

## Diplomarbeit

### OUT OF THE PAST

**Gothenburg - a small city going big**

2500 roses in the Rose Garden

From the largest Scandinavian port city to the World's biggest CRANECITY

ausgeführt zum Zweck der Erlangung des akademischen Grades

Diplom-Ingenieur

unter der Leitung von

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**OUT OF THE PAST**







für Ernstl





## Prologue

*„Diese Dreieinigkeit von ineinandergreifenden gesellschaftlich-sozialen, technisch-wissenschaftlichen und künstlerischen Problemen, das war es, was mich mit der Architektur schon damals verstandes- und gefühlsmäßig verband. Hätte ich nochmals zu wählen, ich würde wieder Architekt werden.“*

[Margarete Schütte-Lihotzky]

[1P35]

Cover photography on the inside: Gothenburg harbour, winter 2011  
Photography on PP4/5: Dockers, Maritime Museum Gothenburg, archive  
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## **Out of the past**

Gothenburg - a small city going big

2500 roses in the Rose Garden

From the largest Scandinavian port city to the World's biggest crane city

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## **1 INTRODUCTION**

## 1.1 GOTHENBURG / A LOST WORLD

As “What a port needs forms the city” is true for Gothenburg’s early history and city development which was tightly connected to the port’s development, I want to give a short overview of Gothenburg’s history, focusing on the development of the port. The history of Gothenburg’s port, which today handles containers, platforms, timber products, oil, passengers and cars and which still is the largest cargo port in Scandinavia, can be roughly split into three phases.

### Phase 1: capitalism of commerce / 1620 - 1858

The city of Gothenburg was founded in 1621 by King Gustavus Adolphus. Gothenburg’s port was built from 1620 to 1650 in Dutch design and was intended to act as Sweden’s gateway to the west. The founding of the port was mainly carried out by Dutch immigrants who, next to Scottish immigrants, strongly influenced the early years of the city. The pre-industrial port was characterized by warehouses alongside the channels that were used to store goods. It was on a small scale but spread over a

**1621**

Gothenburg is founded



14

Gothenburg harbour, 1880 [15P44]



Workers' children Masthugget, 1910 [23]

large area. In the early years, iron rods were Gothenburg’s most important export goods. During the first half of the 19th century, industrial raw materials such as sugar, cotton and coal increased in importance. However, the port was operated in the pre-industrial way of scattered warehouses although the amount of traded goods grew steadily. Society was ruled by businessmen and merchants by then and the Swedish East India Company\* played a major role in forming the city.

\*founded in 1731 to conduct trade with the Far East; largest trading company in Sweden during the 18th century.

#### Phase 2: industrial era / 1858 - 1960

In the second half of the 19th century, steam revolutionized industry and society. Steam vessels took over ocean shipping, transport capacities increased tremendously by lowering the freight costs at the same time. To adapt to the new vessels, an extensive specializations process began at ports. Gothenburg, as a major port, benefitted at the expense of the smaller ports in Sweden. At the same time free trade was introduced in Sweden and a widespread liberalization of the Swedish economy was

**1650**

the port is built between 1621 and 1650



Gothenburg harbour, 1910 [23]

undertaken, which also had an impact on the development and extension of Gothenburg's harbour. As railways became the pendant of ocean transport on land, Gothenburg became a port built on railway connections in 1858 and was by then serving a lot of the hinterland with goods. For transporting goods it became important to load and unload ships at the docks and that was the point where industrial cranes were first introduced on a big scale. The cranes *"gradually changed the character of the port. A forest of cranes soon distinguished the new river port and the economic fluctuations of the market could be measured by the number of hours the cranes were being used."* [6P51]

After 1890, the industrial breakthrough in Sweden created the necessary conditions for a huge industrial port. At that time the harbour area of Gothenburg was as big as London's harbour. Lots of ambitious plans were made for the harbour's extension. At the same time, there was a breakthrough for transatlantic shipping line traffic with bigger ships that required deepwater ports. The harbour began to expand to the west towards the open sea and expansion work was carried out mostly during the Second World War. There was also a huge change in business that correlated to the harbour's development. Shipyards that built wooden ships closed down and the three big mechanical workshops,



16

Dockworkers waiting for a dayjob, 1927 [23]



Free Port, 1938 [23]



namely Keillers/Götaverken, Lindholmen and Eriksberg were developed into highly important industries which characterized the city. These three mechanical workshops were world leaders in terms of sheer tonnage of ships produced and employed 20 000 workers in their best times, which made them Gothenburg's biggest employers. Gothenburg's society was dependent on the economic success of these workshops. During the First World War ships were produced and repaired and the development of the diesel engine, which later should be the basis for their ongoing success, were their main fields of acting. Between 1925 and 1975, the increasing transport of crude oil

made it possible to sell a large number of tankers that were produced in Gothenburg for foreign shipping companies.

### Phase 3: the service-orientated period / 1960 – 2011

After the Second World War, the growth in world trade required a growth of transport capacities as well. The Swedish shipbuilding industry, which was responsible for about ten percent of the world's ship production in the early 20th century, had a big advantage compared to its competitors because it had not been destroyed during the Second World War.

Again two revolutionary developments changed the transport



Eriksberg crane, 1953 [13P117]

of goods: the introduction of the container and the bulk carrier. Within a period of twenty years, cargo transportation was completely transformed into a fast, efficient and schedule-tight process. In order to accommodate new larger vessel types, the port had to be reorganized and extended once again. To provide deep sea water levels, the port was transferred towards the open sea at the end of the 1970s. Only the ferry passenger transport remained inside Gothenburg's city harbour. *"At the same time assessments, structural problems, a recession, political decisions and certain specific events all led to the demise of the Swedish shipyard industry and the immediate loss of 15,000 – 20,000 jobs."* [21P2]

In 1975, the government took ownership of the almost bankrupt Götaverken and began mass lay-offs. In 1977, all the other shipyards were taken over by the state and were almost closed down completely. The city started a project to develop visions for the renewal of the industrial areas which had been gradually emptied of all activity by then. This renewal project aimed at evolving the "Friendly City" – *"a place where business, residences, education, commerce, research, culture and recreation merged in a fruitful blend."* [21P29]

**1850**

steam revolutionizes industry

**1858**

cranes are introduced on a large scale



18

Workers waiting for a dayjob, 1959 [11P124]



View from Masthugget, winter 1960 [14P12]

## The “Friendly City” was defined as follows:

[source 21P2]

- A “new city” was sketched in the Eriksberg area, consisting mainly of housing.
- In collaboration with the City of Gothenburg, a residential area of little wooden houses and workers’ barracks called Slottsberget/Lindholmen was converted into privately owned homes.
- Project Lindholmen started an education and research facility in Lindholmen.
- Shipyard-related operations at Götaverken were farmed out to newly formed, independent companies.

- The port facilities, owned by the Port of Gothenburg, were inventoried.
- New homes, hotels, workplaces and an exhibition area were planned in Eriksberg.
- Lindholmen’s knowledge centre, a joint effort of several educational institutes in Gothenburg, opened its doors. Chalmers University of Technology moved operations here. The vision of the “Instructive City” evolved.
- The Götaverken area was renamed Lundby-Strand. Most of the old industrial buildings were renovated for new, smaller businesses. A gradual, small-scale process developed into large-scale projects in the biggest shipyard buildings.
- The area was marketed through a range of cultural projects: art exhibitions, musicals and promotional performances.
- Ferry connections with the inner city were established.

**1890**

the port begins to expand towards the open sea



Lifting cranes, 1959 [16P89]

Important elements of the vision of the “Friendly City” are the public space, the places for human interaction, and the beautification of public places like centered cafes which are, according to Jürgen Habermas, an “*image of the bourgeois public sphere.*” [3P22]

With this project – The Friendly City – the foundation stone for post-industrial Gothenburg’s paradigm shift – from the working-class image to the friendly culture, entertainment, and knowledge city - was laid.

And to make this vision of “The Friendly City” come true, the industrial areas had to be erased in order to create junkspace\* for a new middle-class society.

\*definition according to Rem Koolhaas [19P1]

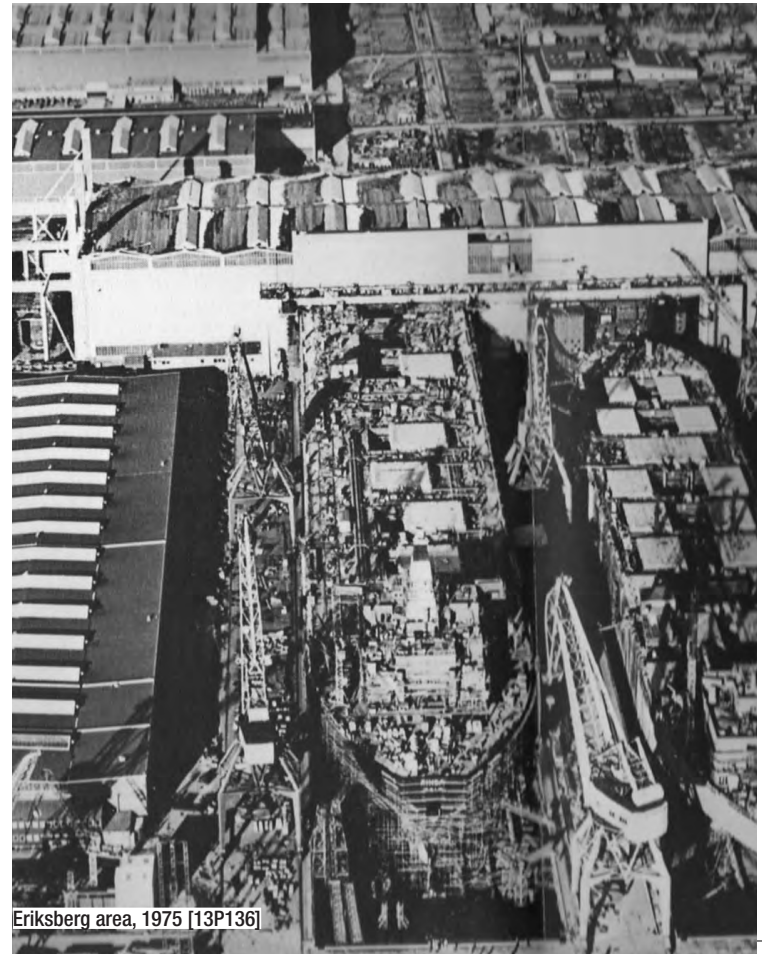
**1940**  
the port is moved to the outer coastline



Eriksberg area, 1970 [23]

**1950**  
Gothenburg is world leader in sheer tonnage of ships produced

**1960**the container is introduced



Eriksberg area, 1975 [13P136]

“Everywhere in Junkspace there are seating arrangements, ranges of modular chairs, even couches, as if the experience Junkspace offers its consumers is significantly more exhausting than any previous spatial sensation; in its most abandoned stretches, you find buffets: utilitarian tables draped in white or black sheets, perfunctory assemblies of caffeine and calories - cottage cheese, muffins, unripe grapes - notional representations of plenty, without horn and without plenty.” [19P4]

**1975**

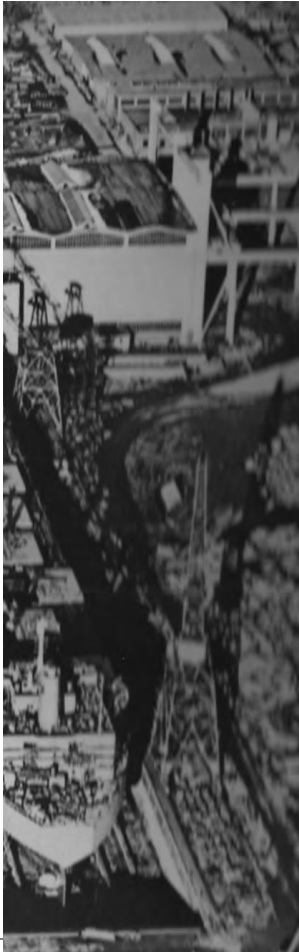
the port is moved towards the open sea

**1977** the mechanical shipyards go bankrupt and mass lay-offs begin

**1985** the renewal process of the harbour area starts

**1990** Gothenburg tries to get rid of the working-class image

and the paradigm shift from post-industrial era to an entertainment culture is in progress



Since 1960, women have been employed at the shipyards [23]







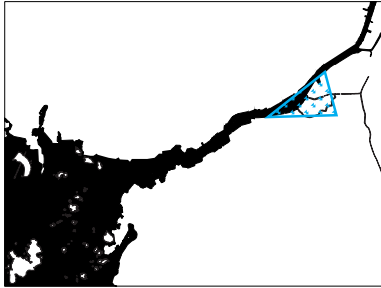




### 1.1.1 PORT DEVELOPMENT / OVERVIEW

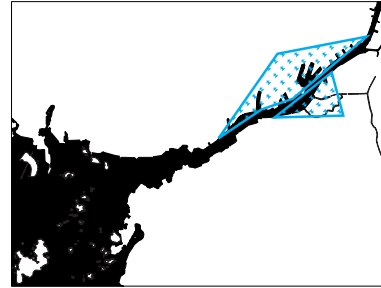
According to Han Meyer, four phases can be distinguished in the structure of a port city. [7P23]

- ▶ port in use
- ▶ abandoned port



**Entrepot port**  
is a port within an enclosed city. Goods are stored and traded in the city. The quay is also public street. 1621 - 1890

Gothenburg harbour situation 1621 - 1890



**Transit port**  
is a port alongside an open city. Flow of goods passes the city. Division of city and port has begun. 1890 - 1975

Gothenburg harbour situation 1890 - 1975



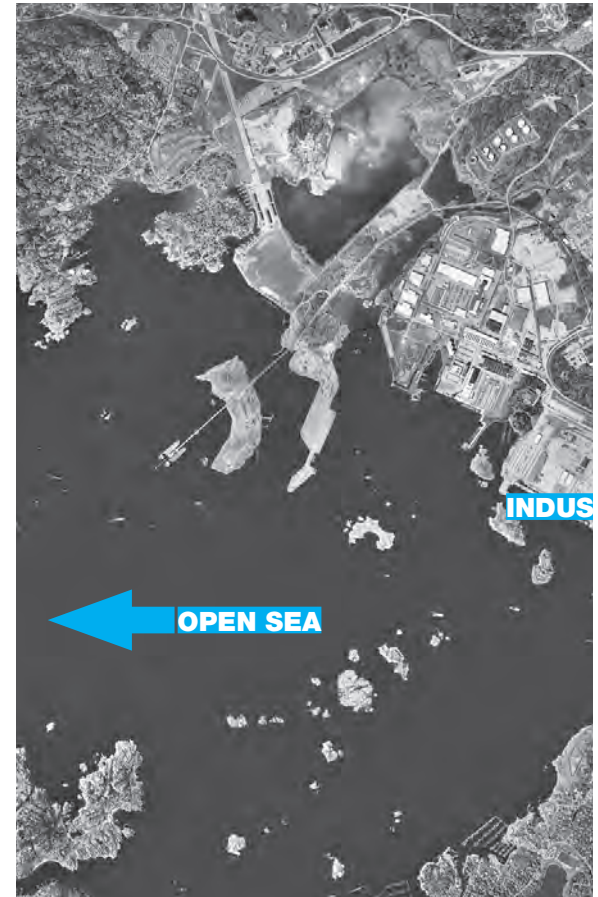
Gothenburg, 1644 [24]



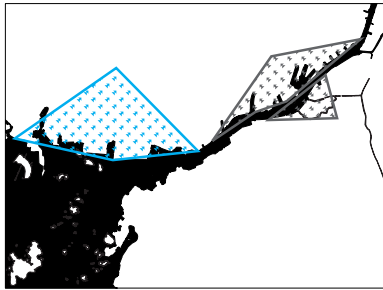
Gothenburg, 1855 [24]



Plan for the new Free Port design, 1894 [23]

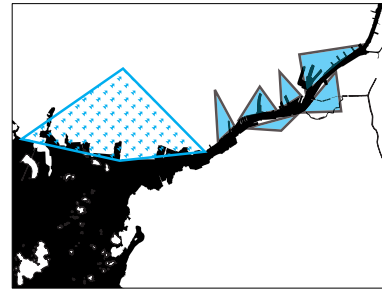


In the case of Gothenburg, these four phases - slightly delayed compared to other major port cities [7] - can be seen clearly.



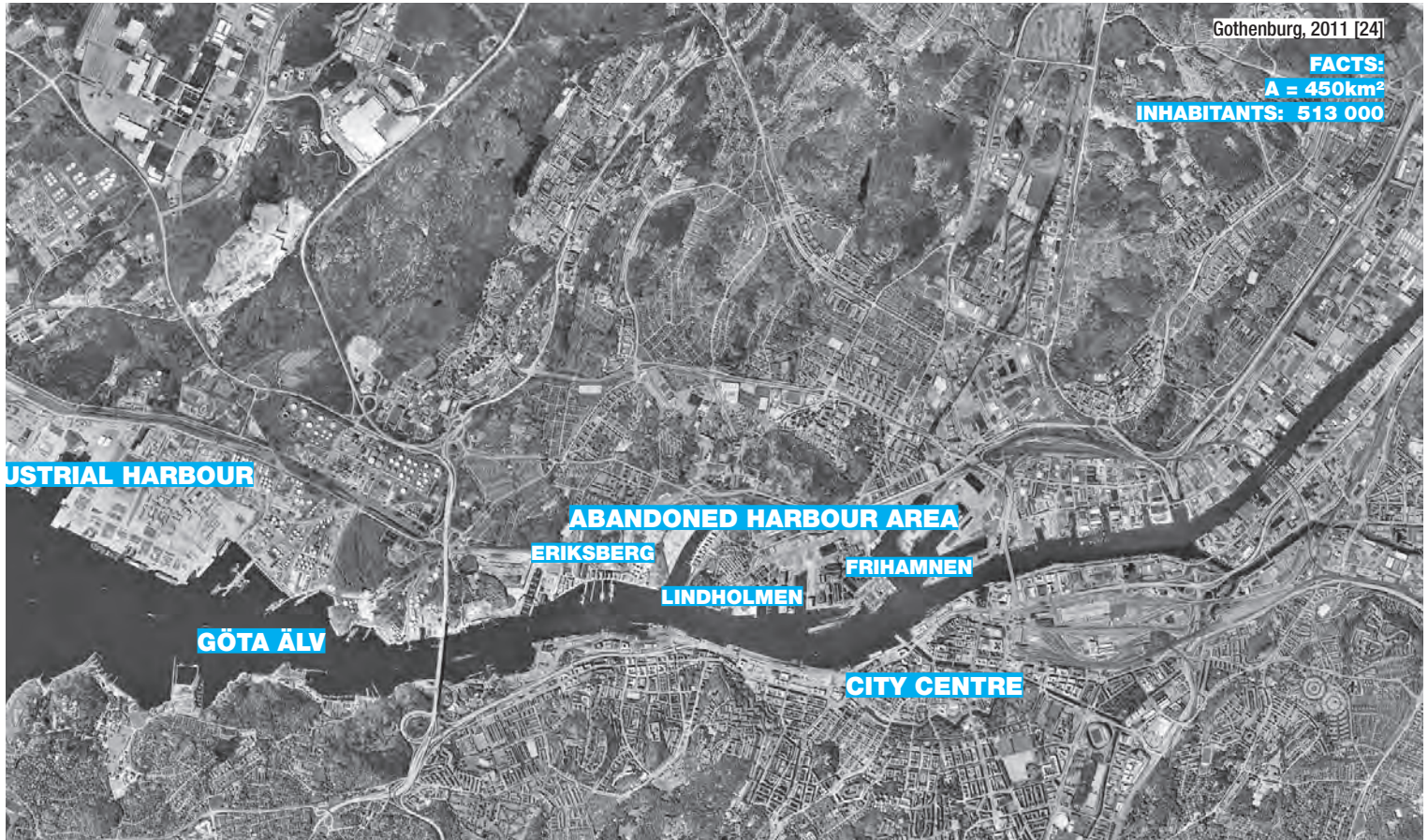
**Industrial port**  
Port and city are divided physically.  
Goods are processed in the port area.  
1975 - 2011

Gothenburg harbour situation 1975 - 2011



**Network city**  
The port is rediscovered by the city as a part of the urban landscape; the city is rediscovered by the port as a potential nerve center for logistics organizations and telecommunication.  
1990 - 2011

Gothenburg harbour situation 1990 - 2011

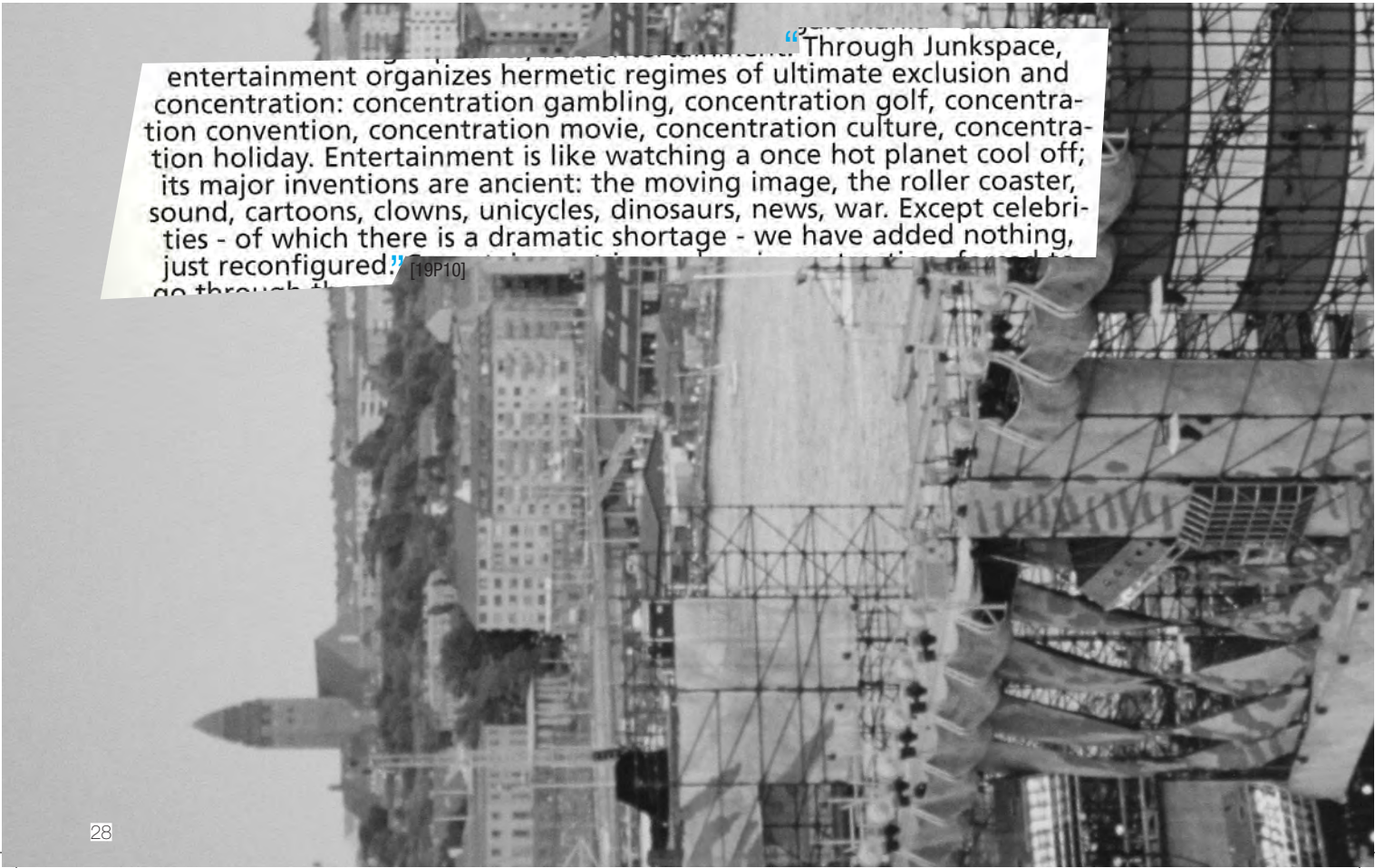


## 1.2 FANTASTIC NORDIC ?

One common aspect of Scandinavian countries is that all major cities are located next to the coastlines and the population is concentrated in those cities. This phenomenon has its origin in the relevance of harbours as trading and transportation areas in the past. *“The main transport hubs are located near the major port cities of Copenhagen, Oslo, Gothenburg, Stockholm and Helsinki in the southern portion of northern Europe. One role that should not be underestimated is the bridge function performed by northern European logistics systems. In particular, through transports to Russia are of tremendous importance.”* [30]

Apart from Gothenburg, Scandinavian harbours lost their high relevance as being the driving force in developing the cities and being the basis of life for their population.

However, Gothenburg still provides the biggest industrial port for sea-trading in the Scandinavian region although the port shrank tremendously compared to its golden times in the 1950s (▶chapter 1.1). As a result of globalization, the heavy industries have moved more and more radically to low-wage countries and Europe has to deal with an increase of unemployment. New strategies need to

An aerial, black and white photograph of a city, likely Los Angeles, showing a large stadium under construction with a complex steel framework. The stadium is the central focus, with surrounding urban buildings and infrastructure visible. A white text box is overlaid on the image, containing a quote.

“Through Junkspace, entertainment organizes hermetic regimes of ultimate exclusion and concentration: concentration gambling, concentration golf, concentration convention, concentration movie, concentration culture, concentration holiday. Entertainment is like watching a once hot planet cool off; its major inventions are ancient: the moving image, the roller coaster, sound, cartoons, clowns, unicycles, dinosaurs, news, war. Except celebrities - of which there is a dramatic shortage - we have added nothing, just reconfigured.” [19P10]

be invented to fill the gap that the lost industries leave. Mostly this is done by creating new jobs in service industries and enterprises. In addition to the employment problems, most of the Scandinavian cities have to solve the problems of abandoned port areas. Strategies for reusing and **renewing\*** the waterfronts that lost their strong economic relevance have to be found.

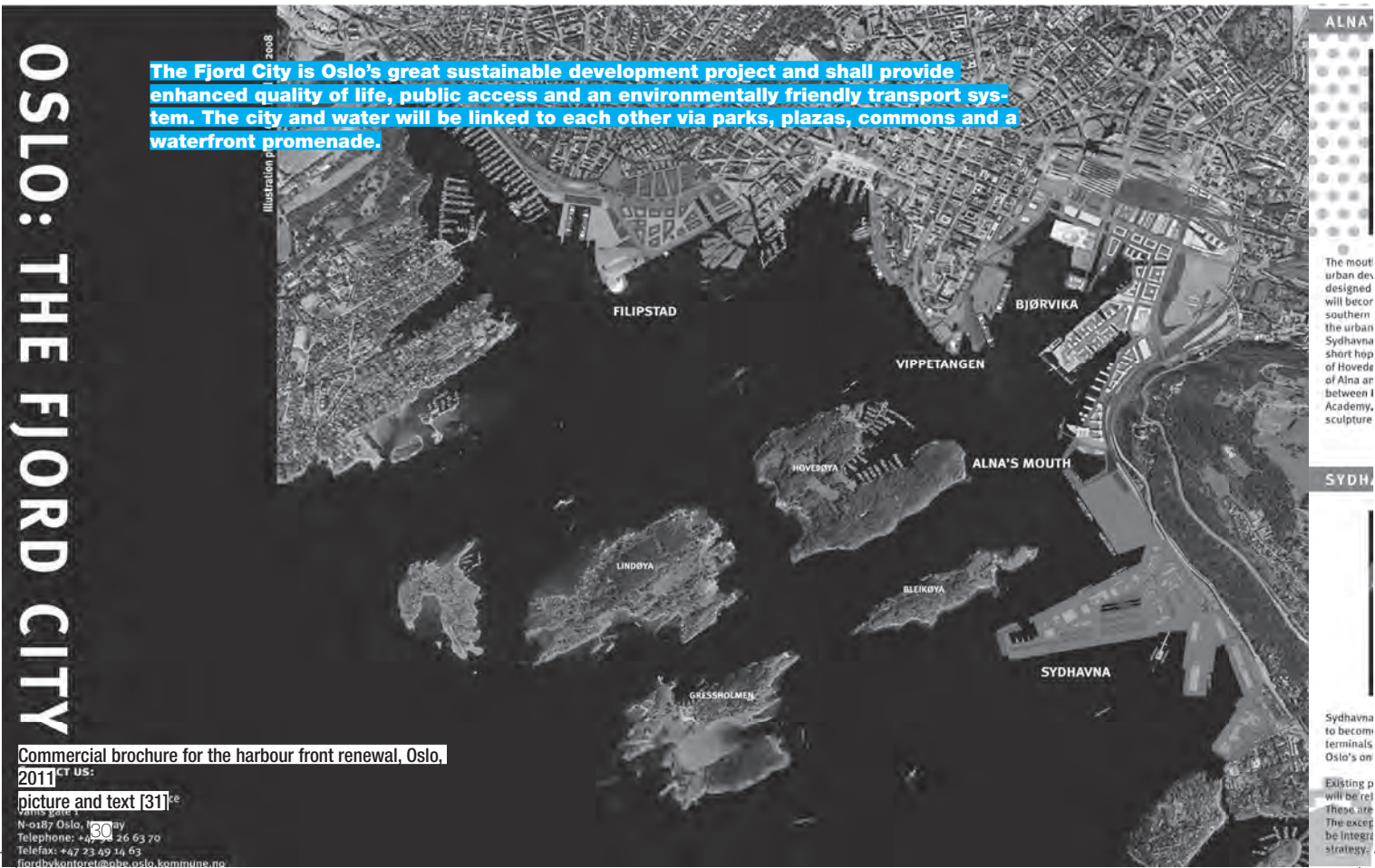
A common European phenomenon in this respect is the event culture, which means trying to sell events, entertainment and cultural as well as touristic values.

\*“verbs that start with re- produce Junkspace.... Junkspace will be our tomb.” [19P8]

The following head to head comparison should point out the paradigm shift and the “festivalization“ that is taking place in almost all Nordic port towns. In every case the goal is to renew the waterfront and to change the working-class image into a modern innovative entertainment culture big-city image.



Festivalization of the port area, Eriksberg, 1990 [23]



# OSLO: THE FJORD CITY

The Fjord City is Oslo's great sustainable development project and shall provide enhanced quality of life, public access and an environmentally friendly transport system. The city and water will be linked to each other via parks, plazas, commons and a waterfront promenade.

Illustration p. 2008

ALNA

The mouth of the urban development designed will become southern the urban Sydhavna short hop of Hovedøya between I Academy, sculpture

SYDH

Sydhavna to become terminals Oslo's on Existing p will be rel These are The excep be integr strategy.

Commercial brochure for the harbour front renewal, Oslo, 2011

picture and text [31]e

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OSLO - NO



ALNA'S MOUTH

THE WATERFRONT PROMENADE

FILIPSTAD



mouth of the river Alna, the Fjord City's most eastern in development area, will become a recreational area designed for leisure and water-based activities. The area becomes the gateway to the fjord for the eastern and northern areas of the city and function as a buffer between urban development in Grønli and port operations in havna (southern harbour). From the mouth Alna it is a 10 min hop over to the shielded water between the Islands Ovedaya and Bleikaya. Good links between the mouth Alna and Karlsborgveien are a must to ensure the links between Ekeberg and its recreational areas, the Naval Cemetery, and the Ekeberg Restaurant, as well as the future nature park and cable car link with Bjarvika.



These areas [former industrial port areas] will be released for urban development.

Offer new public attractions, parks, the fjord tramline and the water front promenade.

The waterfront promenade will be one of the Fjord City's key attractions and will provide public access to the waterfront throughout the whole of the Fjord City. The waterfront promenade will, together with the commons, ensure that the Fjord City's urban development areas are linked together at the ground level and along the fjord. Various cultural and recreational amenities will lie like pearls on a string along the course of the waterfront promenade. The waterfront promenade will be open to all and attract a broad group of users thanks to its universal design and rich range of activities and recreational facilities.

OSLO: THE FJORD CITY  
City of Oslo  
Agency for Planning and  
Building Services



Filipstad is one of the Fjord City's largest development areas. Large-scale urban development is planned for Filipstad with commercial, residential, parks, and

The waterfront promenade will be one of the Fjord City's key attractions and will provide public access to the waterfront throughout the whole of the Fjord City. [...] Various cultural and recreational amenities will lie like pearls on a string along the course of the waterfront promenade. The waterfront promenade will be open to all and attract a broad group of users thanks to its universal design and rich range of activities and recreational facilities.

DHAVNA

ENVIRONMENT AND FJORD TRAM

VIPPETANGEN



havna, the Southern Harbour, will be developed to become one of Norway's largest and most efficient terminals handling all types of goods. It will also become the city's only area for heavy port operations.



Provide space for larger attractions/institutions.

The mouth of the river Alna, the Fjord City's most eastern urban development area, will become a recreational area designed for leisure and water-based activities.

The fjord tram will ensure good access for all to the Fjord City and its functional and symbolic effects will help to make the waterfront, parks, streets, plazas, commons and other open areas in the Fjord City more accessible to the public. The fjord tramline is a prerequisite for achieving the Fjord City's goal of offering the public a complete, environmentally friendly, transport system.

Port operations in other parts of the Fjord City will be relocated to Sydhavna's concentrated port area. These areas will be released for urban development. An exception is the ferries and cruise traffic, which will be integrated into the Fjord City's urban development strategy.



Vipptangen is Oslo's most important promontory due to its central position and its cultural and historical importance. The development of Vipptangen will preserve Akershus Fortress' position in the cityscape, facilitate cruise and ferry traffic, and offer new public attractions, parks, the fjord tramline and the waterfront promenade. The urban development in Vipptangen will provide good links between Pipervika and Bjarvika. These links are important because the Fjord City plan is a general urban development strategy and they will strengthen the character and experience value of the Fjord City.



In the coming years, containers and cranes will be replaced by world-class architecture.

Aalborg is no longer an industrial city, but a knowledge and experience city, with the ongoing regeneration of the harbourfronts in Aalborg and Nørresundby. Today's agenda is concentrated on creating attractive urban space.

# NEW HARBOURFRONTS - Aalborg and Nørresundby

A presentation of a number of the key projects from the regeneration of the harbourfronts in Aalborg and Nørresundby.







AALBORG - DK




Architecture in Aarhus's new, maritime urban area: the Aarhus Docklands.

**“The Aarhus Docklands clearly demonstrate that international thinking and an ambitious strategy for the development of our city pay off,” says Aarhus city architect Gøsta Knudsen, and continues: “The international attention which the new urban port area is generating stimulates investments in the area and signals at the same time that Aarhus is a city of architecture.”**

**From industry to knowledge and experience: regeneration of the central harbourfront being a very tangible symbol of this process. Whereas previously the transport of goods takes places and locations in which the opportunities for experiences, development and spending time in the area are paramount.**

Commercial brochure for the harbour front renewal, Aalborg, 2011  
picture and text [32]





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**At the beginning of the 21st century we are living in a time of great change, facing a multitude of challenges both economic, environmental and social. By the year 2050 its population is predicted to grow from the present 1.3 million to 2 million. With 70 million square metres of foreseen new built-up area, Helsinki is to become a leading cultural and technological centre in the Baltic area. This transformation should not, however, forget the particular love of nature. The new world in which we operate should offer a civilised, civilising and inspiring environment for human collaboration, for human endeavour and for human progress.**

**This is the purpose of this competition or should we say visionary adventure. The chance to dream afresh, to accept current realities and to create new ones. We want you to build on the positive qualities of the existing landscapes that confront you, both the natural and the built. Unique, exciting, a centre of excellence and a symbol of hope and inspiration. We hope to see your ideas.**

Commercial brochure for the harbour front renewal, Helsinki, 2007  
picture and text [33]

– International  
 Ideas Competition  
 15<sup>th</sup> December 2010 – 31<sup>th</sup> May 2011

environmental, social and cultural. Greater Helsinki is one of the most dynamic metropolises in Europe. In the next new construction, the overall physical structure of Greater Helsinki can be re-shaped in a way that will reinforce its position as a place of nature in Finland, nor sustainable urban infrastructures. The physical structure of Greater Helsinki should be shaped by the climate and seasonal climate changes, and above all, for human dreaming.

However, not as negative restraints but as spurs to the imagination. We want you to show us the future Greater Helsinki you have in mind. If your idea is energetic, energising and memorable, this is your agenda for the Greater Helsinki Vision 2050, for the area to become an urban trail blazer, a place to be proud of. We hope that this competition will become a landmark chapter in the history of the planning and development of the Greater Helsinki.

- What kind of places respond actively and wisely to climate and seasonal climate changes?
  - What kind of places put a minimal strain on our eco-system?
  - How do we create sufficient wealth to realise our future needs and dreams?
  - What kind of enterprises will sustain us in the future?
  - What kind of places do we wish to be in which nourish us both physically and mentally?
  - What kind of places offer both positive creative tension, spontaneity and contact as well as a feeling of safety and well-being?
  - What kind of places offer a concrete vision of humanism and tolerance, of justice and equality, of untapped potential and future possibilities?
- ☞ What kind of places offer every child a hint of what they might be or do?



HELSINKI - FI

**Göteborg will be a city where the**

**The Göteborg region will be a strong, clear growth region in Europe – a region that is attractive to live and work in, and to visit. V  
business community and sustainable growth as necessities for continued prosperity – a good life – for everyone.**

**In brief, the Älvstranden model is one in which users, investors and other stakeholders participate in city development  
in close collaboration with municipal administrations and property owners. The bottom line is that those who provide the  
actual funding participate in the process and gain influence over the content and shaping of the city.**

**The friendly city is evolving on both sides of the river. Here, work, residences, education, commerce,  
research, culture and recreation all work together fruitfully. Space for people is created in an appealing  
waterfront environment that puts human interaction in focus. New buildings combine with existing ones in  
harmony with the sea and the environment.**

**Göteborg has become the Events city with a capital E. The vision developed by Göteborg & Co.  
states that Göteborg will be “one of Europe’s most human and most attractive big-city regions  
to live in, work in and visit.” The waterfront is a resource that is used for events of all sizes.  
The events in turn have enhanced the image and attraction value of the waterfront.**

**Environment and sustainability are key words for the development of Centrala Älvstaden.**

**go:teborg**



GOTHENBURG - SE



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Future vision Gothenburg  
picture [34] text [21]

#### Gothenburg, the Knowledge City

*„Vacant harbour areas are some of the most visible exponents of the Western transition from the Industrial to the Post-Industrial Age, as well as of the consequences of this transition for the spatial and functional shape and structure of the city. The relocation of large areas of industrial production to other spots on the*

*globe and, in particular, the emergence of completely new transportation technologies provided a reversal in the position held by industrial centers and transshipment harbours within international economic networks.“* [7P13]

As shipyards in the city centre closed down one by one and the remaining harbour moved out of sight towards the open sea, the post-industrial wasteland could be exploited for new purposes. *“From having been the country’s number one industrial center, Gothenburg was launched as a knowledge and event city”* [6P61] since the late 1980s. Gothenburg is trying to transform its image from the former working-class port town to an open-minded culture, entertainment, knowledge and event city. A new identity for the new city in a post-industrial globalised world is being created. For this reason *“A specific company (Göteborg & Co.) was created to adapt and market Gothenburg as the ideal location for sports and cultural events.”* [3P14] Göteborg & Co’s main goal is to *“festivalize”* [Meyer, Han; 7P44] the city. *“The term “waterfront redevelopment”*

*spread around the western world’s former industrial centers and the development of urban areas near water became a global recipe for success.”* [6P61]

Gothenburg & Co is creating a beautified image of Gothenburg showing the right people who are attracted by the post-industrial standards of good taste. *“It was necessary for potential home buyers, tourists, and investors to be able to identify*

*themselves with the place.”* [6P61]

The term “port city” has become a lifestyle indicator for the middle class that defines itself as “flaneur” that is attracted by this post-modern urbanity. This definition takes us back to 19th century Paris where the modern understanding of urbanity emerged. The flaneur - in his role as an essayist - was *“delighting in the city’s immeasurable “delices du chaos et de l’immensité.”* [Baudelaire, cited in Frey 1999, p. 12]“ [12P13] The flaneur’s opportunity to contemplate and analyze is what attracts the new middle class and sets an artistic and intellectual reference point to head for.

The aesthetic beautification of the waterfront is emphasized while the working-class influence that provided the foundation for this new profile and the inhabitants’ lifestyle is denied. The fact that the port moved out of sight makes it easier for the new inhabitants to disregard that their lifestyle has only been made possible by a global division of labour that is linked via shipping.

This new form of urbanity expresses a new form of political visions and goals

for the city that no longer accommodate former values.

*“This silence is tied to a post-political condition built on a belief that we live in a time without conflicts and politics has been reduced to transfers between relatively prosperous groups. This is why we no longer regard industry as a part of our times – although it is. Not even the port, the place that makes it possible for us to consume all those products that define us and our lives, reaches us, is regarded as an integrated part, but is instead somewhere out there, somewhere else.”* [6P64]

While the abandoned harbour areas throughout Europe are the most obvious signs of the movement from the industrial to the post-industrial era, also employment changes reveal that paradigm shift. The employment changes in Gothenburg between 1950 and 2006 indicate the transition to post-industrialism.

In line with post-industrial theory, manual labour has dropped to less than half the amount in the mid 20th century. The fact that it has not decreased more dramatically is explained by the circumstance that Gothenburg still is Scandinavia’s biggest port with a huge industry backing it. As in other European post-industrial port cities, a structural change has already taken place from production based on the shipping industries to a growing service sector. Today’s knowledge-intense work situation requires other qualifications than manual labour, post-secondary education has received more importance in the distribution of welfare. In the case

*“It is difficult to find people who have been displaced, particularly if those people are poor... By definition, displaced residents have disappeared from the very places where researchers or census-takers look for them.”* [Kathe Newman]

|                 | 1950 | 1970 | 1990 | 2006 |  |
|-----------------|------|------|------|------|--|
| Manufacturing   | 36,3 | 28,6 | 19,1 | 17,1 | In line with post-industrial theory, manual labour has dropped to less than half the amount in the mid 20th century. |
| Trade           | 22,7 | 18,8 | 15,9 | 14,7 |  |
| Public services | 18,8 | 24,6 | 38   | 36,5 | [source 3P55]  |
| Other           | 22,2 | 28   | 27   | 31,7 |  |

of Gothenburg, this manifests itself also in the education system. *“In Gothenburg’s school plan, it says that today Gothenburg is an education and knowledge city with the ambition of gaining a leading position in an international perspective.”* [3P207]

Gothenburg is taking advantage of the globalization process and is marketing itself as a city that managed to handle these paradigm shifts and more to sell them as a change for the better.

*“The connection between Gothenburg and the global “event culture”, one of the key components in the marketing of cities/regions that in international urban research have been analysed as “cultural strategies” for meeting the increasing economic globalization, can be viewed as yet another modification of the classic Gothenburg spirit.”*

[3P15]

Gothenburg is the Swedish city where this transformation is most evident but it can be seen as representative of all other European post-industrial harbour cities.

*“A central aspect of the last decades’ transformation of cities in western countries is that political rule has begun*

*to place more weight on “shaping up” the public space through measures supposed both to beautify the city and guarantee safety for citizens.”* [3P16]

In the case of Gothenburg, this transformation of the port areas has had a deep impact on the sociological structure of the city. The former port areas were once characterized by working-class inhabitants with social networks and low-price shabby residential areas. Due to the ongoing renewal process a huge gentrification process has been started.

This gentrification process implies *“the successive upgrade of old working-class neighbourhoods in connection with an increased interest in these areas on the part of a new middle class, which is rich in “cultural capital” and covets an urban lifestyle.”* [3P11]

### Waterfront renewal and Gentrification

Gentrification describes a socio-economic process where - due to the upgrading of city areas both physically and socially - former inhabitants are being displaced. The gentrification process can be roughly split into three phases.

### Phase 1

So-called pioneers are intruding into a shabby area with a generally low educational status of the residents and cheap rents for housing. These pioneers are mostly people with a high education level, a middle-class background and a low income, like students or artists. They occupy cheap flats and start creating a creative/alternative scene within the quarter.

### Phase 2

The area with its evolving alternative flair becomes attractive for so-called gentrifiers. Gentrifiers are characterized by a high educational level and a high income. To provide proper dwellings for the gentrifiers' investments renewal is carried out. At this point the quarter has become economically interesting for the housing industry.

### Phase 3

Rents are increasing and former inhabitants, mostly immigrants or working-class people with a low income and low educational level, cannot afford to live in the quarter anymore and move to other areas, mostly suburbs. More and more gentrifiers invade the area, rents are increasing and housing types change from rental flats to condominiums.

### Phase 4

The renewed attractive area is interesting for people with highest incomes. Former households are gone and even the pioneers are now affected by displacement because they do not fit in the quarter concept and can not afford the rising costs of living any more.

Areas that are running the risk of being affected by gentrification are characterized by the following aspects:

- located near the city centre
- mainly old buildings in bad conditions
- low ground and rent prices
- inhabitants with low income and low social status

*“Once this process of ‘gentrification’ starts in a district it goes on rapidly until all or most of the original working-class occupiers are displaced and the whole social character of the district is changed”* [Ruth Glass, 1964, p.18]

According to Peter Marcuse [Slater, Tom; 2005], four types of displacement can be distinguished:

- Direct last-resident displacement (through rent increases or physical means)
- Direct chain displacement (prior households occupying the same unit are also displaced)
- Exclusionary displacement (households unable to access property because it has been gentrified)
- Displacement pressure (when a household moves because a neighbourhood becomes less and less liveable under gentrification)

According to Kirsteen Paty, *„physical replacement is not primarily necessary, it is rather the working-class image that has to be replaced.“*

*“To the extent that the transformation of cities can be understood in terms of gentrification, it is about a complex interplay between local, national and global processes.”* [3P11]

In the case of Gothenburg, there have

always been good connections between economy and politics and *“Gothenburg has been considered as one of the leading cities in Sweden by those who think that a closer collaboration between politics and business is the best way to meet the current challenges created by economic globalisation.”* [3P7]

Centrala Älvstaden Utveckling, a company that was founded to mastermind the harbour front renewal since the late 70s comments as following:

*“Göteborg is its citizens. The people who live in, work in and physically use the city are one with, and create what we proudly call the City of Göteborg. The people are the city’s most important asset. They fill the streets and squares, populate workplaces and homes, create events and occurrences that enrich our lives. The physical shape of the city is the arena where these people live and bring their lives to fruition. The city is the place and the everyday space where people meet.”* [21P4]

But where are the people now that have been displaced? Are they not counted as citizens?

Kathe Newman’s conclusion to answer these questions is as following:

*“It is difficult to find people who have been displaced, particularly if those people are poor... By definition, displaced residents have disappeared from the very places where researchers or census-takers look for them.”* [Slater, Tom; 2005]



The collective mind has forgotten that the replaced – working class and immigrants – were needed during the height of industrialization. At that time it was necessary for the City *“to be included on the maps of the low-educated and the potential immigrants, as a place that could offer jobs and a future, a place to live in and migrate to. The city needed immigrants in order to expand and that meant making the city attractive to immigrants.”* [6P61]

The beautified image, the window on the river, that is created next to the waterfront with fancy housing, cosy cafes, entertainment and events is built at the expense of the displaced. And by replacing industrial remnants with modern architecture, the past that does not fit into the modern picture is taken out of the collective mind.

Britta Söderqvist – Maritime Museum Gothenburg – asked students in different schools about their understanding of Gothenburg. Their answers underline the assumption that the working-class image of the city is already out of sight for younger generations.

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*“In answer to the question what they think of when they hear the term “port city”, most reply: entertainment, restaurants, lit-up bridges. When I ask them about places that they associate with Gothenburg, the students reply in chorus: Nordstan shopping mall, Lisseberg amusement park, the thoroughfare Avenyn.”* [6P14]

The “official“ Gothenburg development attitude of how to deal with the industrial remnants is all about beautification and making everything nicer.

*“[...] Why it [Eriksberg Crane] is not bungee-jumping anymore is because of security reasons [...] everything had to be secured [...] that cost us an awful lot of money [...] what we did is this illumination [...] to make it something of a symbol or something that is not frightening at night, to make it nicer. [...] so, that is what we did, and what we can do.”*

[Cecilia Strömer, architect and urban development at Älvstranden Utveckling AB]

Interview recorded on June 13th, 2011, Gothenburg

The industrial past has already vanished, *“Port cities became the shimmering theatres of the modern world“*, [7P32] and *“this previous harbor area, characterized by hundreds of cranes, constant noise from the shipyards and the continuous arrival and departure of ships”* [6P59] is gone both physically and mentally. The water that symbolized once *“the industrial city’s productive grandeur”* [6P59] changed into another symbol - a symbol of something that has been lost.

**“Physical replacement is not primarily necessary. Rather it is the working-class image that is being replaced.”**

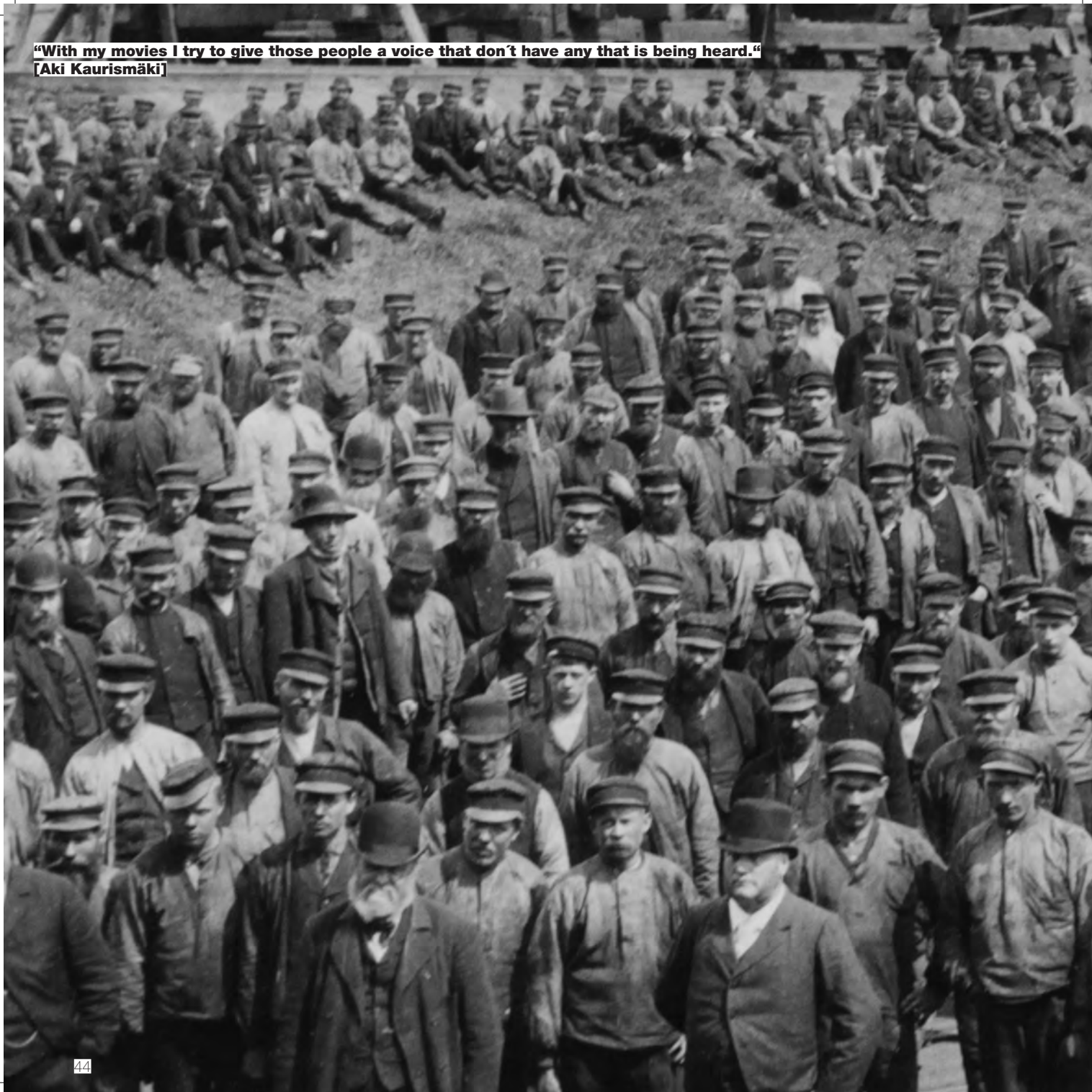
[Kirsteen Paty] International symposium on gentrification processes, 29th of october 2010, City Museum Gothenburg





**“With my movies I try to give those people a voice that don't have any that is being heard.”**

**[Aki Kaurismäki]**

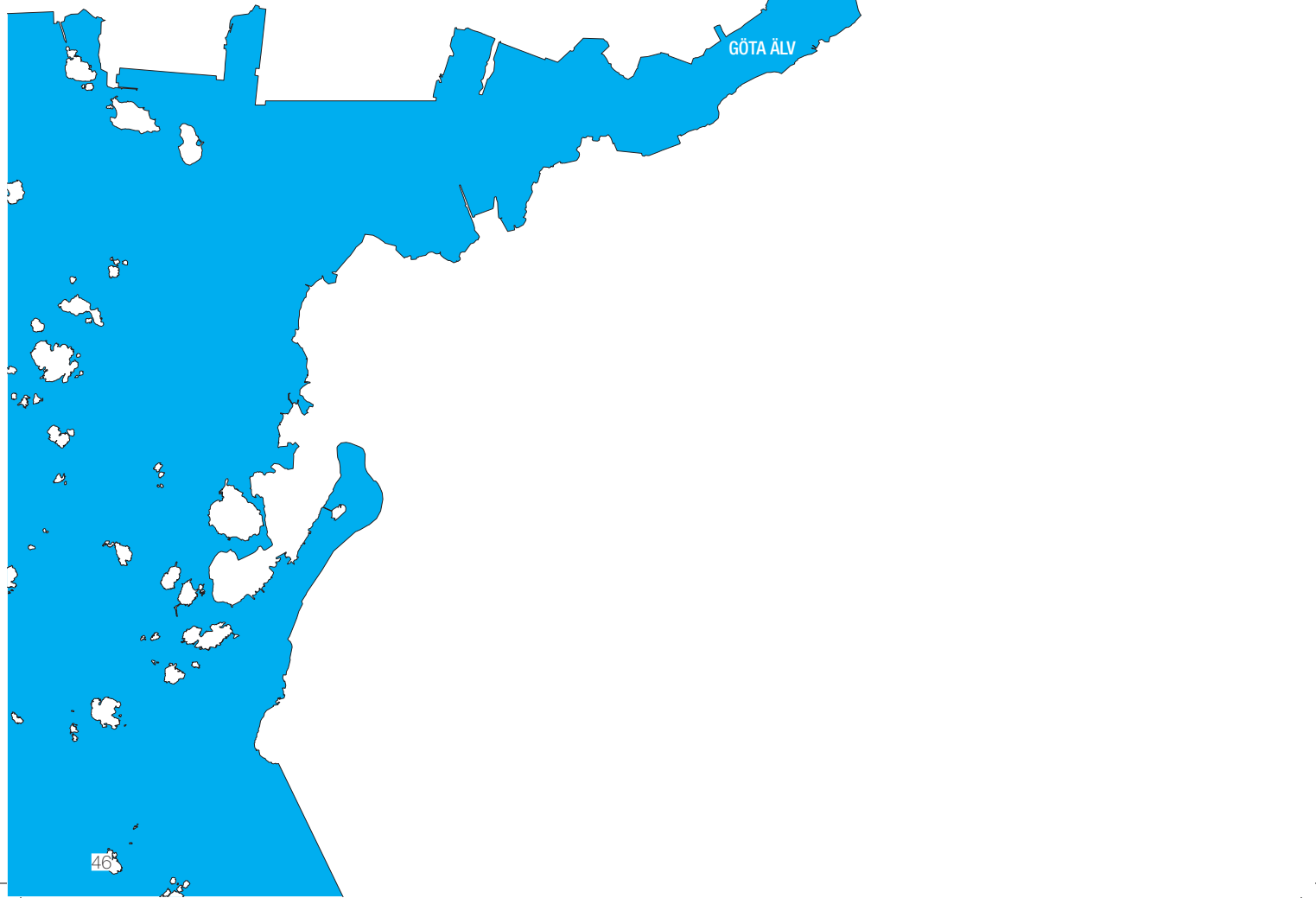


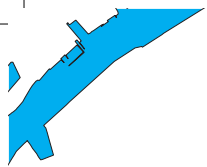


*“The further one goes up the river (London River Thames) the thicker becomes the concentration of ships lying at anchor, so that eventually only a narrow shipping lane is left free in mid-stream. Here hundreds of steamships dart rapidly to and fro. All this is so magnificent and impressive that one is lost in admiration. [...] It is only later that the traveler appreciates the human suffering that has made all this possible.”*

[Friedrich Engels]

[10P42]





## **2 PROJECT**

**ERIKSBERG CRANE**  
**HEIGHT: 88m**  
**SPAN: 126m**  
**LIFTING CAPACITY: 450t**

**THIRTEEN-STOREY BUILDING**



 **OPEN SEA**



## OUT OF THE PAST

Gothenburg is a city that was built by the working class. (▶chapter 1.1) Over decades, its main purpose was to serve industrial needs and Gothenburg's heart was the harbour. Back in the 1960s, Eriksberg Mekanika provided 20 000 workplaces. One third of the total city population [source 35] was employed by industry back then and the workers were proud of their profession. Nowadays the significance of manual work has dropped dramatically and manual work is vanishing throughout Europe. More than that, the working class is almost seen as "poorly qualified" and is associated with a negative image. At any cost, Europe tries to raise academic quota and presents itself as open-minded, culturally significant, with cities full of fun and entertainment. More than getting rid of the working class itself, it is all about getting rid of the working-class image (▶chapter 1.3). In the long run, Europe has to face the consequences of the decline of the working class and answer the question where this process of intellectualization and festivalization should lead to.

Like all important harbour cities in Northern Europe, Gothenburg has been undergoing a process of social and economic changes. As can be seen elsewhere in post-industrial centres, the former industrial town has been developing into a metropolitan city offering culture and entertainment (▶chapter 1.2). However, Gothenburg still is the biggest industrial port in Northern Europe with industries that have left the centre to resettle in maritime areas further off the coast. The former harbour area in the centre with the dominant cranes that evoke pictures of the harbour's busy industrial past is more or less abandoned today.

Other Scandinavian harbours - for example Aalborg and Aarhus in Denmark (▶chapter 1.2) - which are confronted with the same problem are trying to revitalize abandoned industrial zones by developing centres of entertainment and exquisite housing estates in the docklands. However, this strategy entails serious gentrification problems (▶chapter 1.3) and raises the question what the future is holding in store for a society that puts the emphasis on culture and entertainment only when trying to replace a vanished past with a viable future.

Considering the paradigm shift described above as well as the problems and potentials of abandoned harbour areas, I am going to deal with current socio-political and economic tendencies of harbour cities in Northern Europe exemplified by Gothenburg in my housing project OUT OF THE PAST.

At the centre of this project there is the issue of housing estates in the former industrial docklands of Gothenburg with the focus on preserving their industrial character when designing a meaningful alternative.

*"The future of towns: they will be centres of leisure, of entertainment, centres of public life, centres of organization and of decisions of public interest. The other functions (work, production) will be more and more automated and consequently, less and less linked to the great agglomerations. The raw material "worker" will lose its importance and be transformed into "spectator" or "client".*

[Yona Friedman, 1962; 2P183]

The project's attempt is to deal with this process of converting European harbour cities into entertainment paradises in a critical way and to introduce another standpoint, namely to see the



**GOTHENBURG CENTRE** 

# STUNNING



industrial sites, with their landmarks and monuments, as a reminder of the city's foundation and past and to give these remnants of the past a new purpose and meaning, thereby a new symbolism which pays respect to former times and people.

The Eriksberg Crane ( ▶chapter 2.3.1), the main symbol of Gothenburg's history and its working-class past, is Gothenburg's landmark and the symbolic line between the port and the open sea. Since 1972, it has no longer been in use and therefore is not more than a historical monument that has lost its important purpose. It is not more than a remnant of the past that stands for all the other industrial areas and the heavy industry machine parks that are abandoned today.

By hanging a housing structure ( ▶chapter 2.3.2) into the Eriksberg Crane I want to give this symbol a new meaning and purpose. The project is not only about preserving this monument, it is more about giving it back some of the former importance and therefore paying respect to the working-class past. By integrating this crane into the ongoing processes of renewal and by transforming its former practical value in industry into a new value in housing, the crane can be implemented into Gothenburg's present context.

The structure that is carried by the crane is a metal framework that tries to reflect the industrial character by being very rough, consisting of bare steel elements. Like technical machinery, it only has to fulfil the very purpose it is designed for, which is to carry and serve housing units, that can be plugged into it. It acts as a *"skeleton that can be filled by will"* [Yona Friedman, 2P183]. The structure should be as invisible as possible, with its fragile dimensions fulfilling the minimum requirements that are necessary for carrying the housing units - plug-ins - and providing enough stability. The SUPERSTRUCTURE which consists of crane and carrying structure forms a rigid framework - the skeleton - and serves the purpose of a background that should catch as little attention as possible as the plug-ins are the very heart and centre of the project.

The plug-ins ( ▶chapter 2.3.3), which are designed as empty and bare units, have the dimensions of cargo containers. They consist of cargo containers' skeletons that are equipped with wall -, ceiling - and floor panels that fulfil modern housing standards ( ▶chapter 2.3.3.1). One plug-in provides a volume of 178m<sup>3</sup> and represents a single dwelling unit that can be inhabited by one person in general. By connecting units, the original 178m<sup>3</sup> can be multiplied and extended. By shifting them within three positions, balconies and terraces can be created ( ▶chapter 2.3.3.2). As they are plugged in, they can be removed at any time and can be shifted to other places within the grid or within a network of CRANECITIES ( ▶chapter 2.4.3).

By connecting, removing and shifting, different set-ups can be created and a flexible structure that can be altered at any given moment is provided. This offers a wide range of different constellations that can meet the needs required at any given moment. ( ▶chapter 2.4)

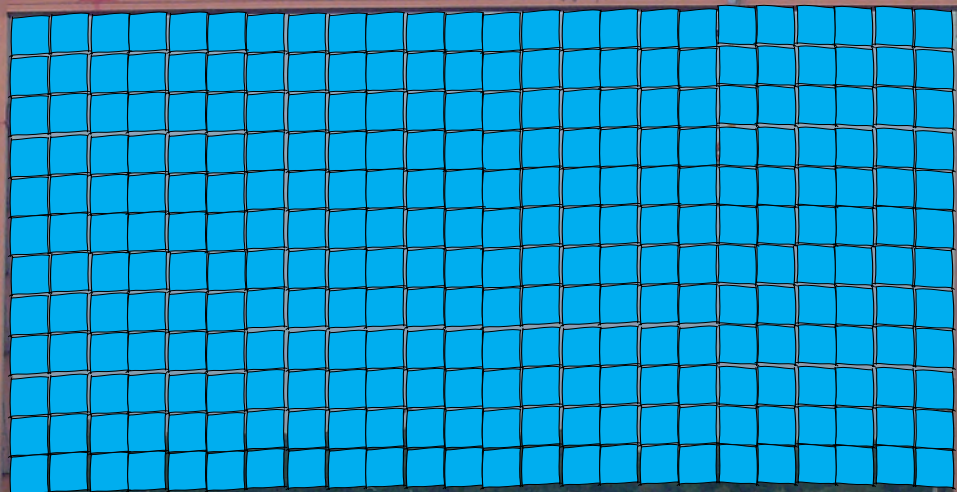
The key idea of the project is to provide housing units which are able to support and to follow different situations in the lives of their residents ( ▶chapter 2.4.2). For this very reason the container, which is a standardised pre-fabricated mass production element, becomes a unique element if appropriated and used by the residents. By arranging different set-ups they have the opportunity to take full responsibility for the quality of their dwellings and can develop their creative potentials.




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I want to follow the thoughts of Constant when he describes parts of his “New Babylon” project: *“New Babylon is a project for a city in which it is possible to live. And to live means to be creative. New Babylon is the object of a mass creativity; it reckons with the activation of the enormous creative potential which, now unused, is present in the masses. [...] It is the medium for a new creativity that is to manifest itself in daily life, by means of a continually varied arrangement of the environment, in harmony with a dynamic way of life.”* [Constant, 1960; 2P177]

In order to contribute to the quality of the future development of the housing project, I have created a set of rules ( ▶chapter 2.4.1) which should be taken into account when filling the structure with plug-ins. Of course, the set of rules should not narrow down people’s creativity. Instead, it should be seen as a guideline for social factors that I consider to be important for the success of the project.

First of all, to avoid social isolation and encourage social interaction, communal facilities that serve the purposes of social life and provide basic standards of living open-minded and socially inclusive lives are essential. Secondly, as monotony and the problems of superblocks are incompatible with the project, the density must be regulated. Furthermore, the aim to integrate the project into Gothenburg’s socio-political structure and to avoid gentrification problems must be observed consciously. To give additional value to the surrounding area, the roof top is supposed to be a huge public, non-commercial space which can serve as a social and recreational meeting place. In addition, the roof top can be used to solve Gothenburg’s present problem of having a city that is divided by the river Göta Älv. ( ▶chapter 2.5) It can take the role of a bridge which connects the northern and the southern part of the city. By bridging the gap, the city is zipped up, so to say.

Obviously, conservative housing projects are questioned by the project. It should be seen as a point of departure for more adequate forms of housing and thus new and more humane forms of society for the future. Visions and ideas that were already brought up in the 1960s are taken up again, are modified, and are put into a present context ( ▶chapter 2.2). Constant points out that *“It can scarcely be planned any longer to cater for permanent dwelling.”* [Constant, 1960; 2P178] This idea holds true for the project presented. The living spaces are not regarded as permanent dwellings but as fluctuating living units that favour a frequent change of domicile.

OUT OF THE PAST presents a proposal that has to be seen as a thought, an idea, a vision of living in unfamiliar and yet promising forms of housing in the short run and in new forms of society in the long run. ( ▶chapter 2.2.2)

It is an illustrative sketch that attempts to give shape to the ideas mentioned above *“to maintain a creative game with an imaginary environment that is set in place of the inadequate, unsatisfying environment of contemporary life.”* [Constant, 1960; 2P177]

OUT OF THE PAST is dependent on socio-political factors, scientific-technological developments and artistic innovations. Its challenge and beauty is to serve the people and to suggest a viable alternative to existing forms of housing and living.

The following interview with Britta Söderqvist [Curator at the Maritime Museum Gothenburg] should underline my intentions to deal with Gothenburg’s past as an industrial working-class city:

ERIKSBERG 2011



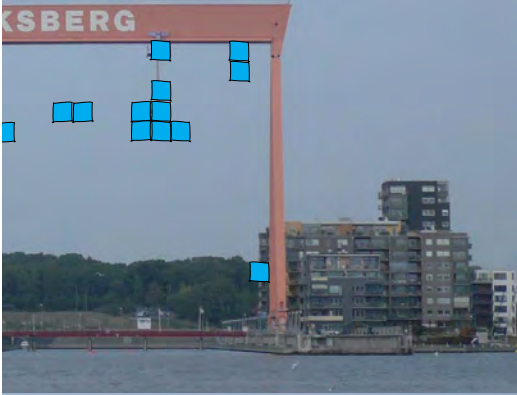
ERIKSBERG 2013



ERIKSBERG 2015



ERIKSBERG 2012



ERIKSBERG 2014



ERIKSBERG 2016



**Question: What is the meaning of post-industrial harbour cities for you?**

It's difficult, I work with history in one way and I'm really acknowledging the fact that there is the working-class history here because this is very much an industrialised city. It's interesting to see how the city develops now and how much – from the perspective of the people who govern the city – we tend to neglect the fact that it is an industrial city. But if you talk to ordinary citizens or Gothenburg people – almost everyone has some kind of link to industry, still today or in their families. There is a shift going on like in every city or developed country, but the industrial past is still here because we don't have that kind of really strong bourgeois culture. I mean Gothenburg is an ugly city, it's an industrial city – it's still not very beautiful in many ways and has that sort of industrial feel to it. You see the processes in terms of economy and what is sort of promoted by the city as an abandoned thing. I really feel it's still very much an industrial city in many ways.

**Question: Is Gothenburg different to other harbour cities? Or what do they have in common?**

From the work I have been doing, I have realized more and more how far behind we are compared to many larger port cities. We are in the process of developing older port city areas, which other cities have already done years ago and have been involved in. But that maybe is because of the size of the port city here. Yes, we are the biggest port city in the north, but still we are very small compared to Rotterdam, for instance. It has a small city feeling to it, but it's a big issue and it's also portrayed as a sample issue for the city. We talk about the water all the time even if the city has spread much further than the water. But the water has become a symbolic question for the city and I guess that is because you sort of want to make amends with your industrial past and we don't have the same visible industry any longer. In that sense we are a transforming city, and you have a big port, but it's just not visible at all. For many people it's just dead.

When we did audience research for the exhibition and we went out and asked questions about the port city, there were responses like "We don't even have a port city." They don't know because it's so invisible and the older generation of course spoke about the old port. So it's very ambivalent. If you talk to young people, they talk about lighting, restaurants, bridges, fancy things like that. They mention the Stena Ferry Line, the last sort of mark of the old.

**Question: So it's sometimes not obvious that you live in a port city and it's not obvious that you live on the coastline. Right?**

Yes, and having said that, it's also important to know that this is a particular type of port city – it's by a river rather than by the sea. It's not like in New York, where the old port is like a prolonging of the streets, or in Barcelona, where the port is part of a natural bay. Here it's by the river, so it's a completely different thing.

**Question: You said once, "What the port needs forms the city." Which are the things in the city which clearly reflect this statement?**

I think it's not that clear. That's one of the problems. As I said before, the port has been the big drive for the infrastructural changes in the city. The port needs more flows coming in, so we got new tunnels and bridges over the years. The port has asked for the big changes in the city from an infrastructural point. People are not aware that those two things are linked. So it's not really obvious in that case, but it's really obvious when we are supposed to change the city and do things like trying to link Hissingen within the city by building

a bridge and the port says no because there has to be open water for the shipping going upwards towards the hinterland. So it's not that obvious in that respect, but it is a true mark of power. If you read any kind of statement from the city planning office about what is to do in the next twenty years, they always ask the port about their opinion because the port is such a big factor. But most of the cranes are gone, they are not there any longer. Maybe sometimes they regret that a bit because now they want to build on a maritime identity or use history in that way. Maybe there are too few cranes left.

**Question: Are the inhabitants of Gothenburg aware of the fact that Gothenburg has got this past? Do they appreciate it?**

I think it's ambivalent. Since Gothenburg has got an industrial history, it's a working-class history and a working-class history doesn't have monuments in that way. I got a lot of shipyard workers telling me, "This is where I took the steam ferry from the city centre to get to my job. This is where it set off." But that's not something that is left- it's a place the man knows, and there were thousands of people who were travelling with those ferries. So for this man it's an active history. People like him know and talk about it, but for the younger generation it's not there.

When I go to schools and talk about this and show school kids shipyard workers, and especially female shipyard workers, they go, "What is that?" It's like they have no connection to that whatsoever because we are not talking about it in a sort of official image of what Gothenburg is. This image has nothing to do with work, there are no people in it in that sense. So the only view left around the port is a very romantic, clean view of how beautiful it is or how it's our identity. There is nothing about how smelly or dirty it was, or that people lived under very poor conditions, or that there were conflicts or noises – nothing like that. It's just that romantic black and white picture of the port and how beautiful it is with all those cranes.

So it's a clean image that people have if they are not dockers or former shipyard workers who have a completely different story. That's also what we try to raise in the exhibition – to make their voices heard about how they worked and how it was for them as people.

**Question: Concerning monuments of the industrial past – what is the official view of the city? Do they want to preserve them? Do the inhabitants have the same view or don't they care about this?**

I don't work with those issues, but I have been in contact with the city planning offices. They are talking about what monuments should be there and this is always very much linked to the issue of identity. I would say very few city planners or architects are involved in knowing anything about how identity is constructed. So there is a really ambivalent feeling towards what should be left and kept. If you look at official art that the city buys, there are a lot of maritime themes in the sculptures to make the city beautiful. You talk about the sea, but for a lot of people here it's going to the archipelago, that's what it means being by the water – it's not about the port. So I think this whole monument thing is really difficult. Why do we keep certain things and why not? If you look at the things from the past, nothing about the industry has really been kept – thinking about what should be kept has just been a late movement. What has been kept are the bourgeois buildings, the nice buildings, the churches. That's a must. You cannot tear down something beautiful. Despite the latest development, they still tear down almost every part of the old shipyards, almost everything is gone. Now they have started to do some projects where they reuse old factories and rebuild them for housing. But it's nothing compared to England, where this has been a massive thing. I lived in Manchester and there they have areas where they only reuse the old factory buildings and make new things out of them. It's sort of having a connection to the monuments or the leftovers from the past whereas here it has been a lot of just tearing it all down and building something new. So I think a lot of people talk about the water and the river, but not about any monuments really.

**Question: Having said that, is there still a way to put these monuments into a modern context? What do you think?**

I think this is very interesting, but it has to involve the people. That's how I work, all my work is about how it affects people or how I can engage people with history – why or how is history important for us now. What does history mean for us living here now? We can't just have history for history's sake, it has to be something that has a value for today and the same holds true for monuments. It's no good idea to keep a monument for the monument's sake – it has to tell a story, it has to be a current and



has to be used in a good way.

I think if you save monuments, they have to be used. And I would say together with people we should make something good out of it. People have to understand why they are there. Otherwise there is no point in keeping monuments.

I also think that people make up their own monuments, like Rödasten for instance, that red stone thing. It means a lot to the people, it's just a stone painted red and nobody really knows why it is red. There are fifteen different answers to that question. For a lot of people living in Gothenburg that part of the city has a monument feel to it, that's because a lot of people use it and like to be there.

So creating and keeping monuments is difficult. It's not for the monument's sake. You have to do something with it, react to it, and you can do that in many different ways.

I lived in Masthugged and when I moved here, I had no idea about the working-class history of this area or how closely connected it was to the maritime history of the city. It wasn't even a part of the city until the late 1860s. Before that it was like a suburb to Gothenburg – it was the dockers, the shipyard workers, the seamen that lived here. I think there is loads of young people moving in here today because it's the area you move in now, but they have no idea about its history. Is this good, is it bad? I don't know. It obviously enriched my life, but I do work with history, so that's another thing. But I think it's interesting to see when something starts to mean something.

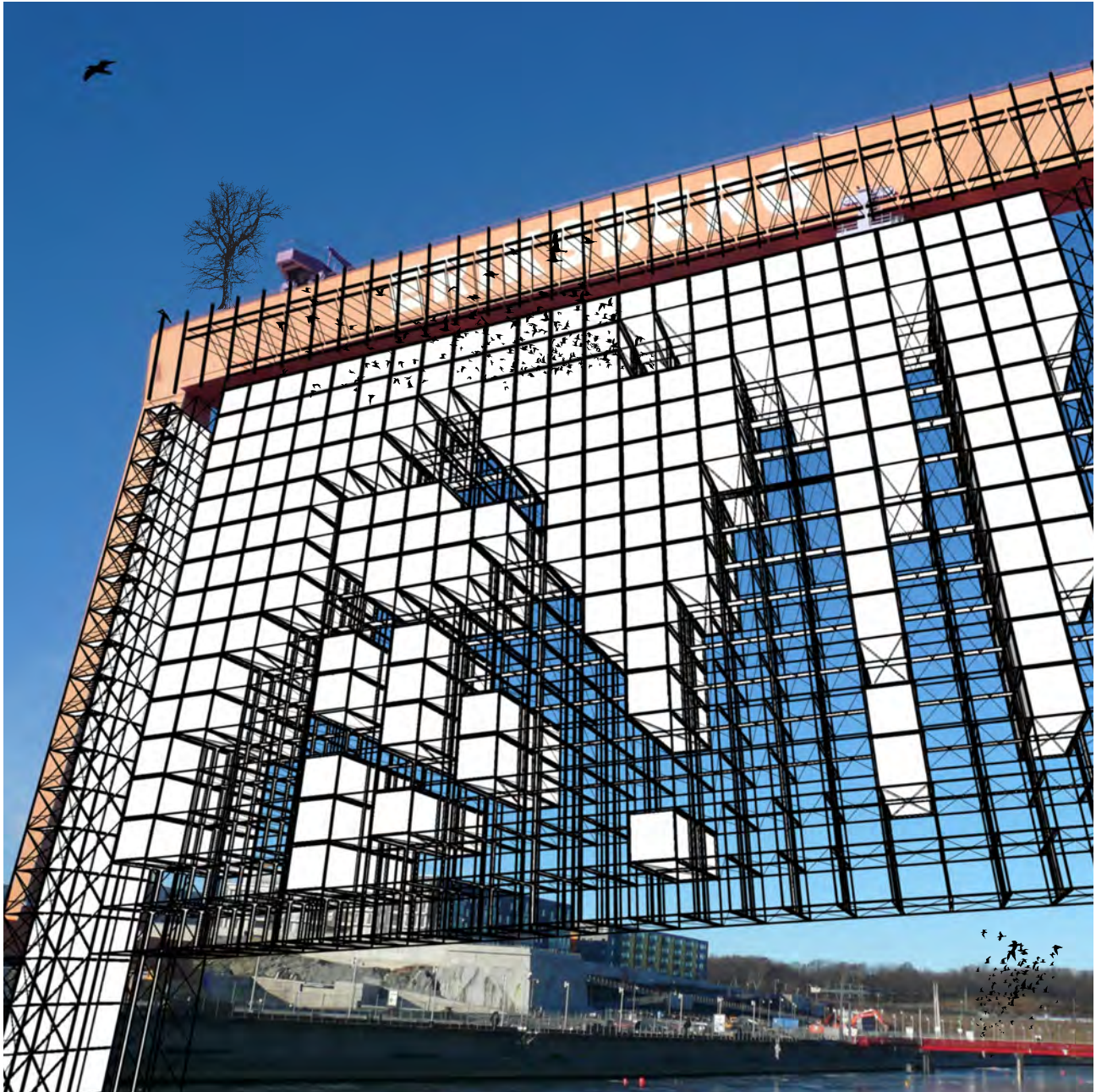
**Question: What is your personal opinion on the shift of attitude - getting rid of the working-class image to the entertainment culture city? And what about the current official way of dealing with the situation?**

I think you will lose something very important in that development, in this whole process of not relating things to everyday lives and people. I mean they talk about values they want to promote, about being in a good city and things like that. That means something to people who live here and are here now. But how do we enhance that? Is that by building a new fabulous river city? What does that bring to the inhabitants of Gothenburg? I think that way you will lose the connection. People will not feel engaged and connected to this process because they won't really understand why this is on the top of the agenda rather than fighting segregation or more tangible things that the city has or just talking to the people living in the areas they are rebuilding or simply engaging people.

I think there is a great fear on the government's part about having a dialogue with the people and using methods for working together with them. I think we will lose something very important and that is the ownership question like, "How do people own their own place in the city?" I think if you leave them out, they won't understand, won't be interested and won't value what's going on. I know that there are millions of good intentions on the part of the officials about why they are doing what they are doing. And there is a lot of economy coming in and we need the economy to live. But I think there is something you miss out on if you don't open up the process, if you don't make people more engaged in what you are doing. I have heard about this huge EU project going on in Angered around a new suburb. They got 120 Swedish million to work with. But that is not as much on the agenda in the newspapers or in the official view as the riverside project. So what is that project about? I think we are building something for people we don't know. A lot of research says that this whole process leaves out people. We are fantasizing about a person that does not exist. I think this is a very cynical way of looking at people. I know this is not the intention, we are just doing what everyone else is doing in a city. What is also important and forgotten in the debate is that this kind of change we are going through is a global thing. But we should look at the consequences in other cities before we are moving into certain phases of this project. I think it's quite dangerous, but that's very much a personal view, from my historical position. It's about how we use history in these ways, and that is very problematic. We say we are a former port city, a former industrial city, a former this and that, but we are actually not making use of what that means. How could it be helpful to know why we are doing this?

It's a very complex process and I think it's worrying that it's not tangible enough, it's not there for the people to really grasp it. I mean the city is the people, it is not the buildings and the monuments.

[Interview recorded at Maritime Museum Gothenburg in June 2011]



1. *The core idea has to be based on the diversity and trinity of technical-scientific, social and artistic aspects and the project has to meet the expectations of the three-some of these disciplines.*
2. *Creating a three-dimensional bearing structure whose sole purpose is to serve the housing units that can be filled up by will.*
3. *The structure must be seen as a background - as the inhabitants' stage - which is able to provide numerous possibilities, can adapt to people's needs and enables the residents to live lively lives.*
4. *Prefabricated and existing elements are put into a new context by altering their purpose. Giving them a new meaning means paying respect to their former relevance and status.*
5. *An additional value for the surrounding area in the form of public spaces and facilities is being created.*

*“The space structure – or megastructure – is a macro-material capable of modulation, analogous to an intellectual model in physics, according to which the wealth of phenomena can be reduced to a few elementary particles.”*

[Eckhard Schulze-Fielitz, 1960; 22P27]

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### The rise and fall of the MEGASTRUCTURE

While in the postwar period the International Congress of Modern Architects (CIAM)\* had become the largest organization to promote the ideas of modern architecture, it got discredited from within its ranks by a younger generation of CIAM architects. They criticized the Charter of Athens *“for fragmenting the city artificially into four functional zones (work, living, recreation and transportation)”* [22P25] and were soon to be known as TeamX for the 10th CIAM congress in 1956. They established a new agenda *“emphasizing the need for reintegrating the various functions of the city into a hierarchical “cluster” of “associational elements”* [22P25] (house, street, district and city), which was supposed to replace the former proposals. This agenda laid the foundations of the first megastructures by Yona Friedman and the Metabolists. GEAM\*\* (Groupe d’Études d’Architecture Mobile), with the focus on mobile structures, was founded in 1958 by Yona Friedman.

The MEGASTRUCTURE was *“an attempt to enact, through built form, the complex relationships of life”* [22P26] and was seen as a large framework containing mobile parts. Clusters of spatial arrangements were invented and the “total cluster” had to be mobile as well as provide certain qualities like variability and adaption at will.

For Yona Friedman and the early metabolists their utopia – the unity of life – was not primarily a technical or aesthetic problem, it was about a social and political strategy. Throughout the decade, the architectural discourse was inspired and dominated by this utopia. Various architects - and formations like Archigram and Superstudio - kept up the topic of megastructures to create a new urbanity that can be altered as required by the inhabitants at any given moment.

\*founded in 1928; among other activities a guideline for urban planning, the so-called Athens Charter was set up 1933 which was widely implemented in the restructuring of post-war Europe

\*\* Among the members were David Georges Emmerich, Camille Frieden, Günter Günschel, Oskar Hansen, Jean Pierre Pecquet, Eckhard Schulze-Fielitz and Werner Ruhnu.

*“Today we each recognize the existence of a new spirit. It is manifest in our revolt from the mechanical concepts of order and in our passionate interest in the complex relationships of life and the realities of our world. [...] The problem is one of developing a distinct total structure for each community, and not one of subdividing a community into parts. We must find ways of weaving new units into the whole cluster so that they extend and renew the existing patterns.” [Team X; 22P25]*

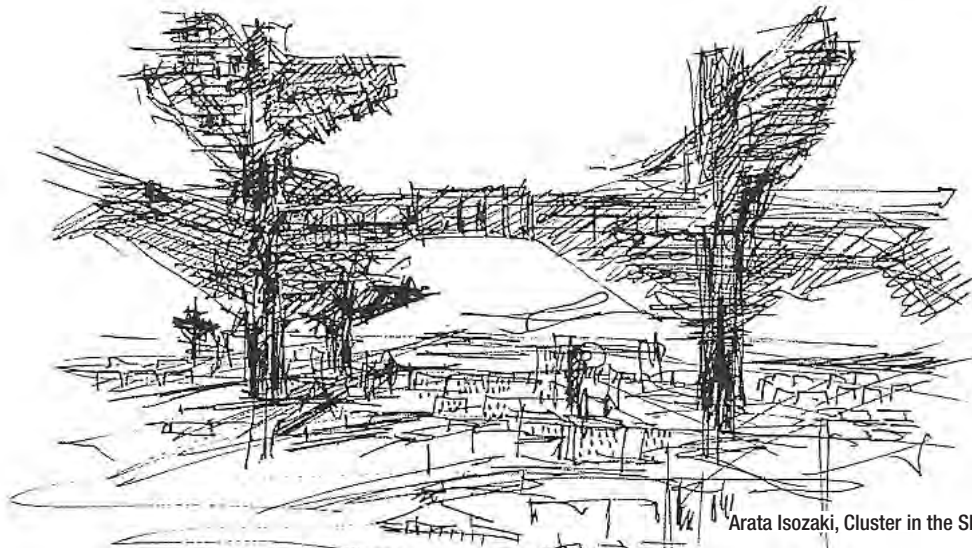
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*“The catastrophic difficulties of modern town planning are the outcome of a series of factors that may be characterized as follows:*

- 1. Reform of property rights in building land and airspace with a view to achieving easier interchange. Introduction of a system of stratified utilization of air space by the inhabitants.*
- 2. Constructions should be variable and interchangeable.*
- 3. The spatial units produced by these constructions should likewise be alterable and interchangeable in their use.*
- 4. The inhabitants must be given the opportunity to adapt their dwellings themselves to the needs of the moment.*
- 5. Industry and prefabrication must be utilized to the full in the manufacture of the constructions as a means of lowering prices.*
- 6. Town and town planning must be capable of adaption to the development of traffic.*
- 7. Residential and work places, as well as areas for physical and spiritual culture, must be intermingled throughout the individual sections of the city.“*

GEAM, 1960 [2P168]

The following pages provide an overview of the work of the most prominent architects – Yona Friedman, Kenzo Tange, Eckhard Schulze-Fielitz, Constant, Archigram and Superstudio - who were dealing with MEGASTRUCTURES and ideological concerns throughout the 1960s.



Arata Isozaki, Cluster in the Sky, 1961 [8P33]

**METABOLISM** – a definition used in biologies – was a protest movement in Japan in the 1960s. Metabolism was on the one hand trying to find an alternative to the growing urbanization due to the economic boom of the coastal region near Osaka and on the other hand it tried to resist westernization. The 1960s were the golden times of utopias, a strong belief in technical improvements and an even stronger will to revolutionize society. Similar ideas and concepts cannot only be found in Japan but all over the western world. The most popular architectural groups and architects with the same leitmotif are Archigram, Superstudio, Yona Friedman, Eckhard Schulze-Fielitz, Team 10, and Kenzo Tange. They all have in common that they tried to find architectural answers to societies' needs of tomorrow based upon futuristic, technically advanced and flexible superstructures which can react to the inhabitants' needs by transforming themselves and thereby interacting with the inhabitants. Based on systematic structures and highly prefabricated elements they developed an urban

and architectural programme that should be able to canalize growth processes of the increasingly rapidly changing society. At the core of the metabolists' programme is cyclic growth and renewal.

One of the first Japanese metabolists' examples is Kiyonori Kikutake's "Sky House", 1958. It consists of one single room - other rooms can be added if needed – which is only divided into individual sections by cooking-, sleeping-, and wet-cells. The space between the bearing structure can be filled with functions which can adapt to present needs, a fact which points out the fascination and vision of organical growth in analogy to the human organism.

Although most of the metabolists' visions remained utopias (for example "Helix City", Kisho Kurokawa, 1961; "Cluster in the Sky" Arata Isozaki, 1961), their architectural importance must not be underestimated. One of the few built examples is the Nagakin "Capsule Tower" in Tokio (Kisho Kurokawa, 1972). The basic idea of his concept was to stack 140 standardized and prefabricated capsules along two vertical opening-up

shafts. Each capsule is transportable and supposed to be a single room unit or one-man office unit.

The climax and at the same time the final point of the metabolist movement was marked by the world exhibition in Osaka in 1970 under the motto "improvement and harmony for mankind".

Kenzo Tange compared the cluster to organic metabolism as follows: *"I believe we can take a hint from the various approaches in the modern sciences. One science is the study of life; the other that of physics or mathematics. The principle of life has not yet been discovered, but organisms can be viewed macroscopically as stable structures composed of orderly arrangement of cells. The organism lives, however, because of the constant metabolism of the cells, and this must be examined microscopically."* [22P27]



The Capsule Tower is not only gorgeous architecture; like all great buildings, it is the crystallization of a far-reaching cultural ideal. Its existence also stands as a powerful reminder of paths not taken, of the possibility of worlds shaped by different sets of values.

<http://www.nytimes.com/2009/07/07/arts/design>

Kisho Kurokawa, Nagakin Capsule Tower,  
Tokio, 1972 [36]

### Yona Friedman

Yona Friedman (\*June 5th, 1923) set a milestone in the history of utopian megastructures with his project “ville spatiale”, the Spatial City (1960). The concept was developed on the basis of two elementary thoughts: *“Architecture should only provide a framework, in which the inhabitants might construct their homes according to their needs and ideas, free from any paternalism by a master builder. Furthermore, he was convinced that the progressing automation of production and, resulting from that, the increasing amount of leisure time would fundamentally change society.”* [37] According to Friedman, traditional city structures are not capable of dealing with the new society. *“He suggested mobile, temporary and lightweight structures instead of the rigid, inflexible and expensive means of traditional architecture.”* [37]

In 1960, Friedman published his two manifestoes, “Architecture Mobile“ and “La Ville Spatiale“. He defined the space frame as follows: *“Critical for the Ville Spatiale is what I call ‘spatial infrastructure’: a multi-storey space-frame-grid, which is supported by widely-spaced piles [...]. This infrastructure forms the fixed element of the city. The mobile element consists of walls, base-surfaces and dividing walls*



Yona Friedman, Spatial City, 1959 [38]



*which make the individual division of the space possible; it could be called the 'filling' for the infrastructure. All elements which come into direct contact with the users (i.e. those they see, touch etc.) are mobile, in contrast to the infrastructure, which is used collectively and remains fixed."* [37]

For Friedman, architecture is an emancipating structure with the needs of the inhabitants at its center. With the elements – cheap in manufacture, easily to be transported, highly variable and changeable at will – the foundations of his philosophy were laid.

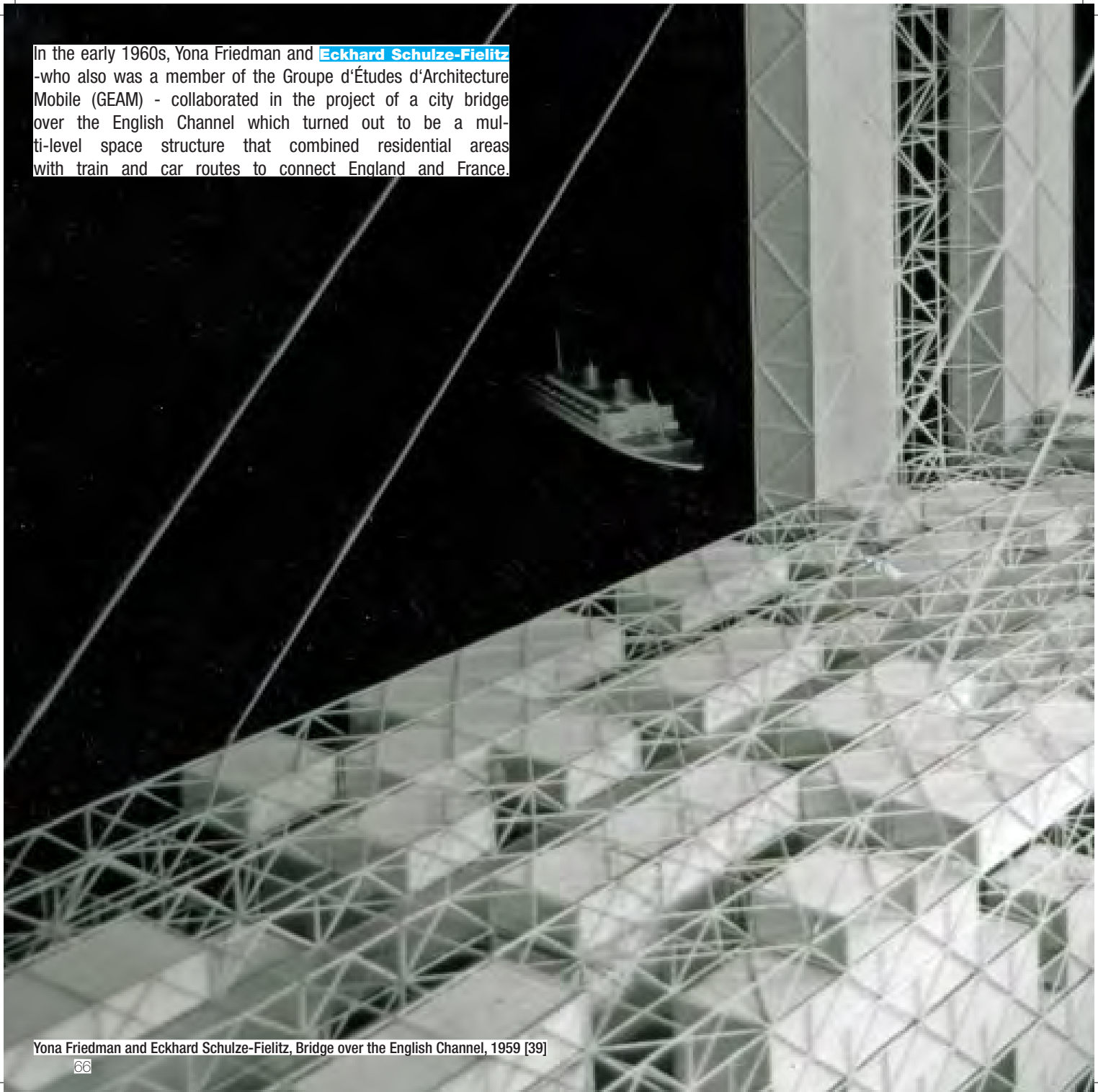
**Manifesto** Yona Friedman, 1962

### The ten principles of space-town planning

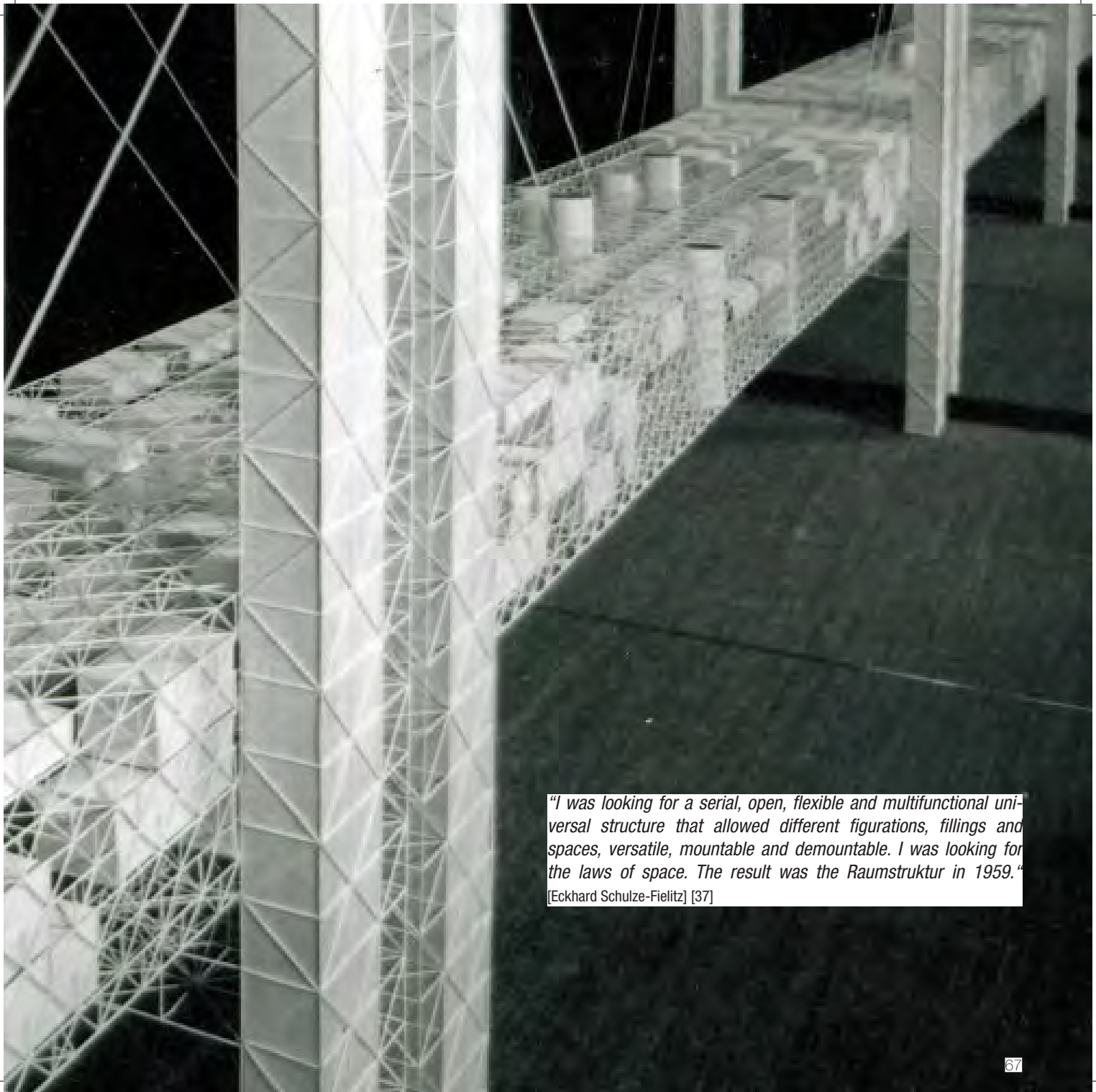
1. The future of towns: they will be centres of leisure, of entertainment, centres of public life, centres of organization and of decisions of public interest. The other functions (work, production) will be more and more automated and consequently, less and less linked to the great agglomerations. The raw material "worker" will lose its importance and will be transformed into "spectator" or "client".
2. The new society of towns must not be influenced by the town planner. Social distinctions between the different quarters must be spontaneous. A surplus of about 10% is sufficient for the inhabitants to be able to choose their respective quarters according to their social preferences.
3. The big cities must be able to contain, in place of industry, agriculture. The urban peasant is a social necessity.
4. Towns must be air-conditioned. The air-conditioning of towns permits a greater freedom and a greater efficacy as to usage: the streets become centres of public life.
5. The buildings which collectively form the physical town must be on a level with modern technology (today's bridges, for example, are often several miles long).
6. A new town "risen from the desert" is not generally viable. Big cities come into existence through the development of former small towns: the big city must be the intensification of existing towns.
7. The three-dimensional technique of town planning (spatial town planning) permits the grouping of quarters both juxtaposed and superimposed.
8. The buildings that make up towns must be skeletons that can be filled at will. The fitting out of the skeletons will depend upon the initiative of each inhabitant.
9. We do not know the optimum size of a town. In any case, experience shows that towns with fewer than three million inhabitants relapse into provincialism, towns with more than this number become gigantic. Therefore a limit of three million inhabitants seems empirically to be the optimum size.
10. Foreseeing a tendency for the population to gravitate towards the cities, it is no exaggeration to estimate that in the near future cities will contain 80-85% of humanity (instead of 50% as at present). Hence the large agglomeration that has the advantage socially (entertainments) and technically (air-conditioning, transport) will win the day over other types of agglomeration. It is no exaggeration to imagine the whole of France contained in ten to twelve cities of 3,000,000 inhabitants, the whole of Europe in 100 to 120 cities, the whole of China in 200 cities and the whole world agglomerated in 1000 big cities.

[2P183]

In the early 1960s, Yona Friedman and **Eckhard Schulze-Fielitz** -who also was a member of the Groupe d'Études d'Architecture Mobile (GEAM) - collaborated in the project of a city bridge over the English Channel which turned out to be a multi-level space structure that combined residential areas with train and car routes to connect England and France.



Yona Friedman and Eckhard Schulze-Fielitz, Bridge over the English Channel, 1959 [39]



*"I was looking for a serial, open, flexible and multifunctional universal structure that allowed different figurations, fillings and spaces, versatile, mountable and demountable. I was looking for the laws of space. The result was the Raumstruktur in 1959."*

[Eckhard Schulze-Fielitz] [37]

"Archigram are amongst the most seminal, iconoclastic and influential architectural groups of the modern age. They created some of the 20th century's most iconic images and projects, rethought the relationship of technology, society and architecture, predicted and envisioned the information revolution decades before it came to pass, and reinvented a whole mode of architectural education – and therefore produced a seam of architectural thought with truly global impact." [40]

# AMAZING ARCHIGRAM 4

Archigram, the name of a London-based underground\* magazine and of the group who published it irregularly between 1961 and 1970, is one of the most significant phenomena to emerge in post-war architectural culture. Up to now their ideas and iconic visions of urban future that marked a milestone in the late 1960s have not lost their topicality nor relevance.

"In the nine issues of Archigram that were published at irregular intervals [...] a representational groundwork was prepared for a discipline overwhelmingly dependant on industrial processes and materials to integrate complex and indeterminate systems with architecture. [...] the content self-consciously evolved from the tension between the durable and transient to proposals for megastructural networks in the first half of the decade, then on to others for self contained skins in the second half, and finally to those for the disintegration of architectural objects into a technologically driven landscape at the end." [4P3]

Through their work, in particular their production of imagery, Archigram formulated an architectural vocabulary and shaped a visual output for what are now commonplace tools in the fields of architecture and design.

"Cook's packaging of the not-quite past codified to a great extent how the Archigram group was to be remembered: as part of the sixties popular culture, like miniskirts, drugs and space travel; as part of the counterculture that saw architecture as a medium of communication; and as a strategy that forced architects to break away from the "establishment fashion of the 1950s." [4P23]

\* "a one-glance comparison will show that the underground mags are in touch with the places where currently communicative conventions are being manufactured, and the Architectural Associations's Journal is not." [4P8]

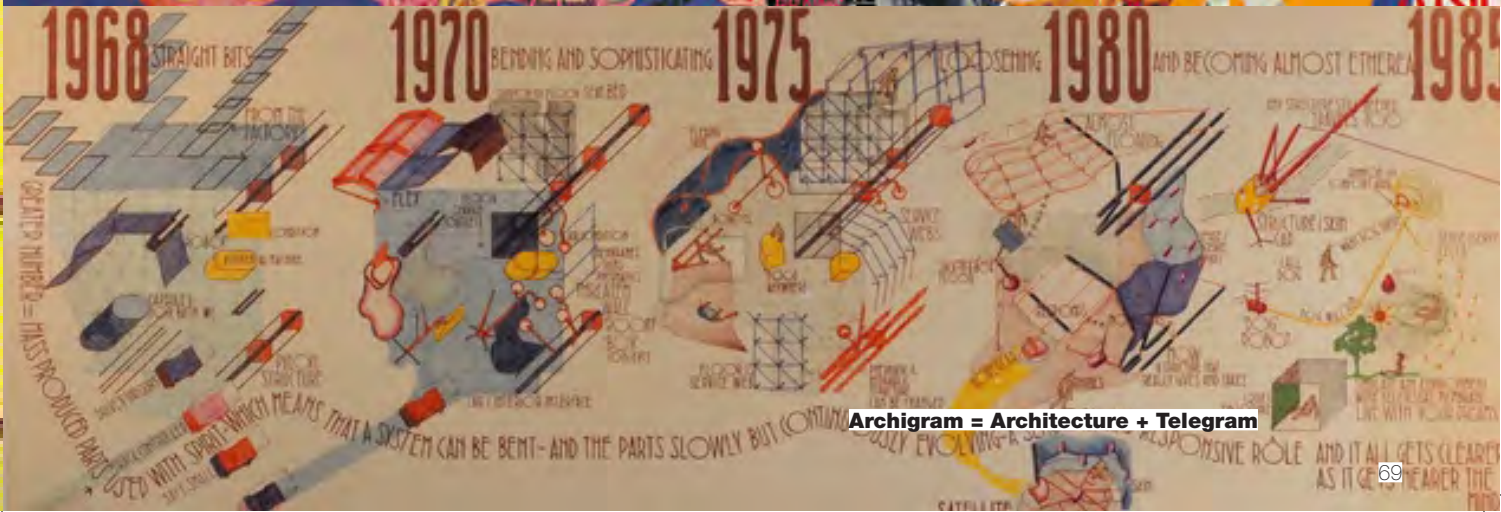




Archigram was published by

**Peter Cook**  
**David Greene**

**Michael Webb**



Archigram = Architecture + Telegram



ON WALKING UNIT PROVIDE NOT ONLY A KEY ELEMENT OF THE CANTON – BUT ALSO A LARGE ILLUSTRATION OF WORLD TRAVELERS-HOMEERS.

## A WALKING CITY



Design for Living  
by Priscilla Chapman

## THE PLUG-IN CITY

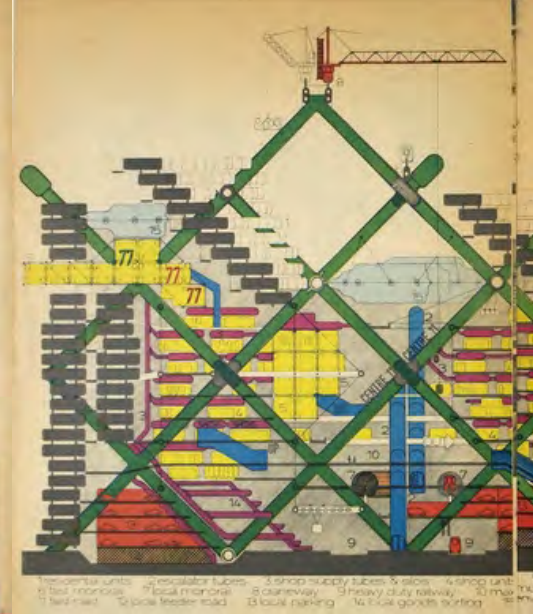
Since the first reaction to most plans has copied with the population explosion is a wild hope that all these people will never show up, an idea with a name like Plug-In City is not going to be popular at first glance. One established and long-established designer looked at it and said simply: "It's a very good idea. You would need a dictionary to do it."

To put it in familiar, less impressive terms, Plug-In City is a new city based on a high, narrow grid system which would rise over London, grow to new heights towards Liverpool and in another, across the Channel, over Paris and other big cities. It would not look like London, Liverpool or Paris in any city we're used to. It's just as important as those. (Living in Plug-In City's designers, the town slips from the conditions into the simple form and from there, find their way out.)

Along the top of the grid will run the all important main road which, beside narrow passages, will also carry water which can be used later on the grid, so that the city will naturally build and extend itself, not just down, change its direction or go off at last, apart from the main grid system. The open space between the grid lines will be where you plug yourself in, as you see, where the town grows to something like a series of cities, from being close to parking.

All this means will be streets, and not highly visible but in a broad, simple design. Plug-In City was in fact, the product of the 1960s, one of the best, a huge architectural imagination put up by its designers, instead of being a design and then later a design, as it is for the most part. (Living in Plug-In City's designers, the town slips from the conditions into the simple form and from there, find their way out.)

See the story page on the bottom of the page for the plug-in city's design. It's a very good idea. You would need a dictionary to do it.



Two of Archigram's most famous projects that impressively show their visions of what life, living and society might be like in the immediate future are **Walking City** (1964) and **Plug-in City** (1964) which propose "the use of pods, capsules, megastructures, inflatable or temporary components, cars, furniture, clothes and gadgets to replace conventional building forms – in other words, the inventive use of new technologies to rethink society and its forms of habitation." [40]



## SUPERSTUDIO

Founded in 1966 by a group of radical young architects, SUPERSTUDIO was among the heart of the design and architectural avantgarde until the late 1970s. With photo-collages, films and exhibitions, they criticized the modernist doctrines that had dominated 20th century design thinking. Compared to earlier groups like Archigram that had been more optimistic towards technological improvements, they questioned architecture's ability to change the world for the better by creating disillusionment and dystopias for the near future.

"It is the designer who must attempt to re-evaluate his role in the nightmare he helped to conceive, to retread the historical process which inverted the hopes of the modern movement" [Toraldò di Francia] [41]

To give their pessimism and their political concerns a voice, Superstudio developed visionary scenarios "in the form of photo-montages, sketches, collages and storyboards of a new 'Anti-Design' culture in which everyone is given a sparse, but functional space to live in free from superfluous objects." [41]

In the late 1960s, at a time when technocratic

optimism had reached its peak, at the beginning of the Cultural Revolution in China when Mao Tse-tung gave Western intellectuals a new orientation, at the time when the Vietnam War triggered disillusionment and anger, they were not alone with their concerns.

"[...] the group's once radical theories about architecture's environmental impact, the potentially negative consequences of technology and the inability of politics to untangle complex social problems are now considered to be core concerns by self-aware contemporary architects and designers." [41]



**In 1971, Superstudio developed their project "Twelve Ideal Cities" which is supposed to represent "the supreme achievement of twenty thousand years of civilization" [22P31] that end up in a DYSTOPIA.**



**“In the beginning we designed objects for production, designs to be turned into wood and steel, glass and brick or plastic - then we produced neutral and usable designs, then finally negative utopias, forewarning images of the horrors which architecture was laying in store for us with its scientific methods for the perpetuation of existing models.”**

This is how Superstudio described its work in a catalogue the group produced to accompany the 1973 exhibition Fragments From A Personal Museum at the Neue Galérie in Graz, Austria.



The modern city is dead; it has fallen victim to utility.

Individualist culture is at an end, its institutions are exhausted.

In a technical respect, it is a simple, thoroughly structured framework, a scaffolding set on pillars and raised up in toto from the ground.

Already at this Utopian stage a collective collaboration of the most varied interests is an inescapable condition.

But New Babylon will first be realized by its inhabitants.

The present task of the artist can only be to prepare the way for a future mass culture. For if there is still to be any talk of culture it will have to carry a mass society, and then the means can be sought only within mechanization.

Apart from dwelling quarters, the interior of these sectional buildings consists of a large public space serving the purposes of social life. It is divided up by means of movable walls and constructional parts into variable volumes that can be linked [...] This gives rise to a multiplicity of different ambiances that can be altered at any given moment.

The shaping of the material environment and the liberation and organization of everyday life are the points of departure for new cultural forms. My New Babylon project arose as an illustrative sketch and elaboration of these ideas. It is the experimental thought and play model for the establishment of principles for a new and different culture.

But its main theme is a new regard for social space.

It reckons with the disappearance of non-creative work as the result of automation; it reckons with the transformation of morality and thought, it reckons with a new social organization.

The upper terrace, the “roof”, can include sports areas and airports.



New Babylon in its present form may be construed as a proposal, as an attempt to give material shape to the theory of unitary town planning, to maintain a creative game with an imaginary environment that is set in place of the inadequate, unsatisfying environment of contemporary life.

The dwelling spaces, as parts of the rest of the interior space above which they are scattered, are best regarded as a kind of residential hotel in a non-commercial sense, favouring frequent change of domicile.

It is the medium for a new creativity that is to manifest itself in daily life, by means of a continually varied arrangement of the environment, in harmony with a dynamic way of life.

It can scarcely be planned any longer to cater for permanent dwelling.

Such a project is dependent upon sociological, psychological, scientific, technological, organizational, and artistic factors.

One can wander for prolonged periods through the interconnected sectors, entering into the adventure afforded by this unlimited labyrinth.

New Babylon is a project for a city in which it is possible to live. And to live means to be creative. New Babylon is the object of a mass creativity; it reckons with the activation of the enormous creative potential which, now unused, is present in the masses.



[37]

**“THE  
MEGASTRUCTURE  
IS DEAD  
AND THUS THE  
TIME HAS COME  
TO WRITE ITS  
HISTORY.”**

# What were we all up to in 1964?

*“At a remove of ten years, to design in that way appears to have become inconceivable. Is it simply because our own view of what is permissible has changed? It is already difficult to reconstruct the mood of 1964, the mood which made the megastructure [...] perfectly acceptable to the average British Town Councillor and Deputy Planning Officer. What were we all up to in 1964?”*  
[Banham; 22P30]

**“Because I do not think any of us found this kind of project very shocking as we do now.”** [Banham; 22P30]

Is that all that remained from the 1960s?  
Are all the visions, ideas and projects nowadays regarded and dismissed as “childish dreaming“?  
Where has the will to change our society gone to?

Today’s society cannot be the form of society the avantgarde from the 1960s was longing for.

It is sad to see people who once put their hearts into changing society for the better now being absorbed by that very society with all its social rules and values they refused to accept back in the 1960s.

There is a huge potential in those past and yet still visionary ideas.  
Those ideas must not be dismissed as utopias.  
They have to be taken up again and be transformed, developed and integrated in today’s context.

Maybe the mood from the 1960s is gone but the necessity to change society’s values has remained with us.  
Developing new social models must not be a matter of mood.

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## STONE BUILDINGS MAKE STONE HEARTS

[Bruno Taut]\*

The way we live and create our homes has always been a manifestation of the prevalent attitude and set of values of a certain society at a certain time. Partly unconsciously, the individual internalises the society's norms and attitudes and endeavours to create and shape the private and supposedly individual living space in compliance with the generally accepted aesthetic, ethical and moral values of the particular society.

Whatever is perceived as social norms is firmly inscribed in the very notion of "habitation", in its concept, in its idea, in its memory and in its projection into the future. Familiar principles of housing and habitation are not questioned, are handed down from generation to generation and are prolonged into the future.

Living space "is the product of human activities, of acquiring space or refusing it, of inclusion or exclusion in particular circumstances. However, this assumption also implies the possibility of a transformation of the concepts of habitation and of what is familiar. Ideals of what living space should be as well as the way it is expressed in terms of gender, respectively in its manifestation and visualisation, are no laws of nature but should be debated and transformed again and again." [Sabine Pollak]\*\*

Social rules and values are subject to constant changes corresponding to the changes in society in the course of time and if you want to be an accepted member of society, you are supposed to conform to the prevailing values and rules at any given time. In the past few decades, developments like the globalisation process have made values change even faster and yet the pressure on the individual member of society to conform to the rules has stayed the same. The key word has become "flexibility" in all spheres of life.

However, the constructed definition of what it means to dwell and reside – to build a home, a place of refuge – seems to be unaffec-

\*House Rules P12, TU Wien, Kari Jormakka

\*\*Housing Gender P2, TU Wien, Sabine Pollak

---

ted by those changes of values. Instead of questioning conventional structures and patterns of behaviour and contributing to the discourse of what habitation is and could be with revolutionary ideas and visions of future models of housing, we accept the status quo, the familiar.

The avantgarde movement of the 1960s provided us with a lot of exciting and visionary concepts of future lifestyles and types of housing that could meet current social expectations the individual is confronted with a lot better than the still dominant conservative concepts.

Whereas those visions of the 1960s are still not taken seriously and are dismissed as utopias, rigid plans and conservative ways of living are reproduced, stone fronts are refurbished and redeveloped endlessly in the name of sustainability.

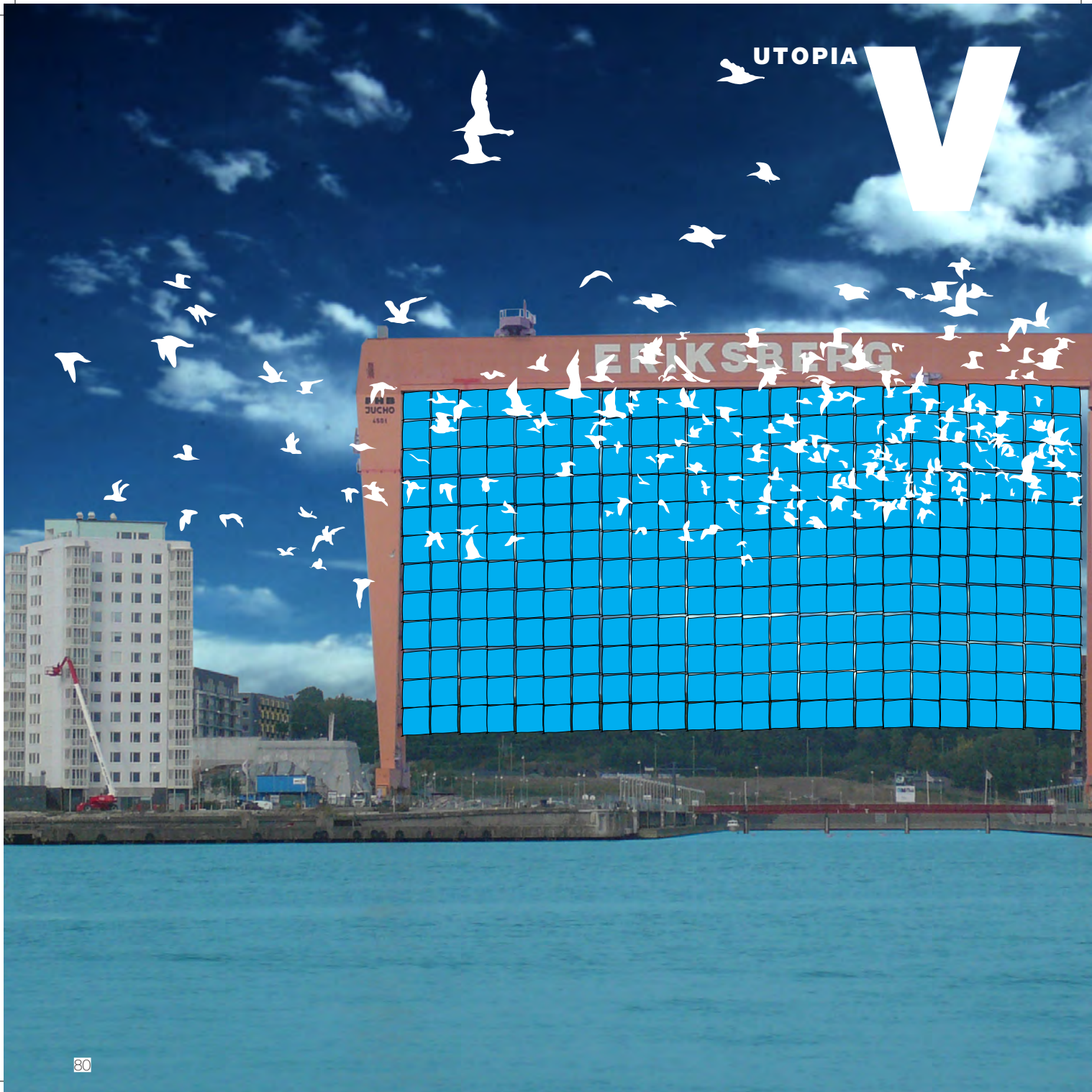
Definitions and concepts of housing must meet the same requirements and deal with the same challenges the individual is confronted with in general. So types of housing, forms of living and the environment we create must be analysed critically and in this respect we should be ready to replace concepts of housing which do not correspond to the time we live in with concepts answering the challenges of current and future social conditions. As social values are inherent in whatever we create as houses or homes and as housing is always a product of social developments, the quality of housing cannot be evaluated or judged irrespective of this social context.

Alternative concepts may be regarded as utopias as it is their very nature to transcend the given situation and its set of values.

Transforming a utopia from a vision into reality requires courage and the readiness to put it to the test. However, only that way the impossible visions may one day become possible realities.

UTOPIA

V





S REALITY

HOME

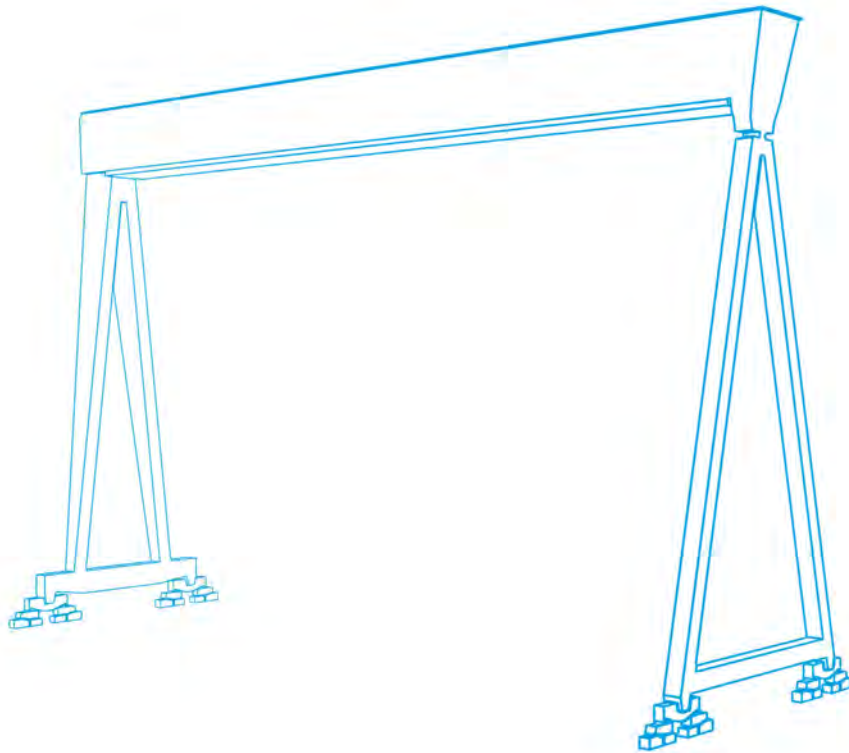
~~SWEET~~

HOME



I ADVISE YOU TO PUT A SMILE ON YOUR FACE!  
OR AT LEAST PRETEND!

### 2.3.1 THE CRANE // OVERVIEW



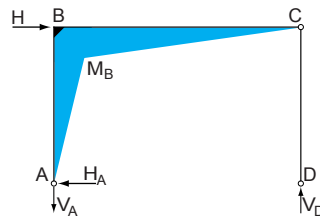


Unter einem Rahmen versteht man ein aus Stützen und Riegel bestehendes zusammengesetztes System, das folgenden Forderungen im statischen Sinn genügt:

- die Rahmenecken sind biegesteif ausgebildet
- die Fußpunkte nehmen Horizontalkräfte auf
- die Lastabtragung erfolgt über Biegung mit Normalkraft



Das statische System des Krans entspricht jenem eines Dreigelenkrahmens. Dreigelenkrahmen sind im Gegensatz zu anderen Rahmentypen - Zweigelenkrahmen, eingespannte Rahmen, mehrstielige Rahmen, Stockwerkrahmen - statisch bestimmt.



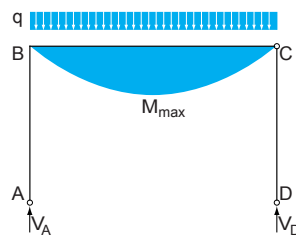
Das Rahmensystem des Krans stellt eine Sonderform des Dreigelenkrahmens, den sogenannten „einhüftigen Rahmen“ dar, bei welchem zur Berechnung der äußeren und inneren Kräfte die drei Gleichgewichtsbedingungen

$$\sum V = 0$$

$$\sum H = 0$$

$$\sum M = 0$$

genügen.



Da BC und CD gelenkig verbunden sind, kann über die senkrechte Pendelstütze CD keine Horizontalkraft zum Auflager D übertragen werden. Die gesamte horizontale Kraft  $H$  wird von  $H_A$  aufgenommen.

$$H_A = H$$

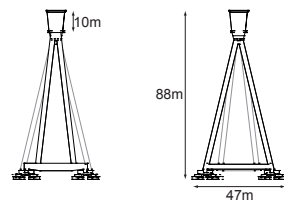
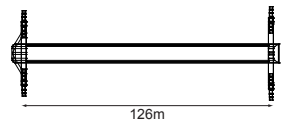
Daraus ergibt sich das Eckmoment  $M_B$  mit:

$$M_B = H_A \times h$$

Im Fall einer gleichmäßig verteilten vertikalen Last entsteht ein Moment im Riegel BC, das mit dem Belastungsfall eines gelenkig gelagerten Einfeldträgers verglichen werden kann.

$$M_{max} = ql^2 / 8$$

Im Gegensatz zu allen anderen Rahmentypen tritt beim einhüftigen Dreigelenkrahmen keine horizontale Auflagerreaktion unter Vertikallast auf.



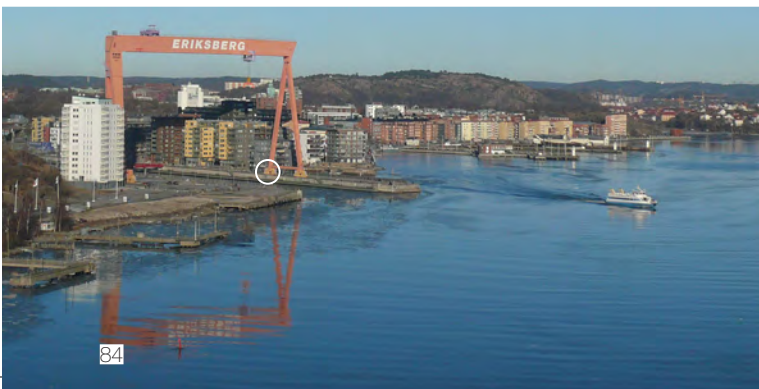
Mit einer Spannweite von 126m, einer Höhe von 88m, einem Fußpunktabstand von 47m und einer Riegelhöhe von 10m, sind Lastkräne dieser Bauweise für eine Maximallast von bis zu 1200 Tonnen dimensioniert.

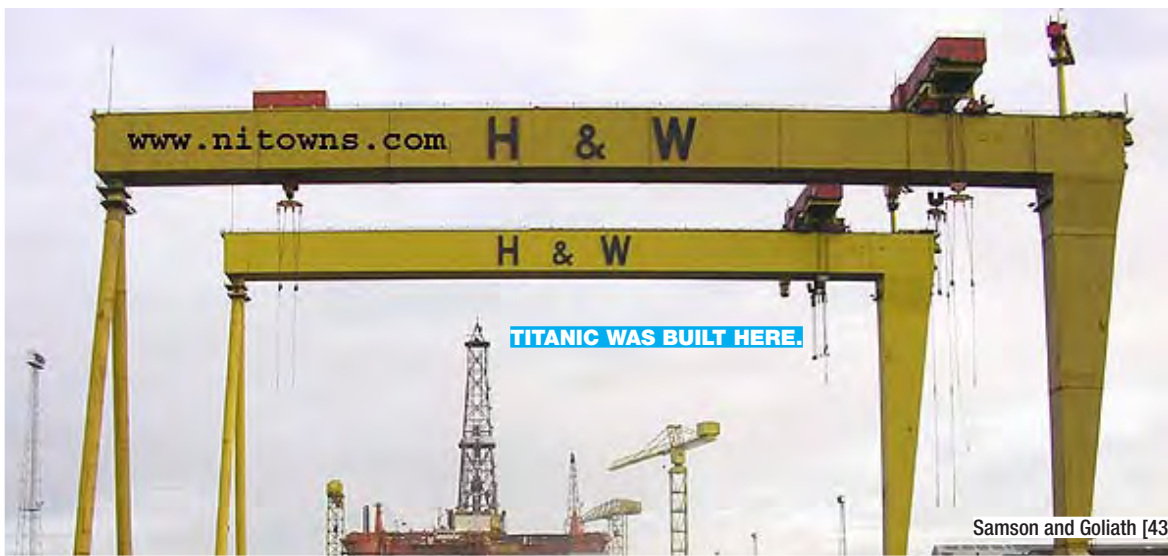
**ERIKSBERG** is an area of Gothenburg located in Hissingen, north of Göta Älv. In the 1960s, this area was dominated by the shipbuilding industry, mainly Eriksberg Mekaniska Verkstads AB, which went bankrupt in 1979. (►chapter 1)

The Eriksberg gantry crane\* remained as a reminder of Gothenburg's golden times as an industrial harbour city and as a remnant of the past. Eriksberg's 84m high orange gantry crane has become the most significant landmark of today's Gothenburg and is listed as a historic monument.

\* Gantry cranes, bridge cranes and overhead cranes are types of cranes that are designed to lift very heavy objects by a hoist device [1] which is fitted in a hoist trolley [2] that can move horizontally on a rail [3] fitted under the horizontal crane beam [4]. The crane itself can glide back and forth on a pair of rails [5]. Huge gantry cranes have been used particularly for shipbuilding where the crane straddles the ship, allowing massive objects like shipengines or prefabricated assembled parts to be lifted and moved over the ship.

Eriksberg crane, winter 2011





Samson and Goliath [43]

The two most famous cranes of Gothenburg's crane type are **SAMSON AND GOLIATH**, which are located in Belfast, Northern Ireland. They have been listed as historic monuments under article 3 of the Historic Monuments and Archaeological Objects since 1995.



Taisun [44]

The world's strongest crane is **TAISUN**, located at Yantai Raffles shipyard in Yantai, China. With a working load of **20 000 TONS** Taisun is designed and built for the installation of heavy modules on top of marine vessels. Taisun holds the Guinness World Record for „heaviest weight lifted by crane“, received the Spotlight on New Technology Award for improving safety, speed and efficiency and the Woelfel Best Mechanical Engineering Achievement Award from the American Society of Mechanical Engineers.

**The Kockumskranen - Kockums Crane**  
**- was a gantry crane with a height of**  
**138 metres, a span of 175 metres and**  
**a lifting capacity of 1500 tons. The**  
**crane was located at the Kockums**  
**shipyard in Malmö, Sweden, and used**  
**to be Scandinavia's largest gantry**  
**crane.**



**Kockumskranen was...**

**...assembled in 1974...**

**...in use to build about**  
**70 ships...**



**...sold to a**  
**Danish compa-**  
**ny which went**  
**bankrupt before**  
**the crane could**  
**be moved...**



**...dismantled and shipped to Ulsan,**  
**South Korea in 2002...**



**"Residents of the city are said**  
**to have cried as they watched it**  
**depart", said Kim Miri, a Hyundai**  
**Heavy Industries spokeswoman...**



36



**...so the Koreans named it**  
**"TEARS OF MALMÖ"...**





...a reminder of the decline of European shipbuilders...



...and retired in Malmö in 1997.

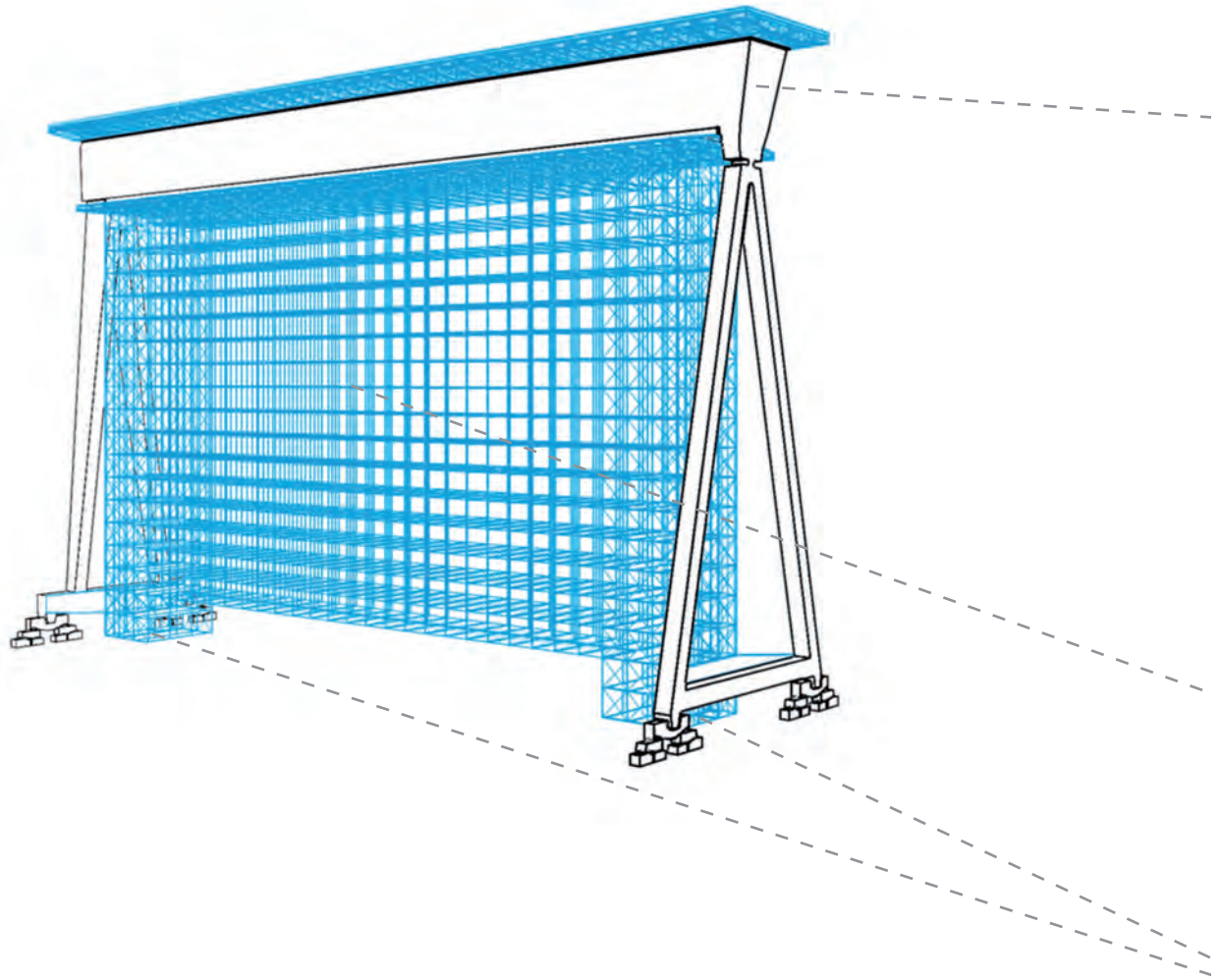
Hyundai Heavy Industries bought it for 1\$! [45]



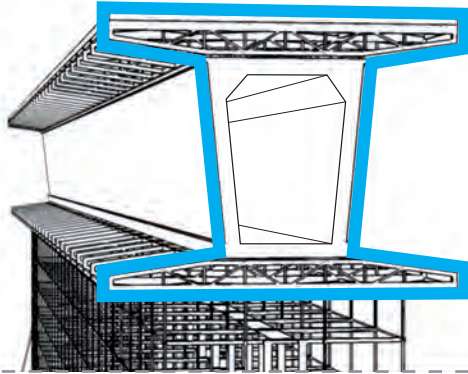
...and put on some new colour.

# 2 - karl - 18/01/2009 - 9:42 am  
blog comment, Sweden 2009 [45]  
"aah Kockums. It truly was a landmark here. It wasn't even running when I was a kid but it was still the most important structure in the city. It used to be the city's biggest employer in the 70s I think. Now we have a twisted tower and a bridge instead, progress I guess...but the retro feel just isn't there :)"









# GIANT I-BEAM



**x 1600**

steel hollow profile  
160mm x 160mm  
t = 6mm; A = 36cm<sup>2</sup>; 29kg/m  
l = 3,8m



**x 768**

U - steel beam  
160mm x 65mm  
t = 7,5mm; A = 24cm<sup>2</sup>; 19kg/m  
l = 3,8m



**x 770**

U - steel beam  
160mm x 65mm  
t = 7,5mm; A = 24cm<sup>2</sup>; 19kg/m  
l = 13,8m



**x 1538**

L - steel beam  
100mm x 50mm  
t = 6mm; A = 8,7cm<sup>2</sup>; 7kg/m  
l = 13,8m

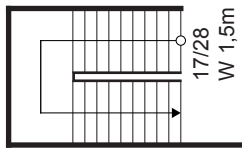


**x 768**

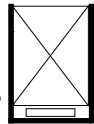
round profile  
d = 25mm  
A = 20cm<sup>2</sup>; 15kg/m  
l = 14,1m

The SUPERSTRUCTURE - the grid - acts as the carrying structure for the housing units - plug-ins - and contains access areas as well as installation shafts. It is made of corrosion protected coated steel profiles and its only purpose is to serve the dwelling units. It has to be seen as a bare modular framework that can be filled with life and living. Therefore it has to be as delicate as possible, has to be almost invisible. The aim is to dimension the steel profiles as thin as possible to emphasize the image of floating plug-in units in the sky.

The whole steel framework and the giant I-beam embody the industrial character of the construction to honour the post-industrial harbour environment.



**x2**

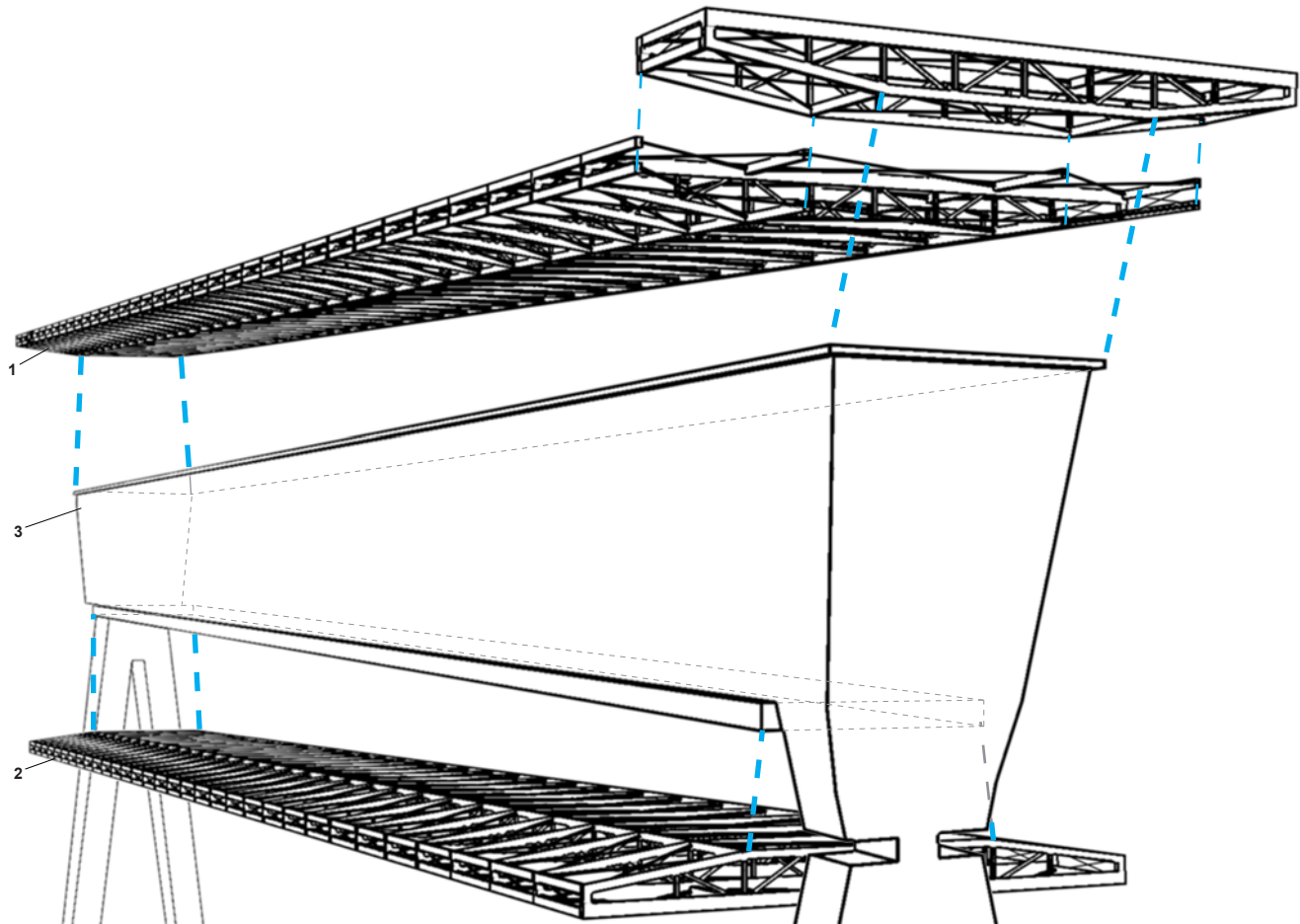


**1800kg/24P**



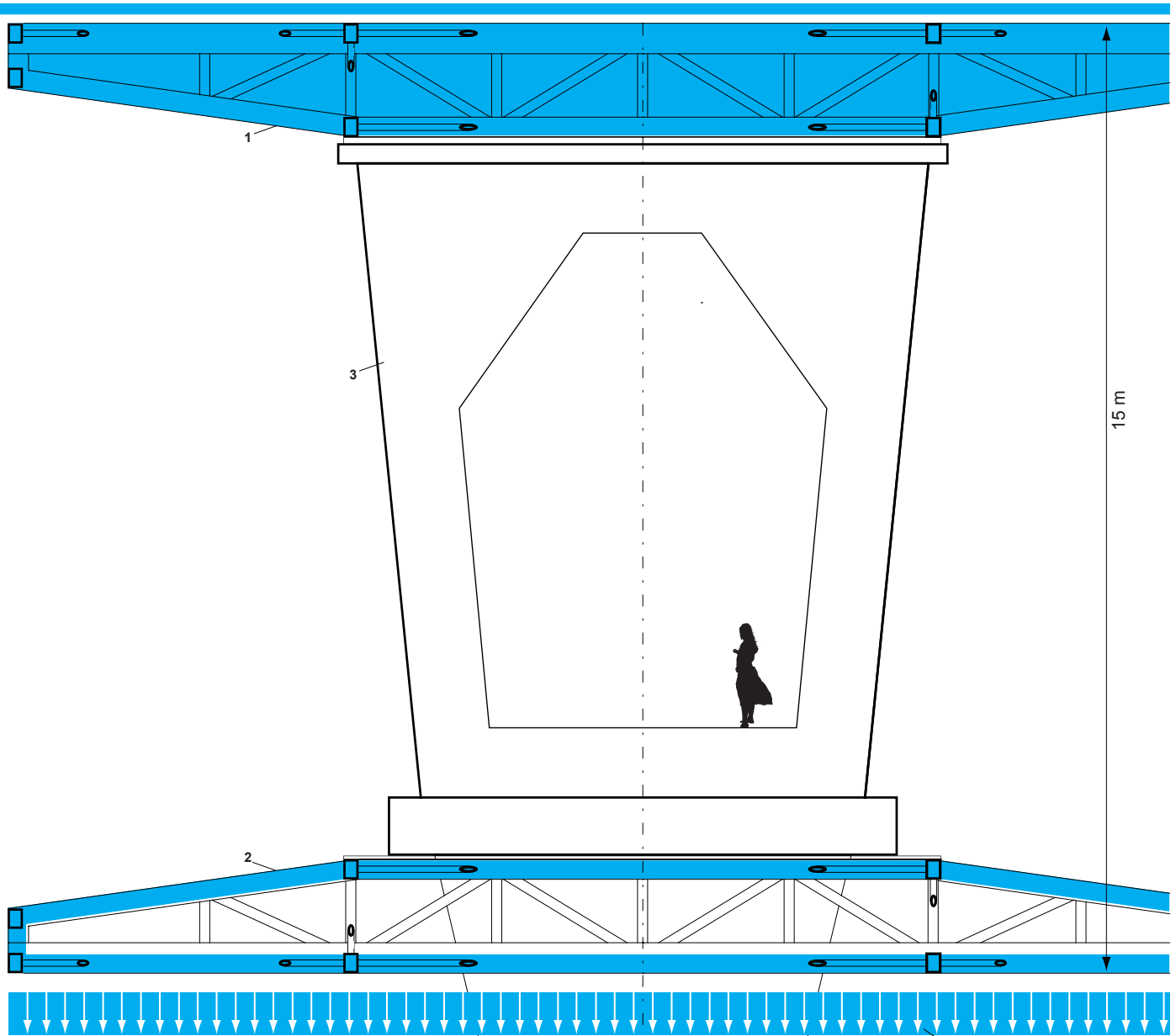
**1000kg/13P**

The access areas on both sides of the construction consist of four elevation cores and one fire escape staircase. They fulfil a double function. Apart from the access function, they are a necessary bracing for the construction's stability.



The explosion graphic above shows the heart of the construction. The whole structure is hung into the gantry crane. Therefore a giant I-beam is being created to take down all vertical and parts of the horizontal loads. The I-beam consists of two huge three-dimensional trusses (1, 2) that are connected to the horizontal beam of the crane (3).

Within this compound system, the crane beam becomes the connection between the added trusses that work as upper and lower flange of the I-beam. Due to this strengthened construction with a total height of 15m it is possible to transfer all vertical loads to the crane pillars, where they are taken down.

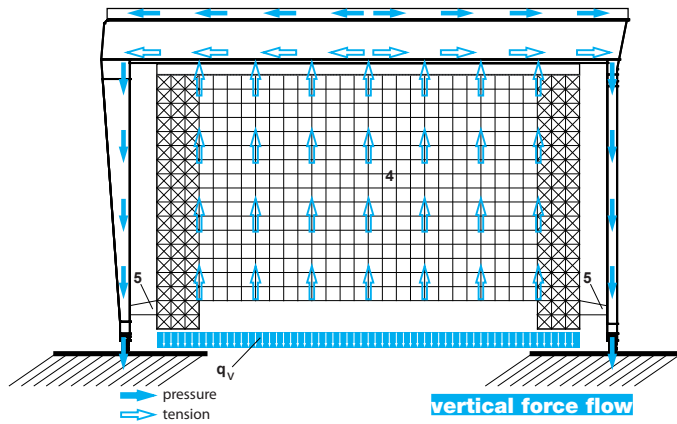


Force zones within upper and lower flange of the I-beam.

pressure   
tension 

**M 1:100**

### 2.3.2.2 STRUCTURE // FORCE FLOW / BRACING

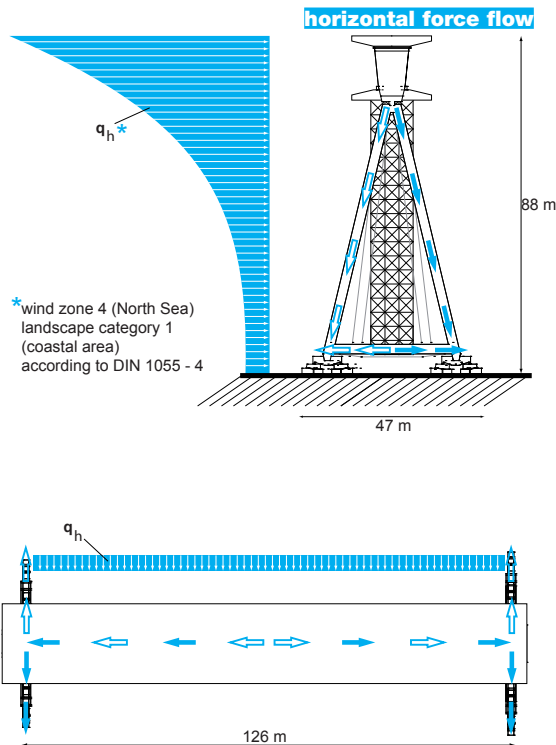


The images on the left (top) show the flow of vertical forces ( $q_v$ ) within the carrying structure.

The whole framework (4) is hung into the gantry crane. All vertical forces are lifted up to the main horizontal crane beam, which distributes the total load to the two giant crane pillars to bring all forces down.

All pillars of the construction are hangers which have to handle pull forces only. With no risk of bending, they can be dimensioned as most delicate parts, thus emphasizing their background function.

$$q_v = \text{tare weight} + \text{payload} + \text{snowload}$$



The images on the left (middle, bottom) show the flow of horizontal forces ( $q_h$ ) within the carrying structure.

According to DIN 1055 - 4:2005-03, the construction is dimensioned to resist strong wind pressures and allows for being located in most exposed areas (wind zone 4 (North Sea) with landscape category 1 (coastal area)).

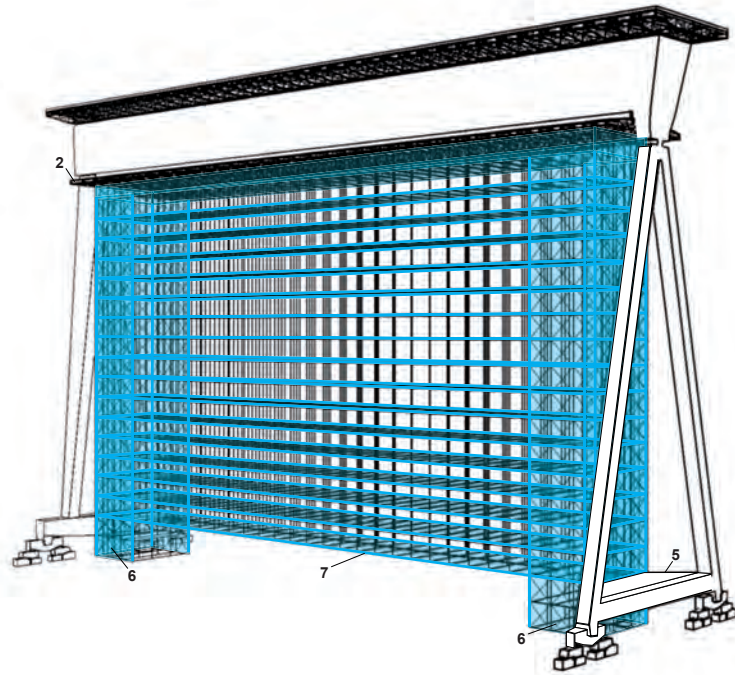
As the wind pressure rises exponentially, huge forces have to be taken into account on top of the building.

But as the structure is hanging, there is a bottom-up situation, which turns out to be a big advantage compared to buildings standing on ground. On top, where the strongest wind forces attack, the structure is fixed. The critical area is at ground level where the wind pressure is much lower. Therefore only a small moment within the pillars is being created. This moment has to be tackled mainly by the connection crane pillars - structure (5). The rest has to be managed by the giant I-beam and the crane. With a pillar-span of 47m, the crane is capable of bringing down all horizontal forces safely.

$$q_h = \text{windload}$$

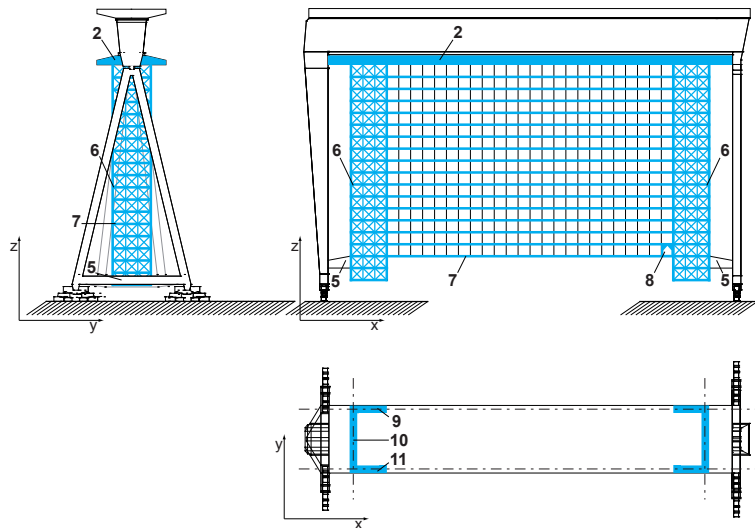
The images on the right show the bracing system of the construction.

Two rectangular truss cores (6) are the vertical bracing of the framework. They are designed to absorb horizontal forces. These two truss cores have a double function. They are needed to provide stability and they contain all access areas (for detailed information see following page). The cores are connected to the lower flange of the I-beam on top (2) as well as to the crane's feet at ground level (5). While the groundlevel connection is needed to prevent the framework construction from swinging by absorbing horizontal forces, the top connection mainly transfers vertical forces to the crane beam.

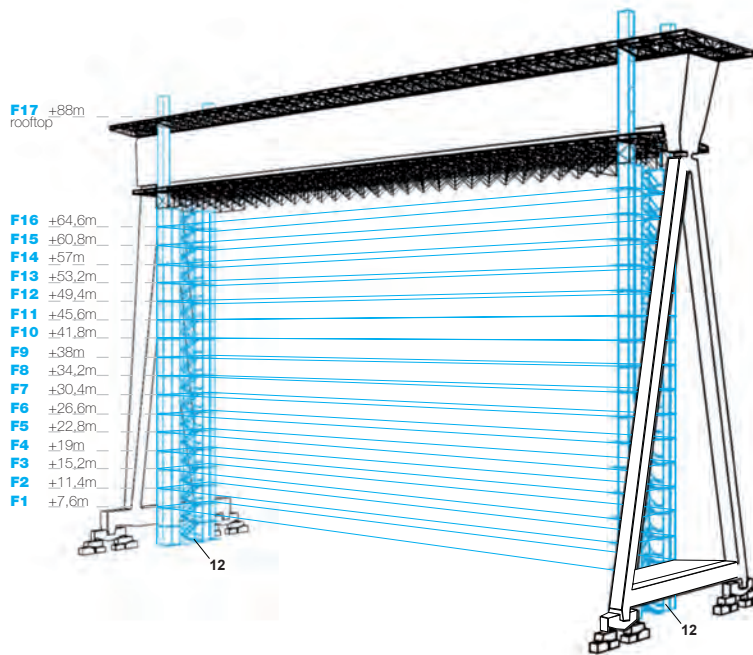


The ceilings (7) of each level are rigid plates and therefore they are the horizontal bracing of the construction. In combination with the access cores, a three-dimensional rigid system both bracing horizontally and vertically is being created. It has to be mentioned that the plug-ins that will be stuck into the grid later on (8) act, due to their rigid structure, as bracing volumes as well. The denser the dwelling pattern becomes, the more stable becomes the SUPERSTRUCTURE.

The image on the right (bottom) shows the principle of the core bracing system. Three rigid truss walls (9, 10, 11) meet in two different corners on each side to provide stability.



### 2.3.2.3 STRUCTURE // ACCESS AREAS / POWER SUPPLY



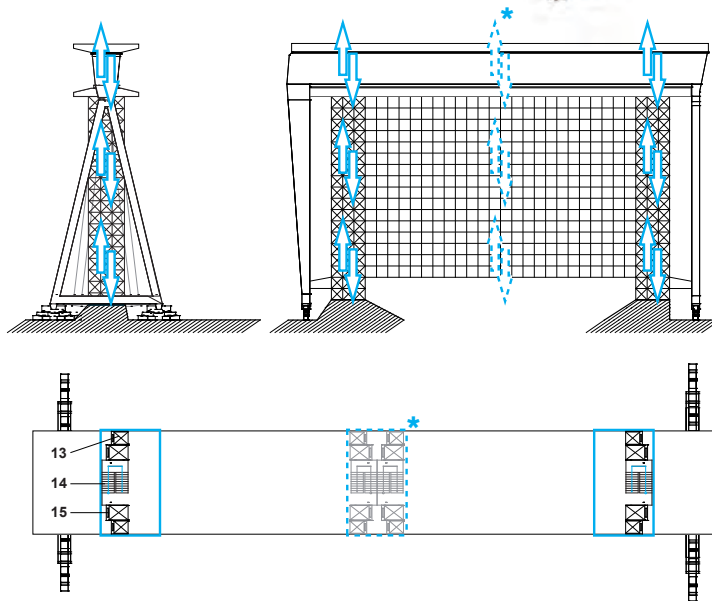
The images on the left show the access areas within the construction. They are located on both sides of the building (12) and are connected by the ceiling plates.

Each core includes:

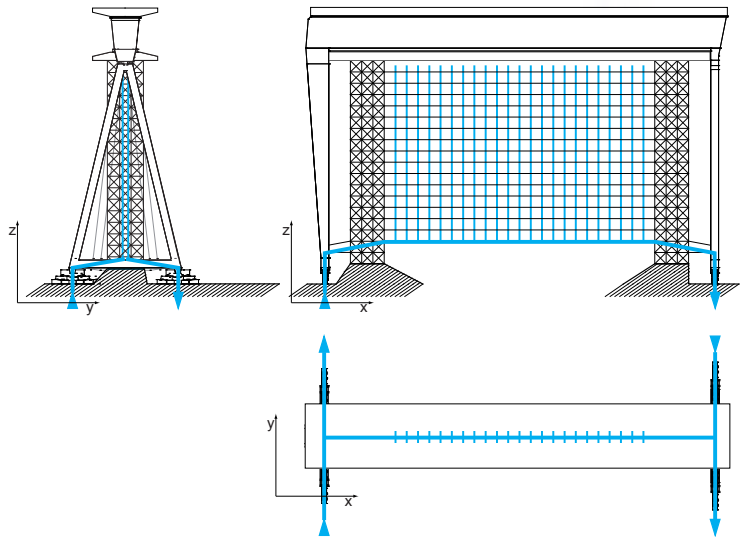
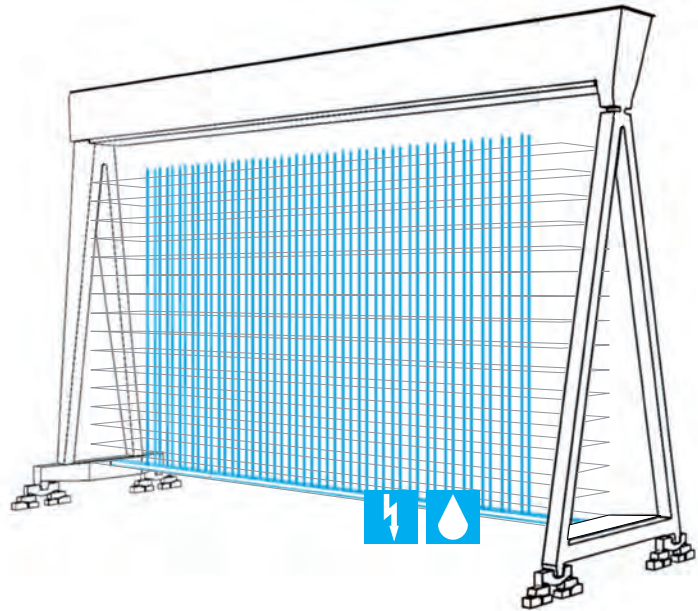
- 1 fire escape staircase (14)
- 2 passenger elevators (13)  
(max. load 1000kg)
- 2 fire brigade/goods elevators (15)  
(max. load 1800kg)

While the goods elevators have a limited elevation range from ground level to level 16, the passenger elevation goes from ground level up to the roof top (F17), where a huge public space is being created.

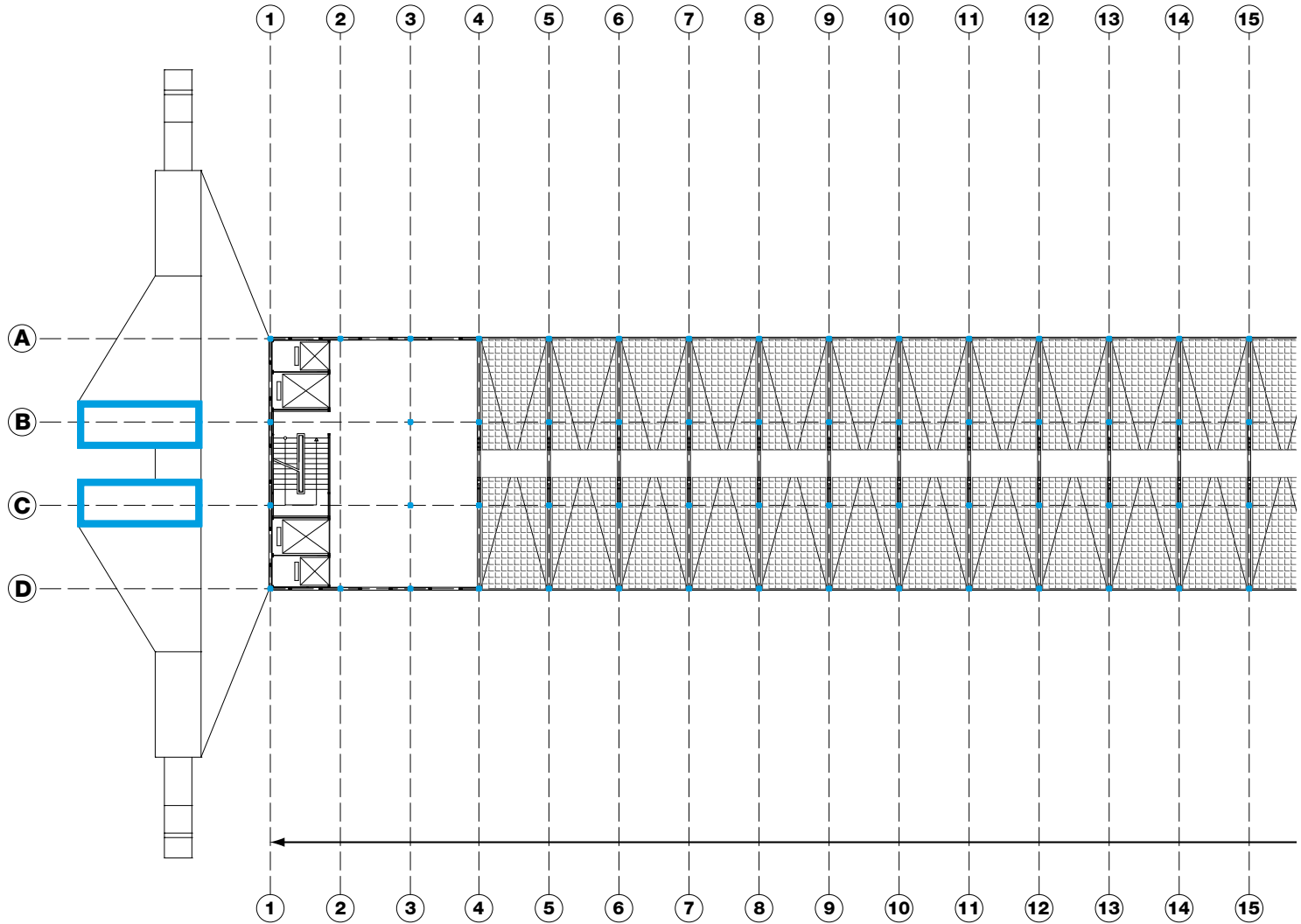
If required, an additional staircase core can be added in the middle of the construction to provide shorter emergency exit distances (<25m) as well as shorter dwelling unit access distances.



The images on the right show the organization of the installation shafts for power and water supply. They are designed as a docking system for the plug-in units.

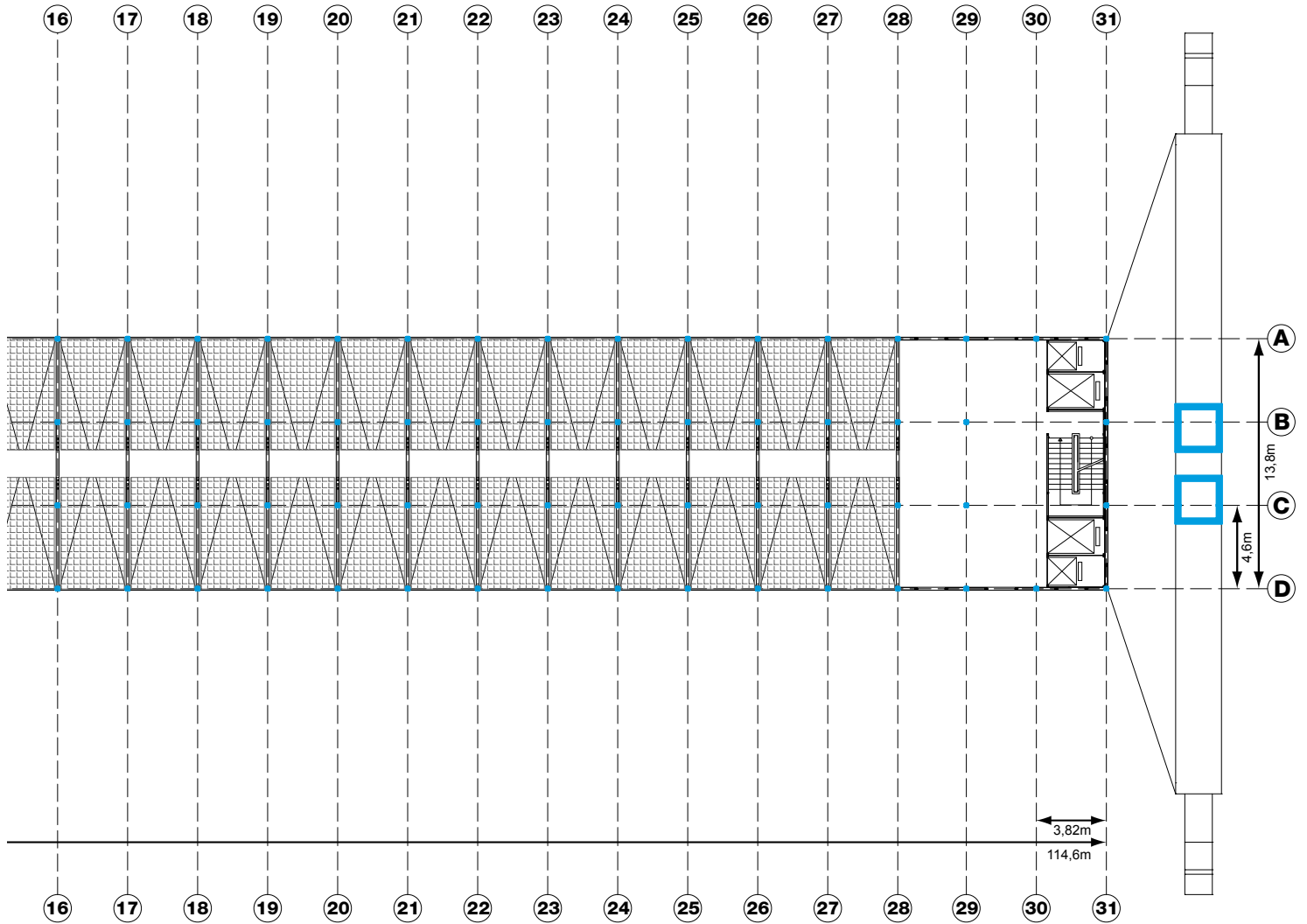


### 2.3.2.4 STRUCTURE // GRID

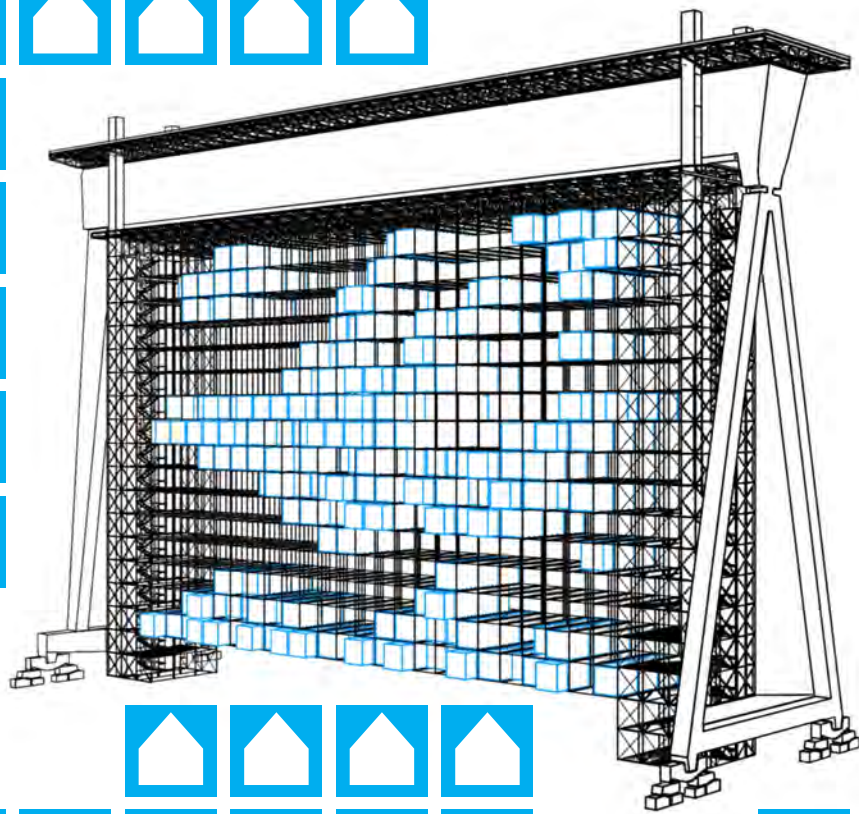


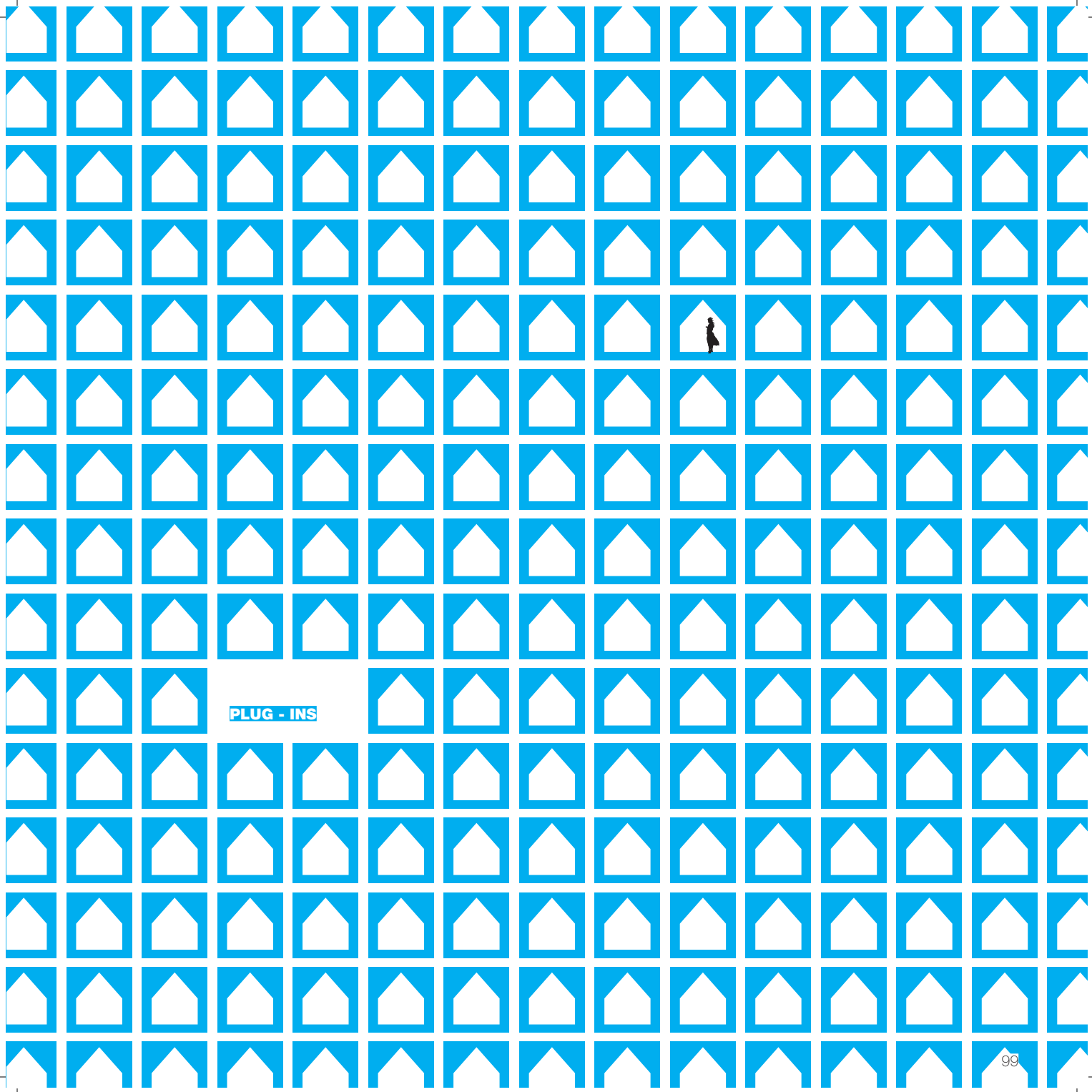
■ steel hollow profile  
160mm x 160mm  
t = 6mm; A = 36cm<sup>2</sup>; 29kg/m  
l = 3,8m





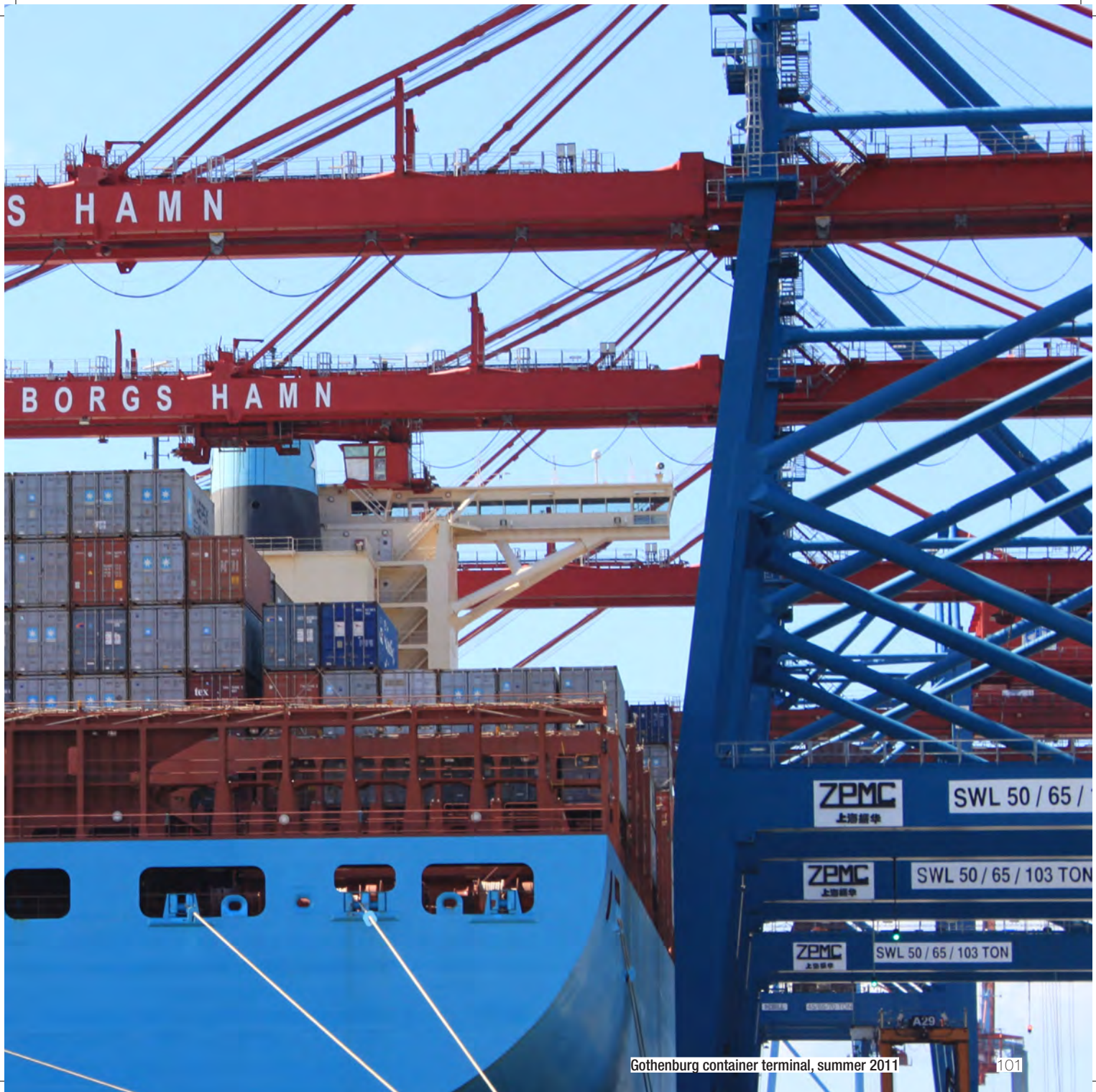
SCALE 1:360



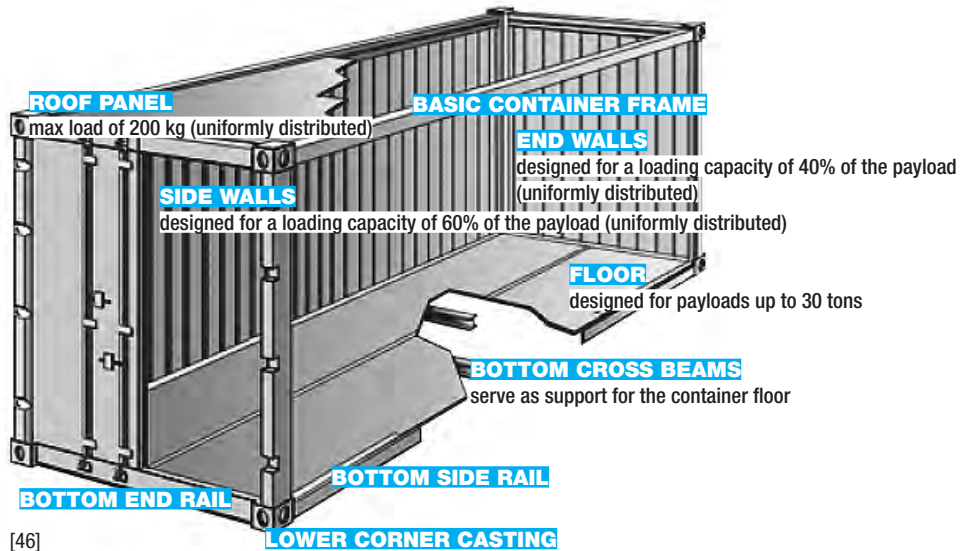


**PLUG - INS**





## STANDARD CONTAINER



### STANDARD CONTAINER SIZES

#### MODULAR SYSTEM

according to DIN/ISO 668

source: container manual [47]

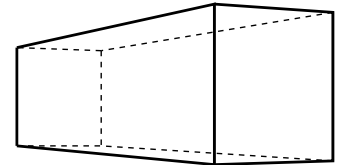
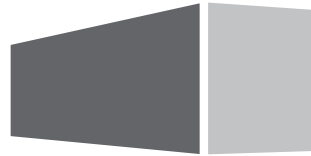
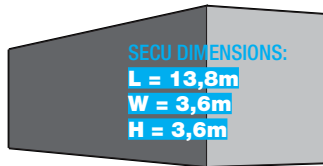
|                                      |                             |
|--------------------------------------|-----------------------------|
| length 40' = 12,2m; max payload: 30t |                             |
| length 30' = 9,1m; max payload: 25t  | length 10' = 3m; max pl 10t |
| length 20' = 6,1m; max payload 20t   |                             |
|                                      |                             |

width and height: 8' = 2,5m

tare weight around 1,5t (10' container) and 4t (40' container)

## TRANSFORMATION

### MODIFICATIONS



### DIMENSIONS

As the basis module for the plug-in housing units, oversized SECU\* containers are used instead of ISO standard containers.

\*Stora Enso Cargo Unit

This type of container was introduced by a Finnish-Swedish company named Stora Enso (the world's second largest paper producer) to transport paper rolls.

### ADAPTION

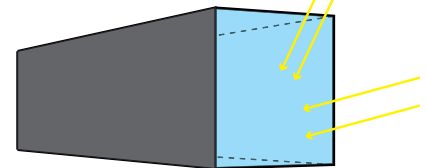
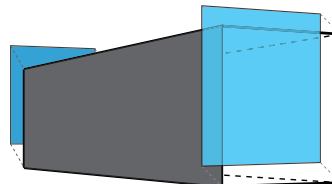
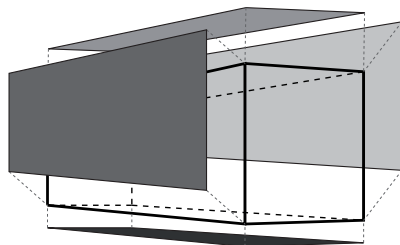
#### STEP 1

Side- and end walls are removed. As there are much lower payloads required for housing units, the bottom cross beams are removed as well to reduce the tare weight.

### ADAPTION

#### STEP 1

All that remains is the bare container skeleton.



### ADAPTION

#### STEP 2

The container beams are mantled with floor- and side panels that meet required housing standards in terms of thermal and acoustic conditions.

### ADAPTION

#### STEP 2

Big format double-glazed window panels replace the former end walls.

### PLUG-IN

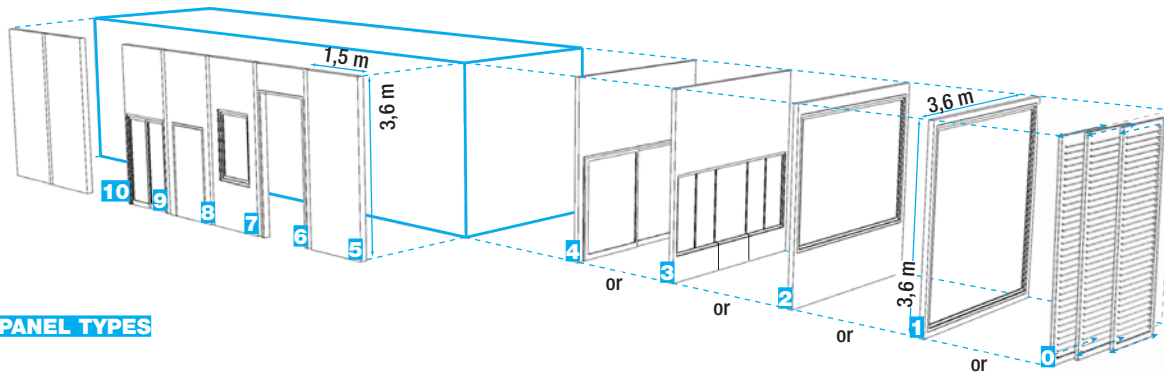
#### COMPLETED

The plug-ins are “*ergonomically designed and manufactured to meet diverse localised climatic conditions by incorporating highly efficient and environmentally friendly building materials.*” [My Space pod, brochure; 48]

## MODULAR PANEL SYSTEM

In order to adapt the plug-ins to the inhabitants' needs easily and to provide a flexible structure, the container skeleton is mantled with prefabricated wall and roof panels that can be altered easily one by one. The format is fixed with a size of 3,6m x 3,6m for the end panels and 1,5m x 3,6m for the side panels. Different types of panels - e.g. door, opening, window - are available.

As the hull of the plug-ins can be altered, it is possible to connect them horizontally. Wall modifications - e.g. openings - can be created individually by changing the type of panel or removing/adding panels.



## PANEL TYPES

### END WALL

- 0 sun protection
- 1 picture window, full size
- 2 picture window, sill height 0,8m
- 3 door-window combination
- 4 sliding door-window combination

### SIDE WALL

- 5 full panel
- 6 opening
- 7 window
- 8 door
- 9 sliding door
- 10 gap/no panel

ADAPTABLE BY WILL

FLEXIBLE

MODULAR

PREFABRICATED

TRANSPORTABLE

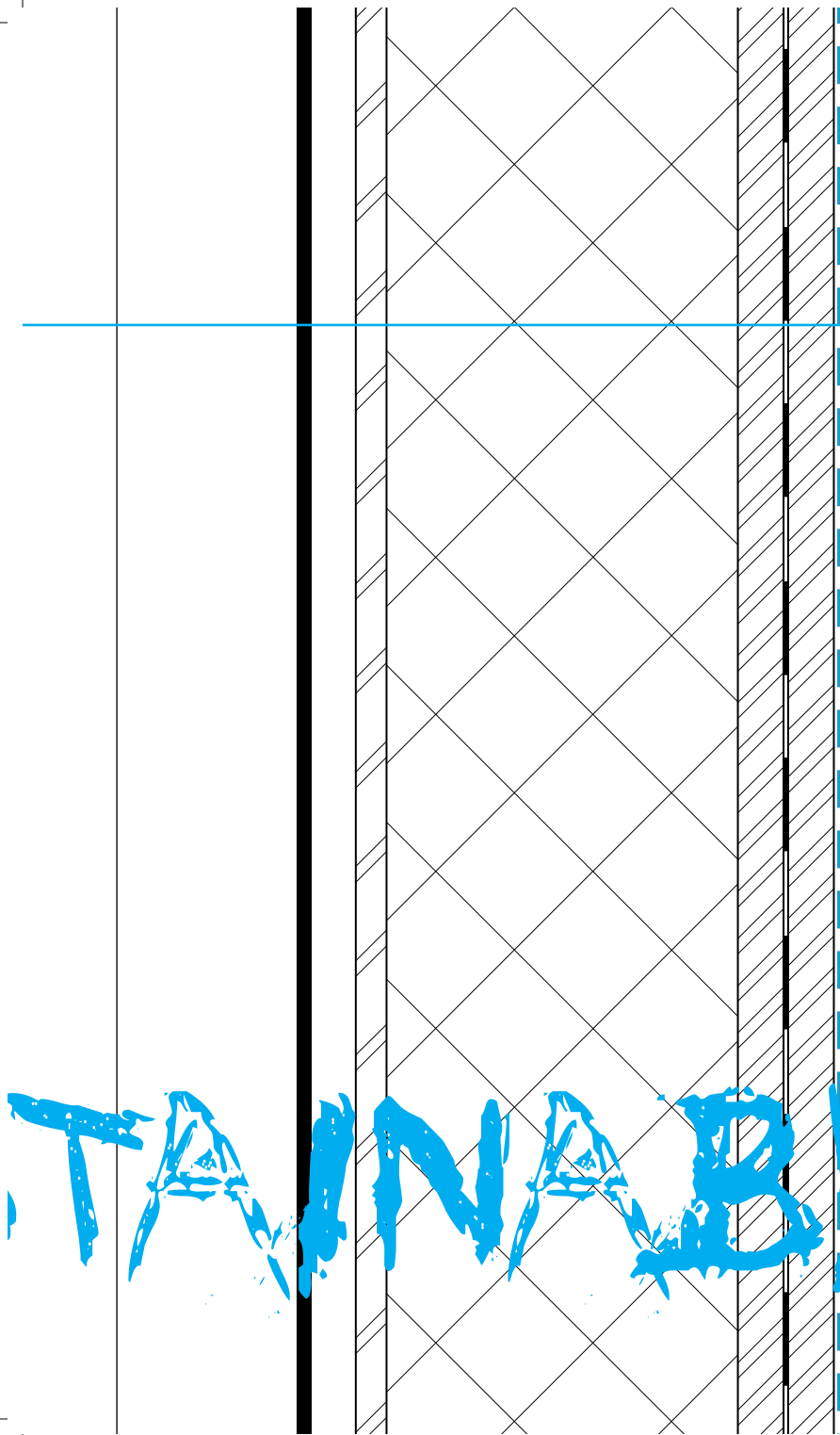
QUICK TO PLUG IN

DURABLE

AFFORDABLE







**WALL PANEL STRUCTURE** **SCALE 1:2**

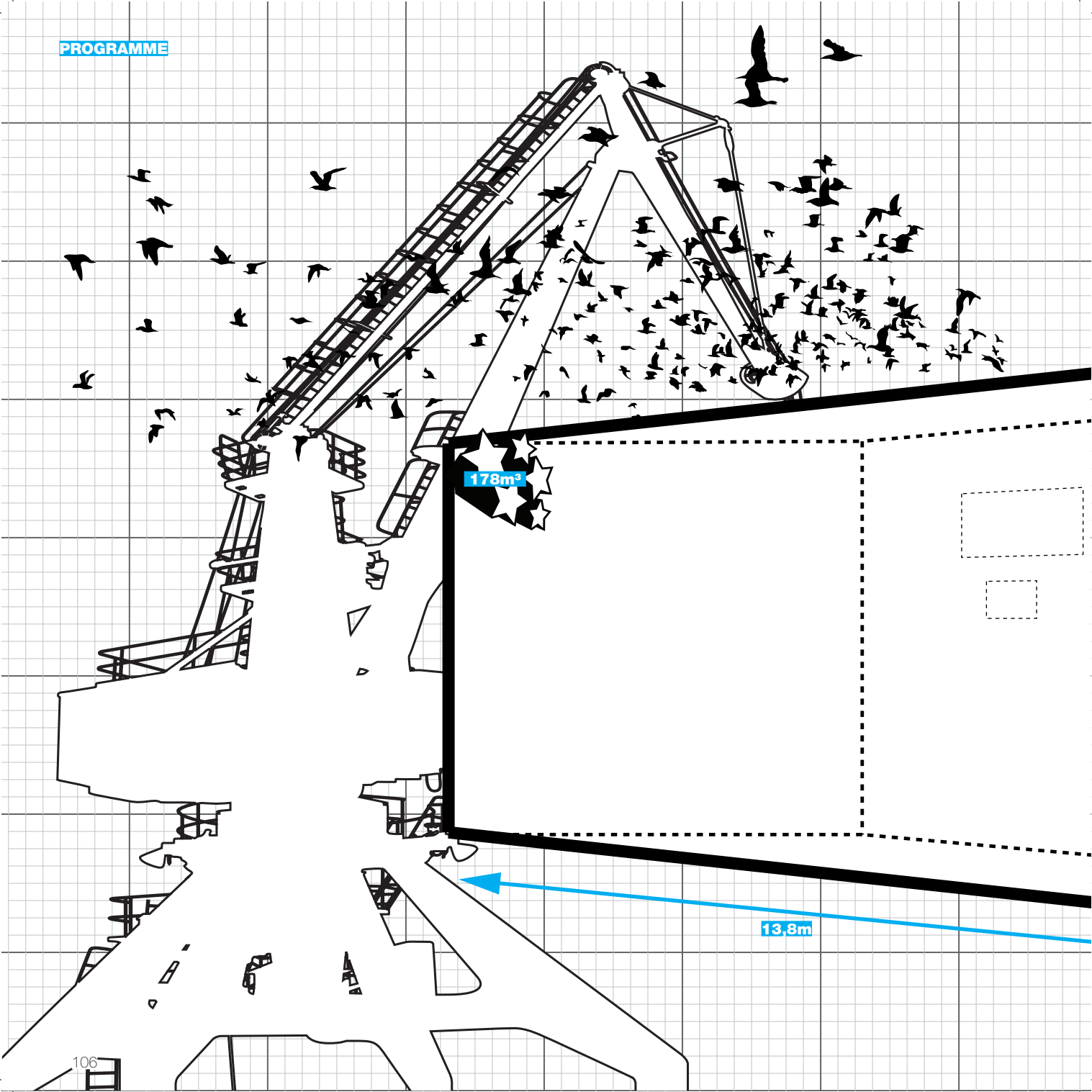
- 50 mm trapezoidal sheet metal, coated [thickness 3mm]
  - 15 mm rear ventilation
  - 12 mm OSB panel
  - 100 mm insulation polyurethan foam hard
  - 15 mm cement fibreboard
  - vapour barrier [self-adhesive overlapping joints]
  - 15 mm cement fibreboard
  - individual coverpanel [e.g. plywood panel]
- = 207 mm [+ individual coverpanel thickness]

**MINIMAL REQUIREMENTS:**

thermal value  $U < 0,25 \text{ W/m}^2\text{K}$   
acoustic level  $R_W > 47\text{dB}$   
60min fire rating

PANEL FORMAT  
W x H: 1,5m x 3,6m

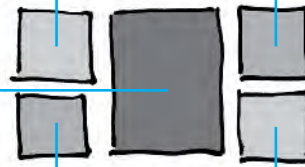
TANNAUBLE



SLEEPING  
WORKING

LIVING

EATING  
HYGIENE



HOUSING  
42m<sup>2</sup> ± 178m<sup>3</sup>

The aim is to provide modular housing units that are seen as empty volumes measured in m<sup>3</sup>. The volumes are flexible to the inhabitants' needs and can be adapted by will at any given time. An unlimited number of additional volumes can be added/removed to meet changing needs in the progress of time. By combining several units, housing space with a wide range of different qualities can be created. The outcome of this creative process depends on the inhabitants' will and resourcefulness to design their own living space.

3,6m

3,6m

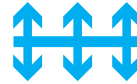




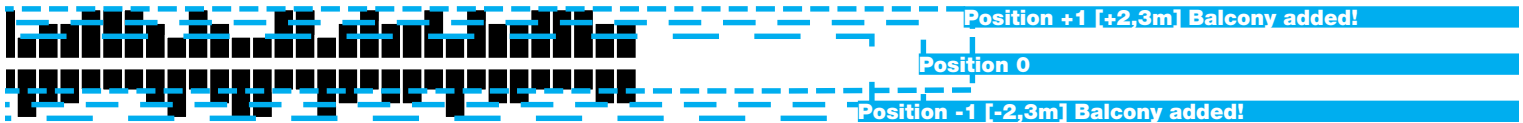
The plug-ins can be connected horizontally.  
Thereby dwelling units with a multiple of 42m<sup>2</sup>  
[size per unit] can be created.



The plug-ins can be shifted back and forth.



An access corridor is added.



Position +1 [+2,3m] Balcony added!

Position 0

Position -1 [-2,3m] Balcony added!



\* S

\* = 42m<sup>2</sup>

\* M

\* = 84m<sup>2</sup>

\* L

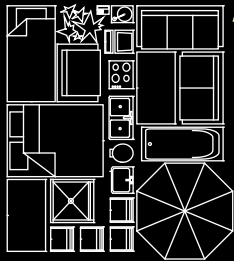
\* = 126m<sup>2</sup>

\* XL

\* = 168m<sup>2</sup>



42m<sup>2</sup>





**S**




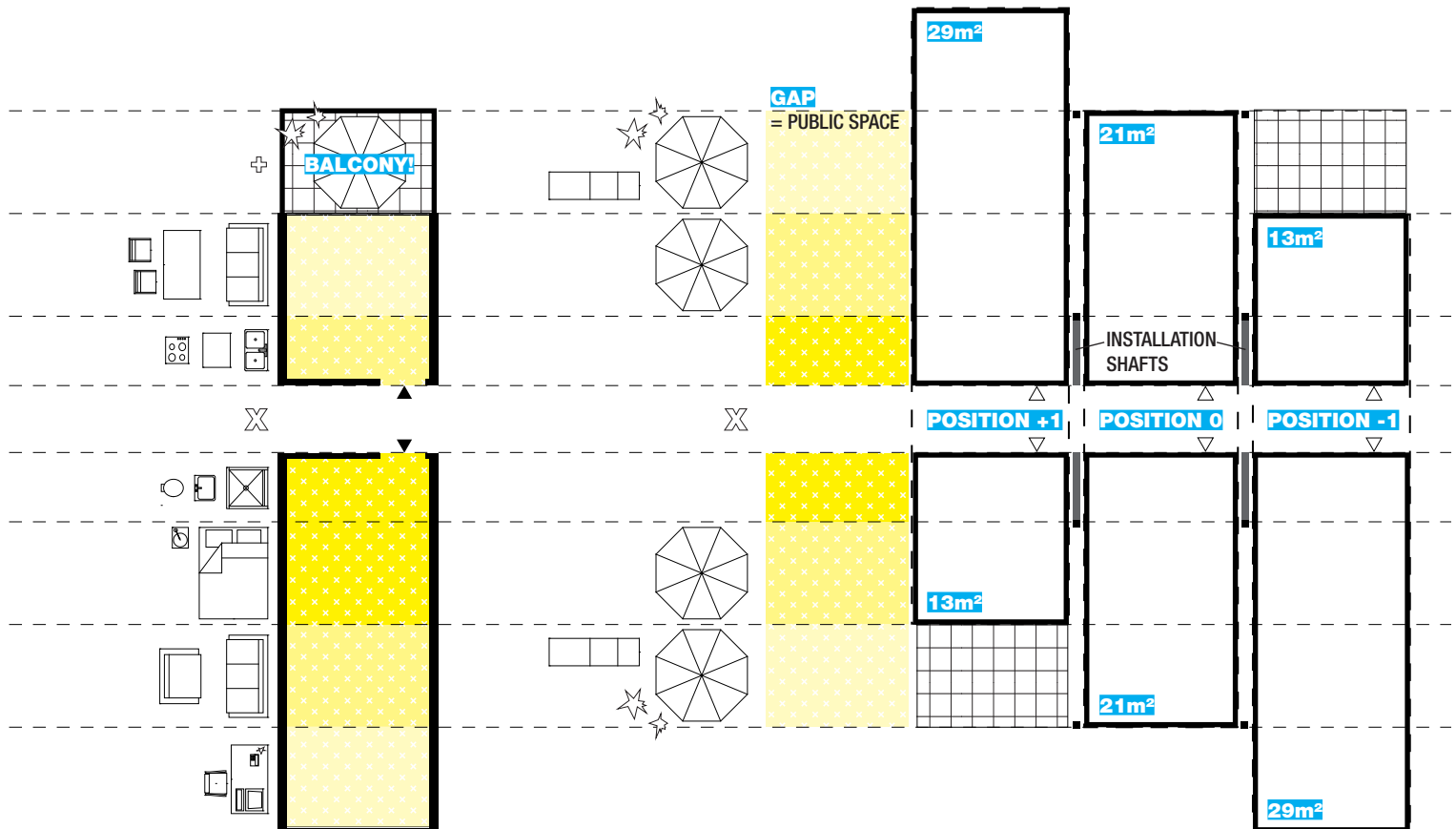
**SNYGG**



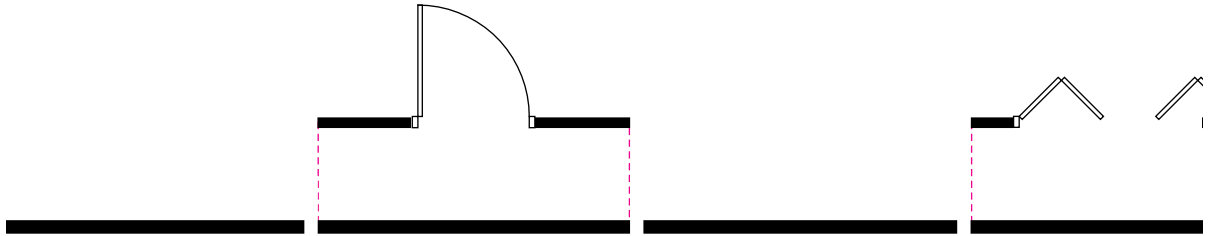
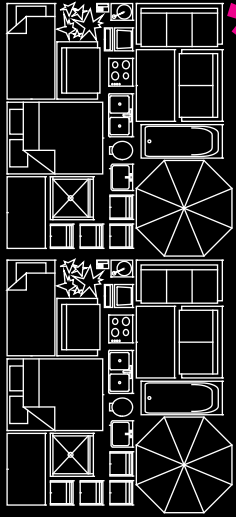
Excellent daylight luminance 

Sufficient daylight luminance 

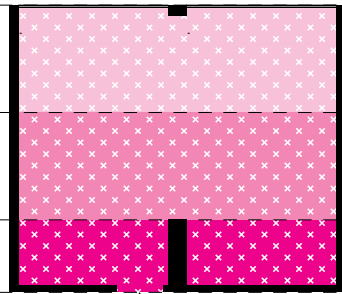
Low daylight luminance  
recommended area for wet cells, kitchen and storage space 



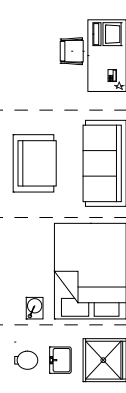
84m<sup>2</sup>



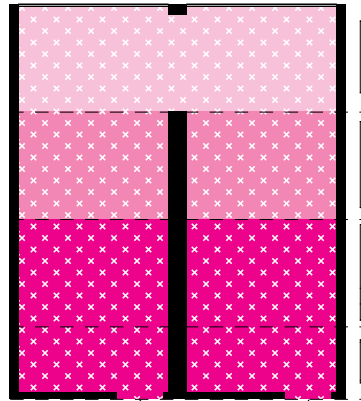
ADAPT WALL PANELS, CONNECT VOLUMES, AND DESIGN A HOME THAT FITS YOUR NEEDS...



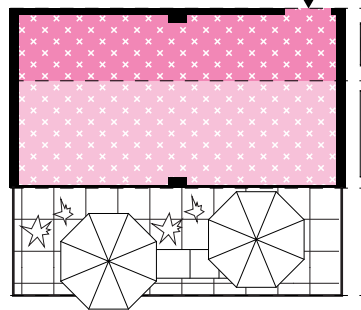
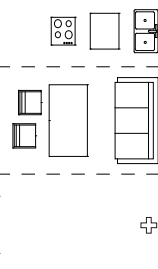
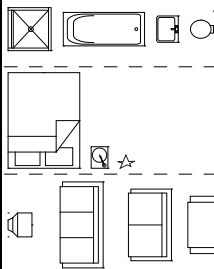
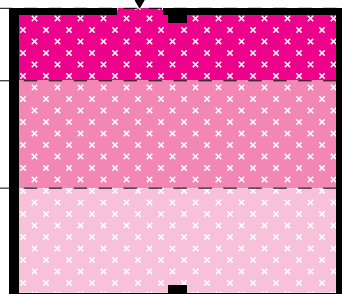
X



X

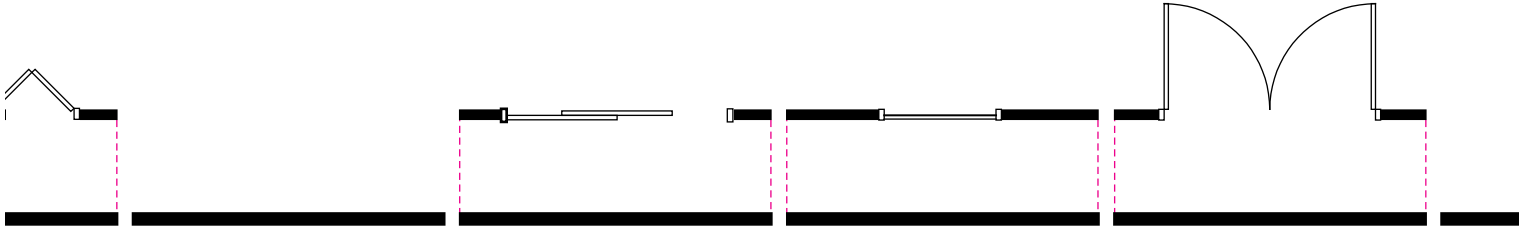


X

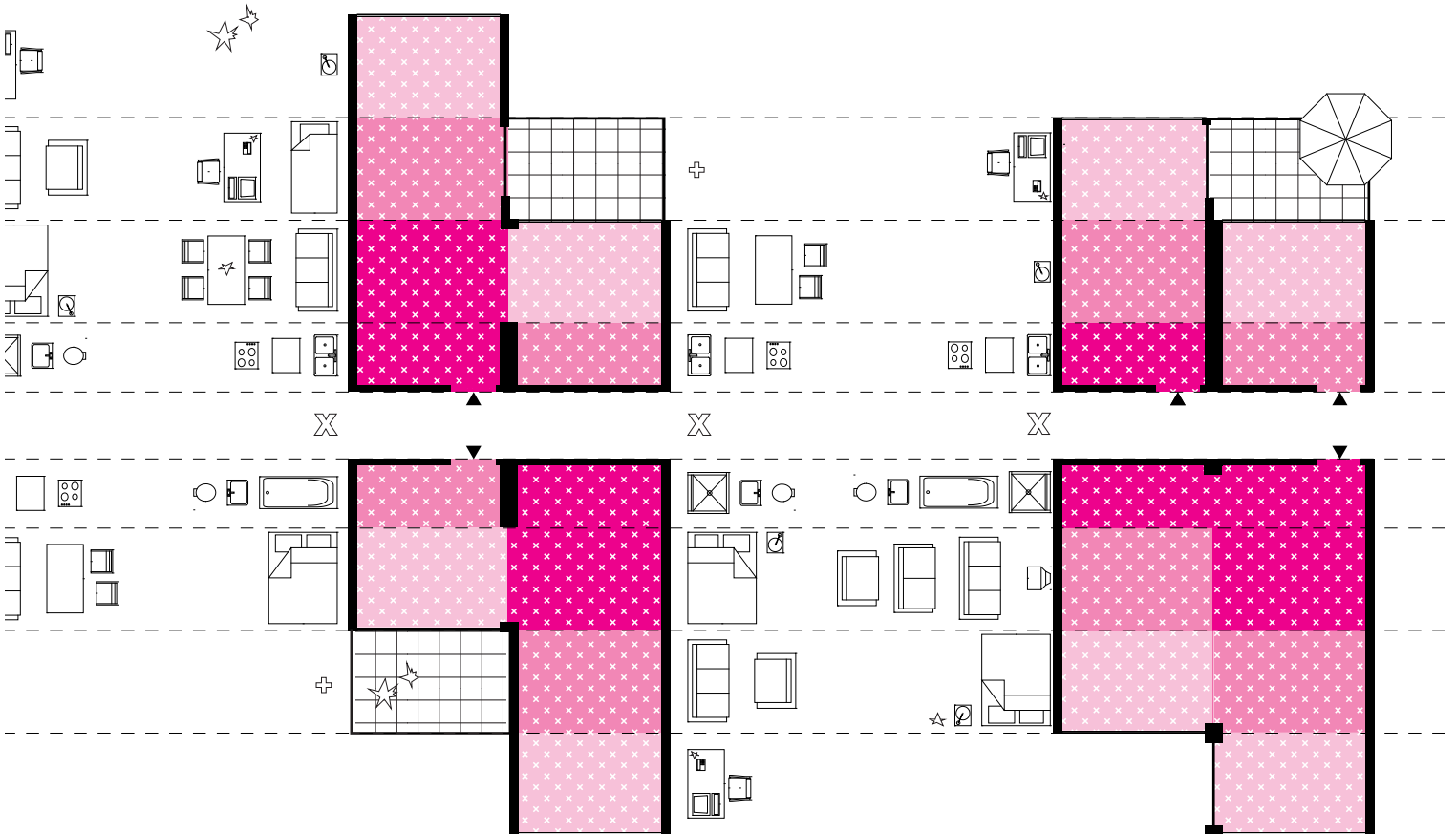


TJUSIG

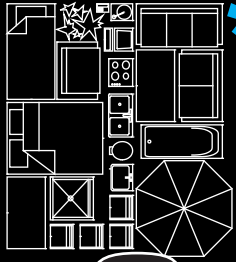




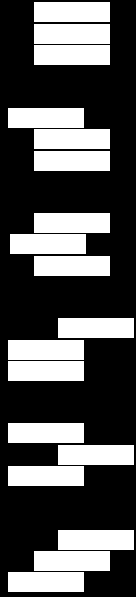
...AT ANY GIVEN MOMENT!



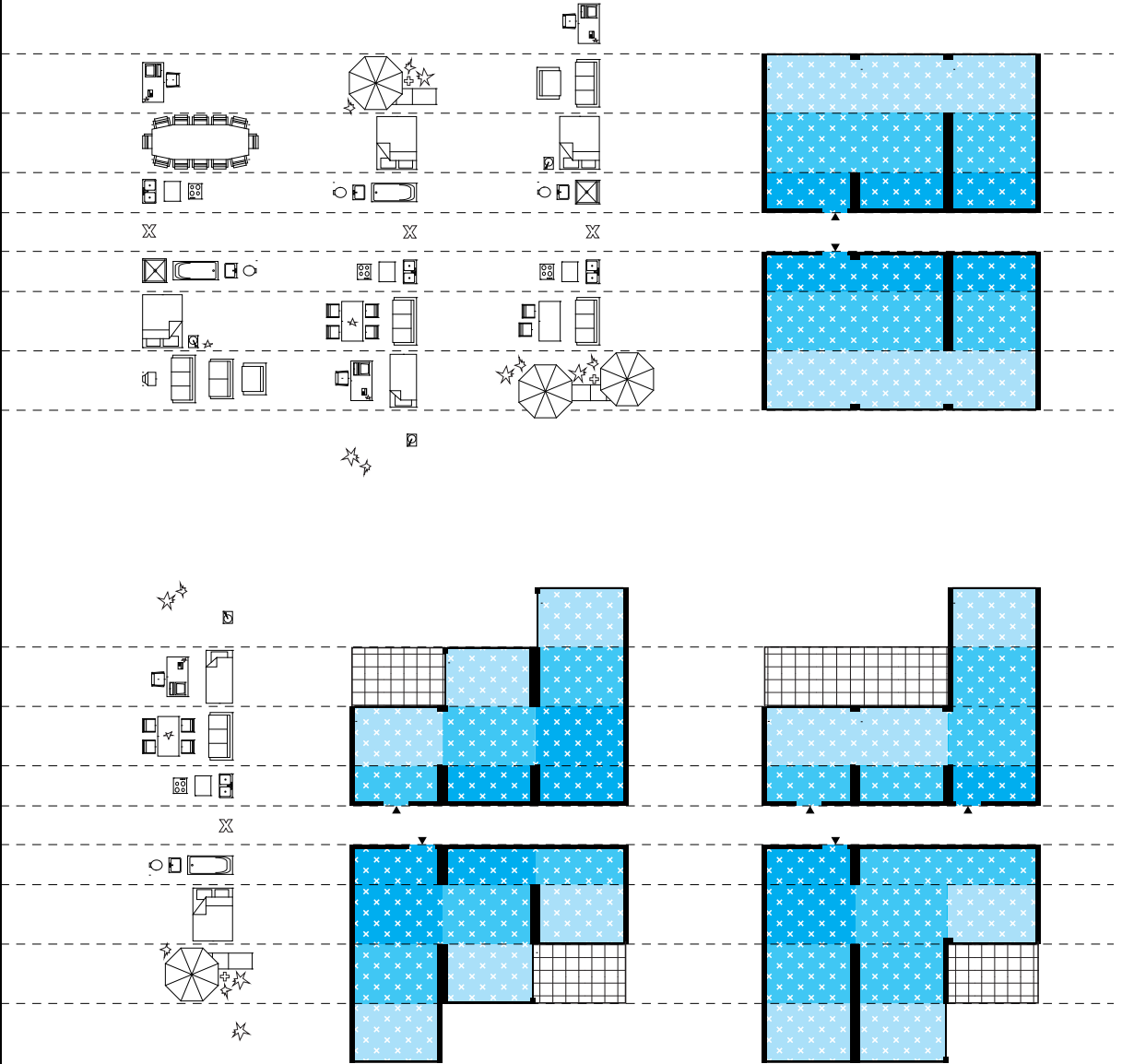
126m<sup>2</sup>

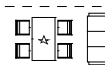
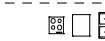
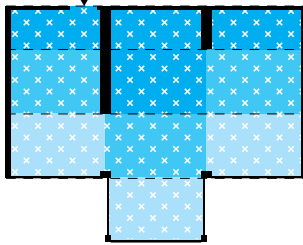
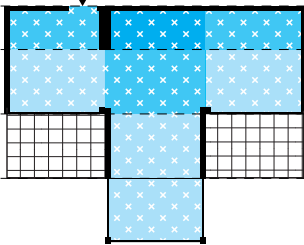
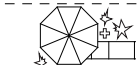
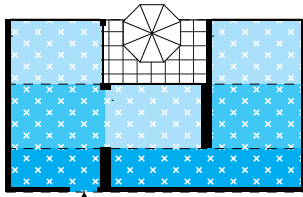
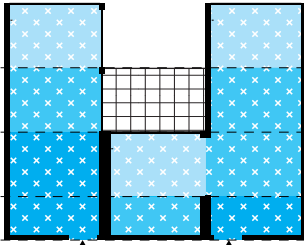
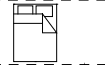
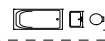
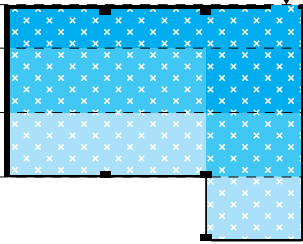
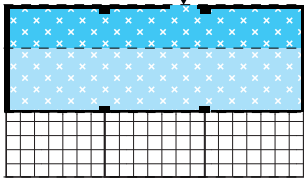
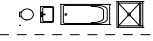
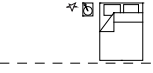
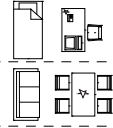
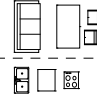
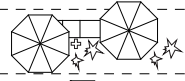
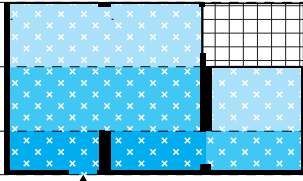
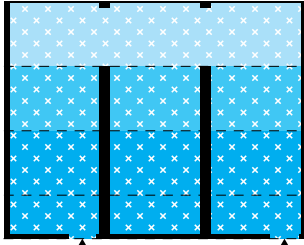


X3

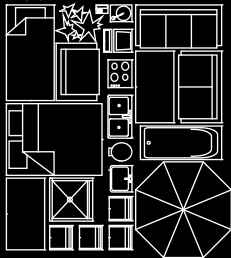


BRA

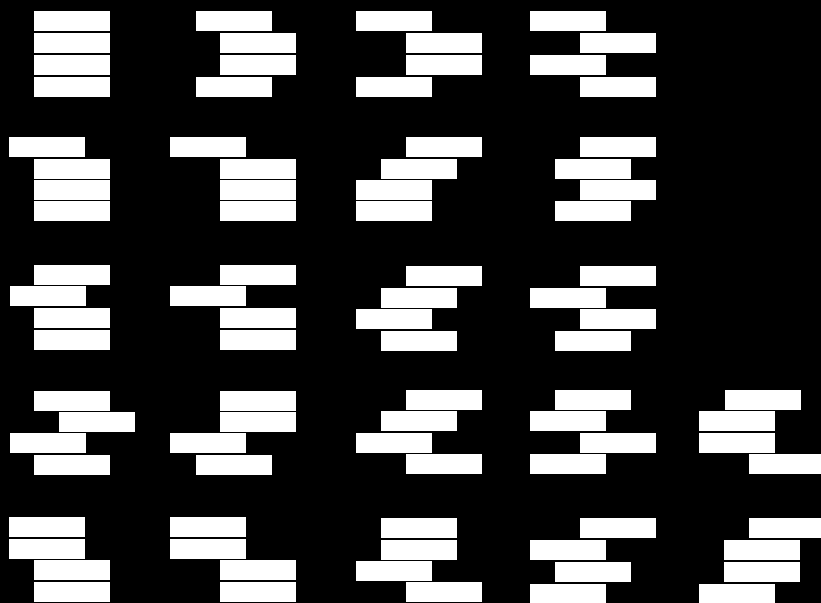




168m<sup>2</sup>



x4



JÄTTEBRA

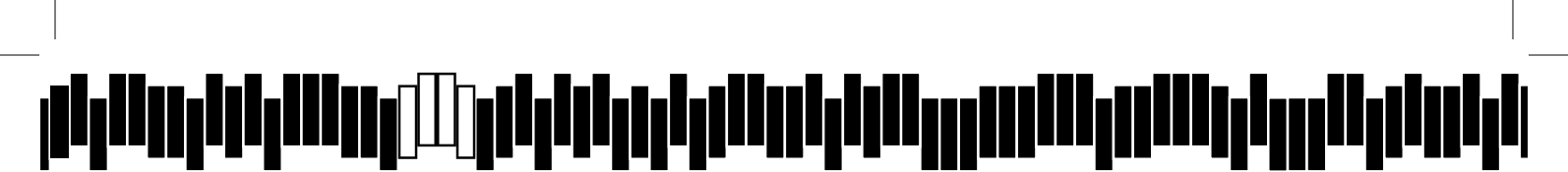
\*XL

# of plug-ins      # of configurations\*

|    |              |
|----|--------------|
| 1  | 3            |
| 2  | 9            |
| 3  | 27           |
| 4  | 81           |
| 5  | 243          |
| 6  | 729          |
| 7  | 2187         |
| 8  | 6561         |
| 9  | 19683        |
| 10 | 59049        |
| 11 | 177147       |
| 12 | 531441       |
| 13 | 1594323      |
| 14 | 4782969      |
| 15 | 14348907     |
| 16 | 43046721     |
| 17 | 129140163    |
| 18 | 387420489    |
| 19 | 1162261467   |
| 20 | 3486784401   |
| 21 | 10460353203  |
| 22 | 31381059609  |
| 23 | 94143178827  |
| 24 | 282429536481 |

As the number of possible configurations rises exponentially to the power of n, a huge variety of housing set-ups is created rapidly.

\*Gaps not taken into account; mirrored configurations included.

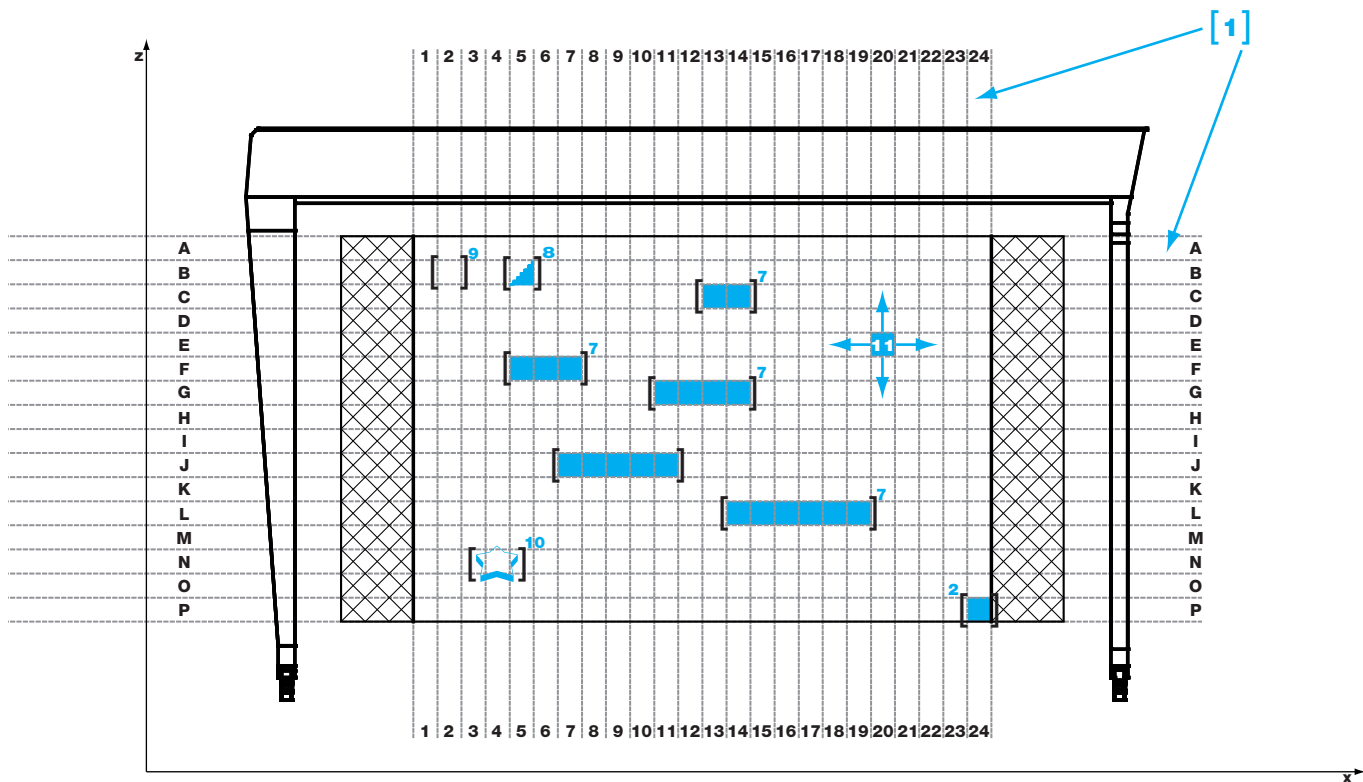


total # of possible configurations =  $3^n$

n = # of plug-ins

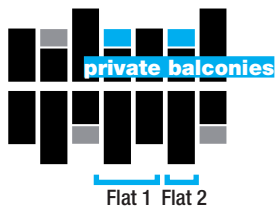
A grid (A1 - P24) [1] has to be filled up with boxes [2]. Each box represents a housing unit. Every housing unit is equal in terms of size, the amount of daylight received, and view. Each box can be shifted between three positions [3]. Shifting positions means altering the volumes of the plug-ins [4] and creating or removing free space [5]. These free spaces can be used as balconies which are either very private or shared spaces [6]. Boxes can be connected horizontally [7]. To set up vertical connections within the grid, staircase plug-in units can be used [8]. The maximum number of boxes that can be added is limited only by the dimensions of the grid. 30% of the grid has to remain empty at any given time [9]. Every n<sup>th</sup> housing unit one common unit has to be implemented [10]. All units can be moved within the grid at any time [11].

**TAKE RESPONSIBILITY FOR YOUR HOME, BUILD YOUR DREAM HOME AND ENJOY IT.**



[6]

13.4.2011



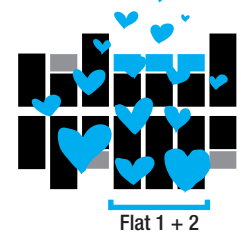
27.4.2012



12.4.2013



13.4.2013

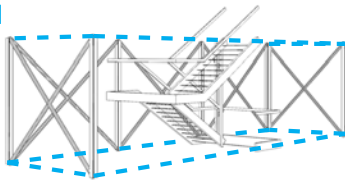


By altering the configuration at will it is possible to create balconies that can be very private without any intrusion at one moment - with no insight from any surrounding place - at another they can be transformed into huge terraces shared with others.

[9] For the following reasons the grid must not be filled fully:

- 1 the total payload is reduced to a level that the crane can carry safely if the maximum number of plug-ins is limited to 70% of the grid's total capacity
- 2 horizontal forces are reduced if there are gaps for the wind to go through
- 3 density is reduced to avoid the monotony of superblocks
- 4 to be able to move the plug-ins within the grid at any time, empty spaces that can be occupied are required permanently

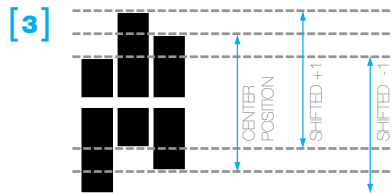
[8]



#### Staircase plug-in

For building vertical connections within the grid, staircase modules are implemented. They can be plugged in the same way as the housing modules.

y



[4]



[5]



x

## 101 COMMUNITY FACILITIES

By integrating communal facilities, which serve the purposes of social life and provide basic standards of living open-minded and socially inclusive lives, social interaction should be encouraged and social isolation should be avoided. It has to be distinguished between **public facilities** that offer an additional value to the inhabitants as well as to the surrounding neighbourhood, **semi-public facilities** that offer an additional value for the inhabitants, and **private plug-in facilities**.

- **Public facilities**

Public facilities upgrade the building's quality according to their functions in terms of cultural and social values and as they are available to the public they have an impact on the surrounding neighbourhood and therefore upgrade the whole quarter. Public facilities are plug-ins with functions that serve an educational purpose or satisfy common social needs.

e.g. library, child daycare centre, youth centre

- **Semi-public facilities**

Plug-ins which are used by the inhabitants only and which serve basic needs on a lower level. They act as social meeting zones that strengthen the quality of living, avoid social isolation and are intended for community use.

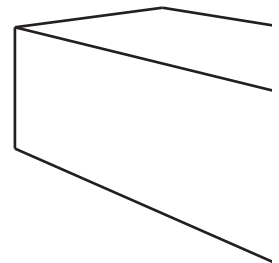
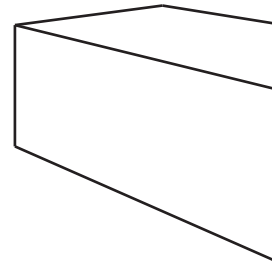
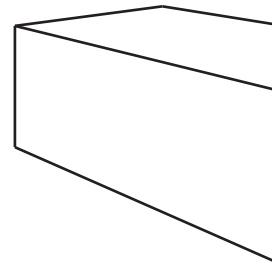
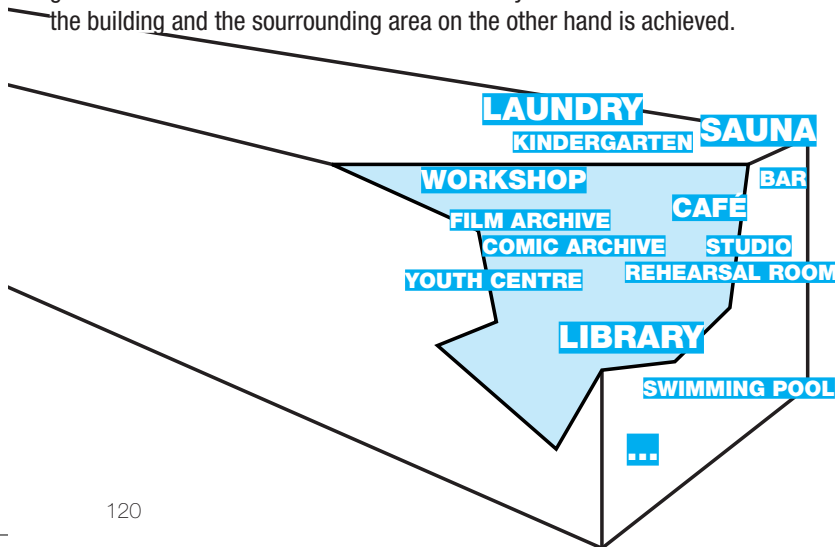
e.g. common kitchen, laundry, sauna

- **Private facilities**

Plug-ins that serve needs on a private level and are only accessible by private persons.

e.g. rehearsal room, studio, workshop

The community facilities grow with the density of the housing plug-ins. Every  $n^{\text{th}}$  unit ( $n$  depends on various factors, as for example the existing infrastructure in the surrounding area, an infrastructure that is going to evolve in the wake of the renewal process, or on the needs of the inhabitants), a community facility has to be added to keep a balance between social infrastructure and private housing. As public facilities can be located anywhere inside the grid - in vertical and horizontal direction - a lively interaction between the inhabitants on the one hand and between the building and the surrounding area on the other hand is achieved.





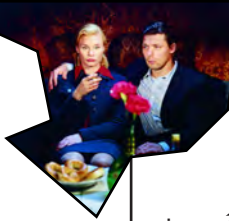


image: Aki Kaurismäki  
Lights in the Dusk  
FI 2006



image: TU Wien  
Library



image: Aki Kaurismäki  
La Vie de Bohème  
FI 1992

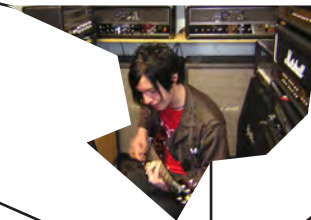


image:  
Rehearsal room



image: Francois Ozon  
Swimming Pool  
F 2003

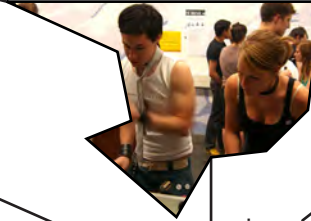


image:  
TU Wien Bar

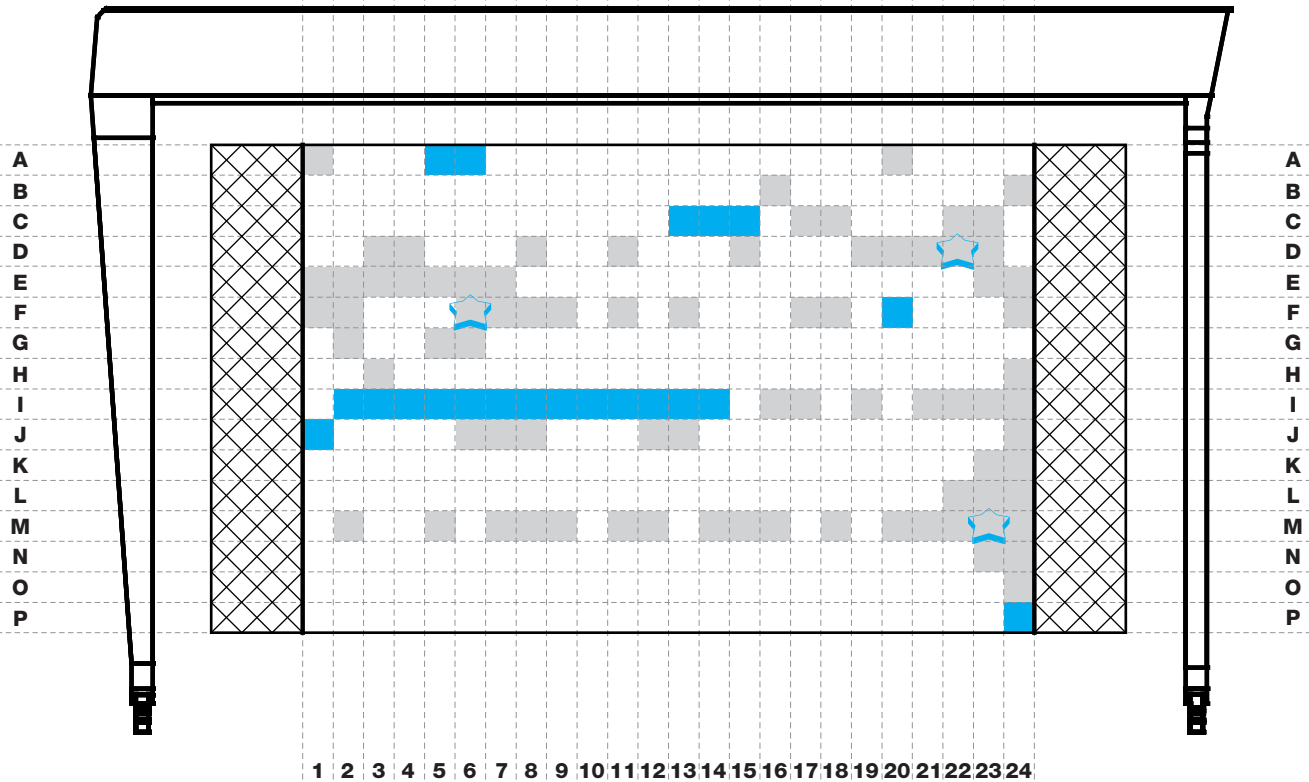


Poster "Das Rote Wien", 1927 [17P13]

# LAST DAYS OF APRIL 2011

AS TIME GOES BY...

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

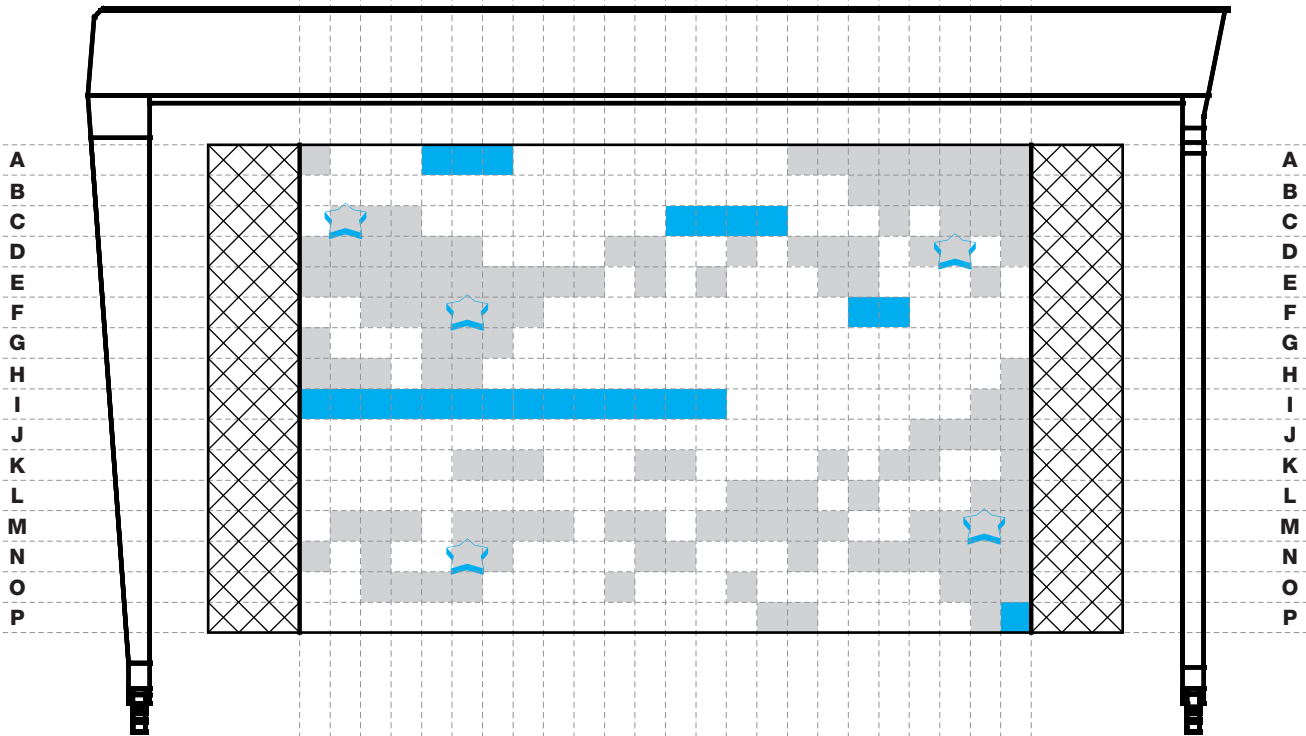
## GENERAL INFORMATION

| TOTAL # OF BOXES | TOTAL # OF GAPS | DENSITY*                      | # OF COMMUNITY FACILITIES |
|------------------|-----------------|-------------------------------|---------------------------|
| 99               | 285             | 0,25<br>* # plug-ins/ (16x24) | 3                         |

| # | POS CONFIGURATION   | M <sup>2</sup> | M <sup>3</sup> | M <sup>2</sup> /P | #P | AGE  | SEX  | TYPE / SITUATION OF LIVING     | DATE LAST MODIFIED |
|---|---|----------------|----------------|-------------------|----|--|--|--------------------------------|--------------------|
| 1 | P24<br>LIVING ■ ■ WORKING   | 42             | 147            | 42                | 1  | 30   | MALE   | SINGLE                         | 21/04/11           |
| 2 | A5<br>A6<br>LIVING ■ ■ CHILDREN'S<br>WORKING ■ ■ ROOMS  | 84             | 294            | 28                | 3  | 33<br>6<br>3                                 | FEMALE<br>MALE<br>MALE   | SINGLE MOTHER                  | 25/04/11           |
| 3 | C13<br>C14<br>C15<br>COMMUNITY ■ ■ ROOMS<br>SPACE ■ ■   | 126            | 441            | 63                | 2  | 20<br>22                                     | MALE<br>MALE   | SHARED FLAT                    | 30/04/11           |
| 4 | F20<br>LIVING ■ ■ BALCONY   | 42             | 147            | 42                | 1  | 22   | MALE   | SINGLE                         | 13/04/11           |
| 5 | I2<br>I3<br>I4<br>I5<br>I6<br>I7<br>I8<br>I9<br>I10<br>I11<br>I12<br>I13<br>I14<br>ROOM 1 ■ ■<br>ROOM 2 ■ ■<br>ROOM 3 ■ ■<br>■ ■ COMMUNITY<br>■ ■ SPACE<br>ROOM 4 ■ ■<br>ROOM 5 ■ ■<br>■ ■ COMMUNITY<br>■ ■ SPACE<br>ROOM 6 ■ ■<br>ROOM 7 ■ ■<br>ROOM 8 ■ ■ | 546            | 1911           | 68                | 8  | 20<br>21<br>18<br>17<br>21<br>22<br>25<br>20 | MALE<br>MALE<br>FEMALE<br>FEMALE<br>MALE<br>FEMALE<br>MALE<br>FEMALE | SHARED FLAT                    | 27/04/11           |
|   |   |                |                |                   |    |  |  | <b>REMAINING CAPACITY IN %</b> |                    |
|   |   |                |                |                   |    |  |  | <b>63</b>                      |                    |

# LAST DAYS OF APRIL 2016

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

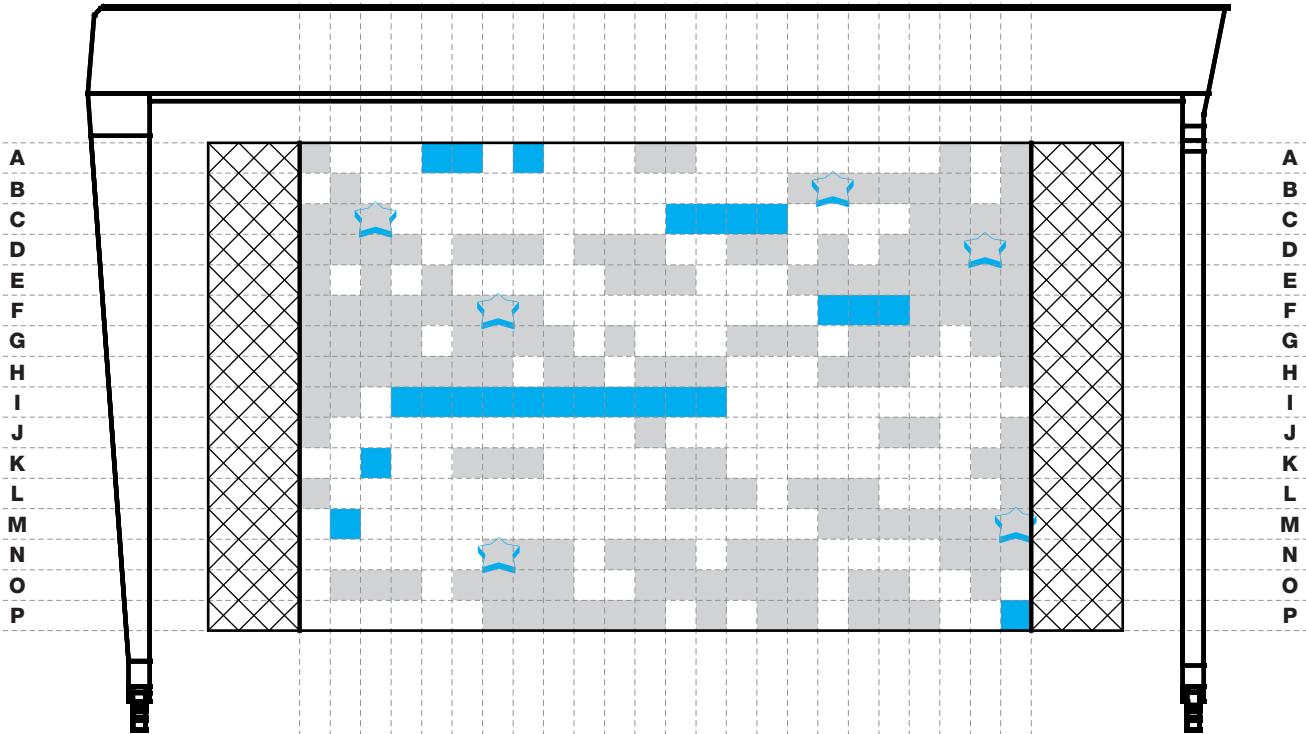
## GENERAL INFORMATION

| TOTAL # OF BOXES | TOTAL # OF GAPS | DENSITY* | # OF COMMUNITY FACILITIES |
|------------------|-----------------|----------|---------------------------|
| 156              | 228             | 0,41     | 5                         |

| # | POS CONFIGURATION   | M <sup>2</sup> | M <sup>3</sup> | M <sup>2</sup> /P | # | PAGE   | SEX  | TYPE / SITUATION OF LIVING             | DATE LAST MODIFIED |
|---|---|----------------|----------------|-------------------|---|--|--|--|--------------------|
| 1 | P24<br>LIVING ■■■ WORKING ■■■   | 42             | 147            | 42                | 1 | 35   | MALE   | SINGLE                                 | 21/04/11           |
| 2 | A5<br>A6<br>A7<br>LIVING ■■■ CHILDRENS' ■■■<br>WORKING ■■■ ROOMS ■■■<br>BALCONY ■■■ LIVING ■■■  | 126            | 441            | 32                | 4 | 38<br>11<br>8<br>38                                | FEMALE<br>MALE<br>MALE<br>MALE   | BLENDED FAMILY                         | 25/04/14           |
| 3 | C13<br>C14<br>C15<br>C16<br>COMMUNITY ■■■ ROOMS ■■■<br>SPACE ■■■<br>■■■ ■■■<br>■■■ ■■■  | 168            | 588            | 42                | 4 | 25<br>27<br>23<br>27                               | MALE<br>MALE<br>FEMALE<br>FEMALE   | SHARED FLAT                            | 30/04/15           |
| 4 | F19<br>F20<br>LIVING ■■■ ■■■<br>WORKING ■■■ ■■■ BALCONY ■■■   | 84             | 294            | 42                | 2 | 27<br>28   | MALE<br>MALE   | COUPLE                                 | 12/04/16           |
| 5 | I1<br>I2<br>I3<br>I4<br>I5<br>I6<br>I7<br>I8<br>I9<br>I10<br>I11<br>I12<br>I13<br>I14<br>ROOM 1 ■■■ ■■■<br>ROOM 2 ■■■ ■■■<br>ROOM 3 ■■■ ■■■<br>■■■ ■■■ COMMUNITY ■■■<br>■■■ ■■■ SPACE ■■■<br>ROOM 4 ■■■ ■■■<br>ROOM 5 ■■■ ■■■<br>■■■ ■■■ COMMUNITY ■■■<br>■■■ ■■■ SPACE ■■■<br>ROOM 6 ■■■ ■■■<br>ROOM 7 ■■■ ■■■<br>ROOM 8 ■■■ ■■■ COMMUNITY ■■■<br>ROOM 9 ■■■ ■■■ SPACE ■■■ | 588            | 2058           | 65                | 9 | 25<br>26<br>23<br>22<br>26<br>27<br>23<br>21<br>21 | MALE<br>MALE<br>FEMALE<br>FEMALE<br>MALE<br>FEMALE<br>FEMALE<br>FEMALE<br>MALE | SHARED FLAT<br>ROOM 9 MOVED IN FROM J1 | 27/04/16           |
|   |   |                |                |                   |   |  |  | <b>REMAINING CAPACITY IN %</b>         |                    |
|   |   |                |                |                   |   |  |  | <b>41</b>                              |                    |

# LAST DAYS OF APRIL 2021

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

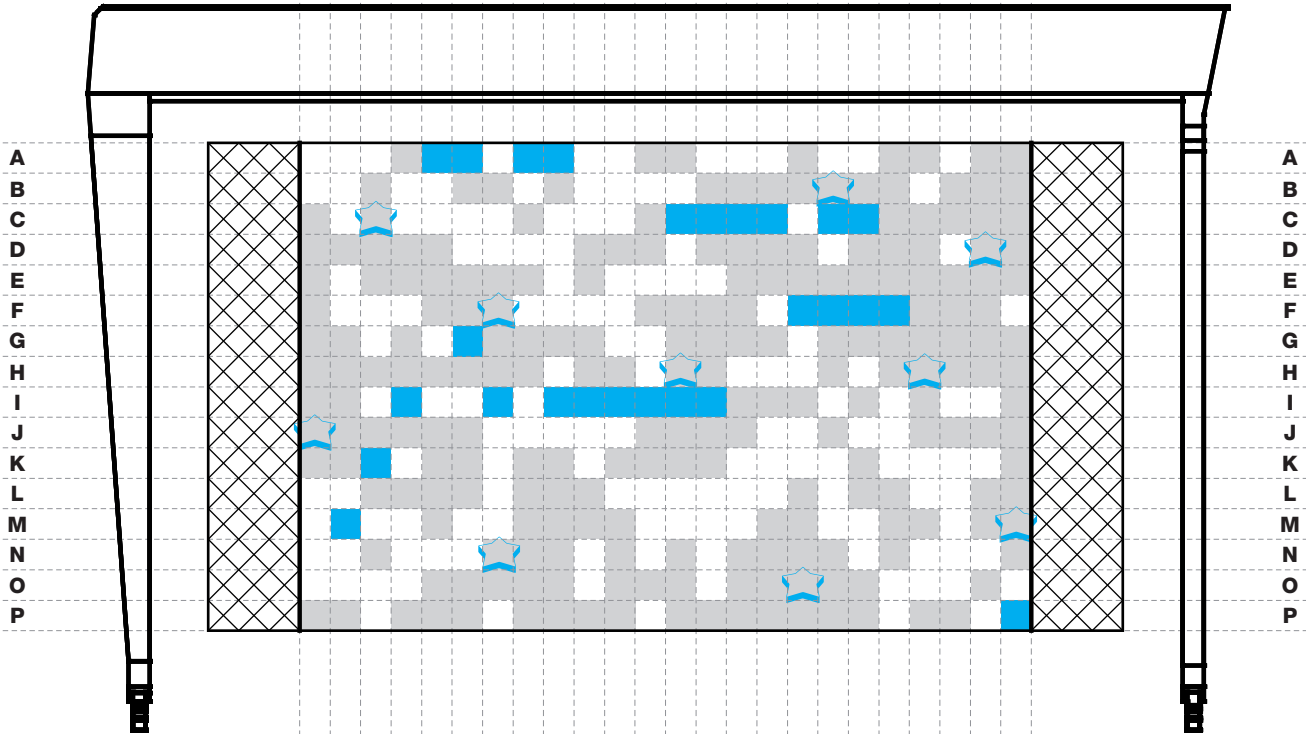
## GENERAL INFORMATION

| TOTAL # OF BOXES | TOTAL # OF GAPS | DENSITY* | # OF COMMUNITY FACILITIES |
|------------------|-----------------|----------|---------------------------|
| 190              | 194             | 0,49     | 6                         |

| # | POS CONFIGURATION   | M <sup>2</sup> | M <sup>3</sup> | M <sup>2</sup> /P | # | PAGE                             | SEX  | TYPE / SITUATION OF LIVING                            | DATE LAST MODIFIED |
|---|---|----------------|----------------|-------------------|---|----------------------------------|--|---|--------------------|
| 1 | P24<br>LIVING ■ ■ ■ WORKING   | 42             | 147            | 42                | 1 | 40                               | MALE   | SINGLE  | 21/04/11           |
| 2 | A5<br>A6<br>X<br>A8<br>LIVING ■ ■ ■ WORKING<br>LIVING ■ ■ ■ BALCONY<br>TEENAGER ■ ■ ■ TEENAGER  | 126            | 441            | 32                | 4 | 43<br>16<br>13<br>43             | FEMALE<br>MALE<br>MALE<br>MALE                     | BLENDED FAMILY / FLAT DIVIDED BY GAP                  | 25/04/21           |
| 3 | C13<br>C14<br>C15<br>C16<br>COMMUNITY ■ ■ ■ ROOMS<br>SPACE ■ ■ ■<br>■ ■ ■<br>■ ■ ■  | 168            | 588            | 42                | 4 | 30<br>32<br>28<br>32             | MALE<br>MALE<br>FEMALE<br>FEMALE                   | SHARED FLAT   | 30/04/20           |
| 4 | F18<br>F19<br>F20<br>LIVING ■ ■ ■<br>CHILD ■ ■ ■ BALCONY<br>WORKING ■ ■ ■   | 126            | 441            | 42                | 3 | 32<br>33<br>10                   | MALE<br>MALE<br>FEMALE                             | BLENDED FAMILY  | 22/04/20           |
| 5 | I4<br>I5<br>I6<br>I7<br>I8<br>I9<br>I10<br>I11<br>I12<br>I13<br>I14<br>ROOM 1 ■ ■ ■<br>ROOM 2 ■ ■ ■<br>ROOM 3 ■ ■ ■<br>■ ■ ■ COMMUNITY<br>■ ■ ■ SPACE<br>ROOM 4 ■ ■ ■<br>ROOM 5 ■ ■ ■<br>■ ■ ■ COMMUNITY<br>■ ■ ■ SPACE<br>ROOM 6 ■ ■ ■ | 462            | 1617           | 77                | 6 | 30<br>31<br>28<br>27<br>21<br>23 | MALE<br>MALE<br>FEMALE<br>FEMALE<br>MALE<br>FEMALE | SHARED FLAT / ROOM 6 MOVED TO K3 / ROOM 7 MOVED TO M2 | 27/04/21           |
|   |   |                |                |                   |   |                                  |  | <b>REMAINING CAPACITY IN %</b>                        |                    |
|   |   |                |                |                   |   |                                  |  | <b>29</b>   |                    |

# LAST DAYS OF APRIL 2026

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

## GENERAL INFORMATION

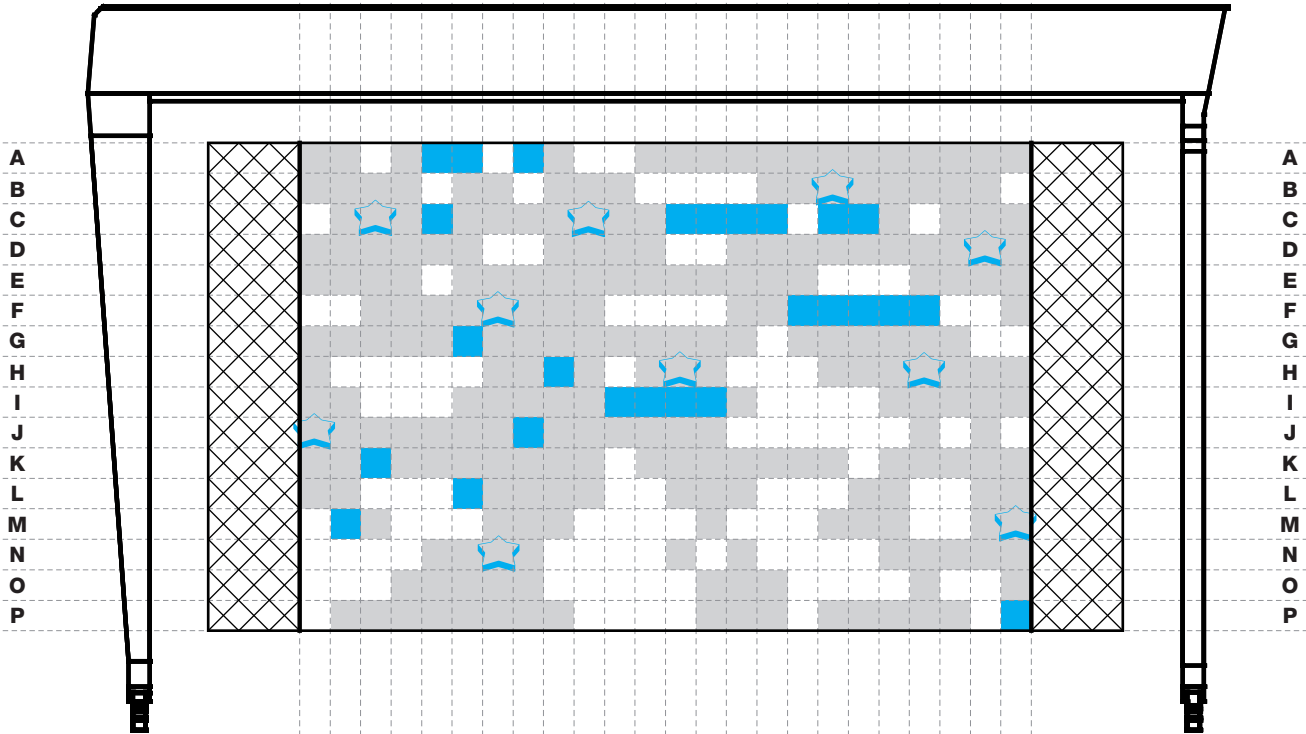
| TOTAL # OF BOXES | TOTAL # OF GAPS | DENSITY* | # OF COMMUNITY FACILITIES |
|------------------|-----------------|----------|---------------------------|
| 241              | 143             | 0,63     | 10                        |



| # | POS. CONFIGURATION   | M <sup>2</sup> | M <sup>3</sup> | M <sup>2</sup> /P | # P | AGE                        | SEX  | TYPE / SITUATION OF LIVING           | DATE LAST MODIFIED |
|---|--|----------------|----------------|-------------------|-----|----------------------------|--|--------------------------------------|--------------------|
| 1 | P24<br>LIVING ■■■ WORKING ■■■  | 42             | 147            | 42                | 1   | 45                         | MALE                                       | SINGLE                               | 21/04/11           |
| 2 | A5<br>A6<br>X<br>A8<br>A9<br>LIVING ■■■ WORKING ■■■<br>LIVING ■■■ BALCONY ■■■<br>LIVING ■■■ WORKING ■■■<br>BALCONY ■■■ LIVING ■■■                          | 168            | 588            | 42                | 4   | 48<br>21<br>18<br>48       | FEMALE<br>MALE<br>MALE<br>MALE             | BLENDED FAMILY / FLAT DIVIDED BY GAP | 25/04/26           |
| 3 | C13<br>C14<br>C15<br>C16<br>X<br>C18<br>C19<br>COMMUNITY SPACE ■■■ ROOMS ■■■<br>BALCONY ■■■ ROOMS ■■■  | 252            | 882            | 50                | 5   | 35<br>37<br>33<br>37<br>1  | MALE<br>MALE<br>FEMALE<br>FEMALE<br>FEMALE | SHARED FLAT / FLAT DIVIDED BY GAP    | 30/04/25           |
| 4 | F17<br>F18<br>F19<br>F20<br>LIVING ■■■<br>TEENAGER ■■■ BALCONY ■■■<br>WORKING ■■■  | 168            | 588            | 42                | 4   | 37<br>38<br>15<br>16       | MALE<br>MALE<br>FEMALE<br>FEMALE           | BLENDED FAMILY                       | 11/04/26           |
| 5 | I4<br>X<br>X<br>I7<br>X<br>I9<br>I10<br>I11<br>I12<br>I13<br>I14<br>ROOM 1 ■■■<br>ROOM 2 ■■■<br>ROOM 3 ■■■ COMMUNITY SPACE ■■■<br>ROOM 4 ■■■<br>ROOM 5 ■■■ | 336            | 1176           | 67                | 5   | 35<br>36<br>33<br>23<br>21 | MALE<br>MALE<br>FEMALE<br>FEMALE<br>MALE   | SHARED FLAT / ROOM 6 MOVED TO G6     | 30/04/25           |
|   |  |                |                |                   |     |                            |  | <b>REMAINING CAPACITY IN %</b>       |                    |
|   |  |                |                |                   |     |                            |  | <b>10</b>                            |                    |

# LAST DAYS OF APRIL 2031

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## GENERAL INFORMATION

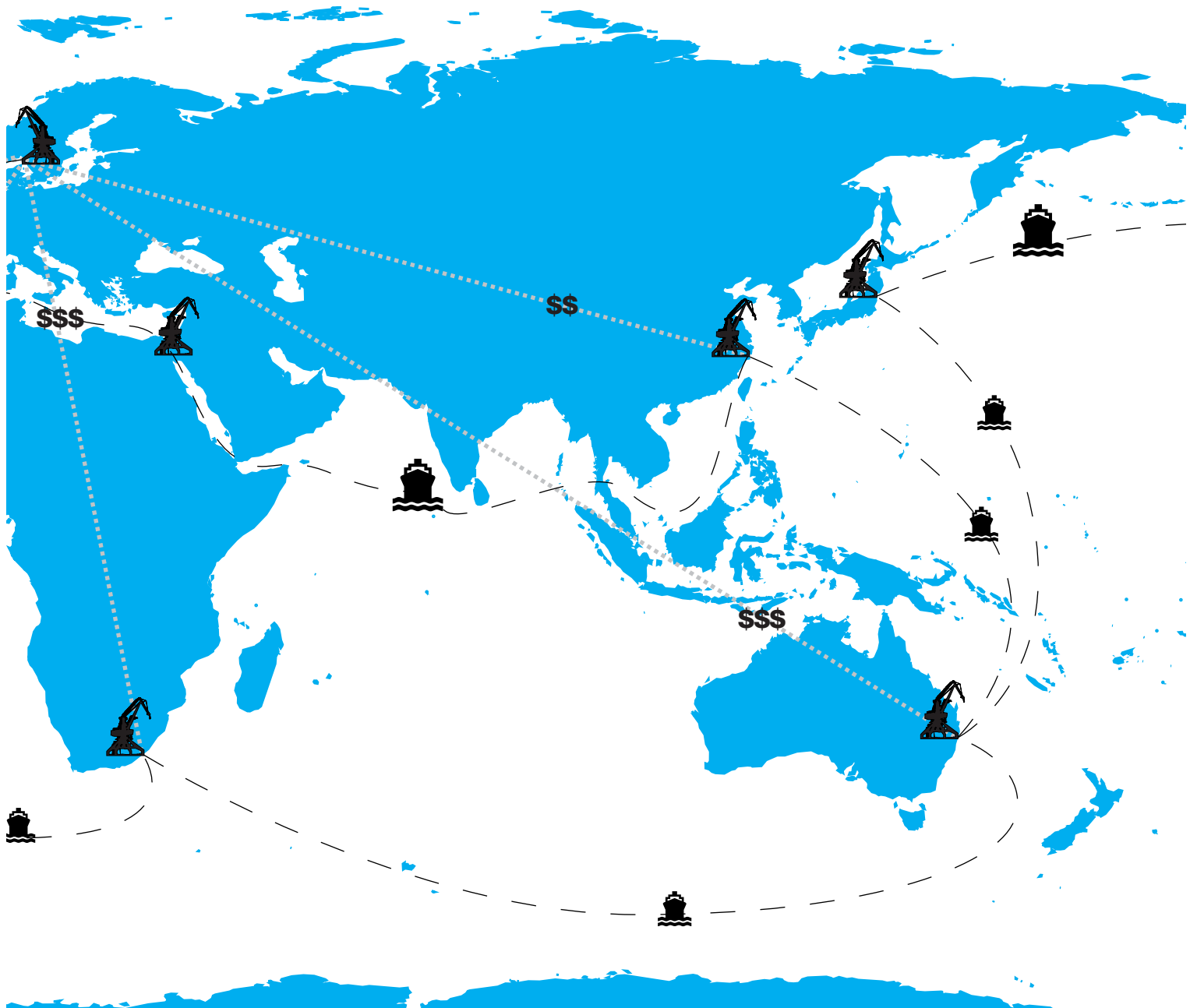
| TOTAL # OF BOXES | TOTAL # OF GAPS | DENSITY* | # OF COMMUNITY FACILITIES |
|------------------|-----------------|----------|---------------------------|
| 268              | 116             | 0,69     | 10                        |

| # | POS. CONFIGURATION   | M <sup>2</sup> | M <sup>3</sup> | M <sup>2</sup> /P | # P | AGE                       | SEX  | TYPE / SITUATION OF LIVING  | DATE LAST MODIFIED |
|---|--|----------------|----------------|-------------------|-----|---------------------------|--|---|--------------------|
| 1 | P24<br>LIVING ■ ■ ■ WORKING  | 42             | 147            | 42                | 1   | 50                        | MALE                                       | SINGLE  | 21/04/11           |
| 2 | A5<br>A6<br>X<br>A8<br>LIVING ■ ■ ■ WORKING<br>LIVING ■ ■ ■ BALCONY<br>LIVING ■ ■ ■ WORKING                          | 126            | 441            | 42                | 3   | 53<br>23<br>53            | FEMALE<br>MALE<br>MALE                     | BLENDED FAMILY<br>/ TEENAGER MOVED OUT TO C5  | 25/04/30           |
| 3 | C13<br>C14<br>C15<br>C16<br>X<br>C18<br>C19<br>COMMUNITY SPACE ■ ■ ■ ROOMS<br>■ ■ ■<br>■ ■ ■<br>■ ■ ■ ROOMS<br>■ ■ ■ | 252            | 882            | 50                | 5   | 40<br>42<br>38<br>42<br>6 | MALE<br>MALE<br>FEMALE<br>FEMALE<br>FEMALE | SHARED FLAT<br>/ DIVIDED BY GAP   | 30/04/31           |
| 4 | F17<br>F18<br>F19<br>F20<br>F21<br>LIVING ■ ■ ■<br>■ ■ ■ BALCONY<br>TEENAGER ■ ■ ■<br>■ ■ ■ BALCONY<br>■ ■ ■ WORKING | 210            | 735            | 53                | 4   | 42<br>43<br>20<br>21      | MALE<br>MALE<br>FEMALE<br>FEMALE           | BLENDED FAMILY  | 02/01/31           |
| 5 | I11<br>I12<br>I13<br>I14<br>ROOM 1 ■ ■ ■<br>■ ■ ■ COMMUNITY<br>■ ■ ■ SPACE<br>ROOM 2 ■ ■ ■                           | 168            | 588            | 84                | 2   | 40<br>38                  | MALE<br>FEMALE                             | SHARED FLAT<br>/ ROOM 3 MOVED TO L6<br>/ ROOM 4 MOVED TO J8<br>/ ROOM 5 MOVED TO H9 | 23/04/31           |
|   |  |                |                |                   |     |                           |  | <b>REMAINING CAPACITY IN %</b>  |                    |
|   |  |                |                |                   |     |                           |  | 0   |                    |

## WHAT IF...

### ...A NETWORK OF CRANE CITIES ALL OVER THE WORLD WERE ESTABLISHED?

“Among the different means of transport, ocean shipping stands out as the most energy efficient mode of long-distance transport for large quantities of goods (Rodrigue et al. 2006). According to estimates, as much as 90% of world trade is hauled by ships (International Maritime Organization, 2006). In 2006, 7.4 billion tons of goods were loaded at the world’s ports. The trade volume currently exceeds 30 trillion ton-miles and is growing at a rate faster than the global economy (United Nations Conference on Trade and Development, 2007).“ [49]



**MAJOR  
CARGO  
ROUTES**



**MINOR  
CARGO  
ROUTES**



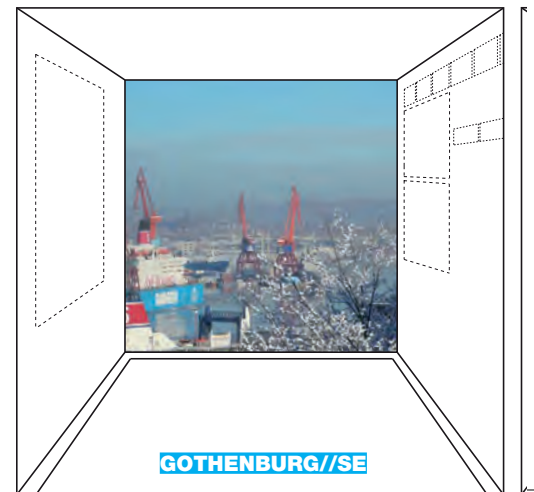
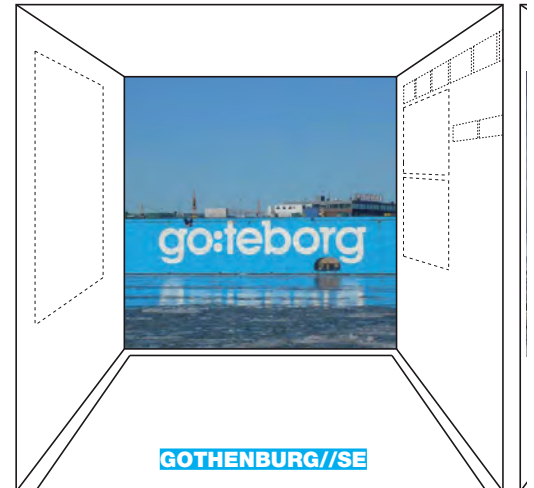
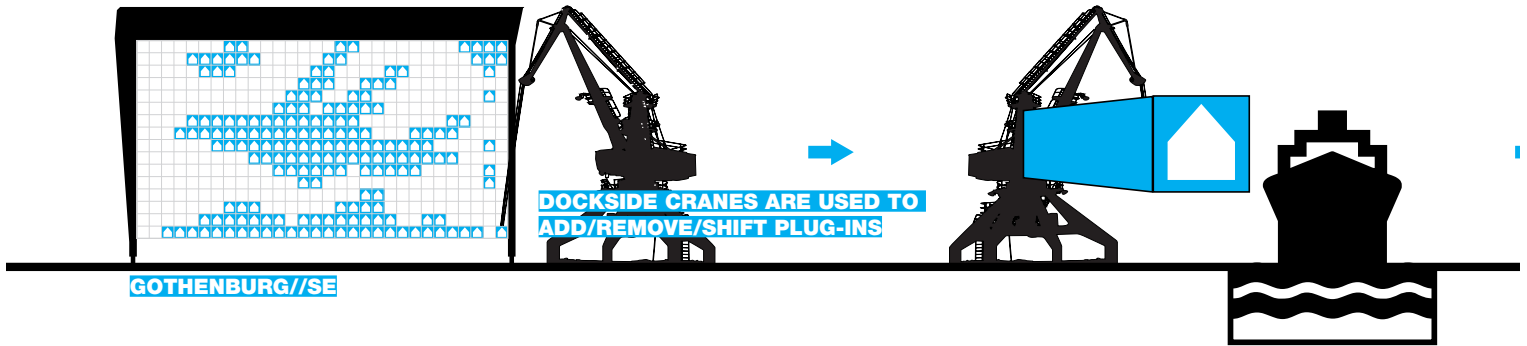
**MAJOR  
CARGO  
PORTS**

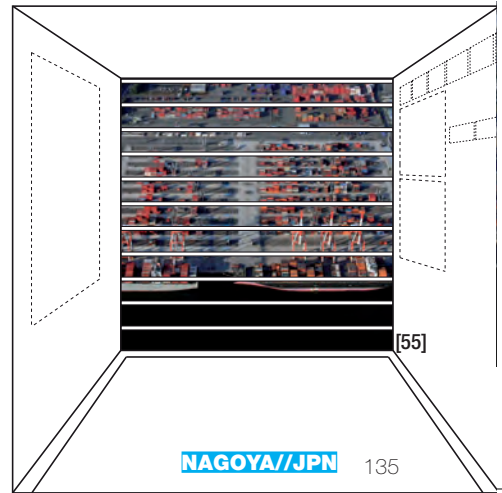
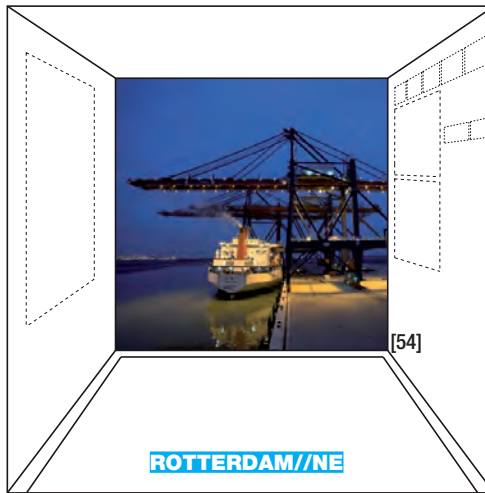
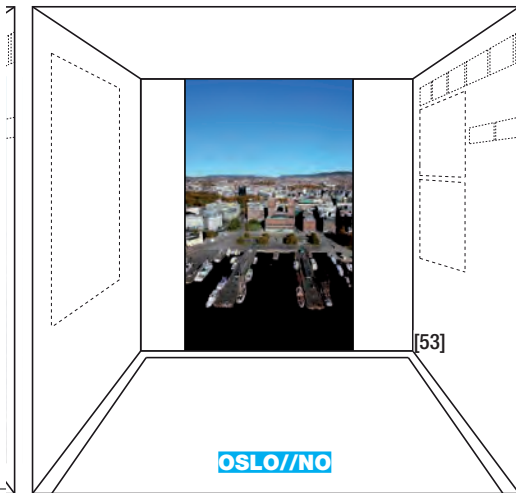
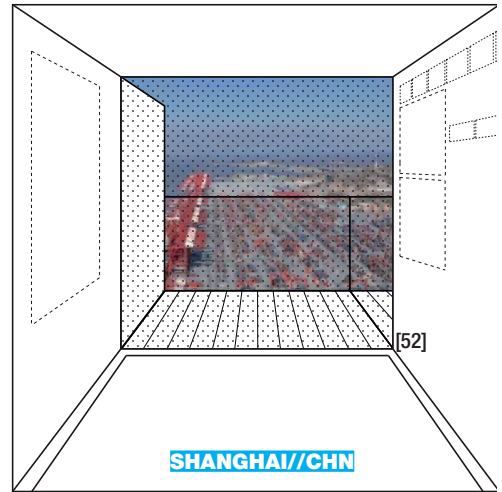
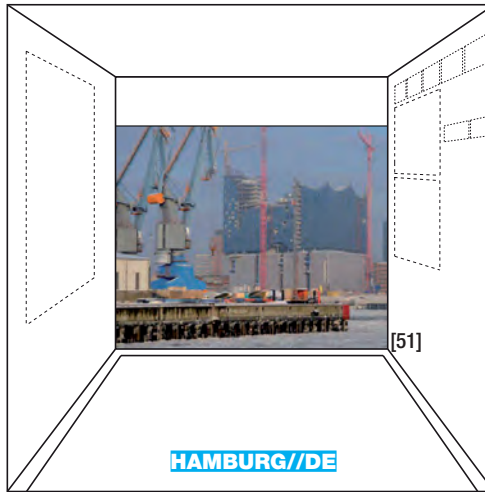
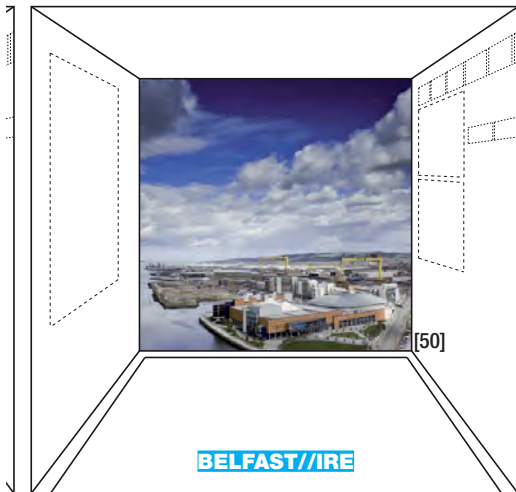
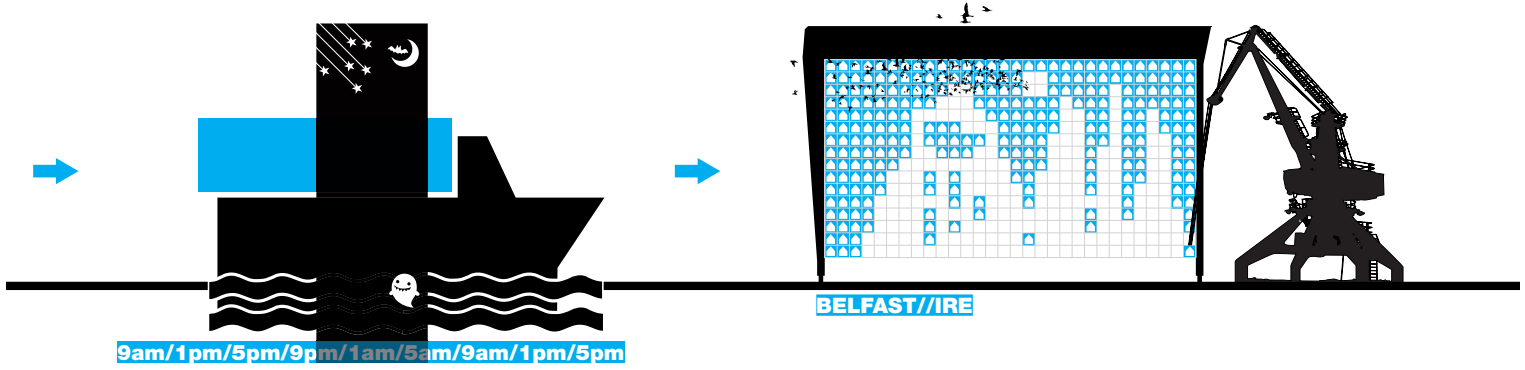


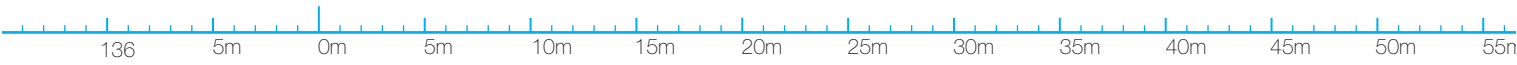
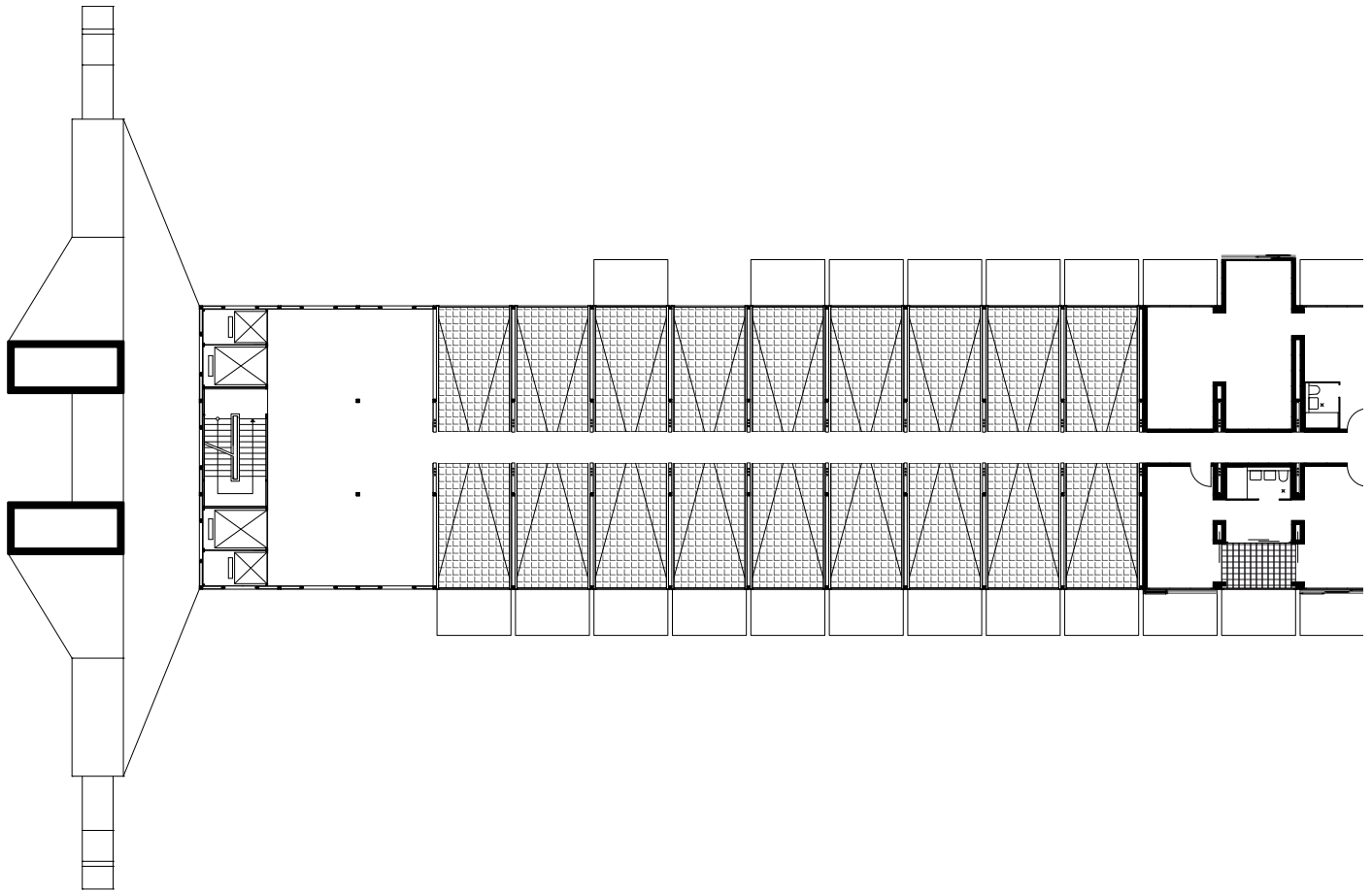
**SHIPPING COMPANY  
RATE\***

**\$ <500    \$\$ 500-1000    \$\$\$ >1000**

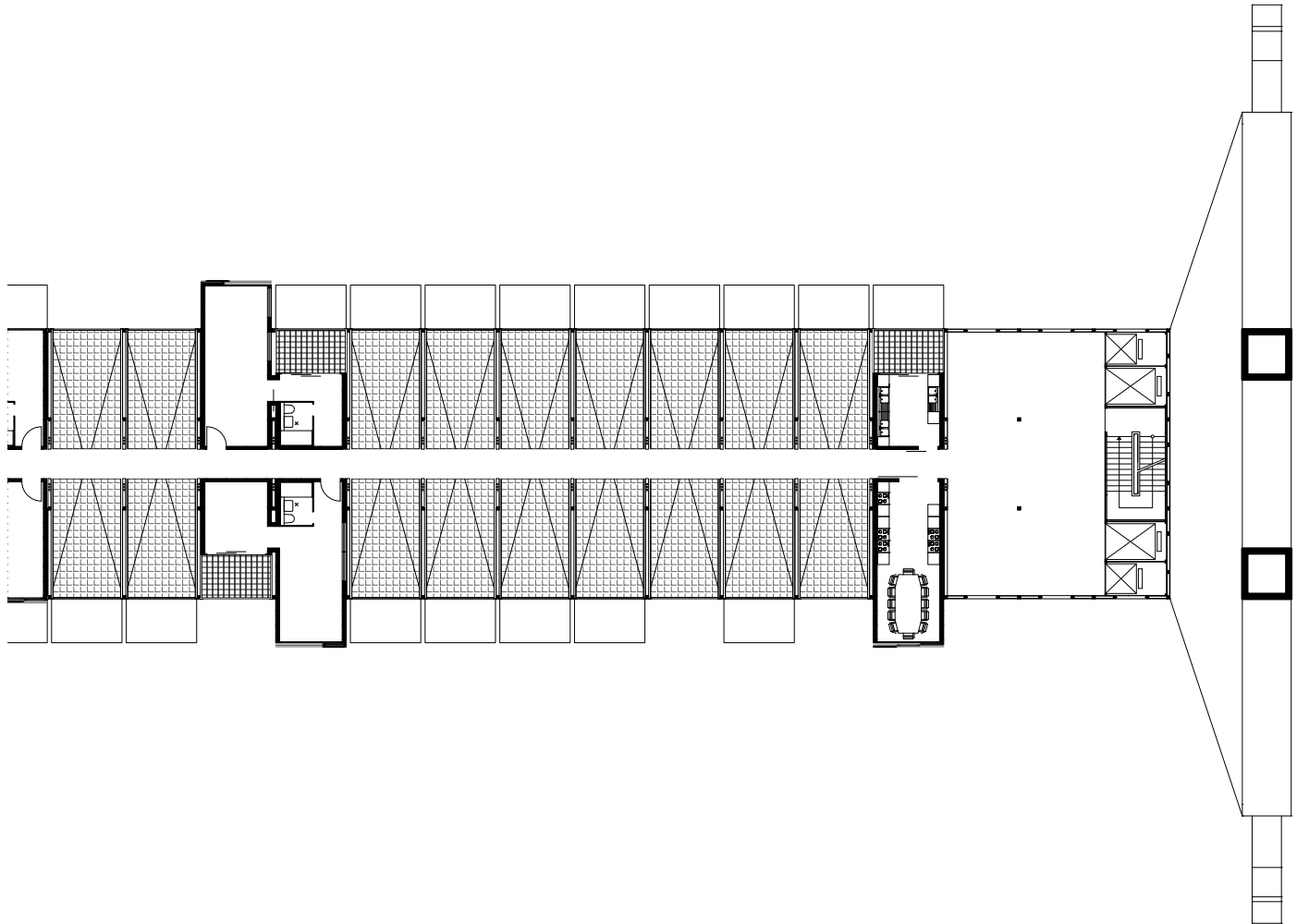
**TRANSPORT PROCESS**











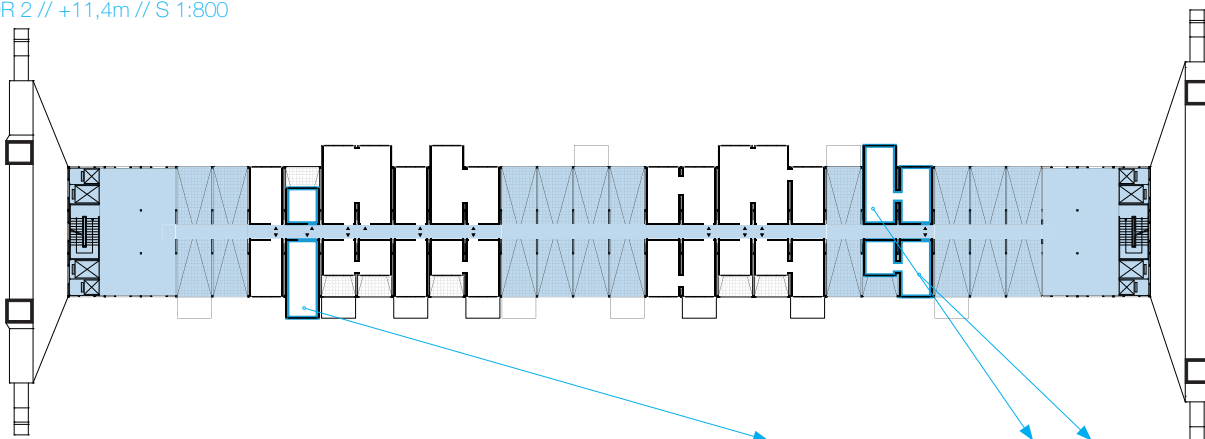
55m 60m 65m 70m 75m 80m 85m 90m 95m 100m 105m 110m 137

FLOOR 0 // +0m // S 1:800



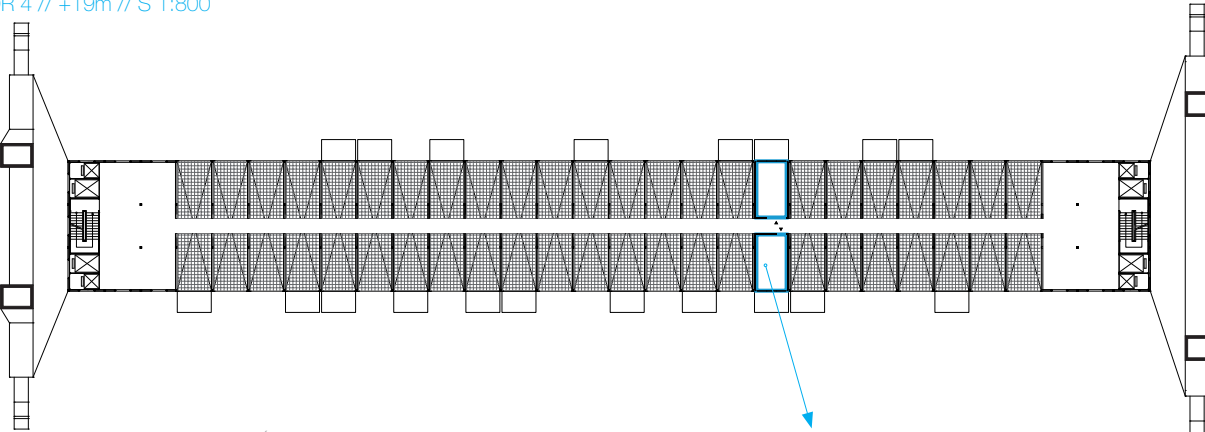
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FLOOR 2 // +11,4m // S 1:800



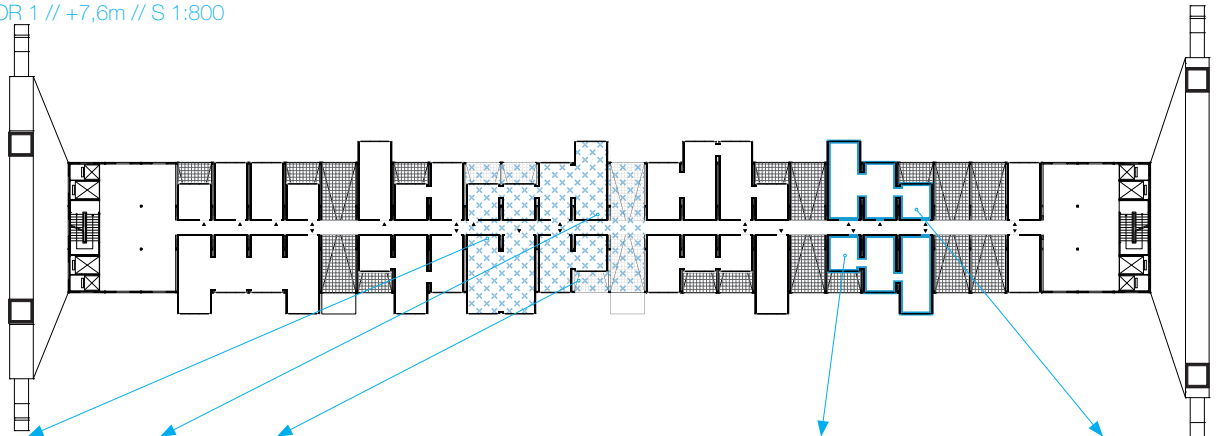
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FLOOR 4 // +19m // S 1:800



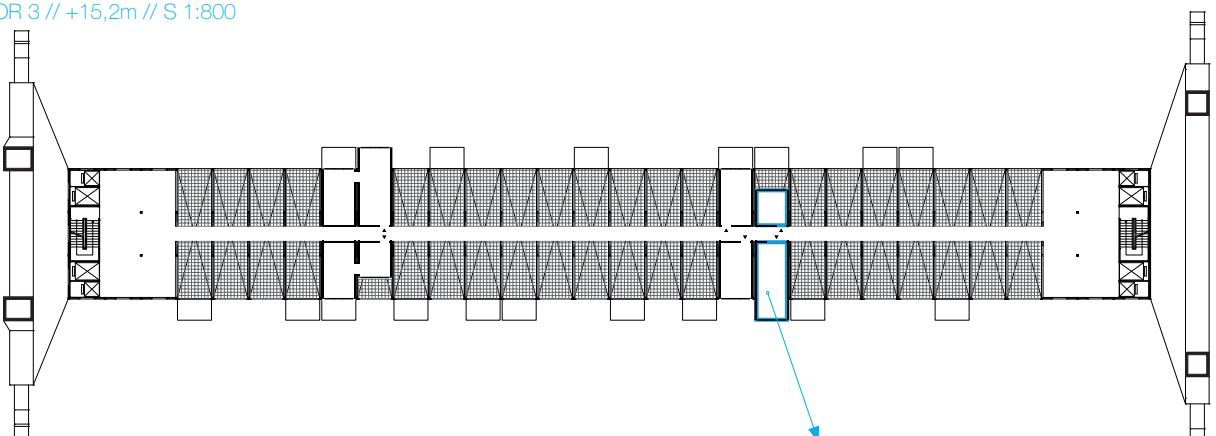
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FLOOR 1 // +7,6m // S 1:800



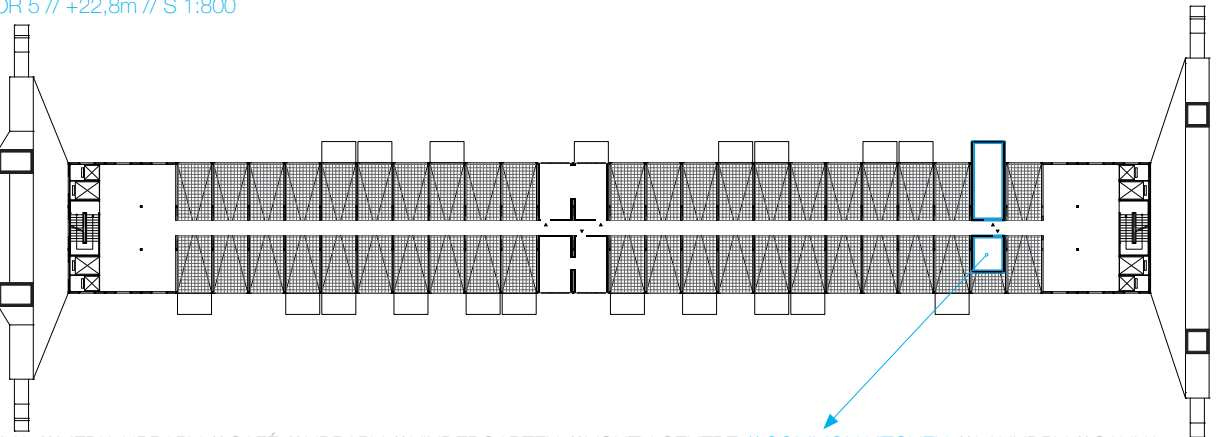
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FLOOR 3 // +15,2m // S 1:800



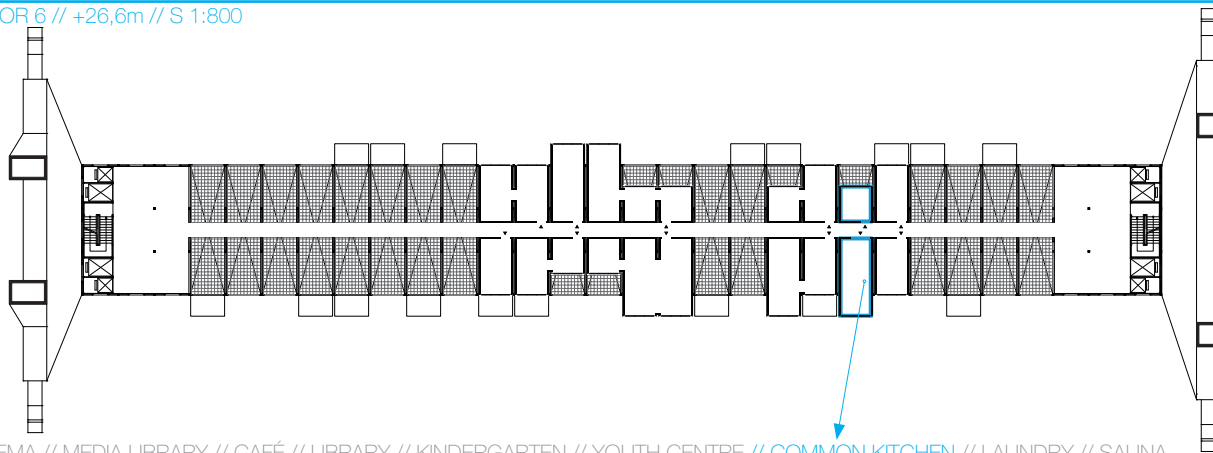
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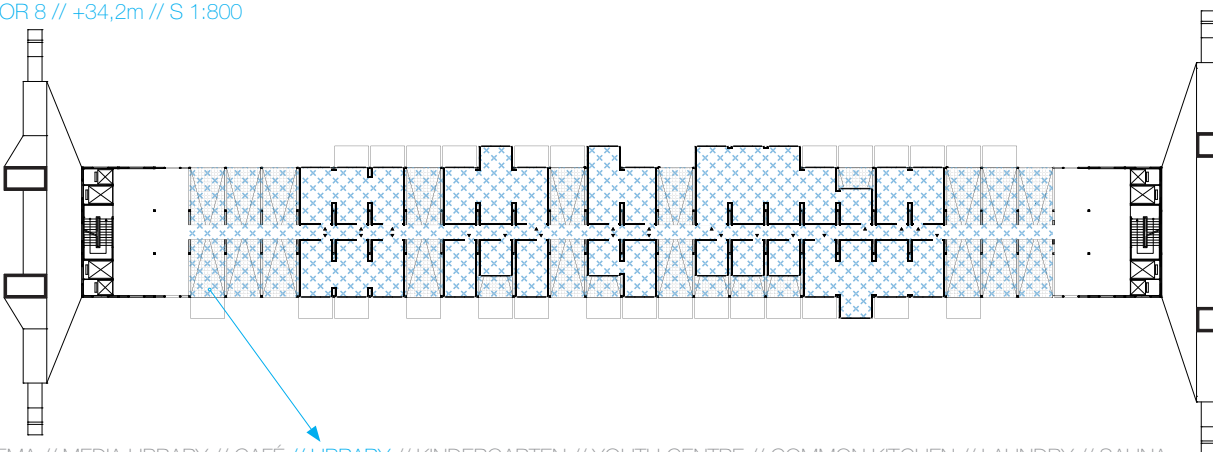
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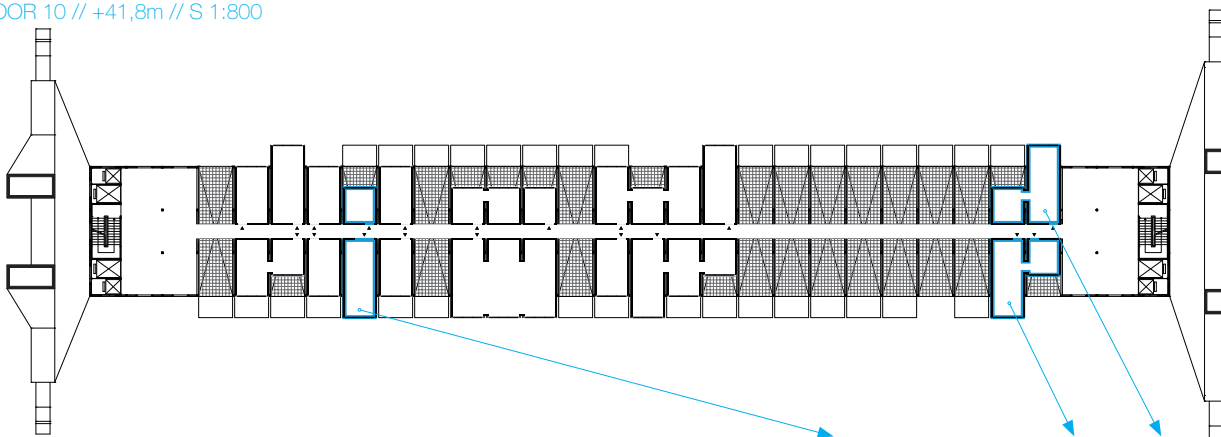
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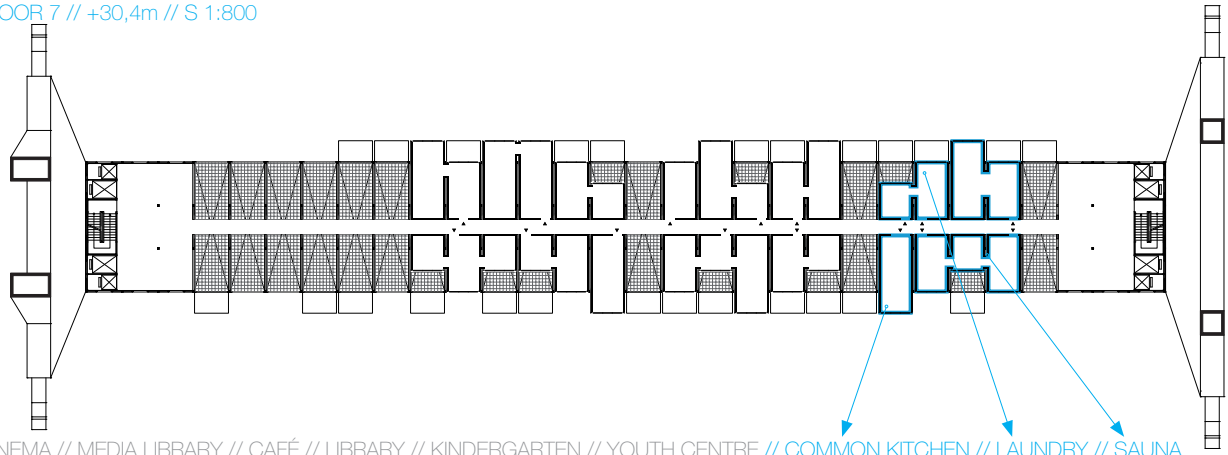
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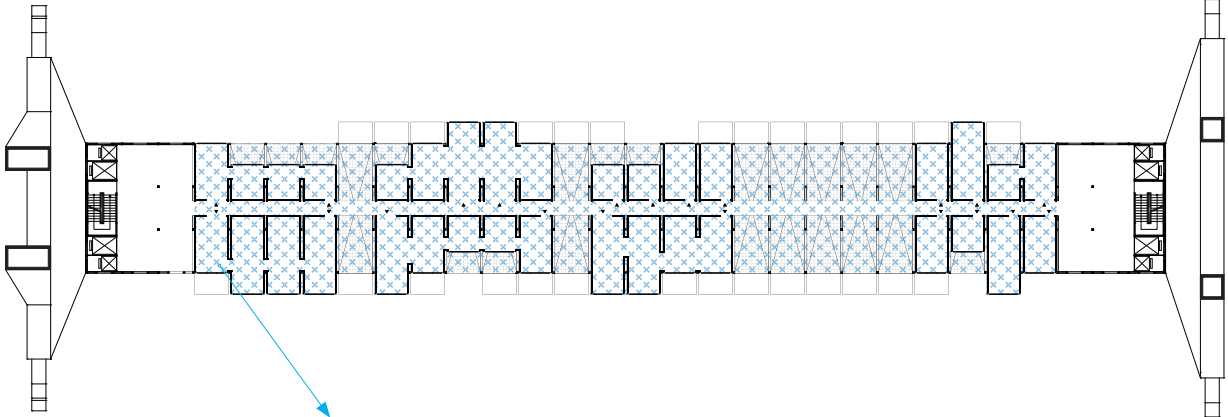
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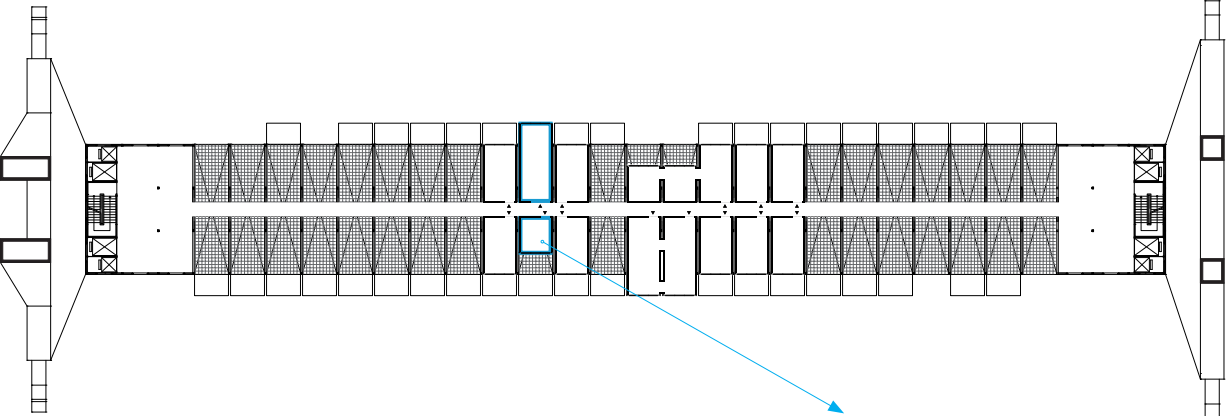
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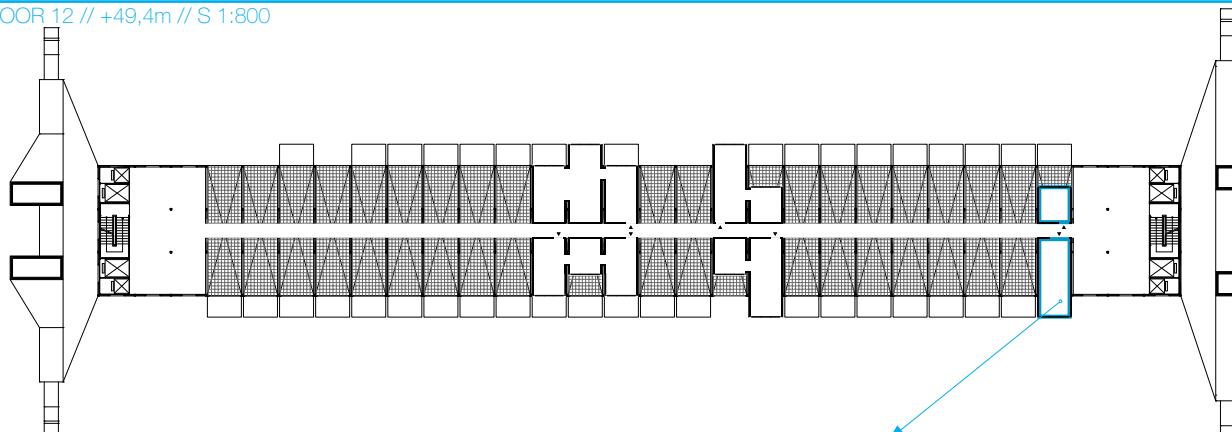
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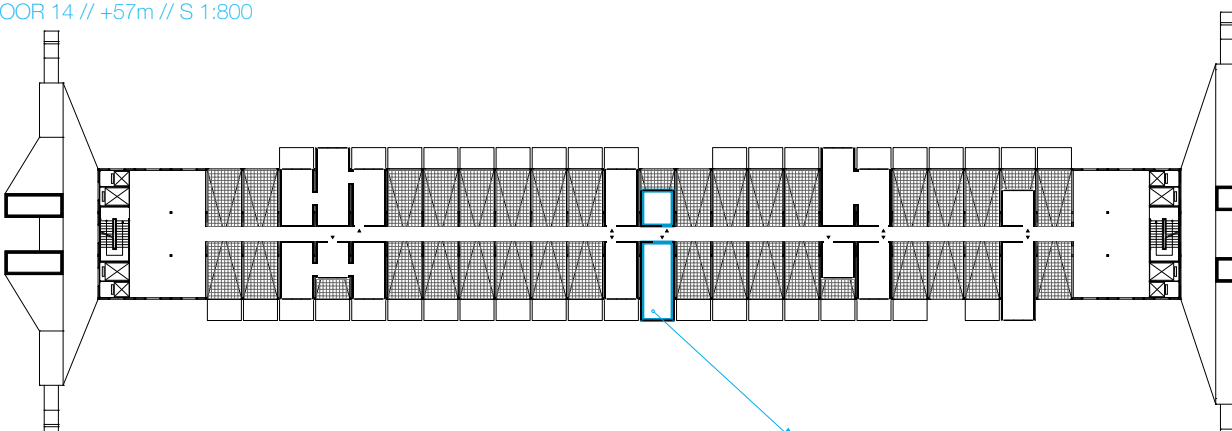
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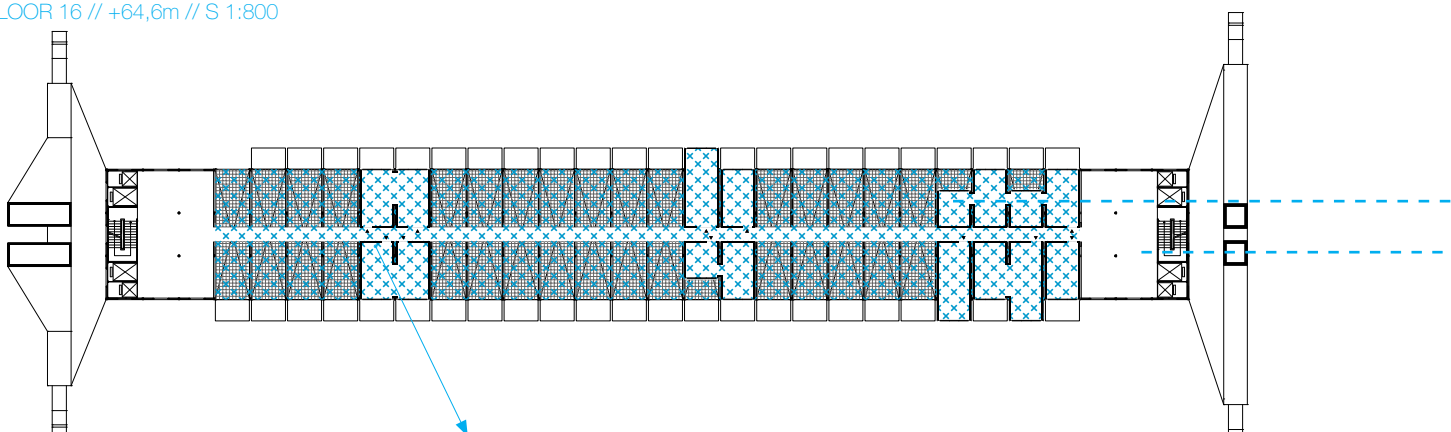
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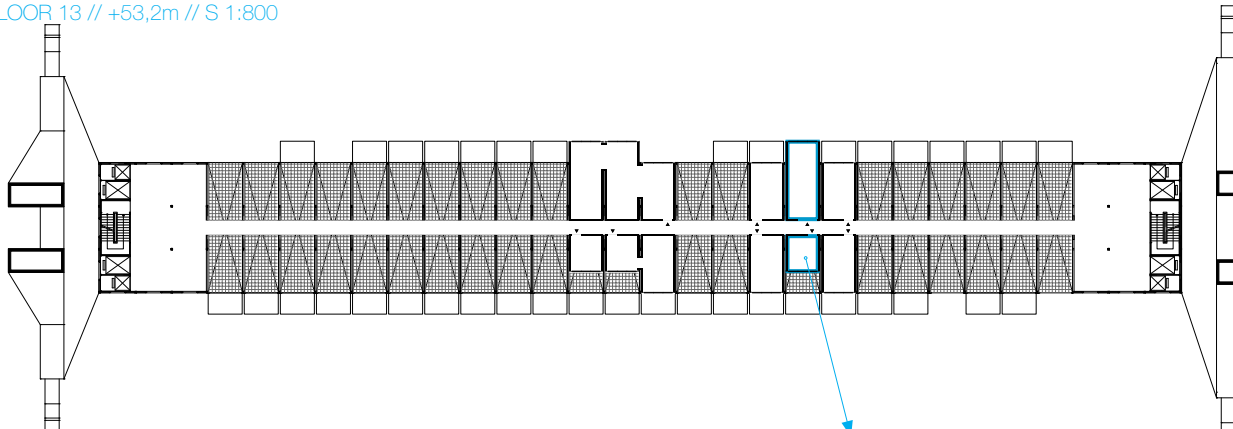
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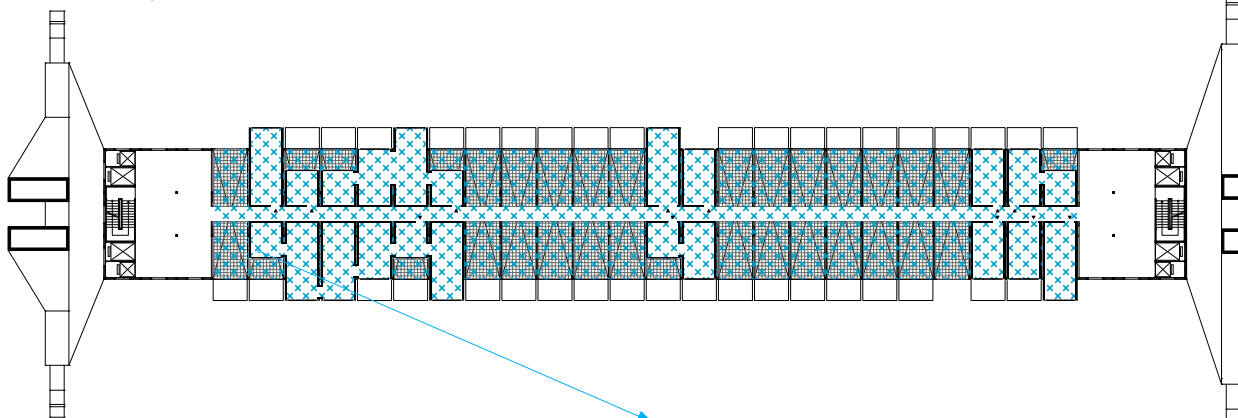


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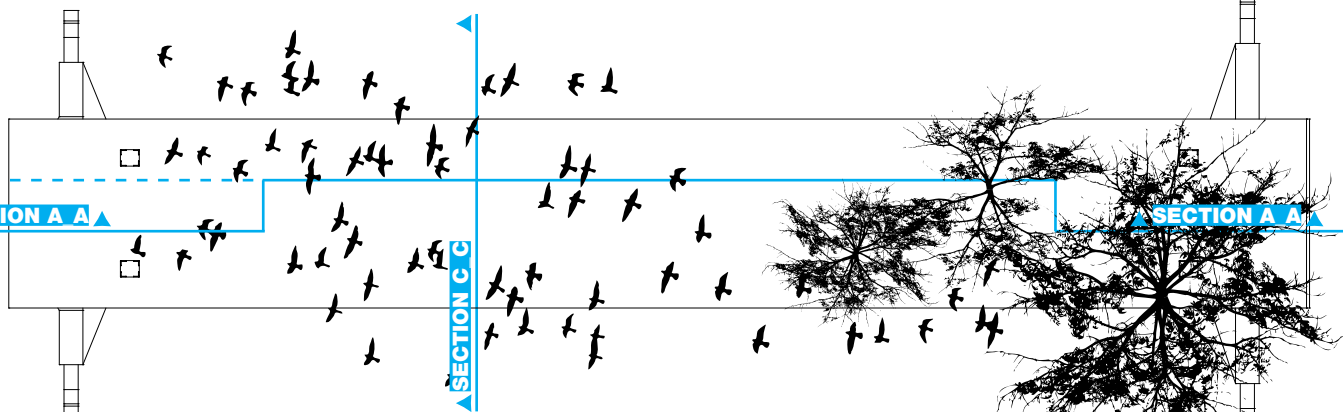
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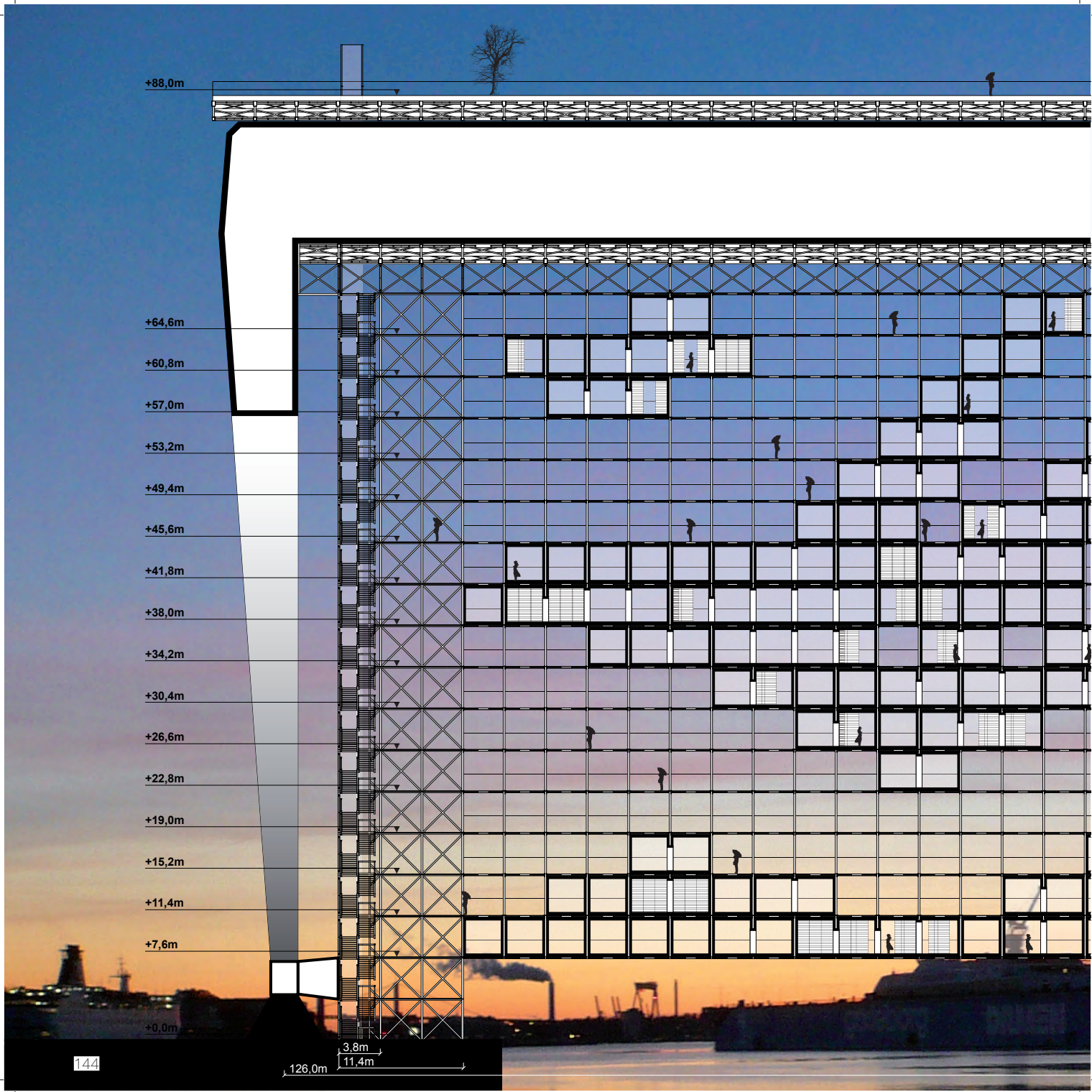
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FLOOR 15 // +60,8m // S 1:800



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FLOOR 17 // ROOFTOP // TERRACE // +88m // S 1:800



CINEMA // MEDIA LIBRARY // CAFÉ // LIBRARY // KINDERGARTEN // YOUTH CENTRE // COMMON KITCHEN // LAUNDRY // SAUNA



+88,0m

+64,6m

+60,8m

+57,0m

+53,2m

+49,4m

+45,6m

+41,8m

+38,0m

+34,2m

+30,4m

+26,6m

+22,8m

+19,0m

+15,2m

+11,4m

+7,6m

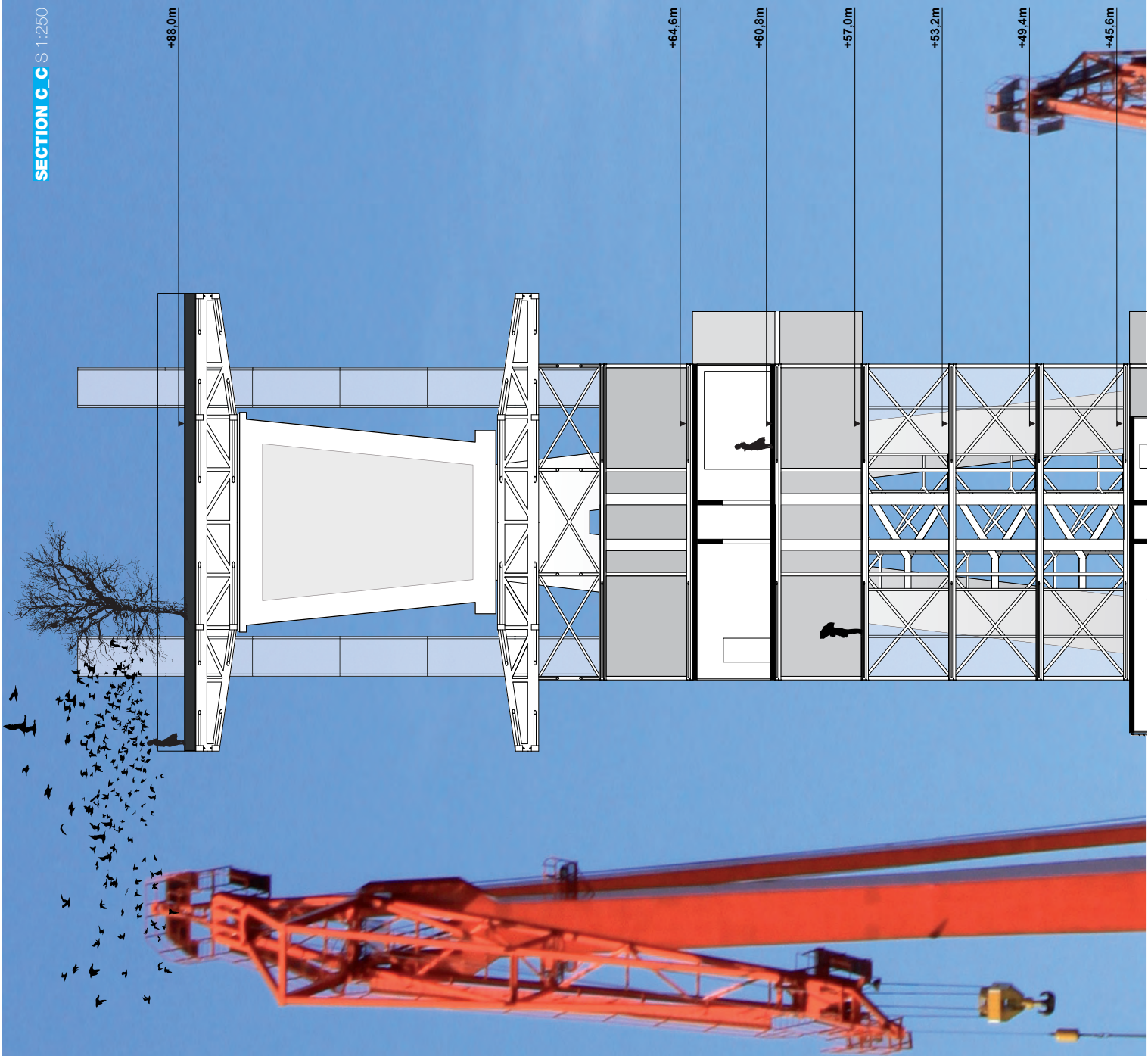
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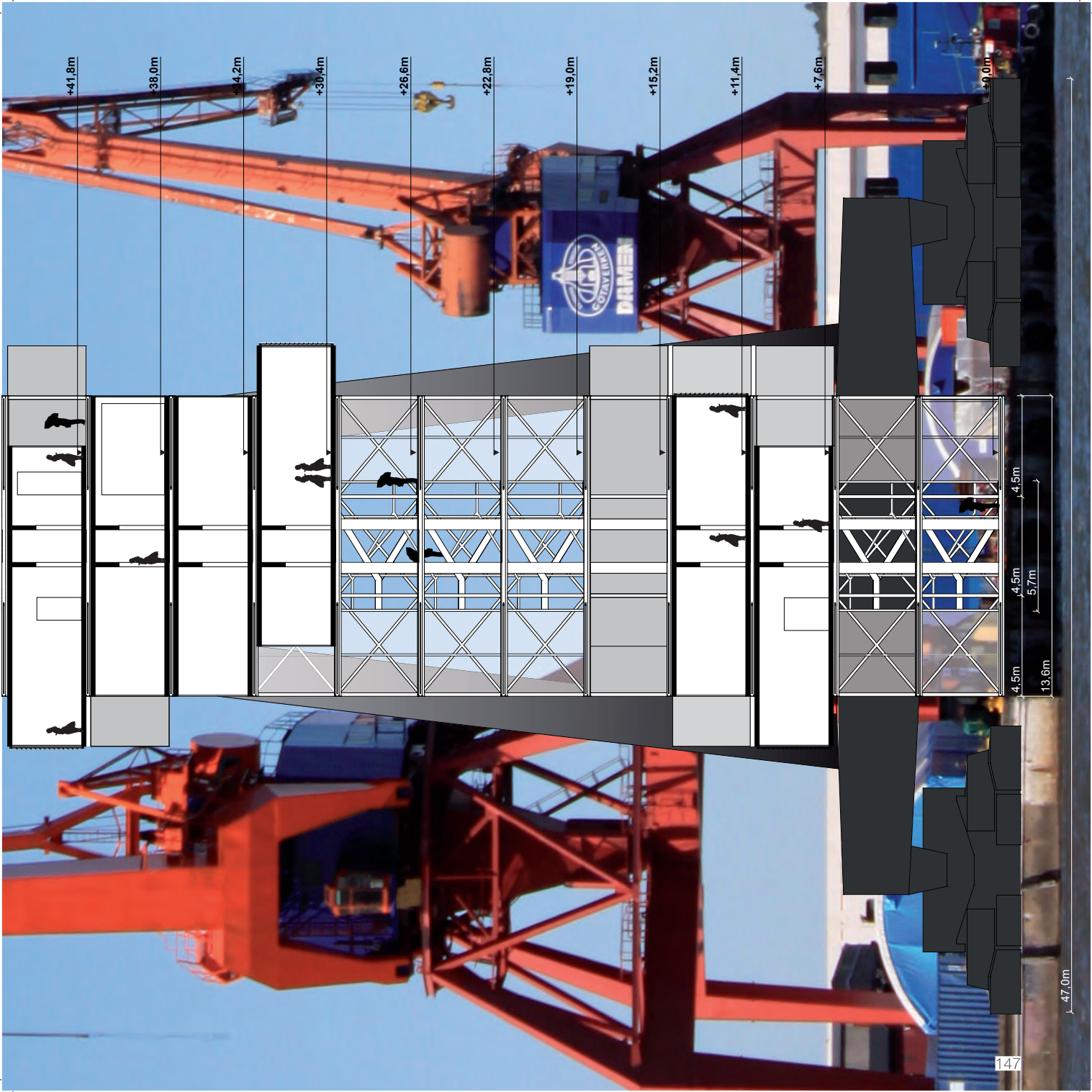
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SECTION C\_C 1:250





+41,8m

+38,0m

+4,2m

+30,4m

+26,6m

+22,8m

+19,0m

+15,2m

+11,4m

+7,6m

+0,0m

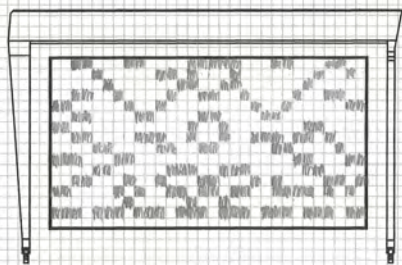
4,5m 4,5m 4,5m

5,7m

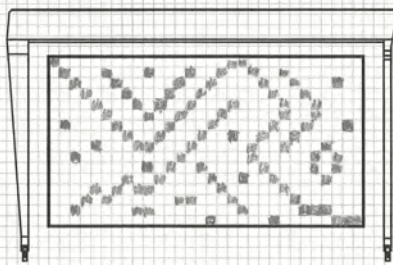
13,6m

47,0m

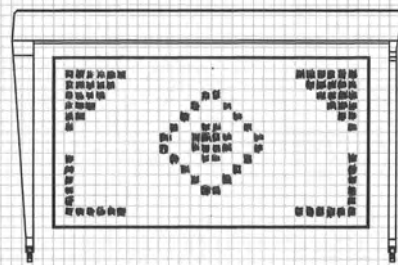
**VIEWS** As the appearance of the project depends on the arrangement and configuration of the sum of all plug-ins, the building's views - front, left, right, and back - are changing constantly. The views are patterns within the grid that can be altered by will at any given time. Stories about the inhabitants' lives manifest themselves temporarily in the facade. The facade becomes an object of communication that expresses changes within the structure and transports information about the inhabitants' lives without revealing everything physically to the outside, where it can be read and interpreted.



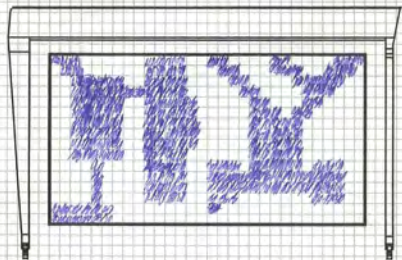
NAME *Manfred*  
AGE *58*



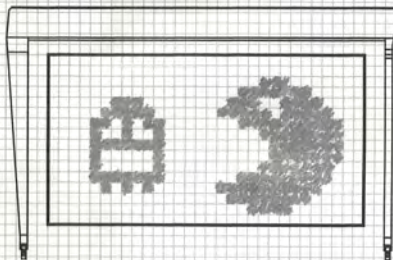
NAME *HANA*  
AGE *58*



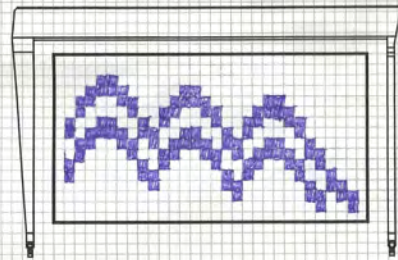
NAME *DOMINIK*  
AGE *28*



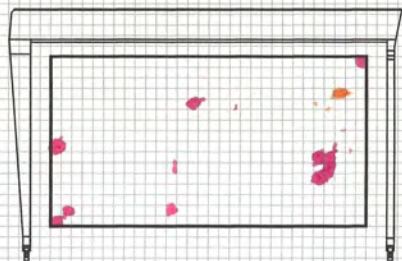
NAME *Olle Tjernström*  
AGE *26*



NAME *PETER*  
AGE *30*



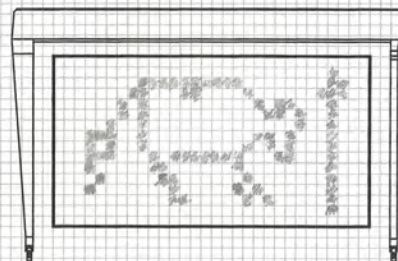
NAME *Michael Kühne*  
AGE *24*



NAME *Cajetan*  
AGE *6*



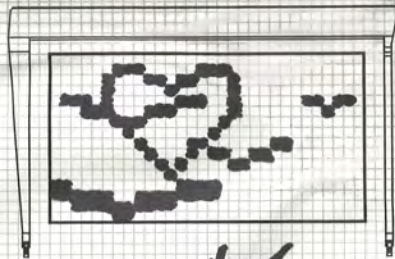
NAME *Andreas Lindberg*  
AGE *26*



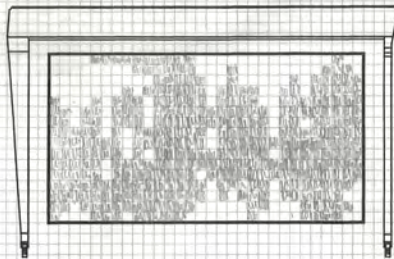
NAME *Sofia Lenhof*  
AGE *27*

"It is architecture as a form of spontaneous urban theatre." [S.I.T.E., 1981]

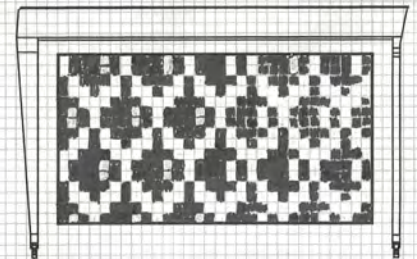
[db, 8/124, 1990]



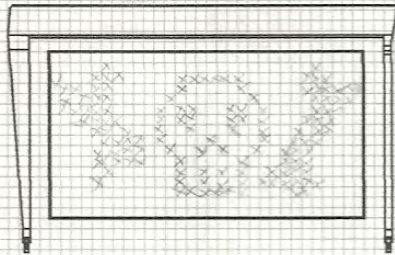
NAME *MARTIN*  
AGE *33!*



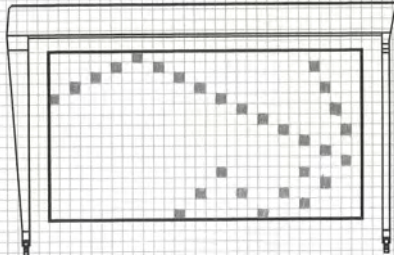
NAME *CATHERINE*  
AGE *26*



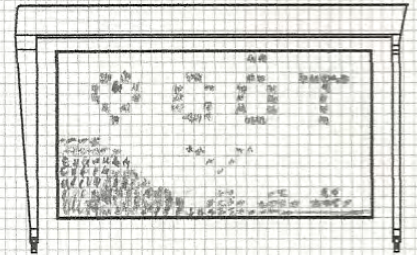
NAME *BOICUT*  
AGE *27*



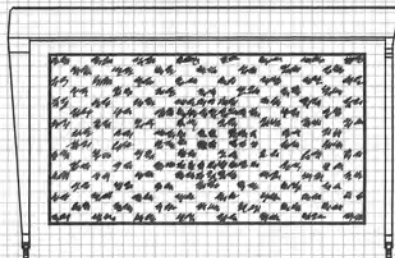
NAME *Helene*  
AGE *25*



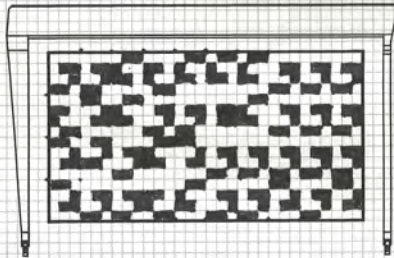
NAME *Ying*  
AGE *28*



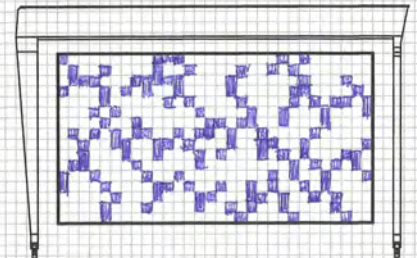
NAME *Michi*  
AGE *31*



NAME *MARTIN*  
AGE *27*



NAME *KIM*  
AGE *24*

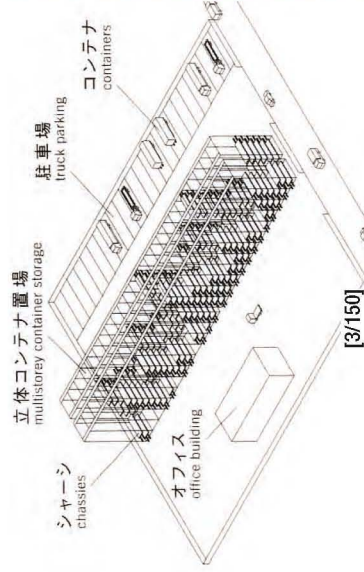
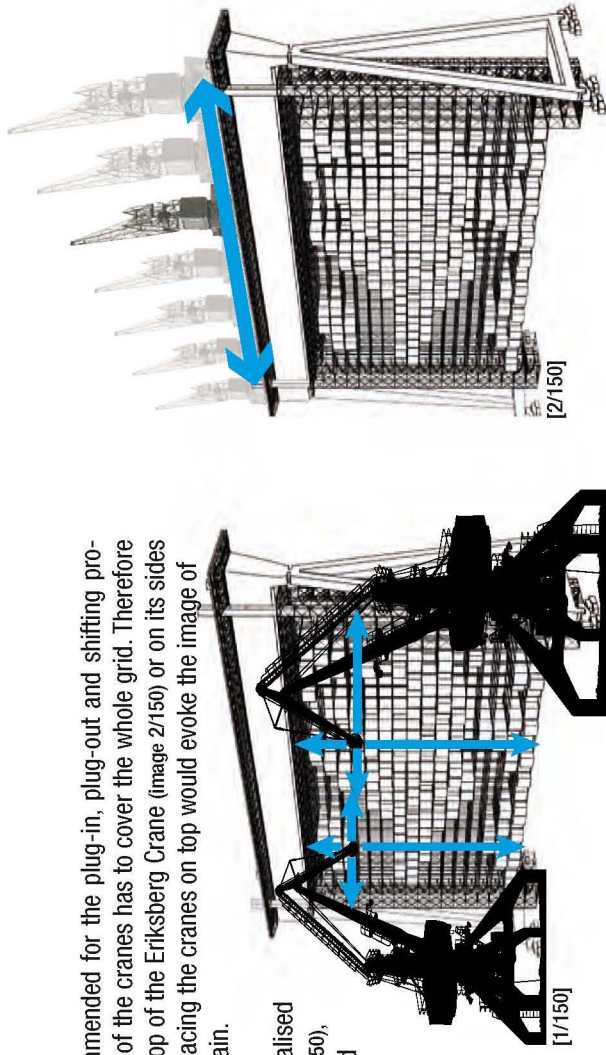


NAME *JENNY ULANDER*  
AGE *28*

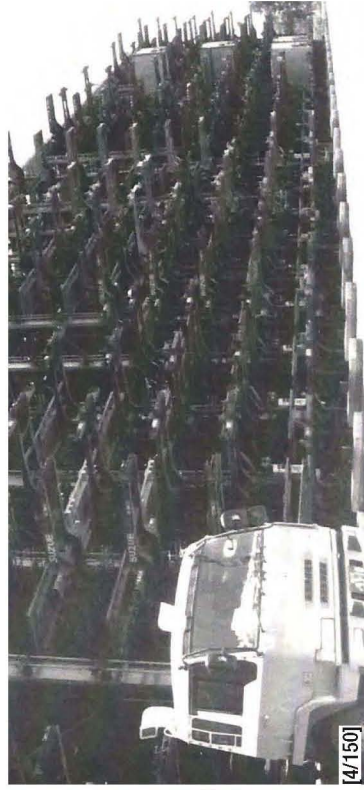
**PLUG-IN** MECHANISM

Dockside cranes are recommended for the plug-in, plug-out and shifting processes. The working radius of the cranes has to cover the whole grid. Therefore some placement either on top of the Eriksberg Crane (image 2/150) or on its sides (image 1/150) is suggested. Placing the cranes on top would evoke the image of a forest of cranes (► P19) again.

As an example already realised in Japan shows (image 3.4/150), the plug-ins can be shifted on a sledge device.

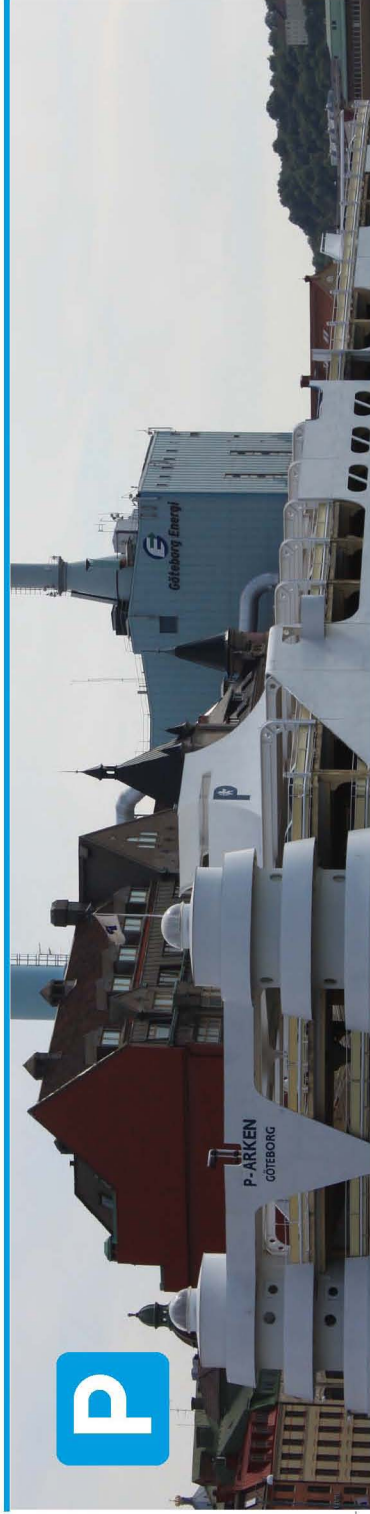


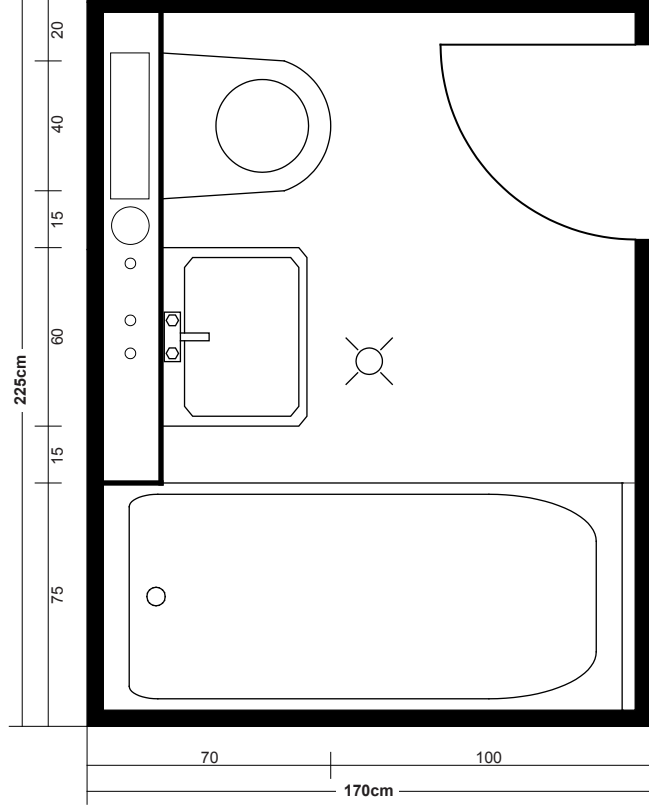
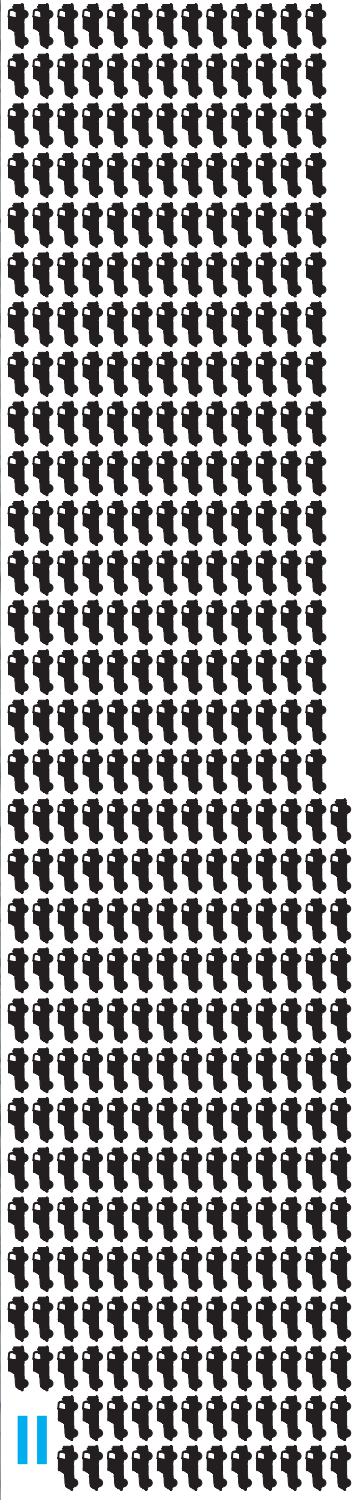
[3/150]



[4/150]

images [3/150] and [4/150]: Gerhard Feldbacher; PlugIn Turm - mobile Architektur für Sesshafte, Diplomarbeit TU Wien, 2006



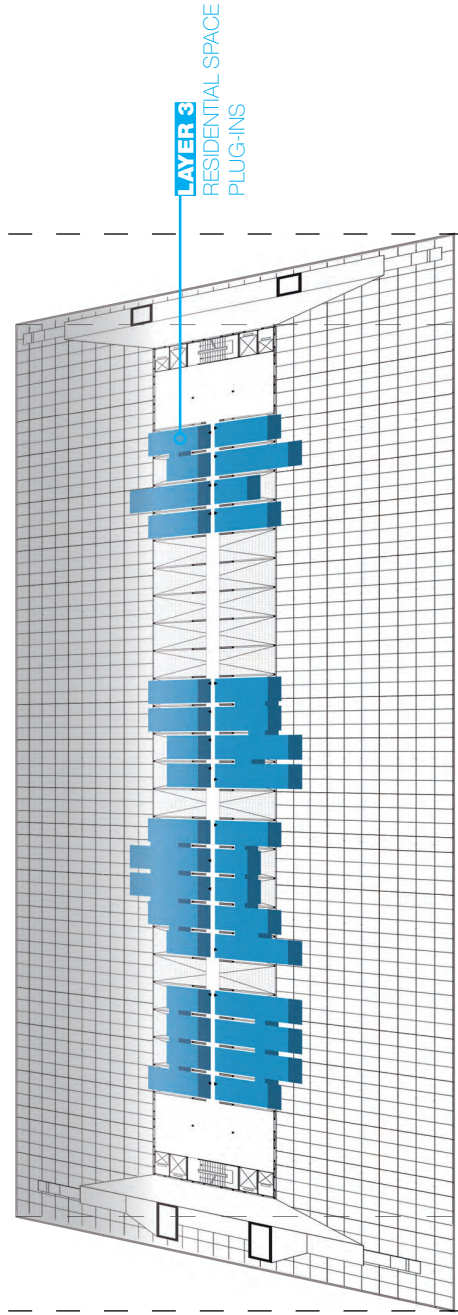
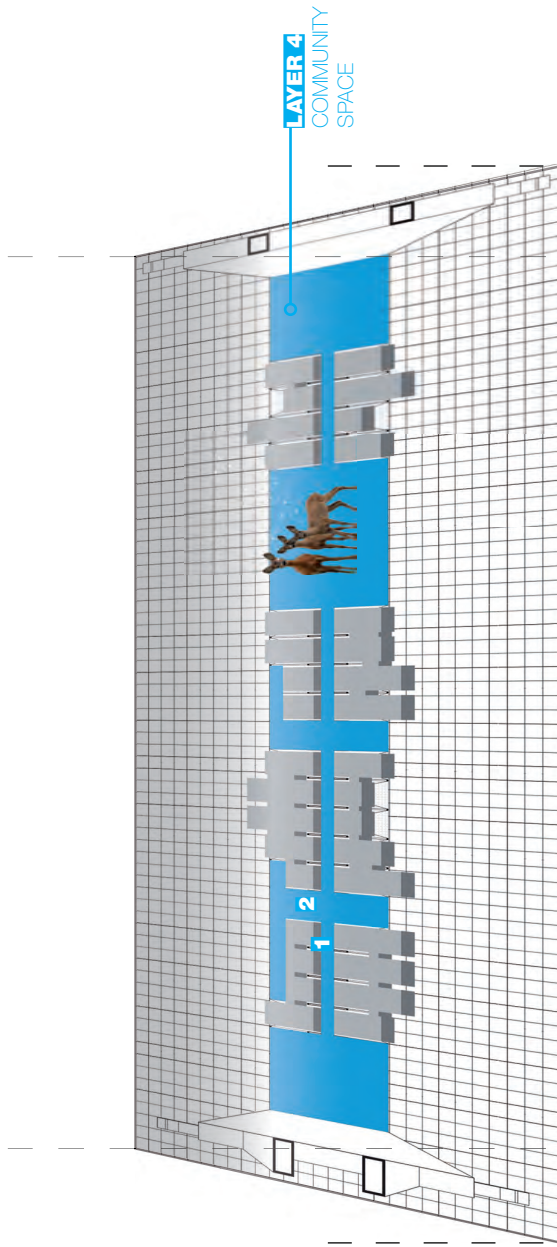


#### WET CELLS EXAMPLE

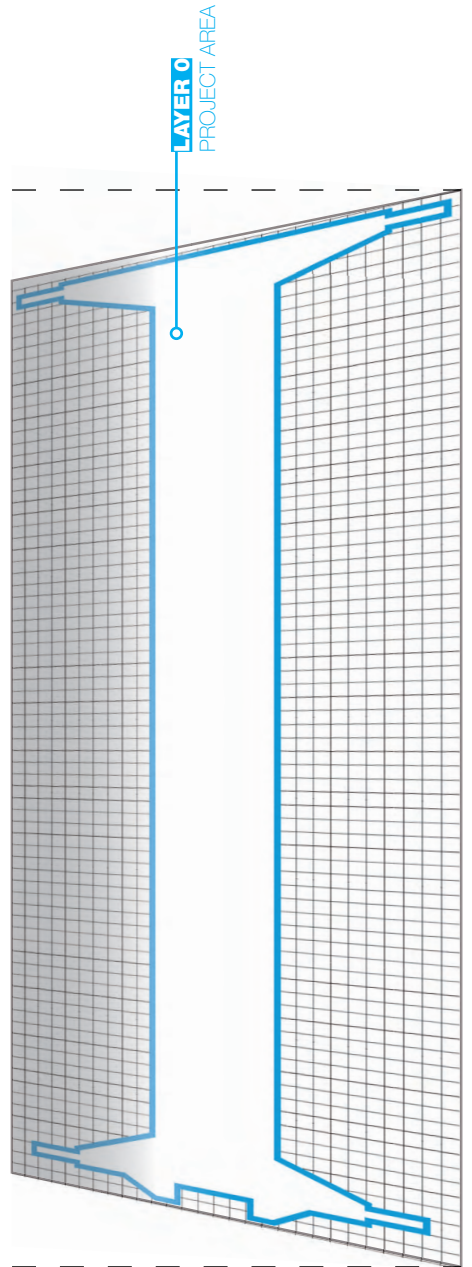
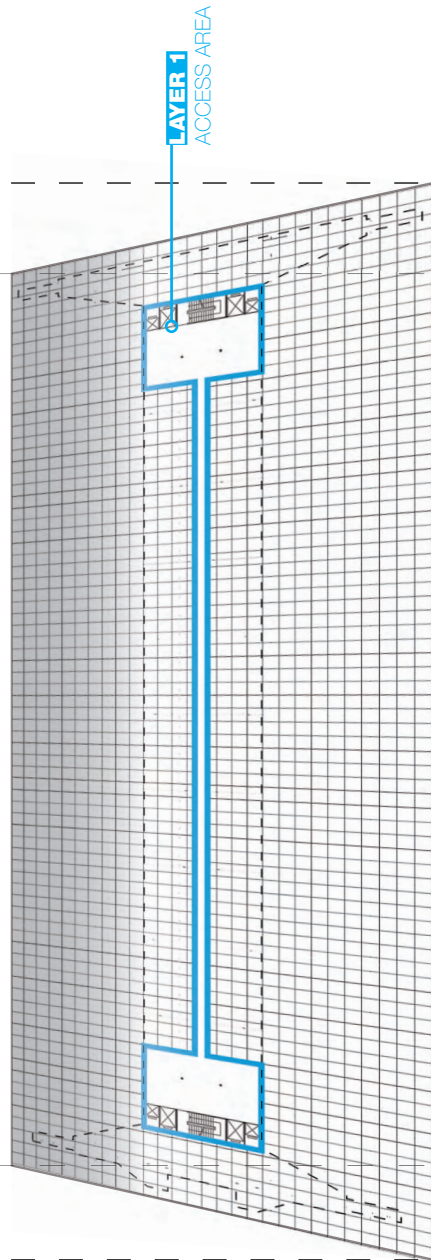
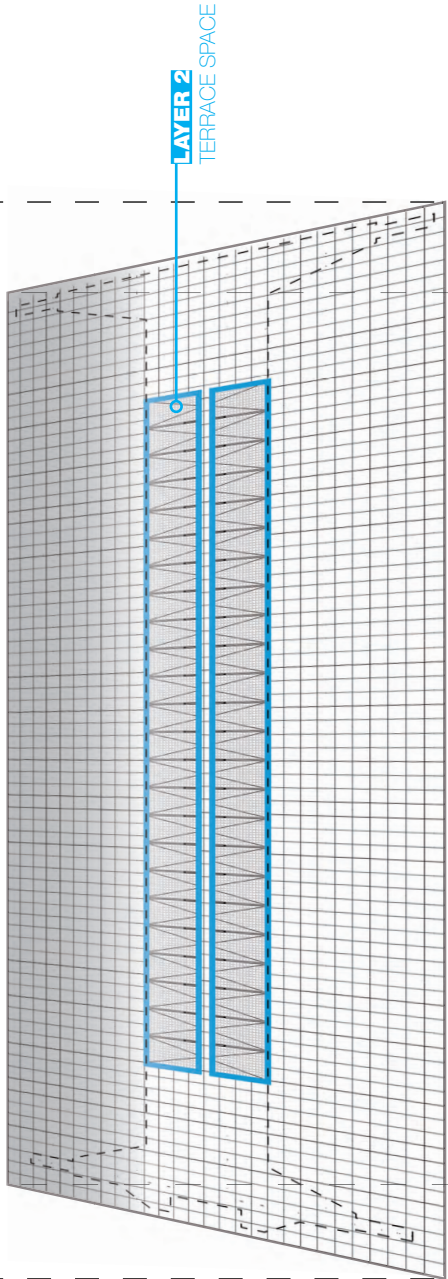
The wet cells are prefabricated compact solitary units that can be placed anywhere within the plug-in. Recommended placing areas are centered positions with low daylight luminance next to the structure's installation shafts. A docking system connects wet cells and installation shafts. Different sizes, furnishing, equipment and interior materials can be chosen. The image on the right gives an example of what one 3,8m<sup>2</sup> unit might look like.

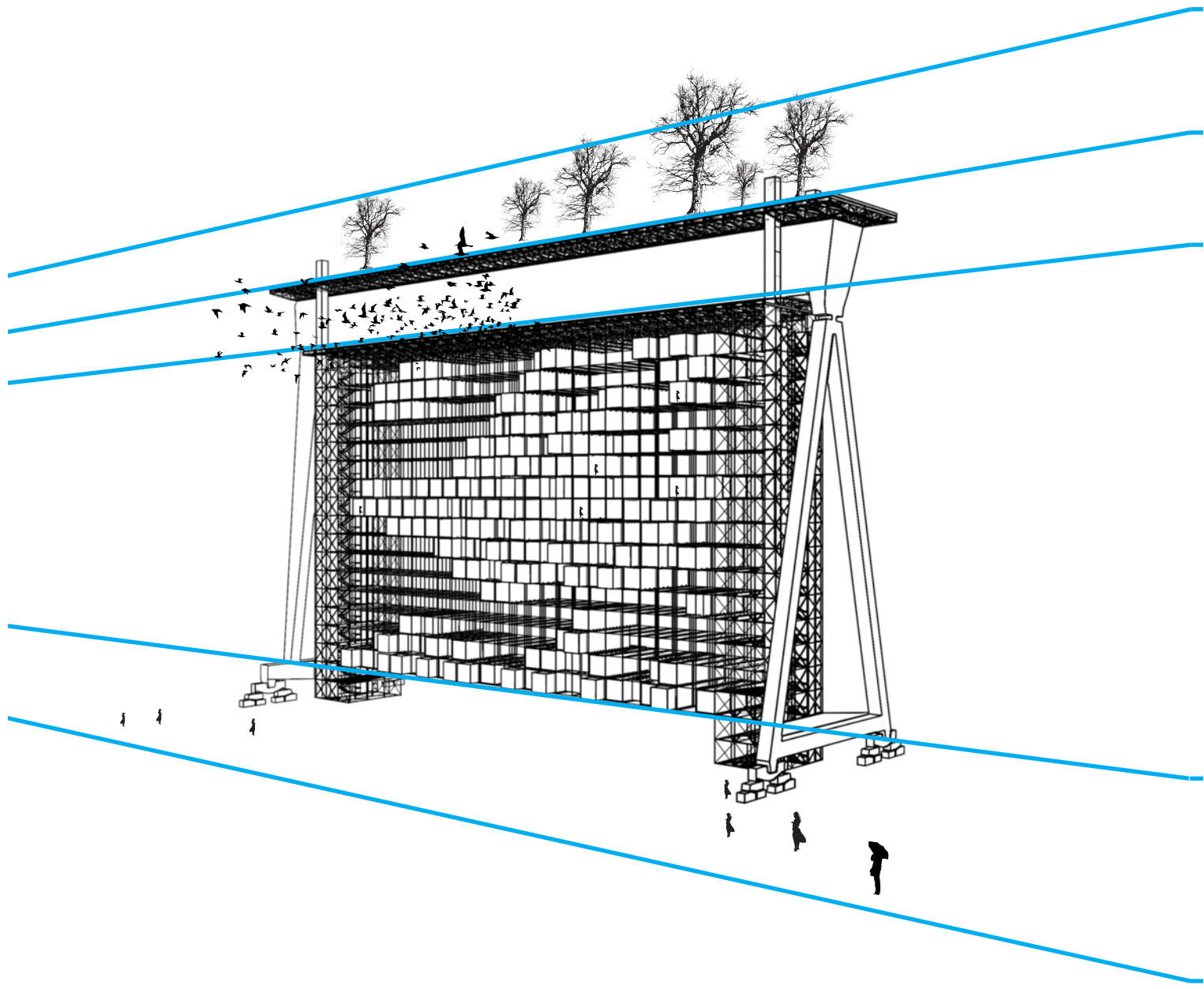
One can wander for prolonged periods through the interconnected sectors, entering into the adventure afforded by this unlimited labyrinth. [Constant; 2P178]

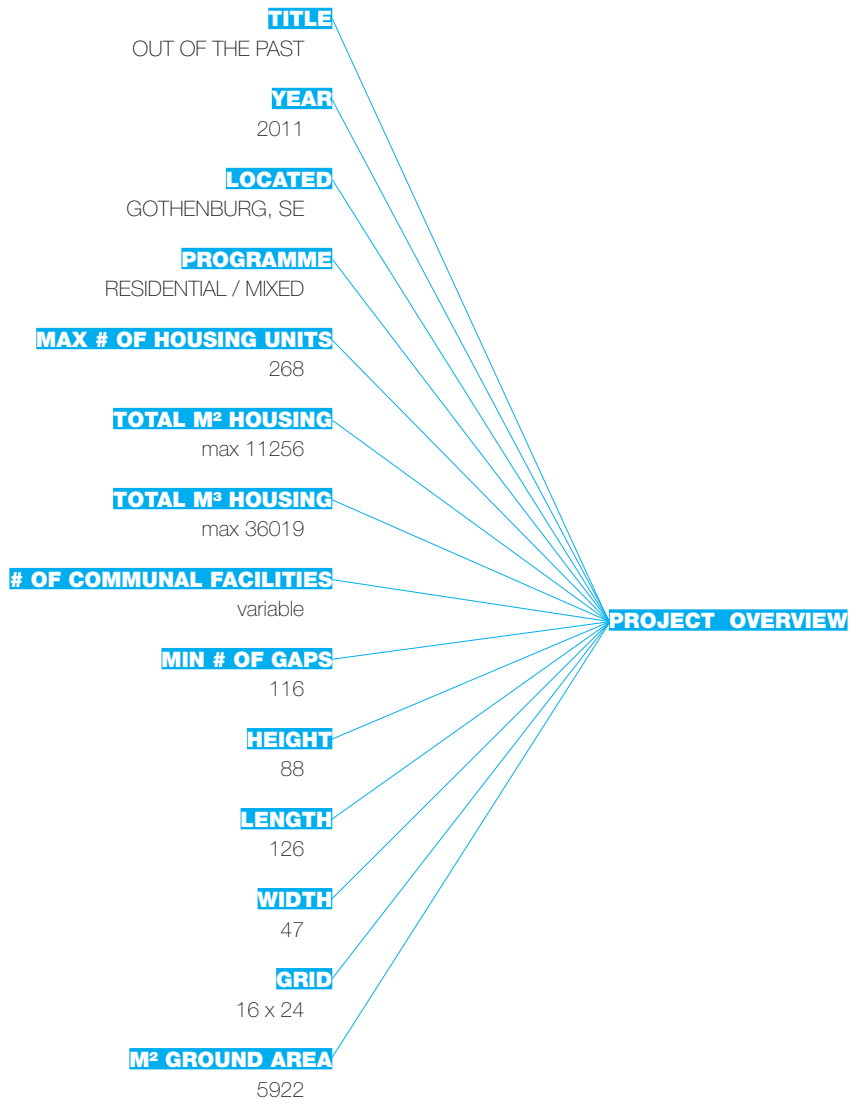
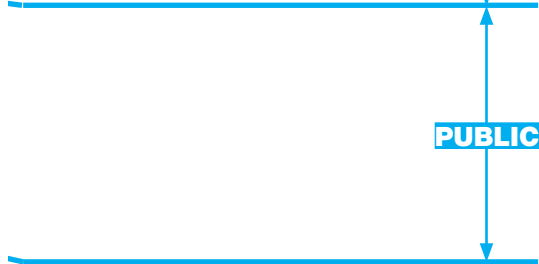
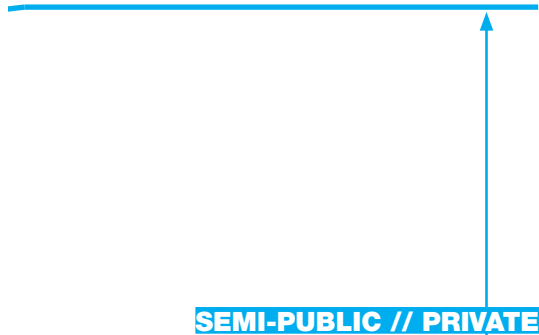
The linear **CORRIDOR** connects the plug-ins (=access area) as well as the various open spaces. As its outline depends on the configuration of the plug-ins, it can be narrow at one place **1** and opening up at the next **2**. It is an alternating sequence of connected public spaces that vary in form and size. Shifting the plug-ins means changing the form of the community space. Thus monotony is avoided. As the corridor acts as the main meeting zone that draws a line through the private plug-ins, it has a social purpose to avoid isolation. Therefore it should be seen as a chance rather than a barrier.











**N** “At the urban scale the harbour is a grandiose meeting between the town and the sea, representing an interesting interface between the local life and the big world. Here we still have a great variety of old and new architectural typologies. This scenery calls for quality. The waterfront is a common gift for all citizens and it has been the gateway for hopes for a better life and a meeting place between “tradition” and “the new”. Waterfront redevelopment inside cities should focus on this great narrative! The waterfront is the most fantastic interface between nature and man-made world – and it should be treated as a life-giving zone composed by a great variety in the future use, by meeting places for all, and finally give room for architectural experiments and arts. We are talking about ‘Harbourscapes’.”

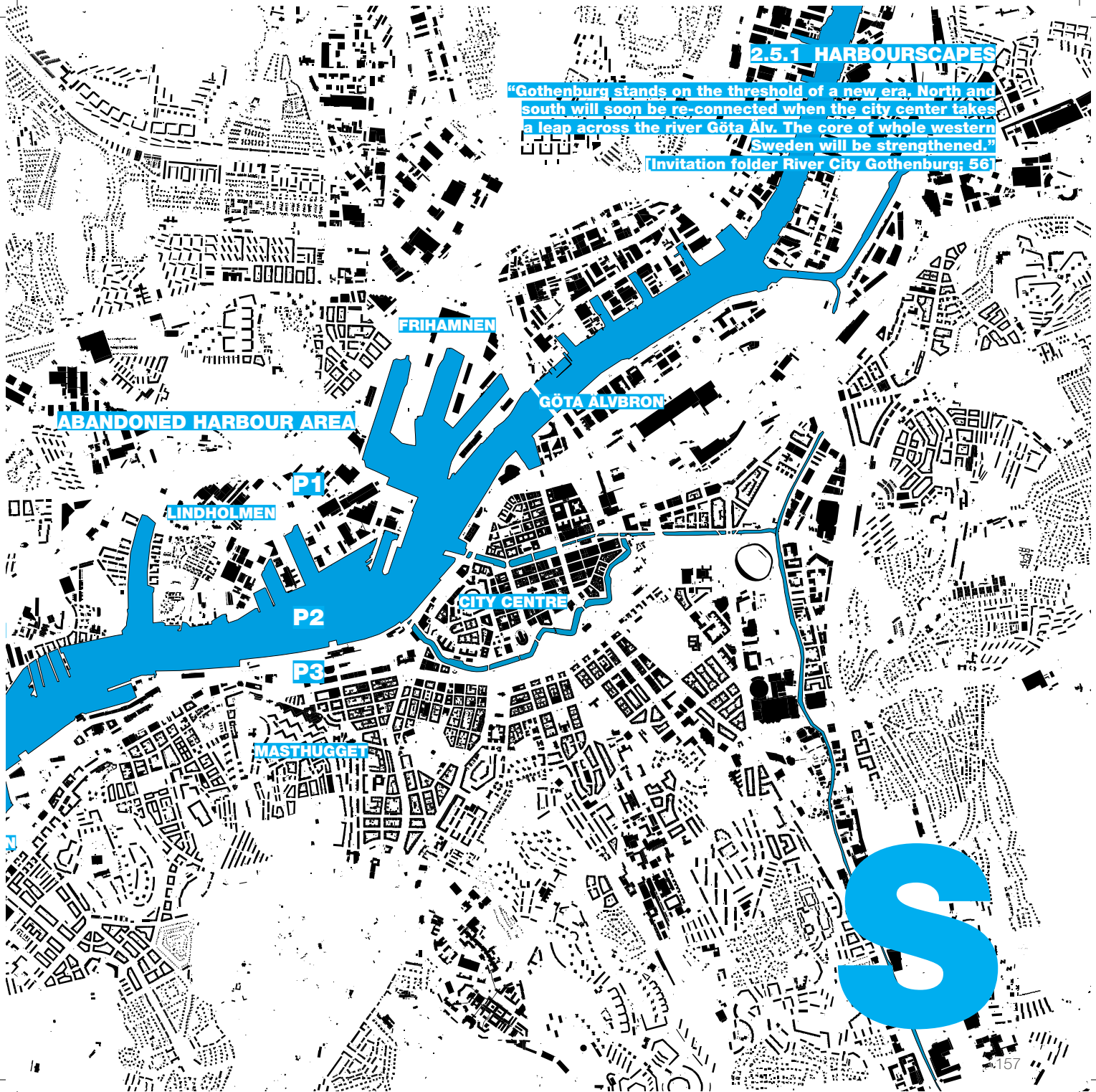
[Hans Kib, Aalborg University; Harbourscape - Design Based Development - 1, January 10th, 2009]



## 2.5.1 HARBOURSCAPES

"Gothenburg stands on the threshold of a new era. North and south will soon be re-connected when the city center takes a leap across the river Göta Älv. The core of whole western Sweden will be strengthened."

[Invitation folder River City Gothenburg; 56]



## RIVER CITY GOTHENBURG

According to the latest “Comprehensive Plan for Gothenburg”, Gothenburg is in a phase of growing, both in population and employment market. By 2020, a total number of 30 000 new homes and 40 000 new jobs should be created [source 56]. To enlarge the city centre **P3** and make the city more compact, vibrant locations for new river crossings and connections are integrated in Gothenburg’s regional comprehensive plans. **P2**

As Gothenburg’s abandoned harbour areas are outnumbering the city centre in terms of size, there is a huge potential for the city to expand within an innercity area by zipping up the northern and southern part of Gothenburg, which are divided by the river Göta Älv. The only connections at the moment are the two bridges “Göta Älvbron” and “Älvsborgsbron” and a tunnel. “From Riverside to Rivercity” means to balance the number of residents in the northern and southern parts of the city with the central Göta Älv tying them together.

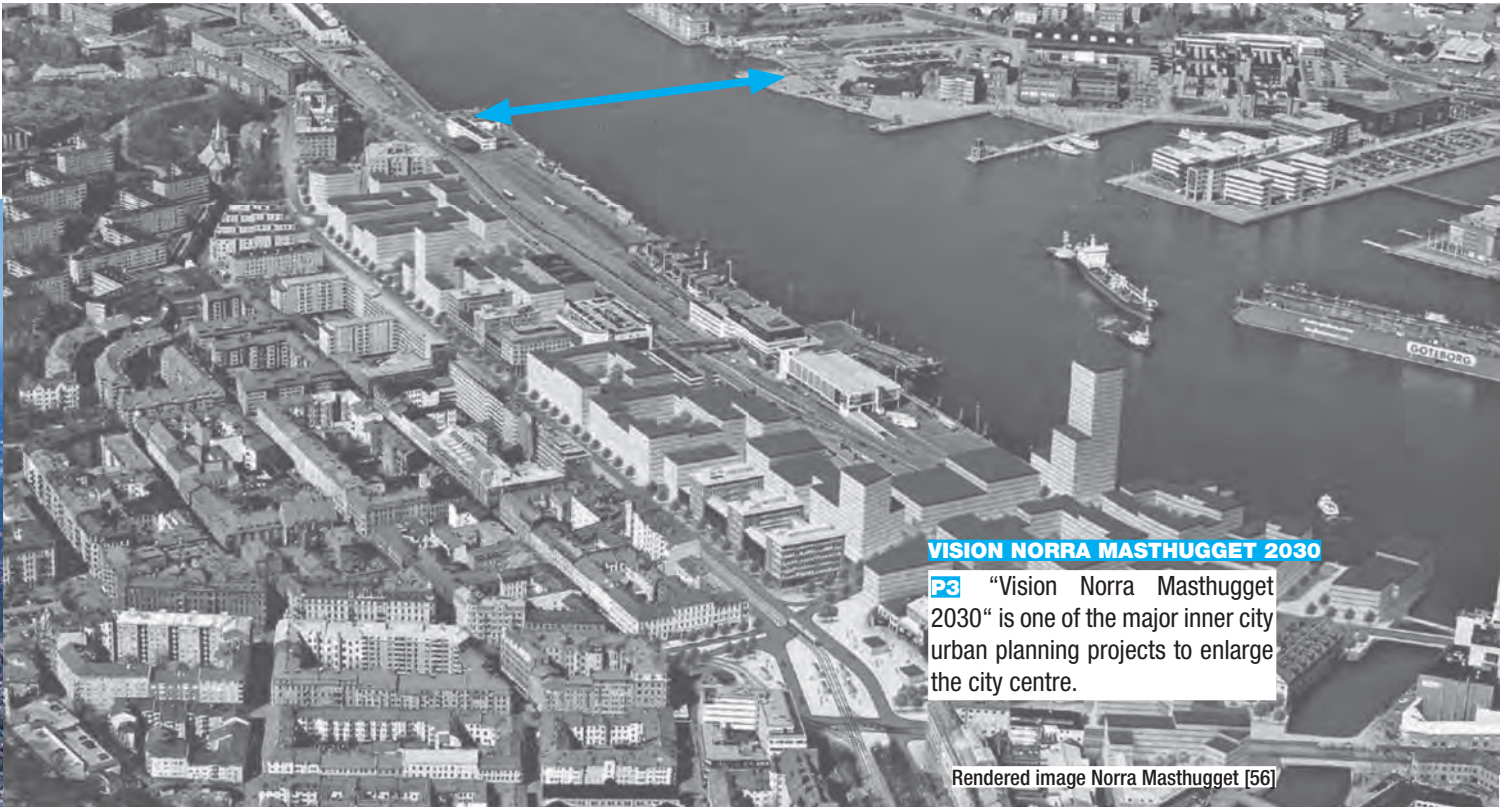
With broad political support the City of Gothenburg has therefore launched the project “River City Gothenburg”, **P1** which is in the competition phase at the present moment. [spring 2011] The goal of this project is to “outline Vision and Strategy for the area as well as to develop methods for transdisciplinary cooperation, dialogue and exchange of information.” [invitation folder River City Gothenburg; 56]





**P2** The City of Gothenburg is going to build new connections between the northern and southern parts of Gothenburg.

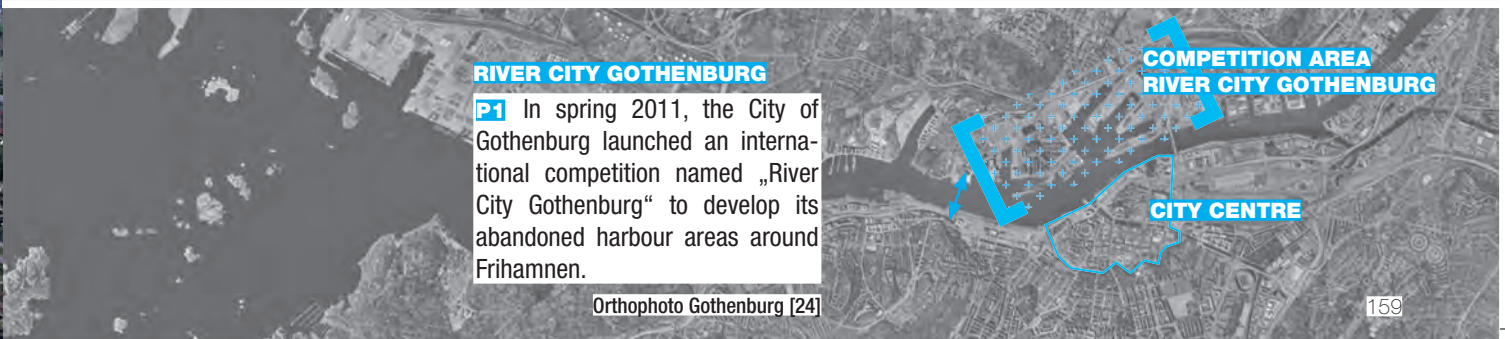
Photo perspective Gothenburg [56]



### VISION NORRA MASTHUGGET 2030

**P3** “Vision Norra Masthugget 2030” is one of the major inner city urban planning projects to enlarge the city centre.

Rendered image Norra Masthugget [56]



### RIVER CITY GOTHENBURG

**P1** In spring 2011, the City of Gothenburg launched an international competition named „River City Gothenburg“ to develop its abandoned harbour areas around Frihamnen.

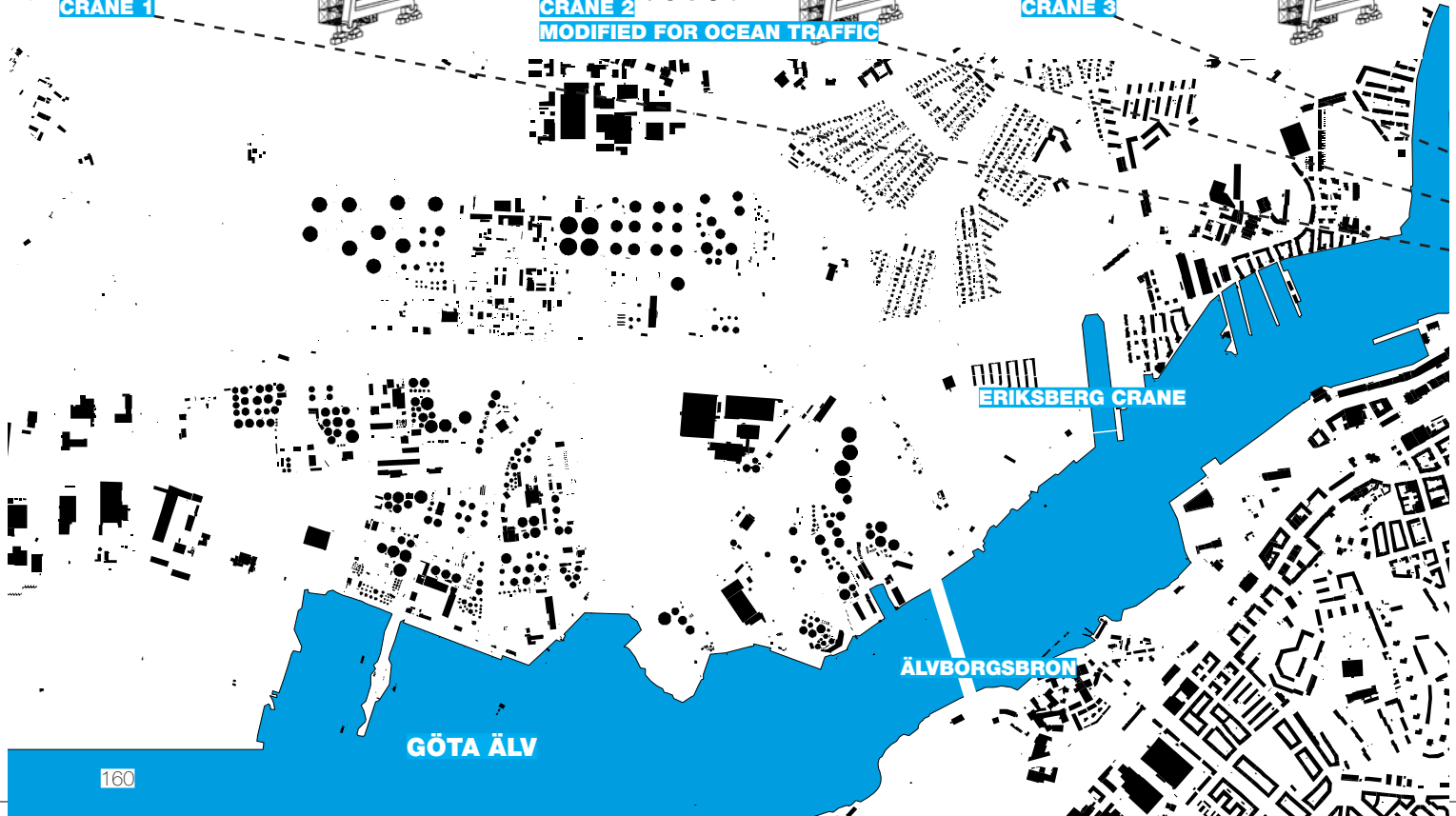
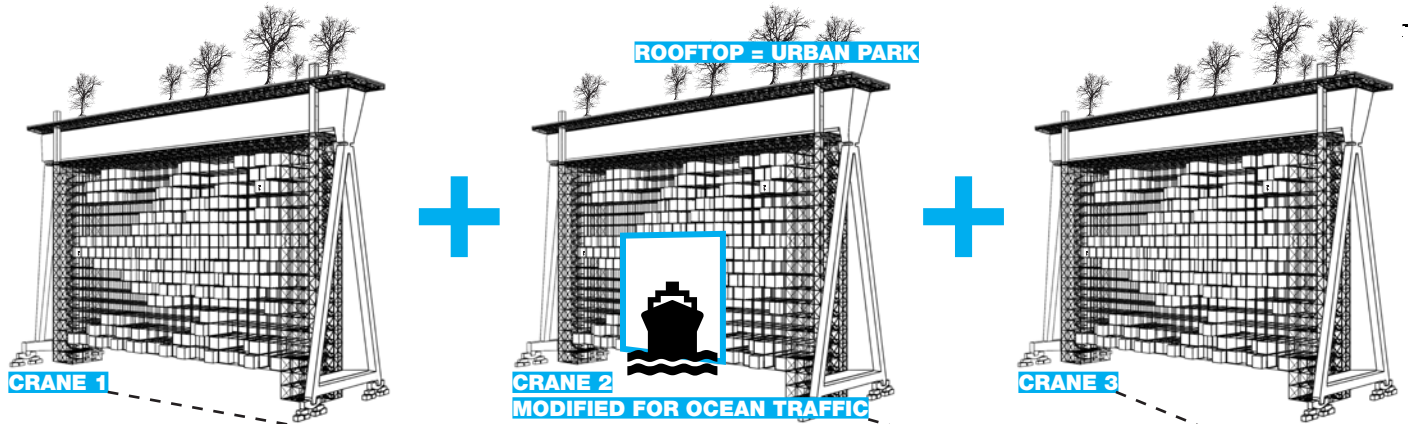
Orthophoto Gothenburg [24]

**COMPETITION AREA  
RIVER CITY GOTHENBURG**

**CITY CENTRE**

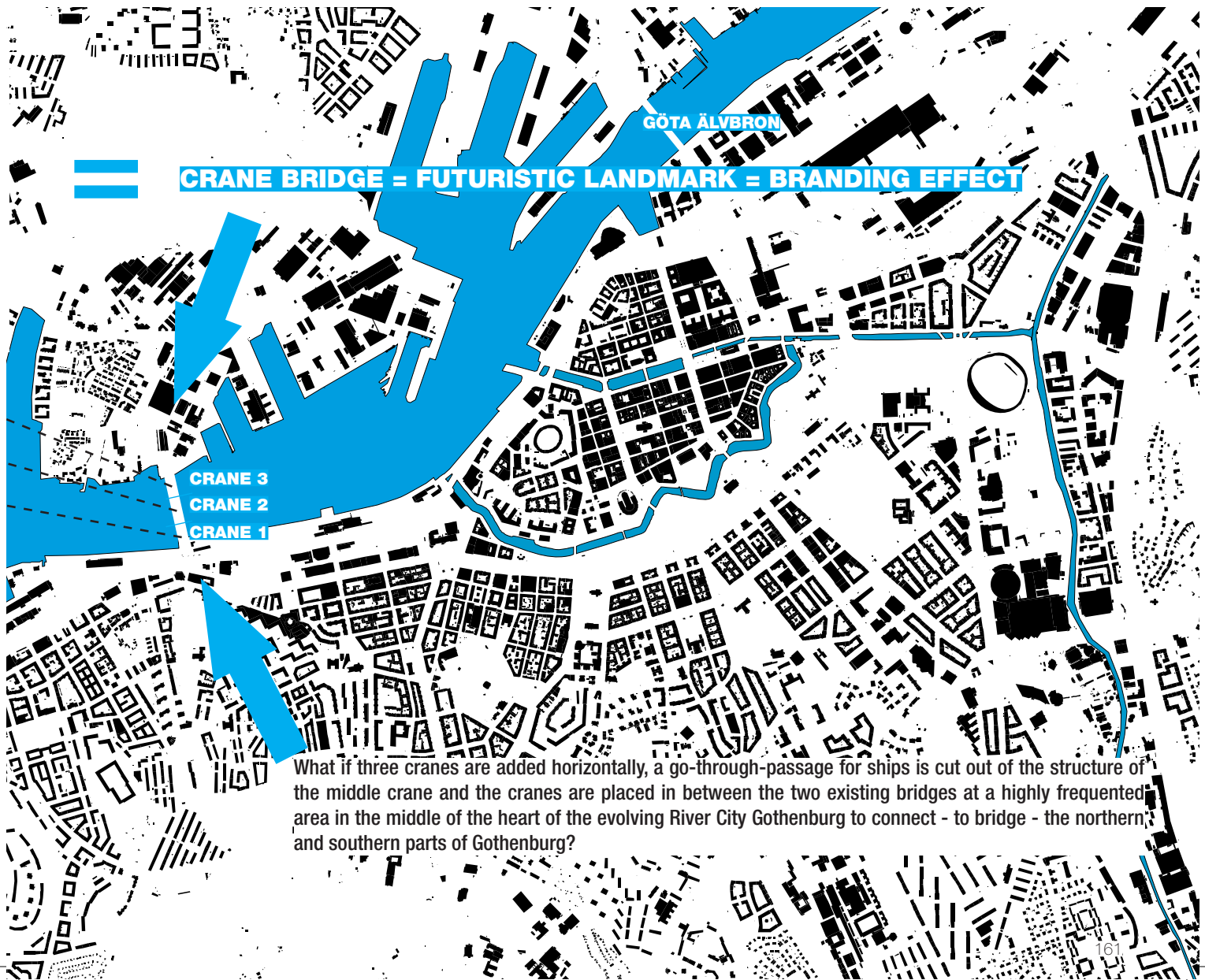
# BRIDGE THE GAP...

"Industrial heritage should not only be viewed as a question of preservation or not, but the scale and the typologies from the industry at the water front form a fantastic catalogue of interesting typologies useful for new developments as well." [BIG; 57]





# ...CONNECT!



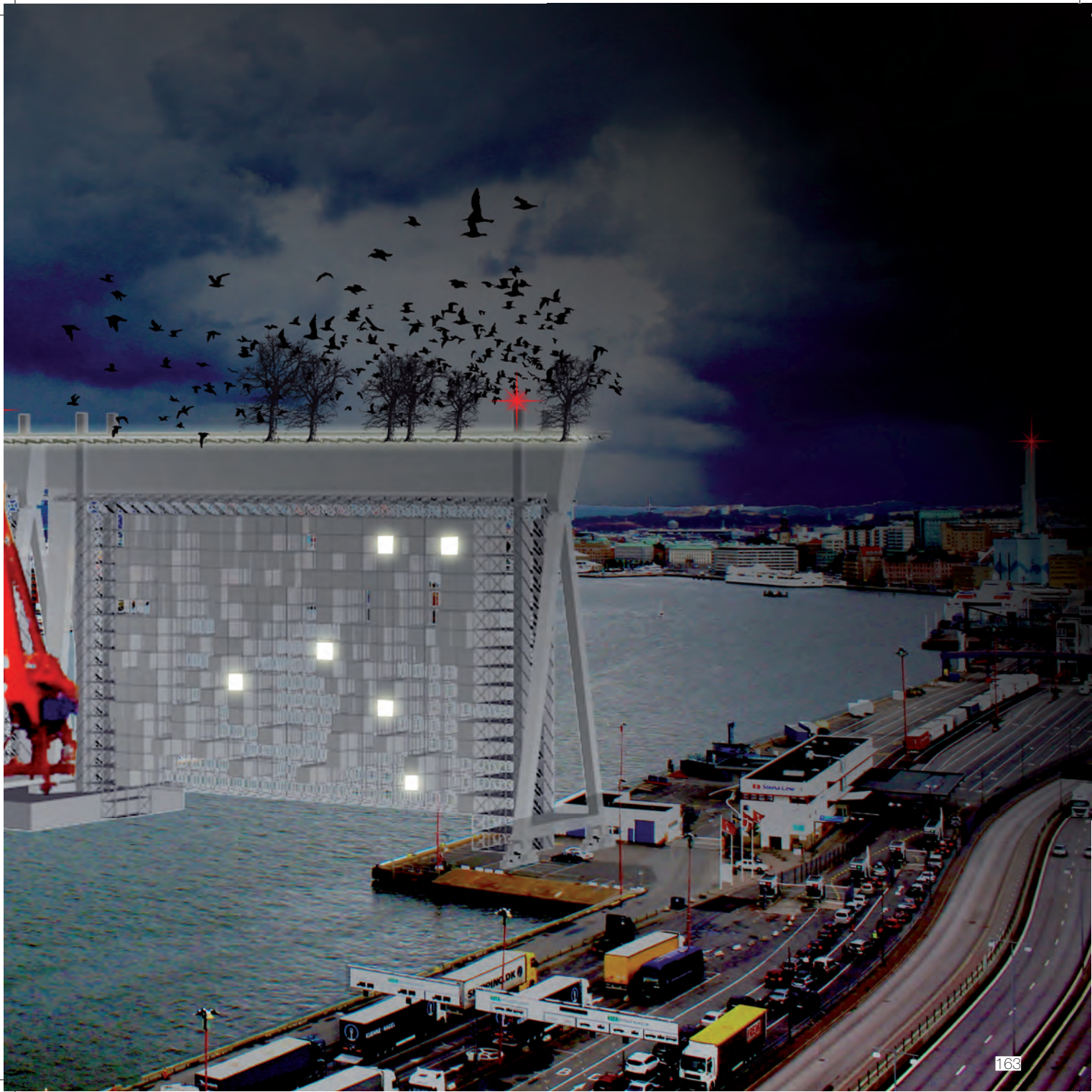
GÖTA ÄLVBRON

CRANE BRIDGE = FUTURISTIC LANDMARK = BRANDING EFFECT

CRANE 3  
CRANE 2  
CRANE 1

What if three cranes are added horizontally, a go-through-passage for ships is cut out of the structure of the middle crane and the cranes are placed in between the two existing bridges at a highly frequented area in the middle of the heart of the evolving River City Gothenburg to connect - to bridge - the northern and southern parts of Gothenburg?







**CRANECITY**

It's too bad she won't live. But then again, who does?

Deckard: Rachael? Rachael? Rachael?

Deckard: Do you love me?

Rachael: I love you.

Deckard: Do you trust me?

Rachael: I trust you.

Deckard: Rachael?

BEFORE



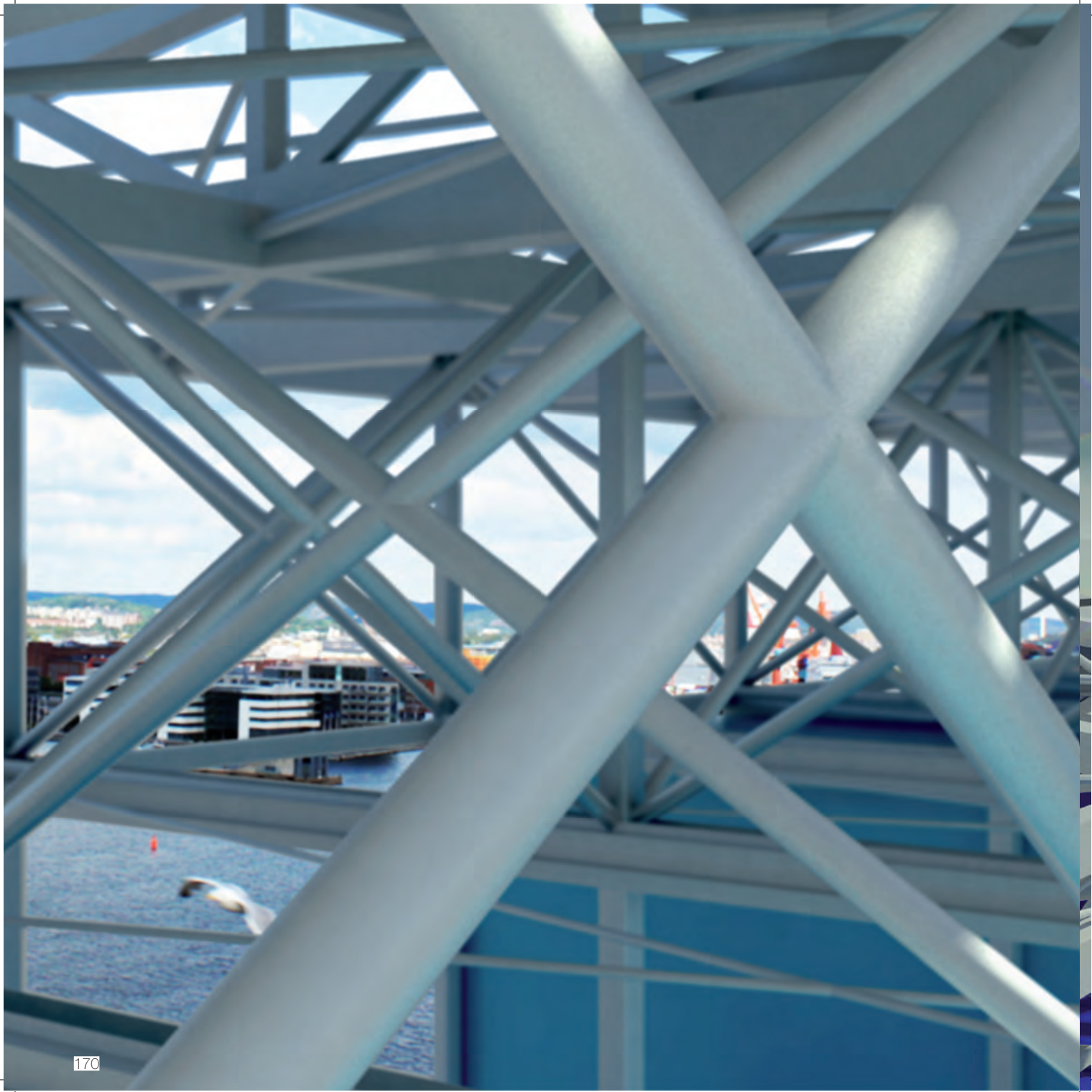
AFTER



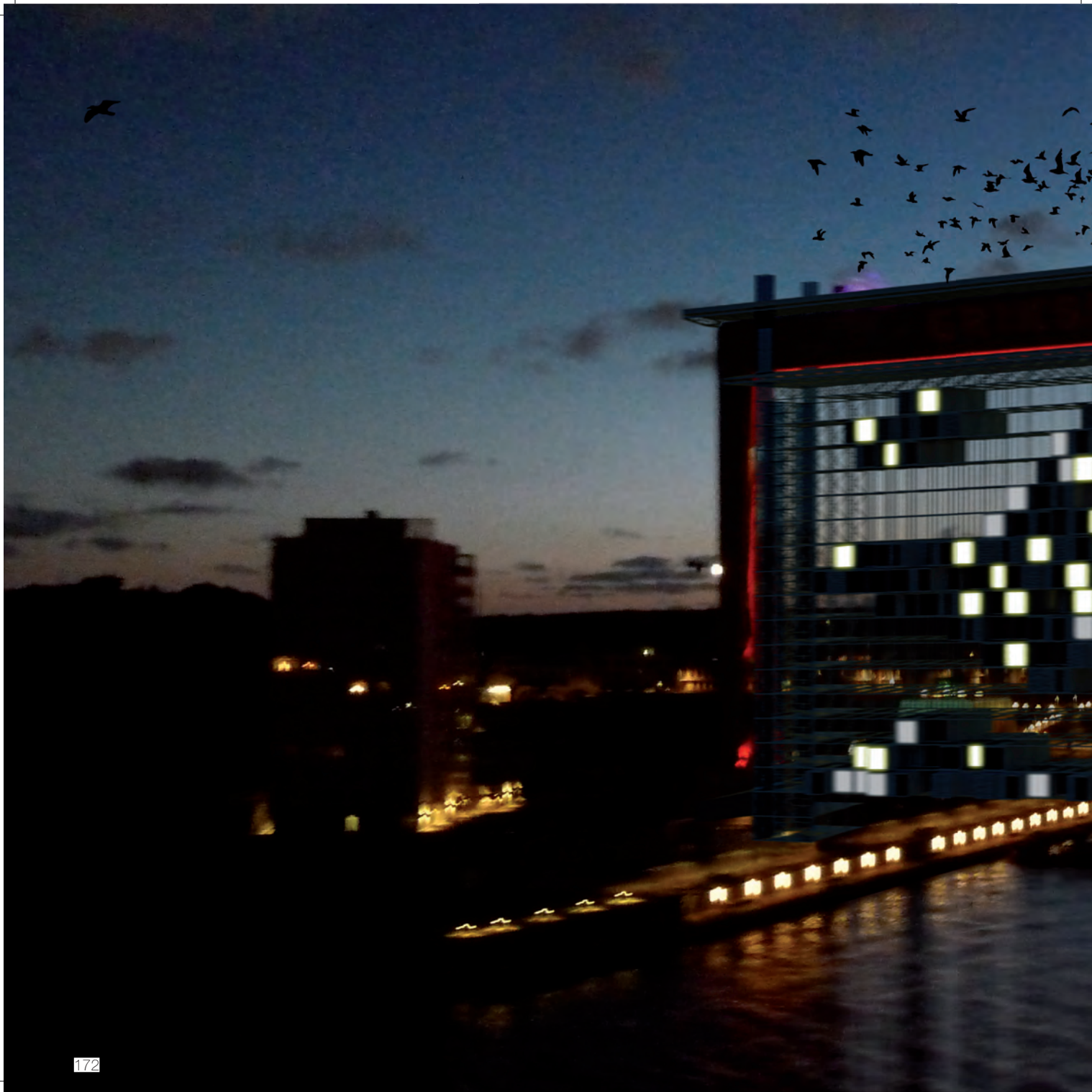


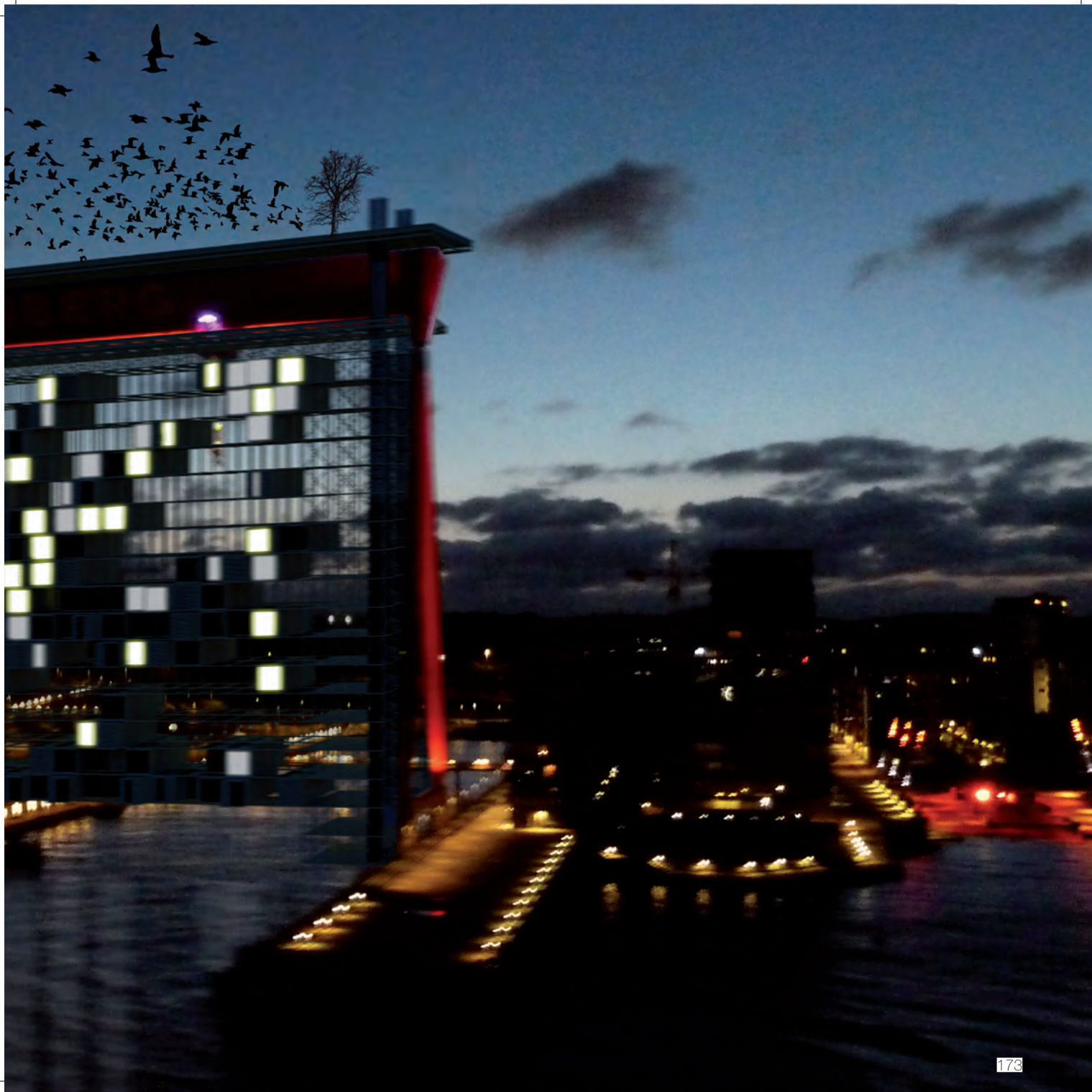


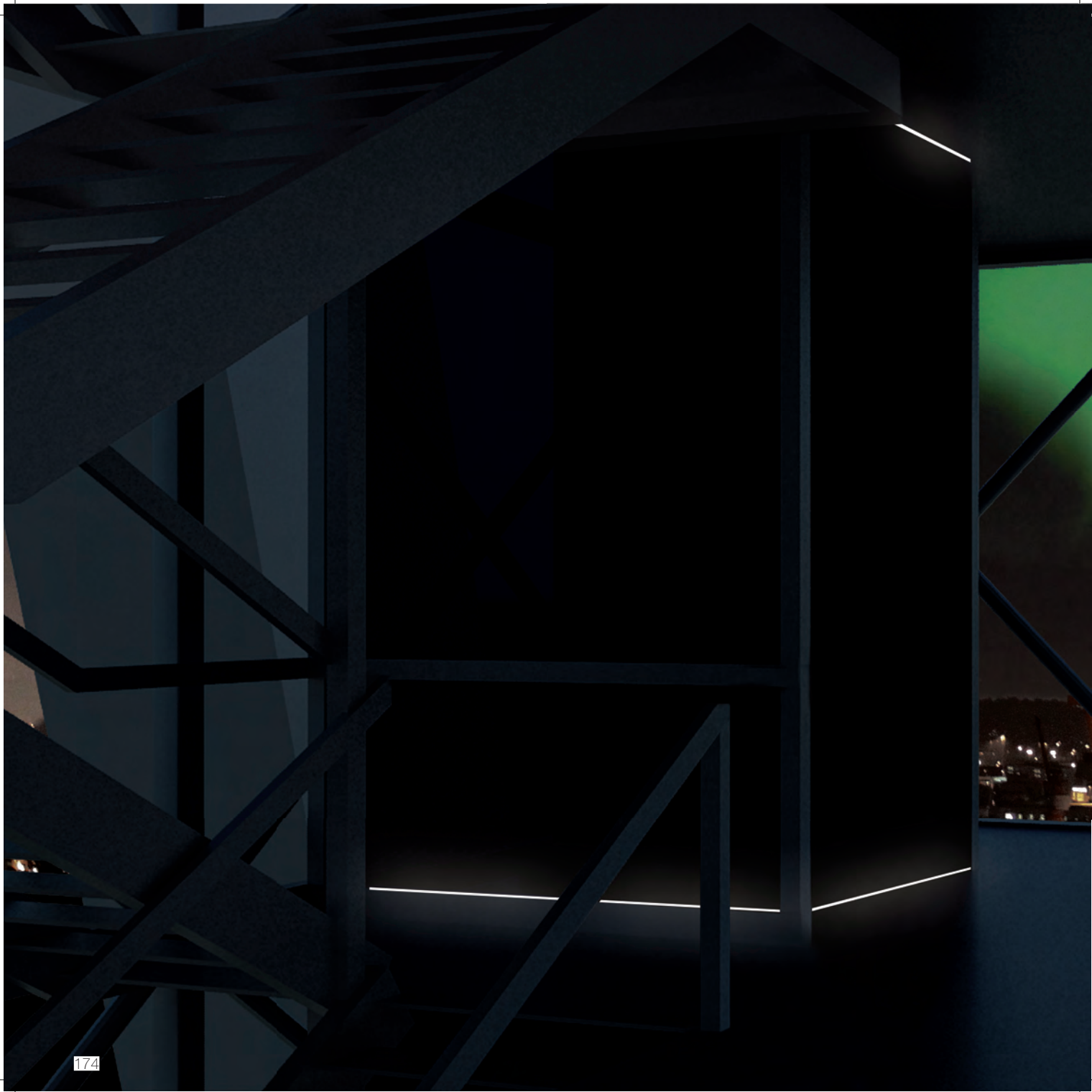


















**SLUT**  
Swedish for  
**THE END**

Thank you to  
Elisabeth Lindner  
Manfred Lindner  
Dominik Lindner  
Martin Farthofer  
Catherine Schütze  
and Peter Pan  
for your support.



#### 4 REVIEW

## RÉSUMÉ

“Keep on dreaming“ was the first reaction of Gothenburg’s city developing department when I presented my project in June 2011.

By definition, utopias are not real. Utopias are something to long for, something that has to be put to the test.

Most of the brilliant ideas and concepts of the 1960s concerning housing and society remained utopias. Those few projects that were built turned out to be not as suitable for everyday life as intended and their basic revolutionary ideas have not been accepted by society. The Nagakin Capsule Tower for example remained unique although its plug-in housing units were meant to fluctuate within different locations (towers) and the „Däckshuset“ (see next page) did not meet expectations in terms of quality and dimensions.

Even if a utopia fails in reality or is very likely to fail at a present time in a present society, it is necessary to analyse its main aspects that might - if necessary in another set-up - work out pretty well.

OUT OF THE PAST shows a certain process Gothenburg is currently undergoing that has to be discussed. By reducing the project to being a utopia, the whole discourse is being stopped. That is the easiest way to avoid any further discussions and repeat conservative concepts over and over again.

According to Björn Sandmark [Göteborg Stad, planning architect; interview June 2011], housing projects are one of Gothenburg’s main goals for the near future. Gothenburg is intending to provide a total number of 30 000 new homes by 2020 [source 56]. The abandoned harbour areas provide the empty spaces that are going to become residential areas. Taking a closer look at already completed buildings (Norra Älvstranden = project area) and their inhabitants reveals that Gothenburg’s main target group is a high-income upper middle class as shown in the tables on the right.

Segregation processes are the result of the political decisions taken and the programmes which have been developed so far.

OUT OF THE PAST provides housing units with total building costs of less than 600 EUR/m<sup>2</sup>, a price that is affordable for lower-income classes and that extends the attracted clientele into every level of income and social class.

As there are community facilities which can be used by the public, integrated models of cost-sharing or financial stake from the City of Gothenburg have to be discussed.

Another main aspect of OUT OF THE PAST is the high flexibility it provides for its inhabitants. This flexibility is not bound to the crane. A plug-in structure that provides such possibilities can be located somewhere else and can vary in size or material.

Although the project might be seen mainly as a utopia, it does have serious aspects and elements that can and have to be implemented into present housing politics and industry. Discrediting OUT OF THE PAST as a mere utopia obstructs any further discussion of the opportunities and chances the project offers for a society of the future.

|                                      | EUR | material costs         | building costs         | service costs  | total costs | costs/unit          | costs/m <sup>2</sup> |
|--------------------------------------|-----|------------------------|------------------------|----------------|-------------|---------------------|----------------------|
| STRUCTURE                            |     | 1 200 000 <sup>1</sup> | 2 900 000 <sup>2</sup> | - <sup>3</sup> | 4 100 000   | 15 300 <sup>4</sup> | 365                  |
| PLUG-IN                              |     | -                      | -                      | -              | -           | 8 000 <sup>5</sup>  | 190                  |
| building costs in EUR/m <sup>2</sup> |     |                        |                        |                |             |                     | <b>555</b>           |

Table 178/1: project building costs

<sup>1</sup> calculated for a total structure weight of 1000tons (1,2 EUR\*/kg steel)

<sup>2</sup> calculated with 4,1 EUR\* (inclusive material)/kg steel

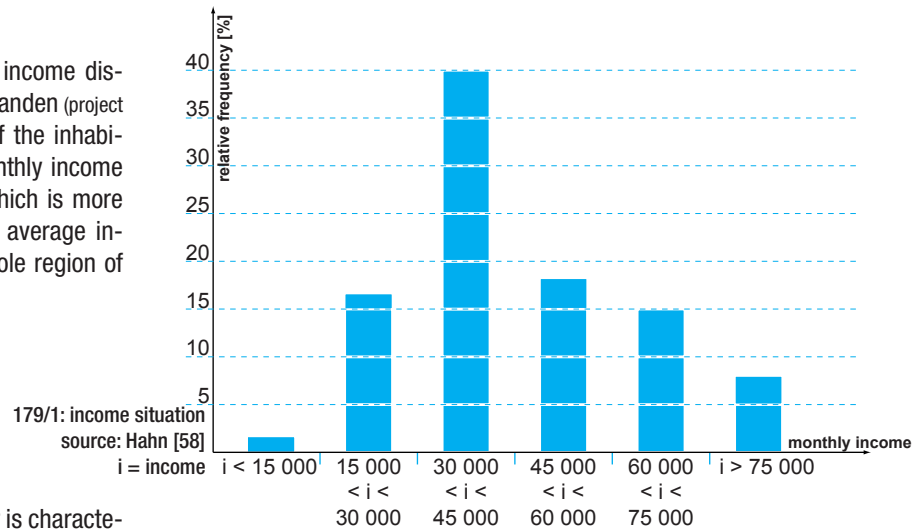
<sup>3</sup> the fire protection coating has to be inspected (and renewed if necessary) at regular intervals

<sup>4</sup> calculation for 268 plug-ins (=100% capacity of the grid)

<sup>5</sup> price\* for a comparable container unit (cheapest version new: office container at containex.com)

\*all prices: Austria, 10/2011

Diagramme 179/1 shows the income distribution within Norra Älvstranden (project area). The majority (40%) of the inhabitants have an average monthly income of 30 00 - 45 000 SEK, which is more than one and a half of an average income compared to the whole region of Gothenburg [table 179/2].



This shows that the quarter is characterized by upper middle-class inhabitants.

179/2: income situation  
source: Hahn [58]

|                              | research area<br>Norra Älvstranden | region<br>Gothenburg |
|------------------------------|------------------------------------|----------------------|
| average income in SEK (2006) | 362 592                            | 226 000              |

179/3: housing market/prices  
source: Hahn [58]

That gentrification processes have already taken place also becomes obvious when analyzing the housing market. [table 179/3] Both rental flats and condominiums are characterized by inner-city (radius city center < 2km) price levels.

|  | condominiums<br>SEK/m <sup>2</sup> | rental flats<br>SEK/m <sup>2</sup> |
|--|------------------------------------|------------------------------------|
| research area                            | 27 646                             | 119,52                             |
| inner city $r < 1\text{km}$              | 31 651                             | 127,35                             |
| inner city $1\text{km} < r < 2\text{km}$ | 32 228                             | 90,05                              |
| inner city $2\text{km} < r < 3\text{km}$ | 23 616                             | 96,15                              |
| inner city $3\text{km} < r < 4\text{km}$ | data missing                       | 84,37                              |

179/4: employment situation  
source: Hahn [58]

Furthermore, the analysis of the employment situation with an above-average amount of persons in employment, underlines this fact. [table 179/4]

|                      | research area | region<br>Gothenburg |
|----------------------|---------------|----------------------|
| people in employment | 67,7%         | 48,3%                |
| students             | 3,6%          | 15,1%                |
| pensioners           | 10,7%         | 15,5%                |

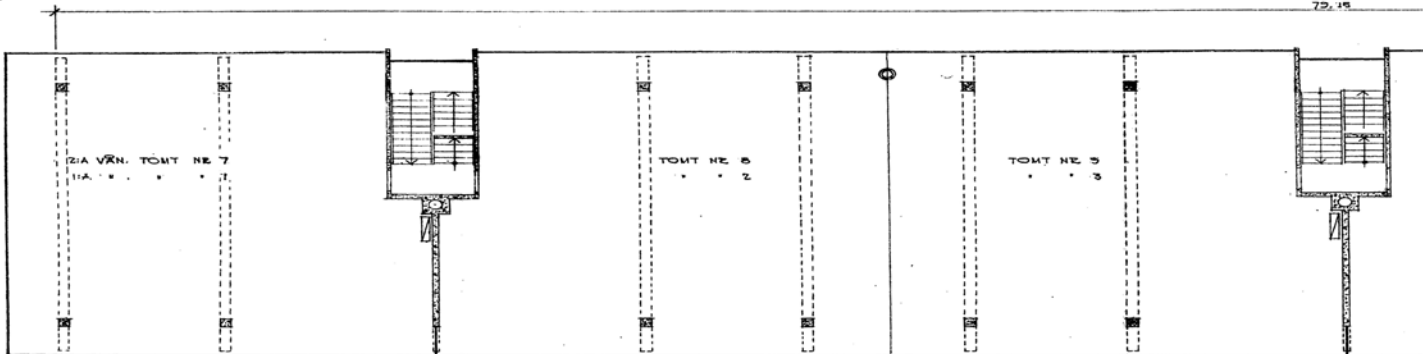


image 180/1: Däckshuset  
source: white [59]

The only built example where private housing units are stacked vertically within a fixed framework is Erik Friberger's "Däckshuset" in Gothenburg, Sweden, 1960. [180/3; 181/1; 181/2] The idea is to provide empty "decks" that can be filled with single-family units by will. Platforms and access areas are the only fixed elements and have been filled up by 18 single housing units (houses).

"[...] angesichts der bekannt raschen Veränderung der Familienverhältnisse, der Lebensgewohnheiten und des Wohnstandards andererseits, erscheint natürlich der Gedanke bestehend, eine in einem Stockwerk liegende Ebene kaufen oder mieten zu können, wo man Wohnräume mit zugehörigen Freiterrassen usw. nach eigenen Wünschen einrichten und an vorhandene Leitungen aller Art anschließen kann, um solcherart eine individuelle Behausung, sozusagen ein Einfamilienhaus in der Etage, ohne Landverbrauch, ohne Erschließungskosten, ohne Garten-„Arbeit“ zu gewinnen." [Roland Rainer; 9P21]

58562  
3-14



Even back in the 1920s, Mies van der Rohe noticed at the Werkbundausstellung (Stuttgart, Weißenhofsiedlung, 1927) that "die immer steigende Differenzierung unserer Wohnbedürfnisse aber fordert auf der anderen Seite größte Freiheit in der Benutzungsart. [...] Beschränkt man sich darauf, lediglich Küche und Bad ihrer Installation wegen als konstante Räume auszubilden und entschließt man sich dann noch, die übrige Wohnfläche mit verstellbaren Wänden aufzuteilen, so glaube ich, dass mit diesen Mitteln jedem berechtigten Wohnanspruch genügt werden kann." [Mies van der Rohe; 9P27] With his project "Die Wohnung" he anticipated forms of living beside the conservative family model that have grown in relevance and have been spreading ever since.

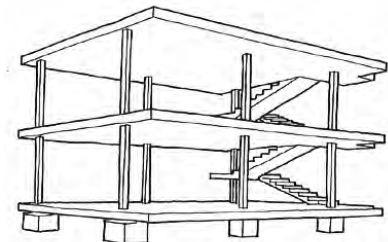
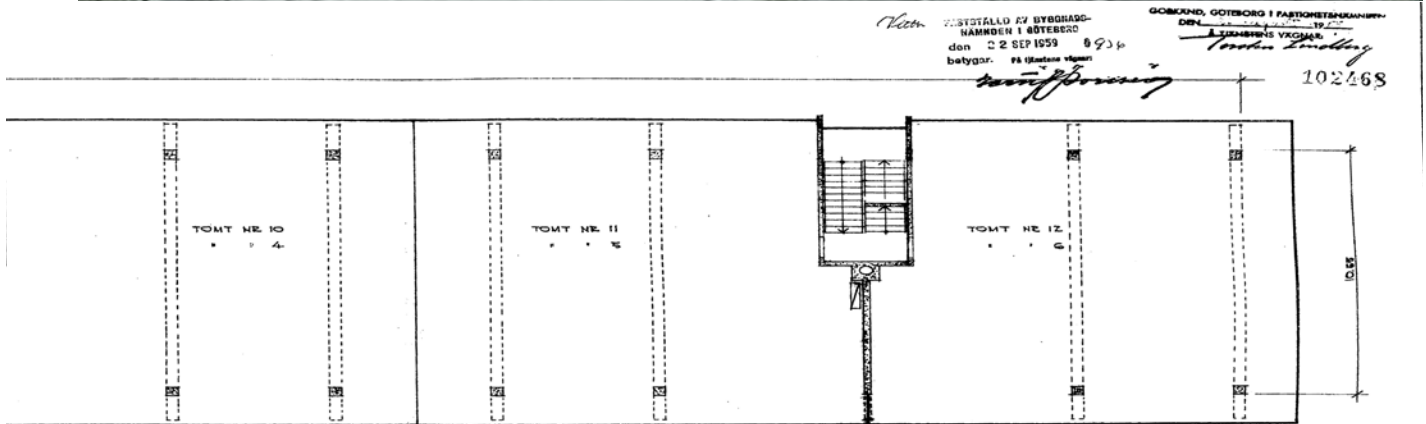


image 180/2: Maison Dom-ino  
source: white [59]

180/2: [Maison Dom-ino](#), Le Corbusier, 1914: basic skeleton arrangement of pillars, platforms and access area // 181/3: [Plan Obus](#), Le Corbusier, 1931: sketch for a



image 181/1: Däckshuset  
source: white [59]



A3



image 181/3: Plan Obus  
[9P19]

For providing a fixed and bare structure that serves the housing units, projects like Le Corbusier's "Plan Obus" [180/2] and in its basic form "Maison Dom-ino" [180/1] have to be mentioned.

|                                  |              |                |
|----------------------------------|--------------|----------------|
| A. B. Skånaka Cementgjuteriet    |              |                |
| GÖTTSORGSKONTORET                |              |                |
| NYBYGGNAD PÅ TOMT NR. 3 I 13:1 E |              |                |
| E.V. TIDSKRIFTEN I KALLEBERG     |              |                |
| PLAN AV 1:1 A OCH 2:1 A VÄN.     |              |                |
| Datum 19-7-1959                  | Skala 1:1000 | Löp nr 5715/A3 |
| Konstr. Erik Friberger           |              |                |
| Byggnadschef Erik Friberger      |              |                |

image 181/2: Däckshuset floor plan  
source: white [59]

vertical garden city // 180/1; 181/1; 181/2: [Däckshuset](#), Erik Friberger, 1960: "villas" are stacked vertically on concrete platforms to raise density and save resources

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## KEEP ON DREAMING

OUT OF THE PAST has to be seen as an attempt to visualize the process of how major port cities throughout Europe deal with their industrial past and to provide a different perspective for the post-industrial era concerning the industrial remnants. It has to be pointed out that it is not “about making something nicer”, it is about creating a new meaning and symbolism for the abandoned monuments. It is about positioning them back into the common mind as objects that fulfil a specific use and purpose. That is what those remnants were designed for originally and what they stood for during industrial times. It is not about keeping a monument just for the monument’s sake. At this point the project distances itself from the official Gothenburg City plans to renew the harbour areas in terms of intention and outcome. At first glance, one might assume that “just another fancy building is rising up in junkspace” but the difference to upper middle-class target group projects is that OUT OF THE PAST is not meant to be fancy, is not meant to be nice. It is a bare and cheap steel construction using an existing structure that serves the inhabitants.

THE CRANE **HAD** TO FULFIL A SPECIFIC PURPOSE.

THE CRANE **HAS** TO FULFIL A SPECIFIC PURPOSE.

The Eriksberg Crane was designed for lifting heavy objects. That was once its one and only purpose. And that is what the project proposes for the crane’s future use. Not wasting this enormous potential and capacity - e.g. with bungee-jumping - but lifting heavy weight again.

As it is a fact that the working class – as known during industrial times throughout Europe – has vanished and moved to low-wage countries, it is not the project’s attempt to reverse this paradigm shift from industrial to service-orientated society. Instead, it has to be seen as a reminder of the importance and influence that the working class once had for Gothenburg. It is set up to honour what those dockworkers did and still do somewhere else, somewhere out of sight for our society. The crane - as a symbol of something lost - acts as an object of transportation for this idea. In its golden times it was a symbol of economic security. By transforming it into housing it acts again as something providing security in the form of providing shelter. Both housing and economic safety are basic needs every human being needs to be granted.

As the costs for a plug-in housing unit are amazingly cheap, my clientele will not only be found amongst people with a strong intellectual background and high income that makes them open for experimental housing projects but can be found on a much larger scale among different social classes, as income does not play a decisive role.

Contrary to the way the City of Gothenburg deals with the symbolism of the past, I am not selling an attraction. Up to a certain extent I am attracting the same clientele – well-educated middle class - but with a different offer, namely that of serving a basic need – housing – and not that of amusement and festivalization.

“Trygghet” – Swedish for safety and security (in an economic way) – was what the 1980s dockworkers were longing for. “Trygghet” in the sense of a good, safe home - “Geborgenheit” - is what I am offering.





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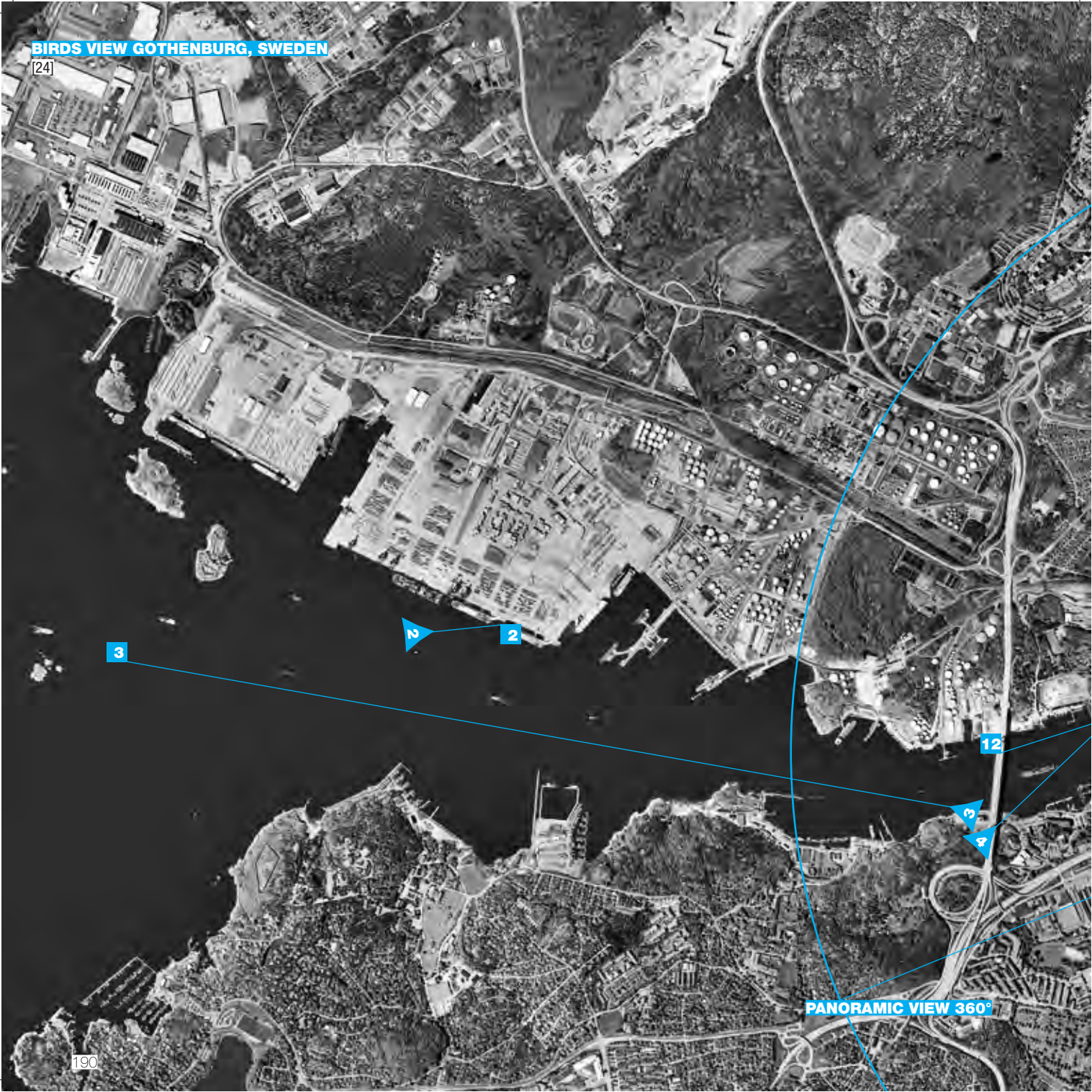
Thanks to Gesa Witthöft, Will Alsop, Britta Söderqvist, Kamyar Tavoussi, Heinz Priebnig and Simon Pranter for their valuable advice.  
Thanks to Jürgen Friesinger [[www.boicut.com](http://www.boicut.com)] for additional artwork on P175.



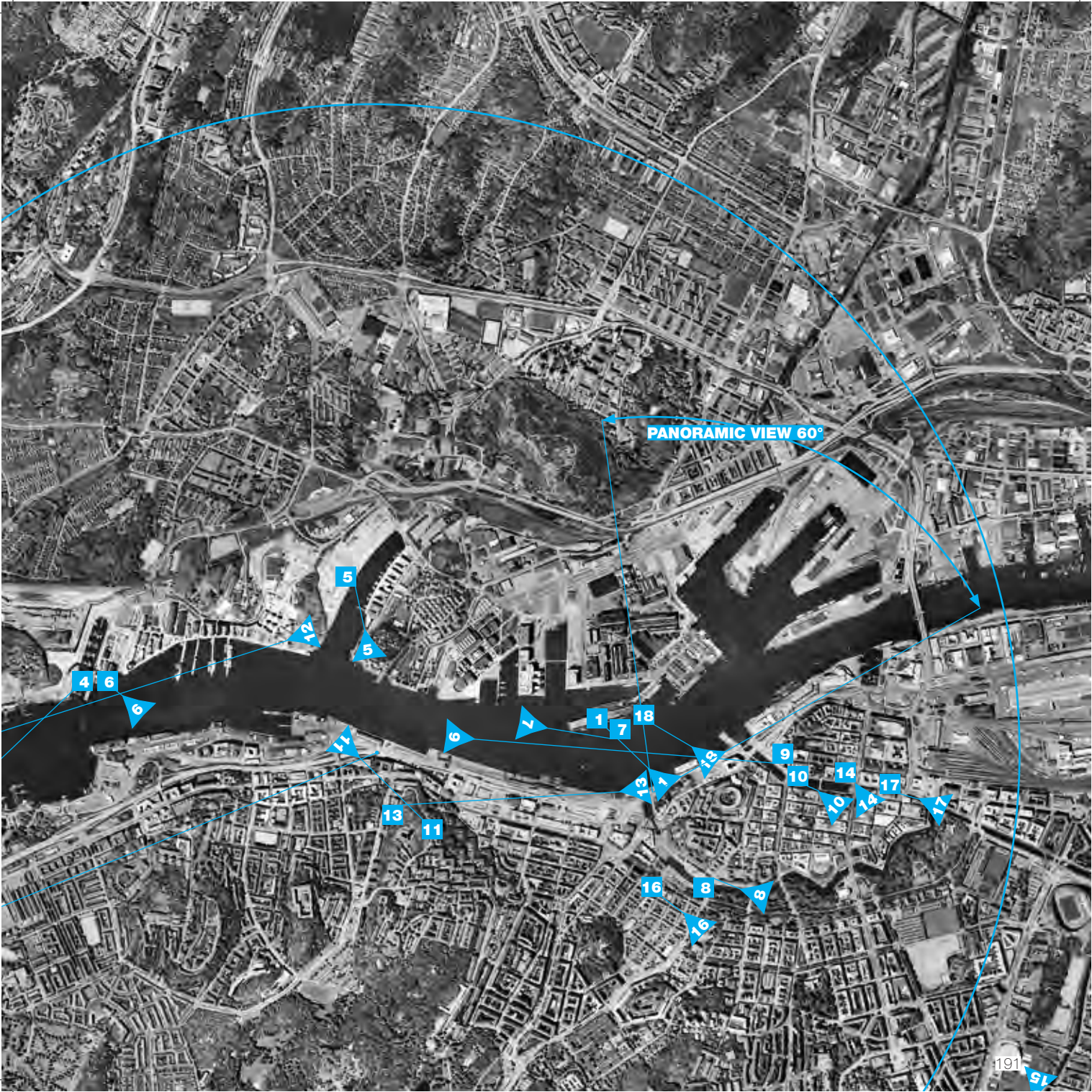
## 6 APPENDIX

**BIRDS VIEW GOTHENBURG, SWEDEN**

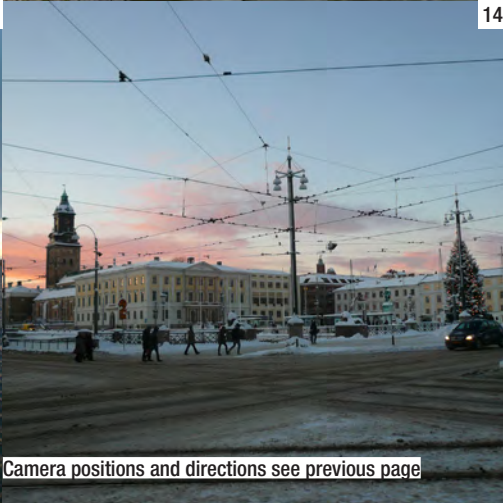
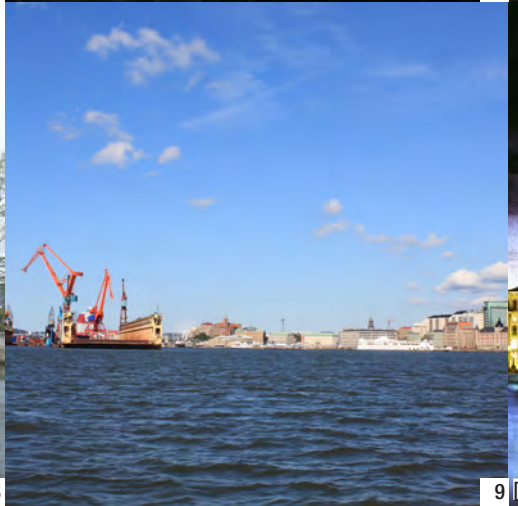
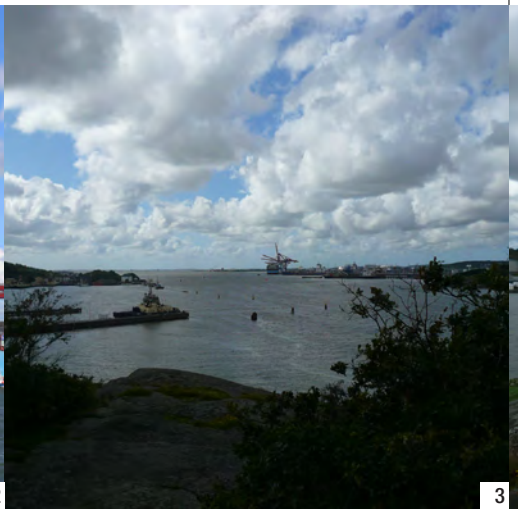
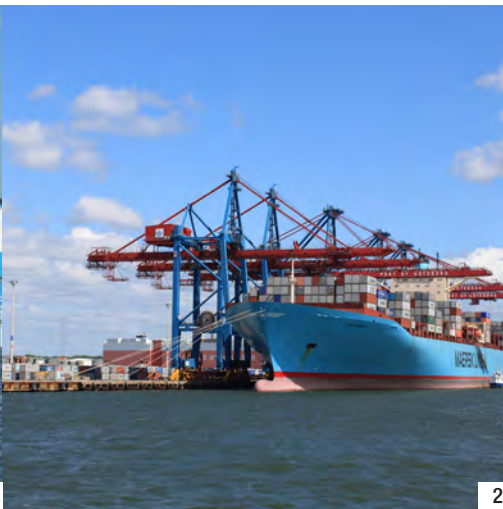
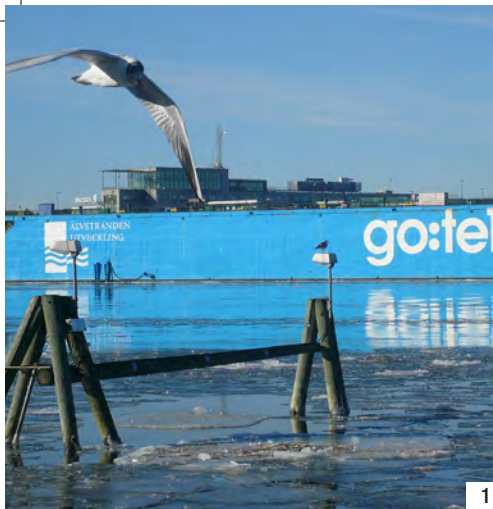
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**PANORAMIC VIEW 360°**



PANORAMIC VIEW 60°







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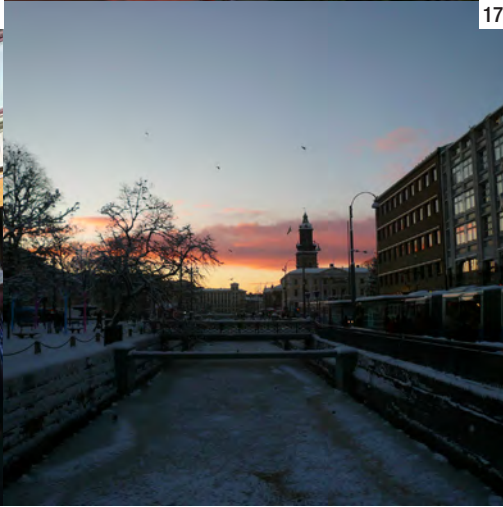


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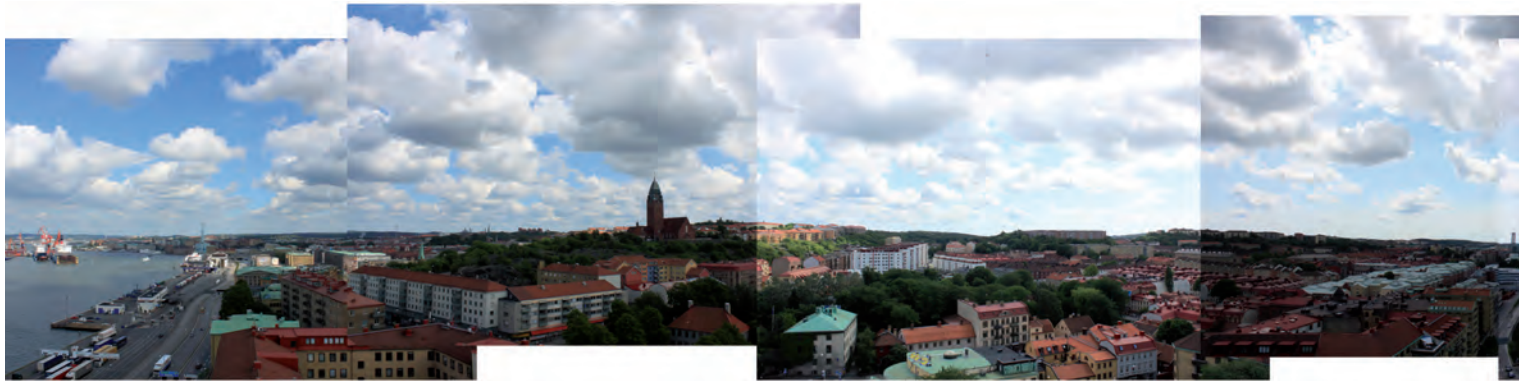
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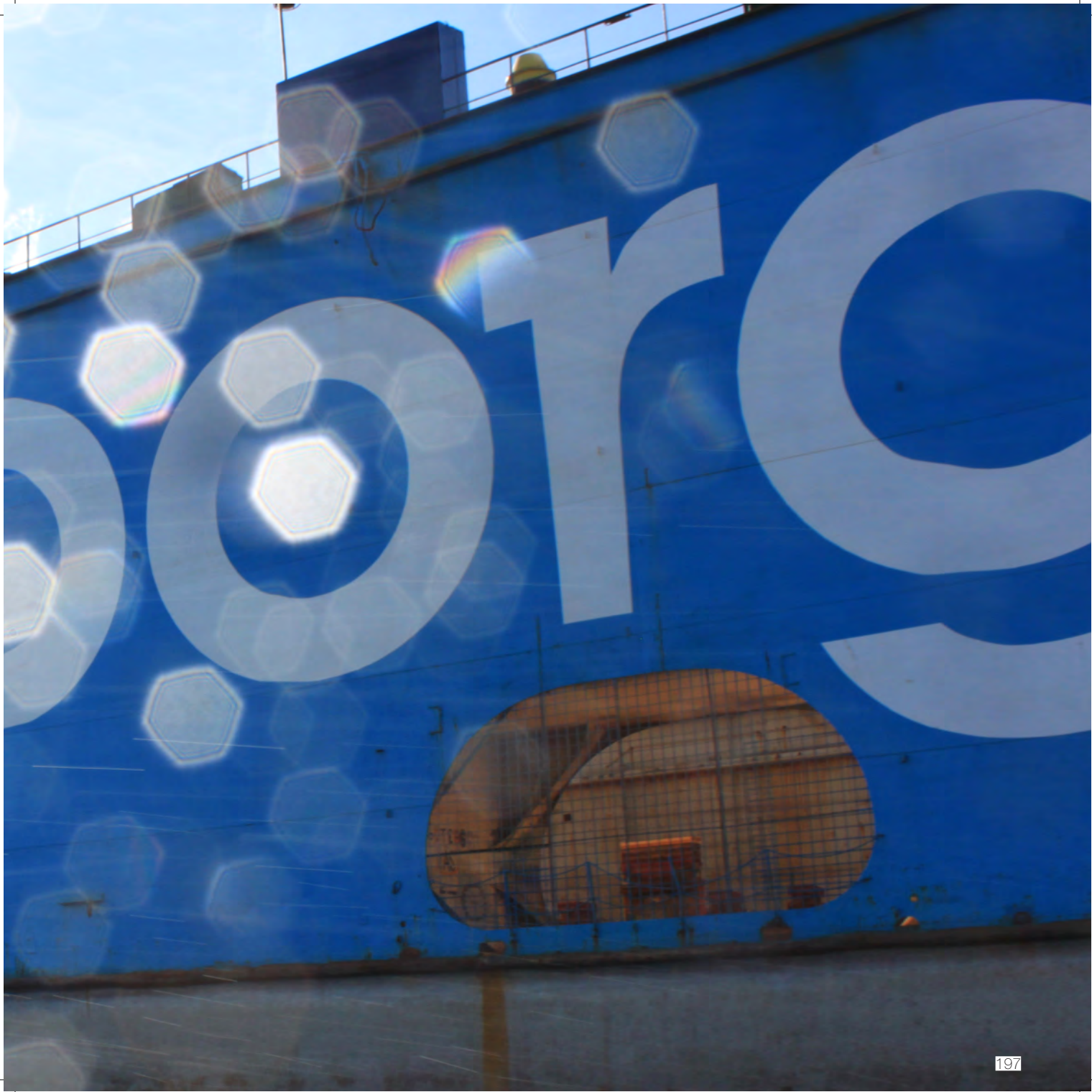
Panoramic view 60°, Rosenlund, autumn 2010



Panoramic view 360°, Masthugget, summer 2011









## Epilogue

GOT, room 401, May 18<sup>th</sup> 2011, 04:26:33 AM

**TACK**



