



EXHIBITION LAYOUT

Exhibition Board Layout

Title & Overview

2 boards // Vertical

1.1. Title Board

1.2. Overview

Introduction

12 boards // Vertical

2.1. Creating the Netherlands

2.2. Pumping Water Since the Middle Ages

2.3. Dutch Values -1

2.4. Dutch Values -2

2.5. Housing as a Right

2.6. Planning for Housing

2.7. Housing as Urban Fabric

2.8. Dutch & American Dwellings

2.9. Complex Housing

2.10. Typological Analysis- 1

2.11. Typological Analysis-2

2.12. Typological Analysis-3

Case Studies

32 boards // Horizontal

3.1. De Muzen

3.2. Silodam

3.3. Carnisselande

3.4. Vrijburcht

3.5. De Zilvervloot

3.6. La Grande Cour

3.7. De Beeklaan

3.8. De Opgang

Implications

15 boards // Vertical

4.1. Design Principles & Lessons

4.2. Housing Mix

4.3. Access Type

4.4. Courtyards

4.5. Articulation

4.6. Replicating Complex Housing

4.7. Density

4.8. Social Mix

4.9. Quality

4.10. Experimentation, Innovation & Risk

4.11. Urban Fabric & Scale

4.12. Planning & Privatization

4.13. Cooperation among Professionals & Citizens

4.14. Economics & the role of Government

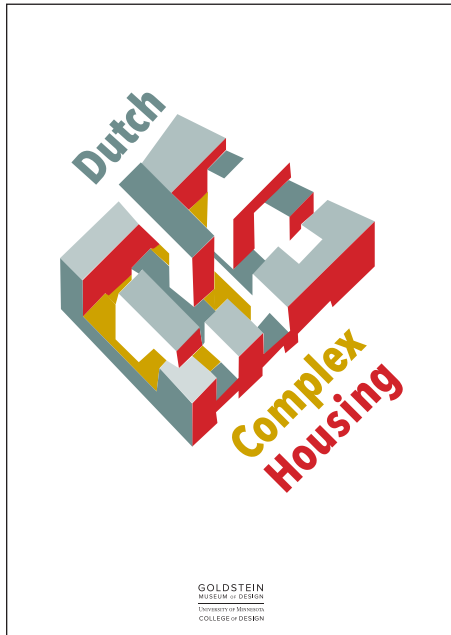
4.15 Conclusions

Credit

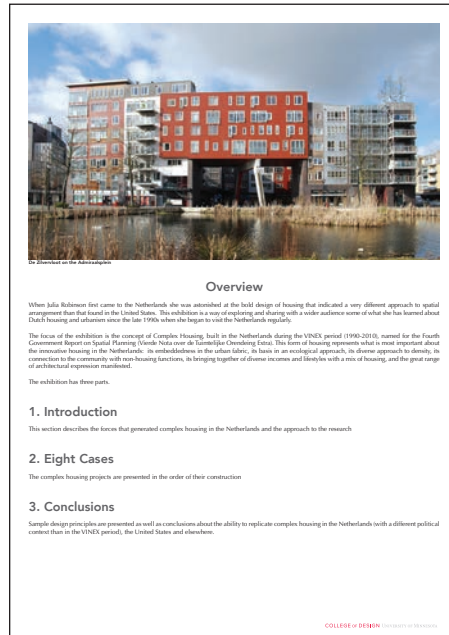
1 board // Vertical

5.1 Credits

Title & Overview



1.1




1.2

Introduction

Creating the Netherlands

Location of the Netherlands

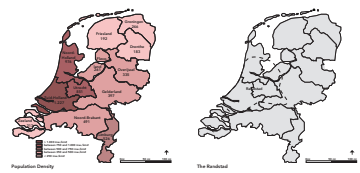
Due to its location at the confluence of the Rhine, Meuse, and Scheldt Rivers and its access to the North Sea, the Netherlands has long been an international commercial and trading center. Even before the Middle Ages, the country was a center of trade along the river routes between Switzerland, Germany, Belgium, and France. By the 16th and 17th centuries, this combination of European trade with the Netherlands' low-lying allowed the Dutch East and West India Companies to dominate international trade, a period known as the Dutch Golden Age. Today, the Netherlands remains an important global hub and Rotterdam is one of the largest harbors worldwide.



Map of the Netherlands in Europe

Density

Seven of the 17 million people who live in the Netherlands inhabit the western part of the country. This area, called the Randstad, is a highly dense megacity, comprised of Amsterdam, Rotterdam, The Hague, and Utrecht plus the smaller cities of Dordrecht, Breda, Maastricht, and Almere, among others. All of the people in this conurbation are in the dense Randstad area. In Amsterdam during the 19th century, implementation of the national housing plan (Nota Ruimte) required a density of 300 dwellings per hectare (about 100 dwellings per acre).



Population Density

The Randstad

2.1

Pumping Water Since the Middle Ages

Water Management in the Netherlands

The Dutch have been pumping water since the Middle Ages.
-Richard Stolzberg 1999-2004

Netherlands means low-lands. Many of the most remarkable attributes of the Netherlands originate from its position as delta land before sea level. Windmills to pump the water from the dry land to the sea, canals to carry the water to pumping stations, dikes to protect land below from the higher sea, leveeing into on flat land, dikes to keep ones' sea dry at wet land without turning leather dikes, and tulips and cross scrigs and livestock on the land surrounded by canals, dikes, and windmills.



The Netherlands with pumping

The Netherlands without pumping

Since the Middle Ages, significant portions of farmland called polders were reclaimed from the sea and from inland lakes and wetlands. Groups of fields surrounded by a dike comprise a polder, which requires a system of drainage canals and windmills to maintain it as dry land. Each farmer had to continuously pump to allow all to stay dry. The interdependence led to the creation of local water boards to represent the process. Because any changes in topography or water affects the whole system, survival below sea level requires attention to planning, as well as discussion, and cooperation among inhabitants.

God created the world, but the Dutch created the Netherlands.
-Dutch Adage



Windmill and drainage canal

Landscape showing a polder with a dike and a drainage canal

2.2

Dutch Values - I

Discussion, Cooperation & Citizen Participation

Managing water for the good of all in the Netherlands requires a system of cooperation and discussion. This ethic pervades the Dutch culture. When important decisions are made, there is always a period of national, regional, or local discussion where every citizen is entitled to speak his or her mind, including decisions about planning for urban, suburban, and rural areas.

Religion and Tolerance

In the late Middle Ages, the Netherlands experienced a great deal of religious strife among Protestant groups in the North and East, while Catholics remained in strength in the South. In the 16th century under Spanish rule, Protestant religious groups were persecuted. In the case of this history of conflict, the Dutch has come known for religious tolerance. Jews and Protestants migrated to the Netherlands, especially Amsterdam, where an attitude of tolerance allowed these different groups to co-exist in the cities and towns. By the late 16th century, a majority identified as having no religious affiliation.



Help van Dordrecht, windmills built in 16th, The Hague

Caring for One's Neighbor

The Dutch culture of cooperation originating in the water system was reinforced by a strong Calvinist and Catholic tradition to look after one's neighbor. For example, beginning in the Middle Ages and through the late 19th century, wealthy merchants in many Dutch cities built almshouses for elderly widows and widowers so that they would not become homeless.

2.3

Dutch Values - II

Middle Class as Core of Society

The Netherlands, a trading center with many cities along its rivers, evolved as a country of merchants and farmers, unlike many other European countries where the nobles were powerful. Perhaps due to their Calvinist roots, the Dutch do not care for ostentatious wealth. Their canals and river houses are modest compared to those of many other European countries. Mansions built in the 16th and 17th centuries are generally identifiable more from architectural detail than large scale. Furthermore, the government has used tax policy to maintain a relatively small income gap between the richest and poorest citizens, making the Netherlands largely a country of middle class citizens.

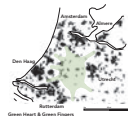
The big difference is that governmental influence is much bigger here than in America.
-Brian Wilentz, developer

In the Netherlands we hold the idea the government is relevant.
-Ton Schamp, urban designer

Although religious affiliation is not currently strong in the Netherlands, there is an ethical orientation to Dutch culture that supports concern for others and willingness to put society before oneself. For example, the population is willing to pay taxes to support national education and nationalized health care. Everyone benefits, values, and relies upon the government support.


Government as Valuable

The Green Heart & Green Fingers



Green Heart & Green Fingers

The Netherlands is by far the densest European country (at 976 persons per square mile compared to 610 for Germany, 276 for France, and 51 for Sweden). Nevertheless, the Dutch reserve their agricultural roots, and want their cities to be surrounded by and accessible to the agricultural and wooded landscapes called the "Green Heart". The planning policy for the Randstad addresses conflict between the pressure for more housing and conserving the Green Heart, by replacing smooth city boundaries with "green fingers" of open space that reach into the urbanized area.



View of Rotterdam from the surrounding green heart

2.4

Housing as a Right

Housing Act of 1901

The Housing Act of 1901 mandated government-supported construction of housing by housing corporations. These organizations were charged with providing rental housing and social services to low-income citizens, resulting in development in Amsterdam such as Amsterdam Zuid and Het Schip. Because the housing corporations intended steady and built housing to last, they were economically successful. In the 1990s, due to the national government's interest in increasing home ownership, housing corporations were permitted to fund their own projects and sell units directly so that government support would no longer be needed to fund low-income housing.



Modern room in apartment at Het Schip (Bijlmer De Wijk, 1974-20)

Housing Construction

Since the Housing Act of 1901, the Netherlands has supported the construction of over 7.5 million housing units. Before 2005, the national legislature of the Netherlands, in conjunction with the Ministry of Housing, developed a spatial plan for the nation every five years or so. Called the Nota Ruimte, the plan specified overall national goals for construction and land conservation, and designated the number of housing units to be constructed in a given period. The document also designated the income level to be served as well as the locations in which the housing was to be constructed.



An Ecological Neighborhood in Almere, 2005

Owners Organizations

Because the change of policy allowing housing corporations to sell units resulted in the co-existence of rental and owned properties in housing developments, government-mandated owners' associations made property maintenance decisions. In these associations, homeowners represent themselves, civic or commercial enterprises represent their interests, and housing corporations represent the interests of the nation. As a result of the emphasis on ownership, the number of homeowners versus renters has increased from 28% in 1947 to 53% in 2001 and 68% in 2015.

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2.5

Planning for Housing

National Housing Policy

Dutch housing policy in the VNN period (1990-2010) called for:

- Ecological considerations as introduced in:
 - Denser housing in the Randstad that supports transportation systems
 - The "green fingers" policy
 - The traditional concern of on-site and off-site water management
- New housing that balanced low, middle and upper income residents

During this time, the national government set housing policy, regional governments developed infrastructure, and municipalities planned, developed, and constructed housing to fulfill the national agenda.

From an external perspective, the Dutch's comprehensive planning seemed a perfect solution to providing affordable housing and preventing homelessness, but from the Dutch perspective in the 1990s, the housing was often the wrong kind in the wrong place. The focus on a top-down approach, identifying consumer interest had great appeal. Thus, the Netherlands adopted a market-oriented approach, encouraging home ownership and allowing the housing corporations to build capital by selling some social housing.

We need a more marketing-oriented development process. ... I am not worried about the position of the developer; I am worried about the consumer. Consumers are forced to accept a housing system that doesn't meet their demands.

- Bja van der Meer, process manager



Recreational area of Amsterdam where the density is 300 units per hectare (about 120 units per acre)

The Situation Today

Since the 2008 recession, the situation in the Netherlands has changed. Although from 1900 through 2005, the government created and implemented spatial plans every 5-7 years, no spatial plan has been created since 2005. The 2005-2010 spatial plan represented a government move to a market-based system. Recent national governments have largely dismantled the national planning agencies that enforce the spatial plans, leaving planning and implementation in the hands of regional and municipal governments. This leaves the question of whether the values in previous plans still apply to recent and future housing.

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2.6

Housing as Urban Fabric

Urban Planning

What we have in Holland is a large tradition of central planning that started in the 17th century ... The structure of the city and the public spaces are much more important than the individual buildings. Public buildings were located in a special spot.

- Eric Ancey, developer



Hendrik Petrus Berlage's 1915 Drawing for the Amsterdam Landt plan "Bird's Eye View from the bridge on the Amstel"

© Nederlandse Architectuur

In the late 19th and early 20th centuries, architect and urban planner H.P. Berlage employed the theories and examples of Camillo Sitte to demonstrate the power of housing in Amsterdam to create urban form through both his urbanism plans and architectural design. He didn't restrict by his work, the Housing Act of 1902 required that architects be involved in urban design and architecture. Seeing housing as integral with urban form remains fundamental to the way residential areas are designed. In stark contrast to the United States, where individual buildings (including housing) are typically located on singular lots, in the Netherlands, by law there is always an urban scheme that a design fits into. Most other houses are built as a group that forms a block, row, or street.

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2.7

Dutch & American Dwellings

Abundance and Scarcity

Dutch and American cultures have very different approaches to development. Being a very dense country with a very small landmass, Dutch land is viewed as a scarce resource to be conserved. By contrast, land in the United States is an abundant resource where its transformation from open space to housing is simply taken for granted as "progress" in action.

Dutch and American Housing Units

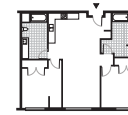
In addition to the smaller size of Dutch dwellings, other differences in the arrangement of typical residential settings include the presence of a controlling corridor and the location of the hygiene spaces.

The space system diagram of the Dutch flat illustrates how the corridor - the first space you encounter - links all of the spaces in the dwelling, creating a diagram that is relatively "shallow". By comparison, the first space in the American flat is the living room which you must pass through to reach the bedrooms. Thus the American flat has a "deeper" structure than the Dutch.

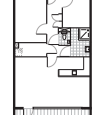
A second distinction is in the arrangement of the hygiene spaces. The Dutch separate the WC (or half bath) from the bathing and laundry spaces, considered a more sanitary arrangement. The American plan provides two complete bathrooms and a separate laundry space.

In both countries, there is a tendency to merge living rooms, dining rooms, and kitchens into a single, large, articulated space.

Typical American Flat



Typical Dutch Flat



1:250

Dutch and American Housing Projects

One reason that Dutch housing is different from that in the United is that housing practices and regulations are based on different assumptions.

- More windows and other openings are required to meet the Dutch standard for light and air, resulting in buildings with a narrow footprint.
- Fire regulations in the Netherlands are based on preventing smoke inhalation, rather than preventing combustion as in the United States, double-headed corridors that are not allowed to prevent access to respond.
- Dutch dwellings are about 20% smaller than comparable units in the United States.
- Dutch housing projects mix income levels in a complex.
- Dutch housing corporations create long-term value in housing due to the Housing Act of 1901 mandate to implement housing policy with self-built affordable rental housing.

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2.8

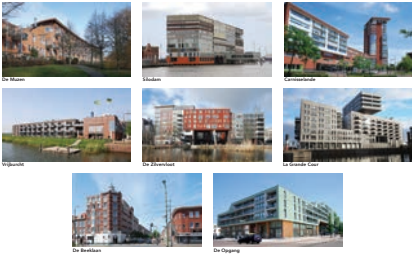
Complex Housing

Complex Housing

A key reason for the interest in complex housing is that it achieves density within a different framework than typical dense housing in the United States and elsewhere. Complex housing is dense without large high-rise buildings, without uniform and monotonous facades. It includes building functions other than housing and a mix of incomes and lifestyles. A complex housing project typically incorporates:

- Units both for rental and for purchase
- Units for low, moderate and high-income residents
- Three or more types of dwelling units (e.g. row houses, manservant, live-work unit, group home, flat, penthouse)
- Diverse organizational strategies (yards, parking, various types of access, use of courtyards, etc.)
- Significant urban interventions
- Highly preferential and diverse but sometimes including a higher section of no more than 1-2 stories
- Outstanding architectural designs

While complex housing is found in the Netherlands mostly in the densely populated Western Randstad area and in other Northern European countries such as Denmark, it is rare elsewhere.



Selecting the Eight Case Studies

The chosen cases represent a mix of architectural styles and organizational strategies, including both urban and suburban locations. Each had to meet most of the following criteria:

- Are over 70 units per hectare (28 units per acre)
- Are built between 1980 and 2010
- Are in the Randstad area
- Have a mix of size (52 to 253 units)
- Have units both for purchase and rental
- Incorporate social or low-income housing as well as moderate income and upper income housing
- Have commercial, civic or recreational functions

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2.9

Typological Analysis - I

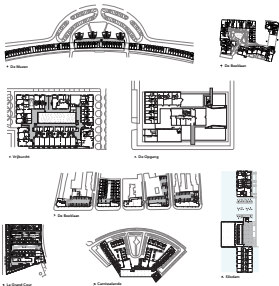
Typology

Typology, or classification by type, is the primary methodology used in this investigation to analyze the eight case studies and to develop design principles for complex housing. A strong reason for selecting typological methodology in this project is that many Dutch architects consciously employ typology as a design strategy.

You have basic principles that have to do with typology. ... So there are a lot of experimental things especially in this kind of UNEX area. ... For this last extension [Jillburg], first of all we want to make it like the city in terms of density and also the typology of urbanism and architecture.

- Jelle van Dongen, architect

Ground Floor Plans



Derived from linguistic analysis of language, typological analysis is based on the principle that categorizing and naming things is fundamental to thinking. In architecture, typology breaks a design into constituent elements. For example, in the 18th and 19th century Jane Newton-Smith Charnock classified buildings by use (e.g. temples, basilicas, forums) and elements (e.g. vestibules, columns). His drew connections and contrasts by placing his drawings (typical plans and elevations) of the same category or element side by side. Although not all of these who use typology as a tool for analysis would use it as a tool for design. Charnock and others saw the approach as a way to innovate by creating new elements and arranging known elements in new ways.

Typology was extensively employed to study architecture and urban design during the 1970s and 1980s. It has been applied more recently by Janine Krier, Steven Hall, and others to urban form and dense housing. Since the 1980s, space syntax analysis has enhanced typological methodology with analytic diagrams and mathematical analysis of relationships between spaces in environments.

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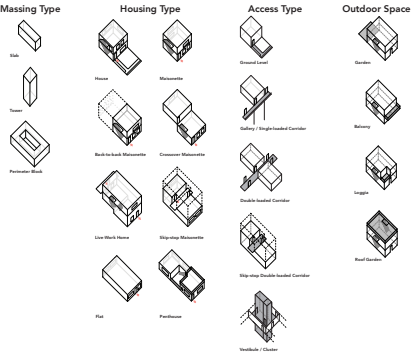
2.10

Typological Analysis - II

Building & Unit Type

While a large number of elements of housing were analyzed for this study, here we focus on a few to understand typological analysis.

Although a great emphasis of this study is on housing types, it is important to acknowledge that within a given housing type, there is an almost infinite variety of unit types that respond to orientation, size, access to outdoor space, room arrangement, fenestration (arrangement of windows and doors, etc.). Most dense housing in the United States typically includes one housing type and as few as one or two unit types. In the Dutch design process, typically the urban designer (hired by the municipality or the developer) determines the set of housing types within a given block (allows open to negotiation), and the architects design the unit types to fit. Given an identical set of housing types, each architect will likely create very different unit types.



In this analysis, housing type is defined both by form and by program. In terms of form, housing types are categorized by their arrangement (one story flat or multiple story townhouse or manservant) and by their type of access (direct access from the ground level or corridor, vestibule, cluster, or gallery access). In terms of program, they are defined by their use or by the type of resident they serve (gentlemen, light work housing, live-work and similar units, group home, assisted living, or group flat). To study on the form of the housing type, we first examine all of the units in terms of the number of levels and their access. To understand the diversity of purpose in terms of housing type, we add the special case. Finally, we examine the outdoor spaces for the variety of ways they are employed.

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2.11

Typological Analysis - III

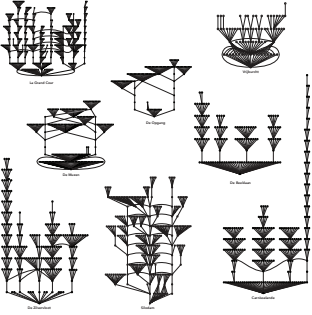
Space Syntax Analysis

When studying buildings with complex arrangements, floor plans can be difficult to understand. Among the variety of techniques that have been used to abstract elements of plans, space syntax gamma analysis stands out as a powerful tool for studying the way spaces are structured. By focusing attention on the links between spaces rather than space size and shape or the character of the separating elements or openings, gamma analysis reveals one view of the organizational structure of a building.

Space syntax is a broad category of diagram-based analysis that derives from linguistics as applied to the study of urban patterns and architecture. Of the many types of space syntax diagrams (e.g. axial maps, interface maps) in this study, we employ gamma analysis diagrams - also called convex space analysis - to reveal important attributes of the various spatial arrangements.

There are no fixed conventions for creating gamma analysis diagrams. For consistency in this study, we take a visitor's perspective toward the housing and do not include the diagrams of the challenges themselves. Each diagram reflects the visitor's potential journey to every dwelling, beginning from the street. Each space is represented by one dot. The links between spaces are represented as lines. Our diagrams begin at the bottom and, as each space is linked to another, create a new layer in the diagram. Dots in a line generally represent circulation spaces. Dots in a fan shape represent a group of spaces controlled by another space, typically a street, courtyard, or corridor.

Space Syntax Gamma Diagrams



Although each building has a unique space syntax gamma diagram, there are shared patterns. For instance, all of the diagrams, except Shilohs have large fans at the bottom that represent the many spaces that are directly connected to the exterior, whether commercial or residential. Examination of the eight projects reveals three basic organizations:

1. Relatively independent vertical circulation systems with repetitive fans along individual threads
2. Two primary, interconnected threads high in the system with repetitive fans across threads
3. Many interconnected threads, with idiosyncratic fans

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2.12

Case Studies



De Muzen

Site | Context | Building Functions

De Muzen is located in Almere, a public city near Amsterdam. The land that forms Almere was drained from the Zuiderzee (North Sea) in the late 1930s, with the first housing project built in 1938. Today it has a population of almost 200,000. De Muzen is located in the Muzenwijk neighborhood.

De Muzen is a long housing block with 167 units that frames the Muzenpark at the center of the neighborhood. Also all the surrounding housing was built, this last project was a competition, won by Huisler Pien. Its landmark visibility gave it a high priority for the city and the developer, Gemeente Sted Almere (now De Alliantie Provincie), wanted to complete as proposed.

...If you are the builder, it is quite a statement to make such a social housing project. And if you win a competition, the municipality can say what it wants, but you are in a very strong position. That is a good way to start a project.

— David Wollebink, developer


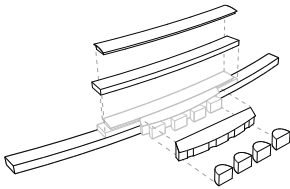


Housing Typology | Unit Typology

Row houses - Located at the ground level, these each have two or three bedrooms. Several have two-story space in the living room as shown here. The living areas are uniformly on the ground floor with bedrooms above.

Galley Flats - With living rooms and balconies that face east toward the park, these two-story units house the entry and living area in one bay, and the bedrooms and bathrooms in the other.

Tulip Flats - Entrances are on the top level gallery that bridges the atrium or front stairs in the atrium. The flats reflect the tulip shape with curved kitchens and living room walls. The entry hall provides access to some spaces; the kitchen and master bedrooms are reached from the living room.



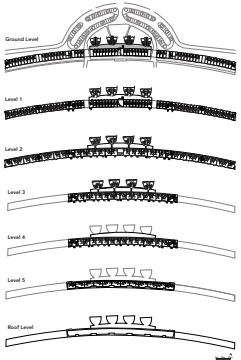
Organization | Appearance | Form | Massing

At 340 meters with a density of 80 units per hectare (30 units per acre), De Muzen is an unusually long, slightly curved, salmon-colored housing block, reminiscent of the housing at Rath, England. The complex has two connecting sides. The stepped down east facade facing the park is composed of two-story row houses at the base, with galley flats above, and crowned with penthouses at the middle. The double-curved form from the road side and the setback at the park side emphasizes the horizontal crown. Developed as housing for the elderly to include rental social housing, most of its dwellings ended up sold on the open market.

The west side consists of four tulip-shaped clusters of flats and maisonettes that with the east side, sandwich the interior garden courtyard enclosed by galleries. The galleries house vertical circulation and shared facilities including a two-story meeting space.

Every dwelling at De Muzen has an outdoor space; the row houses have gardens or decks, the flats, maisonettes, and penthouses have balconies.

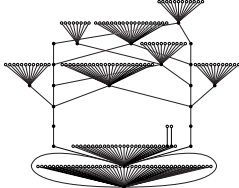
De Muzen



Syntactical Structure

De Muzen's syntactical structure shows two interconnected threads, corresponding to two elevator cores that access the galleries. The lines represent units that share a gallery. The two exterior faces show the flats over row houses on the low wings. The remaining lines denote the gallery dwellings made by the other core. The largest lot has twenty-four dwellings, resulting in no more than twelve units per elevator core on each level, a number that works well for social structure.

The row of white dots at the bottom of the diagram represents row houses that enter from the street, and the next layer of white dots represents row houses that enter from the courtyard. Overall, the project is highly connected internally because the elevator cores (labeled in each) enter through the galleries. It is also highly externally connected as many of the row houses enter from the street and there are three entrances to the atrium.





Lessons | Conclusions

As an urban landmark, De Muzen plays an important role in the city according to author Jaap van der Lams.

De Muzen...due to its distinctive character, its distinctive allure... gives the surrounding area an identity. People refer to it often to explain where they live. "Just behind De Muzen, for example."

De Muzen illustrates the impact of a project so well designed that it inspired the city, the developer, and the architect to build in the best way possible. The care and diligence of the developer and city to support proper construction around the practical success of the project as well as its architectural success.



Social Principals

Having an interior atrium in a project for the elderly not only provides a walking space with plants in the winter, but also engenders a strong identity and social center for the project. Social connection is reinforced by the visibility of the galleries. A diversity of lifestyles is supported with the combination of row houses, flats, and penthouses. The original design also effectively accommodates a wide range of abilities.

We wanted the elderly people to live in the wings at first and then move to the center where there is more care.

— Hessel de Boer, architect

De Muzen

Silodam

Site | Context | Building Functions

Completed in 2003 and designed to look like a container ship, Silodam was the first new housing project built in the West Oudkade area of Amsterdam, an area near the train station that was historically a warehouse and shipping area. As a part of the changes to the city since the development of container ships, the Westkade was transformed into a major housing district that subsequently included the nearby La Grande Cade project.

Although the subsequent projects built in this part of the city were required to meet a 200-300 unit per hectare density, Silodam's density is double that, at 600 dwelling units per hectare (240 units per acre). The architectural firm MVRDV, known for its experimental approach to design, approached this building as a laboratory for the development of different housing and unit types.

What we built was a modern warehouse to store people.
- Frans de Witte, architect

We also wanted to create a routing inside the building that everybody would use with a viewing point on the eighth level. If you have people over (to visit), you go through the building to this public point.
- Frans de Witte, Architect

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Housing Typology | Unit Typology

MVRDV designed seventeen different housing types for Silodam. They are organized as neighborhoods and each type is recognizable on the exterior by a distinct facade design. They are arranged internally as a cluster of units with various access designs. Three of the dwelling types are presented here.

Gallery Flat - The gallery apartment was designed for a cooperative of senior residents who wanted to live together. The photograph only, designed for a particular resident, was allowed to create an open-plan layout without a lobby.

Concrete Mainframe - One of twenty-one cross-over mainframes, is entered from a double-headed corridor. Its workable, long dining kitchen and WC are on one level and two bedrooms, bath and lounge are on the floor above.

Atticum or Dock Flat - The entire top floor consists of sixteen atticum or dock flats. Except for the four corner dwellings, the atticum and windows are oriented only in one direction, east or west. However, in the center or at the side of each is either an atticum that opens onto the living room, or a stair to a deck on the roof level.

Organization | Appearance | Form | Massing

Set in the 8.5-acre Silodam's environment is a container ship is derived from four sections of layered unit types, each type with its own architectural expression, and all connected to a central circulation system accessible through three entrance cores. The four decks are visible along the length of the building, and the different unit types are uniquely colored, laminated so that they will be recognizable. In many dwellings, porches, working with the architects could arrange the spaces as they wished.

Some people put the kitchen there, some people the living room, there.
- Frans de Witte, architect

We thought it was really important that you could say 'I live there' in the orange houses.
- Frans de Witte, architect

In the beginning, there were many more housing types. In order to get the building built and houses sold we cut it down to a smaller number.
- Eric Anney, developer

MVRDV brought different house types together within the Silodam block: families, older people, people with many different hobbies, attitudes and lifestyles. And they're all united in one building.
- Nathalie de Vries, architect

Silodam

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Syntactical Structure

The space syntax gamma diagram shows that the interior circulation system of Silodam is deep, varied, highly organized around three elevator cores, and highly connected internally, while relatively closed to the exterior. This is due in large part to the single entrance for almost the entire building. The only non-connected areas are the two first floor dwellings with entrances from the quay (gate), and the business spaces with entrances directly through the lobby.

Silodam

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Lessons | Conclusions

[Silodam was designed to have] one entrance, everything connected to each other. It's one community.
- Eric Anney, developer

There were some leftover spaces, and because of the routing they use it. There was a leftover space they turned into a library, another became a small meeting space. These are places for everybody to use. The client actually saw the [great] potential of it... [and] afterwards... donated the binoculars for the viewing point on the 8th level.
- Eric Anney, developer

One lesson from this experimental project is the degree to which site choice can be a determining factor for success. When a site is ideal, near the city center, on the river with views in every direction, and available at a low cost, the project is very likely to succeed even when the neighborhood is not yet developed.

At the time of its construction, however, Silodam's success was not assured. The developer Eric Anney pointed out that as the initial project in a formerly industrial area, Silodam's success was important to the city, so the first price was moderate. The two project developers, de Witte and Rijkman, intended 50% in the project. Because the developers might be left with empty residences on their hands, the decision to make a great variety of dwellings was risky. However, due to the Silodam's success both the architects and developers were vindicated.


Social Principals

The project was designed for a mix of people with various economic needs, including social, middle income, and luxury housing. The circulation system, or routing, organizes the building as a set of neighborhoods all connected into one large community with a single point of access to the three elevators. All residents have access to the entire building, and to a number of shared spaces. Some community spaces were planned by the architect, but other un-designed areas were adapted by the residents to become a book library, a toy library, a wood area, and a meeting space. When Robinson visited the project in 2012, nine years after it was built, these small spaces were still actively used, indicating the success of the architect's design for community.

The market says people are very different. That story was true. Of course it's true! It's a beautiful spot and everybody wants to live there. Every house was sold. The proof is in the pudding. You don't need to build just these mainstream houses.
- Eric Anney, developer

Silodam

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Carnisselände


Site | Context | Building Functions

Carnisselände on the Middelburgplein, the central square of Rotterdam, is a landmark for the new part of the town. When Rotterdam was designated as an area for suburban development by the city of Rotterdam, the residents chose to have the new development separate from their traditional town center. The mayor of Rotterdam's announced having a church tower to mark the new suburban central square; however no church was interested in locating there. Undeterred, the mayor decided to build a clock tower composed of housing. Thus the central place of Rotterdam is surrounded by shopping mall, police and fire stations, and housing projects - includes Carnisselände's tower.

Carnisselände houses the full range of incomes at a density of 190 dwellings per hectare (80 units per acre). Most of the residents are from Rotterdam. They came to Rotterdam, a twenty-minute train ride to the center of Rotterdam, for its easy access to the surrounding countryside, a lively public area with fairs and many bicycle paths. The project fronts the town square with commercial spaces on the ground floor and flats above, including those in the eighteen-level housing tower.

If people get older and they cannot drive a car any more they can still live here, so it is very convenient for older people. But also for the youngsters because by bike you can go anywhere from here... alongside the river is nature, and also biking roads through this nature area. So you can bike here for hours.

- Gerard Oude de Linden, resident



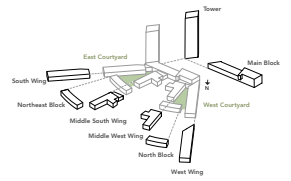
Housing Typology | Unit Typology

Carnisselände consists of five housing types: flats, rowhouses, townhouses, low-work units and group homes) with seven unit types. The complex is highly organized into tower, blocks, and wings, each associated with one or at most two income levels and particular housing and unit types.

Typical Flat - These two-bedroom galleries access flats serve as both social housing and middle income housing in the two main blocks, and comprise about half of the complex units. As in a typical Dutch house, all rooms open into the entry hall, but especially, there is no balcony.

Rowhouse - The three-story three-bedrooms rowhouses are near the courtyards. Their main living space is on the ground floor with bedrooms and bath above. A back garden is reached from the living room.

Tower Luxury Flat - The five three-bedroom luxury flats in the tower each comprise one floor. The large living room takes up one side of the unit and opens onto a large terrace.



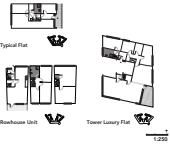
Organization | Appearance | Form | Massing

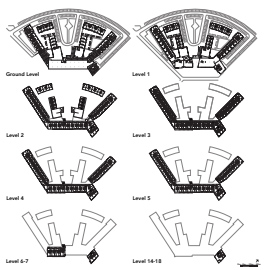
The rectangular building facade and back tower are divided into streets of orange bricks and white concrete and panel accents. The tower at the south corner, paid for by the housing corporation developer, was carefully designed to create a sculptural form to also accommodate middle income townhouses and luxury flats.

A path from the square to the blocks of housing beyond passes under the main facade. Bordering the gardens are a clinic on one side and a library on the other. The back of Carnisselände, one level below the plaza, has four wings that surround two courtyards, one on each side, and in the middle, the path from the plaza. The taller tower wings have row housing on the ground level and flats above. The lower wings incorporate groups of row houses, low-work units, and a group home. Parking is primarily on-grade at the back, with some parking beneath the building.

Instead of spreading things, we concentrated things, making all the things in the building very close to each other. In fact, the inner court is the essential of the plan. Within a few meters, you have a one-family house next to a 4-story apartment block - partly urban partly rural and then next to a seven-story and then to a twenty-story building.

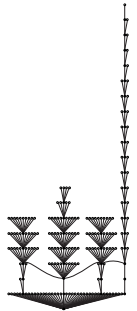
- Rudi Steinhuis, architect





Syntactical Structure



Carnisselände's genome diagram shows a well organized, and straightforward structure. At the base of the diagram, the site of site based on the exterior representing the relatively large number of rowhouses, townhouses, and row functions that enter directly from the street. The four blocks that represent the three major blocks and tower that the tower. The connecting lines indicate a connection at level 2 that allows the units to reach the common garden spaces in the courtyards, and serves as fire egress.



Lessons | Conclusions

The first lesson is the value of having almost identical designs for tower and middle-income flats. When the developer was required to sell mixed units originally planned for social and middle-income housing, having similar designs contributed to the marketability of the units. Notably urban design also allows low and middle-income people to live side-by-side with no one being able to identify a person's income from the unit design.

The second lesson is about the building's appearance, which shows great attention to aesthetics and details. Combining brick material with white concrete highlighting the openings and masses effectively reduces the scale and increases the visual interest of the structure. These materials, combined with proportions of the tower and blocks, create a project that is understated, elegant, and highly visible as a city landmark that is correct.



Vrijburcht

Site | Context | Building Functions

Built in 2006-07 on an island specifically created for housing, Vrijburcht comprises 32 dwellings, workshops, and community services. The architect Henk de Haan worked closely with the housing association (Stichting Vrijburcht), to develop a site in Burg on Singelrand, which was created from sand from the IJsselmeer and the East Central Amsterdam. Singelrand is long, thin shape affecting dwelling permeability both to the water and to a central boulevard, providing residents a fifteen-minute ride to Amsterdam Central Station in fifteen minutes. Similar to other housing in Burg, Vrijburcht is developed as a large block, although it has a much greater variety of housing types and slightly higher density at 70 units per hectare (18 units per acre) than typical.

Prospective residents developed Vrijburcht as a cooperative housing project to serve varied age groups, income levels, life styles, and abilities, as well as employment types, and community activities. Its low-work units and on-site organizations provide employment for approximately 45 people in creative and service positions. Intended to be a social hub for the surrounding neighborhood as well as for its own residents, Vrijburcht incorporates a children's facility, a group home for young adults, a cafe, a theater, a swimming dock, and a dock for small boats.

We started at the kitchen table. That is rather special... very significant for the atmosphere... We started dreaming about living together with a number of friends - working and living together, sharing. We did it all together.
- Annelie Seeger, resident





Housing Typology | Unit Typology

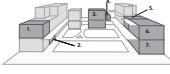





The variety of dwellings supports a range of resident. Some examples follow:

Live-Work Units - A change of level demonstrates the workplace, entered from the street, from the living area. The dwelling entrance to the living/dining level is from the main dock, 1-1/2 levels above. The bedrooms and bathrooms are located at the courtyard level.

Group Home - Designed to support young adults with schizophrenia, the group home provides such residents with higher room bedrooms and individual dwellings.



Lightwell Flat - The living/dining/kitchen areas of the lightwell units face the water, and the bedrooms face either the courtyard or the lightwell in the middle of the unit, where the entry stair is located.

Henk de Haan, the architect made a kind of model, a very simple one. And he discussed the apartment with everyone who wanted to have one. Looking? "What do you want?" ... Nearly every apartment is a little different ... because of these discussions.
- Annelie Seeger, housing resident

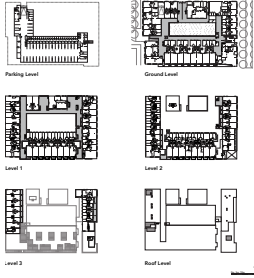
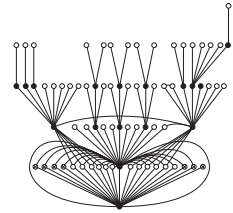
Organization | Appearance | Form | Massing

An urban block with permeable housing, Vrijburcht is one town's communal courtyard. Two layers of live-work units and manurettes form the sides of the project (SE & NW). The main street side includes live-work units, bicycle parking, the children's facility, and community spaces above. The courtyard, side streets of live-work buildings that face the street as well as cafe and the theater/Velo parking, provided underground, with access from the street at the northeast corner. In order only a part of the project to allow time in the courtyard. A green building, Vrijburcht includes treatment of the surface water for re-use on the site, solar panels on the roof, and shelters for birds in the building wall.



Syntactical Structure

Despite its small size, Vrijburcht exhibits a highly complex syntactical structure. It is connected both internally and externally, with a relatively shallow syntactical structure. The complexity is due to the variety of circulation spaces in the project block sites on the diagram. While many units enter directly from the street (the dock) at the bottom of the diagram, others are reached from various access docks, or indirectly through stairs from the courtyard or dock levels connecting dock sites.

Lessons | Conclusions

Vrijburcht demonstrates the development of a successful cooperative community using former residents' capital investment in support of a housing cooperative for shared use of housing that is more than rental. That investment, however, was not inevitable. The project's success lies in the investment of time and expertise provided by the organizing group and in particular the accumulated experience of the architect Henk de Haan, as well as Dutch institutional structures that support cooperative housing. The city of Amsterdam offered the Singelrand site for cooperation. The housing cooperative De Key founded the community group. The Amsterdam Middle Support Mortgage (AMM) provided the financing for the low to moderate income housing in the project to Stichting Vrijburcht.

Social Principals

Vrijburcht has a great diversity of housing types and other spaces because of the commitment of the housing group to having a cooperative with a varied age group, income level, a range of life style and ability, as well as work and community activities.

The design around a central courtyard, though which all residents must pass to reach their dwelling, supports the social connections between residents. In many community functions connect the project to its neighborhood.

Lessons | Conclusions

Compared with individual housing projects, the aim of the collective projects always extends beyond the scope of housing. It addresses the way people live and how to get projects realized.

Henk de Haan, architect (in Q&A Handbook, Making Room for People, p147)



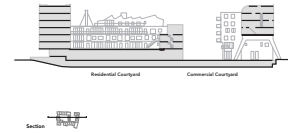



De Zilvervloed

Site | Context | Building Functions

De Zilvervloed is a medium-density project with 120 units per hectare (40 units per acre), located in the Wijkbuurt neighborhood of Dordrecht. The 2-acre Wijkbuurt neighborhood was built in the 1960s by the housing corporation Wijkbouw, an entirely social housing, a practice typical of the time. By the 1980s, the exclusively low-income quarter had become dangerous and disintegrated with many vacant units. To radically change the neighborhood's image, Wijkbouw and the residents selected Architect of Architecture, a firm of international architects to redesign the neighborhood with strong participatory. The redesign included the Administration, an open area in the middle of Wijkbuurt, into a new plaza and square for De Zilvervloed. The new project included needed commercial space with a supermarket on grade, parking below, and mixed-income housing above.

De Zilvervloed is notable because it was developed to regenerate a neighborhood, and architecturally is one of the few projects in this study that intentionally express complexity in its design. Its 130 dwelling design celebrates diversity in the design of units, its architectural expression through inclusion of many colors and materials, and in the mix of residents. Residents of luxury flats may share elevators with residents of social housing, an unusual egalitarian approach. Easy transformation of unit interiors is facilitated by the use of Open Building construction. The complex also generated a lively commercial center for the formerly exclusively residential area.



Organization | Appearance | Form | Massing

The project is organized around two courtyards surrounded by housing. Each of the nine separate, but related, buildings that form the urban block and the two courtyards has a different mix of dwelling types and a different entry gallery movement, outside access, double-loaded corridor. Six residential buildings, located near the grocery stores to the west, frame the residential courtyard, accessible to all units, but not to the public. At the east of the site, adjacent to the Administration and joined to it through a housing bridge, lies the commercial courtyard serving two grocery stores and a restaurant. The remaining smaller retailers are located along the street to the north. The new buildings share fire entrances and elevator cores.

De Zilvervloed

Housing Typology | Unit Typology

De Zilvervloed has more than 39 unit types with a great deal of individual variation, following architect, Lucien Kroll's philosophy that as much as possible, all units should be unique. Here we describe three.

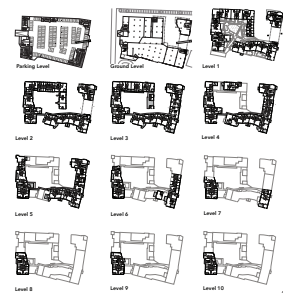
South-facing Flat - Most of the south-facing flats are social housing. Most are two-bedroom apartments with various south-facing balconies accessed from the living room through glass doors.

Slip-Step Mainwater - These eight moderate-income units have three entry bridges to the commercial courtyard. Half of these are two-bedroom dwellings that enter at level two and go down one level as shown. The others enter from the same double-loaded corridor, but go up three levels.

Penthouse - Each penthouse design is unique to its situation in the project. The 4-bedroom penthouse shown here has roof access on all sides with a wonderful view over Dordrecht.



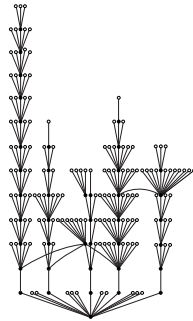
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De Zilvervloed

Syntactical Structure

Although the appearance of De Zilvervloed looks complicated from the outside, the syntactical structure of De Zilvervloed is very straightforward since it only has two points of access from the street and two circulation fronts. Despite the fact that the project is conceived as nine buildings, complexity is reduced through shared entrances. The various diagrams also show that the building is relatively permeable to the interior, but impermeable from the exterior.



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So nearly 100 units were to be totally different, and the other forty followed three variants... Honestly, for different families, I feel the architect has no right to impose identical models; it is a crime committed against the expression of a "non-military" society... A rule for me is that no apartment shall be identical to any other.

Lucien Kroll, architect (A+U 6/429, 2006), 84-85



The commercial courtyard with the red structure to the left and the building to the right.

Social Principals

The many different kinds and sizes of units within the complex discussed above were designed to attract and maintain a variety of families and income levels. None of the buildings has exclusively social housing. Six of the nine buildings have all three-income levels. The remaining three buildings contain either luxury and social dwellings, or moderate-income and luxury units.

Perhaps one reason the mix works is that the design of the entries and access corridors supports the natural and informal surveillance of neighbors and visitors. The number of households entering from the street at any given elevator access point and road reception area is generally limited to less than twenty-five, an ideal size for maintaining a community without requiring specified security.

De Zilvervloed

Lessons | Conclusions


De Zilvervloed shows how participatory design supports positive urban transformation. Today, the neighborhood that had been comprised only of social housing has a mix of incomes, commercial services that are viable, and dwelling units that are fully occupied with gardens, terraces, and lighters permeated by the children. The market-oriented dwellings were completely sold and made a great profit for the developer. The introduction of commercial activity activates the whole block.

An important contributing factor to the success of De Zilvervloed is the careful and continuing oversight of the housing corporation. Because the rental income makes the project financially viable, the corporation has an interest in ongoing success and maintenance. To have thriving neighborhood and successful housing, designers, planners and developers must engage with the community and be motivated to make long-term investment rather than take short-term profits.



The commercial courtyard with the red structure to the left and the building to the right, and the main building.

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La Grande Cour

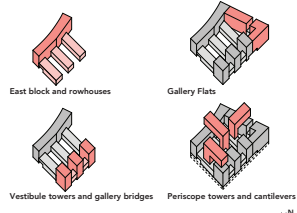
Site | Context | Building Functions

La Grande Cour was a central part of Amsterdam's urban development plan for the Westendijk or West Docklands. Close proximity to the train station and location on the harbor with views of the IJ River made the Westendijk a prime location for this development. Arranged around three courtyards, La Grande Cour was designed by three different architects: MVRDV Architects, formerly MVRDV House and Van Schooten Architects, de Architekten Cie, and Hoesen 1 Architects. The project comprises 250 dwellings at a density of 330 units per hectare (140 units per acre), including the 10% of social housing required by the urban plan. In addition to housing, the project incorporates commercial space at grade, and below-grade parking.

[The housing at La Grande Cour] is extremely mixed, not only in types, but also in categories: social housing, mid categories, higher end, and also for the free market, ... and that makes this project more interesting.

- Jansen van Schooten, architect





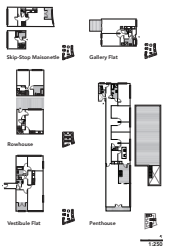
Housing Typology | Unit Typology

La Grande Cour has five basic housing types: 1) row houses, 2) back-to-back row houses, 3) skip-step minirowhouses, 4) cluster apartments, and 5) penthouses. It has approximately 39 unit types, developed based upon access and orientation. There are three:

Back-to-back row house - The 10 back-to-back social housing row houses are entered from the courtyard, with entrance space adjacent to the entrance. These two-bedroom dwellings are entered either north or south, with corridor, WC, and living areas on the ground floor and bedrooms, laundry, and full bath on the first floor.

Skip-step Minirowhouse - The skip-step minirowhouses are in the linear building, with entries from a double-headed corridor, and continue up or down one floor. Corridor, bedrooms, and full bath are on the entry level. The next level has the living space and leads to the next overlooking the river and a second bathroom facing west.

Vestibule Flats - The vestibule flats shown represent eight western units in the two northern vestibule towers. A corridor connects the large living-dining-kitchen areas, three bedrooms, WC, and full bath. The outdoor space is a loggia, entered from one of the bedrooms. Windows are on three sides.




Organization | Appearance | Form | Massing

The startling penthouse projections of La Grande Cour that make it a signature building are primarily the result of an error in calculation. The original design called for three courtyards surrounded by eight stories of housing. However, initial plans revealed that the proposed scheme was 10 units short of the 250 units required by the city. To make up the difference and avoid shading the adjacent streets, the city agreed to allow the architects to insert three 4-story penthouse towers at levels 10-12 that dramatically cantilever over the other units.

The east side of the project consists of a long linear slab of three interconnected, eight-story buildings, flanked by vestibule towers on each end. Row houses line the courtyard. Towers of vestibule flats along the west side support suspended gallery access flats to create gateways into the courtyard. Gallery flats also frame the southeast corner and the south side. Finally, the three penthouse buildings are inserted into the middle of the courtyard.

La Grande Cour





Syntactical Structure

The gamma diagram for La Grande Cour is unique because of its large number of threads or circulation paths and the small number of units in large fan-shaped circulation patterns. These unusual paths are due to the limited number of units on most levels of the penthouse buildings and because the courtyards are segmented for existing.

The varying character of the threads in the space syntax diagram reveals the complexity of La Grande Cour. Despite the complexity, the building is organized into clear threads. With nine elevations, the circulation has an average of 20 units per elevation. This average is very close to the distribution of elevations in the low density buildings and contrasts greatly with Sluiter, the other highly dense complex, whose ratio is 5.1 dwellings per elevation. Like Sluiter, La Grande Cour is highly connected internally. Unlike Sluiter, La Grande Cour is highly connected externally as well, with courtyards and many street-level commercial spaces.





Lessons | Conclusions

Perhaps the most important lesson from La Grande Cour is the benefit gained by cooperation between planners and architects when facing a challenge. In this case, addressing the Amsterdam's criteria for limiting building height while maintaining the density of the project. By working together, city and developer reached a solution that created an iconic design.

Finally, it is a testament to the city planning that such density and mix of incomes was developed on such a prominent site. The experiment with population mix was reinforced by this highly desirable site, with its convenient location in the third district and views on the water. The developer understood, La Grande Cour, a highly visible project, with full awareness that this would become a national landmark. The willingness to invest in the project created a successful experiment.



De Beeklaan

Site | Context | Building Functions

Located in The Hague, and completed in 2007, De Beeklaan is designed by SCAAL Architects and developed by Bouwfonds Housing Development (BDF). The project represents a traditional design as a *stone urbanism* approach, and is named for the street it fronts in the Regentenkwartier neighborhood, one identified as needing a radical intervention. The contrasting presence of crime in the area drove the decision of the city, the police, and the neighbors to demolish substantial portions of a five-block area and start fresh.

With a density of 200 units per hectare (80 units per acre), the project follows the principle of housing as urban fabric by being embedded in four existing small blocks in The Hague. The design fits the existing pattern with rowhouses on the side streets designed for purchase and shops with flats above on the commercial street/gallery flats to the north. Parking is provided in the courtyards. A tower on the southeast end signals De Beeklaan's status as a landmark and entry to the neighborhood.

The city awarded design of the Beeklaan site to BDF, which was planning to work with a different architect. But the neighborhood group, cherishing the 19th century style of the remaining buildings, convinced both the city and BDF to work with SCAAL. De Beeklaan, the first urban project developed by BDF, was conceived just prior to the recession and built as the recession developed. In the end, BDF considered the project was a success even though it lost money on it.

We have succeeded because it is ... a very beautiful place architecturally. ... We hoped that this would generate improvement in the overall neighborhood, but it hasn't yet. That this project was actually built is a gift to the city and to the neighborhood. ... Mike van Boven for SCAAL did a great job.
- Willem Mui, developer

Housing Typology | Unit Typology

Although largely social housing (56%), the project also includes middle and upper income units.

Gallery Flat - The gallery flat is the most common unit in the project. Variations on this design serve both as social housing and middle-income rental units. The two-bedroom dwelling has a bedroom and living room facing Beeklaan, with another bedroom and kitchen on the gallery side. The Southeast-facing gallery has extra width to accommodate outdoor living along the gallery.

Rowhouse - The rowhouse row houses on Block V enter to a street-level corridor with WC, and two ground floor rooms, and parking at the rear. The level one living area, dining area and kitchen form one large space that opens onto a deck over the parking. Level two has two bedrooms and a full bath, with the top level consisting of a bedroom, laundry and roof deck.

Penthouse - The upper income penthouse unit at the top of the tower building has a very large living room beneath the tower, reflecting its round shape and extra height. It is open to the dining area and kitchen with access to a roof deck. An enclosed corridor connects the living room to three bedrooms and full bath.

Organization | Appearance | Form | Massing

In the 19th century architectural context, the De Beeklaan project is brick and concrete, and includes important details such as corner brick patterns along the facade, low windows, Juliet balconies, and white stucco at the base to delineate the commercial space.

The project is composed of five blocks along the street called Beeklaan. Block I includes middle and upper income flats above the commercial space. Block II contains gallery housing along Beeklaan with twelve row houses along two side streets. The flats on Blocks III and IV form a three-story bridge over an existing street. These serve as a *Compartment Door Outdoors* (CDO) - a community for people over age 50 who live independently. Block V incorporates three levels of gallery-acrossed rental flats and row house houses on the side street. For structural and economic reasons, all the parking is on grade, located in courtyards underneath and behind the buildings.

De Beeklaan

Syntactical Structure

De Beeklaan's general analysis diagram (layout) is very direct and simple. Each block has its own independent identity with commercial and row houses at the lowest level directly from the street, and flats along corridors above the ground level. Some blocks have more exits, others have fewer. The Block V row houses are in a separate thread from their associated flats as they are on a different street.

Lessons | Conclusions

De Beeklaan shows that a traditional approach can not only effectively complement complex housing principles, but some principles, like mixing housing with other functions are implicit in a traditional approach. In fact, according to the developer, having a traditional design contributed to the project's success. Furthermore, the residents wanted the traditional design.

Perhaps the most important lesson from De Beeklaan is the necessity of having a developer who is committed to making the project work, and the advantage of working with a large development company. The recession made it especially difficult to build at a reasonable cost, to sell the units. Nevertheless, the developer was motivated to see the project through, had enough economic power to do so, and was happy with the result.

Social Principals

De Beeklaan was a neighborhood rehabilitation effort involving local residents. As the neighborhood had a large proportion of elderly, Blocks III and IV formed a CDO - a community for people over 50 living independently. There was also a desire for a more mix in income, so row housing was designed for purchase, providing more stability to the neighborhood, and a number of the rental flats were designed for middle and upper income residents. Nevertheless, more than half of the dwelling are social housing, including those on the CDO. Each block houses no more than two different income levels.

The design supports socialization. The limited number of flats on each gallery assures that neighbors will recognize each other, with the extra-wide size providing space for outdoor activities and social interaction. The use of row houses along the side streets create activity on the street and a great potential for neighborhoods, as was observed in adjacent buildings when visiting the site.

De Beeklaan

De Opgang

Site | Context | Building Functions

Located in the neighborhood of Amsterdam Nieuw-West (formerly Oudorp), De Opgang (The Ascension) is comprised of eighty dwellings, a church, a children's center, community meeting space, and a parking garage. The housing density is 240 units per hectare (100 units per acre). With a canal and proximity to the west end and a large thoroughfare with tram stop as well as a park to the north, the project is centrally located with access to plenty of green space.

In 2005, Amsterdam's city alderman Simon Willems approached private developer Henk Jan Hollander to ask: "Could the last active church in the district be maintained?" The large church building was very expensive to maintain. Hollander proposed using the site of housing on the church site to support a minister's valley as well as the maintenance of the church and its activities. Supporting the developer, the congregation selected contemporary style firm K&P Architects & Planners to develop design options. In the end, the congregation chose to build a new church with housing above, and entry and named glass windows visible from the street.

We came up with a simple idea. The idea of a pearl in the oyster shell. The pearl in the middle is the church. On the outside it is quite rough. Make a world of wood like a big roof. The church is small, but the housing on top makes a shelter to define the entrance area.


- Henk Jan Hollander, Architect





Housing Typology | Unit Typology

To attract younger singles and couples, the developer created eighty dwellings with a variety of floor schemes. All units were designed to be sold and the building was to have cooperative governance. Each dwelling design responds to a particular orientation. Shown here are four householder units. The row houses have their outdoor space on the ground level at the front door. All the flats have a large balcony that opens from an open living space with windows on two sides. The flat closer to the front entrance of the smaller householder, which in the case of the row-corner design has windows on the gallery.




Organization | Appearance | Form | Massing

De Opgang is a layered building with parking on half level underground, children's center and row houses at grade, the church on half level up, and flats on the top two levels surrounding a shared-level courtyard. The lowest courtyard serves as play space for the children's center. The developer named activity on the street.

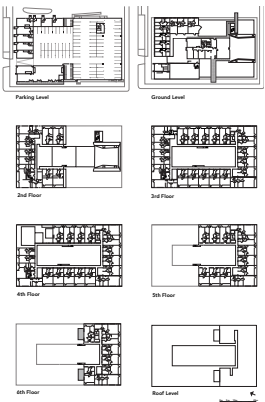
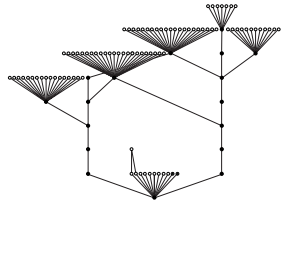
Another key element was the ground (street) level. There should be as much life as possible. That is the reason for the children's center and the restaurants that give you a lot of entrances on the ground level. This gives a lot of life, a lot of social control.

- Henk Jan Hollander, developer



Syntactical Structure

De Opgang is highly connected internally, but unlike some other projects it is only moderately connected to the exterior. The fan shape at the base of the diagram shows the children's center and church with entrances directly from the street. The two blocks coming up from the base represent the two elevator cores that provide access to the flats. The flats at the top of building are supported so that while the galleries in the two, middle level of flats are connected to both cores, one level below and two levels above are only accessible from one core. The stepping pattern is an unequal number of units on each level or on each fan.

Lessons | Conclusions

Essential to the success of De Opgang were an alderman who took an interest in preserving the church activities, architects who designed an attractive and economical project, a developer who helped to create a viable situation with such things as loans that gave the church the right to stay in the building, and a church group that was open-minded enough to consider a very different type of facility. Also important to its success is the continued involvement in operation by the original developer. This project shows the potential for housing on urban church sites. As a result of the development, the church continues its important community role.



Social Principals


The church and children's center are independent of the housing, with their entrances and those of the row houses activating the street. However, the inhabitants of De Opgang are likely to have a strong sense of community. The housing design supports social interaction and security through the shared access points of the row house houses, the visibility of the galleries across the courtyard, and the limited number of dwellings on each level reached by two elevator and stair towers. Two points of entry, each at about 15 households creates a good number for a social group. Once at the gallery level, there are no more than twelve households per core.



As I am an architect and also an engineer myself, I am also involved in the design. The more money you save in the construction part of the building the more you can spend on the architectural part. That was really a challenge. The officials made a calculation and were surprised at the low cost. The design had to generate income for the church, also income for the city since part of the land was owned by the city.

- Henk Jan Hollander, developer

Implications



Activity in the commercial courtyard at De Dierckman

Design Principals & Lessons Learned

In summarizing the eight examples of Dutch complex housing, specific design principles were identified that all shared, of which we present four. In addition, lessons learned from studying these projects identify both the circumstances in the Netherlands that generated complex housing and the specific requirements necessary to encourage complex housing in other situations.

It's very much within our culture to try to optimize between costs and design. Depending on the state of the economy, sometimes design is decisive and sometimes the cost. It also depends upon who the client is and also the architect. One thing that is different, we see housing as an element you can ... design.... Housing in our education has always been in the forefront. It's a part of culture here, and a part of what the municipalities and councils prescribe. Especially the bigger cities try to push the level of design. So even if as a developer you were not very interested in making the block of a certain quality you would need to attend to it. Welfare committees (urban aesthetic committees made up of citizens and design professionals that review projects) are very important.

-Carroll Connolly, developer

4.1

Housing Mix



Low-income housing project at De Opgang

Rowing houses at De Dierckman

Rowing houses at De Dierckman

Rowing houses at De Dierckman

A very characteristic aspect of Dutch complex housing is its composition of many different housing and unit types. Most dense housing typically includes one housing type and as few as one to three unit types. In contrast, all of the projects presented here have between seven and thirty-nine unit types, and most have three or more housing types, the exception being De Opgang with two housing types. The projects also typically incorporate both flats and two or more story dwellings in the form of endhouses and/or maisonettes.

4.2

Access Type



Courtyard with gardens at De Opgang

View of a courtyard at De Opgang

View of a courtyard at De Opgang

View of a courtyard at De Opgang

Perhaps variety of access is what most differentiates complex housing from other dense housing. Types of access vary from the double-headed corridor typically found in American dense housing, to vestibule design where units enter from the elevator vestibule, to single loaded galleries, to direct access dwellings such as row houses that are reached at ground level, to skip-stop designs in which two or more story units are located above and below the hallway in such a way that a corridor is located only on some floors. Circulation designs typically accommodate only a limited number of units per entrance (25-30) and per level (5-12) so that neighbors will recognize each other.

4.3

Courtyards



View and courtyard integrated at De Opgang

View of a courtyard at De Opgang

View of a courtyard at De Opgang

View of a courtyard at De Opgang

All of the complex housing projects have courtyards with the exception of Sluisdam. The courtyards serve a variety of functions (access, community, garden, visual, play, light well, commerce, and parking), sometimes several simultaneously, each being unique.

4.4

Articulation



Housing housing forms bridges, gates, courtyards and voids at La Grande Gueule (top left)



How does this interface with white concrete structure and facade form?



How does this interface with white concrete structure and facade form?



Picture of high residentiality of a corner at De Haven

Dense buildings are more acceptable to the public if they minimize their apparent size. Project designers can employ a variety of articulation strategies to reduce the scale of a building such as:

- setbacks (living scaled at the base, having a setback at the top);
- overhangs or cantilevers (used to differentiate large or small masses to break up smooth facades into smaller parts);
- openings for windows, to allow light in;
- negative space (balconies, loggias and openings);
- ornamentation (can blend with the wall or distract the eye from the wall, can differentiate one building part from another); and
- material and color.

The ways designers use such elements contribute to the building's character and identity, creating a memorable building.

4.5

Replicating Complex Housing

What makes complex housing compelling is the social mix, relation to context (housing as urban fabric), density, high-quality of design, and quality of construction. How is construction of such buildings affordable? What about the Dutch context makes these possible? Can similar housing be built in other political and cultural contexts?

This section addresses the Dutch context of 1990-2010 and the practices and policies that supported the realization of Dutch complex housing. Using voices from recent interviews with people in the housing sector, the section explores how complex housing could be replicated in other places.

Special Time and Place?

During the VNIEN period, the Dutch government engaged in national planning, housing corporations had new investment capital from selling houses as well as housing social housing, the economy was booming, and an enormous amount of housing was built. While social housing was still seen as an important housing sector, the government set goals to increase home ownership of approximately 10% for social housing and 70% for ownership of houses, moderate, and upper income levels. The cities were eager to develop in new areas and wanted to encourage developers to take the risk. In Amsterdam, for example.

The purpose was not to earn a lot of money, but to do a long-term investment in a new city part, add new social houses to the property of De Key and have the risks to sell the market program as fast as possible.

- Eric Amey, developer, Sikkens



Children viewed from the opposite bank of the IJ

Situation Today

The recession of 2008 put an end to the housing boom. A new economic reality, with virtually no capital available for housing, caused an almost total cessation of construction for a period of about seven years, with a recent small resumption. Indeed, this does not seem to be a temporary situation, but a great change of direction. According to Erik van Dongen, Chief Government Architect for the Netherlands from 2011-2015, the 20th century was the Golden Age of housing, but this golden age has ended. Does this also change the Netherlands' commitment to housing?

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4.6

Density

In the western Netherlands, density of housing is taken for granted because of the scarcity of land and the high population. Most people who work to own a house with a garden typically envision not a free-standing single family house, but a new house, connected to neighbors with a small garden behind. Dwellings are relatively small, and every square centimeter of interior space is used. Thus, an apartment with a generous balcony is considered a good alternative to a free-standing house.



Real gardens, greenhouses and balconies at De Zilverkust

Density is also important as a strategy to support infrastructure, government services, and use of walking, bicycling, rail, and buses to substitute for automobile transportation. Among the technologically people made in choosing a place to live, proximity to public transportation often trumps low density in the selection of housing. Many households have cars or no automobiles. Furthermore, the housing regulations and approach to design practice generate dense housing that is very livable. A modern apartment typically has lots of light, air, interior space, and a decent-sized balcony that is a good substitute for a garden.

Additionally, a certain level of density was mandated by the national government, with municipalities such as Amsterdam choosing to raise it in the design of special urban sites. In many circumstances, higher density offers opportunities for higher profits at the same time that people might prefer to live at a lower density. Although no longer the case, at the beginning of the VNIEN period, a shortage of housing meant that people were not in a position to be very critical. As the system became more market-oriented in the late 1990s, designers and developers were motivated to be judicious in the siting and design of dwellings to appeal to residents.

Now we are in a situation where the consumer is willing to live in cities in high densities. We have to offer good outdoor rooms & architects want to develop nice shapes.

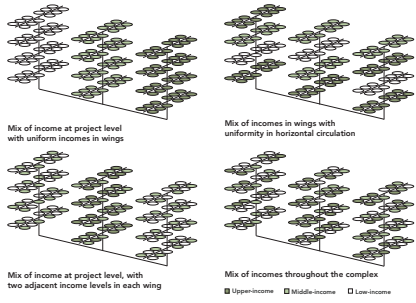
- Ruus Willem, developer, La Grande Gueule

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4.7

Social Mix

When the Dutch national government set a goal of 30% social housing for new areas of development in order to create balanced neighborhoods, developers responded by providing this balance within individual projects. As represented in the case studies discussed in this exhibition, housing within each project serves different purposes: luxury apartments, professional, low-cost units, group homes, housing for the elderly, row houses, gallery flats. Developers and designers combined these units in different ways. Sometimes similar units and incomes were placed together; at other times, different unit types and incomes were combined, apparently with equal success.



One possible explanation for this success is the lack of great income disparity in the Netherlands and the fact that 30% of the Dutch population is eligible for social housing. The Gini Index, or the measure of wealth distribution within a country, is 25 for the Netherlands, versus 43 for the US, 38 for Japan, and 31 for the European Union overall.

The mix of units for sale and for purchase emerged from the government's desire to increase home ownership during the VNIEN period and subsequent permission for housing corporations developed to sell some of their rental units. Membership in the government-sanctioned resident associations, created to maintain the projects with mixed income, provides a way to accommodate the homeowners, business owners (if any), civic workers, and the housing corporations who represent the renters.

Developers and architects were happy to design and develop housing for a mix of incomes and incomes, although developers had some concern about its viability. In fact, mixing incomes seems to have been non-controversial. Without the government's participation in the planning process, however, it is unlikely the experiment would have taken place, and now it appears to be an accepted practice. As stated by Niek Jan Hollander, developer of De Opping.

They are still promoting mixing and I don't think that will change.

- Niek Jan Hollander, developer, De Opping

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4.8

Quality

The designs, materials, and attention to detail of Dutch housing contributes to its being seen as innovative. How do the Dutch achieve high quality design in an affordable way? An important factor in Dutch housing high quality housing is housing corporations.

We have a history of housing corporations.... They will own the building for 20, maybe 50 years. They are interested in how to maintain the facades, how the materials will endure for the long term. In the end, it is more profitable. The influence of the housing corporations is significant. They are responsible for close to 50% of the houses.

— Han van den Heuvel, architect, De Opgang

This Dutch housing is seen as innovative for its designs, materials, and attention to detail. How do the Dutch achieve high quality design in an affordable way?

It's very much within our culture to try to optimize between costs and design.... It's a part of culture here, and a part of what the municipalities and councils prescribe. Especially the bigger cities try to push the level of design. So even if as a developer you were not very interested in making the block of a certain quality you would need to attend to it. Welfare committees (local urban aesthetics committees) are very important.

— Gerard Cornelis, developer

As to whether privatization will affect the quality of designs, one developer suggests not.



De kwaliteit of materialen, constructie en andere designen zijn niet afhankelijk van de financiering.



De Bouwleer's brick and concrete design resulted the architect's attention to detail.

It always has to do with money. In the U.S., you sometimes see such a luxurious building that I am jealous. I envy the beautiful materials. We are a much more equal society and that influences the architecture – the social housing always looks nice. As a developer, I sell for quality.

— Henk Jan Hollander, developer, De Opgang

Experimentation, Innovation & Risk

Since the Dutch are world renown for their innovative housing designs, how will the move to a market based system affect innovation? Will developers, now required to be profit-estimated and thus risk-averse, be less interested in innovative design? While acknowledging that a reduction in government support will increase risk and may affect experimentation, the Dutch professionals see it as an essentially Dutch trait that will not disappear.

I think there will be less experimentation because of the current economic problem. Companies can't afford to make projects like this (De Boeklaan), which is a big problem in the Netherlands right now. There are a lot of suburbs, where it is cheaper. Without money from the government people will not make purchases like this.

— Wicher Mei, developer, De Boeklaan

The subsidies for experiments used to be many times as large. There still are with experiments. These used to be more and more interesting. Now they're experiments for marketing, whereas before experimentation topics were totally free.

— Eric Amey, developer, Sildam



Interior corner of Le Grande Gue with parking carshare.

We still design innovative projects in Holland. It's in our architectural nature. We have little space for a lot of people.

— Noad de Klerk, architect, De Maan

The Dutch like experimenting. To be called conservative is an insult.

— Ton Schuur, urban designer, Amsterdam

Purely the experimental will always stay there. But it will become smaller, because people don't want to take a risk.... At this moment you see that it would be a market for experimentation. You want to come up with new things.... not the same thing that's already there. Experimentation will always be needed to move forward.

— Fem de Witte, architect, Sildam

Urban Fabric & Scale



De Maan, aerial view

When housing is conceived as part of the urban fabric and constructed at the scale of an urban block as opposed to the scale of a building, a project often opportunities for including more variation of housing, a greater range of incomes and lifestyles, and non-housing amenities that serve the larger neighborhood. The projects presented here show the advantage of a more comprehensive urban approach to design in terms of mixing, incorporation of mixed use and the creation of courtyards.

The meaning of the buildings in the urban fabric is less compared to other Dutch housing settings, but may include a house in the form of Le Grande Gue, a converted manor and typically frames a courtyard or two. The projects explored here range greatly in the total number of units – between about 50 and 250 dwellings, but they all create a sense of building identity and community, be sure of the way they are placed on the site.

Because of its density complex housing is most often located in urban or suburban areas rather than rural settings, usually on or near a main thoroughfare with access to public transportation, and related to an open space such as a plaza, park, canal or wide street. In addition to incorporating a variety of housing, complex housing generally includes non-housing functions on the street level. The projects' location on a busy street encourages the inclusion of commercial and other functions at the ground level. Incorporating shared resources that benefit the larger neighborhood connects the complexes to the adjacent community.

Planning & Privatization

Since 2008, planning for housing in the Netherlands has shifted from the national level to the regional and local levels based on a general consensus that national government planning was not as effective at meeting people's needs for housing as the capitalist market process would be. How has this affected and how will this affect planning for housing?

Even without national participation, planning for housing at the regional and municipal levels seems to be capable of continuing the tradition of sound housing design while implementing a market-based approach.

Planning won't be over.... There is a shift in the market.... People are staying in the cities.... The pressure in the housing market in Amsterdam is enormous.... [But] you won't see big developments outside the cities.

— Henk Jan Hollander, developer, De Opgang

We need a more marketing-oriented development process.... I am not worried about the position of the developer; I am worried about the consumer. Consumers are forced to accept a housing system that doesn't meet their demands.

— David van der Meulen, process manager

Others are not as sanguine, seeing a danger that the new approach will leave some groups unmet, or seeing it as a temporary trend.

In Holland we cared a lot about our poor people. The Housing Act of 1901 was a very important breakthrough.... Rents are rising too hard at this moment. Privatization is a good thing for people with middle incomes. Right now we think that everyone can take care of his own life.... I foresee great problems in society.

— Noad de Klerk, architect, De Maan

The market is seen as the best solution for everything. But that is the system that is doing the harm. It will end when the problem it creates will be more expensive than the alternative.

— David van der Meulen, developer, De Maan



De Conventoren. The gate to the town square is flanked by a living on the left and a corner on the right.

There is some agreement that the change to a market-based system is not the end of government participation or planning.

I [have] noticed that if you leave everything to the market it won't work. I'm very market oriented, but I would never say we don't need government.... At the basis, we are still very much public-oriented.... Even if we say that we are market-oriented, the direction of the pendulum is to... government more of the time than to [the] private.

— Chris Japman, real estate consultant

4.10

4.11

4.12

Cooperation Among Professionals & Citizens

The Dutch approach requires cooperation among all parties. A development plan representing a common goal is developed by the city in consultation with the citizens and implemented by the developer and the architect. For economic reasons, the involved parties are motivated to do this together, quickly, economically, and with style. Essential to realizing this work is mutual respect between developers and architectural professionals.

The architect's always have another view on things... The best projects are [a result of] tension between conceptual design and management. It is not good if either side is too strong.

- Rein Willems, developer



Willems' south facade with lightwood claddings, swimming dock and walk

With the exception of La Grande Cour which had no adjacent residents, all the complex housing projects presented have included citizen participation at some level. Such engagement is encouraged by the Dutch urban design procedures which give neighbors the right to be consulted and to have their needs met.

It's good to involve the people who will live there. Involving the people is always better. Since they are more connected to each other and to the neighborhood, the project is better. They learn to meet each other when the building is planned.

- Eric Jansen, developer

Assistance to citizen participation may include financing for low-income residents, setting aside land for self-development by collective groups, and assigning municipal employees to work with neighborhood. Also supportive are Dutch housing corporations and banks that fund low-income housing and community amenities. Engaging citizens in other countries will likely require involvement of governments, non-profit organizations, and banks motivated to invest. Citizen participation is valuable because it typically results in projects that fit in the context, are accepted by neighbors, and - when future residents are incorporated - fit the needs of inhabitants.

Since the quality of design and the maintenance of the buildings are subject to the cultural awareness of the persons concerned, indirectly planning and designing with citizens is the only way, in my opinion.

- Marko Bosse, architect, De Bontkian

Perhaps the clinching argument for citizen participation in the design of housing was propounded by a developer.

The biggest profit is when the consumer is sure to buy.

- Rein Willems, developer, La Grande Cour

Economics & the Role of Government

The Netherlands' Calvinist background, its culture of discussion, and the belief that housing is a human right, create a foundation upon which government officials, developers, and architects are sensitive to the role of housing in creating a decent way of life for their citizens. The question remains - will the move to a market system alter this attitude?

Until 1990 housing was only for social good. Now it is a thing for speculation and investing for create value.

- Eric Jansen, developer, Stedum

All countries have housing rules and regulations created for the public good. Complex housing arises to a large degree out of such regulations. For example, fire codes and rules for "licht en lucht" (light and air) have resulted in the widespread use of pilary across housing.

The big difference is that governmental influence is much bigger here than in America. The concern for quality is one of the things that government has in its working area.

- Rein Willems, developer

In the Netherlands, we hold the idea the government is relevant, and... that the professional knows something.

- Jan Schep, urban designer, Amsterdam

I think low-income housing will always need involvement of external money and this money should come from the government. There is certainly a risk at the moment that the housing situation of lower income groups gets worse... Social instability will threaten cities and good housing for low-income groups is part of the prevention of this instability.

- Marko Bosse, architect, De Bontkian



East Republic of De Zilveren in the Adlongebied

The difficulty of relying exclusively on the market to provide housing and to support experimentation has been the reason that developing housing for low-income people is not a profit-making venture. A market-oriented society needs to ensure that housing is available to those who need it. This is why the Dutch government created the housing corporations in the first place, and why non-profit housing organizations have come to exist in the United States.

Housing corporations were not profit-driven, but socially driven

- David Weitenhok, Developer, De Mun

Conclusion

In the Netherlands, the privatization of the housing market is an evolution rather than a radical change of direction. The market-oriented approach to developing housing and limiting planning to the region and municipality is viewed as a correction to government policy that responds to consumers' needs. The Dutch tradition of caring for the needy balances the system in the long run. Planning continues at the regional and local levels where there is direct contact with the situation. Most people were confident that government regulation will limit the potential negative effects of the profit motive.

The special circumstances that led to complex housing in the Netherlands between 1990 and 2010 do not have to be replicated in order to create complex housing at other times and places. However, several factors are important. Complex housing is more likely to happen when:

- Housing is understood to be urban fabric;
- Site is integrated with the larger neighborhood
- Cities have urban designers that design a physical neighborhood plan.
- Project is located on a prominent site on an open space
- Building regulations stress:
 - The importance of "licht en lucht" (light and air)
 - Challenge space for everyone
 - Building on or close to the lot line
- Building policies support:
 - Combining residents of different incomes.
 - Combining units that are for rent and for sale
 - Mixed use development.
 - Chartered organizations that include all incomes.
- Citizens and future inhabitants are involved in its planning and design.
- The number of residents that share an entry, corridor or courtyard is small enough for people to recognize each other as a coherent group.

To enable the construction of complex housing in other locations, nations or municipalities will need to require a mix of incomes and income; have non-profit organizations and banks that will finance low-income dwellings, cooperative housing, and community amenities; and create mechanisms that allow citizen participation in decision-making. Finally, complex housing requires a city that invests in urban design, an architect with strong design skills and a developer committed both to long-term involvement in and to ongoing oversight of a project.



East Republic of De Zilveren in the Adlongebied

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4.15

Credits

Credits

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5.1

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