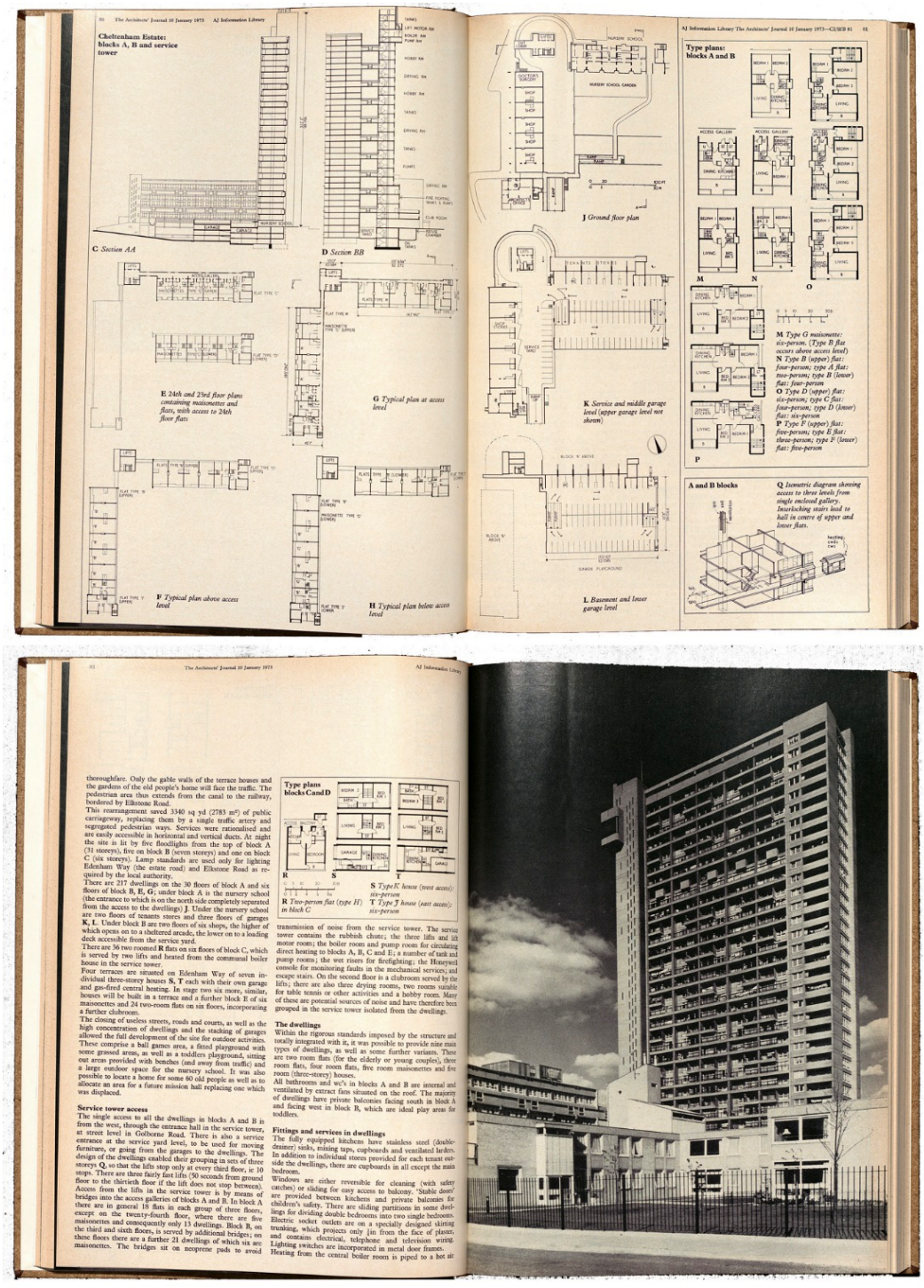



**Figure 9.** Cadbury-Brown H. T. (1973). "Goldfinger," *Architects' Journal*, *157*.




**Figure 10.** Richardson M. (1973). Cheltenham Estate housing, *Architects' Journal*, *157*.




thoroughfare. Only the gable walls of the terrace houses and the gardens of the old people's home will face the traffic. The pedestrian area thus extends from the canal to the railway, bordered by Elkstone Road.

This rearrangement saved 3340 sq yd (2783 m²) of public carriageway, replacing them by a single traffic artery and segregated pedestrian ways. Services were rationalised and are easily accessible in horizontal and vertical ducts. At night the site is lit by five floodlights from the top of block A (31 storeys), five on block B (seven storeys) and one on block C (six storeys). Lamp standards are used only for lighting Edenham Way (the estate road) and Elkstone Road as required by the local authority.

There are 217 dwellings on the 30 floors of block A and six floors of block B, **E, G**; under block A is the nursery school (the entrance to which is on the north side completely separated from the access to the dwellings) **J**. Under the nursery school are two floors of tenants stores and three floors of garages **K, L**. Under block B are two floors of six shops, the higher of which opens on to a sheltered arcade, the lower on to a loading deck accessible from the service yard.

There are 36 two roomed **R** flats on six floors of block C, which is served by two lifts and heated from the communal boiler house in the service tower.

Four terraces are situated on Edenham Way of seven individual three-storey houses **S, T** each with their own garage and gas-fired central heating. In stage two six more, similar, houses will be built in a terrace and a further block E of six maisonettes and 24 two-room flats on six floors, incorporating a further clubroom.

The closing of useless streets, roads and courts, as well as the high concentration of dwellings and the stacking of garages allowed the full development of the site for outdoor activities. These comprise a ball games area, a fitted playground with some grassed areas, as well as a toddlers playground, sitting out areas provided with benches (and away from traffic) and a large outdoor space for the nursery school. It was also possible to locate a home for some 60 old people as well as to allocate an area for a future mission hall replacing one which was displaced.

**Service tower access**

The single access to all the dwellings in blocks A and B is from the west, through the entrance hall in the service tower, at street level in Golborne Road. There is also a service entrance at the service yard level, to be used for moving furniture, or going from the garages to the dwellings. The design of the dwellings enabled their grouping in sets of three storeys **Q**, so that the lifts stop only at every third floor, ie 10 stops. There are three fairly fast lifts (50 seconds from ground floor to the thirtieth floor if the lift does not stop between). Access from the lifts in the service tower is by means of bridges into the access galleries of blocks A and B. In block A there are in general 18 flats in each group of three floors, except on the twenty-fourth floor, where there are five maisonettes and consequently only 13 dwellings. Block B, on the third and sixth floors, is served by additional bridges; on these floors there are a further 21 dwellings of which six are maisonettes. The bridges sit on neoprene pads to avoid transmission of noise from the service tower. The service tower contains the rubbish chute; the three lifts and lift motor room; the boiler room and pump room for circulating direct heating to blocks A, B, C and E; a number of tank and pump rooms; the wet risers for firefighting; the Honeywell console for monitoring faults in the mechanical services; and escape stairs. On the second floor is a clubroom served by the lifts; there are also three drying rooms, two rooms suitable for table tennis or other activities and a hobby room. Many of these are potential sources of noise and have therefore been grouped in the service tower isolated from the dwellings.

**The dwellings**

Within the rigorous standards imposed by the structure and totally integrated with it, it was possible to provide nine main types of dwellings, as well as some further variants. These are two room flats (for the elderly or young couples), three room flats, four room flats, five room maisonettes and five room (three-storey) houses.

All bathrooms and wc's in blocks A and B are internal and ventilated by extract fans situated on the roof. The majority of dwellings have private balconies facing south in block A and facing west in block B, which are ideal play areas for toddlers.

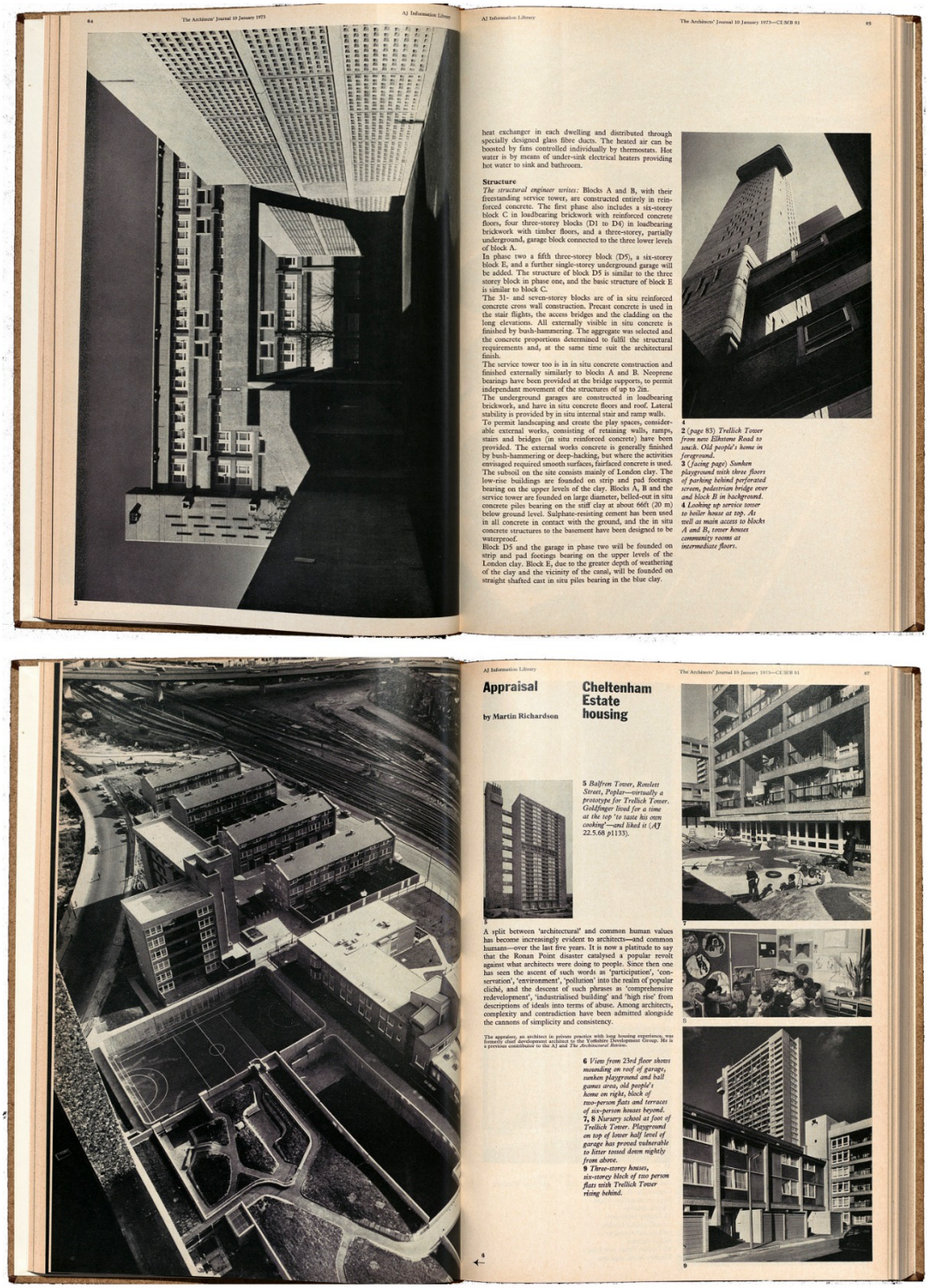
**Fittings and services in dwellings**

The fully equipped kitchens have stainless steel (double-drainer) sinks, mixing taps, cupboards and ventilated larders. In addition to individual stores provided for each tenant outside the dwellings, there are cupboards in all except the main bedroom.

Windows are either reversible for cleaning (with safety catches) or sliding for easy access to balcony. 'Stable doors' are provided between kitchens and private balconies for children's safety. There are sliding partitions in some dwellings for dividing double bedrooms into two single bedrooms. Electric socket outlets are on a specially designed skirting trunking, which projects only 1in from the face of plaster, and contains electrical, telephone and television wiring. Lighting switches are incorporated in metal door frames.

Heating from the central boiler room is piped to a hot air

**Figure 11.** Richardson M. (1973). Cheltenham Estate housing, *Architects' Journal*, *157*.



heat exchanger in each dwelling and distributed through specially designed glass fibre ducts. The heated air can be boosted by fans controlled individually by thermostats. Hot water is by means of under-sink electrical heaters providing hot water to sink and bathroom.

**Structure**

*The structural engineer writes:* Blocks A and B, with their freestanding service tower, are constructed entirely in reinforced concrete. The first phase also includes a six-storey block C in loadbearing brickwork with reinforced concrete floors, four three-storey blocks (D1 to D4) in loadbearing brickwork with timber floors, and a three-storey, partially underground, garage block connected to the three lower levels of block A.

In phase two a fifth three-storey block (D5), a six-storey block E, and a further single-storey underground garage will be added. The structure of block D5 is similar to the three storey block in phase one, and the basic structure of block E is similar to block C.

The 31- and seven-storey blocks are of in situ reinforced concrete cross wall construction. Precast concrete is used in the stair flights, the access bridges and the cladding on the long elevations. All externally visible in situ concrete is finished by bush-hammering. The aggregate was selected and the concrete proportions determined to fulfil the structural requirements and, at the same time suit the architectural finish.

The service tower too is in in situ concrete construction and finished externally similarly to blocks A and B. Neoprene bearings have been provided at the bridge supports, to permit independant movement of the structures of up to 2in.

The underground garages are constructed in loadbearing brickwork, and have in situ concrete floors and roof. Lateral stability is provided by in situ internal stair and ramp walls.

To permit landscaping and create the play spaces, considerable external works, consisting of retaining walls, ramps, stairs and bridges (in situ reinforced concrete) have been provided. The external works concrete is generally finished by bush-hammering or deep-hacking, but where the activities envisaged required smooth surfaces, fairfaced concrete is used.

The subsoil on the site consists mainly of London clay. The low-rise buildings are founded on strip and pad footings bearing on the upper levels of the clay. Blocks A, B and the service tower are founded on large diameter, belled-out in situ concrete piles bearing on the stiff clay at about 66ft (20 m) below ground level. Sulphate-resisting cement has been used in all concrete in contact with the ground, and the in situ concrete structures to the basement have been designed to be waterproof.

Block D5 and the garage in phase two will be founded on strip and pad footings bearing on the upper levels of the London clay. Block E, due to the greater depth of weathering of the clay and the vicinity of the canal, will be founded on straight shafted cast in situ piles bearing in the blue clay.

**2** (page 83) *Trellick Tower from new Elhstone Road to south. Old people's home in foreground.*
**3** (facing page) *Sunken playground with three floors of parking behind perforated screen, pedestrian bridge over and block B in background.*
**4** *Looking up service tower to boiler house at top. As well as main access to blocks A and B, tower houses community rooms at intermediate floors.*

# Appraisal

by Martin Richardson

# Cheltenham Estate housing

**5** *Balfron Tower, Rentlets Street, Poplar—virtually a prototype for Trellick Tower. Goldfinger lived for a time at the top 'to taste his own cooking'—and liked it (AJ 22.5.68 p1133).*

A split between 'architectural' and common human values has become increasingly evident to architects—and common humans—over the last five years. It is now a platitude to say that the Ronan Point disaster catalysed a popular revolt against what architects were doing to people. Since then one has seen the ascent of such words as 'participation', 'conservation', 'environment', 'pollution' into the realm of popular cliché, and the descent of such phrases as 'comprehensive redevelopment', 'industrialised building' and 'high rise' from descriptions of ideals into terms of abuse. Among architects, complexity and contradiction have been admitted alongside the canons of simplicity and consistency.

The appraiser, an architect in private practice with long housing experience, was formerly chief development architect to the Yorkshire Development Group. He is a previous contributor to the AJ and *The Architectural Review*.

**6** *View from 23rd floor shows meanding on roof of garage, sunken playground and ball games area, old people's home on right, block of two-person flats and terraces of six-person houses beyond.*
**7, 8** *Nursery school at foot of Trellick Tower. Playground on top of lower half level of garage has proved vulnerable to litter tossed down nightly from above.*
**9** *Three-storey houses, six-storey block of two person flats with Trellick Tower rising behind.*

**Figure 12.** Richardson M. (1973). Cheltenham Estate housing, *Architects' Journal*, *157*.



If architectural confidence has suffered some shocks, in compensation there has been a corresponding increase in architectural sensitivity. At the extremes, the problem may now be architectural nihilism rather than architectural totalitarianism.

The difference perhaps is that 10 years ago (and certainly 20) architects felt that the mere exercise of their skills was to the public good. There was a belief that if the ideology was right so were its products. Somehow the taste of the cake could be ignored; the exhilaration of seeing the theory on the ground blinded one to its actual sensory and practical effects. If then we were concerned with the morality of our theories, now many of us are apprehensive of the possible immorality of what we may build.

The first and major phase of the Cheltenham Estate was completed about five months ago; the brief was given to the architect in April 1966. However, Ernö Goldfinger's Rowlett Street scheme, whose tall block **5** is a first edition of the Cheltenham tall block, was completed in January 1968 and its brief given to the architect in 1960. The immediate context of the Cheltenham Estate concept is, therefore, really the mixed development schemes of the 1950s, which by the early 1960s were already tending to be overtaken by more homogeneous high-density schemes such as Park Hill [AJ 23.8.61 p271-286] and Lillington Street, these in turn being replaced by the high-density low-rise schemes typically produced by Camden and Southwark. Since then, as has already been implied, the concepts of comprehensive redevelopment and homogeneity have been reinterpreted in favour of a more fine-grained process of integration and renewal. Against such an interpretation of recent housing history the Cheltenham Estate appears to me anachronistic.

It sets out to be an integrated neighbourhood. It does contain dwellings of all sizes; garages; shops; a nursery school **7, 8**; and an old people's home. (The latter is for the Royal Borough of Kensington and Chelsea and the nursery school for the Inner London Education Authority.) But though integrated in materials and detailing in form it is not. Its 31-storey and seven-storey linked slabs, its six-storey L-shaped block and three-storey houses **9** form decisively separate entities.

The distribution of dwelling types seems curious. Of the largest units (six-person) no fewer than 25 out of 66 are in the tower, six in the seven-storey linked slab, only the privileged remainder being in the houses. Two-thirds of the remaining units in the big slab are family units for four persons. Big as the balconies are, not every mother is keen to leave her children behind a balustrade with a 20- to 30-storey drop on the other side. And when they are big enough to descend to their allotted play zones, even if she can see her children, it is not easy for her to communicate with them or to help them if necessary. So what happens in practice is that the children descend to the ground aware of the safe distance from their parents; the two tarmac rectangles do not satisfy all their imaginative needs; they find the lifts, stairs, lobbies, even angry old people more interesting. So the inhabitants of the six-storey block, between the tall slab and the six-person houses, are besieged by and apparently united in hostility towards the two communities. As to the old people's home, some inhabitants are delighted by the children through the fence; others find them disturbing.

One of the clearer findings of the DOE's report *'Living off the ground'* [AJ 20.8.69 p459] was that 'a much higher proportion of housewives with children under five felt unhappy living off the ground than any others' though 'high blocks may be satisfactory if occupied by households without children'. It listed one of the advantages of living off the ground as being that tenants 'were away from the nuisance of children'.

In short, the splitting up of the inhabitants into their different blocks encourages separateness rather than integration; and the effect is reinforced by the fact that the nuisance of children is suffered by the low living older people rather than the high living families.

What then of the actual environment produced on the site? One assumes that the theory of building so high is to gain common benefits at ground level. If at 50 households to the acre, it would seem that the 175 households in the 30 floors of the tower should be entitled to their own 3½ acres of ground. But in fact the 34 houses enjoy between them more land than the tower. Of the common open space half goes to a ball games area, and a sunken playground **3**; the remaining half is on top of the multi-storey garage ingeniously camouflaged with mounded turf **7**. But pretty as it is, is this really the payoff? Apart from the crushing effect of the slab above you, winds are exaggerated, the noise of the railway exposed all along the edge of the site echoes back from the face of the building, and the view rent open is to the motorway to the east and the railway below **11***. The public open space to be formed along the canal should to some extent relieve the pressure within the site itself, but I fear will not solve its problems.

The Ville Radieuse was a *ville* radieuse, a world in which living off the ground was compensated for by the park scale greenery that resulted. Indeed Ernö Goldfinger's Athens Charter housing of 1933 **8** reflected just these principles. But something else happens when elements from such a concept are squashed together on a few acres. I can no longer believe that this is the beginning of a new world for which there is a common consensus—not now, in North Kensington.

The conflict is not just within the site—it extends beyond, whole worlds of Victorian North Kensington **14** are shattered. On the opposite side of the road to the tower in a small, thoughtful, quietly agreeable housing scheme of three linked courtyards **16**, through which **1** walked with some pleasure*. On turning round **1** was confronted by the colossus crushing the domestic intimacy of the courtyards **17**. Even from more distant parts as Swiss Cottage **12** and Camden Hill, scale is distorted as one sights the tower.

This oppressive quality is due I think not only to its size, but to its form and treatment: the superhuman, broad-shouldered, honeycomb front **2**, the colossal concrete service

*The architect has asked the AJ to state that the elevational treatment of the tower has been designed to eliminate turbulence and echo; that the railway is invisible from ground level, and that the courtyard housing mentioned lacks play provision. The editors

**10** *Project submitted by Goldfinger to Antwerp Competition. Dwellings are based on his earlier Athens Charter housing.*
**11** *Looking south-east towards central London; railway and motorway in middle distance.*
**12** *Trellick Tower seen from Finchley Road, some two miles distant . . .*
**13** *. . . and from Westway.*
**14** *From Golborne Road, a typical North Kensington shopping street.*
**15** *Alexander Fleming House, Elephant and Castle (1962), again demonstrates Goldfinger's insistence on total organisation'.*
**16** *Modest courtyard housing across the road from Trellick Tower, looking towards north—and* **17** *looking towards south.*
**18** *'The colossal concrete service pylon . . . and its cyclopean eye (the boiler house) at the top', seen* **19** *from west-west. Shopping arcade at base of block B.*
**20** *Lift lobby showing penetration of access bridge and heavy hardwood doors.*
**21, 22** *Access galleries (to flats and maisonettes respectively) have an ambiguous quality—one is 'outside' (kitchen windows on right in* **22***) yet totally enclosed.*
**23** *Marble lined entrance hall.*

**Figure 13.** Richardson M. (1973). Cheltenham Estate housing, *Architects' Journal*, *157*.

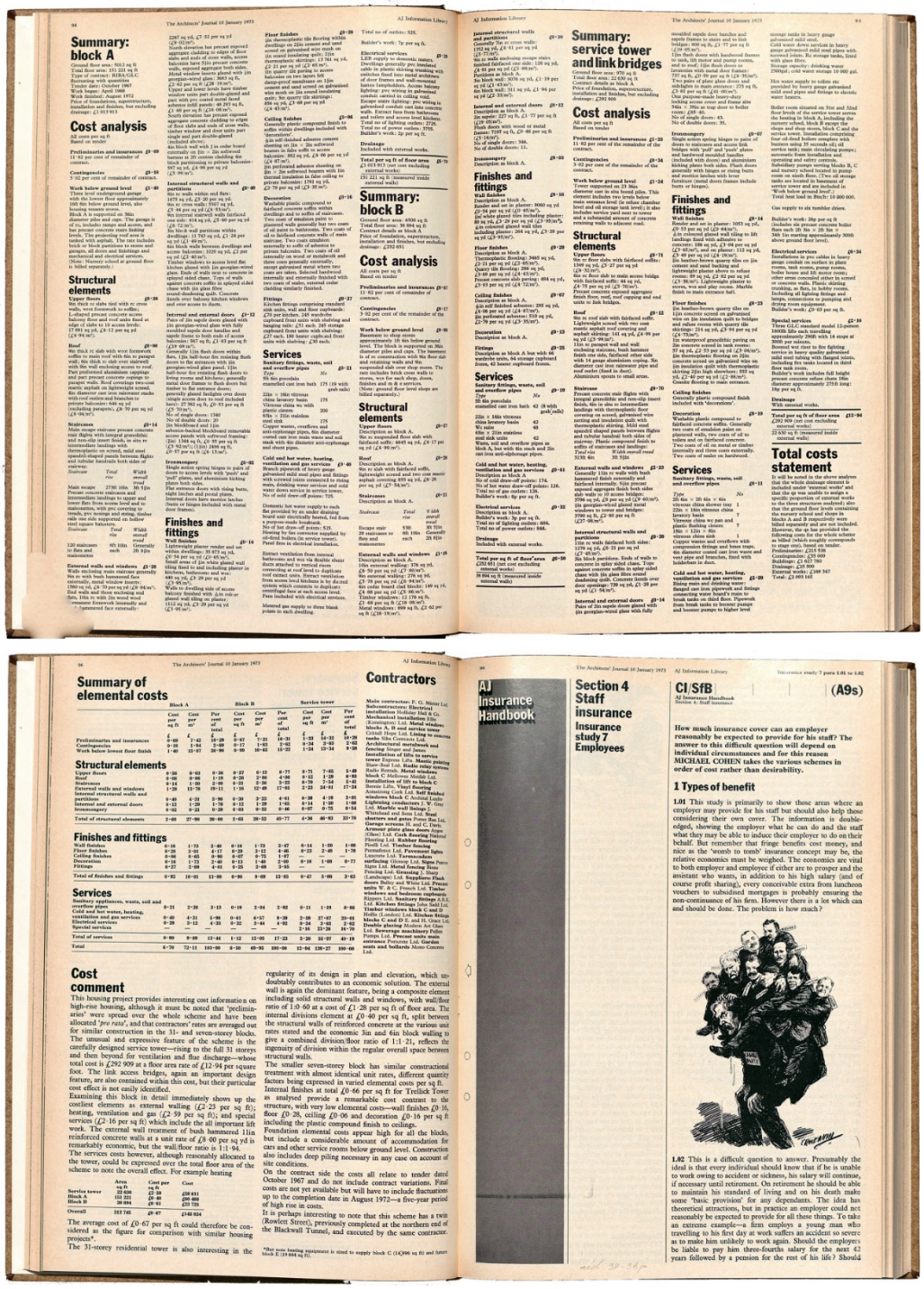


**Figure 14.** Richardson M. (1973). Cheltenham Estate housing, *Architects' Journal*, *157*.

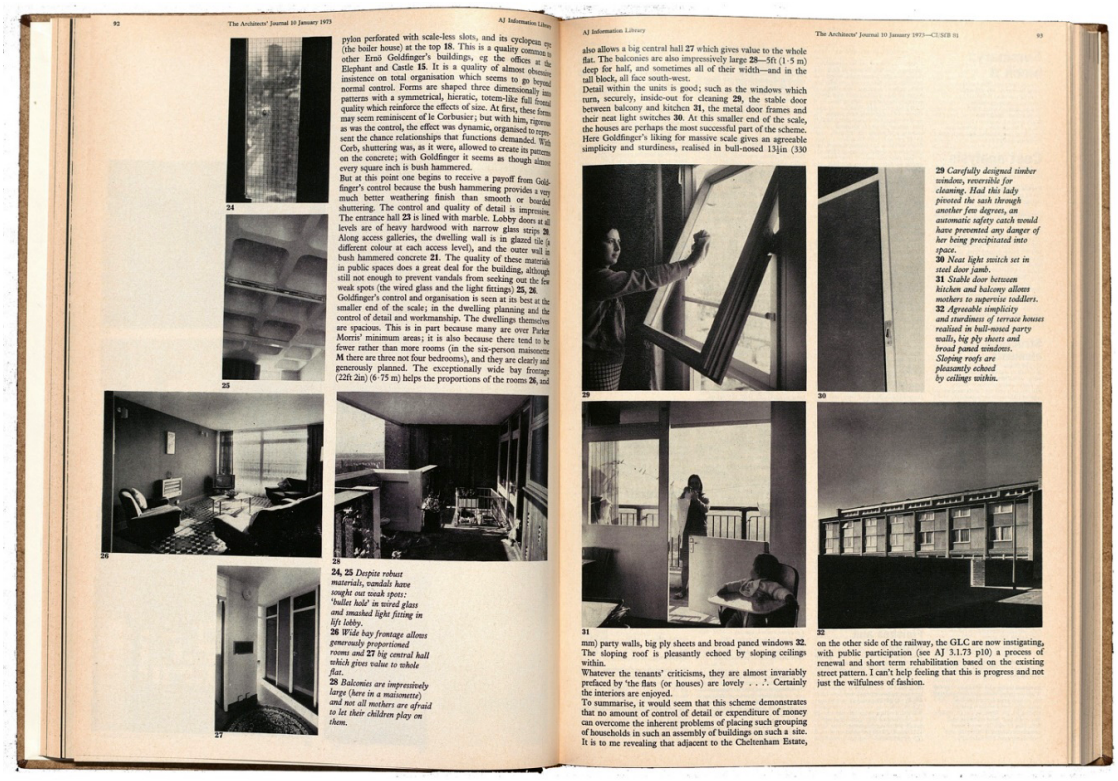


**Figure 15.** Richardson M. (1973). Cheltenham Estate housing, *Architects' Journal*, *157*.

to equal, with its three residential towers and the dense neighbourhood below.

The guidelines developed by Abercrombie—though without a prescribed form—set out to reduce the density of residential settlements through vertical construction. Ernő Goldfinger's design made no compromises: "In ten years London could be a beautiful skyscraper city, and the view from the river be as it was in Wren's London, except that instead of churches you would have skyscrapers towering over lower building" (Goldfinger, 1960). This principle is put into practice in a radical way, without mediation, and without considering the fact that in all probability this could had been the unique achieved episode of an interrupted vision. In fact, he had punctually structured a system that would have been a matrix for the city of the future. The evidence of this can be found not only in the numerous statements about it, but in the ostentatious constructive and expressive similarity between the two high-rise buildings. Ernő Goldfinger had been explicit: "I would like to see London a park city: not, and I emphasise not, a garden city" (Goldfinger, 1960). The dream was always the same: "The whole object of building high is to free the ground for children and grown-ups to enjoy Mother Earth and not to cover every inch with brick and mortar" (Goldfinger, 1968a). Few years later, in January 1973, the opening notes of the presentation of the Trellick Tower on the *Architectural Journal* were explicit too in this regard: "Ernö Goldfinger has remained a consistent advocate of high-rise living in urban densities for over 40 years" (Cadbury-Brown, 1973).

The construction of a tall residential block had been an intriguing engagement for Ernő Goldfinger from the 1930s, when at the CIAM congress of 1933—that of the Athens Charter—he proposed a residential building with fifteen stories in which the elevator shaft was at one end, the services were placed on the garden-terrace, and the apartments were connected by a long internal street.

Ernő Goldfinger was irresistibly attracted by the idea of developing the row house typology in a vertical manner, taking the 'modern' model of the two-story apartment block to the extreme dimension of a tower. A model that had been ushered in at the end of the 1920s with the construction of the Narkomfin building in Moscow and taken to the status of an icon in 1952 with the completion of the first Unité of Marseille. From the early 1950s the two-level flat, the duplex and the *maisonette* had become customary in England in the field of public housing. Architects had experimented with infinite variations on the theme, fascinated by the possibilities of layout optimization, and the social consequences implied by the typology.

Ernő Goldfinger had already begun to develop the scheme of the stacking of units on three-story blocks with external stairwell and lifts in 1956, for the residential complex of Hunton Bridge Road at Abbots Langley of the Watford Rural District Council. The project, though conceived for a not particularly dense rural district, featured a block of extraordinary height: 12 stories. The proposal was drastically reduced to just four levels, because it was seen as "ugly and out of harmony" (Elwall, 1986),

and it was divided into two separate blocks to limit visual impact. Almost foreseeing its fate, Ernő Goldfinger said: "They do everything to get rid of the rural surroundings. They make them a sprawling suburb" (Goldfinger, as cited in Elwall, 1986, p. 77).

The project at Abbots Langley was the first typological experiment with the system that was then intensively applied in the Balfron Tower and further refined in the Trellick Tower. The two complexes in London, to see them in proportion, have 27 and 31 floors, respectively, thus twice the height of the Unité of Marseille. The reference to the typological and organizational model of Le Corbusier is explicit, so much so that the immense facade with loggias can be seen as a clear citation. But the interpretation of the work of Le Corbusier is radical. Ernő Goldfinger selects its primitive elements, stepping aside from any decorative or ornamental features. The lyrical rhetoric of Le Corbusier is translated into a harsh example of everyday realism.

As at Abbots Langley, the feature that sets the character of the project is undoubtedly the elevator tower, containing the services and the technical spaces. It is independent of the volume of the building, and sustains the boiler of the heating system, placed on its summit:

> The main characteristic of the building is the separation of living quarters from the services. These latter are housed in a separate tower, connected to the flats by bridges. Thus, all noisy machinery, such as lift motors, water pumps, fire pumps, rubbish chutes, etc., are 100% insulated from the dwellings. (Goldfinger, 1968b)

In this way, all the mechanical installations and chimneys are physically separated from the housing units. In this way, Ernő Goldfinger tries to get beyond the main problem facing residential towers until the end of the 1960s: the noise and vibrations caused by vertical access systems and the central heating equipment, which were not adequately insulated by the horizontal structure. The lifts were thus extremely slow, or they utilized joints with very high installation and maintenance costs, while the chimneys were insulated with thick asbestos panels. The solution had already been tested, though not in such a visible way, at Sheffield in the Park Hill Development of 1957, and where the chimneys alone were concerned, in the blocks of the Alton West Housing Estate at Roehampton in 1952, where the London County Council Architect's Department built five Unités d'Habitation based on the model of Marseille, later repeated in 1960 at Sceaux Gardens in Camberwell. The heating system with its boilers is housed at the top of the turret. Four forceful metal chimneys emerge from an overhanging volume to underscore the character that is mechanical—like the chimneys of a refinery—and also like an ancient fortress, the quiver of an archer or the command deck of a warship. To solve problems of expansion between the building and this external volume, Ernő Goldfinger used an innovative system of neoprene joints that manage, without noise and seepage, to absorb the shift of several inches on windy days. The walkways that connect to the circulation corridors every three floors are glazed and contain the electrical and heating conduits. The same system, deemed satisfactory by Ernő Goldfinger, would be used a few years later for the Trellick Tower, this time rotating it by 90 degrees to accentuate the longitudinal thrust of the form. Entry is at a level raised above the ground, by means of a bridge that projects into a lobby lit in the daytime by a geometric composition of coloured windows, the sole 'artistic' feature visible from the outside. The concrete armour of the building displays a severe, inflexible character. Inside there are a few concessions: The corridors of all the levels feature continuous facings in ceramic tiles of different colours.

It is explicit that in the Balfron and Trellick the reason for separating the lifts from the building in an independent tower was not only a technical issue but was also based on the expressive desire to forcefully assert the autonomy of the access elements from the residential units (Goldfinger, 1967). This had to do with the famous rhetoric of the 'village,' in keeping with the scheme of stacked *maisonette* units, as if they were independent dwellings, while the circulation facilities would stand out as separate factors: the tower to the north, and the open balconies on the western side. The 'building-as-village' analogy, also emphasized in the choice of the name, with reference to a Scottish hamlet, and its resulting formal logic of 'streets in the sky' had fascinated many architects and would continue to do so. While in the Narkomfin building and the Unités of Le Corbusier all the parts of the composition were 'absorbed' inside the constructed block, the famous complex by Denys Lasdun at Bethnal Green, the Keeling House, completed in 1957, had an external central volume to which four *maisonette* residences were connected radially, for a total of 16 stories. The explicit goal of the Keeling House was to define—or redefine—relationships of proximity and neighbourhood of the Victorian horizontal city, which in the vision after World War II was to be replaced by a more 'aerial metropolis' of vertical blocks. The good intentions of Denys Lasdun, formulated as an incentive for social exchange through the sharing of communal services, kitchens open to the passageways and visual connections between various units, shortly led to just the opposite effect, triggering situations of conflict and serious awkwardness. This history was soon to repeat itself both at Poplar and in Kensington.

The same idea of 'social diffusion,' of the 'village community' and the 'streets in the sky' was also the antidote proposed—quite ingenuously, in some ways—by Ernő Goldfinger for the anonymity of dormitory districts:

> I have created here nine separate streets, on nine different levels, all with their own rows of front doors. The people living here can sit on their doorsteps

> and chat to the people next door if they want to. A community spirit is still possible even in these tall blocks, and any criticism that it isn't is just rubbish....These tall blocks are wonderful, in as much as they enable us to bring the countryside into the towns. (Goldfinger, 1968c)

Furthermore:

> The nine access corridors form so many East End pavements, on which the normal life of the neighbourhood continues. On 7 of these pavements there are 18 front doors while, on two levels—the ground floor and the 15th floor where there are maisonettes—there are 8 front doors. As far as possible, people from the same area were re-housed together—street by street. (Goldfinger, 1968b)

Nevertheless, in February 1968, the *Guardian* wrote:

> Not all architects and sociologists share Mr. Goldfinger's longing for flats, when they are intended for families with children and come in tower block form. Not all tenants of the GLC tower blocks would prefer elevated multi-story living compared with, say, a Hampstead terrace. (J. A., 1968)

The system of typological variation of the flats is regulated by a precise proportional scheme based on an orthogonal grid, in terms of both plan and elevation. The preliminary study drawings show painstaking compliance with a rigid square module of 16 feet 6 inches, which was to remain the basis of every element throughout the construction and design of subsequent projects as well. The imposing facade has a clear, elementary proportional scheme: a double square marked by the system of the residential cells. The balconies of the level of the *maisonettes* are aligned between the two squares, as the sole exception in the southern facade of the building (Dunnet, 1983; Dunnet & Hiscock, 2000).

The rigidity of the Cartesian grid permits exacting control of the precast details, the auxiliary elements and every typological variant. The apartment types, formulated by clustering variable numbers of equal rooms on three levels, precisely reflect the measurements imposed by the scheme, generating a repertoire of constructive details and architectural components of very limited number to create a large variety of types. Windows and doors, facings and wardrobes are designed in great detail in order to optimize and adapt each component to specific necessities, allowing the inhabitants to live in the building while limiting their contribution to what was strictly necessary. The simplicity becomes clear in the functional and circulation elements, the internal staircases of the apartments, the bathrooms and kitchens, which adapt the same system to different requirements and sizes: "The success of any scheme depends on the human factor—the relationship of people to each other and the frame of their daily life which the building provides" (Goldfinger, 1969). The basic program presented to the GLC called for as many as nine main apartment types, as well as an open number of minor variations to apply depending on specific needs: from two-room units for young couples, at a lower or higher level, of for senior citizens with direct access from the communal corridor, to more complex layouts for larger families, having five rooms organized on different levels.

Ernő Goldfinger described the construction system as follows:

> [It] is an in situ reinforced cross-wall structure linked to the service tower by precast concrete bridges at every third floor. The type of structure chosen facilitates the repetitive use of formwork. To speed work on the site all intricately shaped parts of the structure, such as stairs and balcony parapets, are in precast reinforced concrete. The building and tower are founded on 30 in. diameter 60 ft. long cast in situ friction and end-bearing bored piles....The reinforced concrete, where exposed to view on the external elevations, has been bush-hammered to expose the aggregate. All special structures and external concrete walls are constructed in waterproof concrete. (Goldfinger, 1969)

The martial image of the building is conveyed by the bush-hammered surfaces of the precast panels, the rough pattern of the formwork, the vertical loopholes openings and the large wall portions left without openings. Ernő Goldfinger never covered the walls of his buildings with stucco or other cladding materials (Waroff, 1974). This gruff, austere uncompromising quality transmitted by the fair-face concrete and exposed brick, harshly criticized at Willow Road before the war, was eventually able to respond to the demand for purity and rigor on the part of the new generations of architects during the years of reconstruction. Nevertheless, when in 1966 the no-longer young Reyner Banham finally published the long-awaited book on Brutalism (Banham, 1966), he did not deem worth noting any work by Ernő Goldfinger, though the architect had built his house at Hampstead almost thirty years earlier.

For several weeks in 1968 Ernő Goldfinger took up residence, with his wife Ursula Blackwell, on the upper level of the tower to get a first-hand experience of the quality of the building and to directly gather the impressions of its inhabitants (Oldham, 2010). This experiment, often addressed with irony and sarcasm by the press, was described as follows:

> In 1968, he and Ursula moved into one of his low-income housing projects, Balfron Tower in East London, for two months to test it out. They threw Champagne parties for their working-class neighbours (for whom expensive French fizz would have been an unimaginable extravagance) and

> quizzed them about what it was like to live there. Many of their complaints were subsequently addressed in Goldfinger's work on Trellick Tower. (Rawsthorn, 2009)

The architect remarked:

> After completion of the first part of the scheme my wife and I had the opportunity to live for two months in one of the flats in order to gain first-hand experience of the functioning of the building and to observe possible shortcomings. This also enabled me to correct some details of the buildings which by more complicated means of communication is made practically impossible. The method which we used for arriving at the findings was fourfold. The first involved direct observation by ourselves (my wife and myself living in the flat) and communicating with our neighbours. The second part made use of reports from the Tenants' Association, and the third source was the Clerk of Works report. Finally, as an architect, I made observations regarding planning, future planning, and detailing. (Goldfinger, 1969)

The commission for the Trellick project was confirmed in 1966, during the finishing operations of the Balfron. Construction advanced at a fast pace, and Ernő Goldfinger was therefore not able to fully exploit the experience of his 'high-altitude' sojourn, so apart from several variations of little substance the towers were practically twins. In 1975, perhaps not so much by chance, J. G. Ballard installed the conceited architect Anthony Royal on the upper levels of his *High-Rise*, caustically opening a new and dramatic chapter in the history of the 'condominium towers.'

**4. Conclusion: Illusion and Disenchantment**

The 'height fever' had infected all the major British public administrations starting in the first half of the 1960s, but disenchantment soon set in (Miller Lane, 2006; Rawsthorn, 1965). The accident at the Ronan Point tower marked a turning point: Just two months after the first families took up residence, on 16 May 1968, a gas explosion in a kitchen caused the collapse of an entire corner of the brand new 22-story residential tower in East London. Luckily, at least to some extent, only four people lost their lives, while 17 were wounded; but the impact of the photographs of the ruined tower was devastating. The reaction in terms of public opinion came in no uncertain terms, also instigated by the campaigns of the newspapers, and not just the tabloids (Seifert, 1975), and architecture was accused of negligence in the political responsibilities of management of public housing. The disaster, in effect, rapidly put an end to the short reign of the 'skyscraper' typology. The Trellick, therefore, became the last major public housing 'tower' to be built in England.

The architectural quality of buildings was not able to compensate for the situation of extreme marginality of the districts in which they were constructed. Ten years later, the two towers by Ernő Goldfinger were left isolated in a no-man's-land still occupied by slums and by the insalubrious row houses the towers were supposed to replace. The state of abandon and neglect of the large social housing projects led to unmanageable situations. Public housing blocks had no security services, and the communal staircases, which in the case of the towers connected over two hundred apartments, became true nightmares for the inhabitants. The press exacerbated an already critical situation by emphatically reporting on cases of vandalism, sexual violence, drug dealing, burglaries and muggings in the corridors. Underground parking areas and cellars could no longer be used due to the constant danger of aggression. They were often closed, placed off limits, demolished, as in the case of the Trellick. The cars, parked in a disorderly way around the buildings, were constant targets for hooligans. The heated staircases became shelters for the homeless and places for prostitution. Constant demands for intervention to restore order and safety led to no results. The sensation on the part of tenants of being prisoners in their own homes generated the nickname 'Tower of Terror.' As a predictable result, many of the families that had long been settled in the zones, and had formed their social fabric, began to move out. They were replaced with other tenants considered more problematic, willing to try to survive in a continuously precarious state.

The 'inhuman form' of the large complexes, especially the towers, became the scapegoat for the failures of public policy, the lack of funding for maintenance and—last but not least—the cost cutting that led to compromises of constructed quality. Urbanists and politicians agreed that the problematic issues caused by decades of misguided policies of territorial governance had to be addressed by immediate alternatives. In the end, either 'Right to Buy' programs were called into play, or the envisioned solution was demolition, and the transfer of the remaining heritage into private hands.

The spectacle of the demolition in 1993 of the blocks of Hutchesontown, designed by Sir Basil Spence in Glasgow in 1962, was a cathartic moment for television viewers. This audience had finally found a culprit in architecture, and loudly cheered on its capital punishment. The Robin Hood Gardens complex of the Smithsons, terminated in 1972 a few hundred meters away from the Balfron Tower, was also demolished, though with an opposite mood, before it had reached the age of 50. The buildings of the complex had run into the sad fate of not appealing to the appetites of real estate speculators, or to the tastes of the new rising bourgeois classes: young professionals and alternative intellectuals. If the buildings of Ernő Goldfinger in London, or the Park Hill Flats in Sheffield, were saved from the 'wrecker's ball' and managed to shift into an elegant conversion into apartments for the market, it was not so much due to their ar-

chitectural quality as—fundamentally—to their construction quality and their typological flexibility. As for the demolitions of the buildings of Sir Basil Spence and the Smithsons, apart from any practical considerations, considered crimes against the modern architectural legacy, politics took its course and did not stop the bulldozers.

The 1980s were hard years for the towers and their architect, by then almost in his nineties, who had to defend their honour on a daily basis. Having arrived too late to become icons of the avant-garde, and too early to take on cult status amongst enthusiasts, today they represent the symbol of a unique city. London is the 'scattered city,' the city composed of many small cities. It was thus aptly described by Steen Eiler Rasmussen (1937) over ten years before the plan of Sir Patrick Abercrombie translated its essence into operative terms, and well before Ernő Goldfinger built his decisive chapter. In a span of eight years, and without any compromises.

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The author declares no conflict of interests.

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Article

# Álvaro Siza's Negotiated Code: Housing with Citizens' Participation in the Urban Renewal of The Hague in the 1980s

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**Abstract**
In the 1970s, the participation of citizens in processes of urban renewal was championed by several North-European municipalities as an attempt to re-connect housing policies with their social significance. The main goal was to bring together the city and its citizens, collective interests and individual aspirations. Citizens' participation was used as an instrument to bridge the gap between the planner/designer and the citizen/user. This article examines a case that illustrates the threats and opportunities brought about by this new paradigm in design decision-making. The article discusses the design process of the Punt en Komma housing complex, a project designed by Portuguese architect Álvaro Siza, developed between 1984 and 1988 as part of the urban renewal of the Schilderswijk district, a neighbourhood in the Dutch city of The Hague. The article is divided into two parts. The first part examines Siza's plan for Schilderswijk's sub-area 5 (*deelgebied 5*) and establishes the background against which citizens' participation played a role in the urban renewal of the district. In the second part, the article examines Álvaro Siza's project for the Punt en Komma housing blocks in detail, focusing particularly on the participatory design of the layout for the dwelling units. Using Stuart Hall's encoding/decoding model of communication, this article concludes by highlighting the importance of using a negotiated code to enable meaningful communication in citizens' participation.

**Keywords**
Álvaro Siza; architecture; citizens' participation; housing; The Hague; urban renewal

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## 1. Introduction

Nine decades ago, the organisers of the second CIAM (Congrès Internationaux d'Architecture Moderne) congress, organised in Frankfurt in October 1929, chose the *Wohnung für das Existenzminimum* (the dwelling for minimal existence) as the theme around which that time's leading modern urbanists and architects were gathered (Mumford, 2000, pp. 27–43). Most of the scholarship dedicated to CIAM 2 focused on the group's concern with the definition of minimum living standards. While the focus on standardisation and rationalisation has endured as the dominant contribution of this congress to the interwar production of affordable housing, there were also social aspects that deserve further acknowledgement. Some of the leading figures in that congress, with Ernst May at its head, were committed to promoting new approaches to improve the living conditions of the working class. Indeed, the changing role of the family in an era when the state would replace many of its social functions was addressed by several CIAM members (Mumford, 2000, pp. 35–38). During the interwar period, CIAM's research on the ideal "minimum dwelling" would be instrumental to explore new typological and technological solutions all over the world (Teige, 2002). In the aftermath of World War II, the interest in researching the relationship between social structures and typological innovation in housing design would be resumed in the CIAM

congresses, though with a subtle, yet meaningful shift. Particularly after the CIAM 9, held in Aix-en-Provence in 1953, the concepts of "housing" or "dwelling" were gradually replaced by the notion of "habitat", increasing the concern with environmental and human factors in the CIAM discourse (Welter, 2001). The participants in the last CIAM congress, held in Otterlo in 1959, could witness the emergence of another theme, the idea of open form in architecture, which has since then occupied a central position in housing design (Hansen, 1964).

The concept of open form also triggered a renewed interest in citizens' participation in design decision-making. In the late 1960s, there was a widespread interest in improving the communication between social groups that lived on opposite sides of the political and economic spectrum. As Sherry Arnstein (1969, p. 216) wittingly put it, "the idea of citizens' participation is a little like eating spinach: no one is against it in principle because it is good for you". Indeed, from the 1970s on, grassroots movements for the empowerment of ordinary citizens gained momentum and would underpin the widespread acceptance of citizens' participation in design decision-making processes (Hughes & Sadler, 2000).

### *1.1. Citizens' Participation and Urban Renewal*

In the 1970s, citizens' participation in architecture and urban planning would be spread across Western Europe with the emergence of urban renewal programs, promoted as an alternative to the welfare state mass housing policies employed hitherto. A common token of the new urban renewal policies was challenging the post-war emphasis on central planning, standardisation, and serial mass housing production. The "urban renewal order" as Christopher Klemek called it in his *The Transatlantic Collapse of Urban Renewal* (2012) brought together a wide array of stakeholders (policymakers, planners, designers, scholars, citizens) that were committed to remaking the social and physical fabric of North American and Western European cities (Klemek, 2012). These policies were particularly important to address the post-war housing crisis, though not necessarily to cater to the needs of the ill-housed urbanites and low-income families. In fact, as Marcuse and Madden (2016, pp. 69–71) point out, the agendas of the real estate and finance industries played a crucial role in making prime urban land available (mostly through processes of slum clearance) to be redeveloped for residential purposes. Moreover, Marcuse and Madden (2016, p. 71) claim, "urban renewal facilitated real estate capital's goals, but it also included a strong role for the state as planner and coordinator". To conciliate the diverse agendas at stake, these policies championed the creation of housing policies based on negotiation and consensus (Richardson & Connely, 2005). Some scholars described this process as a populist movement (Tzonis & Lefaivre, 2005).

Esra Akcan's *Open Architecture* (Akcan, 2018) contributes an insightful account to the IBA-Berlin (Internationale Bauausstellung Berlin [International Building Exhibition Berlin]), one of the most prominent post-war urban renewal operations developed in Europe. In West Berlin, as in many other western cities living under the remnants of the welfare state system, there was a general attempt to re-connect housing policies with their social significance, going beyond a mere productive and regulatory approach (Kaminer, 2011). This political agenda was designed to overcome the conflicting relations that threatened the stability of the relationship between policymakers and citizens during the 1960s. This paradigm shift would also influence the relation between the planner/designer and the citizen/user. This relation became more interwoven and triggered a reconceptualisation of the role of the architect in design decision-making processes. It introduced the concept of social architecture (Hatch, 1984). Recent scholarship highlights the return of the participatory trend of the 1970s–1980s in contemporary architecture and urbanism (Krivy & Kaminer, 2013). Indeed, since the turn of 21st century, architects and urban planners have embraced participatory processes to circumvent the centralisation of power. Participation has been promoted as a new form of sovereignty and an ideal of freedom from the state, top-down power structures and institutions (Krivy & Kaminer, 2013, p. 1). However, while participatory processes are commonly associated with radical political movements, planning bureaucracies have also incorporated some of the traits of citizens' participation in their protocols. Improving communication between the different stakeholders in the process became one of its crucial aspects.

### *1.2. Aesthetic Communication: Encoding and Decoding*

Communication played a key role in the politics of participation in the 1980s. It would contribute to the emergence of what French curator and art critic Nicolas Bourriaud called "relational aesthetics" (Bourriaud, 2009). In architecture and urban planning, as in artistic practices, aesthetic communication would influence the spatial configuration of many new urban spaces. In particular, it would influence the design of new residential neighbourhoods developed under the auspices of urban renewal programs undergoing in many European cities. The process of (aesthetic) communication is multidimensional, though. As Stuart Hall contends in his article "Encoding, Decoding" (originally developed in 1973), there are four linked but distinctive moments in this process: production, circulation, distribution/consumption, and reproduction (Hall, 2007). Despite a growing interest in academia (Maudlin & Vellinga, 2014), scholarship on how design decisions are encoded and decoded remains scarce. In other words, there are still few theoretical contributions that address the systems of communication between designers (qua authors) and what Giancarlo de Carlo (2005) called "architecture's public" (qua addressees). In the field of residential architecture, this

topic is particularly important, as the stakes for the addressee are particularly high. In this article, I will examine the contribution of aesthetic communication for the reassessment of the relationship between author and addressee in architecture and urban design approaches during the urban renewal programmes of the 1980s. Using a theoretical framework inspired by Stuart Hall's encoding/decoding model of communication, I will discuss the relationship between the production of architectural meaning and its consumption.

Consumption, for Hall, is an indissoluble moment of the production process, and "the message-form is the necessary form of appearance of the event in its passage from source to receiver" (Hall, 2007). He contends that "before this message can have an 'effect' (however defined), satisfy a 'need' or be put to a 'use', it must first be appropriated as a meaningful discourse and be meaningfully decoded" (Hall, 2007, p. 93). The code of communication between, for example, the architect and the user, is essential to define the nature of the relation between production and reception. However, as Hall highlights, there is no code with a transparent or "natural" representation of reality. Hence, this inevitably sparks misunderstandings, or distorted communication, which creates discrepancies in the relation between encoder and decoder. This relation can assume three different positions: the dominant-hegemonic, the negotiated, and the oppositional. An example of the dominant-hegemonic position is the use of professional codes that reify and reproduce hegemonic definitions. The negotiated position resonates with situations when hegemonic definitions are acknowledged and legitimised as an abstract level but nevertheless recoded to particular or situated logics. The oppositional position occurs when the message is decoded and deliberately recoded in an alternative framework of reference.

Drawing on Hall's characterisation of the different types of relationship between encoder and decoder, this article will discuss the importance of aesthetic communication in Álvaro Siza's approach to design decision-making with citizens' participation. Using archival material from Álvaro Siza's collection and interviews with some of the stakeholders involved in the process, this article will examine Álvaro Siza's project for the urban renewal of the Schilderswijk district in detail. Focusing primarily on the design decision-making processes of Schilderwijk's sub-area 5 (*deelgebied 5*) plan and the dwelling layout of the Punt en Komma housing blocks, developed between 1984 and 1988, this article will attempt to establish the extent to which Siza's approach resonates with Stuart Hall's negotiated code.

## 2. Álvaro Siza and the Urban Renewal of Schilderswijk, The Hague

Schilderswijk is a district of The Hague (The Netherlands) created in the second half of the 19th century as a result of speculative development to accommodate the flux of rural migration to the city (Figure 1). Since then, the area has evolved to become a densely-populated area, accommodating people arriving from different parts of the country. Through the years, despite their diverse origins,




**Figure 1.** The location of *deelgebied 5* (white circle) in the city of The Hague. Note: The colours indicate the extension of the urban renewal operation in Schilderswijk in the 1980s (blue tones adjacent to the highlighted area). Source: Spaan & Waag Society (n.d.).

the residents of the Schilderswijk developed a strong social cohesion where the street was the main space for social interaction. However, in the 1960s, the district's sanitary conditions and the structure of the urban fabric was considered unsuitable to the aspirations of modernity promoted by the policymakers of The Hague. In the mid-1960s, the municipality developed an urban plan inspired by the principles of the functional city and by welfare state policies to design an urban renewal plan for the Schilderswijk district. The plan was called *Van Gris naar Groen* (From Grey to Green; Freijser, 1991, pp. 164–166).

### *2.1. From Grey to Green*

The plan *Van Gris naar Groen* illustrates what scholars have described as the architecture of the welfare state (Tzonis & Lefaivre, 2005; Swenarton, Avermaete, & Heuvel, 2014). It was designed to rebuild the area with high-rise slabs and an urban layout inspired by the principles of the Athens Charter. The population, however, opposed the modernist plan. A period of uncertainty unfolded, with policymakers avoiding negotiations for an alternative urban renewal strategy. The underlying conflict between the dwellers and the policymakers triggered a process of dilapidation of the neighbourhood, due to lack of maintenance of buildings and public spaces. Consequently, a great deal of the residents moved away to other areas. They were replaced by different streams of foreign migrant influx.

In the 1970s, the houses left vacant by the older residents were mainly occupied by migrant workers coming from southern Europe, Turkey and Morocco, and by Surinamese citizens who fled the former Dutch colony after its independence in 1975. This sudden change in the demographics of the neighbourhood contributed to a noticeable transformation in its social relations, creating a progressive loss of mutual contact and social cohesion. As a social worker engaged with the Schilderswijk's community put it, "because of the different languages and cultures, mutual contacts were limited. Because there was no understanding of each way of life, there was less social control" (Boasson, 1988b, p. 19). While the district kept its pre-World War II character as a destination for newly arrived working-class residents, a fundamental change took place. The different cultural backgrounds and everyday practices of the new residents reduced the occasions for spontaneous social interactions. From the mid-1970s until the early 1980s, this state of affairs created a process of fragmentation of the district's social cohesion. This process resonates with similar events happening in other major Dutch cities. The contemporary urban renewal of Rotterdam, for example, has been recently reviewed by Florian Urban's in his *The New Tenement* (Urban, 2017, pp. 131–157).

To avoid further dissemination of social unrest, the urban renewal of Schilderswijk became a political priority for the municipality of The Hague. To cope with the challenges created by urban renewal policies, the Municipality appointed Adri Duivesteijn as alderman for spatial planning and urban renewal in 1980. Duivesteijn, a young social activist, fought against the urban renewal policies of the municipality during the 1960s and 1970s (Kleinegris, 1991). Now, invested in his new role as a policymaker, Duivesteijn keenly promoted citizens' participation in the urban renewal of the Schilderswijk, arguably the most problematic district of The Hague. He invested a great deal of the material and human resources of his department preparing the bureaucratic apparatus to support the implementation of participatory processes. He realised, however, that he was still missing an important element in the process: the architect. This would be solved in April 1984, when he visited the Portuguese city of Porto and met Álvaro Siza.

### *2.2. Álvaro Siza and Housing*

Álvaro Siza was born in 1933 in Matosinhos, a port and fishing town in the suburb of Porto. He was educated at the Porto School of Fine Arts during the 1950s, and worked for a few years (1955–1958), with one of the most influential teachers at the Porto School, Fernando Távora. From 1958 on, he developed his solo architectural practice, designing and building mainly single-family houses for Porto's middle-class, and small to medium-sized public facilities (shops, swimming pools and restaurants). He had had thus far little experience with social housing commissions. Despite this, he became involved in the famous SAAL program, a housing initiative launched in Portugal in 1974 by the provisional government that replaced the dictatorship that had ruled the country since 1926 (Bandeirinha, 2011; Nunes & Serra, 2006). The SAAL program, masterminded in the aftermath of the 25 April 1974 revolution by architects Nuno Portas and Nuno Teotónio Pereira, was a strategy to cope with the country's housing shortage. It was designed to support initiatives promoting decent housing for the ill-housed urbanites, stopping widespread squatting movements, and public demonstrations demanding the citizens' right to the city (Bandeirinha, 2010; Sardo, 2014). The SAAL process was commonly described as an initiative to reverse a situation where there were so many people without houses and so many houses without people (Mota, 2019).

From 1974 until 1977, Siza coordinated two SAAL projects developed for rundown urban areas in Porto, São Victor and Bouça (Alves Costa, Costa, & Fernandez, 2019). Both projects were developed using citizens' participation in the design decision-making process. Shortly thereafter, these projects received international praise in the international architecture media (David, 1976; Marconi, 1976; Nicolin, 1975). They revealed Siza's particular approach to participatory processes, sustaining "the line of action of the technician as a technician" focused more on promoting the best possible result rather than just giving "what people want" (Mota, 2014b, pp. 252–260).

Siza's sudden fame and prestige would be instrumental to get commissions for projects outside Portugal. The first invitation for an international competition came in 1979, from West-Berlin. After a few entries for competitions promoted by IBA-Berlin, Siza won a project in 1980 to develop a plan and several projects for buildings in Block 121, in Berlin's Kreuzberg district (Akcan, 2011; Mota, 2014a). Eventually, in 1984, he would be invited to develop a plan and project for The Hague, a social and political context with different characteristics from those he had experienced in Porto and Berlin.

Siza's housing projects for the SAAL program, IBA-Berlin and The Hague have been recently reviewed in different venues: a doctoral dissertation (Mota, 2014b), an exhibition in The Hague, The Netherlands ("Ângela Ferreira: Revolutionary Traces", organised by Stroom Den Haag, and held from 7 December 2014 to 15 March 2015), an exhibition in Montreal, Canada ("Corner, Block, Neighbourhood, Cities. Álvaro Siza in Berlin and The Hague", organised by the Canadian Centre for Architecture, and held from 24 September 2015 to 22 May 2016), and the Portuguese Pavilion in the 2016 Venice Biennale ("Neighbourhood: Where Alvaro Meets Aldo", curated by Nuno Grande e Roberto Cremascoli and held from 28 May 2016 to 27 November 2016). The latter included a series of documentaries showing the return of Siza, more than 30 years later, to the neighbourhoods he designed in the 1970s and 1980s (Figure 2).

### *2.3. Álvaro Siza's Plan for Deelgebied 5*

During his trip to Portugal in April 1984, Duivesteijn visited Siza's SAAL projects that had been developed in the mid-1970s. Duivesteijn's appraisal of Siza's work, as well as his personal and disciplinary approach, convinced him to invite the Portuguese architect to develop a plan for the *deelgebied 5*, an area included in the urban renewal of the Schilderswijk district. Siza accepted Duivesteijn's invitation but, when he arrived at the Schilderswijk district in July of 1984, the plans for the urban renewal of the area were already set in motion, with some new housing complexes being developed. He could still see and experience, however, the district's distinct nineteenth-century urban fabric and how it generated a particular spatial system and urban atmosphere. The district's morphology was still characterised by a very dense fabric of long streets delimited by continuous facades, chiefly made of the speculative housing type developed in the late 19th century (Figure 3). This experience would be influential for the further development of his plan and projects for the area, creating what J. D. Besch (1987, p. 5) described as a design solution relying on the "functional relationship between private and public space, on the social-spatial quality within the dwellings, on the differentiation between the characteristics of street life and of the block's courtyards''.



**Figure 2.** Álvaro Siza visiting a Turkish family living in the Schilderswijk neighbourhood, The Hague. The visit was organised as part of the preparations for the Portuguese pavilion at the 2016 Venice Biennale. Photographed by the author.

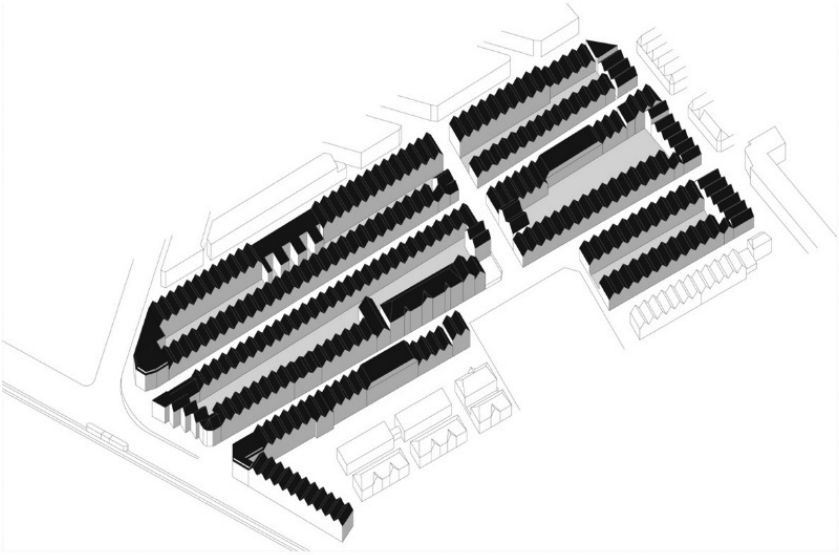


**Figure 3.** *Deelgebied 5* (Schilderswijk, The Hague). The situation in the late 1970s. Author's drawing.

Over the following months, Siza revised an existing plan for the area developed by the municipality's DSO. Siza was critical about some of the options defined in the preliminary plan for the *deelgebied 5* designed by the DSO, especially the widespread demolitions planned and the disregard for the morphological characteristics of the existing urban fabric (Figure 4). In effect, Siza had already criticised this typical token of the architecture of the welfare state in previous urban renewal projects, especially in his project for an urban block in Berlin's Kreuzberg district, where he showed his opposition to the tabula rasa approach (Mota, 2014a). In The Hague, he confirmed this, arguing "I do not believe one should break down everything just because you think that you can create something better". He went on contending that "it is important to have references, the old is also the support for what you create anew. If we want to deliver something with high quality, we cannot start from zero". Moreover, he went further asserting, "if we tear down everything, we throw away the physical identification of the district's soul" (as cited in Boasson, 1988b, p. 25) Following these lines, Siza revised the municipality's plan, with a drive to preserve as many buildings as possible. Eventually, however, only the school building was kept (Figure 5).

During the development of the plan for *deelgebied* 5, Siza showed a keen interest in keeping some of the districts' vernacular social and spatial practices, as well as the area's prevailing building techniques and materials. Curiously enough, the residents, the developer, and even some technicians involved in the process widely disre-

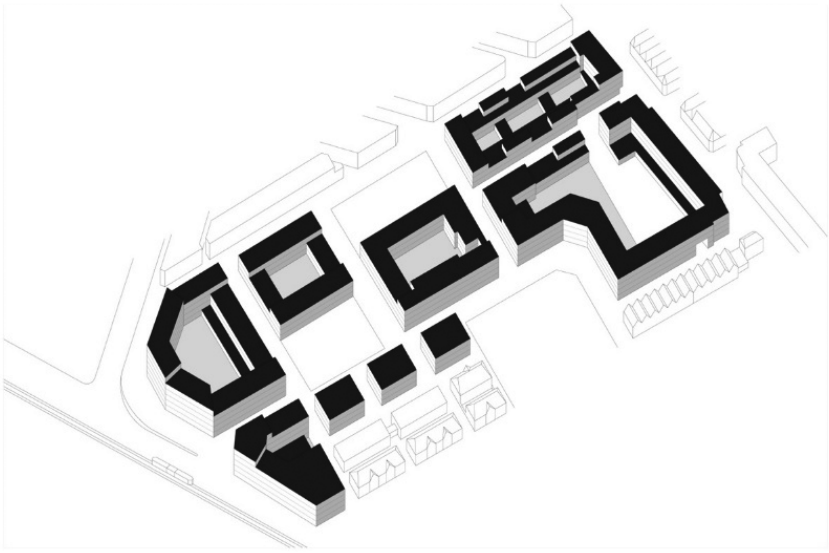


**Figure 4.** *Deelgebied 5* (Schilderswijk, The Hague). The plan proposed by the Service of Urban Design (*Dienst Stadsontwikkeling* [DSO]) of the Municipality of The Hague, 1984. Author's drawing.

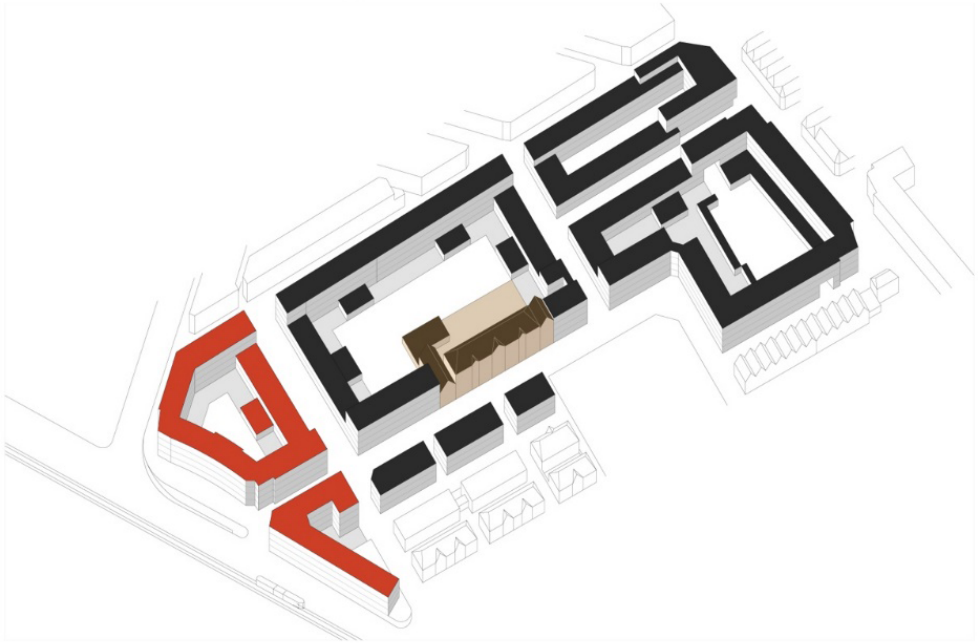


**Figure 5.** *Deelgebied 5* (Schilderswijk, The Hague). The revised plan proposed in 1984 by Álvaro Siza. The school building that was to be preserved is highlighted in brown and the Punt en Komma blocks are highlighted in red. Author's drawing.

garded the preservation of existing buildings and vernacular references. In an interview with the author, Álvaro Siza reported that, on the one hand, the developer and the technicians of the municipality were keen to demolish all the buildings in the area. They wanted new buildings with modern facilities and amenities. On the other hand, even for local architecture critics and observers, Siza's willingness to recover traditional materials and typological systems were often seen as a reactionary attitude, an old-fashioned approach, and a conservative outlook. In effect, Siza's compositional elements in this project were described by *The Architectural Review's* critic Peter Buchanan (1990, p. 50) as "outrageously arbitrary, yet somehow also seem just right".

Siza's initial exchanges with the stakeholders involved in the urban renewal of the Schilderswijk were all but contentious. He visited the houses of local residents and participated in meetings with several technicians, social workers, and representatives of the local housing corporation. Despite some resistance to his initial ideas, Siza started a process of negotiation and managed to show to all the stakeholders his genuine interest in upgrading the district's living conditions while, at the same time, preserving the collective memory of the place (Boasson, 1988a). Following Stuart Hall's encoding/decoding theory of communication, I would argue that this can be seen as the first step in the establishment of a negotiated code. Indeed, Siza's engagement with the local community resonates with a situation when hegemonic definitions are acknowledged and legitimised as an abstract level (e.g., collective memory) but nevertheless recoded to particular or situated logics (i.e., the Schilderswijk's multicultural identity).

Despite some fruitful exchanges between the different stakeholders in the urban renewal process of *deelgebied 5*, the participatory process during the development of the plan did not engage most of the residents. It was still mostly a discussion among technicians and policymakers. The processes of encoding and decoding were not yet as critical as they would be after the plan for the *deelgebied 5* was approved. Indeed, the relevance of meaningful communication in design decision-making became much more relevant when, in 1985, the process moved from the design of the plan to the development of the projects for the housing blocks, and especially to the discussions on the dwellings' floor plan layout.

## 3. ROL: A Laboratory for Citizens' Participation

Adri Duivesteijn and the municipality of The Hague were aware of the importance of having the future residents involved in the decisions regarding the spatial organisation of the dwelling units. However, in these processes, there was often a problem of communication. Ordinary citizens had a hard time understanding technical drawings. To overcome this challenge, during the 1980s, many urban renewal operations in the Netherlands adopted a new mechanism to promote meaningful communication between technicians and the dwellers in housing design: it was called Spatial Development Laboratory (*Ruimtelijk Ontwikkelings Laboratorium* [ROL]).

The history of the use of the ROL in design decision-making processes is intimately connected with the paradigm shift in urban renewal programmes developed in the Netherlands. Following the shortcomings of the urban developments promoted under the auspices of wel-

fare state regimes in the late 1960s, the Dutch governmental and municipal authorities decided to involve the population in the debate on housing. Inspired by this new approach to housing policies, in the early 1970s a group of architects decided to plan an exhibition of the new housing estates to be built in Amsterdam, showing 1:1 models of the "houses of the future" (Dinesen, 1982, p. 306). This exhibition was meant to become the background against which a permanent debate on housing would ensue. Though the exhibition never took place, Amsterdam's municipal office for housing further explored a system to quickly and inexpensively build full-scale models of the apartments designed for their new social housing estates.

The system was based on plywood modular components with a chipboard frame. The modular system used components varying in series of 10 cm from the 10 × 10 × 10 cm basic unit to the 60 × 40 × 20 cm main unit (Figure 6). The system was assembled with plastic pipes inserted in the holes opened on the top and bottom of the wooden modules. The full-scale models built with this system could integrate window frames and doors, as well as furniture and household appliances to create a more realistic experience of the dwelling unit and gather more objective feedback about its characteristics from the future dwellers. The ROL became a success among the Dutch institutional stakeholders interested in social housing.

Soon most of the major cities in The Netherlands would have their own ROL and use it to involve the residents in the design decision-making process. As the Danish architect Dinesen (1982, p. 307) put it, the models built in the ROLs served two purposes: "as a simulation of the dwelling and as a method of communication with users". Using this system, the architect's design becomes more tangible and thus enhances residents' feedback grounded on concrete spatial experience, with an open attitude where everybody can express their outlook and opinion on the layout of the dwellings and contribute to fine-tuning the project.

Following the lead of Amsterdam, the department of urban renewal at The Hague's municipality also created a ROL which eventually was used to discuss and develop the layout of the dwellings for the two housing blocks that Siza was commissioned to design in *deelgebied 5*. These housing blocks would become known as Punt en Komma (Full-Stop and Comma), named after the shape of the general floor plan.

### *3.1. Álvaro Siza in the Laboratory*

On 24 January 1985, Álvaro Siza and several other technicians involved in the Punt en Komma project travelled to the ROL to meet the group Bouwen in 5 (Living in 5), an association of residents in Schilderwijk's *deelgebied 5*. The goal of the working day at the ROL was to assess the qualities and problems of a floor plan for a housing complex located in the Rembrandtstraat, elsewhere in the Schilderswijk district, which had been developed earlier by *'s-Gravenhage*, the housing corporation that commissioned Punt en Komma.

In the introduction to the meeting, Siza highlighted the need to understand the way people live as the basis for research aimed at improving it. Considering the demographics of the neighbourhood, Siza duly noted the absence of foreign residents in the meeting and stressed the importance of receiving contributions from all the different groups of residents in the *deelgebied 5*. In the report of the working day at the ROL, kept in Álvaro Siza's private collection, it was stated his claim that "the aim is to develop a plan that can be suitable for both Dutch and foreign residents".

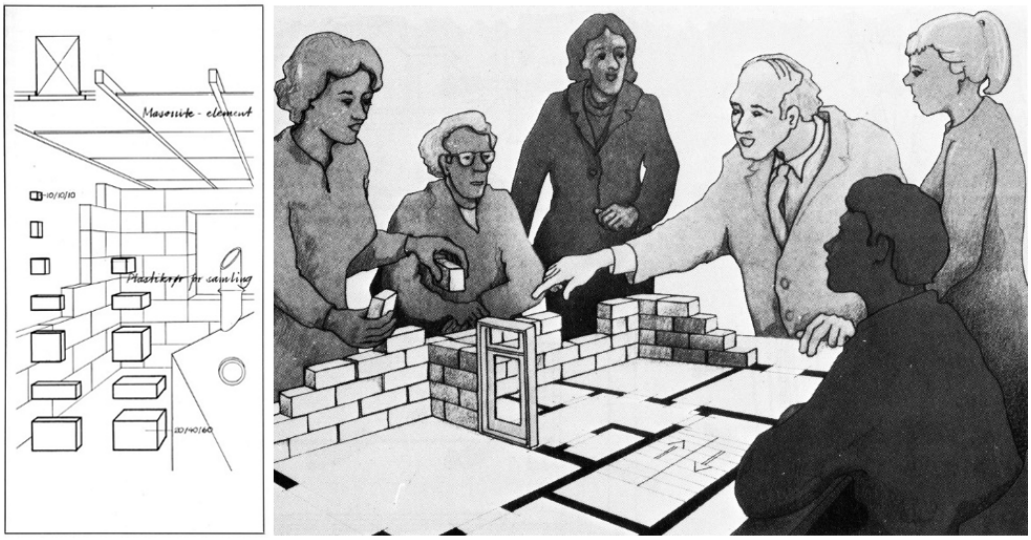



**Figure 6.** Building full-scale models at the ROL. From right to left: Schematic diagram of the elements for building full-scale models at the ROL; Image from the booklet *Residents in the Design Team*, published by Amsterdam's Municipal Housing Department. Source: Dinesen (1982, pp. 306–307).

After this working session at the ROL, experiencing the full-scale mock-up of the dwelling unit, the participants made a summary of requirements, to be taken into account by the architect in the development of the project. The accessibility to the kitchen, the rigid layout of the partitions, the mix of sleeping and living areas, and the area and structure of the distribution areas were the most noticed remarks. Then, using his own critical assessment of the residents' review on the unit tested at the ROL workshop, Siza developed an initial layout proposal for the Punt en Komma dwellings. There were noticeable changes to the initial layout tested at the ROL, first and foremost the introduction of a clear distribution area and better differentiation between the public areas (kitchen and living room) and the private areas (bedrooms and toilet). The new layout developed by Siza was meant to be more open and flexible to accommodate different dwelling practices. Siza's design placed a larger living room on the street side, with a semi-open kitchen next to it, while the bedrooms were placed facing the courtyard of the building. These two main areas were articulated by a system of double distribution in a U shape, divided by a closet, and connecting all partitions.

Following up on the initial contacts, in March 1985, the group Bouwen in 5 issued a list of principles they believed essential for a smooth relationship between the different stakeholders. Among these principles, the issue of communication between the architect and the residents was also addressed. They suggested "the architects should, as far as possible, use spatial methods of representation: isometrics, perspective drawings, models, photomontages and so on" (retrieved from a provisional proposal for the working method, held in Siza's private collection). In effect, on 22 April 1985, the same group, together with other associations of *deelgebied 5* residents, distributed a document with the title *Bewonersparticipatie: Nu en in de toekomst* (*Residents' Participation: Now and in the Future*), where they presented several requirements for an effective and fruitful participation of the residents in the design decision-making process. Among these requirements, the ROL workshops were considered an important component of a design process aimed at "building a home and not just a house" (document retrieved from Siza's private collection).

Hence, over the following months, several working days were organised at the ROL to discuss the floor plan of the dwellings. On 11 July 1985, a working day with eleven Turkish residents—mostly male—was held in the ROL housed in the Faculty of Architecture at Delft University of Technology. In the meeting's introduction delivered by Jacques Poot, the *Bewonersdeskundige* (residents' expert), he emphasised the importance of having the foreign residents involved in the process, as they represent approximately half of the population living in the *deelgebied 5*. However, as Siza remarked some months earlier, Poot also contended that it "must be kept in mind that the houses should be suitable for all inhabitants and not specifically for foreign residents" (from the report of the working day at the ROL, retrieved from Siza's private collection). The report of the assessment made by the Turkish residents underlines their good acceptance of the dwelling layout, especially the flexibility of the plan, and the clear separation between living and sleeping areas, as well as their position in the building: the living room on the street side and the bedrooms on the courtyard side. The surface area of some partitions was criticised, as well as the location of the kitchen and bathroom appliances. In the written account of this working day at the ROL, the author of the report emphasised the detailed appraisal of the plan made by the Turkish residents. Despite the novelty of the process, the report stated that this community showed interest as if it was their own home already. The importance of having a full-scale model instead of drawings was seen as instrumental, and the conclusion was thus clear: "working in this way is therefore very valuable".

On 6 September, 1985, the members of the project's *bouwteam* (construction team) visited The Hague's municipal ROL, in Scheveningen, and changed some parts of the model of the typical ground floor dwelling of the Punt en Komma buildings on the spot, which had been discussed in the *bouwteam*'s meeting that had been held on the previous day. On the next day, 7 September, the neighbourhood office *de Hoefeiser* (The Horseshoe) organised a visit to the ROL with residents of the *deelgebied 5* in order to experience and discuss the full-scale mock-up of the dwelling unit. About thirty residents were present, among which half were immigrants, all-male, and mostly of Turkish origin (Figure 7).

### *3.2. Accommodating Differences*

There was a broad appraisal on the general layout of the dwelling, but the participants in the workshop also made critical remarks. The group of immigrant residents, predominantly Muslims, suggested the living room and the entrance hallway should be bigger. The sliding door to the master bedroom was criticised and they proposed the toilet should be placed closer to the entrance and distant from the living room. The review of the group of native Dutch residents mentioned mostly the same, except the criticism on the sliding door to the master bedroom. The critique on the position of the balconies was also unanimous. Both groups agreed that it would be better to have the balcony facing the street next to the living room or next to the kitchen/dining room. Siza agreed to review the plan in order to increase the area of the living room and the entrance hallway but argued the position of the balconies facing the courtyard side was a better solution. In a report of the excursion to the ROL in Scheveningen (retrieved from Siza's private collection), Siza argued that the balconies facing the courtyard would yield more privacy, less noise, smells, and nuisances and would offer the possibility to dry the laundry and even prepare food. Otherwise, whenever structurally possible and conceptually plausible, the final lay-




**Figure 7.** Álvaro Siza speaking with residents at the ROL in 1985. Photograph courtesy of Fred van der Burg.

out of the dwellings accommodated most of the feedback of the residents.

According to Dorien Boasson (1988b), "this way of working gave residents the opportunity to think actively about the plan, and to make reasoned changes to it". Further, she argues, with this initiative "the involvement in the construction plan has significantly increased" (Boasson, 1988b, p. 36). In their reflection on the process, the community workers Ad Fousert and Frans van der Vaart and the residents' expert Jacques Poot, noted that the meetings to decide on the dwelling plan between Siza and the residents (both the Dutch and the so-called foreigners) were a success. According to them, the residents felt that they could have room for self-determination in the decisions concerned with the dwellings they would eventually inhabit (in Boasson, 1988b, pp. 31–32).

In fact, as mentioned above, the final version of the dwelling's layout designed by Siza would be noticeably based on the decisions made in the ROL workshop with the participants (Figure 8). An important development was the introduction of sliding doors to allow several possibilities of spatial articulation between the kitchen, the living room and the hallway. This flexibility was instrumental to create a layout that could accommodate the different lifestyles of the future users, as well as their diverse cultural, religious and even ethnic background. In fact, Siza contended that he struggled to avoid a culture-specific solution in the design of the dwellings, as that would increase the latent ethnic tension. The Schilderswijk, Siza claimed:

> Is a very interesting, fascinating milieu. But there are here and there signs of racism. It's just difficult that all these people blend together so suddenly. It takes time for a great community to emerge from it. Hence, conflicts are inevitable. (Franke & Wensch, 1990, p. 1490)

Siza highlighted the disciplinary challenges brought about by these kinds of conflicts. The question of how to design houses that are suitable for families with such different cultural backgrounds and diverse lifestyles became a key goal in this project. For Siza, accommodating the cultural heterogeneity of the residents should be the approach to cope with this challenge.

In 1994, six years after finishing the construction of the Punt en Komma buildings, Siza gave an interview to Ruud Ridderhof where he explained how his design strategy tackled this challenge. In Punt en Komma "we had expressly tried not to build special homes (for that was one of the ideas: to build special homes for Muslims)" (Ridderhof, 1994, p. 40). However, Siza understood this discrimination would not work. "It was a very bad idea; the houses had to be the same, we had to find a house that satisfied everyone", he declared in that interview (Ridderhof, 1994, pp. 40–41). This strategy proved effective. "Ultimately", Siza explains, "the consequence was that the elements added to the interior—such as the extra central space with sliding doors—were very well accepted by Dutch families" (Ridderhof, 1994, p. 41).

Thirty years after its completion, the changes in Schilderswijk's *deelgebied 5* can be perceived in different dimensions. While the streets preserve the same




**Figure 8.** Evolution of the layout of the floorplan for the apartments in the Punt en Komma blocks. Author's drawings.

character as in the mid-1980s, visiting the apartments, one can discover a landscape of multiplicities created by the dweller's customisation of their living environment (Figure 9).

The generic floor plan agreed to after the ROL workshops was adapted to diverse variations triggered by the buildings' morphological characteristics and by each family's particular culture of domesticity. The extent of the process of customisation was, however, controlled by ownership constraints. As the apartments in Punt en Komma are owned by a local housing association, there is a high rotation of dwellers occupying the houses. Furthermore, as tenants, the dwellers are not allowed to make any structural change to the layout of the apartment. According to the rental contract with the housing association, when the tenants leave the apartment or move to another one, they have to deliver it as they found it. Moreover, the co-existence of Dutch and migrant families in the mid-1980s gave way to an urban neighbourhood that is currently inhabited almost exclusively by first and second-generation migrants. The documentary prepared in the Schilderswijk for the Portuguese pavilion in the 2016 Venice Biennale shows how this social transformation affected contem-



**Figure 9.** Álvaro Siza with Adri Duivenstijn visiting the Schilderswijk neighbourhood, The Hague. Photographed by the author.

porary everyday life in the neighbourhood (Grande & Cremascoli, 2017). Hidden behind the facades of Punt en Komma and the other buildings designed by Siza to the Schilderswijk, one can discover how the floor plan established after the ROL workshops was creatively adapted to cater to the patterns of inhabitation of families with cultural backgrounds that have roots in Turkey, Suriname, Angola or Morocco, to name but a few.

The working sessions at the ROL workshops contributed significantly to the outcome of the Punt en Komma's design decision-making process. This working method created a medium for meaningful communication between designers and users. This was instrumental to avoid the alienating factor of using jargon in discussions on aesthetic principles, technical constraints, political agendas, and cultural idiosyncrasies. In effect, as Hall points out, "if no 'meaning' is taken, there can be no 'consumption"' (Hall, 2007, p. 91). The participation of the stakeholders in the development of the layout for the dwelling of Punt en Komma reveals, then, a practice that goes beyond the mere empowerment of the users in design decision-making processes. It creates a platform where aesthetic communication can be conveyed through an actual spatial experience where the disciplinary codes can have meaningful decoding as social practices.

## 4. Conclusions

The working sessions at the ROL workshops illustrate a successful attempt to translate the codes of the architecture discipline to the decoder-receiver. The communicative exchange is reciprocal, though not symmetrical. There is reciprocity, for example, in the way the architect, as an encoder-producer, benefits from the receiver's understanding of the message. The results of the ROL workshops constituted a source for Siza's continuous production, which eventually contributed to improving the process of consumption/reception. However, it must be emphasised that the positions at each end of the process, in this case the architect and the dweller, are not levelled out and equivalent. As Stuart Hall highlights, the encoder/decoder system of communication is not necessarily a transparent representation of reality. Hence, this inevitably creates discrepancies in the relation between encoder and decoder, that, as mentioned above, Hall classified in three categories: the dominant-hegemonic, the negotiated, and the oppositional. I would thus argue that the design decision-making process in *deelgebied 5*'s plan and Punt en Komma's project resonates with Hall's definition of the negotiated code. "Decoding within the negotiated version", Hall claims, "contains a mixture of adaptive and oppositional elements: it acknowledges the legitimacy of the hegemonic definitions to make the grand significations (abstract), while, at a more restricted, situational (situated) level, it makes its own ground rules—it operates with exceptions to the rule" (Hall, 2007, p. 102). In other words, the negotiated code does not obliterate or blend the specific language mastered by the author or the addressees. Instead, it creates the conditions to enable meaningful communication between them.

Siza's engagement in the urban renewal of the *Schilderswijk* district epitomises the challenges brought

about to the design disciplines and their relation with managerial strategies, including citizens' participation. In effect, Siza himself addresses these challenges in his reflections on the experience of designing *deelgebied 5*'s plan. He contends: "The participation of residents, technicians and politicians should signify an open process, not simply appeasing or conformist, nor of a local and fragmentary nature, and not merely conducive to the adoption of models around which a consensus is easily reached" (retrieved from Siza's private collection). In this sense, Siza's work in The Hague resonates with his previous experiences in the SAAL process and in the IBA-Berlin. In each of these, the open process was facilitated by Siza's use of the architectural project as a key vehicle to enable meaningful communication between the planner/designer and the citizen/user. The social, political and economic conditions in post-revolutionary Portugal (during the development of the SAAL projects), or in divided Berlin during the Cold War (through the development of the project for IBA-Berlin) were very different from those in The Hague. These different conditions determined diverse types of approaches to citizens' participation in the design decision-making process. One thing remained, however. In every case, Siza was keen on criticising both dominant-hegemonic or populist approaches, advocating instead a negotiated code to create an open design decision-making process.

In the design decision-making process of the plan for *deelgebied 5* and the project for the Punt en Komma buildings, the conflicts and tensions brought about in citizens' participation became part and parcel of the creative process. As Siza put it, designers and other stakeholders involved in housing design should reject a simplistic approach that sees "participation of residents simply as a pacifying element, so often reductive, refusing by prudence or calculation, the creative leap which qualifies it as an integral part of the design" (retrieved from Siza's private collection). Reviving this case study is relevant to discuss the role of the designer in contemporary residential architecture and urban planning practices. It is also important for a critical reflection on participatory processes in housing design. As this case illustrates, design experts can still play a role as social mediators in the complex challenges related to the development of inclusive, resilient cities. Creating "negotiated codes" depends, however, on expanding the methods and processes to enable meaningful aesthetic communication between all the stakeholders involved in the design process. The case of the ROL workshops used in the design decision-making process of the Punt en Komma project can be a useful reference for a new generation of urban renewal programs interested in creating conditions for social sustainability and inclusion.

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**Conflict of Interests**

The author declares no conflict of interests.

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Article

# African Housing Renaissance: The Case of Gacuriro Valley Satellite Settlements, Kigali, Rwanda

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**Abstract**
This article traces an African Housing Renaissance through the *Trabantenstadt* (Satellite City) vision for Kigali embedded in the Gacuriro Valley Satellite, which is composed of two settlements (or *umudugudu*, in Kinyarwanda): Kigali 2020 (2001–2005) and Kigali Vision (2013–2016). While the Kigali 2020 is an integrated *Trabant* (Satellite) which is able to interact with the existing context and trace the future built and unbuilt developments, the Kigali Vision adopts the idea of a protected compound, morphologically connected with the older settlements, but unable to tackle and solve spatial and social issues due to its 'defensive' character. The particular topography of the hillside receives an ambivalent interpretation: in the first *umudugudu*, the slope inspires the whole project, an organic *raumplan*, and in the second it has been denied, having been leveled for flat houses' foundations and consequently a flat spatial indoor distribution. Nevertheless, this article argues that despite the evident architectural differences between the two settlements, they remain in the tradition of the *Neues Bauen*, in which mass housing represents the physical way of accommodating different social classes, granting equal and favorable living conditions. The typological variety demonstrates the aim to inclusively target distinct segments of the population. Apartment buildings (condominiums), row houses, twin houses and single houses mixed with public facilities, schools, a church, and sports structures, make up the settlements as unique pieces of a system and, at the same time, a singular whole.

**Keywords**
Africa; architecture; housing; renewal; satellite city; settlement

**Issue**
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## 1. Introduction

The Gacuriro's Valley Satellite Kigali represents the implementation of Kigali Master Plan 2013 (Surbana International Consultants, 2013), a vision of a green, smart city, in which housing finds its place in the Rwandan scenery. The Satellite drawing identifies the combination of two distinct settlements: Kigali 2020 and Kigali Vision, completed respectively in 2005 and 2016. In Figure 1, the settlements appear as a whole, planned according to the Master Plan guidelines that assign a prominent dwelling character to the area. In the plan, other key topics such as land approach and public approach were analyzed. Even though the dwelling rows follow the contour lines like the typical terraces dominating the Rwandan countryside, the two settlements adopt different strategies on which to root themselves, and the relationship with both private and public context is opposite. The Kigali 2020 reveals an organic composite strategy with houses popped out of the ground, following its

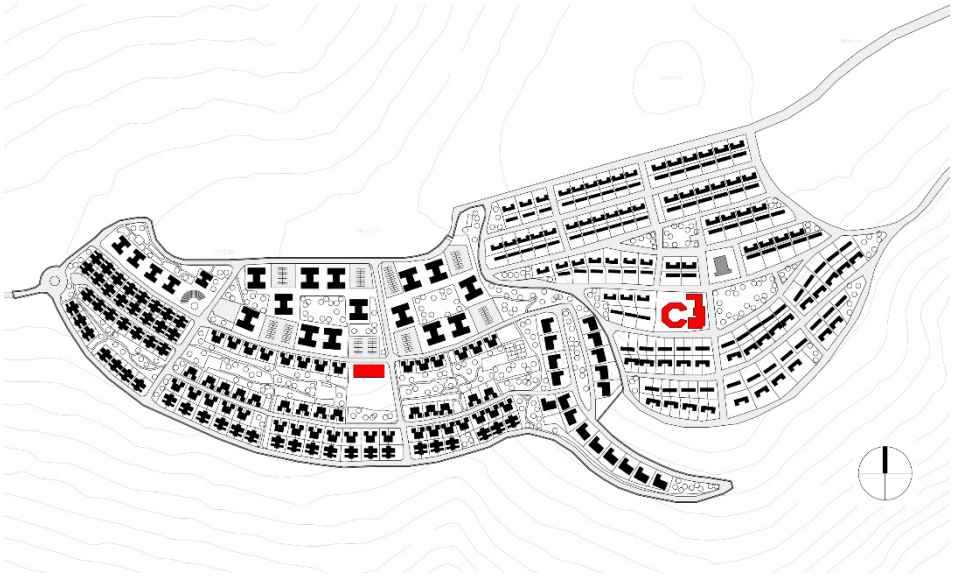


**Figure 1.** The Gacuriro Valley Satellite Settlements. Drawing by Manlio Michieletto.

original topography, whereas the Kigali Vision highly intervenes on it, terracing the hillside for the consequent building construction, as shown in Section 2, Figure 4. The Satellite reveals a precise concept of living that starts from the single-cell composed of different types, which constitute the entire settlement, and the two settlements (*Imudugudu*) shaped the satellite into a Satellite City design. Analogies can be identified not only with the general definition of Satellite City (*Trabantenstadt*) that Ernst May theorized and applied in different projects and contexts, from Breslau to Mombasa, but also in the single cell, highlighting the analogies and the differences of the application of mass housing and the consequent process of contextualization: environment, climate, materials, and traditions. Two settlements composing the Satellite, two interpretations of the same fixed scene, and two readings of May's statement, according to which mass housing represents the physical way to "create equally favorable conditions to every section of inhabitants" (May, 1929).

### *1.1. Research Method*

A mixed-method approach was adopted for this study by using historical data obtained from literature and archival materials of the historical development of the Kigali housing sector. The use of a case study that focuses on the descriptive nature of the housing estates and the overall settlement ensures that the findings are compared to examine the relationship between the past and current situation. The housing units within the Gacuriro Settlements were further selected for an in-depth description of the designs of the houses and how they fit into the planned vision of the developers and authorities. In examining the historical background, an analysis was carried out by a selected architect who was involved in the shaping of the housing sector in the 20th century, Ernst May. The findings are presented in figures under specific subsections, the use of maps is to provide an aerial view of the settlement and show its formal structure.

## **2. *Das Neue* Kigali**

The city is here intended as architecture, architecture as construction, the construction of the city over time (Rossi, 1984, p. 21), a process of continuous renovatio urbis that aims to transform Kigali into the "centre of urban excellence in Africa" (Surbana International Consultants, 2013, p. 15).

### *2.1. The Contemporary African City*

The new cosmography of the African continent presents a diffuse macrocephaly (Michieletto, 2013), and contemporary African Cities like Cairo, Johannesburg, Lagos, and Kinshasa were among the fastest growing and largest cities in the world (Folkers, 2010, p. 141). The phenomenon of hypertrophism should motivate all actors involved in reinventing the African city and upgrading its physical, socio-economic, and intellectual capital in the perspective of sustainable development, and it should advocate, inevitably, for sustainable urbanization (Badiene, 2013), otherwise *Die Welt Wird Stadt* (the world becomes city). The growth of cities and megacities, followed by the emergence of informal settlements with their negative effects on ecology, society, health and infrastructure, is a highly discussed phenomenon. This development is caused both by rural poverty and the attraction of booming urban economies. Regarding the worldwide increase in population to nine-to-ten billion people within the next fifty years, the earth will thus reach its maximum capability regarding its natural resources like soil, water and energy (Ribbeck, 2005).

Within a rampant urbanization it is indispensable to think about new sustainable rural-urban-regional strategies.

*2.2. Kigali, a City over Time*

A Rwandan proverb says, "My country is so beautiful that, although God may wander the world during the day, he returns at night to sleep in Rwanda". Rwanda is one of Africa's smallest countries, with a total land area of 26,338 $km^2$, with the highest population density in Africa of approximately 400 persons per square kilometer. The country is divided into five provinces—Northern, Eastern, Southern, Western and Kigali City. Kigali's growth started fifty years ago after it was proclaimed capital, and it has further intensified since 1994 (Smith & Berlanda, 2018, p. 5). It is the general belief that 9.6% of the country's population currently lives within Kigali, a number which is on the rise, as is common with every capital city in Africa. There is a need to consider Kigali's evolution in close connection with the characteristics of the Rwandan countryside and smaller urban centers. The alleged intention was to develop the polycentric territorial situation and, at the same time, rationalize the proliferation of informal settlements. The idea was to avoid the pitfalls of many other capital cities where housing is now a major challenge for the inhabitants. It is the general assumption that if the countryside was developing at the same rate as Kigali, the risk of overpopulation would be minimized. Kigali is planned in such a way that the rich culture of the people and the unique landscape of the city form the basis for the design and development of the city.

2.2.1. Kigali: 1907–1962

In 1907, Kigali was the site of a German resident doctor by the name of Richard Kandt, who chose it as his base in the center of Rwanda. At that time, it was a small settlement, 357 inhabitants around a fort (*boma* in Swahili), but it also seemed to have all the features necessary to become a colonial capital, such as the joint presence of military, commercial, and cultural activities. The Germans envisioned making Kigali an important hub, the western capital of German East Africa. The Belgians considered Kigali a peripheral location, as they even transferred the capital of Ruanda-Urundi protectorate to Astrida (Butare) in the Southern Province. This shows that Kigali could be considered as an evolving African city, the future of which had already been imagined from this period, developing over time.

2.2.2. Kigali: 1962–1990

It was only after Rwanda's independence that Kigali was designated capital city in 1962, counting about 6,000 inhabitants. This spurred proposal for plans and projects in response to the challenges of population growth. In 1982 a *Schéma Directeur d'Architecture at d'Urbanisme* (SDAU) was established with the goal of planning the next 20 years of expansion. The SDAU was based on the forecast of the city reaching half a million inhabitants by 1995, as well as the idea that the census of 1981 fixed the population of the capital at 131,000 inhabitants (Manirakiza, 2011). The vision was in line with established trends of other capital cities in Africa after obtaining independence. The usual trend today is still for rapid growth in population and infrastructural development, of which housing is always a key and founding element.

2.2.3. Kigali after 1990

The 1990 war and genocide caused a quick reduction in terms of the population, estimated at around 50,000 inhabitants at the end of 1994. Today, Kigali's population is over one million, and the vision for its growth is to reach three million inhabitants by 2030 and realize the century-old aspiration of being an important capital city in the region. A major requirement for this envisaged population is housing, which is considered critical to the image of the city and the wellbeing of its inhabitants. The recorded demographic explosion pushed the authorities to set new city limits, and above all to plan the construction of modern settlements such as the ones in Nyarutarama, Gasabo, and Gacuriro (Manirakiza, 2011). In the development of these settlements, there was a need to ensure that they fit into the overall goal of the city, hence the development the Kigali Master Plan. The idea of the planned settlement development by the Government was to control the growth of the city and ensure that the city portrays an aesthetic value and that inhabitants are adequately taken care of.

*2.3. Kigali Master Plan(s)*

The City of Kigali, one of the most active and progressive City Councils of Africa (Surbana International Consultants, 2013), aspires to see Rwanda Capital develop as a competitive, safe, and clean modern city. In the recent past, the Government has undertaken the preparation of several urban development plans as well as other studies related to transport, infrastructure, housing, and environment for Kigali.

2.3.1. Kigali Master Plan 2008

Surbana, a Singapore-based firm, developed a series of master plans and visions for Kigali built upon the Kigali Conceptual Master Plan (KCMP) of November 2007, authored by the USA-based OZ Architecture (Smith & Berlanda, 2018, p. 9). In the KCMP, the proposed development approach is based both on the concept of community center, which enables the provision of shared services to a greater population in an environmentally sustainable way, and on the development of modern settlements such as the one in Gacuriro, Kigali 2020, as part of a Satellite City development, as shown in Figure 3.

2.3.2. Kigali Master Plan 2013

Upon the completion of the KCMP in 2008 and the Detailed Master Plans for Nyarugenge District in 2010, as well as various other sub-areas of Kigali, Surbana was employed by the Municipality to develop the Detailed Physical Plans for two other districts, Gasabo and Kicukiro, so as to have an integrated and detailed plan for the entire City of Kigali 2040 plan, also called the Kigali Master Plan 2013 (see Figure 2). The Gacuriro Satellite has been revised and updated, now comprising a third phase that implies a commercial hub and the completion of the dwelling by a new settlement, Kigali Vision 2 (Figure 3). Since 2018, Surbana has been appointed to lead the revision process of the Kigali City Master Plan 2013, extending its validity: Kigali 2050. The overall urban growth is being guided by a well-developed policy and legal framework (REMA, 2017), which includes a series of strategic documents: Vision 2020, National Human Settlement Policy 2009, National Land Use Plan 2012, National Urbanization Policy 2015 and the Informal Settlement Upgrading Strategy 2015 (draft).

## 3. Ernst May: Architect and Urban Planner in East Africa

According to Ernst May, the past, present, and future of the city is orbiting as a satellite around its history. Moving from Germany to URSS, passing through East Africa, and finally coming back to West Germany is a

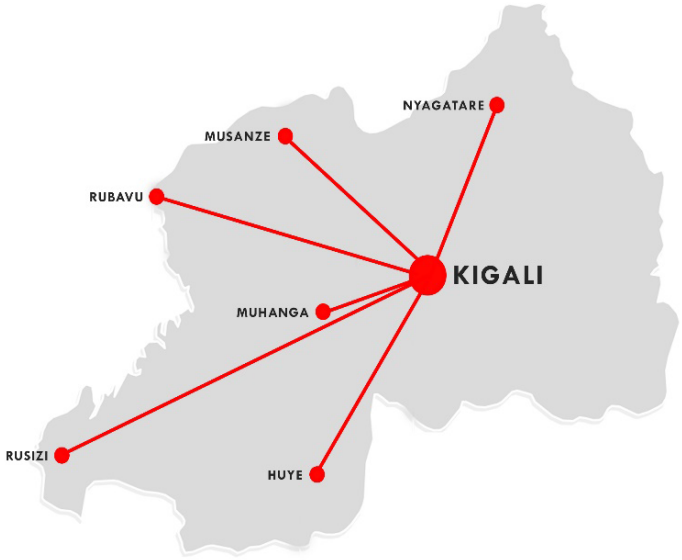



**Figure 2.** Proposed Satellite Regional Plan for Rwanda. Drawing by Manlio Michieletto.

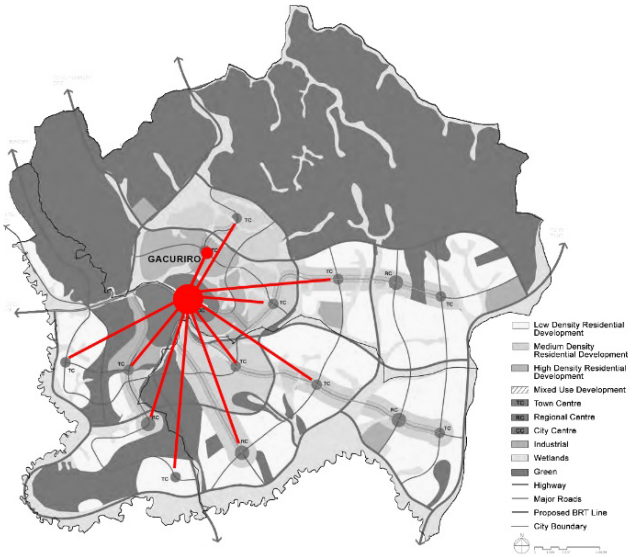



**Figure 3.** Kigali City Master Plan 2013. Drawing by Manlio Michieletto, adapted from Surbana International Consultants (2013).




**Figure 4.** Existing and future developments of Gacuriro Satellite, adapted from Umucunguzi (2018).

*voyage* in space and time, but always gravitating around one specific idea, the *Trabantestadt*. The central nucleus can be Breslau or Mombasa, Frankfurt or Kigali, what is adapting to the context is the urban design structure of the single satellite.

### *3.1. A Trabantenstadt from Breslau to Mombasa*

In 1906, Ernst May was working with Unwin and was mostly occupied with the German translation of "Town Planning in practice". It was the second English stay for the architect, who had attended London University College and was completing a cycle of university studies at the Munich *Technische Universität* (Polytechnic) with Prof. Theodor Fischer. These travels to England were one of the specificities of May's training. In fact, his work with Unwin at that time on the construction of the Hampstead Garden Suburb influenced the idea of Satellite City in May's future work. In the seventh diagram of the series contained in the text "Garden Cities of Tomorrow", Ebenezer Howard, the precursor of the *Trabantenstadt*, focuses on describing the relationship between the individual Garden Cities and the growth dynamics of the urban satellite system, but his vision of single house dwelling is abandoned in favor of the *Zeilenbau*. The first city project composed of satellites by Ernst May dates back to the competition for the Wroclaw (Breslau) plan of 1922. This proposal is based on a fundamental political premise, namely the extension of the administrative boundaries of the city to counteract the overpopulation and promiscuity between homes and industries while at the same time not forgetting the need to rationalize communication routes. The proposal of May and his collaborator Böhm, also present in the "Neue Frankfurt" working group, plans to surround the central nucleus with the *Trabanten*, as Leobschütz (Figure 6), placed beyond a narrow green belt, as it happens in the projects of garden cities by Howard and Unwin. Ernst May also provides a regional development diagram, not limiting the satellite form to municipal boundaries, but expanding the concept of *Trabantenstadt* far beyond these (Figure 5).

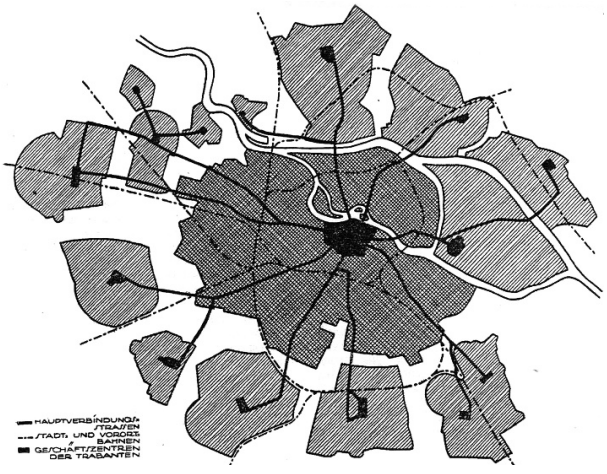


**Figure 5.** Proposed Satellite Plan for Breslau. Source: May (1922).

This vision, extended to the entire region, is visible in the National Master Plan for Rwanda, based on one capital city, Kigali and six secondary cities: Rubavu, Musanze, Nyagatare, Muhanga, Huye, and Rusizi (Figure 2). The

*Trabantestadt* designed for Wroclaw finds an application in the plan for Frankfurt (Figure 7), especially in the so-called Niddatal project (Figure 8), a satellite composed by three settlements: Römerstadt (Figure 9), Praunheim (Figure 10), and Westhausen. It is an example of a precise city development design, but above all, it is the adoption of the *Zeilenbau*. The *Zeilenabu* was a model offering a simple formula for economic democracy, with the commodities of light, air, and space equally apportioned (Henderson, 2013, p. 401), and the *existenzminimum*, the optimum arrangement to accommodate domestic life. The modern city became a formidable "social machine" (Tafuri, 1977) and mass housing became a social utility making up different social housing types, as shown in Figure 11 for the Römerstadt Siedlung. From 1925 to 1930, almost 12,000 new dwellings were built, as well as 2,000 additional apartments that had not been originally planned, as a result of a ten-year program established by Ernst May, once appointed *Stadtbaurat* (city councilor). The *Zeilenbau* system composes the Siedlung, and the Siedlung becames the affordable construction settlement targeting the low income classes (Michieletto, 2011b).

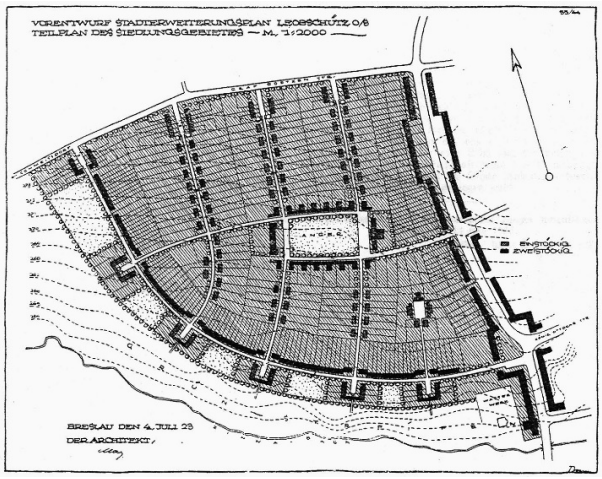



**Figure 6.** Site layout of Leobschütz Siedlung. Source: May (1923).




**Figure 7.** Proposed Satellite City Plan for Frankfurt, adapted from May (1928).

### *3.2. Kampala's Plan, the Wandegeya Satellite*

May bought a farm in 1934 in Arusha, Tanzania, but soon he was sitting at the drawing board in Nairobi, the capital of the British colony of Kenya, eager to remount his

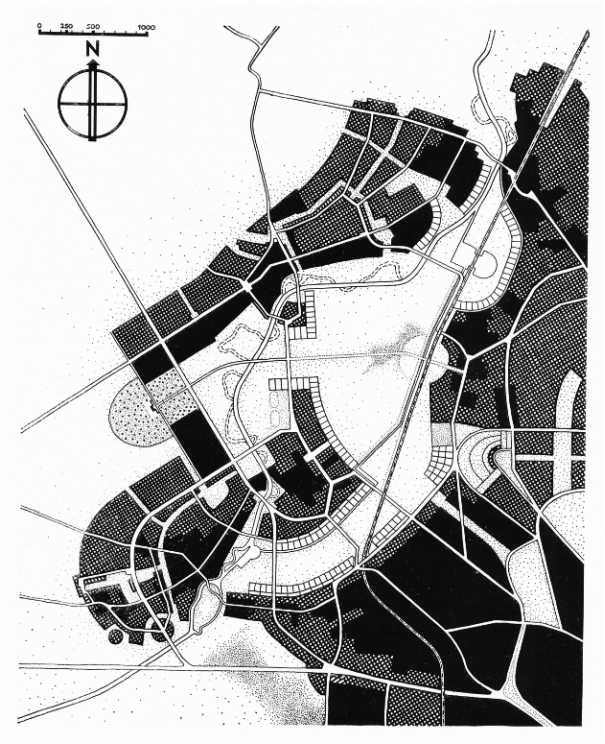



**Figure 8.** Niddatal Project. Source: May (1930).

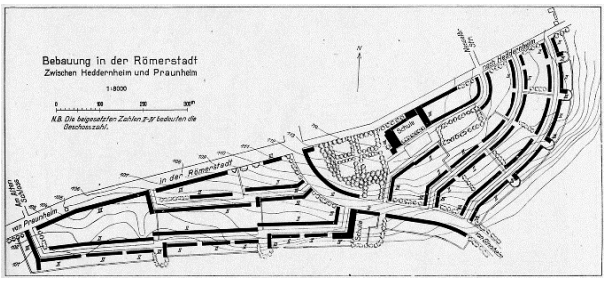



**Figure 9.** Zeilenbau in Römerstadt. Source: Schürmeyer (1928).

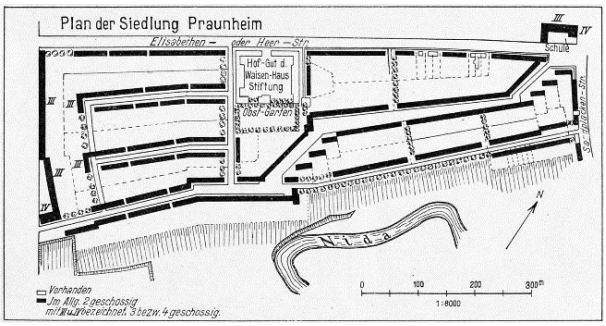



**Figure 10.** Praunheim I-II. Source: Schürmeyer (1928).

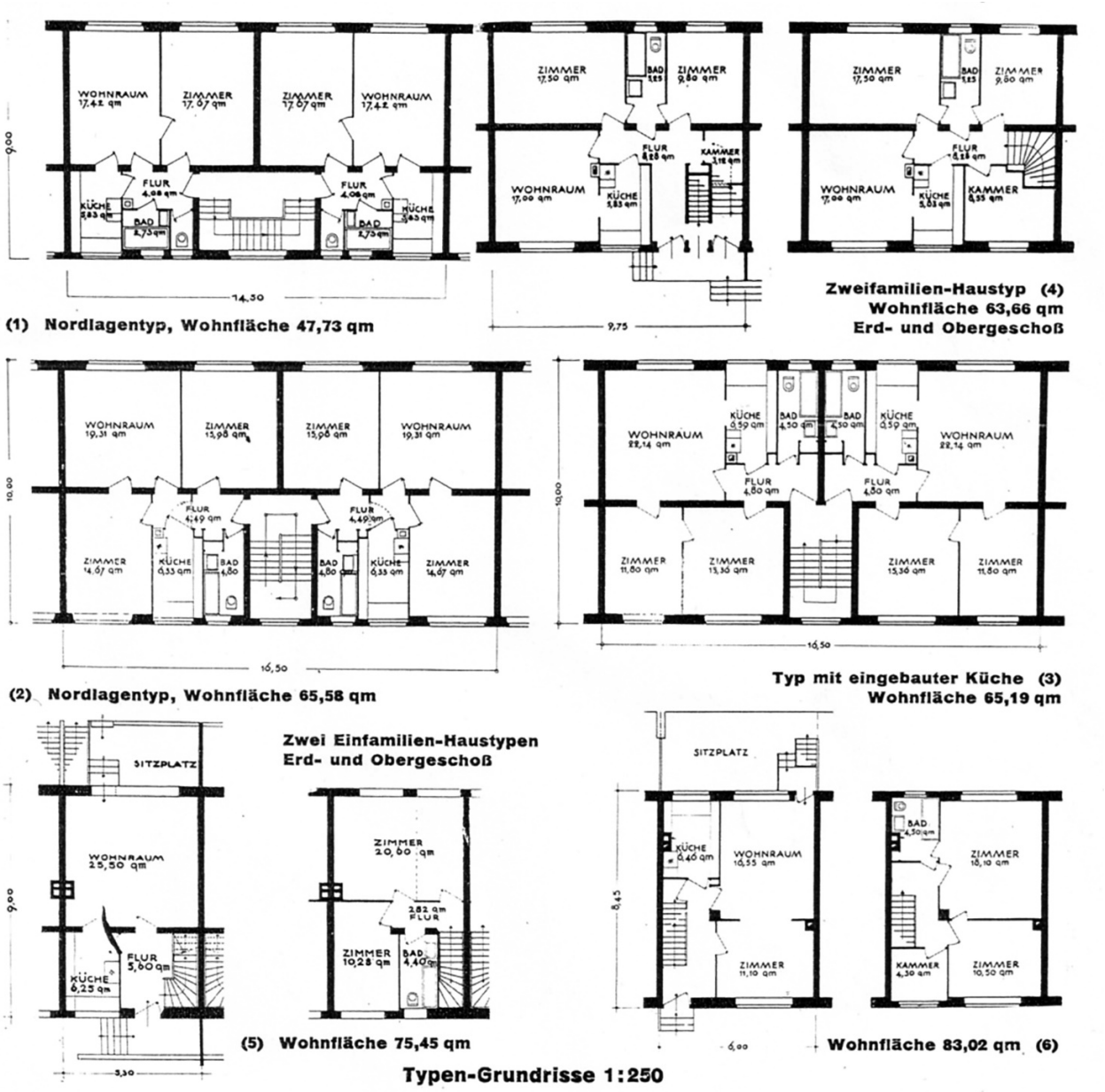



**Figure 11.** The Römerstadt Siedlung housing types. Source: Rudloff (1931).

town-planning horse and ride into battle (Byerley, 2018, p. 2). In 1947, Ernst May designed a project for the re-development of some districts in Kampala, the so-called Kampala Extension Scheme, published in his *Report on the Kampala Extension Scheme, Kololo-Naguru, Prepared for the Uganda Government* (Kultermann, 1969, p. 91). Hired by the British colonial authorities in January 1945 to institute a plan for the rapidly growing post-war building market, the plan will stand out for its progressive idea to include large settlements for low and middle-income Africans, one of the first in East Africa to do so (Gutschow, 2009, p. 246). May began his Kampala plan with the observation that the existing city was "a beautiful garden city" (Demissie, 2012, p. 388), and he conceptualized it as a grouping of nine separate but interrelated settlements, each on its own hill (Figure 12).

Each Siedlung is based on the so-called *Zielenbau* (row houses) method of planning, which involves parallel rows of low-rise housing to optimize cost, density, solar orientation, and circulation, as expressed in the Nakawa settlement (Figure 14). The *Zielenbau* pattern was the most progressive large-scale housing project realized in the 1920s, a contrast between old and new approaches cleverly captured in the *Four Stages in German Block-Planning* by Ernst May in 1932. This pattern seemed to offer an ideal means of providing modern housing for the masses (Gutschow, 2009, p. 249), even though the proposed matrix of architectural guidelines suggested several different-sized houses to accommodate the unique living habits and economic situations. If the European houses were by far the largest, the ones built for Africans were the smallest, revealing only undifferen-

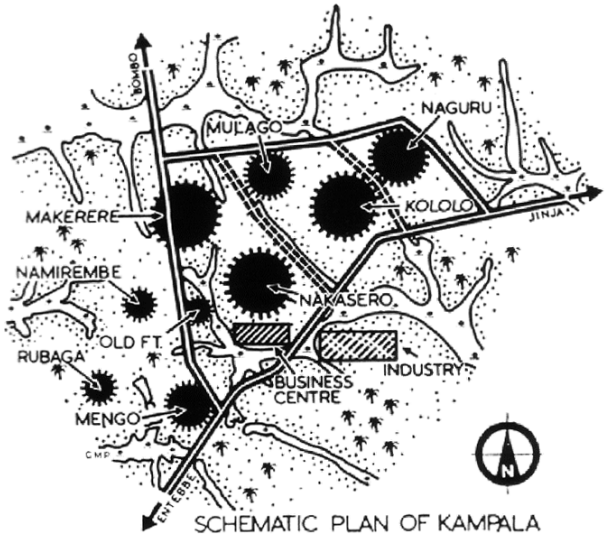



**Figure 12.** Schematic Plan of Kampala. Source: May (1947).

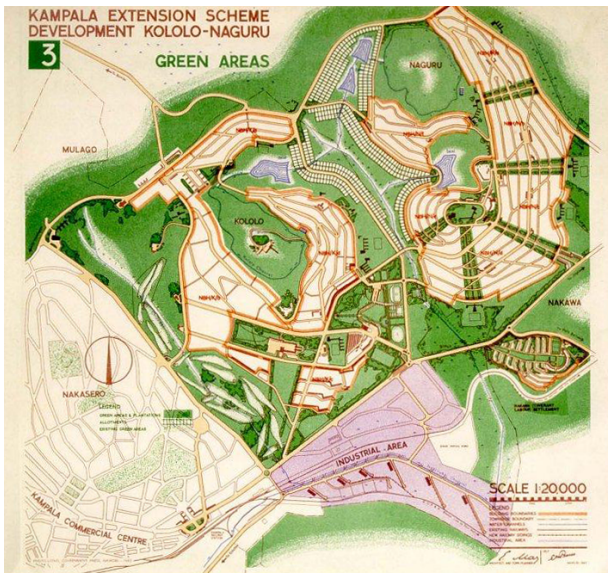



**Figure 13.** Development Kololo-Naguru green areas. Source: May (1947, Appendix).

tiated spaces, with cooking and eating facilities on the veranda. Semi-detached and detached houses arranged on both sides of the curving green streets reveal the legacy of the traditional garden city ideals. May's Kampala expansion scheme is the result of his previous experiences and studies, starting from Ebenezer Howard's *Garden City* and passing through his apprenticeship with the socialist planner Raymond Unwin in Hampstead, England, and his education as a student of Theodor Fischer in Germany (Michieletto, 2011a).

### *3.3. The Siedlung Port Tudor, Mombasa*

The port city of Mombasa, Kenya, saw its economy and population grow very quickly in the early 1950s. The first

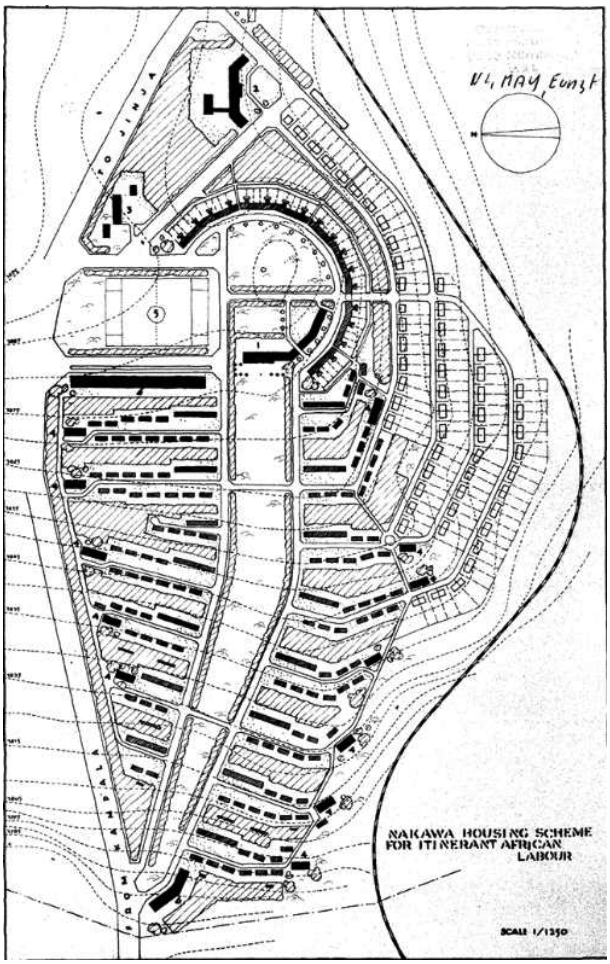



**Figure 14.** Nakawa Housing Scheme for Itinerant African Labour. Source: Herrel (2001).

projects of "social residence for Africans" date back to 1952 (Herrel, 2001), consisting of houses lined up with three floors. The opportunity to revive the well-known concept of Siedlung, outside downtown Mombasa, was offered to May by Shell, an oil corporation that had asked the architect's firm to design a settlement, the African Neighbourhood (Figure 16), for 5,000 workers west of Mombasa in Port Tudor. Again, as seen in Figure 15 (and see also Figure 17), in the middle of the plan there is a large green zone, on which the agglomerations overlook, divided into eight formally completed groups. These consist of three-storey apartment houses (a and b) and by terraced houses on two levels (c), interspersed with private gardens (m) and equipped with a social center (d).

The types of houses studied recall, very closely, the experiences of the 1920s, with particular reference to the results of the II CIAM congress in Frankfurt (1929) and the exhibition *Die Wohnung für das Existenzminimum* (the apartment for the subsistence minimum): type I–II, apartment houses for small families (Figures 18 and 19); type III–IIIa, terraced houses for large families (Figure 20); type IV, the expandable single house (Figure 21).

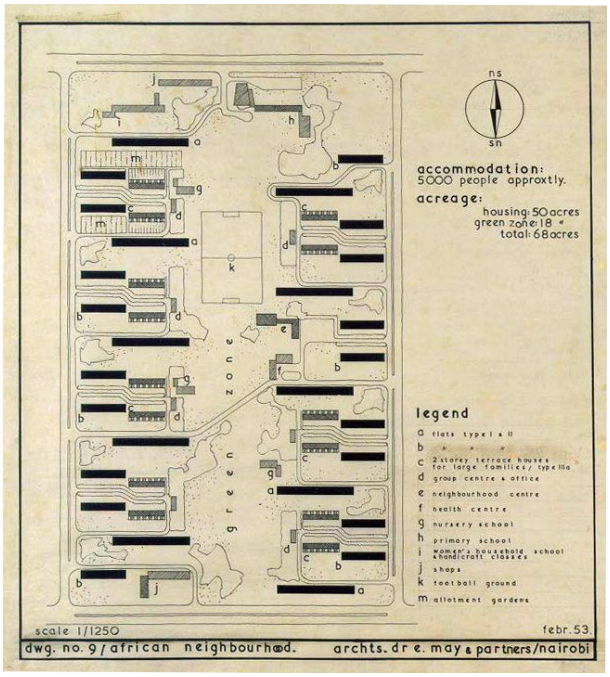



**Figure 15.** Port Tudor, African Neighbourhood. Source: Herrel (2001).

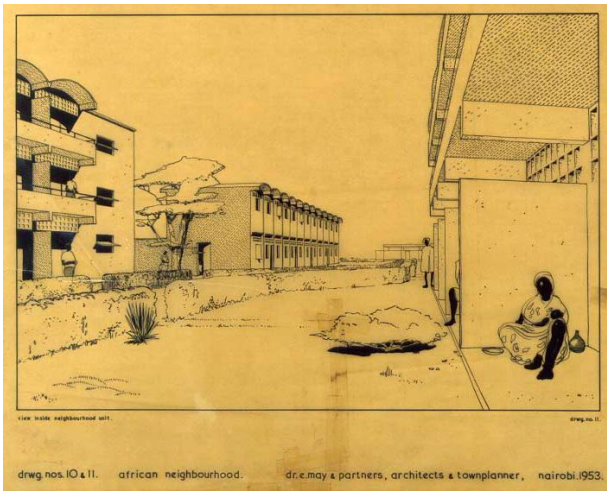



**Figure 16.** Ernst May, African neighborhood, Satellite Port Tudor. Source: Herrel (2001).

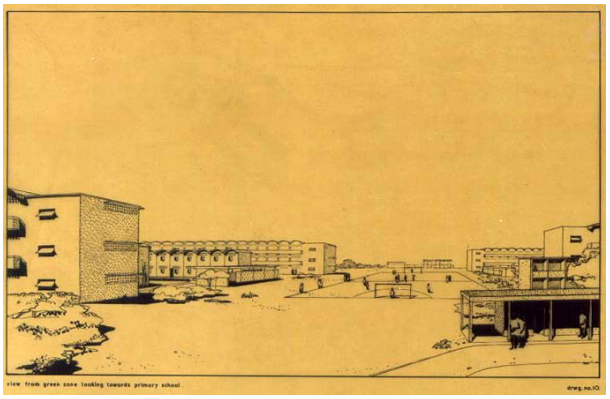


**Figure 17.** View from the green zone, Satellite Port Tudor. Source: Herrel (2001).

## 4. Spatial Urban Planning Analysis

If the Kololo-Naguru (Figure 13) scheme maintains the emphasis on new settlement areas for Europeans and Asians, but at the same time lays considerable stress on developing the organized civic life of the African so that it may graduate to full citizenship (Göckede, 2012), then the modern settlements in Kigali reveal a different conception from the colonial one. After the 60s, most of the African countries gained independence, starting the so-called post-colonial era as marked by inclusivity instead of retrograde segregation. Since 20s-era Europe, this problem could only be solved by large-scale planning (Mumford, 2002, p. 53), abandoning the typical pattern of filling blocks with deep, narrow buildings, and small interior courtyards in a pattern called *Zielenbau*.

Walter Schwagensheidt, who worked under May beginning in 1928, conducted studies to determine the correct orientation for housing blocks, concluding that the best orientation was to align the building with its long axis tilted 22-½° west of north. Between 1924 and 1930, the housing projects were mostly built in the linear *Zielenbau* model with a north-south row direction, among others: Weissenhofseidlung by Ludwing Mies van der Rohe, Wohnstadt Carl Legien by Bruno Taut and Franz HIllinger, Siedlung Westhausen by Ernst May, Groβsiedlung Siemestadt by Martin Wagner, Siedlung Dammerstock by Walter Gropius and Hellerhof Siedlung by Mart Stam. The parallel blocks tried to respond to the principle of getting direct sunlight, orienting row houses east-west to maximize south-facing exposure, achieving an optimum orientation for heating and energy savings, in line with the *Besonnungdoktrin* (doctrine of the orientation of housing towards sunlight). Therefore, this model of housing offers the advantage of every dwelling receiving its proper share of sunlight (Gropius, 1929, p. 79).

South of the equator, the building orientation is generally turned north-south and the reason behind this lies on the greater exposure to the main winds, enabling suitable cross-ventilation and reduced exposure during at sunrise and sunset. Nevertheless, the north facade is equipped with an apparatus of features selected from tropical architecture vernacular, brise-soleils, with perforated walls or revolving panels to ensure protection during the day from the solar rays coming from the north. Comparing the Gacuriro Valley Satellite with the Nittadal Project seems similar to the *Zielenbau* orientation of the Siedlung Römerstadt and part of Praunheim, facing the Nidda Valley with the orientation applied for Kigali 2020 and Kigali Vision disposed along the slope facing the Gacuriro Valley. The 4 typologies of twin houses of Kigali 2020 and the different types present in Kigali Vision are closer to the projects of R. Unwin or the Siedlungen of May in Breslau than the *Zeilenbau* system realized in Frankfurt, though both try to build the cheapest possible three-room units with rents that are affordable to the masses. In the Kigali

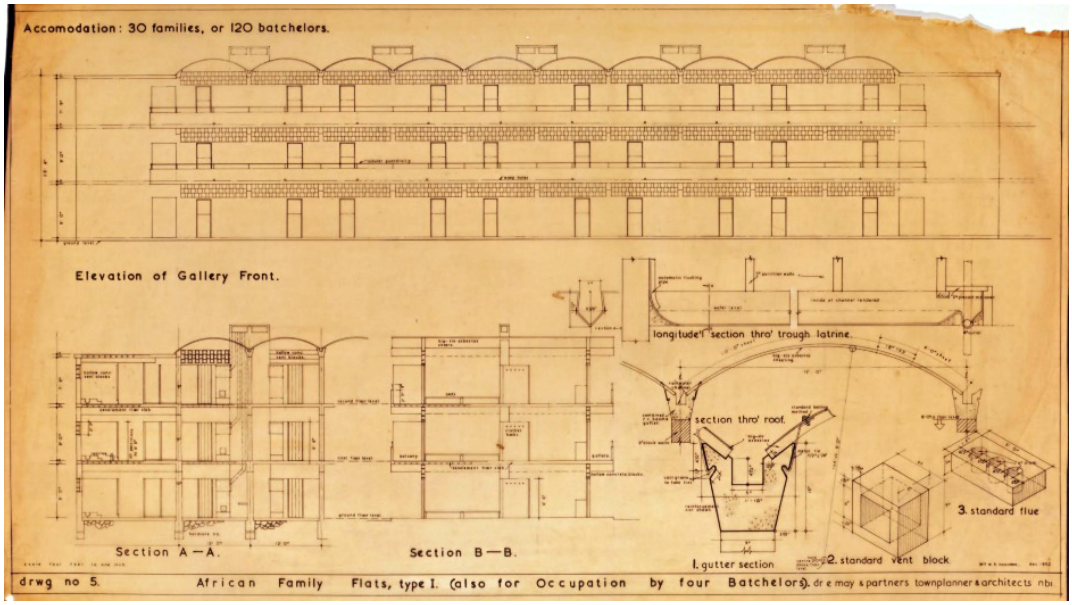



**Figure 18.** African family flats, apartment houses for small families, Satellite Port Tudor. Source: Herrel (2001).

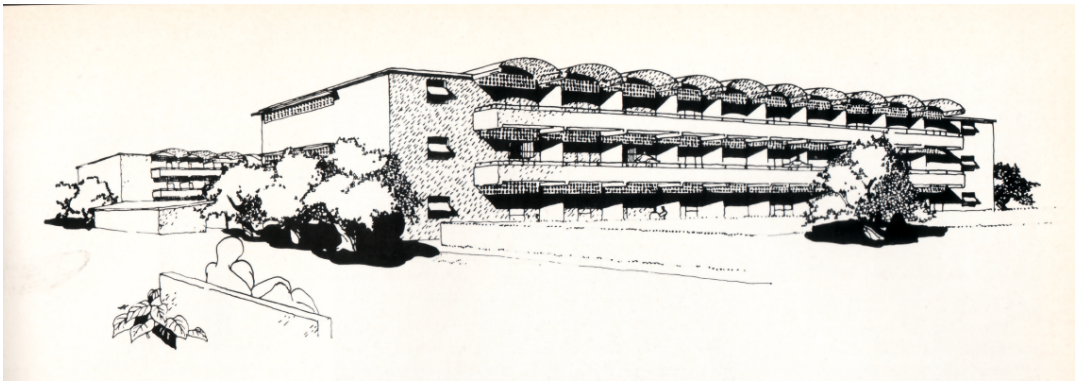


**Figure 19.** Rendering of African family flats, Satellite Port Tudor. Source: Herrel (2001).

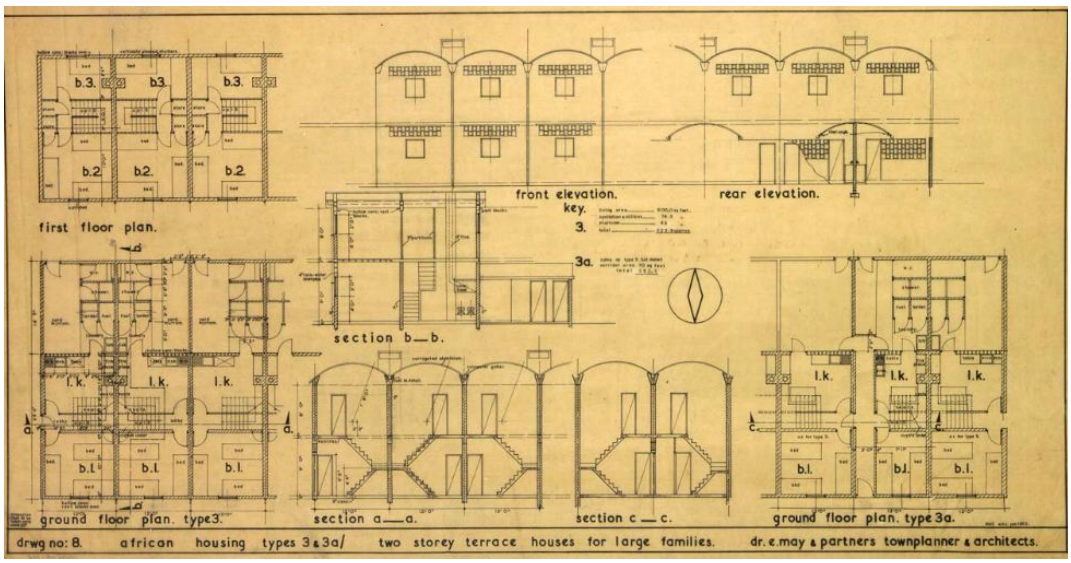



**Figure 20.** African Family Flats, terraced houses for large families, Satellite Port Tudor. Source: Herrel (2001).

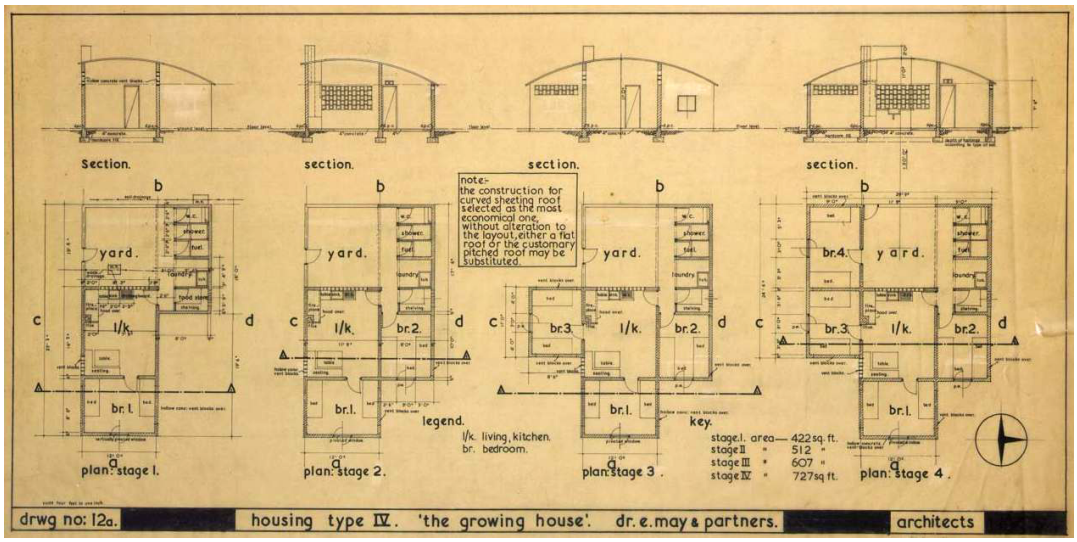



**Figure 21.** Rendering of the African Family Flats, the expandable single house, Satellite Port Tudor. Source: Herrel (2001).

2020 Settlement, the targeted echelons are not the lowest ones, so they become more analogous to the experiences of Römerstadt and Praunheim I and II rather than Praunheim III and Westhausen.

*4.1. The Formal Structure: Niddatal vs Gacuriro Valley*

By analyzing and comparing the formal structure of the May Siedlungen, specifically Leobschütz, Praunheim, Römestadt and Port Tudor, all designed for an overall city plan, the *Trabantestadt*, with the two settlements in Gacuriro, Kigali 2020 and Kigali Vision, it appears interesting that they can be read not only as mere use of the *Zielenbau* system but also as an application of precise ideas of urban design.

In the article *Siedlungspläne*, published in the pages of the first issue of *Schlesishes Heim*, Ernst May describes the Leobschütz Siedlung's design approach, highlighting the core element: the *Anger*, or central public space. Around its services, public buildings, schools, and residential blocks are set. The main road passes through the green square, also serving as the backbone for the secondary streets (Figure 22). The Siedlung Römerstadt was built from 1927 to 1928 along the *In der Römerstadt* route, which connects the villages of Praunheim and Hedderheim and the river Nidda (Panerai, Castex, Depaule, & Samuels, 1997, p. 98). It has a formal structure founded on a spine road on which facilities such as commerce and schools are grouped. May's proposal considers the spine road as a

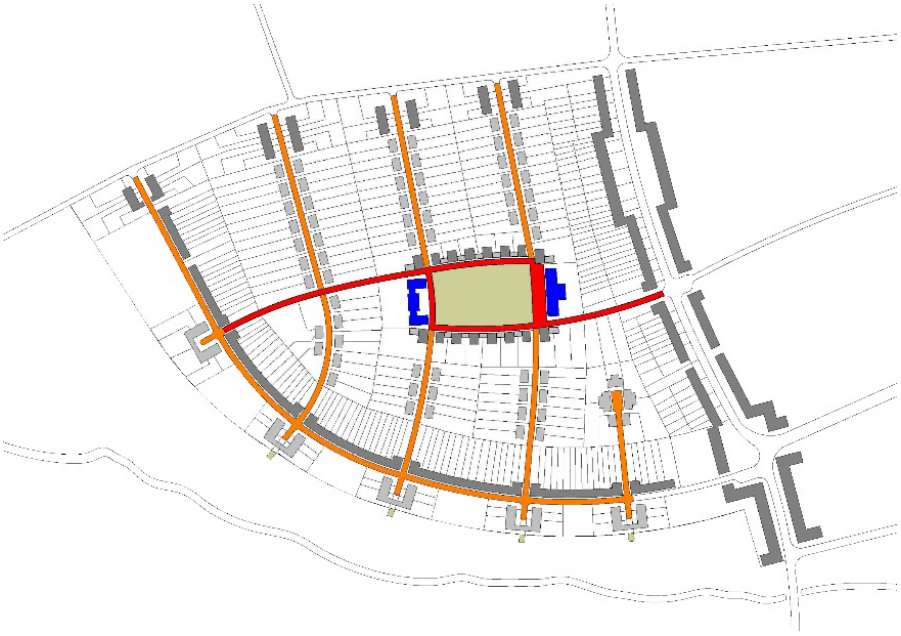


**Figure 22.** Formal structure, Siedlung Leobschütz. Drawings by Manlio Michieletto.

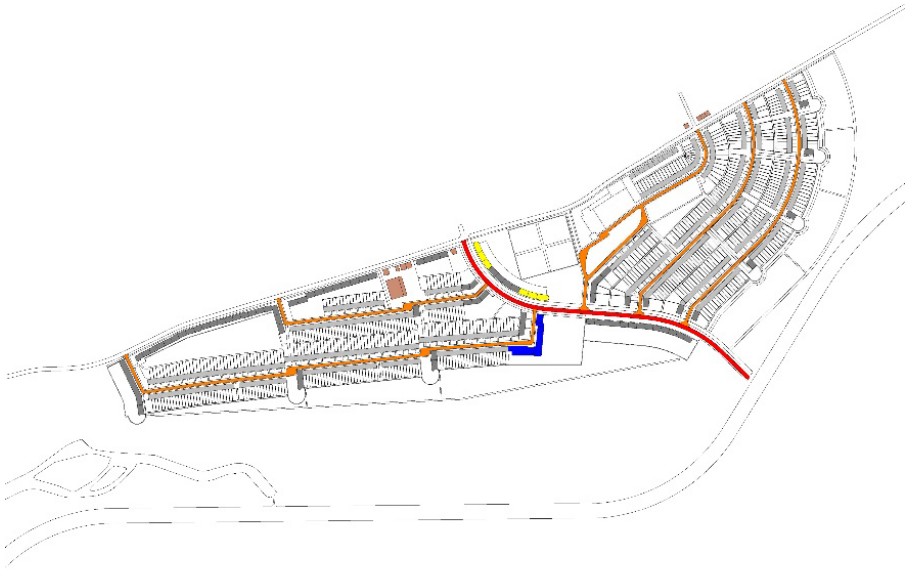


**Figure 23.** Formal structure, Siedlung Römerstadt. Drawings by Manlio Michieletto.

main constitutive element, replacing the central green square (Figure 23). The same pattern has been applied in the Siedlung Praunheim, where the *Anger* becomes the *Urtyp* of the formal structure (Michieletto, 2011c). The *Damaschkeanger* spine running from the north to the south side of the Settlement governs the architectural elements composition (Figure 24). Even Westhausen follows an analog system (Figure 25). It is located along Ludwig Landmanstrasse and its development offers an accomplished demonstration of rationalist principles (Panerai et al., 1997, p. 102). A completely different approach is applied by May in Port Tudor. In this case, he overturns the experimented layout that provides the main circulation spine identified by the commercial and public buildings, generating a central space. The created central space is the representative place of the residential units and their inhabitants, a place that belongs to the city, but where, compared to the square, which is the traditional one, the space is not closed off by the buildings (Figure 26). The resulting road's system runs peripherally, avoiding any vehicle to cross the settlement. Harar INA-CASA Neighborhood in Milan, by Luigi Figini, Gino Pollini and Giò Ponti (1955), and Lafayette Park in Detroit, by Ludwig Mies van der Rohe (1956), are similar and contemporary patterns that revolve around a new concept of green community public space.

The first settlement realized in Gacuriro has a formal structure similar to the May Siedlung of Leobschütz. A green area—a sort of center of gravity—identified by the public services and buildings, regulates the surrounding dwelling blocks (Figure 31). Mass housing formed by rows of semi-detached units faces the Gacuriro Valley sinuously following the topography and ensuring a correct sun and wind exposure. Kigali Vision revamps a pattern

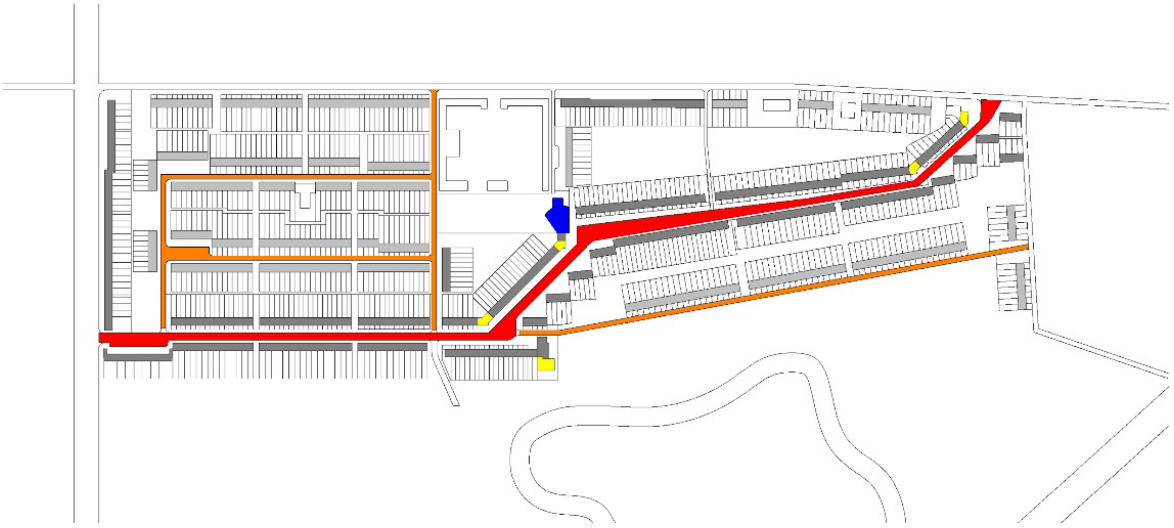


**Figure 24.** Formal structure, Siedlung Praunheim. Drawing by Manlio Michieletto.



**Figure 25.** Formal structure, Siedlung Westhausen. Drawing by Manlio Michieletto.

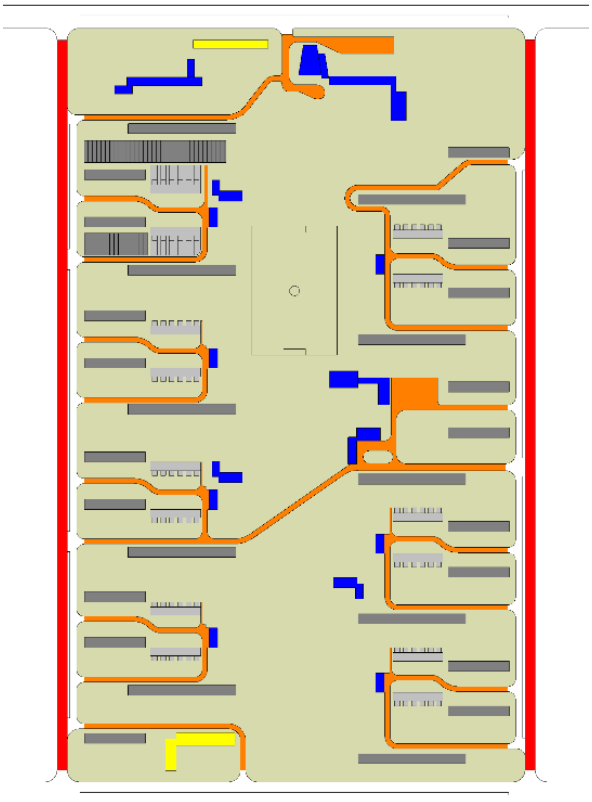


**Figure 26.** Formal structure, Port Tudor Satellite. Drawing by Manlio Michieletto.

used by May in his East African spatial planning projects. From east to west the settlement is dominated by a narrow green strip in which few public services are located and the community can recognize a traditional "courtyard" on large scale (Figure 44).

### 5. Gacuriro Valley Satellite

The plan for Kigali 2020 included the development of an *umudugudu* in the Gacuriro Valley that saw its completion with the recent Kigali Vision Settlement (Figure 27).

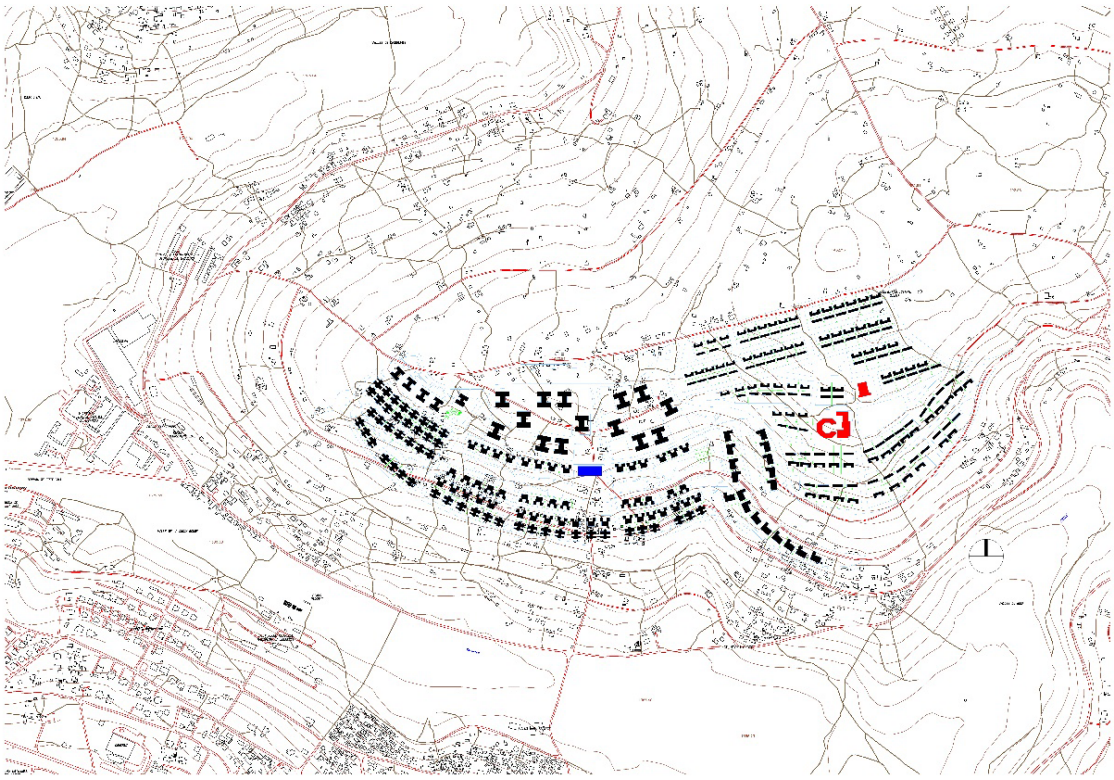


**Figure 27.** The Gacuriro Valley Satellite over the original situation. Drawing by Manlio Michieletto.

Gacuriro is an area located in the north-east part of the Rwandan Capital that was previously devoted to agriculture and scattered houses (again, see Figure 3). Housing the increasing masses through a rational conurbation had been seen as an urgent need since 17% of the country's total population lives in urban areas, a rate that is set to expand to 35% by 2020.

### *5.1. The* Umudugudu

The Kinyarwanda words *umuhana* and *umudugudu* are both translated as "village" or "neighborhood". *Umuhana* defines a social group more than an agglomeration of buildings; it is an entity of families that share the ownership of the land they work, whereas *umudugudu* is applied mostly to groupings of houses. The national human settlement policy adopted in 1996 focuses on urban planning, restructuring of unplanned residential areas in towns, and the regrouping of the rural population. To address the emergency situation and condition after the 1994 Genocide facing the return of thousands of refugees, the new policy could afford to build between 1995 and 2001, more than 265,000 houses (ROR, 2004). *Umudugudu* is a planned settlement model for a range of one to two hundred houses in rural areas and, multiple *imidugudu* form a cell (*akagari*), many of which, when aggregated, form a sector (*Umurenge*). In recent years, *umudugudu*, the smallest administrative unit in Rwanda, has been included in official city documentation for development, which is a symbol of the policy put in place to redistribute and concentrate the population. Across the country, these units are grouped into thirty-three districts, known as *akarere*, meaning "place" or "region".

### *5.2.* Umudugudu *Kigali 2020*

The Vision 2020 is the result of a consultative process conducted between 1997 and 2000, successively revised in 2012. Each town has to get an updated master plan, and in this first stage, the satellite city sees the realization of one of its components in the Kigali 2020 Settlement. Kigali Gacuriro Valley's satellite settlement is basically made by two projects set up by the RSSB, Rwanda Social Security Board, and partially revisited in the Master Plan 2013, as previously mentioned (Figure 27).

#### 5.2.1. Compositional Structure and Circulation

In 2005, the first phase, "Belle Vue", was completed with 152 twin houses given to the RSSB beneficiaries (Figure 31). Four different variations of the same type, the twin house, for four different civil servants composed the residential area surrounding the central green area with common services such as the International school, the church, and a park (Figures 28, 29 and 30).

#### 5.2.2. Four Twin Houses Typologies

The houses are placed along the contour lines following the north-south orientation and facing the Gacuriro



**Figure 28.** The Kigali 2020 Central Park. Photograph by Manlio Michieletto.



**Figure 29.** The Kigali 2020 Church. Photograph by Manlio Michieletto.




**Figure 30.** The Kigali 2020 International School. Photograph by Manlio Michieletto.

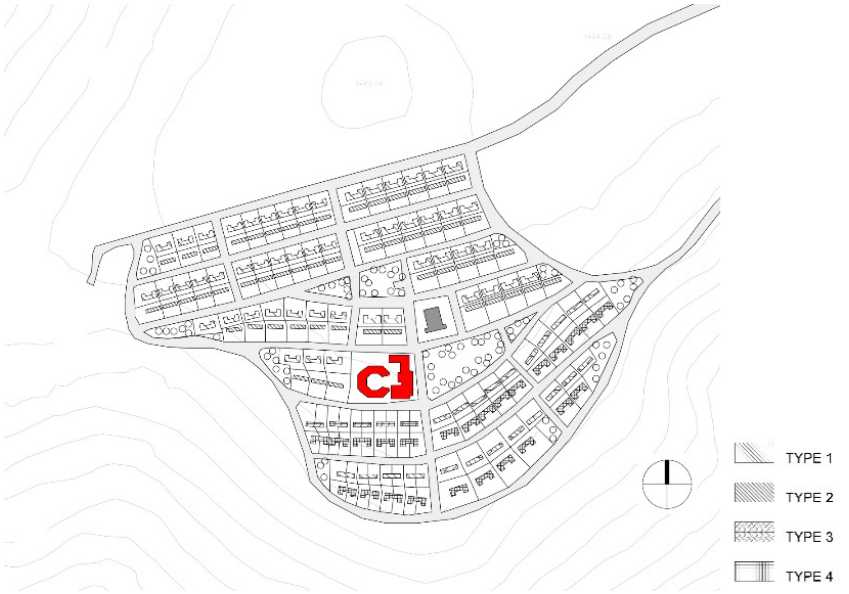



**Figure 31.** The *Umudugudu* Kigali 2020: 4 different twin house types. Drawing by Manlio Michieletto.

Valley. At the top of the settlements, the smallest and most affordable units, types 1 and 2 (Figure 33), have been designed for the flat area, flatness visible also in the internal distribution (Figure 36). In contrast, types 3 and 4 (Figure 33) at the bottom dealt with a different topography, increasing the surface and the spatial relationship with the topographic context, both for the indoor and outdoor space, reaching a compositional articulation




**Figure 32.** The *Umudugudu* Kigali 2020: Ground and first floor twin house types 4 and 3. Drawing by Manlio Michieletto.

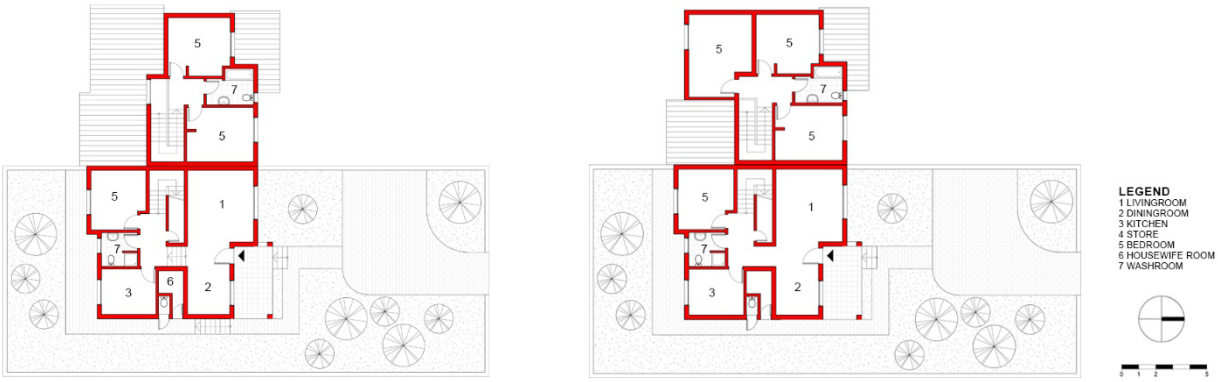



**Figure 33.** The *Umudugudu* Kigali 2020: Ground and first floor twin house types 2 and 1. Drawing by Manlio Michieletto.

comparable to the *raumplan* (Figures 34 and 35). Type 4 is expressly conceived for accessibility from the upper side of the southern roads and type 3 for the lower side,



**Figure 34.** Twin House Type 4: Living room. Photograph by Manlio Michieletto.



**Figure 35.** Twin House Type 4: Front yard. Photograph by Manlio Michieletto.



**Figure 36.** Twin House Type 1: Living room. Photograph by Manlio Michieletto.

but both provide a nice view of the landscape and valley below. Each unit has a consistent private garden split in the front yard, *irembo* (Figures 35, 37, 39 and 40), and backyard, *igikari* (Figure 38), the one traditionally devoted to domestic activities.



**Figure 37.** Twin House Type 1: Front yard. Photograph by Manlio Michieletto.



**Figure 38.** Twin House Type 3: Back yard. Photograph by Manlio Michieletto.



**Figure 39.** Twin House Type 3: front yard. Photograph by Manlio Michieletto.



**Figure 40.** Twin House Type 2: Front yard. Photograph by Manlio Michieletto.

5.2.3. Building Materials and Greenery applied

All the houses are built using local materials: granite stone foundation, fired bricks masonry, tiled/pitched roof, and features that guarantee high comfort and sustainability. The use of clay raises thermal mass and drastically decreases energy consumption. The steel frames of all openings and the steelworks above are modular and the same for all dwelling types, introducing standardization as a constructive process for housing mass production. Originally, the main gate was designed with cypress sticks to highlight the house's affordability (Figure 42). Another interesting aspect is the orientation of the units, with the main elevations north-south and the east-west characterized by few and small openings as they are more exposed to the sun. An overhanging roof is able to protect from the north side heat but is not enough to shield from the heavy seasonal rains. Regarding the greenery (Figure 41), each unit is provided by a front and back yard that are well-proportioned and adequate for outdoor life and activities, washing, drying, and cooking, as well as hosting all the technical facil-




**Figure 41.** Public and private gardens in Kigali 2020 Settlement. Drawing by Manlio Michieletto.

ities such as the tank to harvest water (Figure 43). In the African Neighbourhood, Ernst May provided an adequate outdoor space on the ground floor (Figure 17). Public Greenery is represented by a central park around which the public facilities have been concentrated. The use of individual gardens and greenery also constituted a major part of the overall greenery of the settlement. This allowed inhabitants to personalize their space and also ensure that the individual plots create good microclimatic conditions. The use of lawns, flowers, and trees was key towards encouraging individuals to have some form of outdoor living, which is fundamental to the inhabitants of Kigali. The general greenery within the settlement and the individual plots ensure that the quantity of energy consumed for cooling in the settlement is greatly reduced.



**Figure 42.** Typical gate. Photograph by Manlio Michieletto.



**Figure 43.** Backyards in between rows. Photograph by Manlio Michieletto.

### *5.3. Umudugudu* Kigali Vision

In 2017, the second phase completing the Gacuriro Valley Satellite, the *Umudugudu* Kigali Vision 2020, provided a wide range of different dwellings, from the condominium to twin houses to the single villa, seeking to cover the new spectrum of social classes' incomes. This is a new spectrum because since 2005, the national economy has grown substantially and is, in fact, the best performance in the sub-Saharan region, generating a different and improved, in terms of building typologies, real estate demand. UDL Ltd is a real estate company, fully owned by the RSSB, and it is in charge of managing the Settlement and allocating special offers for potential dwellers. Recently, a 60% discount on the available apartments has been advertised in order to attract eligible civil servants, assuring a low-rate loan that may offer the chance to have a home at a relatively reasonable price.

#### 5.3.1. Compositional Structure and Circulation

The whole settlement counts 544 units, divided into different dwelling types to follow a zoning strategy with the highest building at the top of the area. They are mostly flat at the top, the height decreasing as one moves down the hill to adjust to the bottom topography (Figure 44). In between the upper and lower sides, a green strip connects the east and west parts of the settlement, collecting also the common facilities: a school, the community center, and the sports courts (Figures 47 and 48). A fence surrounds Kigali Vision, giving it a protected and segregated compound nature (Figures 45 and 46), while at the same time rejecting a full community engagement able to set guidelines for future developments. The settlement sets on a well-structured circulation both for vehicles and pedestrians, with large parking lots provided near the condominiums.

#### 5.3.2. Condominium, Townhouse, Twin Houses, and Villas

The aim of Kigali Vision City is to provide a 'modern' way of dwelling in a safe and quiet environment, allowing 'modern' people to experience 'modern' life in a wider range of housing types than before. If the Kigali 2020 Settlement makes use of just one precise type—the twin house—translated in four different solutions related to different salary incomes, the Kigali Vision City becomes an affordable building. An apartment costs less than a twin house, a twin house less than a townhouse, and a townhouse less than a villa. Starting from the villas, defined as Luxury Villas, there appears to be an absolute indifference toward the topography in the internal arrangement (Figures 49 to 52), which contrasts with the external layout's adaptation to the context, but at the same time questioning its functionality. While similar in layout, the Twin Houses and the Townhouses differ in name and respond differently to the contours to the site (Figures 53 to 58). The front yard, being almost non-existent (Figures 54 and 57), is mirrored in the backyard (Figures 55 and 58). The privacy, *bwite*, is here contradicted by a design

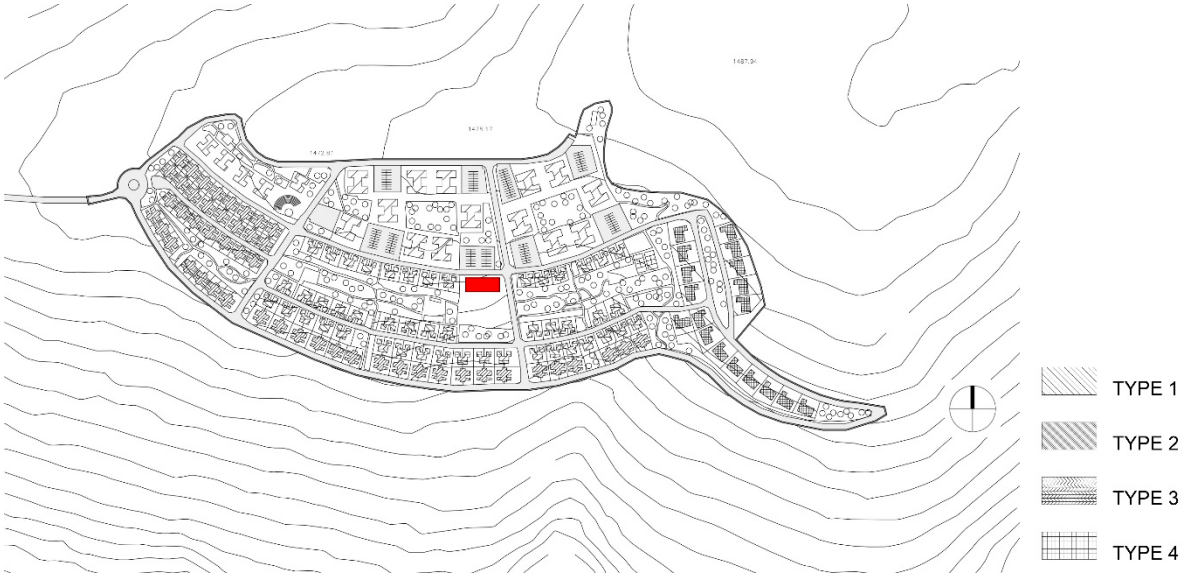



**Figure 44.** The *Umudugudu* Kigali Vision: Different dwelling types. Drawing by Manlio Michieletto.




**Figure 45.** The *Umudugudu* Kigali Vision main gate. Photograph by Manlio Michieletto.



**Figure 46.** *Umudugudu* Kigali Vision: Road between the two settlements. Photograph by Manlio Michieletto.



**Figure 47.** The narrow central green area, west views Photograph by Manlio Michieletto.



**Figure 48.** The narrow central green area, east view. Photograph by Manlio Michieletto.

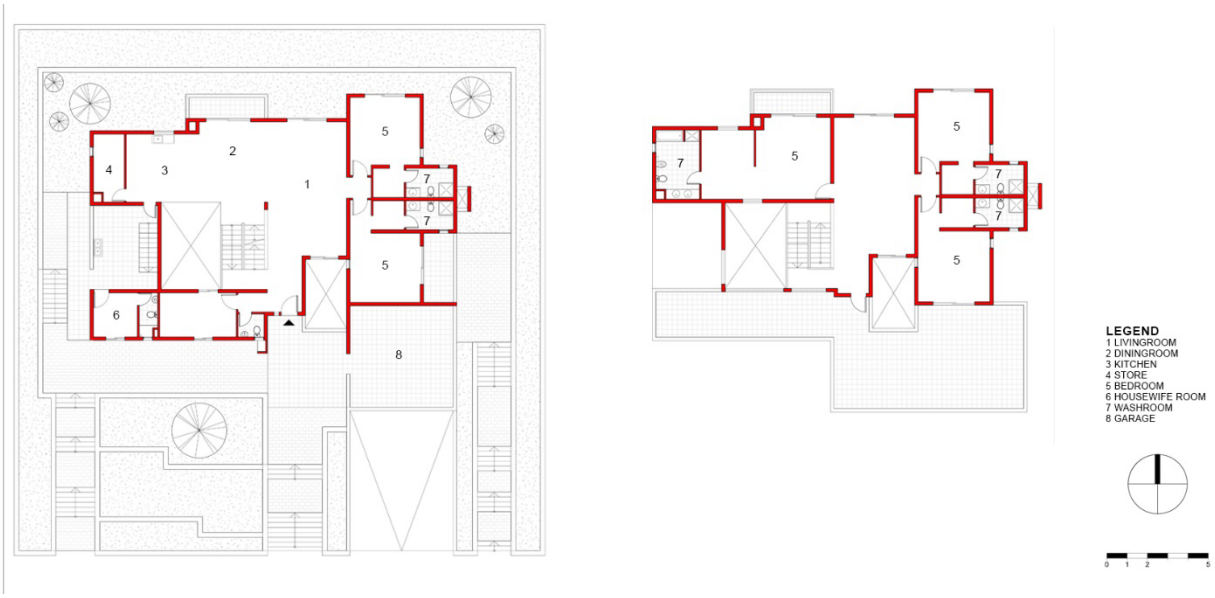



**Figure 49.** The *Umudugudu* Kigali Vision: Ground and first floor, 5-bedrooms Villa. Drawing by Manlio Michieletto.



**Figure 50.** The *Umudugudu* Kigali Vision: 5-bedrooms Villa, front yard. Photograph by Manlio Michieletto.



**Figure 51.** The *Umudugudu* Kigali Vision: 5-bedrooms Villa, back yard. Photograph by Manlio Michieletto.

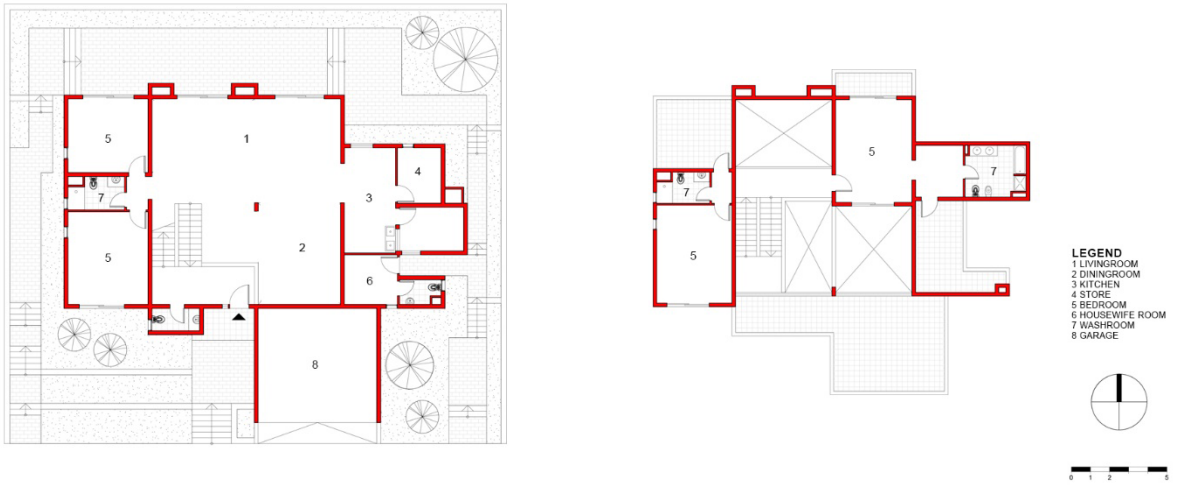



**Figure 52.** The *Umudugudu* Kigali Vision: Ground and first floor, 4-bedrooms Villa. Drawing by Manlio Michieletto.

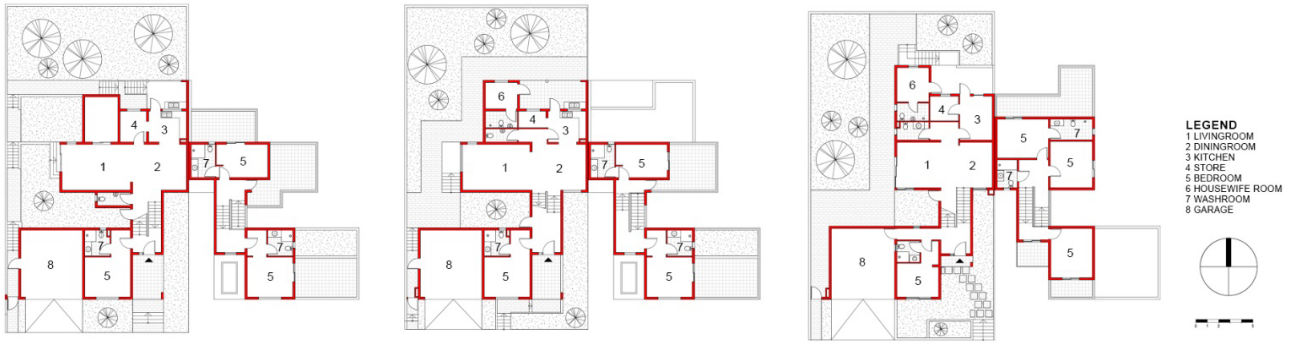



**Figure 53.** The *Umudugudu* Kigali Vision: Ground and first floor twin houses (3-4 Bedrooms). Drawing by Manlio Michieletto.



**Figure 54.** The *Umudugudu* Kigali Vision: Twin houses (3–4 Bedrooms); front yard. Photograph by Manlio Michieletto.



**Figure 55.** The *Umudugudu* Kigali Vision: Twin houses (3–4 Bedrooms); back yard. Photograph by Manlio Michieletto.




**Figure 56.** The *Umudugudu* Kigali Vision: Ground and first floor town houses. Drawing by Manlio Michieletto.



**Figure 57.** The *Umudugudu* Kigali Vision: Twin houses; front yard. Photograph by Manlio Michieletto.



**Figure 58.** The *Umudugudu* Kigali Vision: Twin houses; back yard. Photograph by Manlio Michieletto.

that is unable to include and incorporate a social and anthropological behavior, unlike the Twin Houses in Kigali 2020. The H shape ensures a constant cross-ventilation to the condominium, but due to their location at the top area of the compound, it deserved a better view of the Valley and the Kacyiru Hill (Figures 59 and 60).

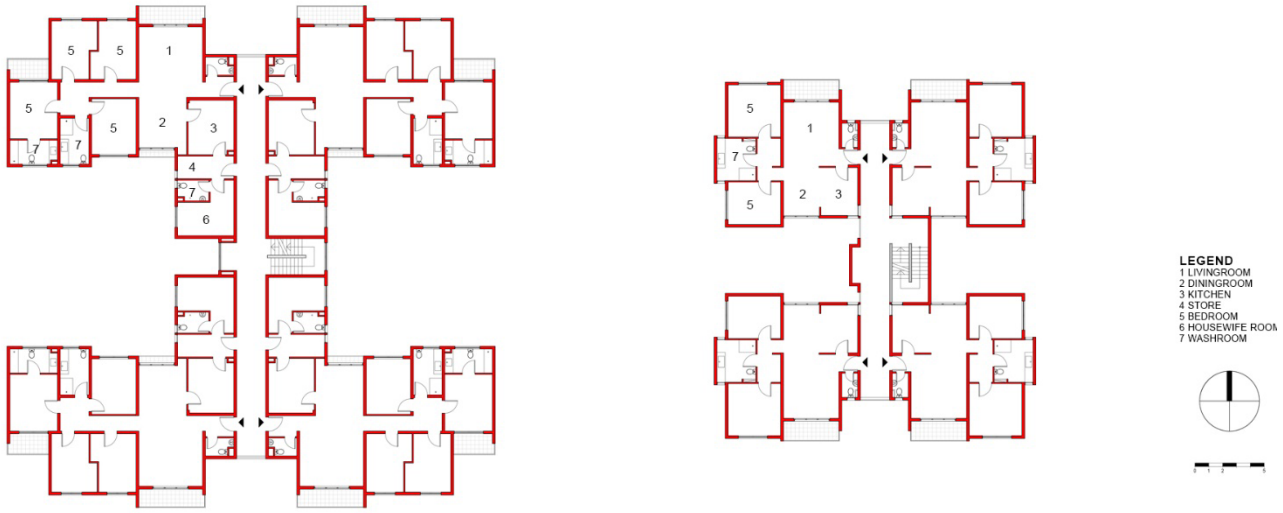



**Figure 59.** The *Umudugudu* Kigali Vision: Type floor condominium (2-4 bedrooms). Drawing by Manlio Michieletto.



**Figure 60.** The *Umudugudu* Kigali Vision: Condominium (2-4 bedrooms). Photograph by Manlio Michieletto.




**Figure 61.** Public and private gardens in Kigali Vision Settlement. Drawing by Manlio.

5.3.3. Building Materials and Greenery Applied

The architectural language used in the *Siedlung* recalls the examples realized by the Neues Bauen, *licht luft sonne!*, a sort of transplanting process that has not completely achieved the expected results. In a climate dominated by the alternation of two main seasons, rainy and dry, a logical design must take into account all principles related to construction in the tropical equatorial zone. Orientation plays a key role as well, with main elevations facing the north and south sides, allowing adequate cross ventilation, enclosing the other elevations as much as possible. The orientation of the 5-bedroom Villas is wrong (Figure 49), with the long facades on the east-west axis, meaning that the orientation of the building contradicts the advised practice of following the contour lines' alignment. Regarding this point, Kigali 2020 set up all units observing the existing topography and morphology while avoiding any extra exaction work. The roof terraces, being highly spread, are not functional if not well screened from sun and rain, but they are also insulated as the heating is mostly zenithal (Figure 4). Materials are also fundamental in maintaining an appropriate level of comfort and the use of cement blocks and concrete creates a high energy consumption building, especially with the installation of AC machines. Flat or pitched overhanging roofs and horizontal or vertical *brises soleil* have to be part of the design process and represent the tropical architectural vernacular. Regarding the greenery (Figure 61), in addition to the main narrowed park seen in Figures 47 and 48, there is a reduced outdoor space in each unit, *igikari*, which is very important in the daily life of the population, and becomes more of a garden in which the presence of a banana tree traditionally symbolizes a family unit dwelling, but in this case has lost its size, value, and functionality (Figures 55 and 58).

## 6. Conclusion

Ernst May introduced the experimented model of the Satellite City in the East African Region with the Kampala Extension Scheme, a model that Kigali has tried to reapply 60 years later through different master plan stages targeting one of the major problem of African Cities: providing mass and affordable housing for an increasing urban population. The Gacuriro Valley Satellite is an architectural piece of the city aiming to solve the mentioned issue and to reshape the development of Kigali, but it is above all an architecture interpreted and executed through two different projects, or *imudigudu*: Kigali 2020 and Kigali Vision. Kigali 2020 is more anchored to the morphological, topographical and geographical context, and is more Rwandan when compared to Kigali Vision, which is misleading in its interpretation of the concept of 'modern', using an architectural language that is less global and less sustainable than the local language. The construction materials used, the overall orientation related to the cross ventilation and the sun path as well as the proposition of a concept of living that is traditionally practiced in the Country are the missing elements in the Kigali Vision Settlement. The variety of housing typologies and the infrastructure provided within the design allows different categories of people to be accommodated in the Satellite becoming a valid example for a sustainable urban growth. *Trabantestadt* and mass housing remain effectual components in the development of a modern city.

## Conflict of Interests

The authors declare no conflict of interests.

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# PART III

# ACTUALISING CIAM IDEAS

COGITATIO

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Commentary

# CIAM and Its Outcomes

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**Abstract**
CIAM, the *Congrès Internationaux d'Architecture Moderne*, founded by a coalition of European architects in 1928, was an international forum for new ideas about the urban design of housing and cities in an emerging socialist context. Its most influential concepts were the *Existenzminimum*, the small family housing unit affordable on a minimum wage income and the focus on CIAM 2, 1929; the design of housing settlements of such units, the focus of CIAM 3, 1930; and the Functional City, the idea that entire cities should be designed or redesigned on this basis. This article briefly explains these ideas and considers some of their subsequent outcomes.

**Keywords**
CIAM; Existenzminimum; functional city; urban housing; Zeilenbau

**Issue**
This commentary is part of the issue "Housing Builds Cities", edited by Luca Ortelli (École Polytechnique Fédérale de Lausanne, Switzerland), Chiara Monterumisi (École Polytechnique Fédérale de Lausanne, Switzerland) and Alessandro Porotto (École Polytechnique Fédérale de Lausanne, Switzerland).

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CIAM, the *Congrès Internationaux d'Architecture Moderne*, was founded by a coalition of European architects in 1928. It defined itself as a forum for new design ideas, and not as a bureaucratic organization, with the result that its financial basis was always quite tenuous and reliant on individual patrons. At CIAM 2, held in Frankfurt in 1929, with representatives mostly from various northern European cities, the group took up the issue of the *Existenzminimum*, the family housing unit affordable on a minimum wage income (CIAM, 1930). It also began using same-scale plans to compare various minimum unit layouts by its members, illustrating the idea that previous conceptions of 'architecture', based on the use of historic precedents and intended for expensive and honorific buildings, were now obsolete. This direction was part of the *Neues Bauen* (New Building) in Germany, where architects like Hannes Meyer, the director of the Bauhaus from 1928–1930 and a participant at La Sarraz, had advocated that architects turn toward scientifically-based solutions to the immediate living and working conditions of the masses (Figures 1–3).

Since then, the validity of this direction for architecture has been much debated. The *Existenzminimum* may be CIAM's most significant concept, as the group defined it as the basic planning unit for larger structures ranging from a single building to entire regions. Individual building projects by CIAM members based on it include Wells Coates's Isokon Flats (Figure 4) in Hampstead, London, 1934, Josep Lluis Sert's, Casa Bloc in Barcelona, 1933, and Sven Markelius's Collective House in Stockholm, 1935.

At CIAM 3, held in Brussels in 1930, CIAM turned to the design of housing settlements composed of minimum units, whose form was then a subject of debate. CIAM rejected the then-standard European use of perimeter block urban housing patterns, as they argued that these did not create equal access to sunlight and good ventilation in every unit. Instead, CIAM advocated that new housing be built in widely spaced Zeilenbau rows, like those designed by Ernst May and his associates in Frankfurt, which they would also soon begin to propose for new Soviet cities like Magnitogorsk, Russia. These were to be organized into walkable 'neighbourhood units', a term first used in North American planning. Each unit would be no larger than ½ mile (0.81 km) in diameter, centred on an elementary school and also including other collective services. This concept

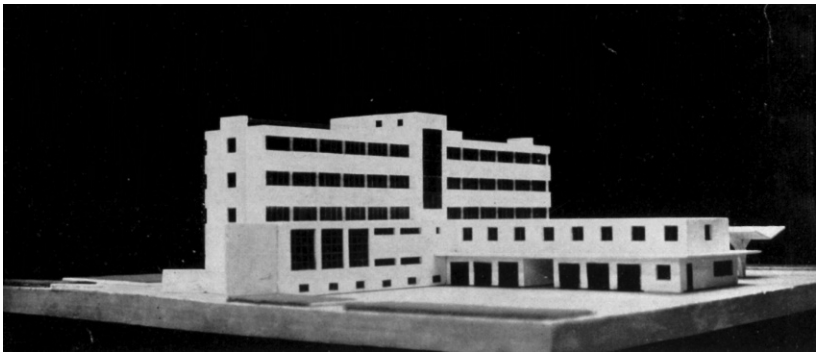


**Figure 1.** Model for hotel for auto tourists project, 1923, by Gabriel Guévrékian. Source: Gropius (2019, p. 50).



**Figure 2.** Neubühl housing settlement 1932, Zurich, by Swiss CIAM architects (originally published in *Rationelle Bebauungweisen*, 1931). This project was example #19 from the CIAM 3 proceedings. Source: Wikimedia Commons (2007).



**Figure 3.** Neubühl housing settlement, Zurich, 1931, by Swiss CIAM architects. View of a row of minimum housing units, looking toward Lake Zurich. Source: Mumford (2009).



**Figure 4.** Wells Coates, Isokon Flats, Lawn Road, Hampstead, London, 1934. An application of the *Existenzminimum* idea in a lowrise collective housing block by a member of the MARS Group, with shared services. It housed Walter Gropius, Arthur Korn, and some other CIAM members in England in the mid-1930s. Source: Wikimedia Commons (2005).

was then widely applied in mass housing projects worldwide and has proved to be a durable legacy of CIAM, one that it shared with some other twentieth century planning directions.

At CIAM 3 another debate also emerged, on the suitability of high-rise building for workers' housing. High-rise elevator apartment buildings had been constructed in New York since the early 1880s. Auguste Perret and Le Corbusier in Paris each made design proposals that entire cities could be built in this way. In Le Corbusier's Contemporary City for Two Million project (1922), the cruciform towers were for offices, surrounded by 8 story housing blocks organized into walkable green superblocks bounded by high-speed traffic routes. At CIAM 3, Walter Gropius and Le Corbusier both argued that in areas of high land costs, widely spaced housing slabs with elevators were a better housing form than the more economical four story Zeilenbau (Figure 5) patterns (Gropius, 1943).

Among the reasons for this debate was the question of the nature of family life in a collectivist society. Some Soviet CIAM architects and other CIAM members like the Prague critic Karel Teige advocated new forms of communal living like the Narkomfin apartments in Moscow of Ginsburg and Milinis (1928). At the same time, this type was already being widely used for hotels and luxury housing, and soon modern architects began to make proposals for it also, as at Gropius and Fry's unbuilt project for St. Leonard's Hill, near Windsor Castle outside London (1935). Among the few built examples of a high-rise slab of minimum units like that envisioned by Gropius in 1931 by a CIAM member is Willem Van Tijen's Bergpolder Flats (Figure 6) in Rotterdam (1932–34). This debate over high versus low building was never resolved in CIAM.

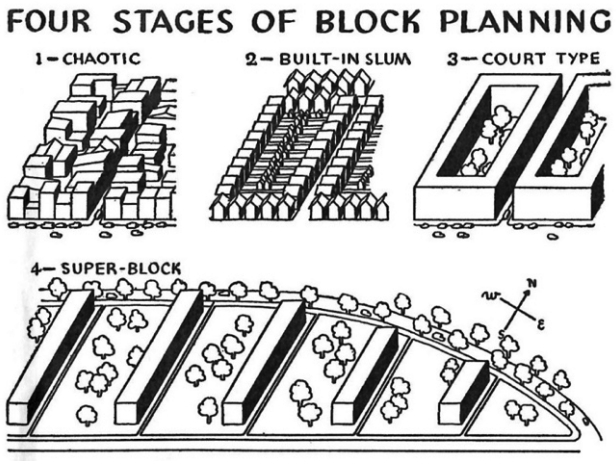



**Figure 5.** A 1940 diagram of Zeilenbau planning, showing its advantages for preserving open space near the housing units. Source: Reed and Ogg (1940).

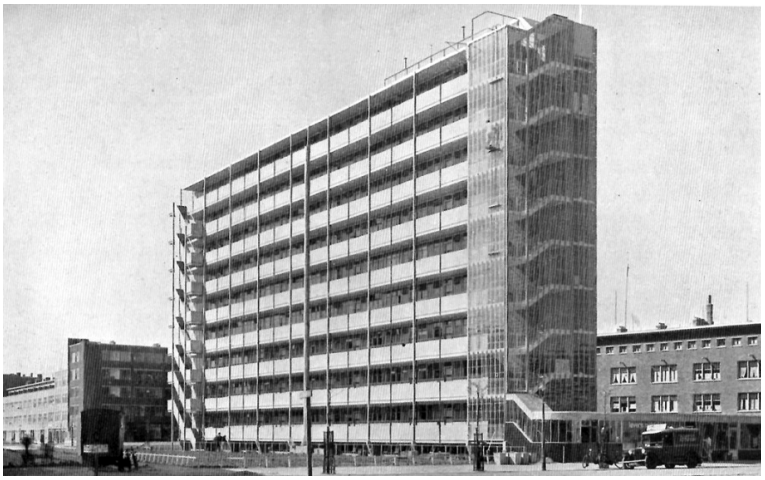


**Figure 6.** Willem van Tijen, with Brinkmann and Van der Vlugt, Bergpolderflat, Rotterdam, 1932–34. The first built high-rise slab by a CIAM member, and a model for the many gallery access post-war slabs of British and later housing estates. Source: Yorke & Penn (1939, plate 15).

Much more controversial for urban planning was the CIAM idea of the Functional City, derived from Cornelis van Eesteren's Amsterdam planning, and the basis for CIAM 4 in 1933, originally planned for Moscow in 1932. Van Eesteren had rejected the large scale perimeter block planning of H. P. Berlage in Amsterdam South (1917), and instead looked to then-new North American industrial cities, which were increasingly being shaped by trucks and automobiles, as a model for what he called "Eine Stunde Städtebau" (One Hour City Building) (Van Eesteren, 1997). Van Eesteren argued that the "functional elements" of the city, primarily large factories, ports, and collective recreation spaces, could be organized in relation to housing by using the most efficient transportation routes, guided by statistical studies such as those being produced by his colleague Theodor K. Van Lohuizen. Instead of trying to thread new highways through existing cities (as he had attempted to do in a proposal for Paris in 1926, with Louis-Georges Pineau), Van Eesteren instead joined Le Corbusier in advocating the replacement of "obsolete" urban districts with new highways and housing, which he argued might be well be high-rise. Appointed President of CIAM with Gropius's support in 1930, Van Eesteren's approach was the basis of the CIAM "four functions of the city" first publically articulated at CIAM 4: dwelling, work, transportation and recreation (Figure. 7).

The CIAM Functional City approach to urbanism derived from earlier European planning, which had also attempted to structure urban environments to create a



**Figure 7.** Amsterdam General Extension Plan, 1935, by Cornelis van Eestern and team. H.P. Berlage's Amsterdam South plan, already built out by 1935, is at the lower right. Source: Giedion (1942, p. 528).

high quality environment for all. In the United States, the legislative aspect of these planning directions led to the widespread use of zoning ordinances in the 1920s to mandate suburban environments of single family houses, with commercial and industrial uses then placed away from them in separate zones. This residential zoning also typically intensified racial segregation, as most non-white Americans were not considered eligible for home mortgages and were thus excluded for the most part from living in the detached house suburban environments then considered to be normative.

In Europe, and eventually much of the rest of the world, the Functional City approach instead tended to improve housing conditions, as workers were often given better multifamily housing environments within larger, but still relatively more compact, metropolitan areas than those of North America. In combination with earlier, related planning directions like German Städtebau and the British Garden City movement, the efforts of CIAM to improve the overcrowded and unsanitary housing conditions of industrial cities laid the basis for most subsequent European and world master planning. This involved first, the efficient design of individual units (dwelling) in blocks in neighbourhood units (Giedion, 1951) so that all had good sunlight and ventilation, with easy pedestrian access to collective facilities (recreation). These neighbourhood units were ideally linked together by transit ways and by highways (transportation) to make for shorter commutes to business and industrial areas (work). This pattern was intended to be, and often was, healthier than the dense, smoky, and unsanitary existing industrial cities that had mostly been built in the late nineteenth century, which nonetheless often had more pedestrian streets and interesting architecture.

Aside from the brief CIAM moment in Soviet urbanism in 1931–32, official acceptance of these directions in most cities was quite limited before 1945 (Figure 8). In France, despite Le Corbusier's extensive propagandizing for CIAM in his many published unbuilt projects and at CIAM 5 (1937), only a few CIAM-type projects for urban districts were built in the 1930s. These included Beaudouin and Lods Cité de la Muette in Drancy, near Paris (1934, mostly demolished). CIAM influence was still present in the many Soviet housing projects built after 1932, but these were usually organized in perimeter block patterns with (in theory) collective services, a direction pioneered in Red Vienna in the 1920s, but designed within the rigid architectural framework of Soviet neoclassicism. It was only in the 1940s that CIAM Zeilenbau concepts began to widely apply to large scale urban redevelopment. These appeared both in Swedish social housing, which also began to sometimes use pitched roofs, and to include taller 'point blocks', and in other European cities, as filtered through Le Corbusier and the French CIAM group ASCORAL's La Charte d'Athènes (The Athens Charter, 1943). It was at this time also that the earlier history of CIAM began to be presented without its earlier socialist political context, with an emphasis on the economic and social rationality of CIAM solutions.

In post-war Britain, these directions were used in a range of widely varying local circumstances that ranged from high-rises for the working class in a few cities,

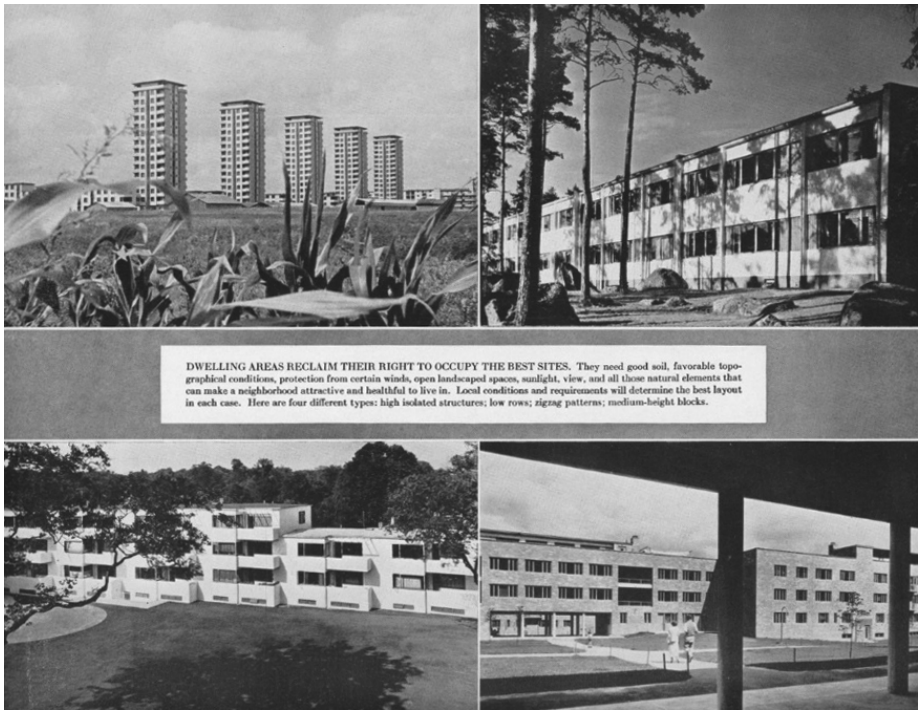



**Figure 8.** Examples of housing by CIAM members. Top left: Beaudouin, Lods, and Prouvé, Cité de la Muette, Drancy, near Paris, 1936. Top right: Alvar Aalto, Sunila Type B rowhouses, 1936. Bottom left: Arne Jacobsen, Bellavista Flats, Bellevue, Denmark, 1931–34. Bottom right: Stonorov and Kastner, Carl Mackley Houses, Philadelphia, 1931. Source: Sert (1942).

notably Glasgow, to some of the more architecturally-driven housing experiments of the London County Council (Bullock, 2015). While modern housing then became the focus of intense criticism in Britain by the late 1960s, paralleling similar reactions to public housing in American cities, these CIAM-inspired also had a formative impact on the mass housing programs of the then-British colonies of Singapore and Hong Kong in the 1950s.

As Singapore moved toward independence, in 1959 the Housing and Development Board (HDB) was established, initially as a way of rebuilding 'squatter settlements' with one room 'minimum units' in concrete slab blocks. These paralleled similar efforts in Hong Kong, where the Hong Kong Housing Authority (HKHA) had been established after the Shek Kip Mei settlement fire in 1953. The HKHA was an outgrowth of the private philanthropic Hong Kong Housing Society, based on similar groups in London, with roots in the nineteenth century reform efforts of John Ruskin and Octavia Hill. To meet growing housing demand, the HKHA began to build very high density projects (4,000 people per acre, versus 200 people per acre in similar London projects) of single room units in seven story buildings, organized along external corridors with one bathroom per floor. By the 1960s, the HKHA was building projects that combined both low and high-rise (up to 25 story) elements, organized around open spaces with extensive communal facilities. In Singapore, as part of the 1951–58 Master Plan, the HDB began to develop the high-rise new town of Queenstown in 1961 and expanded its New Towns program in 1965. It also introduced mass social homeownership (a departure from the British local public authority ownership model) in 1964, in the 16 story slab blocks of the Queenstown Area 3. By 1987, 85% of the population of Singapore was housed in similar government-built housing, in individually owned apartments on 99-year leases. (Glendinning, 2015).

Hong Kong introduced this Singapore model of housing ownership into its government-built high-rises in the early 1970s (Figure. 9). In China after 1992, where Soviet type "work unit estates" of midrise Zeilenbau housing blocks without elevators had continued to be built near factories into the 1970s, the Singapore model of modern housing then began to be widely applied, as the country moved toward a mixed market economy under the tight control of the Communist Party.

In Western Europe by 1953, the ideas of CIAM urbanism put forward at its first eight congresses (1928–51) began to be questioned by the group of CIAM "youth members" known as Team 10, which then led to very different outcomes in urbanism. Team 10 demanded that CIAM return to using the more traditional urban categories of house, street, district, and city, and at the same time offered a different kind of master planned urbanism to facilitate street life and human associations in interconnected 'megastructures' (a term coined by Fumihiko Maki in 1964). Team 10 also rejected the urban plazas and modern monumentality of the heart of the city idea, put forward by CIAM President Sert at CIAM 8 in 1951, in favor of dispersing collective functions within the large megastructures (Figure 10). This direction was influential on many practitioners in the 1960s, including Denys Lasdun (London), Paul Rudolph (New York), and William Lim (Singapore). It was also influentially rejected, along with CIAM and modern urbanism in general, by critics like Jane Jacobs (1961) and by postmodernist architects in the 1970s. Criticisms of the CIAM Functional City first made by Team 10 members were soon taken up by oth-



**Figure 9.** Hong Kong Housing Authority, by chief architect Donald Liao and others, Wah Fu development, Hong Kong, 1965–1971. Source: Mumford (2017).

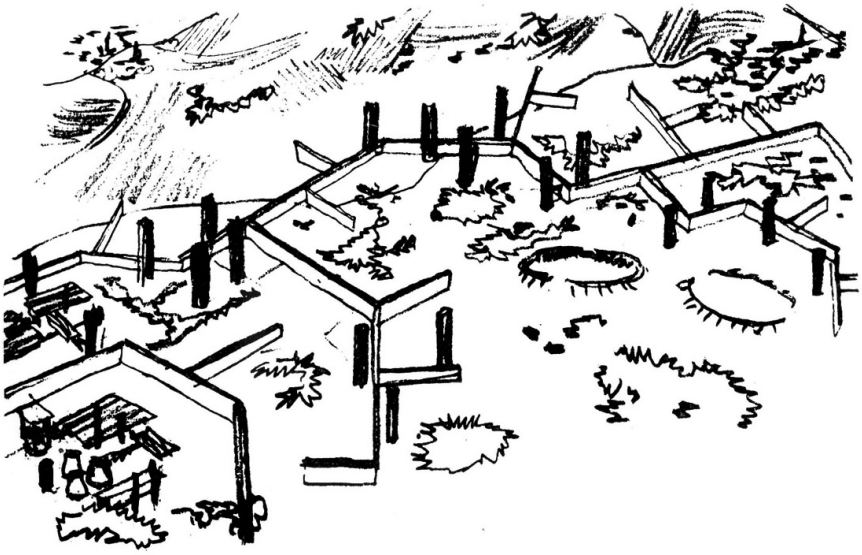


**Figure 10.** Golden Lane competition project panel, 1952, showing continuous interconnected housing blocks surrounded by green spaces. Presented on a CIAM Grid, CIAM 9, Aix-en-Provence. Source: Smithson and Smithson (1953).

ers in the 1960s, often in combination with protests against urban renewal, evictions, and many other issues.

In this century, with its many new urban challenges in Asia and Africa, architects and planners have again become interested in CIAM's concepts. These design approaches suggest ways that if designed well, high quality urban housing for workers can be produced economically, in combination with more contemporary concerns for the future of the natural environment.

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**Conflict of Interests**

The author declares no conflict of interests.

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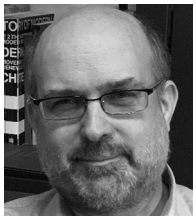
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**Eric Mumford** (PhD) is Rebecca and John Voyles Professor of Architecture and Urban Design in the Sam Fox School of Design & Visual Arts at Washington University in St. Louis, Missouri, USA. He has published numerous books and articles on the history and theory of modern architecture and urbanism, including *The CIAM Discourse on Urbanism, 1928–1960* (MIT Press, 2000), and most recently *Designing the Modern City: Urbanism since 1850* (Yale University Press, 2018). Mumford was also recently the co-curator for the exhibition, *Ando and Le Corbusier*, at the new Tadao Ando designed Wrightwood 659 Gallery in Chicago (Fall 2018), and he is the editor of the forthcoming exhibition catalogue.

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Article

# Between Rationalization and Political Project: The *Existenzminimum* from Klein and Teige to Today

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**Abstract**
A critical reflection on the II CIAM (*Congrès Internationaux d'Architecture Moderne*; in Frankfurt, 1929) should not limit itself to a purely historiographic reconstruction. The article discusses the II CIAM reflection on the *Wohnung für das Existenzminimum* (dwelling for the minimum level of existence) by means of a comparison between the official positions of participants and those of two architects, Alexander Klein and Karel Teige, who gravitated around the Frankfurt and Brussels meetings. The confrontation will unlock a double scenario. On the one hand, it will depict a multifaceted and more precise account of the discussion developed in the late 1920s on the minimum dwelling, integrating CIAM discussions with alternative theories and methods developed to face housing shortage and degraded living conditions. Investigating the impact of socio-economic conditions on household forms of life, Klein and Teige presented two paradigmatic and autonomous approaches that tackled the traditional solutions of architecture for the Existenzminimum. On the other hand, we argue that a broadened revision of the themes discussed at the end of the 1920s, namely the transformation of household compositions, the criticism of the paradigms of liberal urban development, the relation between production and forms of life as well as the position of the architect in housing production, proves to be useful for the understanding and overcoming of the fragmentation that still nowadays characterizes the reflection on domestic space.

**Keywords**
Alexander Klein; CIAM; collective dwelling; domestic space; housing crisis; Karel Teige; minimum dwelling; rationalization; Taylorism; universal dwelling

**Issue**
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## 1. Introduction: Modus Vivendi and the Return of the Minimum Dwelling

At the 2008 Venice Biennale, while analyzing the situation of the residential market in Italy, Giovanni Caudo and Sofia Sebastianelli explained how the "retire of the public" within the Italian welfare scenario generated a housing shortage caused by an increasing reliance of housing provision on private sector and on market oscillations of supply and demand (Caudo & Sebastianelli, 2009, pp. 40–47). Referring to a consolidated welfare culture, what has entered into crisis, from around 2008, is the combination of financial and spatial frameworks that characterized familiar private domesticity and the traditional forms of welfare during the second half of 20th century (Allan & Crow, 1989; Roland, 2008). According to Caudo and Sebastianelli, the lack of housing affordability was strongly related to "commodification" and "securitization", the latter defined as a process that channels housing debt on families' income (Bellicini, 2009).

Seen in perspective and considering the economic reassessment after the 2008 crisis (Madden & Marcuse,

2016, pp. 15–52), the reflection tackled in the Italian pavilion at the Venice Biennale can be taken as an initial point regarding the return of the housing question within the architectural debate. The trend has manifested itself in an increasing number of events and publications, amongst which the *Wohnungsfrage* exhibition at the HKW, in 2015 Berlin, the British Pavilion "Home Economics" at the 2016 Venice Architectural Biennale, the attempt to reframe the relation between private and collective within housing in the "Together! The New Architecture of the Collective" exhibition in 2017—or research on the domestic realm presented at the Chicago Architectural Biennale in 2017, which has characterized the reflection on housing from within the architectural field of inquiry. The renewed interest in the domestic sphere depends on its potential to effectively render the socio-economic transformation of our time and the crisis of the cultural constructions that have guided Western civilization since the introduction of welfare state measures in the second half of 20th century. While postwar housing socio-economic structures were based on a predefined household form (the family), legal regimes to establish the house as an "asset" through "property", be it ownership or rent (De Decker & Dewilde, 2010; Doling & Elsinga, 2013), and socially structured typologies (family home and apartment), in the last decades, the transformations of capitalist accumulation, paralleled by the shrinking possibilities of the public sector, have drastically impacted the sphere of dwelling and its architecture.

To reassess the qualities of domestic space in light of current transformations, we argue that it is necessary to look at the parallel evolution of subjects, weather workers, citizens or households, and to highlight their relation to the space they inhabit. In 2007, the Italian intellectual Sergio Bologna highlighted how the crisis of the middle class of the last decade coincides with the rise of knowledge workers (freelance, part-time workers, etc.), defined as a new generic proletariat (Bologna, 2007). Precarious, autonomous, and flexible labor are forms of working contracts where work, by occupying the entirety of existence and life, determines the modus vivendi within the city. This shift parallels the crisis of the traditional household, of the modern culture of domesticity, and of the separation between the productive and reproductive spheres (Ariès, 1996; Heynen, 2005; Heynen & Baydar, 2005).

In this article, we argue that the spreading condition of minimum dwelling, both as a living space and as a life condition, is a tendency that makes tangible these social and political shifts typical of our age. In our understanding, the minimum dwelling is a living space characterized by the extreme reduction of inhabitable surface (see Figure 1) as a consequence of private market speculation. To discuss the difference between minimum dwelling as a living condition and the *Existenzminimum* as an architectural project, we look at the 1929 II CIAM (*Congrès Internationaux d'Architecture Moderne*), the first moment where the features of domestic life were tackled as concrete givens to establish a new social project and an operative agenda for modern architecture.

## 2. Establishing the *Existenzminimum* Project: The CIAM Debate

For architects, after the WWI, the housing question did not simply entail a quantitative shortcoming, but a deeper theoretical problem on the structural rationale



**Figure 1.** Minimum dwellings from II CIAM to today. From left to right: View of a bachelor room (*Junggesellenzimmer*), architect Kienzle (Giedion, 1929); Parisian micro-flat (Ghislain, student, in his fifth floor 10m$^2$ apartment; Macherez, 2015).

of dwelling production, distribution, and use. Engels' famous position regarding the "housing question" proved to be impracticable (Engels, 1872). As Aymonino commented, the perspective of a proletarian revolution slowly disappeared from the agenda with the rise of reformist instances, in an attempt to transform capitalism from within (Aymonino, 1971). Defining new architectural qualities for the living space was crucial. The *Wohnung für das Existenzminimum* (dwelling for the minimum level of existence) was chosen as the topic for the 1929 II CIAM, in Frankfurt, in order to put the rising modern attitude in architecture at the center of the socio-economic discussion, especially regarding the problem of the living-unit for the lower classes (Grassi, 1975). At the same time, by directly engaging in such an issue, organizers aimed to establish a clear agenda for the CIAM and establish the organization as a new compact organism able to internationally promote modern architecture (Gubler, 2012, pp. 231–255; Mumford, 2000, pp. 27–44).

The *Existenzminimum* worked as a theoretical manifesto to guide modern architects' reflection on the production of affordable living-units for the working classes. The recurrent worry in the 1920s was the reduction of dwellings surface and the degenerative living conditions that characterized working-class housing in the metropolis of industrial capitalism. CIAM relators targeted the plethora of speculative, philanthropic and even utopian-socialist projects that characterized housing production in the second half of the Nineteenth century (Bullock & Read, 2011; Guerrand, 1981). On the other hand, the modern paradigm was built upon the socio-political concern of granting workers a space to fulfill their biological needs: the "minimum" was defined as a liminal condition, a space not-appropriable by market law practices (Thomas, 2015). The process would not be painless. It demanded new actors and stakeholders to enter the productive arena and to question the dogmas of *laissez faire* liberalism that had commanded in the previous decades:

> Even by resorting to all the organizational and technical measures of implementation, if we do not simultaneously lower the interest rate, we will not be in a position to reduce the affections of new housing to a bearable level. Therefore, the State will have to provide for the construction of houses for the minimum level of life, since, otherwise, there will be no certainty that the financial subsidy measures, which must be taken by the State, benefit those whom they are intended to. (Ernst May, cited in Aymonino, 1971; authors' translation)

May's concern embodied the unanimous call from within the CIAM for the intervention of public political bodies (the State and municipalities administrations) to solve the housing crisis. If the idea of *Existenzminimum* proved to be a useful theoretical umbrella to compact progressive positions against housing speculation and working-class inhuman living conditions, personal contributions enlightened contrasting agendas (Gubler, 2012). The difficulty to spatially translate a programmatic view with social, cultural, and economic implications into a definite architectural project was, once again, clarified by May himself:

> How should the home for the minimum standard of living be? For now, it is almost impossible to give a positive answer to this question; it is instead possible to answer in a negative way. (Ernst May, cited in Aymonino, 1971; authors' translation)

The negative way mentioned by Ernst May meant the utter refusal of all the hygienic shortcomings, socially oppressive character and deficiencies of Nineteenth-century dwellings; the possibility to develop a positive program for the *Existenzminimum* remained, instead, open to architects' projects and interpretations.

During the Frankfurt debate, Le Corbusier and Pierre Jeanneret emphasized the impact of modern construction techniques on the spatial rationalization and biological solution of the domestic problem:

> Housing is a biological phenomenon. However, the rooms and the spaces it entails are defined by an envelope that obeys a static rule. The biological fact and the static fact are part of two different orders….If the traditional methods are maintained for which the two functions are confused and interdependent, we will remain in the same immobility: a) the industry will not be able to take possession of the "maison minimum"; b) architects will not be able to do projects suitable for the modern economy. (Le Corbusier and Pierre Jeanneret, cited in Aymonino, 1971; authors' translation)

For the Swiss architects, the *Existenzminimum* embodied the full realization of modern living and of the social possibilities of Modern Architecture. This was only possible in light of the most advanced processes of industrial production and building-site realization. The "maison minimum" presented at the 1929 II CIAM was the application to specific social problems of the iterations on constructive principles that Le Corbusier had previously developed throughout the 1920s (Le Corbusier, 1996), from the paradigmatic Maison Dom-Ino to the formalization of the Le Corbusier's five points on modern architecture in 1927.

The biological implication of a new type of dwelling was a common viewpoint in Walter Gropius's analysis, although the German architect insisted on the social order of target household, namely the urban dweller:

> The development of the minimum dwelling has come to a standstill, evidently due to the fact that I do not consider with sufficient attention the profound changes in the social structure of nations. (Walter Gropius, cited in Aymonino, 1971; authors' translation)

Connecting biology and sociological progress, he referred to positivistic socio-economic position borrowed from Müller-Lyer, linking the modern dwelling to the historical evolution from tribal communities to social-individualism (Poppelreuter, 2011). Focusing on the demographic shift and changes in the field of production caused by industrial capitalism, Gropius argued against the traditional forms of family living towards the necessity of producing lodging houses with collective services for working individuals. In Gropius's mind the goal was set:

> Egoistic individualism is replaced by social individualism. The "complete" individual becomes the purpose of the State, the structure of society is the means to realize this goal. (Walter Gropius, cited in Aymonino, 1971; authors' translation)

In light of these observations, it is possible to interpret his projects. For example, his designs for apartment housing with collective facilities in 1929–1931, can be interpreted as a reformist device (Agamben, 2006) to shape a new type of proletarian subject, endowed with a mix of bourgeoise ideals and collective sensitivity in the name of a common good and the future prosperity of the social order.

Biological concerns and social implications were integrated by the Belgian architect Victor Bourgeois in his elaboration of the problem of domestic labor, linking industrial production and domestic reproduction:

> While in industry, rationalization has as its main goals the increase in production and the decrease of cost prices, in the domestic organization, it seeks to simplify the duties of the housewife, reducing fatigue. (Victor Bourgeois, cited in Aymonino, 1971; authors' translation)

With the increasing impact of the housekeeping burden on housewives and the acknowledgment of the house as a crucial apparatus for social and economic efficiency, the Belgian representative understood the house as part of a larger mechanism of social reproduction, suggesting the development of "home management education" programs as a necessary didactic tool to form optimal households.

The plethora of positions discussed in Frankfurt, as well as the extensive research done by a network of architects, spread all over Europe, found in the itinerant exhibition and in the publication produced at the end of the congress, in 1930, an apparently coherent synthesis, mitigated by the uniformed representation graphic method (uniform hatches and drawings integrated with captions and numbers). The sensation of an "unfinished project" graspable by the comparison between an analysis of congress debates and the agenda of the final output is symptomatic of the far-reaching ambitions of the II CIAM and its inevitable shortcomings. Rather than a singular proposal for the *Existenzminimum*, the outcome can be intended as an atlas of visually similar solutions, an editor's selection of "best practices" (Figure 2), where plan representation subsumed a series of common concerns on the reduction of surface and construction costs, problems of dwelling distribution, flexibility, and domestic labor.

Outside official congress proceedings and exhibitions, and even in reaction to them, additional investigation on the minimum dwelling was attempted. Two figures in particular, Alexander Klein and Karel Teige, developed autonomous lines of research and design to envision a project for the living unit alternative to the one proposed by CIAM. In order to counterpoint the outcome from Frankfurt and to enlarge the arena of debate, we suggest an overview of the contributions of these distant and lesser-known figures as the most representative and synthetic approaches to the housing debate from Modern Movement to today. In parallel, but outside the congresses, both developed opposite visions that helped to highlight the latent projective potentials of minimum dwelling as presented by the II CIAM.

## 3. Alexander Klein: Rationalization for Frictionless Living

Between the mid-1920s and the early 1930s, Alexander Klein pioneered an approach to minimum housing design based on life and movement abstraction through the application of Taylorism principles (Maier, 1970; Taylor, 1911) and systematic methodological experimentation. Forgotten by the chronicles of modern architecture, the radical consistency of Klein's work has been crucial to the research on minimum working-class dwellings in Weimar Germany (Miller-Lane, 1968) and cast a long shadow on post-war housing theory. His work paralleled, and subtly critiqued, early CIAM investigation on the *Existenzminimum*, developing scientific evaluation and design methodologies as guidelines for the architecture of minimum dwellings (Klein, 1975; Stöhner, 1976).

The desire to revise housing design, with the intent to optimize both its production and internal arrangement, led Klein to carefully apply the principles developed by scientific management to his professional work. In 1911, Taylorism theorized a scientific method for labor discipline and workshop management, based on the optimization of workers' efficiency, in order to increase manufacture productivity (Taylor, 1911). The qualifying aspect of scientific management lay in the analytical method through which the labor process was dissected and analyzed in elementary spatial and temporal components, allowing achieving an optimization of the whole process. Rather than a revolution of the means of production, Taylor envisioned a reform of the productive process based on a reassessment of the very source of capital surplus, namely "living labor". The adoption of scientific management imposed a mental revolution on the understanding and design of domestic space that cast a

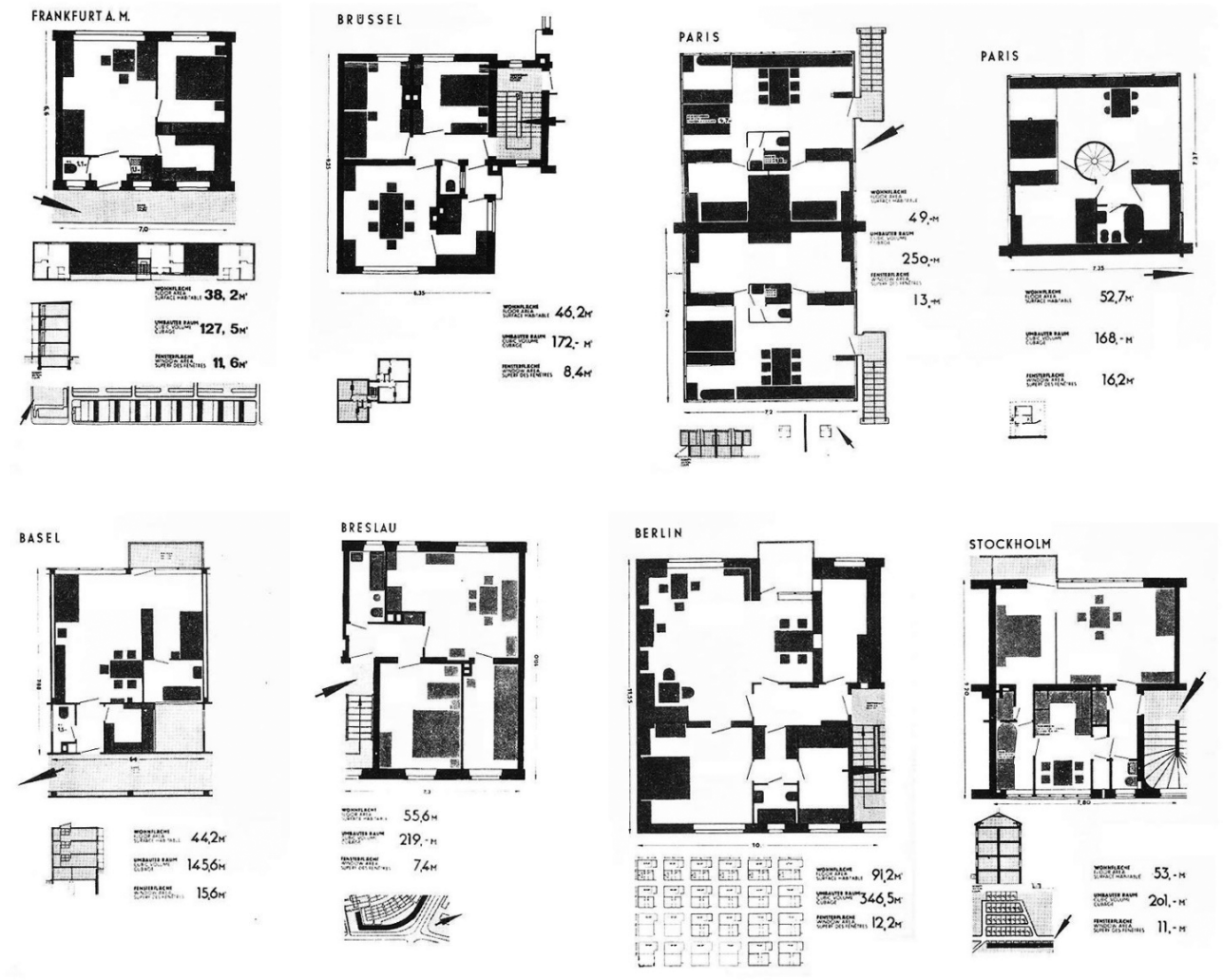



**Figure 2.** *Existenzminimum* dwelling. From II CIAM (Frankfurt, 1929), exhibition panels. Source: Aymonino (1971).

long shadow over the evolution and agendas of modern architecture in Europe.

In his book, *Mechanization Takes Command*, Giedion (1948) traced the origins of modernity in the development of anonymous attitudes and practices: rather than groundbreaking monuments or a revolutionary event, he noted that the modern ethos was characterized by the attempt to geometrically describe and govern movement through abstraction. The case of Morey's methods and, most importantly, of Frank Gilbreth's graphic experiments (Figure 3) is significative to understand the manner in which movement description gained crucial importance in the debate on domestic space since the end of the 19th century (Giedion, 1948, pp. 14–44).

Alexander Klein engineered a systematic scientific approach to housing design based on the optimization of domestic space through statistic and drawing analysis, emphasizing this typically modern displacement of the identity between subject and movement. Indeed, for him, the problem with housing was not simply a matter of shortage, but mostly of the rationality of its internal spatial arrangement. In his 1928 *Grundrissbildung und Raumgestaltung von Kleinwohnungen und neue Auswertungsmethoden,* the German architect presented a novel systematic method for designing minimum typologies (Klein, 1975, pp. 76–99). His approach was characterized by the will to tackle the problem of dwelling rationalization independently from constructive and material problems: the living-unit is considered a space for the scientific organization of life.

Thanks to an original tripartite method integrating evaluation questionnaires, comparative analysis, and graphic interpretations, Klein outlined a detailed program to produce objectively valid, affordable, and comfortable minimum dwellings. A preliminary questionnaire would have allowed for a qualitative evaluation of the existing housing stock according to dimensional parameters and established ratios. The comparing activity performed through a series of plans redrawing using the same scale, allowed to compare specific architectural aspects and to decide on the best solutions. The graphic method was instead used as an operative tool to investigate the internal functioning of the house, representing inhabitant movement, airflow, sun exposure, or the im-

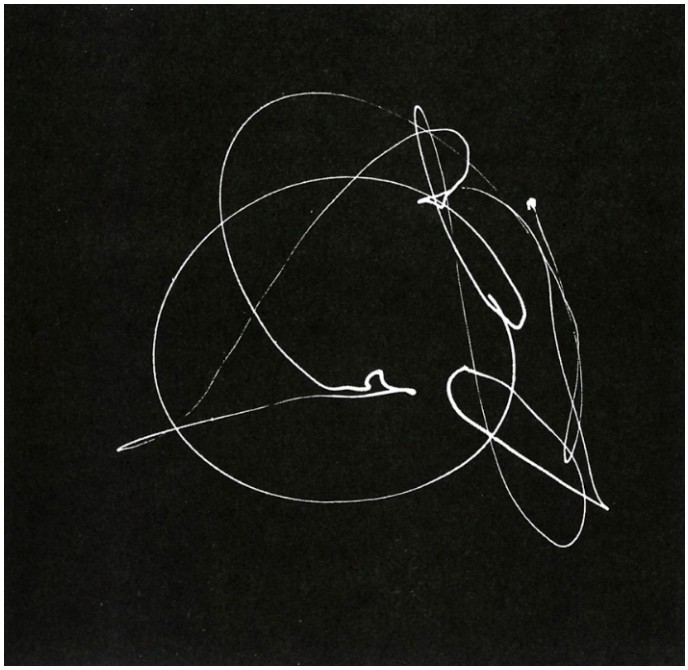


**Figure 3.** Cyclograph record of the path of a point of a rapier used by an expert fencer, by Frank Gilbreth. Source: Giedion (1948).

pact of furniture distribution on the internal space. The parallel between Taylorism methods and the Klein approach is evident in the cross-hybridization of different methodologies and media (diagrams, data collection, redrawing), which allowed the German architect to evaluate and foresee the impact of the architectural decision on the domestic performances: similar to the factory manager, the role of the architect is to analyze existing conditions, compare them, and choose, using a positivistic approach, an optimal disposition to avoid undesired friction within the domestic machine (Evans, 1997). Representation of inhabitants' movements within the dwelling unit enabled the architect to visualize trajectories and opt for the optimal solution (Figure 4); studies on sun exposure made a reconsideration of the unit's depth and openings' dimensions possible; figure-ground representation of furniture disposition suggested the maximization of usable surfaces in contrast to the fragmented confusion of historical interiors (Klein, 1975, pp. 77–109). In this process, the feedback loop between observation, measurement, representation, and optimized solution tends to minimize the impact of subjective parameters and to establish an autonomous process to determine the rationality of the house, binding together the biological improvement of households, their performances in the domestic sphere, and the possibilities offered by local construction industries.

Anticipating the CIAM exhibition, Klein used plans and diagrams to demonstrate his arguments almost exclusively. In addition, we can't fail to recognize the similarity between the way he represents domestic space, and its impact on inhabitants (movements, furniture, light, and air), and the technique developed by the Gilbreths to physically represent dynamism.

Klein's approach merges analysis and design into a continuous process: from an objective evaluation of existing problems, it is possible to define precise questions and solve them thanks to standards and spatial optimization. Abstract parameters can be easily applied to different mass housing programs. In contrast to the 1929

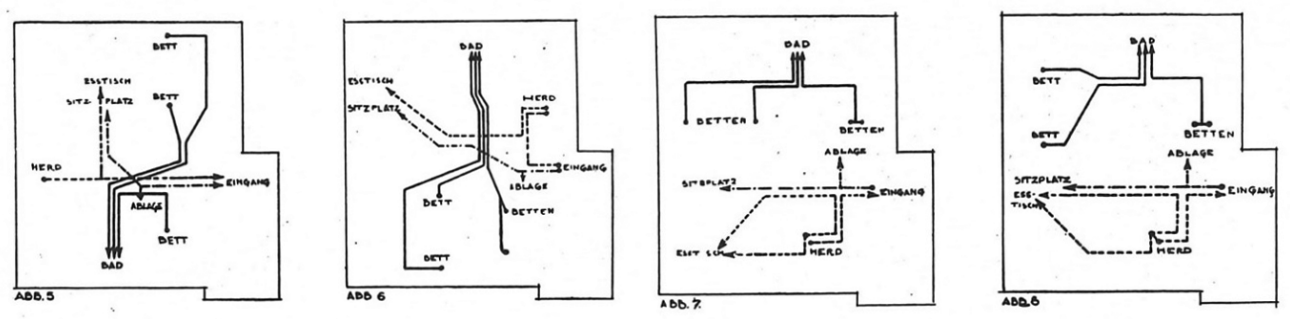



**Figure 4.** Graphic method for the optimization of dwellings internal circulation. Source: Klein (1928).

exhibition, rather than proposing finite examples representing best practices in the field of housing reform, his method explicitly puts forward an anonymous and objective methodology to obtain what he considered to be an adequate living unit (Figure 5). Housing design becomes a parametric and continuous process.

As an answer to the rising housing crisis in the period of the Weimar Republic, Klein was a convinced supporter of the need for public intervention to regulate the housing market. His investigations, beginning in the years 1927–1928 and formalized in 1930 with the article *Beitrage zur Wohnungsfrage als praktische Wissenschaft*, were carried out from within the *Reichsforschungsgesellschaft* (German National Society For Scientific Research). The Weimar Germany Public Research Agency demanded to test economic and constructive solution to innovated cheap housing production. The work Klein developed with other architects, like Walter Gropius, within this organization, focused on the need to integrate design research with the political and productive interests of public structures, local administration, or social initiatives (Klein, 1975, pp. 100–113).

Embedding housing design in national policies and actors determined the rationale of research endeavors and the outcomes it generated, questioning the role and competences of architects from artifact designers to organizers of complex processes in the wider frame of State social-democratic policies.

The development of scientific parameters for the evaluation of dwellings' spatial qualities and the design tools for their optimization, also allowed Alexander Klein to formulate a subtle critique of CIAM and subsequent Modern housing projects. First of all, the adoption of an objective method to evaluate housing impact on inhabitants' performances enabled Klein to question the supposed functionality of Modernist dwellings. His proposal to revisit the plans of Oud's Weissenhofsiedlung units according to the principles established in his *Grundrissbildung* in 1927 is exemplary (Klein, 1975, pp. 110–113). Using the graphic method, he decom-

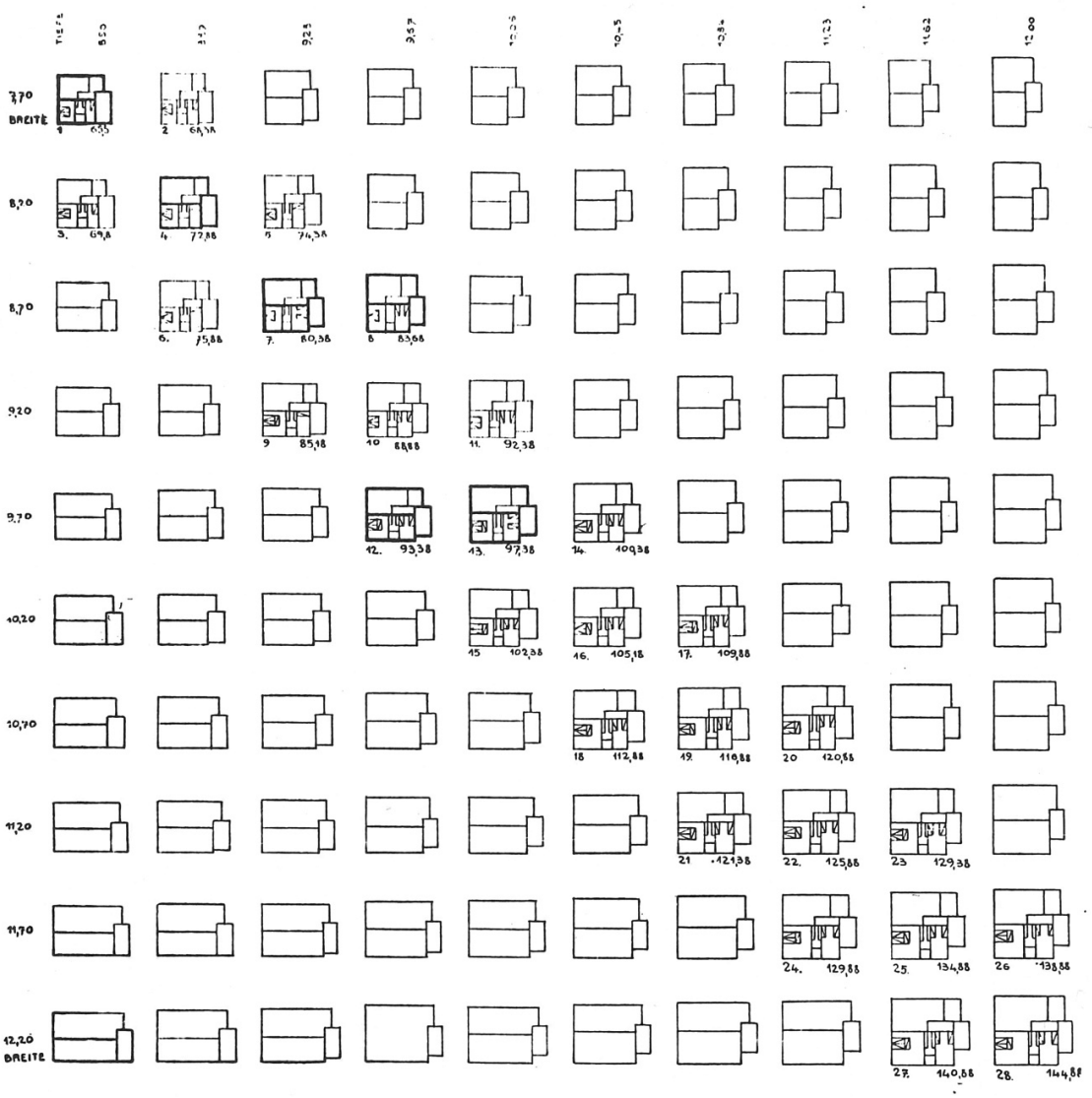



**Figure 5.** Plan-efficiency comparison. Source: Klein (1928).

posed Oud's units showing the fragmentation of spaces, the disturbing overlapping of users' trajectories, and an over-presence of unusable surfaces contrasting with the presented qualities of functional rationality. As a demonstrative exercise, he also showed that an optimization of the Stuttgart unit, according to his method, is possible with minor effort. Secondly, the systematic discourse developed by the German architect contrasted with the fragmented and strongly individualized proposals debated in Frankfurt in 1929. In his opinion, the *Existenzminimum* project should not have been limited to investigations pursued by stand-alone architects. On the contrary, it should have become an objectified series of methodological rules, universally applicable to allow for maximized domestic performances.

For Klein, the rationalization of the minimum dwelling was not only a moral necessity to answer the biological issues; it was an operative method to reach a clear socio-economic agenda: the creation of a frictionless domestic space able to optimize workers' reproduction. The development of rational constructive and distributive approaches, the definition of standards and of manual-like applicative principles, defined housing as an apparatus to embed social bonds with a capitalist economy.

Unlike other contemporary architects, Klein did not question the familiar household (Bevilacqua, 2011; Poppelreuter, 2011; Teige, 2002; Klein, 1934). Rather than the social unit, his targets were the relationships between household members and the unfolding of familiar everyday existence in the domestic setting. The goal was to turn the house into an "anabolic" instrument, an environment to maximize working-class rest and reproduction (Klein, 1975). By applying a scientific approach to the design of the minimum living unit layout, it was possible to plan life as a process that needs to be seamlessly performed. The separation of functions in day and night areas, the optimization of spatial use through a careful analysis of inhabitants' movement trajectories and distances, the necessity to favor health regulations and livability standards: these aspects were meant to grant not only physical recovery, but, and this is a feature that Klein strongly stresses, psychological peace.

While modernity detached productive activities from the living unit, Klein recognized the overlapping of life reproduction and industrial production in housing itself and theorized their continuity through design. Arguably, with no other modern architect does the house assume such a clear agenda within the productive system, not simply as an artifact but as an apparatus for the reproduction of a productive form of life, as it does in the work of Alexander Klein.

### 4. Karel Teige: Political Program for New Forms of Dwelling

Karel Teige's contribution to the CIAM discourse was represented by his emblematic book *Nejmenší byt* (*The Minimum Dwelling*). The book, published in 1932, three years after the II CIAM, presented Teige's critical position regarding the *Existenzminimum*: in it, he accused modern architects of proposing only resized versions of bourgeois single-family houses and readapting their lifestyles to the proletariat. The functional subdivision of the house into kitchen, living room, and bedrooms, mirrored the division of labor between family members, thus reproducing an inadequate model for the new ways of life of the proletariat (Teige, 2002). He especially criticized the kitchen as the emblem of what was starting to be considered the exclusive sphere of women's occupation: domestic and affective labor. In fact, if we consider approaches such as the scientific management of the home introduced by the work of Christine Frederick in the 1910s, which can be found in the seminal Frankfurt kitchen prototype designed by architect Margarete Schütte-Lihotzky in 1926, it is arguable that our contemporary conception of house as separated from work has its origin in Fordism modernism (Frederick, 1914; Schütte-Lihotzky & Kinchin, 2011, pp. 86–96).

Karel Teige's contribution to the modern debate can be interpreted as a clear political position and as an attempt to suggest new architectural forms of collective living. In his essay for the III CIAM (in Brussels, 1930) proceedings, Teige expressed his argument that the housing shortage was related to the insufficient number of lodgings for the classes of the minimum level of life (Teige, 1971, pp. 208–215)—the proletariat and the intelligentsia. Starting with Engels's seminal essay *The Housing Question*, and by adopting a Marxist materialist analysis of history, Teige insisted on the necessity to develop an analytic methodology for the domestic project, based on preliminary statistics and empirical research. He accepted Engel's revolutionary vision and thus insisted on a radical solution to the problem of the minimum dwelling: the collectivization and the centralization of all aspects related to domestic labor (cooking, housekeeping, childcare, services) and the reduction of the private space to a single living cell—the universal room (Aureli & Tattara, 2019; Aureli, Tattara, & Korbi, 2018). This latter was, for Teige, the very political content of dwelling and it was very effectively abstracted in the diagram of the collectivist reconstruction of dwelling (Figure 6).

In the first part of his 1932 book, diagrams, graphs, and tables were used to illustrate the overall historical conditions of the housing crisis in different European cities and the problematic contrast between traditional housing and the rise of new modus vivendi. Unlike Klein, diagrams become, for the Czechoslovakian poet, a vehicle to make a clear political and programmatic statement and to give a clear form to qualitative data analysis and concepts. In strong contrast with the *neue Sachlichkeit* ("new objectivity") and its translation into design, he saw functionalism as the translation of the assembly line logic (through the mechanization of labor) within the organizational model of dwelling (Dluhosch & Svacha, 1999).

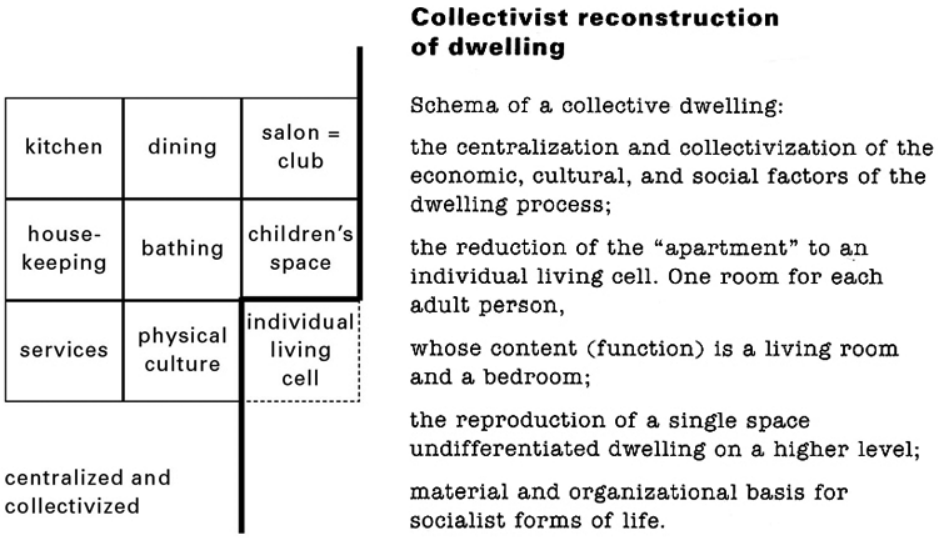



**Figure 6.** The collectivist reconstruction of the dwelling. Source: Teige (1932).

Moreover, the last part of his book can be read as an architectural manual. The collectivization of all aspects of family living was only radical when compared to the general ethos of Modern architects. The new forms of collective dwelling proposed by Teige were illustrated through a collection of several heterogeneous architectural examples presented with a variety of representation techniques: images, plans, and axonometries. The order in which they unfold in the text also reveals a gradual evolution towards the total collectivization of living, from embryonic examples of historical and modern boarding houses to the American skyscraper-hotel and the soviet *Dom-Kommuna* experience. Whereas boarding houses provided only a room and a few services, offered by their family owners, the American skyscraper Hotel and the soviet *Dom-Kommuna* (communal-house) represented the apogee of what Teige intended with the expression "collective house": a place where domestic labor and work in general was organized as social labor and living was reduced to a mere sleeping chamber (Teige, 2002, pp. 323–393).

Indeed, Teige knew very well that during the 1910s and 1920s in many American metropolis, the intense presence of individual white-collar workers, bachelors, and businessmen corresponded to a massive diffusion of standardized commercial hotels. The alphabetical form of many American generic metropolis resulted from adopting standard schemes (H-, I-, U-, E-shaped) that consented that the "only" way to have an efficient entrepreneurial machine for living within the capitalism of the Progressive Era (Davidson, 2005, pp. 72–103; Holl, 1997). In Manhattan, hotels were concentrated in every neighborhood and every individual could easily find a room for a "few dollars" in walking distance from his or her working place or close to a railway station. For example, the Biltmore Hotel (1913), designed by the Warren and Wetmore firm, was built as part of New York Grand Central masterplan and the hotel lobby was directly connected to the station. Hotels like The Biltmore corresponded to standard models of design and efficiency (Figure 7): the provision of a myriad of single rooms, restaurants, leisure rooms, and lobbies for working and collective meetings, was made possible by a complex backstage of mechanized domestic labor and by an "army" of professional staff providing housekeeping services.

The hotel organizational model was considered by the Organization of Contemporary Architects' soviet architect Moisei Ginzburg when he was working on the standardized living cells for the Strojkom (soviet residential department) of the RSFSR. At the end of the 1920s, soviet central institutions intended the minimum dwelling to be the only possible way to provide a universal dwelling for all, whereas for Ginzburg and other constructivist architects, it was the main condition for the program of the so-called *Dom-Kommuna* (Ginzburg, 1934). By following a scientific approach aiming at reducing and eliminating unnecessary spaces from a typical family apartment (see Figure 8), in 1928, Ginzburg designed different types of living cells, from the micro-apartment (cell A in the figure) to the single room (cell E).

All of the experimental types were compared through an efficiency diagram, a sort of "gradient of sharing" where each cell presupposed the starting point for a more complex communal-house with large common areas and central services (kitchens, education, childcare, or cultural services; see Figure 9).

For Teige, the minimum dwelling was not only an architectural problem; it was for him an act—or, borrowing an expression from Giorgio Agamben—a "form of life", corresponding to different habits (Agamben, 2011). The possibility to act and perform life in different ways through different possibilities and architectural models constituted the very meaning of the term "universal

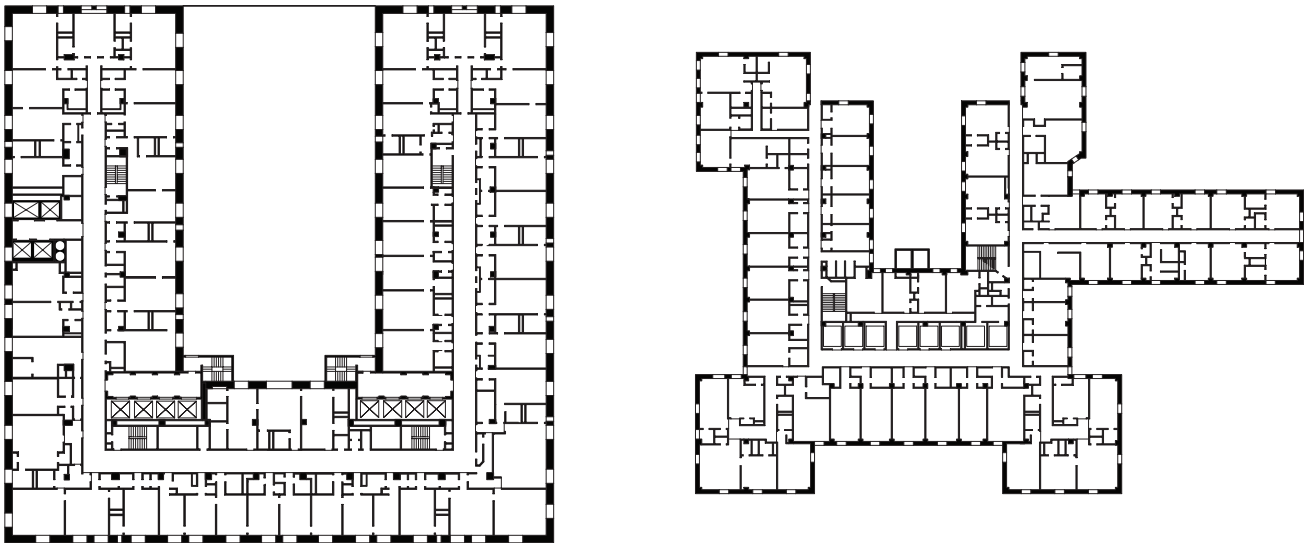


**Figure 7.** The hotel: standard models of design and efficiency. From left to right: plan of the Biltmore Hotel by Warren and Wetmore, New York, 1913; plan of the Shelton Hotel by Arthur Loomis Harmon, New York, 1924. Source: authors.

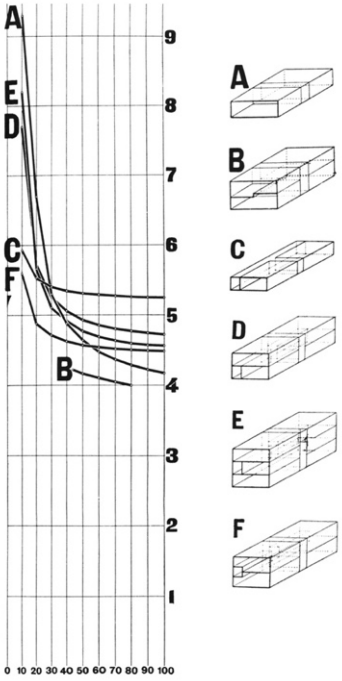



**Figure 8.** Diagram of economic efficiency of dwelling types, showing the ratio between the cubic volume of the building and the usable floor area of the units for every single cell (A to F). Strojkom of the RSFSR. Source: Ginzburg (1934).

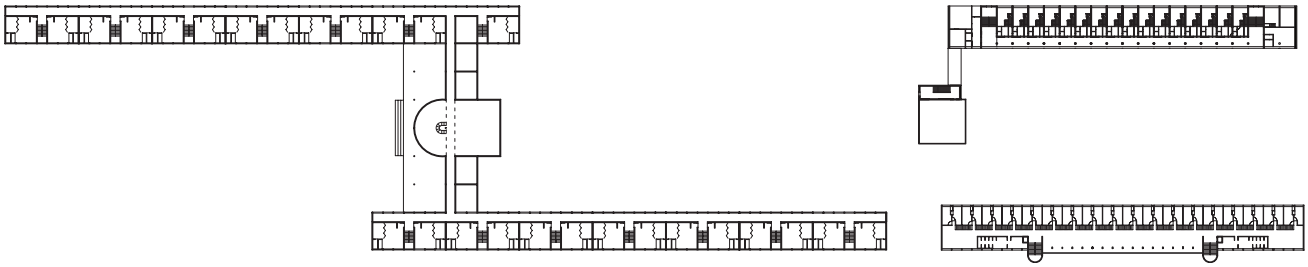


**Figure 9.** Prototypes by Ginzburg, Strojkom, 1928. From left to right: a plan of a *Dom-Kommuna* prototype with A-1 cells (one-room apartment); plan of the Narkomfin Building with F cells (top image) and prototype of a *Dom-Kommuna* with E cells (bottom image). Source: authors.

dwelling". It can be interpreted in this way: the possibility to have a room for dwelling, for every individual, in every place, in every moment, for every different way of life—a sort of universal basic right. This interpretation, implicit in Teige's *The Minimum Dwelling*, gives the idea of how he understood Taylorism not as a schematic rationalization of life within the four walls of the family home, but as a mechanism to provide every adult with his or her private room within communal houses. Industrial mass production was for him an alternative to the way the II CIAM generally understood domestic space; it was the real political possibility to liberate life and dwelling from domestic labor.

## 5. Practices of 'Minimum Dwelling' after the War

Though Klein's work in Germany would be abruptly stopped by the affirmation of Nazism and Teige's critique would never be discussed due to the radical transformation of the CIAM between 1930 and 1933 (Ciucci, 1979, pp. 39–51), a review of their projects for the *Existenzminimum* and their polemic difference with the CIAM agenda provides us with lenses to interpret the fundamental evolution that housing theory and design witnessed after WWII.

In the years following WWII, with the advent of the welfare state, housing production was characterized by a fierce push for the rationalization of constructive and typological forms. This is recognizable in two crucial trends: the advent of mass-standardization and the renewed interest in architectural manuals. Public housing production in post-war Europe developed within Keynesian economic measures in an attempt to create a consumer market and sustain national prosperity, through the provision of universally dignified housing conditions (Avermaete, van den Heuvel, & Swenarton, 2015, pp. 1–23; Urban, 2012). In this light, we should read the rising of "standards", abstract, technocratic parameters able to govern the different abodes of welfare state housing production: central political-technocratic powers, capitalists and industrial production, and household/consumers. Remanding to specific historical text for the detailed analysis of the chronicles of post-War housing in Europe (Cupers, 2014; Glendinning & Muthesius, 1994; Liebscher, 2009), we can claim with a certain degree of generalization that, since the reconstruction period, a hypostatization of housing production and reproduction of living typologies has taken place (Figure 10).

Surviving the crisis of the Welfare state and the increasing reduction of public housing supply, the hypostatization of the modern living unit as a given and unquestionable model is still endlessly put forth. If Klein envisioned his method as a pragmatic framework to continuously question the qualities of the minimum dwelling *vis a vis* the evolution of concrete relations between households, social-economic structure, and space, a post-War

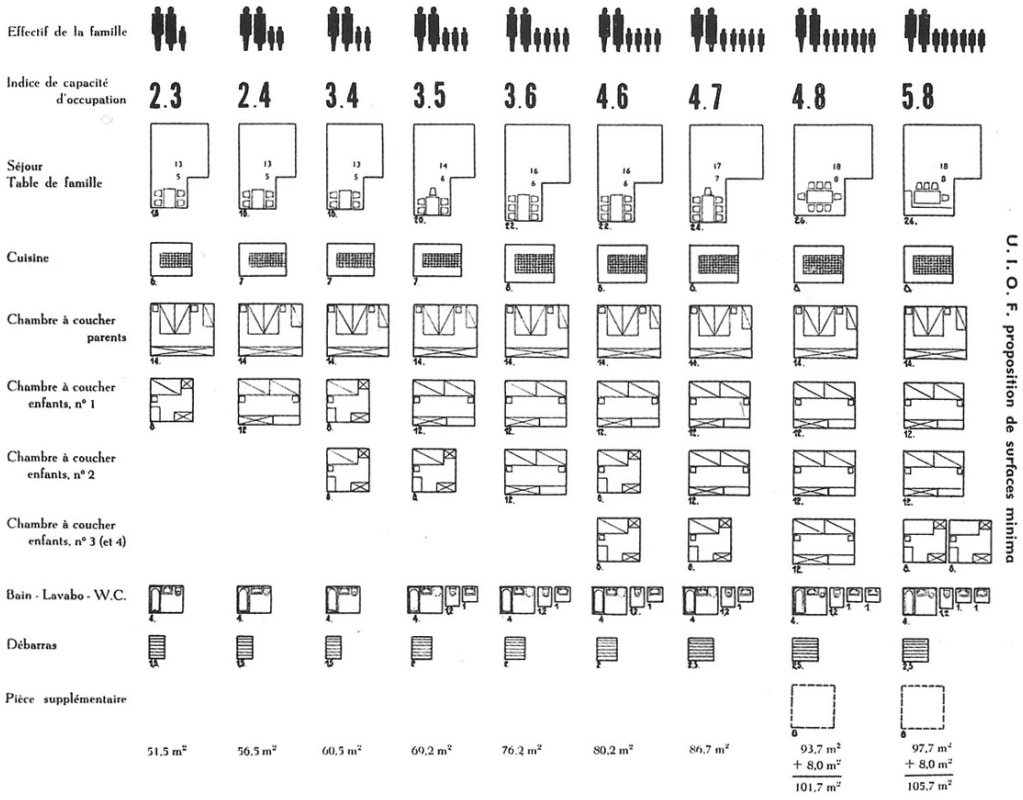



**Figure 10.** Diagram for the calculation of minimum surface norms for apartments in post-war France, first published in 1959 in *Techniques et Architecture*, 19(2). Source: Cupers (2014).

technocratic approach has pursued rationalization to create ready-made solutions applicable by public or speculative bodies for universal users.

Regarding the standardization of housing typologies, and often related to Klein's research, there is also the post-war rediscovery of a traditionally architectural form of construction-oriented knowledge: the manual. In the 1950s and 1960s, manuals presented standardized solutions for housing distribution and size based on universally valuable, rational schematic representation (AA.VV., 1953; Ciucci & Casciato, 1980, pp. 7–20; Gabellini, 2001, pp. 99–111; Marescotti & Diotallevi, 1948). In a seminal article, Vittorio Ugo reflected on the importance and ambiguity of schemes in architectural manuals, recalling the importance of Klein's experiments (Ugo, 1986). If the scheme as a precise drawing embodying the genetic core of a project idea has been used as a heuristic tool until the 19th century, with the advent of modernity, it turned into an instrument used to directly translate reality onto paper, thus reducing representation to a merely operative tool. While Klein's activity lies at the threshold of this passage, the practices of housing production that followed, whether public or private, have generalized this standard-based approach, reducing architecture to a compositional exercise to promote market attractive housing typologies and the fossilization of social and reproductive bonds (the family in particular) into given spatial configurations.

Attempts to tackle this deterministic approach to housing started in the 1970s with the creation of new autonomous forms of domestic organization. Cohousing was the first reminiscence of collective dwelling after decades of obscurations and attention directed to family housing. The new model was invented at the end of the 1970s in Denmark and the USA (McCamant & Durrett, 1988) as an economical alternative to traditional mass housing and single-family homes. It was created by new groups of young working parents and the elderly who needed to combine productive and reproductive labor within suburban neighborhoods (McCamant & Durrett, 1988, pp. 9–11). Although its innovative ethos was firstly promoted in Scandinavia, and only recently in other geographic areas, we can consider the cohousing spatial and organization model to be still too far from Teige's idea of collectivization: in cohousing, dwellers shared few common spaces, including a large kitchen, dining rooms, and playgrounds for children, while still conserving the idea of a self-sufficient single-house equipped with a private kitchen (exemplary is the 1984 Jystrup Savvaerket by Vandkunsten Architects; see Figure 11).

This aspect was related to the resident's financial capacities and needs in which collective facilities did not replace private ones, they led to the reduction of private areas (and costs) only, somehow doubling domestic labor and housekeeping fatigue, a fact that strongly collapses with Teige's principles of collectivization. The problem with cohousing, referring to Teige's idea and his radical critique, is the family subject, both as an obstacle for collective organization and as an economical structure reinforcing the ideology of private property. As Francesco Chiodelli and Valeria Baglione argue, although cohousing has lately been praised as a valid alternative to the private housing market, it remains a model that is generally limited to the middle class or wealthy groups of tenants (Chiodelli & Baglione, 2014).

Outside the family structure, for many individual subjects (precarious, students, freelance), money-saving represents the main reason behind the con-

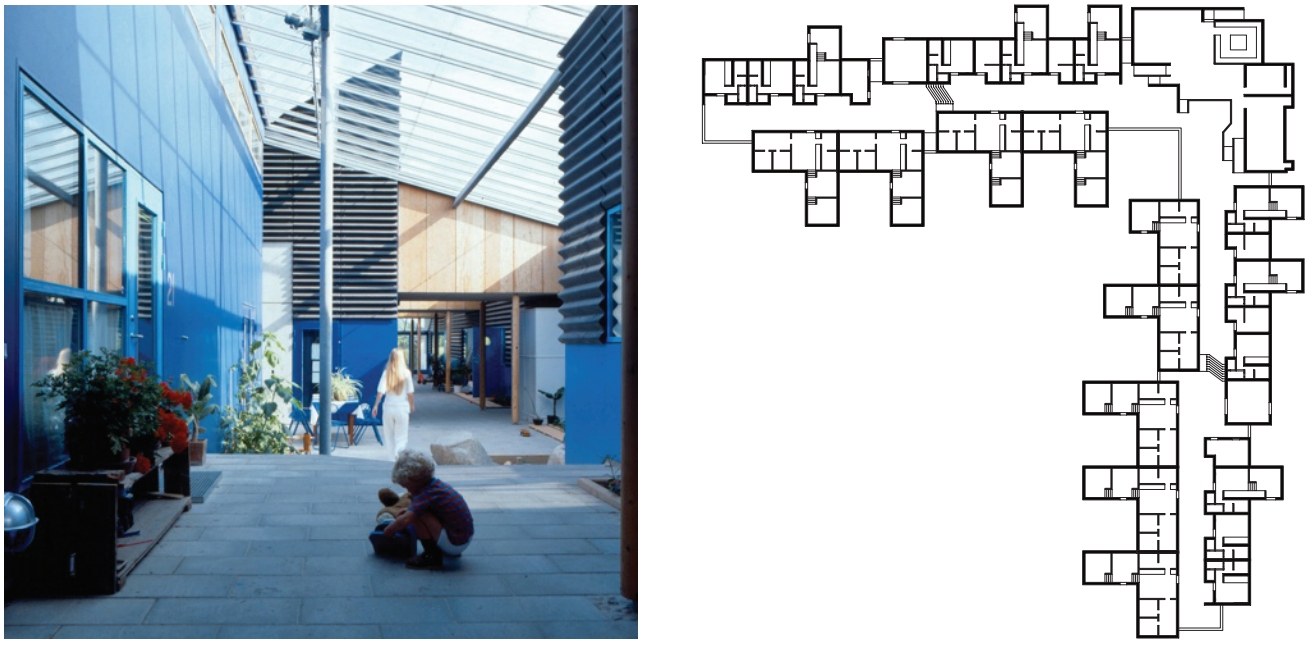


**Figure 11.** Cohousing Jystrup Savvaerket by Vandkunsten Architects, Denmark, 1984. From left to right: view of the collective space (Vandkunsten Architects, n.d.); cohousing typical plan (by the authors).

temporary minimum dwelling and co-living examples. Whereas the former coincides precisely with what Teige strongly criticized—a miniature family-house—the latter becomes a dwelling solution out of necessity, generally associated with urban typologies such as the studio-apartment or the micro-flat: places where production and reproduction, living and working, are condensed in one single room, gravitating around the single person (Macherez, 2015).

Forced by market possibilities, young generally precarious workers and students are forced to share small apartments (Figure 12). In Italy, this form of co-living is better known as the *posto-letto* ( "bed-place") typology where people pay for the very minimum, the bed (Gasparetto, 2017). This last model is the opposite version of the new fashion of hyper-designed and extremely domesticated commercial co-living in cities like London, New York, and even in Brussels or Rome (Aureli et al., 2018, pp. 254–255). It is arguable that the spread of many co-living, co-working, and the obsessive use of the prefix "co" has a strong relation with "cognitive capitalism" and its mechanisms of accumulation (based on co-operation, knowledge and cognitive labor), proposing a commercialized version of Teige's proposal.

## 6. Conclusion

Madden and Marcuse (2016) pointed out that, while nowadays the realization of housing depends mostly on private initiatives and speculative plans, the state—and politics—can't call themselves out of the market, since the commodification of housing is itself a "political project". In fact, politics and governments create not only rules but also enforce relations of contracts and regimes of properties between a myriad of actors: owners, investors, and tenants. The so-called "withdrawal of the public" has represented more of an institutional avoidance of housing as a social project, than an effective shrinking of public influence on issues related to the housing crisis.

This situation has profound consequences on the current understanding of housing from within architecture. Here lies the paradox: although domestic space is the field where architectural culture is mostly active, decades of neoliberal policies and market hegemony in housing production have drastically limited the space for concrete realizations.

The redefinition of a public framework through which alternative affordable housing programs could be realized should be coupled with the re-engagement of architects into the socio-political scene. The discussion on the *Existenzminimum* through the work of Alexander Klein and Karel Teige suggests the need to strategically embed and test housing projects with productive and social conditions of a given historical moment. When this happens, as demonstrated by contemporary cases, not only it is possible to define novel paradigmatic operational models based on collective living and questioning of property regimes (Meehan, 2014; Vey, 2016), but also to test novel typologies of domestic space (Boudet, 2017; Lacaton, Vassal, & Druot, 2007).

We argue that a study of household forms of life and of their labor relations can be the base for structuring a new approach to housing theory and design, considering it as the environment where the struggle between productive economic interests, collective bonds, and households' modus vivendi are re-negotiated. In this framework, the minimum dwelling, the ultimate frontier of contemporary passive exploitation (Negri, 2012; Vercellone, 2008) acting through rents and labor, could also be rethought as a possible instrument of emancipation and, eventually, even as an architectural answer in the fight for a true "right to housing" (Pattillo, 2013).



**Figure 12.** The Collective Old Oak, London. From left to right: communal space (Popupcity, 2016); typical room for singles with a kitchen shared by two units (by the authors).

**Conflict of Interests**

The authors declare no conflict of interests.

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Article

# Does the Homogeneous City Belong to the Past?

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**Abstract**
As the case of Paris embodies, a whole culture of the European city has built its identity and organized the collective life of its inhabitants on the idea of homogeneity. The homogeneous city has thus significantly contributed to the collective self-representation through housing architecture. The strong degree of homogeneity of the nineteenth-century European city undoubtedly represents one of the most vivid examples of an architectural self-celebrating collective moment. This singular urban coherence is one of the few attributes of the traditional city spared by the Avant-gardes in the early twentieth century, for its ability to absorb a large number of variations without compromising the expression of continuity. A careful reading of their three main housing models—the *Siedlung*, the *Hof* and the Garden City—could confirm such a perspective, as do *Existenzminimum* standards. This long-standing tradition now seems to have been broken, since the homogeneous city is no longer considered as a current operating principle for urban planning. In order to understand—and perhaps overcome—the reasons for such resistance to one of the prime elements of European urban history, this article proposes to review its evolution over the last two centuries, focusing on the importance given to housing in the establishment, and the criticism and potential renegotiation of homogeneity as a malleable and latent principle.

**Keywords**
architecture; European city; housing; urban theory; urban homogeneity

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## 1. Introduction

The collective substance of the European city cannot be reduced to its public space and its monuments. It also emerges from the private sphere: the domestic one, that of the dwelling (Rossi, 1966, pp. 71, 127). As a primary urban artefact, housing has the singular capacity of embodying the collective consciousness of belonging to the city. This capacity comes from the sheer quantity of housing, and the perception of repetition, in spite of a variation of its qualities. Housing directly participates in the urban fact thanks to the power of the ordinary. Common features vary in their extent, intensity and motivations. They can be observed at the scale of a neighbourhood, or in the wider contexts of urbanization; they can occur in a circumstantial manner or an authoritarian one. In order to grasp its architectural meanings, it is necessary to understand the origins and the political value of the ordinary. Also, the cohesion we are examining is not limited to a specific language, style or function. Urban homogeneity is rather considered here as the critical, sensitive and transversal identification of common denominators in housing phenomena or policies. The notion of homogeneity has long been used in architectural and urban discourse for quantitative or sociological aspects, mainly as an adjective, but it has never been observed as a large and multifaceted theoretical issue regarding housing and domesticity. Instead of interpreting it as a strictly measurable spatial value (Maïzia, 1999), or as a social mapping tool (Bailly & Beaudry, 1976), we propose to focus on its architectural and normative aspects, which have not yet been fully considered. This

step is a prerequisite for the up-to-date assessment of homogeneity as an architectural principle, which the last decades seem to have (definitively?) associated with negative connotations.

Compared to an architectural production largely focused on originality and demarcation, the principle of homogeneity could appear anachronistic. When applied to the contemporary city, the notions of 'coherence' or 'environment' are used with a more positive connotation to escape the monotony to which homogeneity is commonly affiliated. However, the usual association of homogeneity with uniformity appears not only questionable, but also limiting. While uniformity induces the absence of variation and conformity to a reference model, homogeneity admits the possibility of similarities, thereby closely relating to the notion of 'type' already introduced in the theory of architecture (Quatremère de Quincy, 1788–1825, pp. 543–545). Discussing homogeneity sometimes evokes rhetorical postulates, which can be difficult to evaluate. Nevertheless, it opens the door to richer latitudes than strict unity, and to a more precise framework than that given by coherence, or even harmony. Although malleable and inaccurate, it seems legitimate to recognize the importance of this principle. It impacts systematically on the history of the city, according to different time periods, and in a cumulative continuity that architectural culture should register.

To analyse this question in-depth and go beyond an ambiguous or even traumatic apprehension, we propose to identify and methodically confront four main architectural periods at regular intervals of 50 years. These four historical periods are intended to highlight the affirmation and the crisis of 'the homogeneous city' as a driving principle for habitat construction. Each theoretical marker mobilizes housing as an ideal priority in enabling the assertion of a collective character in urban planning. First, the completion of the Parisian *Avenue de l'Opéra* in 1879 is one of the strongest affirmations of a figural homogeneity used in shaping the city through housing. Half a century later, in 1929, the second CIAM (*Congrès Internationaux d'Architecture Moderne*) in Frankfurt embodies the vision of modern progress with a universal vocation by proposing an egalitarian and normative conception of the city. *Existenzminimum* then leads to a renewed homogeneity defined by the slight variations in standard residential units (Mohr, 2011). In 1979, the keen interest in the completion of the *Hautes-Formes* social housing development in Paris is an important turning point in the architectural appropriation of the homogeneous city. Homogeneity as a theme is then categorically refocused on a more conciliatory interpretation of urban continuity. Finally, looking to the present and the near future, just one decade separates us from the next period proposed by this sequence. Due to recent changes in building function, energy consumption and architectural composition, the next few years could be decisive for the evolution and evaluation of the homogeneous city as a design tool.

## 2. 1879 and the Bourgeois Celebration

The city of the nineteenth century is exemplary in its ability to give form to urban homogeneity. The case of Paris is particularly significant (Loyer, 1987, pp. 232–233). Beyond the city, Napoleon first initiates a deep restructuring on a territorial scale. The beginning of the century is then marked by an unprecedented policy of large construction sites, driven by an ambition of identity. Infrastructure and public facilities—especially schools—are primarily mobilized to support the project of national homogeneity. Between 1831 and 1881, successive laws consolidate the obligatory use of French; language is considered an important driver of unification. Afterwards, it is on an urban scale, and through 'architectural language', that homogeneity becomes a project. Here again, centralized authority greatly contributes to the coherence of many structural spatial decisions. In urban areas, the state focuses mainly on the network of monuments and on the homogeneous treatment of public spaces (Alphand, 1867). In the face of state interventionism, the equally powerful presence of economic forces strongly contributes to giving Paris a united aspect. As César Daly (1864, p. 9) states in the introduction to *L'architecture Privée au XIX Siècle*: "a favourably inspired administration set out, by immense construction works, to establish a missing *harmony* between the great Parisian city and the needs of its inhabitants", and he specifies, "this great effort of the administration has led speculators and architects to make a similar effort". Also, the recognizable character of the nineteenth century city comes not only from a directive embellishment, but also from the visible outcomes of real estate speculation generated by the housing market. The *immeuble de rapport* (block of flats) and, in particular, its Haussmannian variations, are the main tool of a homogeneous formalization of the habitat, and of the city (Loyer, 1987, p. 232). The homogeneity of the 'City of Lights' comes thus from the private sphere, through housing.

The completion of the *Avenue de l'Opéra* in 1879 is one of the most evident gestures joining public and private interests by adopting a form of urban homogeneity. The coherent perception of the whole is mainly guaranteed by enforcing guiding projections dictated by the political power, and to which architects must comply (Eleb, 1991, p. 286). This architecture *réglementaire* is also supported by the complicity of various *Beaux-Arts* architects adhering to a common work. In support of academic tradition, the legislative effort is then able to maintain homogeneity, without requiring the duplication of any of the buildings. One of the strengths of the Haussmannian project is to "make one forget the incoherence of successive actions, the divergence of the projects or that of typologies, to bring out the city as a whole; the extreme diversity of its parts only reinforces the overall coherence" (Loyer, 1987, p. 232). Henceforth, housing is no longer just the basic raw material of the city, as defined by Vitruvius (1673, p. 15), but strongly perceived as real




**Figure 1.** Social representations. From left to right: The lithography of Honoré Daumier (1808–1879), with the caption "The good bourgeois—Position reputed most convenient to have a nice portrait in Daguerreotype", published in a satirical newspaper in 1847; the engraving previewing the *Avenue de l'Opéra* in 1876. Sources: Daumier (1847) and "Paris. Avenue de l'Opéra, percement et projets" (1876).

design material. Dwellings are at the service of an urban intention: the celebration of the homogeneous city. In return, homogeneity itself showcases the inhabited material of the city, even more than its own monuments–which appear almost interchangeable, even subsidiary. Between 'the administration' and 'the speculators' mentioned by César Daly, 'the architects' could propose an alternative that is more cultural, and closer to the idea of common good: that of collective self-representation. To satisfy its expectations in terms of self-representation, the assertive bourgeoisie does not wait for the inauguration of the Garnier Opera, considered as the symbolic place of all the representations, both scenic and social. During the mid-nineteenth century, the Parisian success of the daguerreotype is a significant sign of the bourgeois quest for self-representation (Figure 1).

Twenty years after the development of this revolutionary photographic process, Charles Baudelaire (1868, p. 259) criticizes its popular use in these words: "The filthy society rushed like a single Narcissus to contemplate its trivial image on the metal". To use his words, the Haussmannian project could also respond to the bourgeois need for contemplation, *in stone*, of its own figuration. Over time, urban character, as a 'common good', can finally go beyond the limits of its social origin, and offer the enlarged city a renewed image of its identity signs. This is the observation made by François Loyer (1987, p. 330) when he notes that, in the 1860s, "the standardization will even cross the technical barrier of materials...and one will find poorer versions of great bourgeois buildings in Ménilmontant, even though they are identical in profile and size". The apogee of an eminent, collective and homogeneous urban culture, able to go beyond the social fragmentations of the city, faces violent criticism from 1880 onwards. As noted by Monique Eleb (1991, p. 294), the testimonies of Eugène Viollet-le-Duc and Charles Garnier are particularly representative of a new generation of architects condemning uniformity and monotony, and who sought a deregulated eclecticism. Eugène Viollet-le-Duc (1872, p. 305) regrets the effacement of the individual, of his footprint and of his personality; Charles Garnier (1892, p. 811) is saddened by the long perspectives of regular facades with repeated ornaments, and also deplores the loss of any personal physiognomy. It is surprising to observe that such arguments continue to be used by the detractors of architectural or urban homogeneity, especially when referring to projects of modernist influence. The remarkable relevance of the debate concerning the homogeneous city at the end of the nineteenth century is an eloquent sign of its periodic character.

### 3. 1929 and the Modern Approval

Associated with the second CIAM, the year 1929 represents an historic and theoretical landmark for the formulation of an architectural vision of homogeneity, based on housing. Following the pre-modern experiments marked by industrialization, and contrary to many categorical breaks with academicism, the "Declaration of La Sarraz" (1928), then the *Existenzminimum* (1929), affirm once again homogeneity as an essential tool for the development of modern precepts, and the achievement of their goals. It is no longer the expression of a bourgeois celebration, but a powerful emancipatory force of the working class, marked by the production of dwellings that are conceived and carried out for the greatest number. The second CIAM sets as an objective a unitary and massive progress, commensurate with the progress of industrial development. Even though it embraces a radically different ideology, it continues the project of the previous century by adapting architecture to the technological evolution that defines its time. Moreover, the words used by Loyer (1987, p. 232) to describe the

transformation of Paris in the nineteenth century are also valid when talking about the modern Avant-garde: "rather than deny the industrial society (or even to ignore it), it [the transformation of Paris] strives to domesticate its power and subject it to a more global cultural vision". The "obligation to create, in all fields, a new state of equilibrium" is advanced in these terms at La Sarraz and reiterated the following year by Le Corbusier (Steinmann, 1979, pp. 12, 62). This perspective of unity, which he considers as the main goal of each revolution, is linked very early on to the field of housing. Even before 1929, the balance between uniformity and homogeneity related to housing is particularly discussed in the German debate. Ludwig Hilberseimer (1927, p. 100) explicitly considers housing as a privileged material in the building of the city, after having radically mobilized it in its homogeneous—even uniform—project of the *Vertical City* (1924). One step further, the first two CIAM also consider the dwelling as a laboratory of innovations available for other uses (Steinmann, 1979, p. 17). These possibilities of transfers and variations deviate from strict uniformity and lead to more flexible attitudes. Residential architecture appears as the origin and the privileged support of a homogeneity that exceeds the functional criterion. Starting from housing, the second CIAM in Frankfurt establishes the constructive proposal of rationalist architecture, recognizable by the radicalism of the structural open frame, and the evocative power of the uniform coating of plaster (Figure 2). Instead of maintaining continuities with the existing city, the *Existenzminimum* imposes the new standards of its own homogeneity. A homogeneity that surpasses the scale of the city and echoes the emergence of an international style.

The homogeneity defended by the *Existenzminimum* is not devoid of authority. In its demonstrative dimensions, the 1929 CIAM embodies the affirmation of a clear direction, in which a group of non-unitary but unified architects proposes to drive architectural production. The tone of its programmatic and constructive syntheses is mainly prescriptive. Its typological repertoire is equally normative. The associated exhibition entitled "Homes for Minimum Incomes" presents the radical representation of housing as standard floor plans (International Kongresse für Neues Bauen, 1930). Housing is presented in a deeply interventionist way, in a detailed search for economic and even moral optimization which is evident in the similarities between the floor plans. As presented by Victor Bourgeois (Steinmann, 1979, p. 34), the minimum house program indicates a level of unmatched anticipation in the history of architecture regarding habitat. It goes so far as to dissuade the hanging of paintings or photographs on the walls because they collect dust and prevent rest, or to consider old objects and the attic as sources of unhealthy disorder (Steinmann, 1979, pp. 54–55). The optimization of the minimum housing unit is not limited to its constructive aspects. It invades all aspects of housing in a quite authoritarian manner, even its most intimate features. Under the guise of adapting architecture to technical changes, the modern enthusiasm strongly contributes to promoting and increasing their impact in the habitat. Progress, as a leitmotiv, then justifies any normative distancing with the past (Figure 3).

Mainly dedicated to the affirmation of the fundamental breaks carried out by modernity, the second CIAM (like the first one) remains very discreet about the inexplicit continuities it pursues from the nineteenth to the twentieth century. To review certain similar trajectories hitherto too often excluded, such as the terrain of vernacular production, it is useful to highlight new hypotheses concerning the origins and the future of modern homogeneity. The dwelling unit of the *Existenzminimum* is



**Figure 2.** Extracts from the "*Katalog*" presented in the appendix of *Neues Bauen der 20er jahre, Gropius, Haesler, Schwitters und die Dammerstocksiedlung in Karlsruhe 1929*. Source: Franzen (1997).

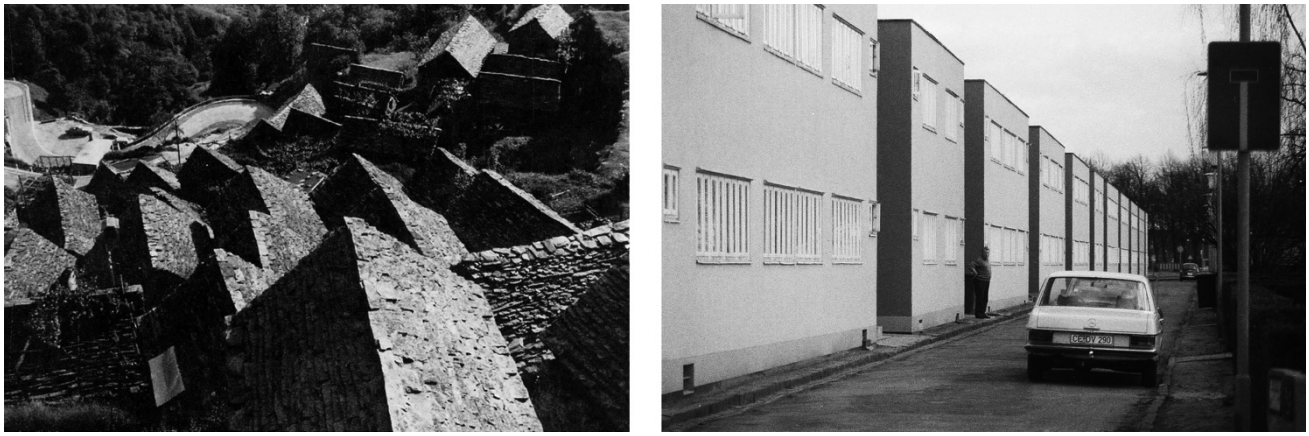


**Figure 3.** The visible homogeneity from vernacular architecture to the statement of modernity. From left to right: The traditional village of Brontallo, Switzerland; the *Blumläger Feld Siedlung* designed by Otto Haesler in 1930 in Celle, Germany. Note: Both photographed in the late 1970s. Sources: Rossi, Consolascio and Bosshard (1979) and Wagner (1979).

destined for a traditional family unit, which explains the low variation of its spatial features, similarly to vernacular habitat. Although the scale of the collective building is widely discussed at the Frankfurt Congress, the one-family-house remains an essential reference unit. A significant proportion of the repertoire does not question the formal recognition of the elemental social unit in its urban perception—perhaps one of the main distinctive signs of the vernacular habitat. The program described by Victor Bourgeois (Steinmann, 1979, p. 55) even amplifies this perception by associating private gardens with housing. Their partial use for domestic agriculture is reminiscent of a traditional rural relationship between the home and its surroundings, which is adapted to modern urbanity. At *Römerstadt*—the *Siedlung* barely completed in 1929 and already the showcase of the second CIAM 2—some open spaces accessible to all can also be seen as the reinterpretation of the traditional common lands. Kenneth Frampton (1980, p. 137) introduces this possibility by linking some exterior spaces of May's housing settlement to those of traditional villages: the *Anger*. Such analogies could link the production of committed architects with a careful examination of the qualities of popular habitat. They encourage a less mechanical interpretation often associated with the nascent modernity, and emphasize the already systematic character of traditional constructions. The vernacular habitat itself already expresses a certain standardisation, as described by its typological variations. This is undoubtedly one of the main lessons of *La Costruzione del Territorio del Cantone Ticino* (Rossi, 1979).

It is especially noteworthy to observe that the measurements of the houses in Brontallo are directly related to the size of the wooden beams used in local construction. The normative character of the vernacular habitat derives from the bottom-up specificities considered over a long period of time. It builds on the constraints and availability of local features rather than universal needs, through the continuous transmission of knowledge. The *Existenzminimum* is a sudden top-down exercise of schol-

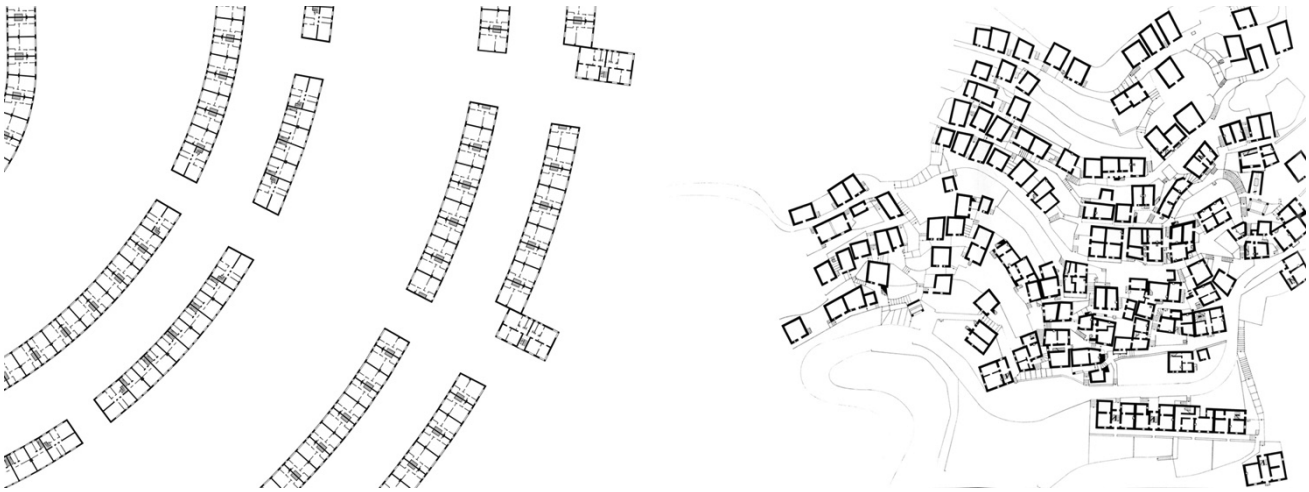


**Figure 4.** The typological homogeneity from vernacular architecture to the statement of modernity. From left to right: Römerstadt typological assembly from *Logement de Masse: Vienne et Francfort*; Brontallo typological assembly plan from *La Costruzione del Territorio del Cantone Ticino*. Sources: Porotto (2018) and Rossi et al. (1979).

arly optimization, defined a priori. However, it proposes a comparable typological inventory. The homogeneous graphic representation of its types shows their variations, with a similar intensity to that of the drawings produced by Aldo Rossi and his pedagogical team at ETH Zurich (Rossi et al., 1979) for the study of the Ticino territory (Figure 4). The *Existenzminimum* confirms a pre-existing capacity of residential architecture: that of absorbing a large number of variations without compromising the expression of continuity. More than the local circumstances themselves, the variations result from the sensitivity of the authors, from their capacity to adapt the form of the models to local constraints. The scholarly appropriation of such a theme introduces typology as the art of variation, and the manifest adherence to the principle of the homogeneous city as a new space of architectural invention.

As soon as CIAM architects decide to renew the principle of homogeneity in modernity, they immediately raise the question of its intensity, its industrial and/or architectural variations and its authorship. The split described by Jacques Gubler (1988, pp. 152–155) at La Sarraz in 1928 introduces crucial uncertainties in the modern definition of the homogeneous city. In spite of the insistence of Le Corbusier when he tries to institute the principle of standardization in the first program of the Swiss CIAM, his fellow conferees "consider it inappropriate to codify the plastic grammar of the new architecture, as well as to confer universal value on particular devices, since their implementation is based more on the architect's individual language than on a strict technical necessity" (Gubler, 1988, pp. 154–155). Architectural inventiveness is therefore observed in the light of a threatening homogeneity. And the threat is twofold. On the one hand, the excessive standardization of construction would be tantamount to "nipping architecture in the bud", according to the precautions formulated by Le Corbusier himself (Steinmann, 1979, p. 18). On the other hand, the excessive authority of the architectural model appears in 1929 as a possible setback of an initially laudable intention.

**4. 1979 and the Traumas of the Masses**

The trajectory of the progressive homogeneity, initiated with the *Existenzminimum*, reaches its critical threshold in France with the controversial figure of the *grand ensemble*. The architecture of the second post-war period to address the issue of mass housing continues to exert a real trauma on a large part of popular urban culture. The mistrust of social formalism–as the simultaneous or consecutive product of public interventionism and capitalist economy—is first expressed in the reactions of a counterculture that began to emerge in the 1960s. In parallel, a critical re-reading of the modern movement develops within the field of architecture itself (Aureli, 2013, p. 12). The trauma of the *grands ensembles* then spreads to public opinion: that of the masses, to whom the urban homogeneity of modernity was supposed to be addressed. The non-identification of individual dwellings in buildings is associated with the image of an oppressive administrative egalitarianism, condemning residents to anonymity. The perception of a mechanical repetition of the constructed forms is amplified by the programmatic homogeneity introduced by zoning. Initially thought of as an enhancing planning tool, mono-functionality is then confronted with the social and economic reality of these *ensembles*. The popular criticism of urban monotony is

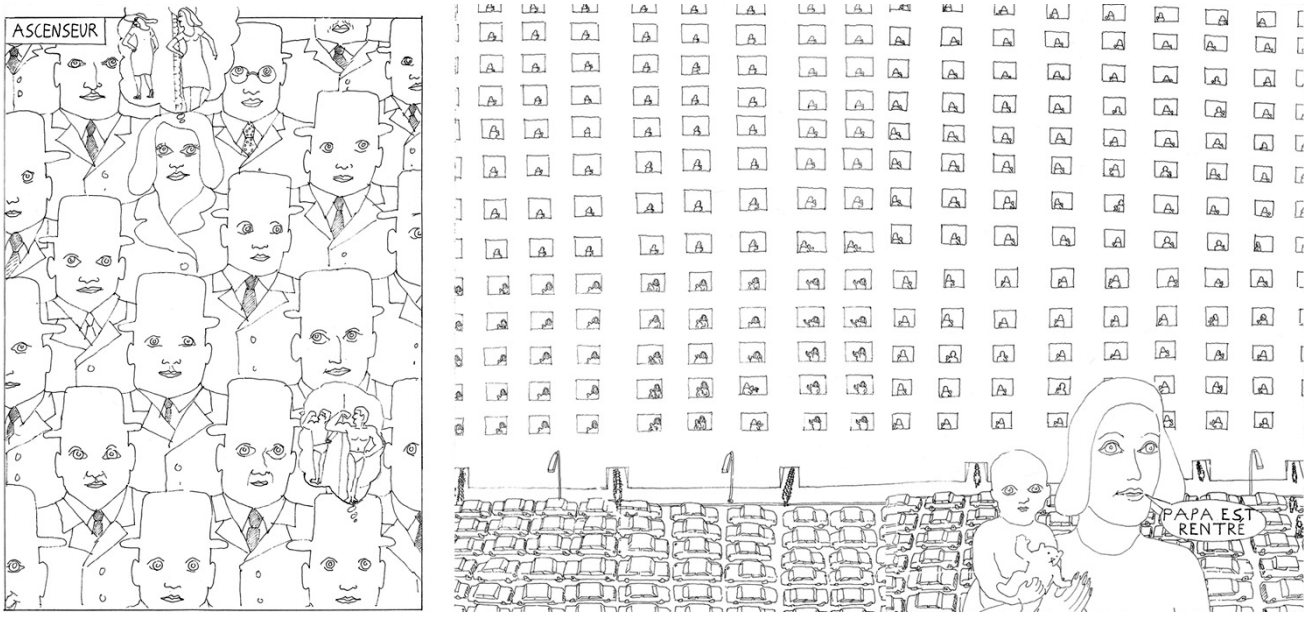



**Figure 5.** The Soft-City dystopia imagined by Hariton Pushwagner between 1969 and 1975, a sharp criticism of modern uniformity, particularly explicit in its architectural aspects. Source: Pushwagner (2017).

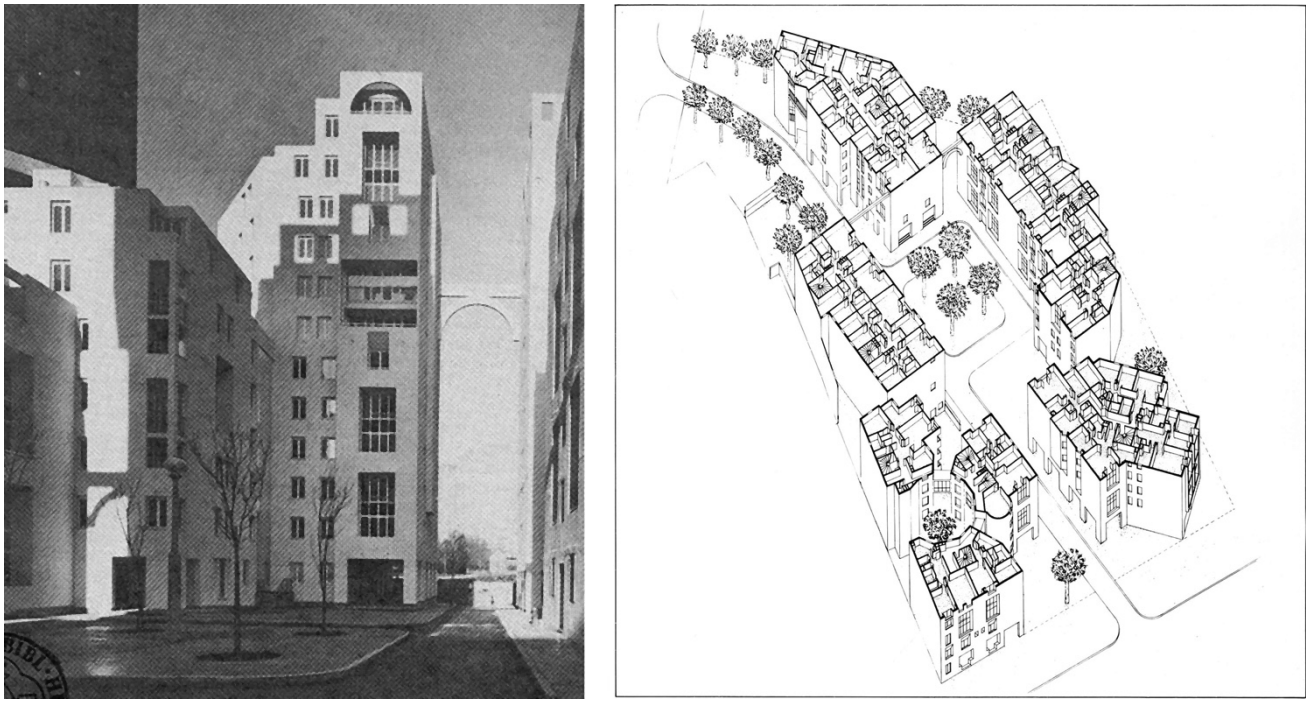


**Figure 6.** The *Rue des Hautes-Formes*. From left to right: Photograph from 1979, after the completion of the operation carried out by Giorgia Benamo and Christian De Portzamparc; general axonometry of the operation. Source: "Paris, rue des Hautes-Formes. Dossier iconographique" (1979) and Portzamparc (1984).

added to that of an alienation of individuality; the rationalist path imposed by the crane does not admit the picturesque accidents that the unity of the traditional city generates. Pushed to the limit of its semantic field by an excess of rationalist, 'homogeneity' shifts towards 'uniformity'. The mix-up is so powerful that it persists today. It symbolically takes shape in the constructed objects, which endorse negative connotations, but also in the architectural principles that determined them (Figure 5). Reduced to the idea of uniformity and repetition, homogeneity is considered a failure, and becomes a scapegoat for modernity.

The completion of the *Hautes-Formes* in Paris in 1979 marked an important turning point in the perception of the homogeneous city. "After two decades of functionalist cynicism and brutality", Eleb and Cohen (2000, p. 159) consider this project of 210 social housing units as the final moment of the *grands ensembles* episode. The enthusiasm it aroused—beyond the Parisian debate—is the sign of a broad shift towards the traditional city, in its contained scale and its diversified nature (Figure 6). The houses designed by Giorgia Benamo and Christian De Portzamparc have the particularity to redefining their own urban space, closely related to the dense city (French, 2008, p. 168). They defy orthogonality, abandon symmetry and opt for the multitude: "each apartment has a particular plan (one hundred variants are proposed for eighteen types of housing), linked to its position in the building, its orientations, its views" (Eleb, Cohen, & Martinelli, 2000, p. 159). The typological tools elaborated by modern Avant-gardes in order to maintain a contained variety are no longer sufficient to satisfy the popular and political expectation of differences. Also in 1979, the *Quartier de L'horloge* simulates the absence of plot division in the heart of Paris. Its architect Jean-Claude Bernard seeks to propose "chance variations within a general harmony" (Lucan, 1992 p. 183) thanks to the expressive and volumetric heterogeneity of its facades. These emblematic achievements do not reject the homogeneous city, but divert it from its functionalist delineation, in search of more diffuse, more cultural, but also more ambiguous new formalizations.

It is also between 1978 and 1980 that a series of *Zones d'Aménagement Concerté* was launched in Paris. Jacques Lucan (1992, pp. 184–185) notes their strong tendency for architectural heterogeneity. The following generations of Parisian ZACs confirm this trend, leading Jacques Lucan (2012, pp. 65–66) to observe, twenty years later, the continued demarcation of one-off operations. Paradoxically, the degree of variation in their housing plans is similar to that of the *Existenzminimum* repertoire: "The programs are indeed 'generic', very similar from one client to another, and the types of housing, which are also 'generic', are determined by 'market demands"' (Lucan, 2012, pp. 65–66). In reaction, he notes "an exacerbation of the distinctive features of the operations, both in terms of form and materials used...with often vivid chromatic choices—whereas a city like Paris is essentially 'monochrome"' (Lucan, 2012, p. 66). Jacques Lucan's comments reveal the post-traumatic ambiguity that characterizes such an architectural production. Its exacerbated figurative diversity actually conceals a per-

sistent substantial homogeneity, from which it is difficult to escape. This homogeneity is linked to the reality of the construction process (Périphériques Architectes, 2007, p. 25) and to housing as a standardized product. An unavowed form of homogeneity persists, in the shadow of agitated differences. These expressions of diversity are often so systematic that they also become generic, as a uniform expression of particularities.

### 5. 2029 or the Promises of Undifferentiation

Among the trends that emerge during the next ten years, there is one in particular that offers the homogeneous city new perspectives: that of no differentiation. Even though there is a clear popular attachment to architectural diversity, it is striking to observe how certain cultural traits have easily become widespread in recent decades, such as white interiors, standardized furniture or smartphones. Acceptance of homogeneity is extremely variable, and reflects a continuous adjustment between individual and collective self-representation. It concerns not only the physical characteristics of everyday spaces and objects, but also the understanding of their status, their emotional value, and their representational codes. Beyond the architecture field, the sudden development of social networks testifies to the success of such a homogeneous formalization of (self-)represented entities. The most popular have the striking peculiarity of presenting one person or a multinational company in the same way, at least in appearance. Friendships, family, leisure, culture, media, associations, consumption and institutions share the same mode of self-representation, in a fictitious but formally homogeneous indifference. Alain Guiheux (2017, pp. 79–90) identifies the architectural equivalent of such a level of no differentiation as the *grand espace commun*. By absorbing the traditional spatial and social frameworks, it defines a decompartmentalized, unitary and ubiquitous life. Also, the blurring of representative boundaries between public and private spheres, work life and life outside work, the individual and networking, could affect the popular acceptance of a new figurative homogeneity. Considering the inertia of the evolution of the built environment, such an orientation could, if consolidated, embody the promises of strong changes in future architectural productions.

The exhibition *Habiter Mieux Habiter Plus*, inaugurated in April 2018 in Paris, marks an architectural renewal in the production of Parisian housing. After four decades of formal festivities—inaugurated by the "*Hautes-Formes* complex and pursued by several generations of optimists defending architectural diversity—the architectural sobriety of the 63 projects presented in the exhibition is surprising. The residential architecture seems to be gradually recovering from the trauma of regularity. Architects are no longer afraid to repeat and align elements in the facades (Figure 7). Most of them express a homogeneous 'structure capable'.



**Figure 7.** Extract from the press kit of the exhibition *Habiter Mieux Habiter Plus* presented at the *Pavillon de l'Arsenal* from April 5th to September 2nd of 2018. Source: Pavillon de l'Arsenal (2018).

The majority of the projects presented tend to leave any domestic connotation out, even though they are collective housing. Like in the pioneering achievements of Lacaton and Vassal, only though the residents' appropriation of the houses though furniture can one perceive the nature of the interior program. The introduction of office standards to more domestic formalizations accentuates such undifferentiation. The same table or the same sofa are indifferently used in a living or in a meeting room. Even these supposedly distinctive secondary elements end up diluting programs within undifferentiated frames. The progression of home-office and co-working, the emancipation of the craft industry and, more generally, collaborative economy, digital economy, urban agriculture, or e-commerce, call for a redistribution of architectural connotations. These structural changes are accompanied by the construction of an architectural imaginary that the interior renderings of the competitions seek to make readable and attractive. The use of the vegetation on the upper floors only accentuates the perception of their homogeneity. The project designed by the architectural offices Jaspers-Eyers & Partners, AUC and 51N4E for the renovation of WTC 1 and 2 Towers in Brussels adds further to the homogeneous city by fitting 127 dwellings between the floors of the Flemish administration headquarters (Figure 8). The project echoes the agility with which social networks seemingly connect companies, institutions and individuals. Behind the apparent homogeneity, a sophisticated distribution system addresses the programmatic characteristics of a public institution or that of a studio.

The disappearance of the boundaries associated with the traditional separation of urban functions—yet another component of the urban environment that the CIAMs extended—could lead to the end of the corresponding categories, starting with "housing" (Landauer, 2013, p. 34). The *grand espace commun* jeopardizes housing as an architectural program limited to the home, opening it up to wider and more diffuse perspectives. With the end of housing, its rebirth arrives, according to an updated interpretation of the habitat that Siegfried Giedon (1958, p. 202) had already anticipated: "The extended housing". If commercial and professional activities tend to dwindle in their urban forms, the "increased" housing—to emphase Giedon's words—could once again become a fundamental element as considered by the modern movement. Its contemporary formalization is actually similar to the constructive processes promoted during the second CIAM. In 1929, Le Corbusier summarizes the characteristics of housing for minimum incomes in these terms: "To act, human beings need horizontal well-lit surfaces, protected from the rain, temperature and curiosity. That's all!" (Steinmann, 1979, p. 62). The distinction he makes between "type of house" and "residential cell" when drawing up the program for the first CIAM (Steinmann, 1979, p. 18) anticipates the distinction between 'housing' and 'habitat' according to a respectively sterile and fruitful assessment of homogeneity. In its amplified form of "habitats cell''—to extend Le Corbusier's distinction—housing would once again become a major component of the construction of the city, according to an unexpected form of mono-functionalism: the same form regardless of the function, or the form that follows non-function. The exacerbated mix of functions until they can no longer be differentiated would paradoxically produce an astonishing surge of homogeneity. Once again, and more than ever, housing would build cities.




**Figure 8.** In 2023, the ZIN project will bring together housing, offices, a hotel, co-working spaces, sports areas, a food court and shops in a homogeneous architecture. Images courtesy of Befimmo, 51N4E, l'AUC and Jaspers-Eyers & Partners, from the ZIN project competition, 2019, Brussels.

## 6. Conclusions

The four periods examined reveal the possibility of considering urban homogeneity not only as the result of a progressive densification of the city (Castex, Depaule, & Panerai, 2004, p. 180), but also as a voluntary and affirmative design principle. Its varied nature, evolving according to the context, can also be partial. Homogeneity does not need to be completed or generalized to become an urban principle. Alternatively associated with ordinary, vernacular or institutional construction, homogeneity has also accompanied the development of industrialization and mass society. On each of these occasions, homogeneity is mobilized in the field of a collective expression of habitat. Even the 'post-modern' reaction, exalting the creativity of architects in search of figurative originalities—whose collective scope still deserves to be measured—unintentionally contains an underlying homogeneity, even though it wanted to bring it to an end. A first answer to the title of the article—does the homogeneous city belong to the past?—can be given by detaching urban homogeneity from the historical conditions of each period, and reading it as a sequential whole. The homogeneous city thus becomes a malleable and latent principle. Moreover, the principle of the homogeneous city, that has proven successful over the years, could be put at the service of new applications, in the face of the future architectural challenges. As the environmental crisis and climate changes inevitably mobilize a global scale of reflection, the deployment of effective solutions remains valid, complementary to local and diversified measures. The widespread use of external wall insulation has already oriented a large part of the new architectural production towards specific constructive and formal solutions. While the recent development of spectacular architectures has steered technical innovation away from the homogenization of built forms, technology and homogeneity could both find points of convergence in the future, provided that there is an adequate political and collective will. Future responses to urgent housing needs for the masses could benefit from leveraging the cumulative lessons of the homogeneous city. Outside these emergency contexts in which the acceptance of homogeneity is always facilitated, and closer to an ordinary and progressive trend, the evolution of the traditional categorization of 'housing' could have a significant impact on the contemporary approach of the homogeneous city. While the origins of habitat played a founding role in the emergence of this principle, the disappearance of housing as an object of planning and normative category could paradoxically become the terrain for the progressive rehabilitation, and architectural renewal, of the neglected qualities of homogeneity. The homogeneous city could then again be considered as a significant spatialized formalization of the living-together.

## Conflict of Interests

The author declares no conflict of interests.

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COGITATIO

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Article

# Reinterpreting *Existenzminimum* in Contemporary Affordable Housing Solutions

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**Abstract**
During the housing crisis of the 1920s, the German concept *Existenzminimum* (minimum dwelling) was developed and applied to the construction of public social housing. It was considered a design laboratory, where research, design, and experimentation would focus on a unique goal: create a space-efficient affordable housing typology, based on minimum quality standards. Empirical evidence indicates a renewed interest in alternative design solutions and minimum dwelling approaches over the last decade: examples include micro-housing solutions and collaborative housing models. This is due to the current affordable crisis and the increasing trend of urbanisation. However, little is known about the current interpretation of *Existenzminimum*. What does the concept entail today and how has it developed? This article investigates if and how *Existenzminimum* is currently applied: first, it unfolds the core design principles of the original *Existenzminimum*. Then, these principles are used to assess if and how existing affordable or low-cost housing approaches are current (re)interpretations of the concept. Finally, the article proposes a definition for a contemporary *Existenzminimum*, arguing that a better understanding and awareness of the concept can help urban planners, designers, policy-makers and citizens in developing alternative affordable housing solutions.

**Keywords**
affordable housing; alternative design solutions; *Existenzminimum*; housing typology; minimum dwelling

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## 1. Introduction

Housing affordability is “concerned with securing some given standard of housing (or different standards) at a price or a rent which does not impose, in the eyes of some third party (usually government) an unreasonable burden on household incomes” (Maclennan & Williams, 1990, p. 9). This definition contains two essential dimensions: (1) a standard of housing quality, and (2) a standard for determining the reasonable relation of price or rent to household income (Haffner & Heylen, 2011). It is therefore related both to minimum quality standards of physical features of housing and to the ability of the household to pay a house that follows these standards of quality. But under which criteria are we able to assess quality in housing? This is where the concept of *Existenzminimum* becomes relevant and links to the concept of affordable housing, since its aim was precisely to define the spatial criteria that would assure a minimum of quality in housing, at a price that would not represent a burden to the households.

*Existenzminimum* is a concept that was developed in Germany in the early twentieth century to set the conditions for a dignified and healthy existence, including access to food, clothing, medical care, and housing, assured by a defined minimum level of income. It is one of those German concepts that can hardly be translated into other languages; the direct translation into English would be ‘minimum subsistence’ or ‘subsistence level’, although these expressions do not accurately illustrate the

progressive ideology of the concept. When specifically used in the housing domain, it can be translated as "minimum dwelling" (Teige, 1932/2002). The complete term of the concept is *Die Wohnung für das Existenzminimum* (meaning 'minimum subsistence dwelling'); however, to simplify the reading, the expression will be condensed to *Existenzminimum*.

This approach was widely applied to social housing after World War I, not only to overcome the housing shortage and the unsanitary living conditions in Europe, but also to adapt to the social transformations of the post-war period (e.g., women entering the labour market, smaller households). Based on socialist premises (Mumford, 2002; Teige, 1932/2002), the concept aimed at establishing high-quality living standards in housing, but at affordable prices to the low-income classes. The result was the mass production of minimum housing settlements—*Siedlungen*—in the outskirts of many European urban centres, such as Frankfurt and Berlin.

*Existenzminimum* contributed to establishing the design rules that became the standards of the general production of housing. Today, modernist design concepts "are fully assimilated by the contemporary culture and are inherent in any realisation" (Llinares, 2010, p. 153, translated from the original "estan completament assimilats per la cultura actual i es troben intrínsecs en qualsevol realització"). But besides these elements that became intrinsic to housing until our days, how did the concept—in its wholeness—evolve to our days? Can we talk about a contemporary *Existenzminimum*?

Currently, Europe is again facing a severe crisis in affordable housing provision: in 2015, 11.3% of the EU population lived in unaffordable housing conditions (Pittini, Koessl, Dijol, Lakatos, & Ghekiere, 2017). Additionally, the current trend of urbanisation is reducing the available space in cities. Recognising both the relevance and urgency of addressing these issues, we suggest that *Existenzminimum* is an imperative design approach for developing new affordable housing solutions. There is evidence of a renewed interest in *Existenzminimum* in the last decade: for instance, the international symposium "Min to Max", held in Berlin in 2011, entitled "Die Wohnung für das *Existenzminimum"* (likewise CIAM II in 1929), aimed at reviving and reinterpreting *Existenzminimum* in contemporary housing. Furthermore, empirical evidence shows recent attempts in redefining the minimum standards in housing complexes. Examples include developer-led micro-housing and co-living projects (McKnight, 2015; Zatarain, 2017), resident-led collaborative housing (Lang, Carriou, & Czischke, 2018), or the recent "Tiny House Movement" (Ford & Gomez-Lanier, 2017).

However, little research has been reported on the current definition and actual use of the concept in housing (Brysch, 2011; Ruby & Ruby, 2011), leading to the following research question: what principles define the contemporary *Existenzminimum*? To answer this question, first we identify and describe the core design principles of the original *Existenzminimum*; then, these principles are tested against current affordable housing approaches, to assess if and how they are still present today and what kind of development they entail. The aim is to propose a more accurate and updated definition of *Existenzminimum* and to illustrate the socio-economic benefits of using this concept in contemporary housing, arguing that a better understanding and awareness of the concept can influence urban planners, designers, policy-makers and citizens to develop alternative affordable housing solutions.

## 2. Methodology

This article is organised in two parts: the first one identifies the design principles of *Existenzminimum* applied to housing in the 1920s, through a literature review of discussions, methods, and outcomes of *Existenzminimum.* Design principles are here defined as parameters that guided the development of the concept from an architectural perspective, and therefore framed within three different architectural dimensions, namely technical, spatial and social, as depicted in Figure 1.

The second part, due to the scarce theoretical work on the contemporary definition of *Existenzminimum*, mainly draws from recent affordable housing projects collected from grey literature (architectural publications and magazines) and empirical evidence from observation carried out by the author. The main purpose is to test the identified principles against contemporary affordable housing approaches, to understand how has *Existenzminimum* evolved until today.

Special attention is paid to the issue 962 of *Domus* magazine, from 2012, the follow-up of the above mentioned "Min to Max" international symposium. The panels of the symposium entitled "Spaces for the Collective", "Self-Construction and Social Empowerment", and "Building on the Existing" are also taken into consideration (the correspondent audio-visual material is available at http://www.min2max.org). Both the symposium discussions and the follow-up articles in *Domus* (issue 962) focus on current architectural practices and link them to the role of the architect, at the same time that stress the urgency of addressing the housing crisis through community-oriented and self-organised approaches. These sources are relevant to shed light into current professional approaches and views, although they do not fully provide a comprehensive reflexion and conceptualisation of what could be considered the contemporary *Existenzminimum*.

At the same time, a systematic literature review of well-known architectural online magazines was carried out, encompassing a total of 103 publications (52 in *Dezeen*, 29 in *Archdaily*, and 22 in *Designboom*). The aim was to provide a comprehensive database of current architecture approaches of affordable housing and to identify their main features and concepts within the social, spatial and technical dimensions. This only considers dig-

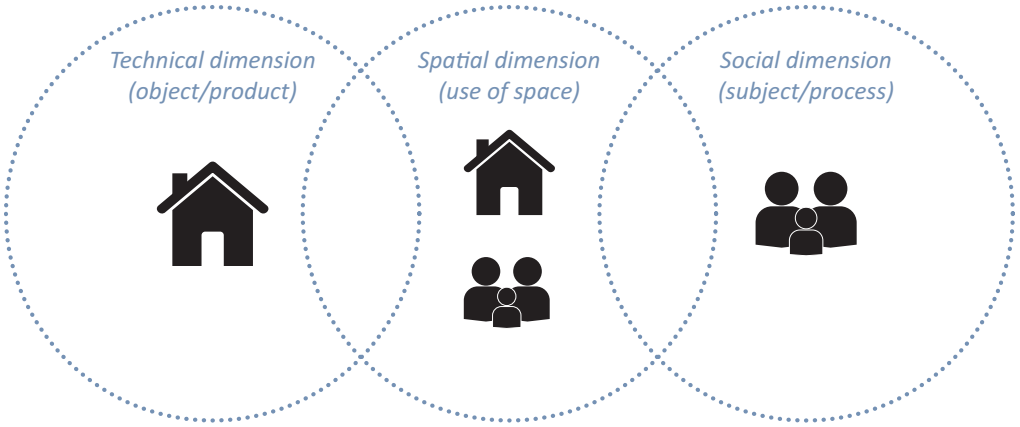



**Figure 1.** Framework used to identify the design principles of *Existenzminimum.* Source: author.

ital platforms due to the easy filtering related to the thematic: the used keywords were 'affordable housing' and 'low-cost housing', since they are concepts intrinsically connected to *Existenzminimum* and wide enough to encompass all the relevant approaches for the study. Both multi-family housing and individual houses or prototypes were considered. The timespan of the selected publications starts in 2008, linking to the event of the economic and financial crisis of 2008, which worsened the already acute affordable housing crisis; and it ends in 2018, covering the design approaches developed over the past ten years. Table 1 shows the results of this review: it lists the features and concepts of current affordable housing and provides the number of articles that mention them. This overview is useful to detect existing patterns or common denominators between the displayed approaches, helping to substantiate the conclusions.

## 3. The Original Principles of *Existenzminumum*

*Existenzminimum* was developed in a period of significant socio-economic and urban transformation. In Germany, the political agenda of the Weimar Republic focused on implementing urban and housing policies to overcome the housing shortage, the high rents, and the poor and overcrowded living conditions, with the construction of new low-cost social housing. At the same time, the cultural movement *Neue Sachlichkeit* ("New Objectivity") aimed to objectively illustrate the post-war reality.

The rational approach of *Existenzminimum* emerged from this renewed social and political commitment, but its socialist roots date back to the end of the nineteenth century. Indeed, in the previous decades, the housing issue had been already debated among philan-

**Table 1.** Features and concepts related to current 'affordable' and 'low-cost' housing, scanned from the systematic literature review.

| Dimensions | Features/Concepts | No of articles |
|---|---|---|
| **TECHNICAL** | *Regeneration of disused spaces* | 11 |
| | *3D printing/CNC/open source* | 7 |
| | *Do-it-yourself (DIY)/self-building* | 15 |
| | *Prefabrication/modular construction* | 57 |
| | *Use of containers or water pipes* | 11 |
| | *Unfinished elements/raw materials* | 8 |
| | *Sustainable construction/alternative materials* | 46 |
| **SPATIAL** | *Compact living/small spaces* | 18 |
| | *Micro-housing* | 18 |
| | *Tiny houses/tiny capsules* | 8 |
| | *Incremental model* | 7 |
| | *Flexibility* | 23 |
| | *Temporary living* | 9 |
| **SOCIAL** | *Shared living* | 5 |
| | *Participatory or collective design* | 3 |
| | *Co-housing* | 2 |
| | *Co-living* | 4 |
| | *Enhance sense of community* | 9 |
| | *Communal facilities/courtyard* | 15 |

thropists and communist philosophers, who were concerned about the poor housing conditions of the proletariat; and among feminists, such as Lily Braun and Christine Frederick, who aimed at improving the efficiency in the domestic space through centralised services and shared facilities (Mumford, 2002). Discussions on housing affordability were also taking place during this period, although under the designation of housing need or housing shortage, when economists began to carry out studies of household budgets and incomes (Hulchanski, 1995). In addition, after the Russian Revolution of 1917, collective housing models such as *dom-kommuna* were tried out in the Soviet Union, with a particular focus on optimising the domestic space and emphasising the sense of community through a scientific approach towards design (Khan-Magomedov, 1987). All of this helped to shape the way *Existenzminimum* was explored and defined (Mumford, 2002; Teige, 1932/2002),

The first worldwide comparative study of minimum dwelling was conducted in 1929. The results were presented in Frankfurt in the second International Congress of Modern Architecture (CIAM II, from the French *Congrès Internationaux d'Architecture Moderne*), *Die Wohnung für das Existenzminimum*, whose proceedings were published in 1930. At the end of the event, the participants decided that the minimum unit was the "correct solution" to solve the housing problems of industrial societies (Mumford, 2002, p. 31). This correct solution was the result of many studies, mainly led by the architects Alexander Klein, Ernst May, Le Corbusier, Margarete Schütte-Lihotzky and Walter Gropius.

From the literature review of the main publications on the topic at that time, namely the proceedings from CIAM II and the critical analysis from Karel Teige published in 1932, we identify five main design principles behind the studies and the subsequent design of the minimum dwelling:

(1) Innovation and cost-effectiveness in construction, by rationalising the (re)production of constructive elements (Corbusier & Jeanneret, 1930; Teige, 1932/2002);
(2) Minimum quality standards (Bourgeois, 1930; Klein, 1927; May, 1930);
(3) Redesign of the domestic layout, to make it more suitable to the new family structure (Gropius, 1930; Klein, 1927);
(4) Relationship between architecture and the city (Gropius, 1930; May, 1930);
(5) Community building and social concern (Gropius, 1930; May, 1930; Teige, 1932/2002).

These design principles can be organised and intertwined in three architectural dimensions, namely technical, spatial and social (as depicted in Figure 2). The following paragraphs elaborate on how each of these principles was applied in the design of *Existenzminimum* housing.

### *3.1. Innovation and Cost-Effectiveness in Construction*

Determining minimum standards for the *Existenzminimum* units was fundamental to the success of their mass production and, consequently, their affordable construction. These standards should lower the construction costs without compromising the quality of the industrialised materials (Teige, 1932/2002). The configuration and organisation of the units should imply rational construction methods to facilitate the industrial production of the constructive elements and accelerate the construction process, at the same time that would increase flexibility in spatial configuration. Almost all the construction elements, ranging from entire structural walls to door handles, were supposed to be (pre)fabricated and, then, assembled in situ. This represented an innovative economic approach to housing construction, taking advantage of technological and industrial progress (Corbusier & Jeanneret, 1930). The *minimum dwelling* unit became the standard dwelling unit, to be used by the emergent post-war society (Gropius, 1930).

Ernst May, state-architect of Frankfurt, determined that housing should not cost more than 25% of the household's income in order to be affordable (Mumford, 2002). However, despite many design attempts to make these new minimum housing settlements as much af-

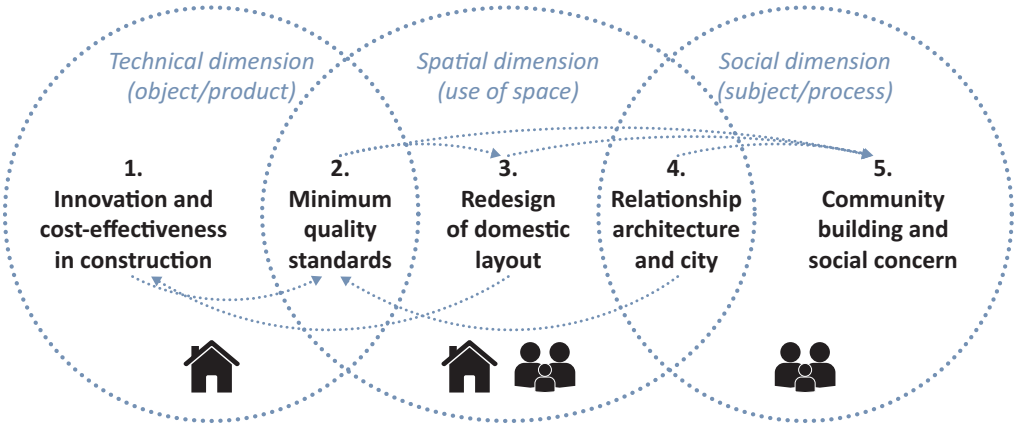



**Figure 2.** *Existenzminimum* design principles. Source: author.

fordable as possible to the working-class families, they were still inaccessible to a large number of low-income and even middle-class families, due to the general inflation (Teige, 1932/2002). In parallel, self-help or self-building approaches were tried out and encouraged by the state in the form of cooperatives (Henderson, 1999).

### *3.2. Minimum Quality Standards*

The socialist premise, advocating that all humans were equal and shared the same needs, influenced the idea of developing a universal housing solution, based on minimum quality standards. On the other hand, housing understood as a biological phenomenon (Corbusier & Jeanneret, 1930; Teige, 1932/2002) should provide at least the minimum of space, air and light required for the vital functions of the human being, as for her or his healthy social life (Gropius, 1930). It was based on:

> The mini-max dwelling concept: that is, a minimal space accommodating "maximal life" for the class of the subsistence minimum, defining a dwelling that does not fall below standards needed for biological survival (i.e., below acceptable sanitary and hygienic norms), one that provides its inhabitants with sufficient light, access to sun and air, and a sense of open space. (Teige, 1932/2002, p. 33)

To this end, Alexander Klein, while a member of a governmental research agency in Berlin, developed a scientific methodology to analyse different housing typologies by comparison (see Figure 3). The aim was to determine minimum space standards that reflected the most effective and healthier (physically and mentally) environment (for a detailed description of methods and findings see Klein, 1927). This also resonates with the Soviet housing experiments, in which a group of architects advocated the application of scientific methods to determine a standardised value—*Stroikom*—for housing planning and construction (Khan-Magomedov, 1987).

The reduction of the housing unit area was not a goal per se (Aymonino, 1971; Gropius, 1930; Teige, 1932/2002), but rather an outcome of the optimisation studies carried out. In fact, many housing projects based on minimum dwelling turned out to be larger and with higher levels of comfort when compared to the existing housing stock.

### *3.3. Redesign of Domestic Layout*

This principle is directly connected to the previous one, insofar as minimum standards were defined according to a new dwelling layout. The pre-war *Wohnkultur* ('culture of dwelling'), based on bourgeois traditions—even among low-income families—went through great transformations due to many factors. These include (1) the increasing number of working mothers, who no longer had time for the usual housekeeping, (2) the low birth rate, leading to smaller households, (3) a "new nomadism of the individuals" (Gropius, 1930, p. 16, translated from the original: "ein neues nomadentum der individuen"), influenced by the advances of the mobility infrastructure, and (4) the new meaning given to family, from a symbolic and organisational perspective (Gropius, 1930). The new domestic space and its surroundings should reflect the *Wohnkultur* that emerged from these circumstances, and it should be based on high levels of experimentation and freedom (Montaner & Muxí, 2014).

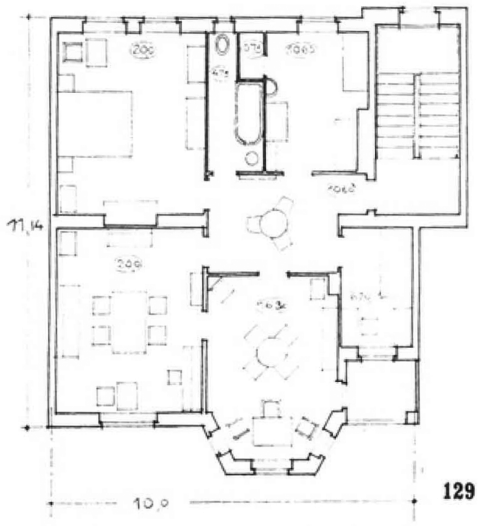
Therefore, as said, the underlying intention of *Existenzminimum* was not a mere reduction of the traditional housing areas, but rather the creation of an upgraded typology. This should be designed to simplify the movements inside the housing unit. Figure 3 outlines a study on how a more rational disposition of the rooms results in a more spatially-efficient layout (right side) when compared to a conventional apartment with the same area (left side).

The *Frankfurter Küche* ('Frankfurt kitchen'), designed by Schütte-Lihotzky, became the standard for the minimum dwelling kitchen. The traditional nineteenth-century kitchen was replaced by a more efficient layout equipped with advanced appliances (see Figure 4), more suitable to the working mothers, who no longer had time for long and tiring domestic tasks. The bathroom would become part of the housing unit, equipped with standard sanitary ware; and each person had the right to have an individual room (Gropius, 1930). Many elements, such as sliding doors, movable furniture, or folding beds, were designed to allow some flexibility inside the apartments.

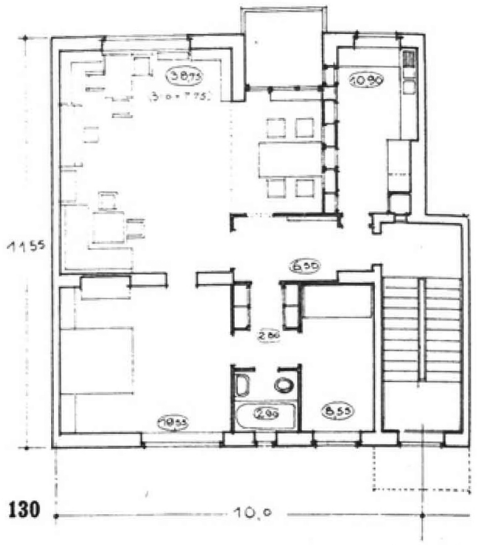
### *3.4. Relationship between Architecture and the City*

*Existenzminimum* was also part of a wider urban strategy. Housing was intrinsically connected to urban planning; therefore, access to public spaces and mobility infrastructure was paramount for the location of the settlements. Following the principles of the garden cities, the main goal was to create self-sufficient communities. Hence, in addition to housing complexes, public spaces and facilities such as gardens, shops, day care centres, churches, community centres and laundries were designed (Mumford, 2002) to transform these settlements into small, autonomous cities. Some settlements, namely *Praunheim* or *Römerstadt* in Frankfurt, were referred to as satellite-cities.

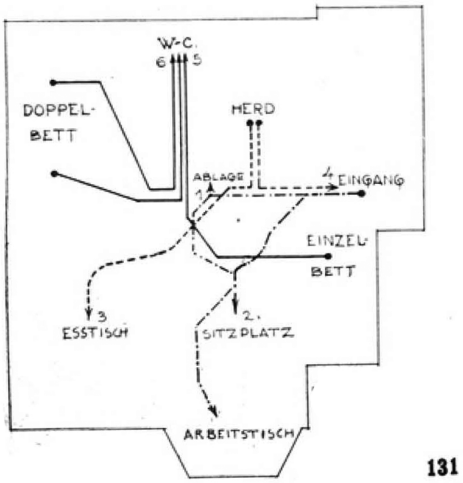
The concerns regarding biological issues that served as the basis for the design of the *Existenzminimum* unit were also considered from an urban perspective: the buildings should be sufficiently separated from each other and correctly orientated, in order to guarantee correct ventilation and access to sunlight. Likewise, the process of standardisation was applied not only to the housing unit but also to the way housing units were grouped to shape the building. This would streamline the construction of the settlements (see Figure 5). Different block typologies emerged, namely *Reihenhäuser* ('row



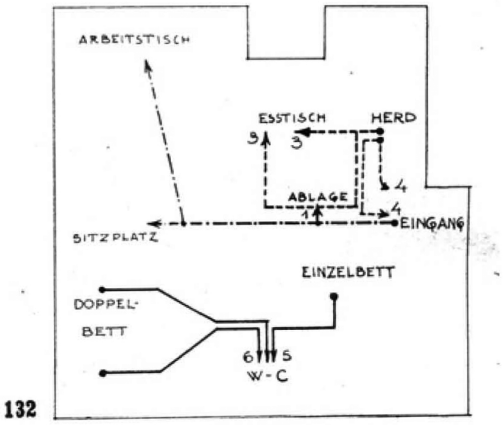

Beispiel eines ausgeführten Geschoßgrundrisses. Die Verteilung der Möbel ist die des Originals.




Studie des Verfassers zu einem Grundriß der gleichen Größe wie Abb. 129 unter Verwendung der oben angeführten Grundsätze. Treppe umgelegt, um im Erdgeschoß den Durchgang zu vermeiden und den Wohntyp durchführen zu können.



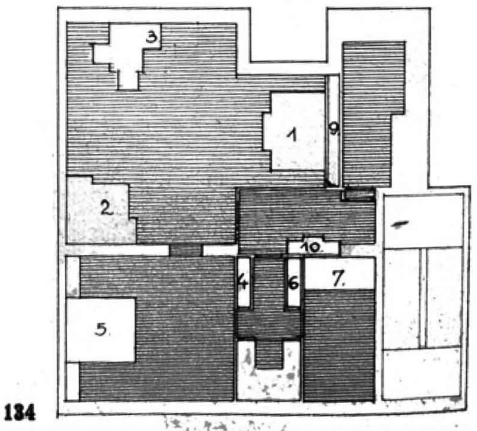

Verlauf der Verkehrswege und Ganglinien im angenommenen Beispiel. Alle Lebensfunktionen verlaufen auf sich kreuzenden Wegen.




Verlauf der Verkehrswege und Ganglinien in der Grundriß-Studie. Die Verkehrswege kreuzen sich nicht, wodurch die ordnungsmäßige Abwicklung der Wohnvorgänge erleichtert wird.




Konzentration der Bewegungsflächen im Beispiel. Die verbleibenden Bewegungsflächen sind zersplittert.




Konzentration der Bewegungsflächen in der Studie. Die Bewegungsflächen sind konzentriert und stehen in gutem Zusammenhang.

**Figure 3.** Comparative spatial studies, by Alexander Klein. Source: Klein (1927).

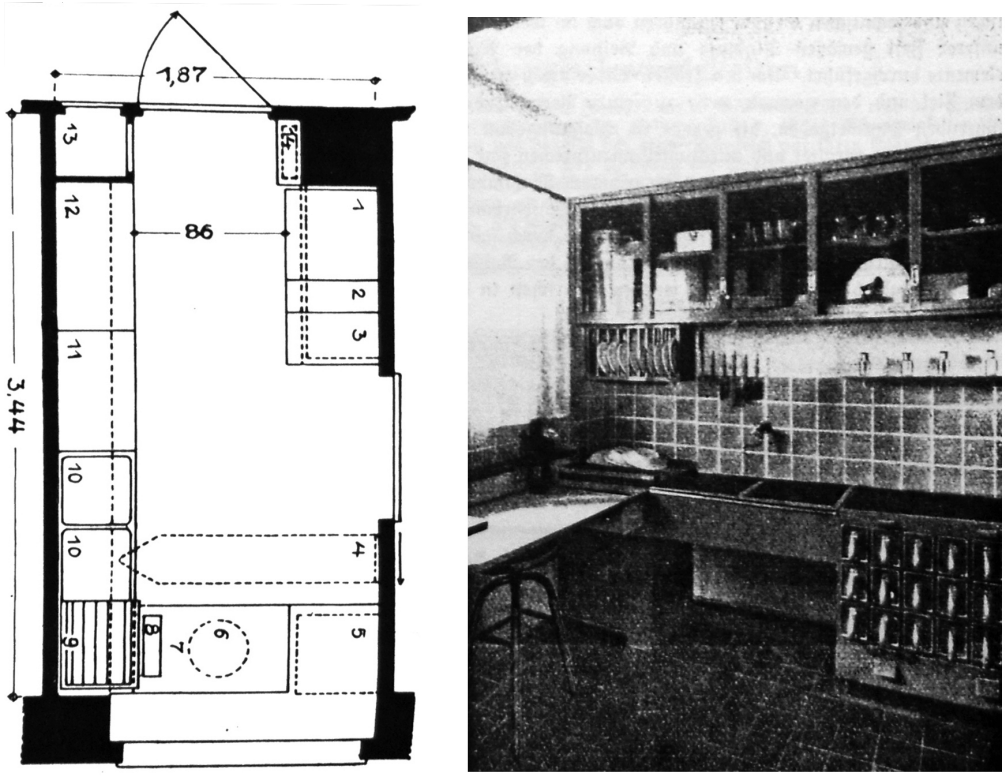



**Figure 4.** *Frankfurt Kitchen*, by Schütte-Lihotzky. Source: May (1926).



**Figure 5.** *Praunheim* (left) and *Römerstadt* (right), Frankfurt, by Ernst May. Source: author.

houses') and *Mehrfamilienhäuser* ('apartment buildings'), which were organised either in exteriors galleries or around staircases ('sectional housing'). Despite the urban nature of the concept, the architects at the CIAM II did not consider the design of the building and its integration into the urban fabric.

### *3.5. Community Building and Social Concern*

Highly influenced by Soviet collective housing, *Existenzminimum* should represent the "negation of the bourgeois family-based household" (Teige, 1932/2002, p. 14). The new housing typology would foster "the concept of collective dwelling, by allowing the individual dwelling unit to be complemented by a scheme of central collective facilities" (Teige, 1932/2002, p. 5). The typical one-family house was gradually replaced by the apartment in a housing complex, which in its turn should become part of a new form of a centralised master household (Gropius, 1930).

The idea of democratising domestic tasks, by adding common amenities in collective housing, advocated the minimisation of individual private spaces since the main activities would be performed collectively (Vestbro,

2000). This idea was mainly applied to other parallel alternative housing approaches, such as the Central Kitchen Buildings, which emerged in the 1920s in many European capitals. This approach was based on the rationalisation of the domestic work, through employed staff preparing the meals in the central kitchen; and on the minimisation of the apartment areas (Vestbro, 1992). Likewise, the *Hof*, a housing typology for the Viennese working-class families developed in the 1920s based on the *Kleinwohnung* model (Porotto, 2017), often excluded the individual kitchen from the housing unit, replacing it with a central shared kitchen (Montaner & Muxí, 2014); while some hotel-like apartment buildings, mainly developed in USA, combined individual units with collective housekeeping services (Puigjaner, 2014).

However, all these progressive and rational visions towards housing production turned the house into a product, and the dweller into a consumer. In the following decades, the minimum dwelling unit—small, cheap, easy to build—became the gold mine of the capitalist housing market, and started to be reproduced and sold as a commodity, as an isolated element, originating the real estate logic of the city (Aureli, 2016).

Moreover, many social housing programs in the aftermath of World War II continued using *Existenzminimum* design principles, although without considering its intrinsic initial components, such as urban integration or collective living. The former complexity of the concept was simplified to a mere reduction of domestic space and to a low-cost-full-speed production, leading to a progressive social alienation of the housing settlements (Ruby & Ruby, 2011). Therefore, overtime, *Existenzminimum* acquired detractive connotations, not only because of its detachment to the city but also due to its "overly deterministic approach to design" (Lucas, 2016, p. 15).

## 4. The Current Application of *Existenzminimum* Principles: A Critical Analysis

In the last decades access to affordable housing became a challenge not only to low-income families, but also to the middle-classes, as public and social housing are more and more exclusively targeted to the very poor (Czischke, 2009; Elsinga & Lind, 2013); therefore it is urgent to think of strategies to make housing accessible to larger segments of the population. Woetzel (2014, p. 5) identifies four possible approaches that can narrow the current affordability gap: "securing land for affordable housing at the right location, developing and building housing at lower cost, operating and maintaining properties more efficiently, and improving access to financing for home purchases, development, and rental assistance". By all means, architectural design plays (again) an important role in this endeavour, not only to provide innovative spatial layouts, but also to guarantee that space standards are not corrupted or reduced to fit the market profit-oriented goals.

This section aims at analysing if and how the identified original *Existenzminimum* design principles in the previous section are present in claimed affordable housing solutions from the past decade and what kind of development they entail. From the literature review, as well as the outcomes of the "Min to Max" symposium, we were able to identify additional concepts that may strengthen or challenge the original principles (see Figure 6), as it is further described in the following lines.

### *4.1. Innovation and Cost-Effectiveness in Construction*

The conducted systematic literature review confirms that prefabrication and modular construction are still a core factor in building affordable housing, but not anymore as a means to mass-produce standardised housing units. The use of standard elements is now made in a more flexible and customised way, to avoid a repetitive and impersonal building complex. Today, construction elements include not only prefabricated components, but also recycled ship containers, water pipes and alternative or reused materials (see Figure 7).

An innovation present in many experimental projects is the use of 3D printing (often associated with open source software) as a building technique. On the other hand and similar to some alternative approaches developed in the 1920s, many contemporary projects com-

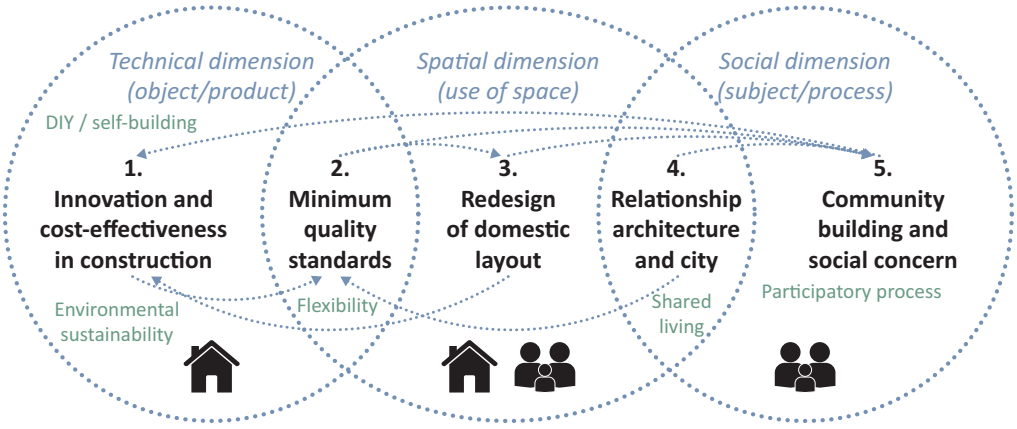



**Figure 6.** *Existenzminimum* principles, from a contemporary perspective. Source: author.




**Figure 7.** *The Urban Rigger*, Copenhagen, 2016, by BIG. Source: author.

bine modular construction with self-building (Duncan & Rowe, 1993), self-assembly, and DIY (Do-it-Yourself) or DIT (Do-it-Together) approaches (see Figure 8). These are often based on a phased construction system. The recent collaborative housing project *La Borda* in Barcelona is an example where the collective decision to leave the common rooms unfinished and programmatically flexible allows the spaces to be completed, adapted and transformed by the residents. The goal was to work towards affordable construction levels (Brysch, 2018).

Environmental sustainability is mentioned quite often as one of the principles that guide the construction of current affordable housing. The correct use of resources, with a focus on maximum energy savings, is a priority when designing the 21st-century housing (Montaner & Muxí, 2010). However, this "ecological re-orientation" re-

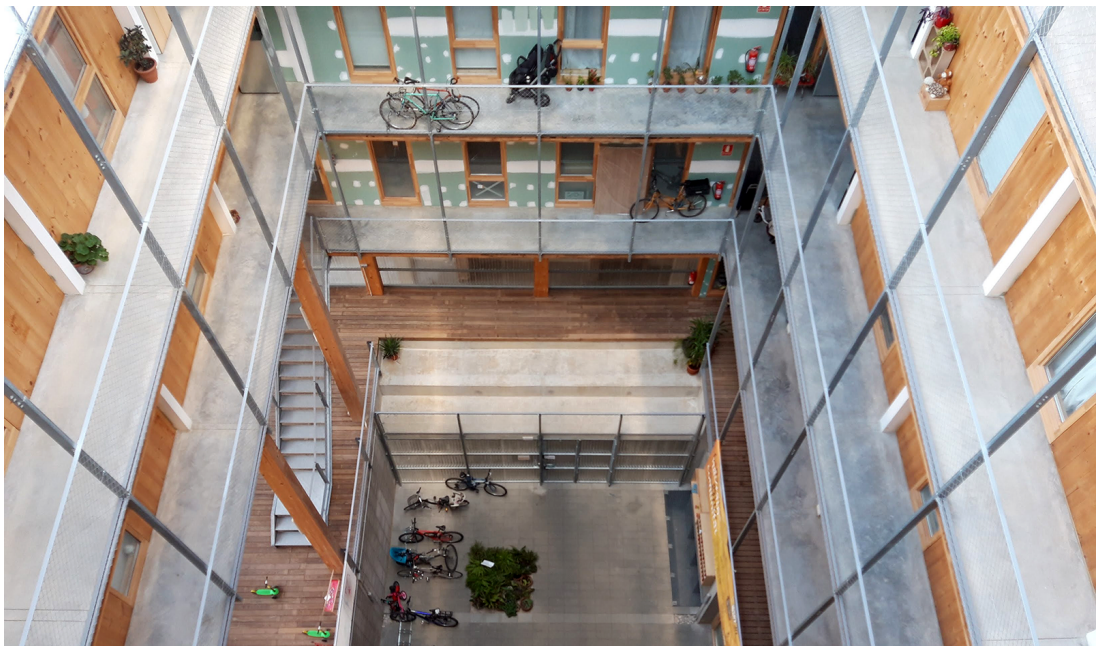


**Figure 8.** *La Borda*, Barcelona, 2018, by LaCol Architectura Cooperativa. The image (taken two months after the residents moved into the building) shows the unfinished state of the building, understood as a constant process. Source: author.

quires a full reassessment of the way of designing and building in general (Manzini, 1994, p. 37), in order to decrease energy and resources consumption.

### *4.2. Minimum Quality Standards*

Today, *Existenzminimum* calls upon minimum quality standards in a more versatile and flexible way. The concept of minimum is not only connected to the spatial dimension, but also to services, resources and construction finishes (e.g., fewer individual appliances, unfinished surfaces). In line with this, the current notion of minimum also implies the lower purchase of goods (Millburn & Nicodemus, 2015). Manzini (1994) defends the idea that material possession should undergo a 'non-individual' consumption mode. He believes in the role of design in providing quality, where the "'reduction of needs' can be expressed as an 'increase in social quality"' (Manzini, 1994, p. 40), making a reference to the contribution of *Existenzminimum* in this culture of reduction. In its turn, Aureli (2016) defends the idea of adopting a more 'ascetic' and needs-based posture towards life and consumption, where 'less is enough'. Therefore, the current *Existenzminimum* is related to a new concept of quality of life, less connected to the modern idea of consumption, since the original *Existenzminimum* propaganda focused on consumer-oriented advertising of industrial products that would minimise the domestic work.

This widening of the idea of *minimum* emphasises the qualitative aspects of the concept, where some projects, such as *Baugruppe Schönholzer Strasse 11* in Berlin, are developed to "question the typical standard requirements for a flat and go beyond them" (Kunsmann, 2012, p. 67). In many cases, the idea is to deliver an unfinished house, with no partition walls, no finishes and, sometimes, no flooring. This strategy allows the future residents to customise their own domestic space, promoting not only the basis for a stronger sense of belonging but also an affordable way to have access to good quality housing, compared to average market prices.

As argued, *Existenzminimum* does not mean unconsciously reducing the dwelling areas. In fact, many *Existenzminimum* examples of the 1920s resulted in larger spaces when compared to the existing housing stock. Today, however, due to the increasing number of one-person households and lack of available construction space, many housing units stretch to the limit the notion of minimum space. This means that many projects provide extremely small living spaces, leading back again to the fundamental question of where to draw the line that separates the (physically and socially) adequate and unacceptable minimum. What are the design mechanisms used to avoid falling into the latter situation? How 'small' is 'too small' and how to guarantee quality in minimum spaces in a long term?

Examples where the spatial dimension of the minimum is innovatively explored are (1) the recent "Tiny House Movement", which encourages people to reduce the dwelling area to its minimum and to use environmental-friendly materials (Ford & Gomez-Lanier, 2017); see Figure 9), (2) student-style housing, micro-housing (see Figure 10) or co-living (see Figure 11), which are proliferating in dense urban centres, based on temporary living, modular construction systems, minimum areas, and shared living arrangements (McKnight, 2015; Zatarain, 2017), and (3) collaborative housing, namely cohousing, where minimum private areas combined with common rooms are collectively designed and managed (Czischke, 2018; Lang et al., 2018; see Figures 12 and 13).

All the mentioned approaches—except for most of the Tiny Houses—provide common spaces to compensate or complement the reduced size of private units. Both Tiny Houses and cohousing examples, usually designed and sometimes even built by the end-users, are the direct result of the residents needs and demands; therefore, it is the residents themselves who define their own minimum 'tolerance'. On the other hand, in developer-led projects, such as student-style housing, micro-housing or co-living, the residents have to 'fit' in a specific profile and a pre-established layout, which often includes co-working spaces and other shared facilities. Yet, the design of micro-housing or co-living is based on hotel or student accommodation building normative, meaning that they are still not properly regulated as spe-



**Figure 9.** Examples of Tiny Houses. Sources: Stott (2015) and Block (2018).

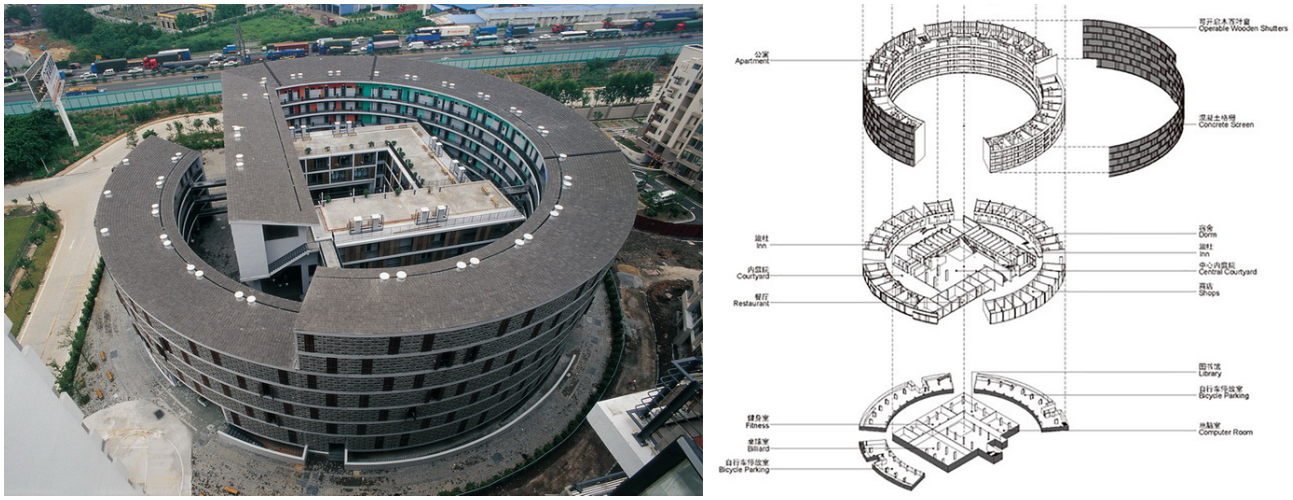



**Figure 10.** Tulou Collective Housing, Guangdong, 2008, by Urbanus. Source: Urbanus (n.d.).




**Figure 11.** Roam Co-living, Bali, 2015, by Alexis Dornier. Source: Archdaily (2016).

cific typologies. Therefore, and adding the fact that these projects are mainly profit-oriented, it is necessary to evaluate the actual adequacy of the spaces to the residents' needs and values.

### *4.3. Redesign of Domestic Layout*

The same way the original *Existenzminimum* created a housing unit adapted to the modern family, the current one upgrades the domestic layout according to the shifting consumption models and household structures. The main difference is that, today, many projects are designed and developed not only by professionals (i.e., architects and developers) but also by the residents themselves, through participatory design processes. These are contributing to further develop alternative dwelling terminologies, such as cluster apartments, small private cells organised around a common

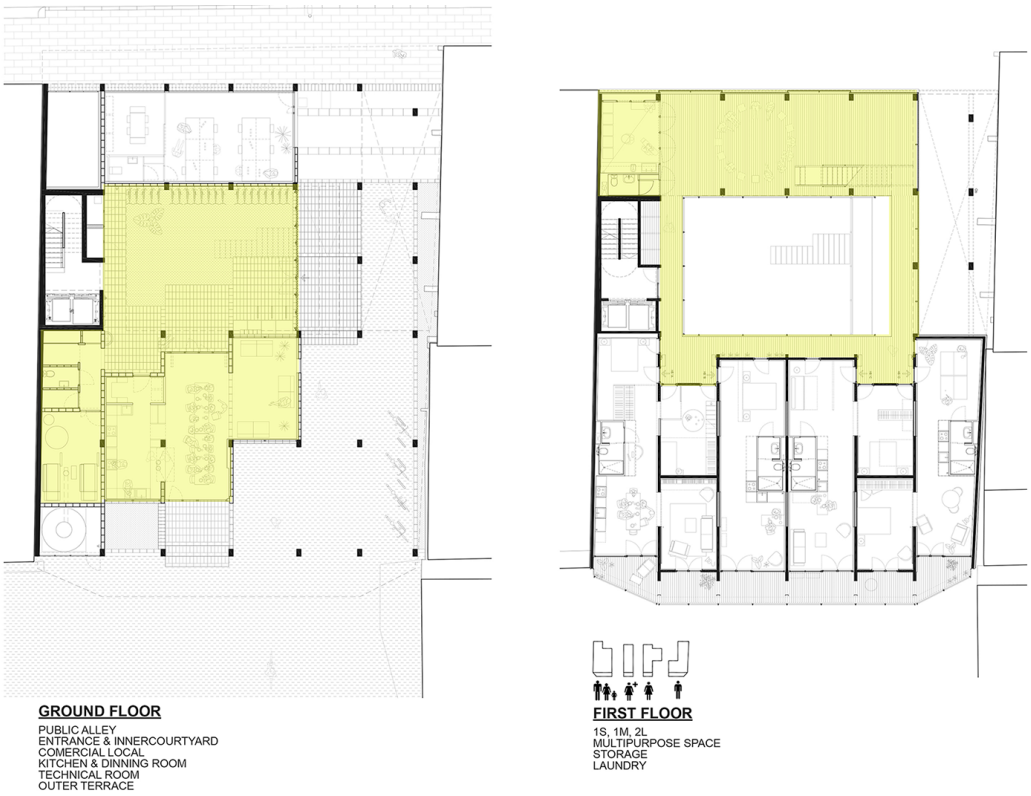



**Figure 12.** *La Borda* (Ground- and first floor), Barcelona, 2018, by LaCol Architectura Cooperativa. Image courtesy of LaCol Architectura Cooperativa. Note: the highlighted areas correspond to the common spaces.



**Figure 13.** *Spreefeld Genossenschaft* (shared kitchen and dining room), Berlin, 2014, by Carpaneto Architekten, Fatkoehl Architekten and BARarchitekten. Image courtesy of Fatkoehl Architekten.

space with shared facilities (see Figures 14 and 15); and guest apartments or joker units, designed to accommodate guests or teenagers (e.g., *La Borda*, Barcelona, or *Kalkbreite*, Zurich). In addition, new concepts of use are emerging, namely co-working spaces in the domestic layout, and flexible spaces for temporary uses.




**Figure 14.** *Mehr als Wohnen* (plan of cluster apartment), Zurich, 2015, by Duplex Architekten. Source: McMaster (2016). Note: the highlighted areas correspond to the shared spaces.




**Figure 15.** *Spreefeld* (axonometry of cluster apartment), Berlin, 2014, by Carpaneto Architekten, Fatkoehl Architekten and BARarchitekten. Image courtesy of Fatkoehl Architekten. Note: The highlighted areas correspond to the shared spaces.

Montaner and Muxí (2010) argue that contemporary minimum housing includes minimum requirements for adaptability. Adaptability—or flexibility—is, here again, an essential component to define the current *Existenzminimum*. In line with this, many contemporary housing projects are linked to concepts such as "open building" (Habraken & Teicher, 1972), which considers the changing or adapting of the layout overtime, or "incremental housing" (Aravena & Iacobelli, 2012), a temporary minimum, where a potential area is left for future expansion, according to the needs and economic possibilities of the household. A similar approach currently being explored due to the increasing urbanisation process is the "infill model" (Aureli, Giudici, & Issaias, 2012), a flexible framework that allows the end-users to build and customise space. All approaches consider the building not as a finished product, but rather an ongoing process. These approaches directly resonate both to the open floorplan *Dom-ino* structure developed by Le Corbusier, and to the "growing house model" (Wagner, 1932), another approach contemporary to *Existenzminimum* and using similar principles (Hellgardt, 1987).

The minimum dwelling typology promoted by the modern architects is now reinterpreted in a topological way, where space is assumed as an element that is constantly under transformation and adaptation: standards become parameters of a system where everything is interconnected. Yet, the building normative has not been properly readjusted: an exploratory study (Brysch, 2018) shows evidence of the obsolescence of the building normative in accommodating these innovative ways of living. Some outdated standards or even some gaps in the building regulations tend to turn the design of these new community-oriented and adaptable housing schemes into a complex and tiring process.

### *4.4. Relationship between Architecture and the City*

Empirical evidence suggests that collaborative housing initiatives improve the relationship between (domestic) architecture and the city. Additionally, studies show how this relationship contributes to a more active and dynamic urban interaction (Fromm, 2012; Williams, 2005), since the notion of sharing expands to the surrounding neighbourhood, and progressively to the city level. Examples include cohousing projects in Berlin (e.g., *R50* or *Spreefeld*), Vienna (e.g., *Wohnprojekt Wien*), and Stockholm (e.g., *Sjöfarten*). These community-oriented housing projects reconfigure the boundaries between private and public, with activities open to the public, or by allowing the use of the common rooms by external members for local initiatives (see Figure 16). The issue of quality is stressed here again in relation to the urban environment: "housing quality is resolved by the correct resolution of the interior space and the building's contact with the public space in the neighbourhood, through a diversity of gradients that go from the public to the private" (Montaner & Muxí, 2010, p. 82).

Dealing with the existing city is part of the current debate and practice, as highlighted in the panel "Building on the Existing" of the "Min to Max" symposium. While the original *Existenzminimum* was applied to the new construction, today many affordable housing projects result from the refurbishment of the housing stock or even from the reuse of abandoned infrastructure buildings.

### *4.5. Community Building and Social Concern*

The political role of the architect in the 1920s targeted low-income families. Currently, however, the need for affordable housing solutions encompasses increasing segments of the population. These segments not only include vulnerable groups, but also middle-class households, which are facing, too, a great decline in their living standards (Parker, 2013). This justifies the wide range of solutions claimed 'affordable', even when not linked to social housing, such as commercial micro living or co-living models. However, very often these models turn out to be unaffordable, due to speculative purposes, although there is generally an added value behind, a 'package' that includes not only access to a private space to live but also to a more community-oriented setup, with additional facilities and sharing experiences (see Figure 17). This leads to an understanding of housing as a service, rather than a product or a process, in a similar way as the hotel-like apartments or Central Kitchen Buildings were developed in the beginning of the twentieth century. In its turn, collaborative and cooperative housing are more and more used as an alternative social housing model (Czischke, 2018). Examples are *Le Village Vertical* in Lyon, which combines cooperative and social housing features in one complex, or *La Borda* in Barcelona, where the residents have to meet the requirements to apply for social housing in order to be part of the cooperative.

In the recent decades, the increasing expansion of the sharing economy has gradually questioned the ideas of property and ownership and modified them by the notion of access (Kreiczer-Levy, 2015). Sharing products, services and resources is by no means a new phenomenon, yet it has been widely popularised by technology advancement and increasing consumer awareness. Furthermore, the traditional relationship producer-consumer is being hybridised in a concept recently called "prosumption" (Ritzer & Jurgenson, 2010). Today, architects "do not limit the question of minimal standards to the individual dwelling; they actually conceive housing as an opportunity for social participation in the spatial fabric of the city" (Ruby & Ruby, 2011). This highlights the shift of the architectural focus on the object purported by the CIAM II to the subject, i.e., to the social relations (See Figures 18 and 19). Some academic research already focuses on the role of collaborative housing approaches in increasing social interaction (Williams, 2005). The presentations at the "Min to Max" symposium, more precisely the panels entitled "Spaces for the Collective"




**Figure 16.** *Wohnprojekt Wien* (plans of ground and underground floors), Vienna, 2013, by Einszueins Architekten. Image courtesy of Einszueins Architekten. Note: The communal kitchen and the multi-purpose rooms can be used or rented by external groups.




**Figure 17.** Usual services included in co-living contracts, Berlin. Source: Happy Pigeons (n.d.).



**Figure 18.** *The Collective Co-living*, London/New York. Source: The Collective (n.d.). Note: this promotional image highlights the community-oriented approach of co-living models.

and "Self-Construction and Social Empowerment", emphasised the collective and participatory character of new architectural approaches.

Therefore, the new *Existenzminimum* envisions design as a dynamic and participatory process, directly connected to the users' (changing) needs and more adapted to the different households and lifestyles, thus emphasising the process rather the final outcome. In brief, participatory or collective design (co-design) corresponds to a process where architects and prospective residents (and other involved stakeholders) design the housing project together. In this sense, the architects' role becomes more challenging if compared to the conventional design method used in developer-led housing: the final design must be a logical result of an effective system, reflecting at the same time common motivations and objectives. Hence, a certain flexibility and adaptability for further residents' intervention (transformations, increments, finishes) needs to be factored into the planning.

In examples of high-level participation, collective decisions are taken over spatial configuration, density, use of space, distribution, materials, the ratio of



**Figure 19.** *La Borda general assembly*, Barcelona. Image courtesy of La Borda. Note: All decisions—from the design to the management of the building—are collectively taken in general assemblies.

personal-common space, construction systems, and levels of comfort and finishing. Such examples include the *Baugruppen* in Germany and Austria, *Habitat Participatif* in France, *Community Land Trusts* (CLTs) in England and Belgium, and new cohousing cooperatives in Spain and Switzerland (Czischke, 2018). Affordability, environmental sustainability, self-determination, community life are common denominators to all these different models. Figure 20 illustrates the variety of projects that result from collective design processes. These processes are based on non-hierarchical structures, although they may differ in their decision-making approach: some groups use the voting system or try to reach consensus, while other base their whole process on sociocratic ideals.




**Figure 20.** Examples of housing projects based on co-design processes: (a) *Wohnprojekt Wien*, Vienna (source: author); (b) *R50*, Berlin (sources: exterior image by the author; image courtesy of ifau); (c) *La Borda*, Barcelona (sources: image courtesy of La Borda; exterior image by the author); (d) *Village Vertical*, Lyon (source: author).

## 5. Conclusion: Towards a New Definition of *Existenzminimum*

Housing affordability is "a relationship between housing and people" (Stone, 2006), i.e., it is a relative concept that connects people's financial situation with a certain standard of housing. It is then directly connected to housing quality: the physical conditions of housing, which allow the household to achieve a quality living standard, are key to evaluate and provide affordable housing. The previous section confirms that innovative design is showing—once again—its potential towards affordable housing provision and that *Existenzminimum* is a valid concept worth exploring in our days. Yet, while current approaches are still based on the same core principles, the term *Existenzminimum* is rarely mentioned; the only explicit attempt—although superficial—to recover and reinterpret the concept is documented in *Domus* (issue 962), as a follow-up of the "Min to Max" symposium held in 2011 in Berlin.

This study uncovered key features of contemporary affordable housing that are insightful to understand the new meaning of *Existenzminimum*. Based on the findings, current *Existenzminimum* might be an answer for the "acute need for a new dwelling typology associated with the culture and functions of the 21st century city", as Burkhalter and Castells (2009, p. 23) highlighted, at the same time that they foresaw that "[n]ew dwelling forms may require the re-engagement and reinvention of forms of living based on sharing resources" (Burkhalter & Castells, 2009, p. 23). From a technical perspective, current *Existenzminimum* approaches emphasise environmental sustainability and alternative construction methods, such as DIY and self-building (creating a new link with the social dimension). Prefabrication keeps reducing construction costs, but it is used in a more flexible and custom-like manner. The spatial dimension is today very much focused on flexibility, temporary solutions and shared living. The reinterpretation of minimum and the definition of alternative layouts are present in many current housing projects. Compact and small housing complemented with communal facilities enriches the social dimension. At the same time, projects are increasingly involving the residents in the design and construction process, through participatory processes.

Hence, if in the past *Existenzminimum* proved that the *design* helped to develop affordable housing, today *shared living arrangements* and *collective design processes* indicate that they also contribute to achieving more affordable levels in housing. This emphasis on the *social relations* rather than in the *object* is reflected in the re-emergence of community-oriented housing models such as cohousing or cooperative housing, which are much more needs-based, programmatically flexible and adapted to the recent *Wohnkultur*. As Manzini (1994, p. 41) points out: "Today's 'Existenzminimum' must be translated into proposals that can appear to increasingly large segments of the population as opportunities to achieve a higher level of social quality". We may conclude that where the original *Existenzminimum* failed to fully develop—the community aspect of the social dimension—it is today accomplished in a more clear and substantial way.

At all events, in a time "when the status quo, the standard, is questioned" (Schubert, Schuetz, & Streich, 2012, p. 35), these alternative housing typologies demand the readjustment of the current building normative, to prevent emergent layouts or typologies to fall under the minimum quality standards—or, in other words, to make sure that the new market-led minimum housing (easy to build and therefore very profitable for the developer) are properly built and used. This regulatory readjustment should also take into consideration alternative design and construction processes, including guidelines for self-organised groups and residents' cooperatives. The increasing tendency to systematise the housing production within the European Union, through the implementation of EU-directives, namely energy efficiency and accessibility standards, justifies the review of the existing building regulations. In addition, current housing approaches should also be tested against socially acceptable minimum standards. This means that collaborative approaches employing updated principles of the *Existenzminimum* can offer room to include other quality aspects, beyond minimum regulatory standards, without hampering affordability (e.g., social qualities).

All these factors help to frame the new *Existenzminimum* in a more versatile, participative and environmentally-friendly way, without corrupting its initial intention. Gradually, bottom-up initiatives on affordable housing are finding fertile ground to thrive, alongside more conventional top-down solutions. In conclusion, housing providers should start paying more attention to this paradigmatic shift in housing planning, which is more and more based on co-production and ecological and sharing values, and start updating their modus operandi to a more collaborative approach (Czischke, 2018). This contributes not only to housing affordability but also to more sustainable neighbourhoods.

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**Conflict of Interests**

The author declares no conflict of interests.

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# PART IV

# EXHIBITION

COGITATIO

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Commentary

# "HOUSING Frankfurt Wien Stockholm": Exhibition of 1920s–1930s Housing Initiatives

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**Abstract**
Frankfurt, Vienna and Stockholm: three European cities which played a fundamental role in the housing policies implemented during the inter-war period. The research projects and teaching activity carried out at the EPFL in the Laboratory of Construction and Conservation focuses on this specific historic context. The experiences of these three cities with regard to housing are well documented from a historical viewpoint that, however, show many shortcomings with regards to the architectural analysis. The provided examples sum up simultaneously the social dynamics, the cultural milieu, as well as the adopted intentions and political programme. The exhibition aims at producing fresh knowledge of the three contributions to modern housing available to students, scholars, professors and architectural practitioners. The goal is to compare a selection of remarkable housing neighbourhoods through the different scales of the project, ranging from the relation with the city till the dwelling unit layout. The produced drawings and documents show the morphological and typological variety. Frankfurt, Vienna and Stockholm equally illustrate different ways of designing the collective space—that is the intermediary space in-between the communal and private – which is a crucial feature of the "living together".

**Keywords**
comparative study; Frankfurt; Hof; housing; Siedlung; Stockholm; typology; urban policies; Vienna

**Issue**
This commentary is part of the issue "Housing Builds Cities," edited by Luca Ortelli (École Polytechnique Fédérale de Lausanne, Switzerland), Chiara Monterumisi (École Polytechnique Fédérale de Lausanne, Switzerland) and Alessandro Porotto (École Polytechnique Fédérale de Lausanne, Switzerland).

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> This arrangement of dwellings and spaces which anticipates a more complete and harmonious future life—that means a better life—corresponds exactly to the technician's challenge—today as well as in the past. As modern architects, we are attached to urban culture which, at a certain moment in its development, intervened in the life of mankind by dictating a way of living. The stages of this process are well-known and they are summed up in the names of those European cities which have regained order and harmony through planned growth in a progressive and democratic way: Frankfurt and Vienna, Stockholm and Zurich, Amsterdam and Stuttgart. These cities have left their mark as brand-new configurations of physical spaces, but are also organic developments. (Rossi, 1961, pp. 23–24, authors' translation).

Rossi's provocative call to architects regarding the political and ideological objectives of housing and neighborhood design, forms the introduction to the exhibition catalogue "HOUSING Frankfurt Vienna Stockholm" held at the École Polytechnique Fédérale de Lausanne in 2018 (see Figure 1). The event, curated by all members of the Laboratoire de Construction et Conservation




**Figure 1.** Poster of the exhibition "HOUSING Frankfurt Wien Stockholm". Source: Authors.

(LCC; see https://www.epfl.ch/labs/lcc), under the direction of Luca Ortelli, opened its doors at the beginning of the 2018–2019 academic year at EPFL's Institute of Architecture. The exhibition's 40-meter-long analytical panels (Figures 2–5) were available to students, scholars, professors, and architectural practitioners for approximately two months (18th September to 2nd November 2018). The event was organized exactly one year prior to the publication of this thematic issue, "Housing Builds Cities", celebrating the 90th anniversary of the II CIAM.

What is presented in the exhibition consists of a rich selection of the LCC's research outcomes around the role of housing in building the city. The assumption here is that housing also aims to build the cityscape through a precise typological program. In particular, two of the LCC's research projects investigate urban policies and residential districts produced in the 1920s–1930s; Alessandro Porotto's PhD thesis (Frankfurt and Vienna) and Chiara Monterumisi's Post-Doc work (Stockholm). The main subject of the exhibition, corresponding to one of the LCC's central interests and focus of their teaching, is the development of collective residential estates in different European cities.

The title of the exhibition does not indicate the timeframe within which the three cities are analyzed, nor what kind of material is used to illustrate the topic of 'housing,' but Rossi's (1961) argument over the significant qualities of modern housing examples, endorses the systematic perspective fostered by two research projects mentioned above. The objective of this exhibition including both the research investigations goes hence beyond a mere literature review which differs considerably between the cases; much has been written about Frankfurt and Vienna, but Stockholm, especially the architectural production of the 1920s, is very poorly documented. However, there are still many shortcomings as far as the architectural analysis of the three cities is concerned.

However, there is no doubt that the dedicated literature and archival items have been crucial inputs to the reconstruction of the historical framework of the three modern experiences. At the centre of the exhibition's main gallery, a showcase containing a selection of original books and journals (many are rare samples; see Figure 6) confirms the key role of these documents. Nevertheless, the goal of the two investigations is also to contribute to a fresh understanding of the three European cities' contribution to the modern debate on housing the masses. As stressed by Rossi (1961), indeed Frankfurt, Vienna and Stockholm played equally a fundamental role in the housing policies implemented during the inter-war period. Indeed, the three cities experimented with the two contrasting typological models that animated the debate at that time: the large courtyard block (*Hof*, largely used in Vienna) and the north-south oriented bars (*Siedlung*, mainly employed in Frankfurt). The inter-war examples in Stockholm embody an inter-




**Figure 2.** Main exhibition space with four thematic sections: on the right side, comparison with urban densities and urban policies of Frankfurt, Vienna and Stockholm; on the background, dwelling units and; on the left side, one-room scale models. Source: Authors.




**Figure 3.** Reverse shot of the main gallery. Source: Authors.



**Figure 4.** Opening of exhibition introduced by Bruno Marchand and Luca Ortelli's lectures. Source: Authors.




**Figure 5.** The main hall of the exhibition at the opening. Source: Authors.



**Figure 6.** The showcase contains original books and journals. Source: Authors.

mediary concern between the two models. In the exhibition, more attention was paid to those experimentations in the large courtyard block model, the well-known *storgårdskvarteret*.

This new knowledge corresponds to the production of typological assemblages which comprise, for the very first time, the design of collective areas as well. These fresh drawings come out from a thorough analysis of the original drawings stored in the archival holdings. Of the many housing districts build in all three cities, the exhibition illustrates a selection of the most meaningful examples. The typological assemblages are instrumental documents for the calculation of quantitative parameters (e.g., land lot, district footprint, land occupancy rate, district volume, green area, paved area, density, number of apartments, etc.). This data is critical to the appreciation of both the qualities and the disadvantages of these projects that were built almost one hundred years ago. Typological assemblages and quantitative parameters are indispensable tools for the architectural profession. Employing these tools in the research investigations, and in the exhibition, makes the results accessible to a wider audience.

Of pivotal importance is that the group of plates for each of the five thematic sections of the exhibition employ the same scales of representation and a uniform graphic code, contributing a synoptic approach to the analysis. This permits a clear understanding of analogies and differences in a similar manner to the exhibition arranged at the II CIAM in Frankfurt where all the participants' architects displayed their housing experiments within the same plate layout.

Moving to the arrangement of the exhibition, just after the entrance the first section opens with the plate of twenty-eight images of architectural models of housing neighbourhoods are inserted into the urban tissue, illustrating the density (Figure 7). Of the many quantitative parameters calculated, density still is one of the most important in the design process.

The second section outlines the urban policies and provisions adopted in Frankfurt, Vienna and Stockholm (Figure 8). Specifically, one plate for each of the three cities displays historical maps of the urban evolution, today's cadastral maps highlighting the housing districts realised in the inter-war period and, both archival and contemporary photographs of some case-studies. These last documents provide information about the architectural language and the (still) liveable collective spaces (green or paved areas) which show an unaltered consistency and quality for the daily life of the inhabitants.

The main gallery of the exhibition ends with the third section (Figure 9), that is the plate of twenty-four dwelling units. Starting with Frankfurt examples, then Vienna and Stockholm at the lower stripes, one can ob-




**Figure 7.** Section one: twenty-eight images of wooden architectural models of housing neighborhoods into the urban tissues. Source: Authors.




**Figure 8.** Second section: the panel dealing with Vienna urban policy. Source: Authors.




**Figure 9.** Third section: panel of the twenty-four dwelling units in the background. Source: Authors.

serve the differences in terms of dwelling depth (e.g., 7–10 meters for Frankfurt, 9.50–12 meters for Vienna and 12.40–15 meters for Stockholm) as well as the location and size of the kitchen and toilet.

On the opposite side of the gallery, the fourth section (Figures 10 and 11) is composed by four plates where, for the very first time, there are eighteen typological assemblages different by size and configurations, accompanied by the analytical parameters previously mentioned. Of the many analysed in the two research projects the exhibition displays a selection of typological assemblage, specifically; Frankfurt is represented by four exemples (Römerstadt 1927–1929; Bruchfeldstrasse 1926–1927; Riedhof-West well-known as Heimatsiedlung 1927–1934; Westhausen 1929–1932) Vienna by eight (Fuchsenfeldhof 1922–1925; Bebel-Hof 1925–1927; Schüttau-Hof 1924–1925; Julius Popp-Hof 1925–1926; Kal Seitz-Hof 1926–1933; Winarsky-Hof 1924–1926; Klose Hof 1924–1925; Professor Jodl-Hof 1925–1926) whereas Stockholm by six (Upplandsgatan 1917–1925; Helgalunden 1911–1935; Blecktornsområdet 1918–1929; Rödabergsområdet 1907–1929; Farjän 1929–1930; Marmorn 1930–1931).

Looking at these drawings, what clearly emerges is the noteworthy peculiar approach in designing the collective areas, that is the intermediary space in-between the communal and private—which is a crucial feature of living together and the expression of democratic ideals (Secchi, 2013, p. 65). Of particular relevance is the wealth of typological experimentations developed in the eighteen case-studies.

Although they were designed almost one hundred years ago, they still collect many individuals and families together from low social economic groups and workers, achieving a novel architectural urban unit.

The fifth and last section (Figures 12 and 13) presents ten views into one-room scale models realised by the bachelor students in LCC's design studio. Each model represents only one room of ten different dwelling units. Next to the examples built in Frankfurt, Vienna and Stockholm there are also other modern cases such as Berlin, Amsterdam and Copenhagen. The thorough study carried out by the students aimed to compare the different ways of conceiving of comfort, the relation between surface and window and how the dwelling unit looks onto the external areas.

The exhibition catalogue (Ortelli, Porotto, & Monterumisi, 2018) requires some further remarks because it contains an anthology of insightful texts concerning the three urban policies written at that time and a selection of drawings presented in the plates. This explains the concept behind the catalogue's tabloid layout.

In its intentions, the exhibition should not be considered a circumscriptive event, the relevance of which ends on the closing day, but rather as starting point for further comparisons with other experiences of modern housing. The aim is to progressively widen the understanding of this field through an innovative architectural




**Figure 10.** Fourth section: the four panels of typological assemblages. In foreground, there are the four housing estates of Frankfurt. Source: Authors.




**Figure 11.** Fourth section: the four panels of typological assemblages. In foreground, there are the Stockholm and Vienna housing examples. Source: Authors.



**Figure 12.** Participants to the opening who curiously watch into the one-room scale models. Source: Authors.



**Figure 13.** Selection of one-room scale model (clockwise order): Professor Jodl-Hof (Vienna), Hornbaekhus (Copenhagen), Rödabergsomradet (Stockholm) and Effen housing estate (Rotterdam). Source: Authors.

perspective and to encourage a real collective effort in building new knowledge about these cases, which still provide key suggestions for today's housing practices. The LCC conceived the exhibition itself as itinerant performance aiming to captivate the interest of other institutions, universities and research groups who would like to participate in a such collective initiative in the forthcoming months and years. The material produced is hence apt to be exhibited according other arrangement of the panels and the spatial needs of the university willing to host the following stopovers (LCC, 2018). Of even further relevance would be the goal of adding new case-studies produced by the hosting universities. This would shed new light on further housing experiments using the same templates, scales of representation and uniform graphic code.

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**Conflict of Interests**

The authors declare no conflict of interests.

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