"Bryt det linjära gatulivet – en rekonstruktion av kvarteret och gatan"

"Disrupting linear street life"

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Kan den lokala gatan och omkringliggande arkitektur och urban design bli utmanad med nya sätt att se på kvartersbildning, gatumönster, publika funktioner och eventuella nya funktioner?

Den första delen av projektet inkluderade litteraturstudier om staden och livet i staden, undersökningar av typiska och inspirerande urbana miljöer, kvarter och gatmiljöer, och även referensstudier över andra intressanta publika miljöer.

Mitt examensprojekt avslutades med framtagandet av ett nytt designförslag för kvartersbildning, gatumönster och bebyggelse för ett område i Säicka öster om Stockholm. Förslaget inkluderar gatmiljöer, dagvattensystem, kvartersbildning och några kollektiva byggnader, men även stadsbyggnadsregler för bebyggelsen inom området. En mixad bebyggelse av både kommersiella lokaler och bostäder föresöks.

Målet för min design är att skapa en stadsmiljö som har följande kvaliteter:

- Barn- och lekvänliga gator
- Låg till medelhög tät bebyggelse
- En stark visuell och fysisk koppling mellan inomhusmiljöer och utemiljöer.
- Validerade privata utomhuszoner mellan privata byggnader och publika gator och torg.
- En fästskapad gatstrukturen med genivågar och diagonala kopplingar som ökar gångbarheten inte bara över gatan, utan även mellan olika kvarters.
- En del-medarig-system där varje mini-kvarter bidrar med en publik, eller semi-publik, funktion till området.
- En grönbyggnadstechnologi där en stor del av de gröntytor som bebyggas ersätts med gröntytor på andra ytor som tak och mellan hus.

Summary in English

Can the standard local street and its surrounding architecture be challenged with disrupting architecture, reconstructions of the block and displacements of new and old functions, as well as adding imagined new features?

The first half of the project included literature studies of the life in the city, research of typical and inspiring urban environments, block pattern and spatial street conditions, as well as other reference studies of interesting public architecture and urban design.

My thesis project ended with a design proposal for a new street and block pattern for a site in Sickla East of Stockholm. The proposal includes street, daywater, block and some shared buildings, as well as urban design rules for the construction of the mixed commercial and residential buildings at the site.

The aim for my design is to create a street and block structure that have key qualities like:

- Low-rise but dense urban blocks.
- A strong visual and physical connection between the inside of buildings and public outdoor spaces.
- Well-defined but soft transition zones from the private inside of buildings to the public parts of the streets.
- A fine-meshed street-structure with shortcuts and diagonal connections improving walkability and interrelations.
- A contribution system where each block contribute with a public or semi-public function, and in return have access to other blocks special functions.
- A good green area swap replacing the existing green area being occupied by buildings and streets to other possible surfaces.
The city continue to attract and induce human movements around the world. Urbanization has changed the way we grow up, live and share our lives. Growing up on the countryside, I have an ambiguous view on city life. The never-ending activities and diverse subcultures and opportunities that emerges in cities makes me feel that the city is so full of human life that it would explode if it weren’t for the architecture controlling and balancing the different streams of functions. But when the emotional fog submerges, and I look and try to understand a more “real” sense of how we actually are living in cities, it makes me almost feel depressed; we are running like rats from one cell to another, with occasional breaks in parks or at foreign places far away from our own city. At many key city spaces like traffic nodes and streets, people’s minds are somewhere else, wishing they will be able to get away as soon as possible to indulge themselves into more qualitative aspects of their life’s, whether it is working, eating, shopping, training or meeting friends and family. Life AND space is fragmented into pieces for different kinds of human activities and possible encounters and emotions. Is this bad? I don’t know, but I do think that the effectiveness of the city combined with the endless flow of people and real or imagined opportunities also comes with a heavy price that have many different consequences like diminishing and selective empathy, “sherry-picking” of spaces among privileged citizens, left-over spaces for poor people and many inhabitants living in-transition lives, which means spending more and more time in transition between different locations.

In cities like Stockholm, there are as well, I think, hard set of rules bordering in private and public life, killing new seeds of activities before they even can start to grow if they don’t fit from the start in an already paid spot.

To counteract this consequences of the city machine, public areas like squares, parks and streets play, or can play, an essential role. And they do, also in cold Nordic climate like in Stockholm, parks and the waterfront are an existing quality of high level in Stockholm. However the local street in dense urban areas is usually just a linear setup to transport people from the start to the end, or let them pass into the life of by-standing buildings. Jan Gehl writes “The streets signals movement, please move on”, but does it has to be that way? Can the linear street life be disrupted? And can the disruption enrich the city, mixing activities and public and private life in a less dividing way?

By the sheer force of being such a dominating part of our environment in cities, architecture is profoundly affecting our core interpretations of city life. So city life is a product of its architecture, as well as the architecture is the product of the city’s life and functions. Can the standard local street and its surrounding architecture be challenged with disrupting architecture, reconstructions of the block and displacements of new and old functions, as well as adding imagined new features?

This is what I intended to investigate and play with. I think I have decently followed the theme, working with the reconstruction of the block and street, but I may not have come that far with spectacular disrupting architecture, but I do think that my proposal can help to create a stronger relation between the life in the buildings and life on the streets.
My thesis project ended with a design proposal for a new street and block pattern for a site East of Stockholm. The proposal includes street, daywater, block and some shared buildings, as well as urban design rules for the construction of the site mixed commercial and residential buildings.

The aim for my design is to create a street and block structure that have key qualities like:
- Child- and play friendly streets
- Low-rise but dense urban blocks
- A strong visual and physical connection between the inside of buildings and public outdoor spaces, spaces that have good daylight conditions for spontaneous gatherings, activities and temporary or long-term installations.
- Well-defined but soft transition zones from the private inside of buildings to the public parts of the streets.
- A fine-meshed street-structure with shortcuts and diagonal connections improving walkability and interrelations not only over the street but also between different blocks and buildings.
- A contribution system where each block contribute with a public or semi-public function, and in return have access to other blocks special functions.
- A green area swap replacing the existing green area being occupied by buildings and streets to other possible surfaces.

The site I have chosen is located in Sickla, east of the city center of Stockholm. There are ongoing plans to densify and built more city-like environments in this area. The surrounding strategic site around the project site is basically farmers land, turned into industrial ground and now, post-industrial, it consists of a successful shopping center, a cultural center and some residential areas mainly from the 20:th century. My strategy is to create an open-ended structure of mini-blocks. Inside the block structure cars has access, but highly limited access, with a street pattern and dimensions that makes it hard to drive fast, with twists and turns, and only space to support off- and unloading at the street, no outdoor parking places. All this to create space for other activities, decrease the stress, pollution, noise and fear of being hit that comes with normal car traffic. A strategy and design fo the streets that makes the car traffic secondary and walkability and activities on the streets primary. Twisted streets to create friction for car, sound, wind, and also to show the facades with an angle towards people walking alongside the narrow streets. Small block distances, max 40 meters, intimate street dimensions, as a quality in itself, but also to gather precious street space to small corner squares, "extended street corners", where the daylight conditions are optimized. The street width is 3.6 meter, which is enough for a bike and car to meet, but not for two cars passing each other.

The project site is basically a triangle area with a slope towards the south. To create a street with a minimum slope on street relation was kind of set from the beginning. The rest is created to distribute mini-blocks in similar size, without strange intersections, following Kevin Lynchs advice about intersections with 5 or more streets can be confusing, and a crossroad gets better defined if the street are coming in close to perpendicular to each other. I also planned the blocks and slightly twisting streets to correspond decently enough to the different height levels of the stone hill.

The design strategy also implement a network of thin parks dividing the blocks into smaller parts and containing semi-public vertical movement, helping people to climb up the hill.
Stage 1
The project site is the first stage of the urban development of the area. The site sits conveniently close to both the new-to-be subway station, the waterfront and the established commercial and cultural centers. The stage 1 area is aimed for a mix between residential, preschool facilities and small commercial enterprises or local offices.

Stage 2
In stage 2 the same small plot pattern is spread to a smaller area south of the project site. Some of the industrial buildings may be saved to support local existing businesses. This area is also well suited for a outdoor sport courts.

Stage 3
Due to the existing car-based commercial shopping center this will be the biggest challenge. Which buildings to preserve is a delicate question. The existing industrial buildings have a large footprint and difficulties to transform into a new urban tissue, but they contain space for both creative activities as well as local businesses. The commercial buildings (3a) also have a large footprint with low structural value for a new fine-meshed urban pattern.

A - green activity park
The old main roundabout and connected roads will be turned into a green park, connecting public spaces, sport facilities and the different waterfronts. This is a vital part of the strategy to reduce the car traffic going through the area, to avoid creating shortcuts for cars with no origin or destination in the local area. This will also help to sparkle local sport organizations.

The strategic discussion about Sickla-Plainas potential and challenges was a big part of the start and foundation for the urban design investigation. Here comes a short recap of some of the strategy discussion.
The intimate street network - a shared and open street tissue.

Bioswale network
A green park network dividing the block into private and public parts, as well as slowing and cleaning the daywater streams.

Private outdoor transition zones
Private transition zones in front of facades. Open for public depending on the activity on the first floor (commercial/private).

Block public function
Each block provides a small semi-public function to the area like music rooms, making spaces, gathering places, studio rooms, repair workshop.

The corner squares
An extension of the street, a dynamic place open for temporary and stationary installations.

Site stage 1 - connecting to existing infrastructure. The new subway station and the elevation of the railway are under construction.
The site has a high potential just by its location, squeezed in between high speed infrastructure, established commercial and cultural focal points, a new subway, green areas and the waterfront. This urban design proposal intends to give the site its own strong identity, giving new and existing inhabitants the choice of a new lifestyle, more active and engaging, but less affected by traffic.

The thesis project is about the spatial experience of the street, to support the urban public space the area will have 5 strategical overlaying structures:

- **A bioswale network**: Thin green parks dividing the block into smaller parts and slowing down and cleaning the daywater streams. The bioswale “rivers” also functions as a soft enhancer of the borders between public and private outdoor areas inside the block.

- **Block public function network**: Each block should contribute to the area with a public or semi-public function like making spaces, music rooms, studio rooms or other democratic spaces. This gives local support for local initiatives and can also cut down on travel time for practicing creative activities.

- **The corner squares**: Double functioning as a half courtyard and half square, the corner squares are open for dynamic change. With a technical floor structure, supporting change and installations, the inhabitants of the block can change the square after their ideas, after the seasons and to spark local community activities.

- **The intimate street network**: With narrow dimensions but long sight lines, many shortcuts, strong diagonal connections and a changing and diverse facades, the street provides a human-focused outdoor intimate spatial experience. The narrow streets gives contrast to the squares. The low-rise facades alongside the street also preserve a close connection to the sky, essential to an free outdoor experience.
Bioswale network

A green park network dividing the block into private and public parts, as well as slowing down and cleaning the daywater streams.

Private outdoor transition zones

Private transition zones in front of facades. Open for public depending on the activity on the first floor (commercial/private)

Block public function

Each block provides a small semi-public for public function to the area like music rooms, making spaces, gathering places, studio rooms, repair workshop.

The corner squares

An extension of the street, a dynamic place open for temporary and stationary installations.
The vertical greenhouse & the servicetower

Provides the blocks public function as well as shared services in the block. The vertical greenhouse is a semi-public space creating a shortcut through the block as well as vertical movement to the adjacent houses and the roof-tops.

Plan drawing 1:400
Showing plot divisions and street structure before building construction.
Section over a narrow street passage.

The passage is divided into a shared street and private/commercial zones.

The shared street is 3.6 meters wide, except where the bioswale network meet the street, where the width is 2.8 m to function as a speed hump.

The flanking facades have a height of between ~ 7.5-14.5 meters, creating a still strong feeling of the street-skyscape, as well as a physical distance between people on the street and people in the buildings that correnspond to human scale.

The vertical distance is short enough for inhabitants and visitors to read body language and activities. Total width is 8 m which comply with fire regulations.

Street section B-B 1:100

Detail showing open daywater canals as a border between the shared street and the private zone in front of the buildings. A sheet metal cover the canal at passages.
Example blocks

Plan drawing 1:400

Street design with sketched out buildings according to urban design rules
Example block 7 house units

Most blocks consist of 7 house units/plots and one corner square. The block length vary between ca 35 - 45 meters including transitions zones in front of buildings (facade length of the block between ca 30-40 meter).

Transition zones
Private outdoor zones.
To create a clear but open outdoor transition sequence from the private inside of the buildings to the public streets, all facades have a private (or commercial/semi-private) zone of 2-3 meters in front of the building facades.

1/7 shared & public contribution
Service tower & Vertical greenhouse
One of the seven units, or similar, is the block’s public function contribution till the area and also stores shared services for the block. See also the Service tower and the Vertical greenhouse.

Min 3 builders per block

Diversity rule - each block should be distributed to min three constructors.

1/4 streetspace contribution
The corner mini-square
Ca 1/4 of the block is the block’s contribution to the street, double-functioning as a block courtyard and a public mini-square. The corner square is a flexible space with a technical street floor. See also The Corner Mini-square.

Max 3 house units per constructor

Clustering rule - one builder can acquire max 3 house units from one block, setting the max building footprint to 3 units.

The street shortcut & the bridges

The service tower, vertical greenhouse and the square can be connected to with “bridges”. The vertical greenhouse/service tower also hold a part of the street - a street shortcut improving diagonal connections through the block.

The garden network

The blocks are divided into three parts by a thin garden network, lower than the surrounding borders. This function as built-in green structure as well as an extra border between private and public spaces.
Example house unit

The minimum building plot component is called a "house unit". A building project can consist of 1-3 house units. The example unit have standard dimensions, house units vary in width from 6 - 8.5 m depending on block geometry.

Max height private outdoor space

The 2-3 m deep "transition" zone between the building facade and the public street can be used for a raised small terrace or porch. This shields of some of the viewing angles from the streets into the apartment, creating a better condition for private spaces on the first floor. To still keep an open atmosphere at eye level, the maximum height is 1 m above street level.

Open street fence rule

Fences higher than 1 m facing the street should be of an open type of fence blocking max 25% of the surface with non-transparent materials. Fences between building plots can be solid and non-transparent up to 2.5 m above street level.

Green roof contribution

Flat green roof rule

The urbanization of the site will change a high percent of the existing green surfaces into building footprints and streets. To counteract this each building has to provide 50% of it's roof as a green surface, planned and supervised by landscape architects to provide a biodiversity. The rule is important as well for the daywater system. Plants and soil helps to slow down the accumulation of daywater during heavy rainfalls.

Max building height

To assure good daylight conditions on the active corner squares, each house unit has a predefined max building height. Allowed building height vary between 7.5-13.5 m, excluding eventual green roof technical height.

Min height first floor

To allow buildings to change from private to commercial, the first floor should have a possible minimum height of 4.5 m including tier of logs making possible free height 4.42 m including technical roof or floor. The builder can construct a lower floor height on first floor as long as it can easily be rebuilt to the full minimum height.

Bridges over the park network

The unit can connect to the corner square by building bridges or stairs over the thin park network. A strong physical connection to an active outdoor space, but still well defined border using both different levels as well as different features to amplify the border between private and public outdoor spaces.

The unit rules
The corner square
Can this be an active shared space, a crossover between a courtyard and a mini-square? Width dimensions of the square is between 14-17 m for most of the squares, excluding the surrounding streets and park network.

The extended street
The square works in conjunction with the surrounding shared street, creating a wider area for gatherings and activities.

14-17 m

Free large vehicle passage
To allow larger vehicles like emergency cars to turn, parts of the square has to be free from not movable installations.

Diagonal connections
Most square have a direct diagonal connection to other squares, opening up sightlines and possible interactions between activities on different public spaces, separated as individual surfaces but still connected.

Free pedestrian movement
To secure free passage to connections and bridges to private buildings, the border of the square should be free from installations.

Flexible space
To enable creative use of the square, the core of the square is a flexible space that can be changed by the community. The technical street floor supports both temporary and more long-term installations. Space underneath the square can be used for storage of replaced square flooring.

Examples of possible square installations
The square can be used for installations like stages combined with playgrounds, art installations, covered gathering places for repairing, creating and working.

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DESIGN

The corner square rules
Example blocks

Street section with sketched out buildings according to urban design rules

Street view

View from the roof-tops
Ortophoto current state
~ 1:4000

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Strategic site current state
Residential area mixed from low-rise to medium-rise

Residential area high-rise - the million programme

Established cultural center

Established commercial center

Daywater challenge
Dirty daywater flows into Kyrkviken. A new daywater cleaning facility is planned nearby.

Roads
The existing roads lead heavy traffic through the area, making it more complicated to build residential houses.

Car land
The strategic site is heavily affected by the surrounding traffic lanes, creating challenges like traffic noise, pollution, and barriers that need to be addressed in an urban plan.

The railway barrier
The current proposal from the Nacka kommun is to elevate the railway alongside Sickla.

Strategic site current state

The project site - view from commercial the west

The project site - view from the south

Residential area small houses
Gulbenkian Park

Lisbon, Portugal

Established: 1969

Landscape architects: Gonçalo Ribeiro Telles & António Viana Barreiro

Buildings architects: Alberto Pessoa, Pedro Cid & Ruy Athougui

Personal experience:

An amazing park with many spots and corners that you can claim as your own personal space during the day. The movement through the park is slightly labyrinthic, with a pavement of big and small rectangular blocks, creating a feeling of suggested paths to take, not forced and at the speed you choose. The interest in the park as a reference to my thesis project is how much of this street structure, and feeling of relaxed walking, that can be translated to an urban street pattern.
RESEARCH

Abstract reference model
Abstract reference model & urban translation model
Eixample

Barcelona

Block birth: ~ 1860-1900
Architect: Ildefons Cerdà
Type: Superblocks within a strict grid
Building heights (eaves): ~ 22-28 m
Number of storeys: 7-9
Floor area ratio: ~ 4.0-5.0
Bo01 Malmö

Västra hamnen, Malmö

Block birth: 2001
Urban design: Klas Tham (head architect)
Type: Diverse small scale street network within a superblock
Building heights (eave): 7-21 m
Number of storeys: 2-7
Floor area ratio: ~ 1,0

Bo01 was built for the European Housing Expo in 2001. Chief architect Klas Tham envisioned a sustainable city district where people choose to live for its diversity and spatial qualities, not only for the ecological theme.

The district has a high contrast in building heights and house typology. The outer building lines work as a wall against strong sea winds, while the inner volumes have a size more connected to human scale.
RESEARCH
Reference model 1:1000
Kartoffelrækkerne

Copenhagen

Block birth: 1873-1889
Architect: Frederik Christian Bøttger (?)
Type: Row houses in rectangular grid system
Building heights (top): 10.5 m
Number of storeys: 2-3
Floor area ratio: ~ 0.8

Kartoffelrækkerne was built to give the working class better accommodations close to the city center. When it was built there was a discussion in the building organization that the plot was too far away from the city center, and therefore it would be hard to attract people to move there. Today it is one of the most expensive areas in Copenhagen.

The row houses was in the beginning inhabited by 2-3 families, but that has changed to one family per house today. The architect Bøttger won several prizes for the house architecture.
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RESEARCH
This block can symbolize the street structure and block division pattern that dominate the central parts of Stockholm. Based on a plan developed 1866 by Albert Lindhagen, the blocks and the streets define an active public side outside of a rectangular building mass with a closed, calm and more private inside. The streets are consistently divided into pedestrian space alongside the 60-120 m long blocks, and normally with two lanes for cars in the middle of the street.
Block birth: ~1880-1890
Urban design: Albert Lindhagen and others
Origin: Lindhagenplanen from 1866
Type: Grid plan
Building heights (eave): ~ 19.5 m
Number of storeys: ~ 5 plus loft
Floor area ratio: ~ 2.0
This block can symbolize the street structure and block division pattern that dominate the central parts of Stockholm. Based on a plan developed 1866 by Albert Lindhagen, the blocks and the streets define an active public side outside of a rectangular building mass with a closed, calm and more private inside. The streets are consistently divided into pedestrian space alongside the 60-120 m long blocks, and normally with two lanes for cars in the middle of the street.
Venice

Italy

Block birth: ~ 9th - 15th century
Type: Organic growth medieval city
Architecture: Dominating influences are Byzantine architecture, “Venitian gothic” architecture with Islamic influences, renaissance architecture
Building heights (eave): ~ 9-20 m (mainly)
Number of storeys: 4-6 (mainly)
Floor area ratio: ~ 1.5-2.0
Reference model 1:1000
Koenji

District in Tokyo named after old temples in the area. The buildings and urban tissue have only been slightly affected by the economic boom in Japan and are often referred to as the “real” typical Tokyo urban structure. With small houses, close connection to major subway routes and with a diverse shopping and underground culture the area has become popular among the younger generations.

The majority of the streets have a width between ~2-6 meters. Pictures are from a newly renovated street with slightly red paving-stones and a width of ca 4 meters.

Pictures from study trip April 2018.
References

Calvino, Italo. Invisible Cities.
Lynch, Kevin. The image of the city

Urban design plans and information downloaded from Nacka stad
Numerous articles and other books as inspirational reading

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