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# UTSTÄLLNINGEN

# / VISIONARY CITIES / / FUTURE HEMFOSA /

Regeringen har pekat ut nio platser för smarta hållbara städer och stadsdelar där 100 000 nya bostäder ska byggas. Hur kan man skapa attraktiva stadsmiljöer som bidrar till välbefinnande, är inkluderande, möter bostadsbristen och bidrar till omställningen för ett fossilfritt Sverige. Dessa är svåra frågor som vi har tagit oss an i en kurs på KTH Arkitekturskolan under hösten 2017.

Med utgångspunkt i regeringens beslut arbetade 25 studenter i Masterstudio 4 med frågan hur nuvarande landsbygd i Hemfosa, Haninge kommun, kan förvandlas till stad. I fem projektgrupper har utforskat mekanismer och drivkrafter för att ett samhälle ska växa. Hur kan det bli attraktivt för unga människor att flytta just till Hemfosa? Kan ny teknik, digitalisering och elektrifiering bidra till nya hållbara beteendemönster och till att människor med olika ekonomiska förutsättningar kan bo tillsammans? Vad krävs för att en ny framtidsinriktad lokal industri och tillverkning ska skapa sysselsättning? Vilka är utmaningarna och möjligheterna för unga människor att komma in på bostadsmarknaden?

Kommer alla vilja jobba heltid i framtiden eller ger nya medborgardrivna initiativ helt andra livsstilar? Vilka nya roller och ansvar kan isåfall utvecklas mellan invånare, lokala och samhälleliga aktörer?

Det är inte utan stolthet som vi nu redovisar resultatet av höstens arbete i form av en utställning. Fem visionära framtidsvisioner och förslag visar hur livskraftiga och hållbara stadsmiljöer kan skapas i just Hemfosa. För oss lärare har det varit oerhört roligt att följa projektens utveckling under hösten, inte minst eftersom studenterna i Masterstudio 4 kommer från världens alla hörn och har olika utbildningsbakgrund inom arkitektur, erfarenheter som har lett till mycket fruktbara och kritiska diskussioner om vad som kan leda till bra städer – och för vem? Resultaten är städer som utvecklats i olika takt och med olika drivkrafter, med integration och cirkulär ekonomi i åtanke, med hus byggda i trä och andra resurssnåla material och med andra huvudsakliga färdmedel än bil. Det ingick även att rita en högre flervåningsbyggnad i trä, eftersom vi som arkitekter är intresserade av att utforska de möjligheter som nya tillverkningsprocesser just nu skapar för hållbar stadsutveckling.

För genomförande av kursen har vi mottagit mycket värdefulla bidrag från branschen och utställningen har kunnat genomföras tack vara ett nära samarbete med ABC-staden 2.0, ett stadsutvecklingskoncept för smarta hållbara städer som drivs i samarbete mellan WSP, Skanska, MTR och Scania (www.activitybasedcity.se). Studenterna fick i tidigt skede tillgång till skisser som arkitekterna Thomas Sandell och Gert Wingårdhs framtagit på uppdrag av ABC-staden 2.0. Vi är mycket tacksamma för det samarbete som inletts med ABC 2.0 i och med denna kurs.

Under hösten har även några andra arkitekter bidragit med föreläsningar, studiebesök och ställt upp som gästkritiker. Vi riktar därför ett stort tack till Lars Johansson,AIX; Robert Schmitz, White; Anna Pang, Pang Arkitekter, Suzanne Maverley, DinellJohansson; och Marcus Mikkola, Haahtela.

Sex studenter i gruppen Back to the Future har ansvarat för utställningsproduktion och för framtagande av föreliggande utställningskatalog: Therese Antman, Carolin Frögren, Leif Lindell, Han Xue, Peter Högås och Eric Norin.

Välkomna till utställningen!

Charlie Gullström & Ori Merom, Ansvariga studiolärare, Masterstudio 4, KTH Arkitekturskolan Architecture for Extreme Environments & Wood for Good

#### THE EXHIBITION

## / VISIONARY CITIES / / FUTURE HEMFOSA / WOODEN HIGHRISE & FUTURE CITIES

The Swedish government recently decided that nine new towns should be built around the country - smart, sustainable and with affordable housing. This gave a point of departure for a design course in Master Studio 4 at KTH School of Architecture in the autumn 2017. The studio is led by Charlie Gullström and Ori Merom who together with 25 students have engaged in exploratory design processes on the topic of how a new town could develop in Hemfosa, a remote area in Haninge municipality.

Given the reformulated conditions at both urban and building scale that follow from digitalisation, electrification, innovative energy systems, wood production processes and other new technologies, architects today seek new approaches to design and urban development.Based on this, each of the five groups developed an urban strategy through which they believe Hemfosa has potential to develop into a town or even a large city over the coming decades. These five visionary urban visions are presented in this catalogue that accompanies an exhibition that will travel between different venues in Stockholm throughout 2018. The exhibition has been produced with contributions from Activity-based City 2.0, an urban development concept developed by Skanska, WSP, Scania and MTR. For information about the exhibition venues and seminars about smart sustainable cities, see www.activitybasedcity.se.

Six students from the group Back to the Future have curated the exhibition and produced its catalogue: Therese Antman, Carolin Frögren, Leif Lindell, Han Xue, Peter Högås and Eric Norin

#### **HEMFOSA**



Hemfosa is a small town with about 100 inhabitants in the southern part of the Västerhaninge parish in Haninge municipality, Stockholm. A commuter train station is located in Hemfosa. On the east side of the railway there are mostly smaller villas or cottages in a quite hilly area. On the west side of the railway we have Hemfosa Gård with stables, meadows and running tracks for horses. There are also some villas and a valley with about 60 small holiday cottages.

Approximately one kilometer west of Hemfosa lays Transjön, which is crossed by Sörmlandsleden's branch towards Nynäshamn. There are a lot of wetlands in the area and we have waterways going true on both sides of the railway.



#### **HEMFOSA**



Therese Antman, Carolin Frögren, Peter Högås, Han Xue, Leif Lindell & Eric Norin

![](_page_9_Figure_2.jpeg)

#### STRATEGY - HOW THE CITY WILL GROW

#### DENSITY DEVELOPMENT

![](_page_10_Figure_3.jpeg)

We have an idea on how to shape an expansion process that over time densifies the city. Our pragmatic vision is that the lot at the start can be built with low buildings but that our lot rules promotes higher houses over time. We propose a smaller lot to make it possible to build all from smaller villas to buildings up to 12 floors. This strategy makes it possible to include the low buildings typologies that already are on the site today and at the same time be able to meet the demands for a growing city on the same footprint.

We will sell the lots in different phases starting with the area closest to the station. Every stage will then in it self be expanded in height until it reaches a maximum of 12 floors. The general exploitation strategy is quite liberal and based on the market. The land that is not owned by the municipality but they is part of important planning of the area. Some part of the city will be built of the municipality and they will promote density and height. The municipality will mostly build public buildings, common services, and rental housing (Not less then 25% of the lot use in the city must go to rental housing). LOTS

![](_page_10_Figure_8.jpeg)

Our basic lot size is 14 x 26 m with a build-able area of 14x20 m. The 6 meters that is not build-able will be at the opposite of the street and be part of the courtyard on the backside. This non-build-able area together with the maximum height of 12 m is to maintain generous daylight and a "friendly" building height. The long side of the lot will, if you build on the maximum width of the lot, not give any light because it will adjoin the next building.

In a general block 12 lots will be included, it will be shaped like 6+6 lots in two rows with the garden sides facing each other. In the middle between the gardens is a common strip of land 2m to provide a walking path between. The long shaped block has been given a form that can be used to create direction in blocks and in streets. The open side of the block together with the non-build-able courtyard will provide air and light qualities to the inner facades. The inner courtyard is also the closest greenery access to the citizens and the greenery is also part of the surface that takes care of storm water.

All buildings will be made of wood witch will have many good climate sustainability qualities. A sawmill industry that is placed nearby the city will make CLT building- parts witch will supply for the city building. The waste product from the sawmill will be used as fuel in the nearby small heating plant. The buildings will be constructed so that they can be easily mounted apart and moved.

![](_page_11_Figure_1.jpeg)

GROUNDFLOOR

![](_page_11_Figure_3.jpeg)

![](_page_11_Figure_4.jpeg)

![](_page_11_Figure_5.jpeg)

FLOORPLAN 2-4

![](_page_11_Picture_7.jpeg)

FLOORPLAN 5-11

![](_page_11_Figure_9.jpeg)

ROOFPLAN

![](_page_11_Figure_11.jpeg)

![](_page_12_Figure_1.jpeg)

Arthur Edman, Matilda Lundmark, Malin Lyden & Qi Zhen

![](_page_13_Picture_2.jpeg)

The year is 2117. It's been a few weeks since I got off the station and first lay my eyes on this remarkable city. I'm here to do some research for my new book, "The curious case of Hemfosa" and I was so excited to finally see it with my own eyes. You see, Hemfosa has become a really interesting place, and people want to know more about it. Between 2017 and 2067 a large population growth took place in this small community outside Stockholm. I wondered why, and I started to ask around. Some said it's because of strange things that started happening in the forest. Weird noises, unnatural light, and it was that story about the guy who disappeared on the hiking trail. Others say that's just rumors, and argue that urbanization, the new industries, and the attraction towards nature and an ecological life is what brought people to Hemfosa.

Either way, people started marketing Hemfosa as something different than the old urban city. Hotels started popping up to accommodate rush seekers and workers, and soon enough people started to settle down. After a while, the first city plan was established. Studies at that time, showed that "Human activity has had an impact on over 83 % of the land of the planet". Roads, infrastructure, buildings, agricultural fields were - with other words - taking over the planet. And they knew that the urban societies would keep growing. So, they drew the conclusion that the future city of Hemfosa would have to grow - **vertically** - To use the land that they got wisely.

Furthermore, studies showed that 27 percent of the global land was used for agricultural production which, besides taking up a hugh space, also demanded a massive amount of water, led to greenhouse emissions and so on. In conclusion - they thought - Let's get rid of the pastureland and instead use ecological, vertical and vegetarian farming. They also wanted to create a self-sufficient city - that would produce its own food, its own sustainable energy and, by this create lots of jobs and give Hemfosa an urban identity.

First cityplan established in 2017. Main street network would coexist with the old.

> LAYER 2 More connections between the chickers of high rises were made as they kept building vertically.

> > - NOSTALGIA

201

LAYER 3

MYSTERY FOREST

> A more organic design of the living units was created in 2002 when the thirdu city plan was established.

![](_page_15_Picture_1.jpeg)

![](_page_16_Figure_1.jpeg)

#### INVISIBLE HEMFOSA Liu Ziyu, Victor Lindén, Philip Junaeus & Rocco Pacini

New urban areas developing and densification of existing cities is a future we will see globally. Sweden's urban population is also growing and currently unable to meet the immediate de mand for housing. Projections by Boverket in Sweden estimate that 700 000 dwellings need to be produced by 2025, meaning a yearly rate of prodution at around 90 000 units.

Meeting the demand for new sustainable and resilient urban environments while keeping up with the population growth will be a one of the main challenges for the coming years and a key agenda in the coming election. Being at the forefront of the "Information Society", Sweden is undergoing a transformative stage, witnessing an explosion of connections, data exchange, and innovations enriching many aspects of society. Billions of people are accessing social and digital communities connecting to friends, relatives and service providers, share insights, and engage in commerce.

It is time we rethought the analogue approach that has so far been norm in architecture, dic tating the framework for how buildings are assembled, cities are planned and lives are lived. Shouldn't social media and other digital platforms inform the way we come together, build and experience life?

In Sweden: 90% uses internet 81 % has a smart phone 55% of 8 year olds have a smart phone 75% uses social media Internet is the main source of information.

Why not use information as a collaborative method of creating new built environments? 63% of people in Stockholm feel they have little to no influence in city planning. We see the public not only as users, but as a powerful resource of data, where their interactions and patterns of use, shape our digital environments and allow physical space to take form. Through the interface of their smartphones, citizens are given the opportunity to actively partake and engage in the de cision-making process that involve their communities. We envision that collaboration through digital means will lead to a more democratic and interconnected society, reducing top-down urbanisation.

Our pioneer project will be set in Hemfosa, today a small village comprised of mostly cottag es and farmland, tomorrow a thriving urban hub of 28 000 people. Situated in a rural context amongst large areas of forest, yet only 48 minutes from Stockholm by train, the site demon strates ideal conditions from which to establish a new paradigm in urban development.

#### **INVISIBLE HEMFOSA**

![](_page_18_Picture_1.jpeg)

1. Street network introduced around train station

![](_page_18_Picture_3.jpeg)

2. Public functions defined by grid

![](_page_18_Picture_5.jpeg)

3. Public transport links and stops introduced and grouping of functions

![](_page_18_Picture_7.jpeg)

4. Buildings start to define block characters

#### **INVISIBLE HEMFOSA**

![](_page_19_Picture_1.jpeg)

#### **INVISIBLE HEMFOSA**

![](_page_20_Picture_1.jpeg)

#### MEGAFOSA Marcus Göhle, Ziyu Lei, Teodor Nilson & Zuza Skwarlo

80

NDA

0 0 0

![](_page_21_Figure_1.jpeg)

#### **MEGAFOSA**

![](_page_22_Picture_1.jpeg)

#### **MEGAFOSA**

#### FROM LOW TO HIGH

With a general structure a building can be adopted for different uses according to changing needs over time.

![](_page_23_Picture_3.jpeg)

![](_page_23_Picture_4.jpeg)

First stage Glulam + CLT structure Green roof collecting water 4 stories Second stage Glulam + CLT structure Office adaptations, common floor for residents 7 stories

Residential addition with volumetric CLT modules 19 stories

Our highrise concept for Hemfosa is based on an orthagonal glulam structure braced by CLT walls forming a cross to handle transverse forces. This leaves the facade free and the walls and CLT floor slabs can be modified by cutting openings and holes. More floors can be added thanks to the dimensioning of the structure and the lightness of timber. When the population of Hemfosa starts increasing rapidly, homes can be quickly assembled by using pre-fabricated volumetric timber elements, which can be fully furnished at the factory and delivered on-site to be slotted into the structure. This kind of parallell building process accelerates construction time and can be a powerful way to counter the ongoing housing crisis. The green roof is designed collect and slow down rainwater which is then drained into an underground purification system to be used for household needs or irrigation.

![](_page_24_Picture_0.jpeg)

![](_page_24_Picture_1.jpeg)

## BRIDGING HEMFOSA Anna Eriksson, Sarah Själander, Elin Stensils & Vasilis Tzoumpas

![](_page_25_Picture_1.jpeg)

## **BRIDGING HEMFOSA**

![](_page_26_Figure_1.jpeg)

#### **BRIDGING HEMFOSA**

![](_page_27_Picture_1.jpeg)

#### **BRIDGING HEMFOSA**

![](_page_28_Picture_1.jpeg)

Katalog till utställning av urbana stadsvisioner framställda av 25 arkitektstudenter i masterstudio 4, 2017 KTH Arkitekturskolan Utställningsproduktion & grafisk form: Therse Antman & Carolin Frögren KTH, Arkitekturskolan

![](_page_31_Picture_1.jpeg)

I samarbete med:

![](_page_31_Picture_3.jpeg)

![](_page_31_Picture_4.jpeg)

![](_page_31_Picture_5.jpeg)