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Mass Housing in Disguise**

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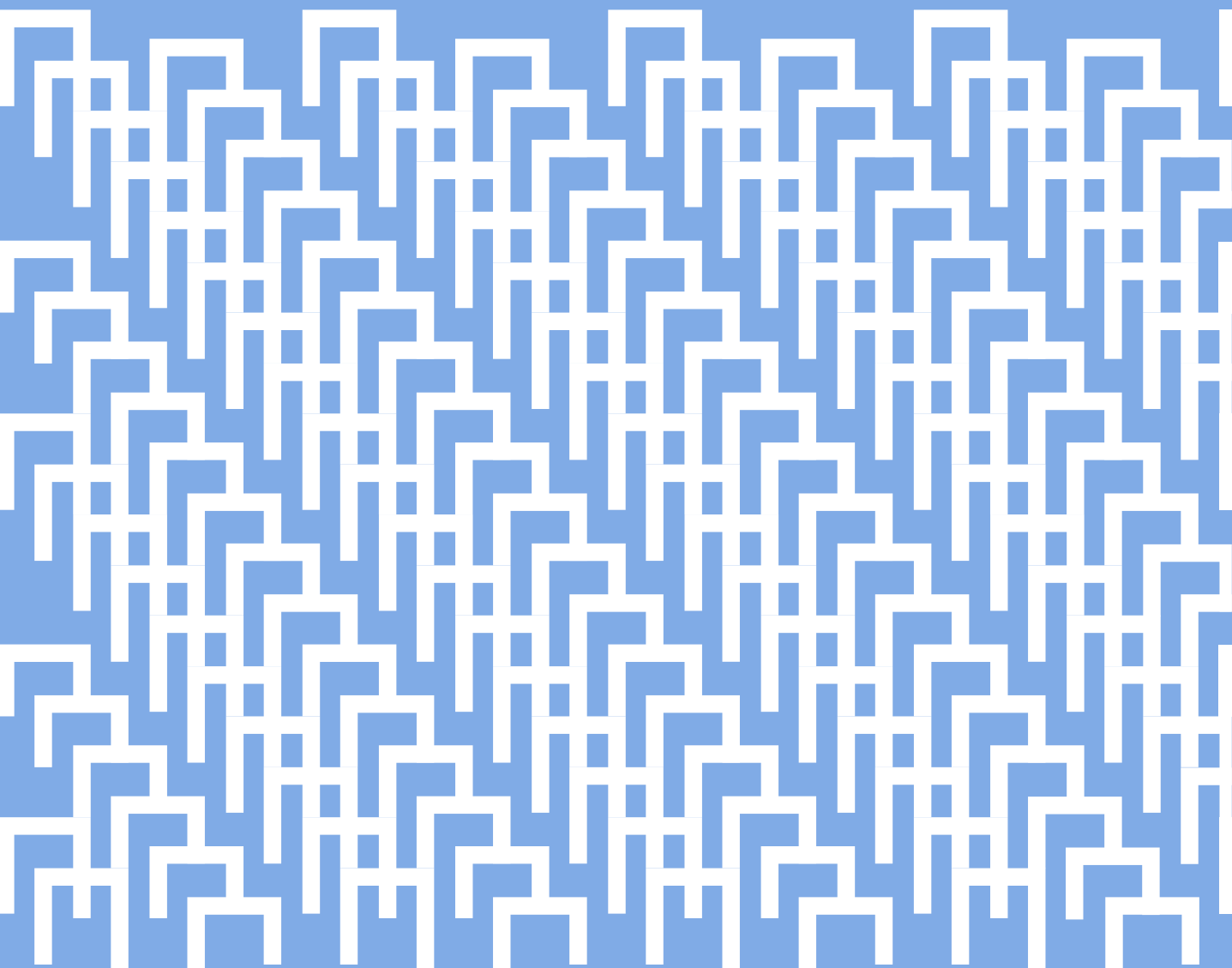
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# European Middle-Class Mass Housing: Past and Present of the Modern Community



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**MCMH Atlas**

**European Middle-Class Mass  
Housing: Past and Present  
of the Modern Community**

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# The Netherlands

Amsterdam, Rotterdam, Almere



Lidwine Spormans

## Mass Housing in Disguise

**H**ousing construction in the post-WWII Netherlands is characterised by policies and regulations, at national and local level. The tradition of 'volkshuisvesting' which promotes planning for the whole population including the middle class, largely determined the production and allocation of housing through planning policies, subsidy, and tax programmes. In the Dutch context, it is difficult to distinguish 'middle class' by housing typology, ownership or neighbourhood, as middle class is 1) broadly interpreted, 2) housing areas combine different housing types and groups, and 3) the residents' composition of residents' changes over time. Driven by planning and housing policies and influenced by technological and social developments, different housing types emerged over successive periods. This article explains three key periods by outlining the historical context and illustrating with corresponding case studies. In the reconstruction period of the 1950s, industrial mass-housing systems were developed, a clear example of which is the mid-rise Airey housing development in Slotershof Amsterdam, notable for its façade of concrete tiles. In the late 1960s, technological developments made large high-rise flats possible. The flats in a park-like setting in Ommoord Rotterdam are a clear example of this modern living environment, intended for middle-class families. In the 1970s, an aversion to high-rise and uniformity and more attention to quality and diversity in form and households led to more varied architecture on a human scale. The organically shaped low-rise housing in 'woonerf' De Werven Almere with a diversity of housing types combining tenants and homeowners is indicative of this period. In The Netherlands, large-scale housing projects from successive periods are not always recognisable as mass housing due to the row house as the popular housing type of the middle class.

### Mass and Middle class

Both the term 'middle class housing' and the term 'mass housing' are not self-evident in the

Dutch housing context. The image of mass housing in high towers or flats does not match the dominant Dutch housing type, which is a terraced house. These terraced houses are a legacy of housing developments in the second half of the 20th century. Although in recent years more multifamily homes were constructed, the suburban lowrise neighbourhood was, and still is, the 'ideal' of the Dutch middle class. After WWII, a series of planning concepts were implemented at a national level: postwar expansion districts (1945-1965), Groeikernen (1965-1985) and Vinex-districts (1995-2005). All three planning programmes consist of massive housing developments, largely low-rise. Middle-class families of successive generations moved into these (once) new neighbourhoods, leaving the old city for 'huisje, boomje, bestje' [house, tree, animal], a Dutch saying meaning the bourgeois life in a house with a garden, children and pets. Although the majority of the Dutch population occupies a single-family home (42% terraced house, 9% semi-detached house, 13% detached house), also 36% of the stock is a multi-family house (CBS open data, retrieved 2023). This article illustrates a low-rise, a mid-rise and a high-rise typology as examples of mass housing for the middle class in the Netherlands.

But who is this middle class? The middle class is a social class, which in the Netherlands is mostly related to income. The name 'Jan Modaal', which has been used since the 1960s, is used to stereotype the 'common man'. The fictional Jan Modaal has a so-called 'modal income', a key concept in income policy to test the impact of policies and regulations. With regard to housing, income is also an important factor. To qualify for social housing (subsidised housing), housing associations work with a nationally-set income limit, which is higher than the modal income. This means that in The Netherlands a large part of the population can live in rental social housing, including the middle class. For decades, the three main political movements in the Netherlands have, each from a different angle, taken government measures to stimulate home ownership. The Liberals did so from the consideration of equal opportunities also in asset

accumulation, the Social Democrats from their vision of the emancipation of the workers and the Christian Democrats from the perspective of family-life values. But although home ownership has grown strongly, from 28% in 1947 to 58% in 2019, the Netherlands lags far behind other European countries (Boelhouwer, 2019).

In terms of ownership, there is no clear definition of middle-class housing, as it can be owner-occupied, private rental, or social rental housing (CBS 2020). Regarding dwelling type or size, there is also no uniform characterisation of middle-class housing. In housing projects, similar houses were often developed for both private sale and social rent. Moreover, the ownership structure of housing estates changed over the years, with social housing being sold to individuals and vice versa. In this article, the cases will show examples of these combinations and dynamics in ownership.

### Dutch housing by policy

The housing tradition of The Netherlands can be characterised by social housing and national planning policies. An explicit housing policy was made possible from 1901 onwards with the so-called “Woningwet” [Housing Act], aiming to put an end to unhealthy housing conditions and promoting the construction of good housing. Although the Housing Act made public housing a ‘matter of the State’, it designated municipalities as the first executors. They were then supposed to encourage ‘private initiative’, through municipal loans (made available by the state) to approved housing associations. Housing production did not take off immediately after the Housing Act, but larger numbers of houses were built in the interwar period thanks to state subsidies. For the first time, socialist parties had great political power in many municipal councils. Good housing for workers was their top priority and ‘workers’ palaces’, like ‘Het Schip’ were built in the Amsterdam School-style (Lans, 2016).

A series of ministerial memoranda effectively demonstrate the leading role the national government played in spatial planning in the post-WWII Netherlands. During the period of post-WWII reconstruction, the national government enacted a centrally-managed planning strategy in which the number of

houses, materials and construction workers were distributed throughout the country. In the 1950s and 60s, municipal housing companies and many housing associations developed social housing, financed by the state and strictly regulated by detailed standards (Lans, 2016). Besides reconstruction of bombed inner-city sites, housing construction in the post-WWII period took place mainly in expansion districts around existing cities.

In the memorandum ‘The Development of the West of the Country’ (1958) the population of the nation was projected to increase from 11 million people in 1958 to 13.5 million in 1980 (Faber, 1997). This document introduced the concept of *Randstad* to refer to the most densely populated area in the Netherlands. To regulate the problem of overcrowding and congestion, it was proposed to keep buffers open between towns and cities, preserve a central open area, *Groene Hart* (Green Heart). 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 (Maas, 2012). In the Second National Spatial Planning Policy document of 1966, 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. In the Third National Spatial Planning Policy document of 1974, the strategy of bundled de-concentration was elaborated and a series of ‘Groekern’ (new towns) was introduced. The 1983 memorandum ‘Outline for the urban areas’ included a preference for new developments at shorter distances to the larger cities. Since the Fourth Policy Document on Spatial Planning (1988) (known by its acronym ‘Vinex’), the policy changes to re-urbanisation and new building sites are allocated on the outskirts of cities. The Vinex-districts are built on large-scale development areas designated by the government between 1995 and 2005.

### Low-rise, mid-rise and high-rise

Driven by the above-mentioned planning and housing policies and influenced by technical and social developments, different housing types emerged over successive periods. After WWII, production went up, mainly due to technological

developments, to solve the housing shortage which led to greater building heights, numbers and repetition of dwelling units. Under pressure from social developments and increasing prosperity, from the 1970s onwards, more attention was paid to individuality, diversity and quality leading to more varied but still massive housing areas. Figure 1 illustrates the post-WWII production of new houses and the most prominent housing type per decade. It shows that housing production accelerated after WWII and peaked in 1970, during the heyday of high-rise flats. After 1970, the dominant housing shifts to low-rise and mid-rise. However, housing production remains quite high. The case studies in this article illustrate examples of the middle three housing types in the diagram.

### 1950s: Reconstruction

During the period of post-WWII reconstruction, the national government centrally managed planning, by distributing the number of houses, materials and construction workers throughout the country. The shortages of building materials and trained personnel, the high demand for housing and low construction budgets created an environment for the large-scale development of non-traditional residential house building systems. Prefabrication was encouraged by the government by guaranteeing the prefab builders’ market and by reducing certain restrictions which meant that they could build more prefab houses than conventional ones. The development of prefab construction in the Netherlands was

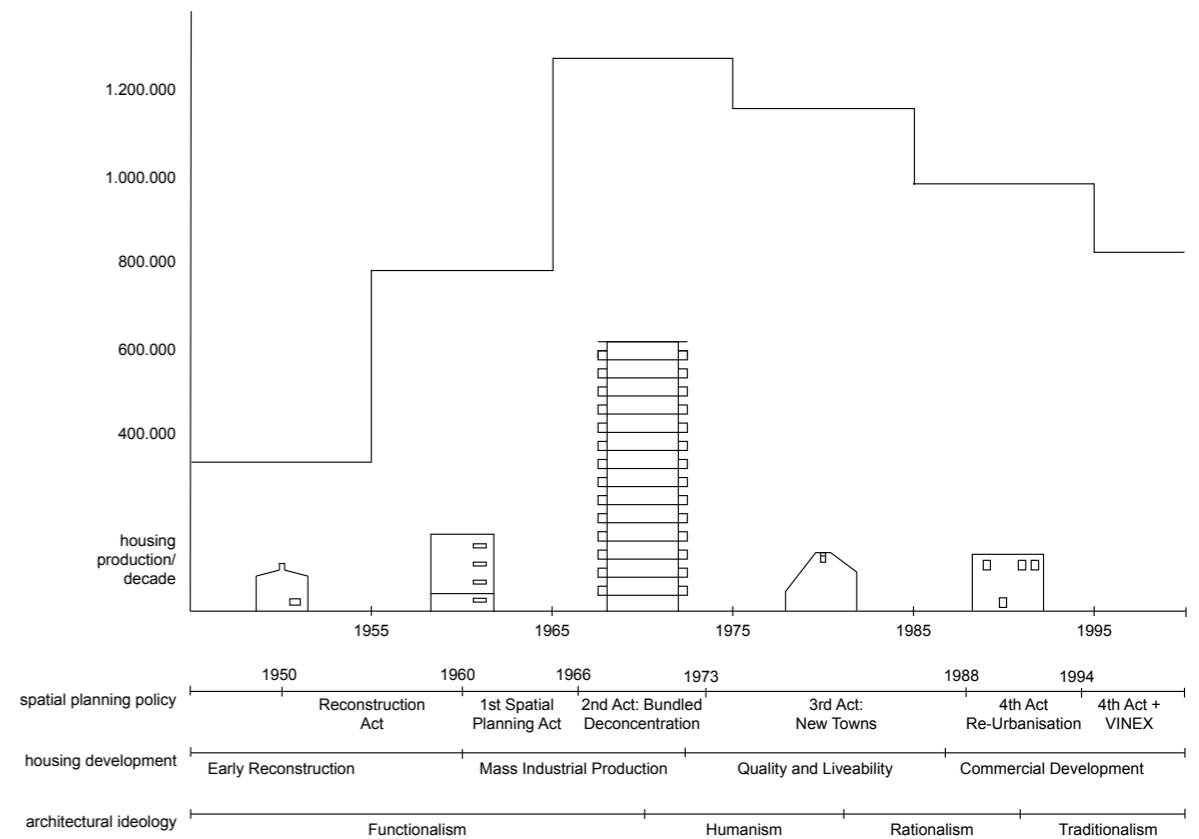


Figure 1



the result of cooperation between structural engineers, manufacturers, architects and builders. In 1946, 18 systems were used in the Netherlands and between 1947 and 1957 this increased to 360 (Elk, 1971).

The 'Wijkgedachte' concept (related to 'neighbourhood unit' in the UK) served as a blueprint for residential neighbourhoods, providing detailed principles for the combination of housing for different households in each neighbourhood unit, as well as the number of amenities and natural spaces in the direct and wider living environment (Bos, 1946). Housing construction in this period was largely carried out by housing corporations and mainly intended for families from the broad middle class.

Case study Slotershof is an example of the Reconstruction in the 1950s

## 1960s: Acceleration of industrial construction

In the residential areas of the late 1960s, the standardisation and industrialisation of housing construction had reached maturity. Technical advances made systematic high-rise buildings possible. Moreover, ideas about the high-rise were being embraced with increasing enthusiasm by planners and designers. High-rise construction was seen as a positive aid in the quest for a good life and housing for modern people. A 1963 memo by 'construction minister' Bogaers further encouraged non-traditional building as it would save labour while increasing building capacity. The main innovation were in-situ building systems, where walls and floors of cast concrete were formed in a steel tunnel framework (Elk, 1971). These building systems have the characteristics of 'Open Building' as published by John Habraken in the early 1960s. In Open Building, support and infill are separated. The aim is to give mass-housing residents more choice and control. Residents can be partly responsible for the design of their homes (the infill) and more flexibility in plans is possible.

The high-rise buildings usually consisted of gallery flats of about 12 storeys in long slabs, with the Bijlmermeer in Amsterdam a famous but also notorious example. Flats were built and owned by housing associations, but individual homes were often later sold to private owners. Both the

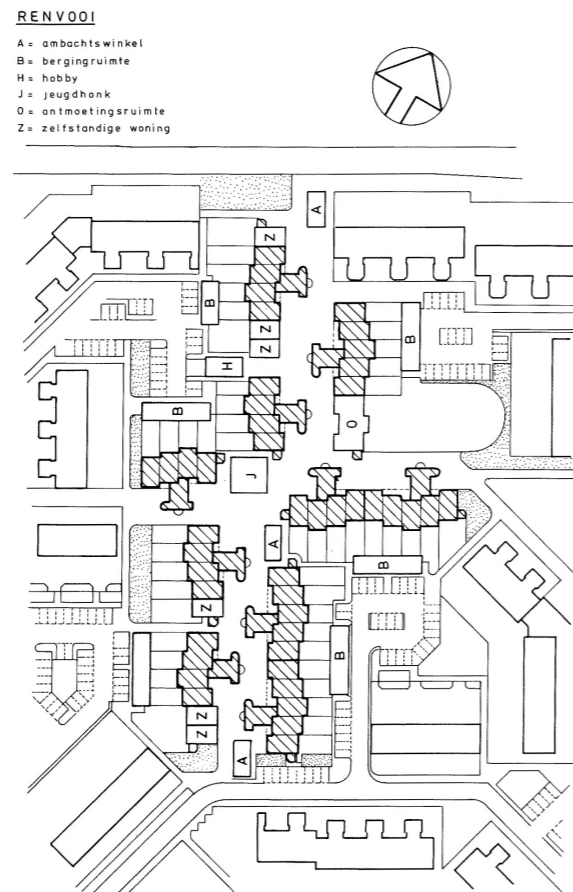


Figure 2

buckled shape of the building and the collective services (such as day care, parking, common rooms) included in the buildings aimed to create social cohesion among residents. What began as a new modern living environment for middle class families soon drew criticism from residents and experts, who argued that high-rise buildings and the endless repetition of dwellings led to 'flat neurosis' (Blom, 2013).

Case study Ommoord is an example of late 1960s high-rise housing in optima forma.

## 1970s: Quality and variety

From the early 1970s onwards, there was a drastic break with the post-WWII modernist planning schemes of mid-rise and high-rise

that developed new housing concepts in which participation was one of the key ambitions. In many new areas and urban renewal project, residents became actively and formally involved in neighbourhood development (Vletter, 2004). During the 1980s however, the economic crisis led to a "no-nonsense" approach, low budgets and market-driven developments. This required austerity in design, resulting in longer blocks, more repetitive patterns and fewer exceptions and expressivity (Ubbink, 2011). It also led to the buying up of housing projects by housing corporations, as homes intended for private sale were not sold due to the crisis.

Case study De Werven is an example of the human-scale housing developments of the 1970s.

Alternative typologies for the middle class also emerged in the 1970s and 1980s, such as collective housing. Although there are older collective forms, the introduction of 'Centraal Wonen' marks the start of the collective housing movement in the Netherlands, aiming to 'free women from the burden of housekeeping and motherhood' and 'a way of living where residents have chosen each other on the basis of equal rights and where they share a number of residential facilities'. Various forms of collective housing appeared in which the sharing of common spaces is combined with the independent living of each household (Krabbe, 1986). In agreement with the desire in the 1970s for more quality, these residents saw collective housing as a means to achieve a better standard of living by establishing their own collectives and associations. While certainly an exception to the dominant individual dwelling, collective living is still a relevant movement and has gained attention in recent years, especially for collective private commissioning by specific groups such as the elderly or frontrunners in sustainability. The Wandelmeent project in Hilversum, designed by architects De Jonge and Weeda and built in 1977, is an icon for Central Living as a movement partly because of its striking architectural design (see Figure 2 and 3).

## Conclusion

In the Dutch context, it is difficult to distinguish 'middle class' by housing typology, ownership or neighbourhood, as middle class is 1) broadly



Figure 3

multifamily housing in long straight blocks. Suddenly an enormous variation appeared in the composition of housing types, the form of streets, squares and building blocks, predominantly in low-rise patterns (Vreeze, 1993). Also on an architectural level, ideologies shifted. As early as 1959, young architects, led by Aldo van Eyck and Herman Hertzberger and related to Team X, accused architects and planners of making the Netherlands "unliveable" and called for a new architecture that would create "liveable cities" and harmony between people and things. (Heuvel, 1992). Due to dissatisfaction with the repetitive housing of the post-war period and a growing prosperity, initiatives arose at the end of the 1960s aiming for innovation and more architectural quality in the living environment. In a national programme "Experimental Housing", launched in 1968, projects were subsidised

interpreted, 2) housing areas combine different housing types and groups, and 3) the residents' composition of changes over time. The role of social housing companies and the accessibility of subsidised housing for a broad section of the population is important in this regard. They built massive amounts of middle-class housing in the post-WWII period, but in some places, these now dilapidated former middle-class houses are occupied by the socially lower class. In other places, however, especially in neighbourhoods around larger cities, former middle-class houses are now expensive and 'elitist' due to gentrification and related price increases. Today, with housing corporations having been privatised since 1995 and now having to focus on housing vulnerable groups, the situation has changed and a more prominent task of making housing for the middle class is emerging.

The Netherlands has strong government influence, at the national and local level, on housing production and allocation through planning policies, subsidies and tax programmes. Although in recent decades more is 'left to the market', the Dutch national government 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, 1990). The tradition of top-down planning, in collaboration with local government agencies and commercial stakeholders, has resulted in large-scale housing projects built in successive periods. However, because the dominant and popular housing type is the row house in low-rise neighbourhoods, much of this building stock can be considered 'mass housing in disguise'.

## Figures

Cover - Expansion housing development Sloterveer West [Uitbreiding woningbouw Sloterveer West] (1952). Pictured by JD Noske. ©Wikimedia Commons

Fig. 1 - Housing production, typology and ideology in The Netherlands, 1945-2000 (diagram is created by the author).

Fig. 2, 3 - Centraal Wonen Hilversum (Wandelmeent). Individual dwellings share a cluster-room and collective facilities indicated by letters in urban map (left). Image showing diversity in de housing composition, ©Van Eig 2021.

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Creating design concepts for Ommoord has been the subject of the CIAM congress in 1953. Architect like Bakema, Stam-Beese discussed high-rise models, derived from Le Corbusier's Unite d'Habitation. An important ambition was the creation of a 'core', both spatially by the composition of blocks around a collective green space, as socially by creating a sense of community.

<b>Adress/District</b>	Ommoord, President Rooseveltweg and surroundings		
<b>GPS</b>	51.9582773, 4.5399818		
<b>Scale of development</b>	District		
<b>Project author</b>	Ms. Lotte Stam-Beese (as urban designer, municipality Rotterdam), Mr. Rein Fledderus (as architect)		
<b>Developer</b>	ERA (Van Eesteren Rationele Aanpak, part of JP Van Eesteren)		
<b>Landscape author</b>	-		
<b>Period of construction</b>	beginning: 1967	end: 1975	inauguration: -



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## URBAN AREA

<b>Location - within in the city</b>	original:	city fringe
	current:	city fringe
<b>Other facilities / availability of amenities</b>	Schools / health / market / sports / shops / religious / kindergartens / leisure	
<b>Location - position of buildings</b>	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
<b>Urban Ensemble</b>	Free-standing objects	
	total area:	448 ha
	housing:	90 %
<b>Connectivity   Accessibility</b>	The innovative infrastructural scheme consists of: - a ring road (car) - cul-de-sac (car) - metro (public transport 3 stops) - cross-neighbourhood bicycle and pedestrian lane	
<b>Landscape</b>	The urban plan is based on the modernist concept of a green field with high-rise mono-functional housing. The ground floor (exterior and interior) is collective.	
<b>Open and public space</b>	The public space consists of parking areas (north of flat) and vast green spaces, mainly lawn with trees and zones of bushes at the building plinths. There is a park with height differences (hills) made from building rubble.	current condition: good
<b>Quality of living environment</b>	The strict separation of functions (facilities and transport in the central zone, housing around) is very strict and recognizable, resulting in lively and peaceful quiet atmospheres.	
<b>Main Features</b>	Readability / combining different uses	



## RESIDENTIAL AREA

<b>Residential buildings</b>	The neighbourhood Ommoord has a high-rise district (inside the ring road) and a low rise district around. This document addresses mainly the high-rise part, which is regarded as most specific and significant.	
<b>No. of buildings</b>	38	
<b>No. max. of floors</b>	21	
<b>Average no. floors</b>	15	
<b>Materials   Fabrication</b>	The load bearing structures are in-situ concrete, casted in an industrialized process. Floor to floor facade elements are light weight and largely transparent. The interior walls came in 'furniture' packages and provide for flexibility.	
<b>No. of dwellings</b>	9968	
<b>Average dwe. area</b>	90 m <sup>2</sup>	
<b>Dwellings' type</b>	one floor	4 rooms
	duplex	+5 rooms
<b>Qualitative issues</b>	The housing is in line with the credo 'light, air and space', provides comfortable living in the post-war era. The dwelling schemes are spacious, yet efficient and adaptable as all interior walls can be removed.	
<b>Housing density</b>	Number of dwellings per ha:	29

## MIDDLE-CLASS

<b>Original dwellers class: middle-class</b>	Although the housing was developed by a housing corporation renting out the flats, Ommoord was always regarded as middle class, due to the Dutch social housing system. Today, there is a mix of social rent and private owners, who can also be regarded as middle class.	
<b>Current dwellers class: middle-class</b>		

## MASS HOUSING

<b>Massification through:</b> planned process vertical growth element's repetition	Ommoord is regarded as the peak of industrialised housing production. Speed in production process was reached by rational design and repetition. It also illustrates the welfare state, designing not only mass buildings, but also mass facilities and mass social life planning with many clubs and facilities. Higher was the answer, although this trend shifts during Ommoord construction, resulting in lowrise housing in the north-east quarter.	
<b>Building's typology:</b> slab tower		

## HOUSING POLICIES

<b>Urban promotion type: public</b>	The district Ommoord was initiated and developed by the Rotterdam town planning department, although commercial construction companies played an important role. It fits the post-WW2 policy of reconstruction, which was led by the national government and implemented by municipal services.	
<b>Housing promotion type: public</b>		
<b>Name of specific programmes or funding applied</b>	-	

## PRESERVATION | TRANSFORMATION REGENERATION

<b>Preservation and maintenance</b>	Partially refurbished	
<b>Preservation and maintenance status details</b>	In 2011, Ommoord's high-rise area (inside ring road) was declared a 'reconstruction area of national importance' by the Dutch Cultural Heritage Agency. Although, the plan was not fully completed and later additions are made, Ommoord is still a well conserved and relatively successful high-rise neighbourhood.	
<b>Urban   building transformation or regeneration</b>	Almost all flat buildings have been renovated, e.g. entrances renewed and enlarged, insulation of end walls, new fences on galleries, new window frames etc.	
<b>Intervention scale</b>	Buildings / energy efficiency improvements	
<b>Intervention status details</b>	New buildings and facilities have been added to the area (not always matching the urban concept of separate functions), effecting the landscape experience. Also, housing is introduced on ground floor level, not in line with the architectural concept but improving social control.	

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# De Werven

The Netherlands, Almere



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The design for De Werven is a typical woonerf neighbourhood. The ambition was to develop a large amount of dwellings, but in an human and sheltered environment. Almere is a new town on man-made land reclaimed from the sea, resulting in a society in which everything was designed: the urban, the architecture, the soil, the green, the demographics, etc.

<b>Adress/District</b>	Schoolwerf, Rozenwerf, Stadswerf, Parkwerf, Wittewerf, Achterwerf, Almere-Haven		
<b>GPS</b>	52.3439531, 5.2207193		
<b>Scale of development</b>	District		
<b>Architectural studio</b>	Joop Van Stigt		
<b>Project author</b>	Dirk Frieling, Projectbureau Almere (urban designer) Arne Mastenbroek (architect other part of De Werven)		
<b>Constructor</b>	Rijksdienst voor de IJsselmeerpolders		
<b>Landscape author</b>	–		
<b>Period of construction</b>	beginning: 1974	end: 1979	inauguration: –



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## URBAN AREA

<b>Location - within in the city</b>	original:	satellite
	current:	city centre
<b>Other facilities / availability of amenities</b>	Schools / health / shops / kindergartens	
<b>Location - position of buildings</b>	Perpendicular (with a shorter façade facing a street)	
	Parallel (with a wider façade facing a street)	
<b>Urban Ensemble</b>	Free composition	
	total area:	52 ha
	housing:	80 %
<b>Connectivity   Accessibility</b>	Separation of transport flows was a main concept in the Groeikernen of 1970-80s. Almere has a separate bus lane and good car accessibility between cores and neighbourhoods. The woonerf (cul-de-sac) is the dominant urban pattern and is pedestrianized.	
<b>Landscape</b>	The Almere landscape is created, as the land is reclaimed from the sea in 1968. Between neighbourhoods, green buffer zones are created and on larger scale recreational zones are developed (forests, beach, parks).	
<b>Open and public space</b>	The diversity in private, semi-public and public spaces and especially the transitions between them were an explicit aim and are now an important quality of the woonerf-structure in De Werven. The urban structure creatively links sheltered spaces to more open areas.	current condition: good
<b>Quality of living environment</b>	Almere has a polynuclear urban structure, with Almere-Haven as its oldest core and De Werven as the first neighbourhood. The inhabitants of De Werven were 'pioneers', starting a new community in an empty polder.	
<b>Main Features</b>	Diversity / innovation	



## RESIDENTIAL AREA

<b>Residential buildings</b>	The architecture expresses diversity and also holds many housing types, such as split-floor, elderly, 2-floor, 3-floor, corner and gate typologies. The plans are symmetrical (street-garden orientation), providing choice for the resident how to use the spaces.	
<b>No. of buildings</b>	27	
<b>No. max. of floors</b>	3	
<b>Average no. floors</b>	2	
<b>Materials   Fabrication</b>	The housing is constructed by a partly industrialized method, combining modern and traditional materials and techniques. The main materials are concrete (load bearing structure), wood (window frames and panelling) and the traditional Dutch ceramics (masonry and roof tiles) (facades) and wood.	
<b>No. of dwellings</b>	671	
<b>Average dwe. area</b>	100 m <sup>2</sup>	
<b>Dwellings' type</b>	2-/ 3-floor and split-level	
<b>Qualitative issues</b>	The neighbourhood is designed by a 'toolkit', allowing for introvert and extrovert block structures and exceptions. The blocks are composed to form diversity and comfort in private, collective and public areas.	
<b>Housing density</b>	Number of dwellings per ha:	19

## MIDDLE-CLASS

<b>Original dwellers class: middle-class</b>	De Werven originally had 414 social rent and 257 owner occupied houses (note that Dutch social housing includes large part of society). Now more houses are sold. Almere was and still is known for the middle class identity, although the aim was to house a representation of Dutch society,	
<b>Current dwellers class: middle-class</b>		

## MASS HOUSING

<b>Massification through: planned process element's repetition</b>	This housing can be regarded as 'mass housing in disguise'. The low-rise housing blocks and the large variety masks the massive numbers and high level of repetition of this type of residential neighborhoods. It is planned spatially and financially on subsequent scale levels.	
<b>Building's typology:</b>		

## HOUSING POLICIES

<b>Urban promotion type: public</b>	Almere is a New Town and part of the 'Groeikernen-beleid' (new town policy) introduced by the national government in spatial planning memoranda in 1966 and 1974. 15 areas were indicated to house the 'overspill' of large towns in the Randstad. Almere and Lelystad are the only completely new towns, and Almere grew to the 7th largest city in the Netherlands, with a population over 200.000 today.	
<b>Housing promotion type: public</b>		
<b>Name of specific programmes or funding applied</b>	(1) Tweede en derde Nota Ruimtelijke Ordening (New Town policy)	

## PRESERVATION | TRANSFORMATION REGENERATION

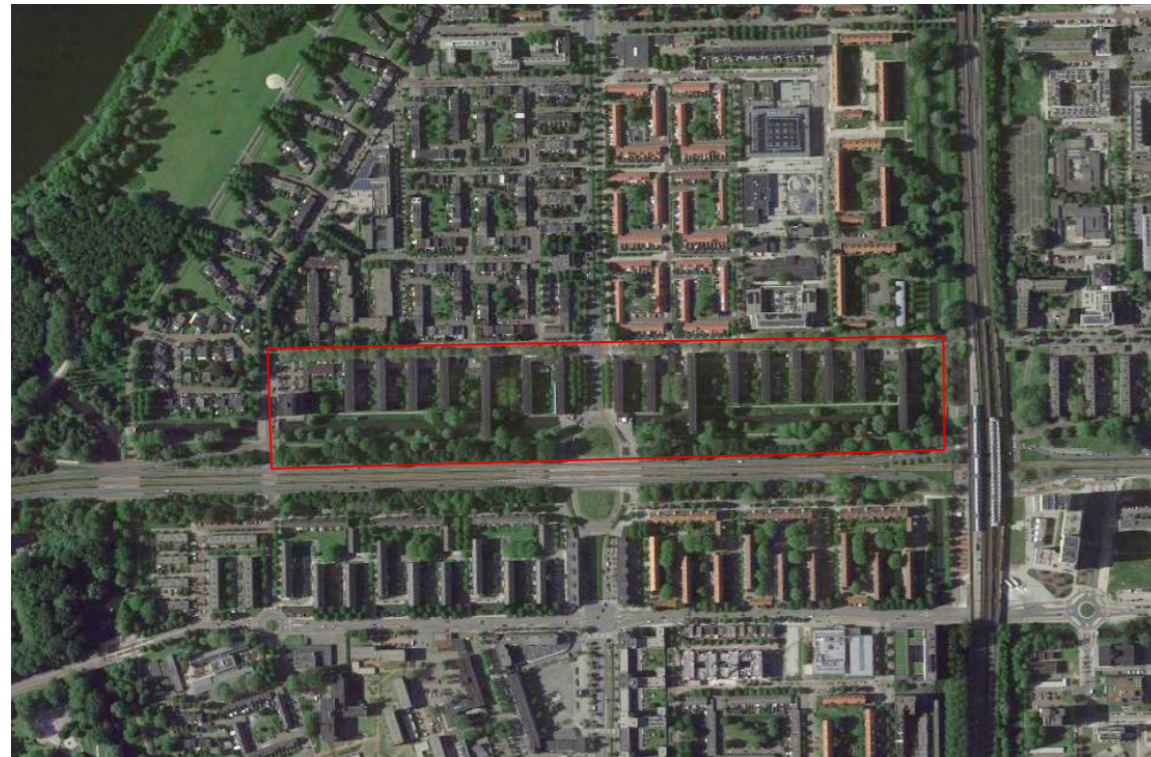
<b>Preservation and maintenance</b>	Partially refurbished	
<b>Preservation and maintenance status details</b>	General state is good. Regarding the urban space, there are great differences per quarter in use, design and maintenance of public spaces and transitions to individual plots.	
<b>Urban   building transformation or regeneration</b>	Especially in the owner occupied quarters, there has been privatization of former collective space. Also, many individual changes and additions to the houses are visible. The pavement and green areas have been changed in maintenance processes.	
<b>Intervention scale</b>	Buildings / open and public spaces buildings	
<b>Intervention status details</b>	The individual adaptations change the initial coherence of the blocks, however appropriation of living environment was aimed for.	

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# Sloterhof

The Netherlands, Amsterdam



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The complex is one of the highlights of post-war building in the Netherlands in terms of industrial construction techniques aiming to solve the housing shortage. Moreover, the ensemble shows a large variety in housing types and facilities and a rich aesthetic variety, produced with a industrial building system.

<b>Adress/District</b>	Comeniusstraat, Amsterdam Nieuw-West, Amsterdam		
<b>GPS</b>	52.358793, 4.831391		
<b>Scale of development</b>	Ensemble		
<b>Project author</b>	J.F. Berghoef (architect) H. van Saane (constructor building system)		
<b>Developers</b>	Nederlandse Maatschappij van Volkshuisvesting (=NEMAVO)		
<b>Landscape author</b>	C. Van Eesteren (urban planner district)		
<b>Period of construction</b>	beginning: 1958	end: 1960	inauguration: –



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## URBAN AREA

<b>Location - within in the city</b>	original:	city fringe
	current:	urban district
<b>Other facilities / availability of amenities</b>	Shops / bank / restaurant / gas station	
<b>Location - position of buildings</b>	perpendicular (with a shorter façade facing a street)	
<b>Urban Ensemble</b>	Sun oriented parallell rows / free-standing objects	
	total area:	8 ha
	housing:	90 %
<b>Connectivity   Accessibility</b>	The ensemble sits north of a raised four-lane 'motorway' with flyovers, that was innovative in Amsterdam. The access to the housing is from a secondary neighbourhood road, via the courtyards in between the blocks.	
<b>Landscape</b>	Between the buildings and the flyover, a green strip with an 'ornamental canal' was laid out. The heads of the three high slabs stand out with their spiral staircases standing over the water on concrete columns.	
<b>Open and public space</b>	The courtyards are shielded from the street by shops, garages and two service stations for cars. This has given the courtyards a sheltered character while still being public.	current condition: reasonable
<b>Quality of living environment</b>	Sloterhof is part of the Algemeen Uitbreidings Plan (AUP) designed by Van Eesteren in the interbellum period but largely realised after WW2. The combination of both green setting, 'light, air and space', water and connectivity offered the 'complete modern package'.	
<b>Main Features</b>	Diversity / combining different uses	

## RESIDENTIAL AREA

<b>Residential buildings</b>	The ensemble contains a wide variety of dwelling types and other facilities, like 4 apartment buildings, 7-storey maisonette buildings, a 12-storey tower block, 4 atelier dwellings, a restaurant, shops, two (former) petrol stations, garage boxes, greenery and water features.	
<b>No. of buildings</b>	18	
<b>No. max. of floors</b>	13	
<b>Average no. floors</b>	7	
<b>Materials   Fabrication</b>	The Airey industrialised building system is based on small prefabricated concrete elements. What is interesting in this projects is the great variety in colours, forms, finishing and ornaments of the concrete elements resulting in a rich palette.	
<b>No. of dwellings</b>	668	
<b>Average dwe. area</b>	70 m <sup>2</sup>	
<b>Dwellings' type</b>	Variety of types and rooms	
<b>Qualitative issues</b>	The diversity of dwelling types, access types and facilities aimed for a good and inclusive living environment. The apartments had a relative luxury standard, with hot water supply, fitted kitchens and wardrobes, a central refuse waste disposal and lifts.	
<b>Housing density</b>	Number of dwellings per ha:	80

## MIDDLE-CLASS

<b>Original dwellers class:</b> middle-class	As for many post-WW2 housing, these flats initially were inhabited by middle class (in the Dutch context included in public housing). Nowadays the target group for subsidised public housing changed and more low income groups live in these older flats.	
<b>Current dwellers class:</b> middle-class, others		

## MASS HOUSING

<b>Massification through:</b> element's repetition	For the construction of Sloterhof, the Airey building system was applied on a large scale. The Airey building system, adapted from the UK building system, can be regarded as a kit of parts, based on small prefabricated concrete elements that could largely be assembled manually by untrained personnel.	
<b>Building's typology:</b> slab tower	In the post WW2 context this was an important advantage to produce large numbers of dwellings, in high speed and with limited materials and craftsmen.	

## HOUSING POLICIES

<b>Urban promotion type:</b> public	Sloterhof is part of the public Algemeen Uitbreidings Plan (AUP) for Amsterdam. Contractors were involved in the development of housing systems. Prefabrication was publicly promoted by guaranteeing market and by reducing restrictions which meant that they could build more prefab houses than conventional ones. The entire stock of Airey houses in the Netherlands is over 8000 units.	
<b>Housing promotion type:</b> public-private partnership		
<b>Name of specific programmes or funding applied</b>	-	

## PRESERVATION | TRANSFORMATION REGENERATION

<b>Preservation and maintenance</b>	Unrefurbished	
<b>Preservation and maintenance status details</b>	Sloterhof has been a municipal monument since 2008. In the spring of 2016, Sloterhof was listed as a national monument. This decision has been challenged by the owner of the real estate, stating that the monument status would make exploitation economically not feasible. The objection was rejected by the council of state.	
<b>Urban   building transformation or regeneration</b>	The district Amsterdam Nieuw-West is in transformation, as several ensembles were replaced, transformed and renovated. However, Sloterhof remains largely unchanged. Recently, residents started an initiative for sustainable renovation of their flats.	
<b>Intervention scale</b>	Dwelling interior	
<b>Intervention status details</b>	The Sloterhof ensemble is largely unchanged. However, smaller changes have taken place, like replacement of many original interiors, renewal of window frames etc.	

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