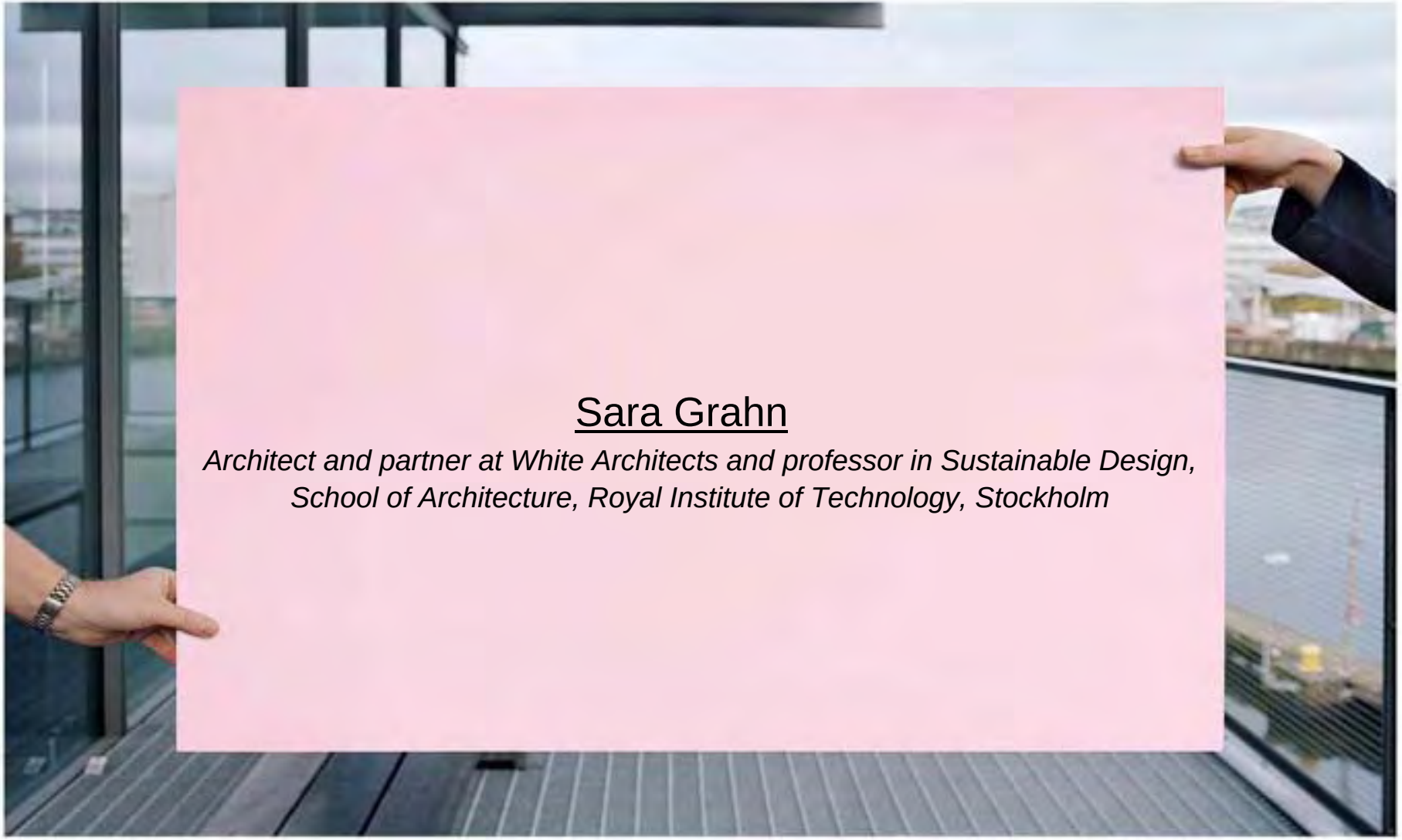


Sara Grahn

Architect and partner at White Architects and professor in Sustainable Design, School of Architecture, Royal Institute of Technology, Stockholm

WHITE

Founded in 1951
10 offices in Sweden and Denmark
500 employees
Owned by ourselves
103 partners
204 shareholders
ISO 9001 and 14001 certified
Turnover 2009: € 49 M

white

white

white


WHITE
We are Scandinavian architects with broad competence and experience. We work only with highly involved specialists. We are the safe partner in every type of project that requires new solutions, including the most complex ones.


ABOUT WHITE
WHITE
We believe good design is more than aesthetics and construction. We even believe that architecture can make significant contributions to a better and sustainable world. Our obsession with excellent form is an important tool for achieving that ambition.
We achieve excellence in our projects by combining competence and experience with a creative and curious mind. Including and involving users and clients in a close and open minded dialogue is necessary to us. Our aim is spaces for human growth, places where people can develop.
white

COMPETENCIES

Architecture
Masterplanning
Landscape architecture
Interior design
Industrial/Product design
Environmental consultancy
Project Management
Lighting Design
Conservation

white

MARKET SECTORS

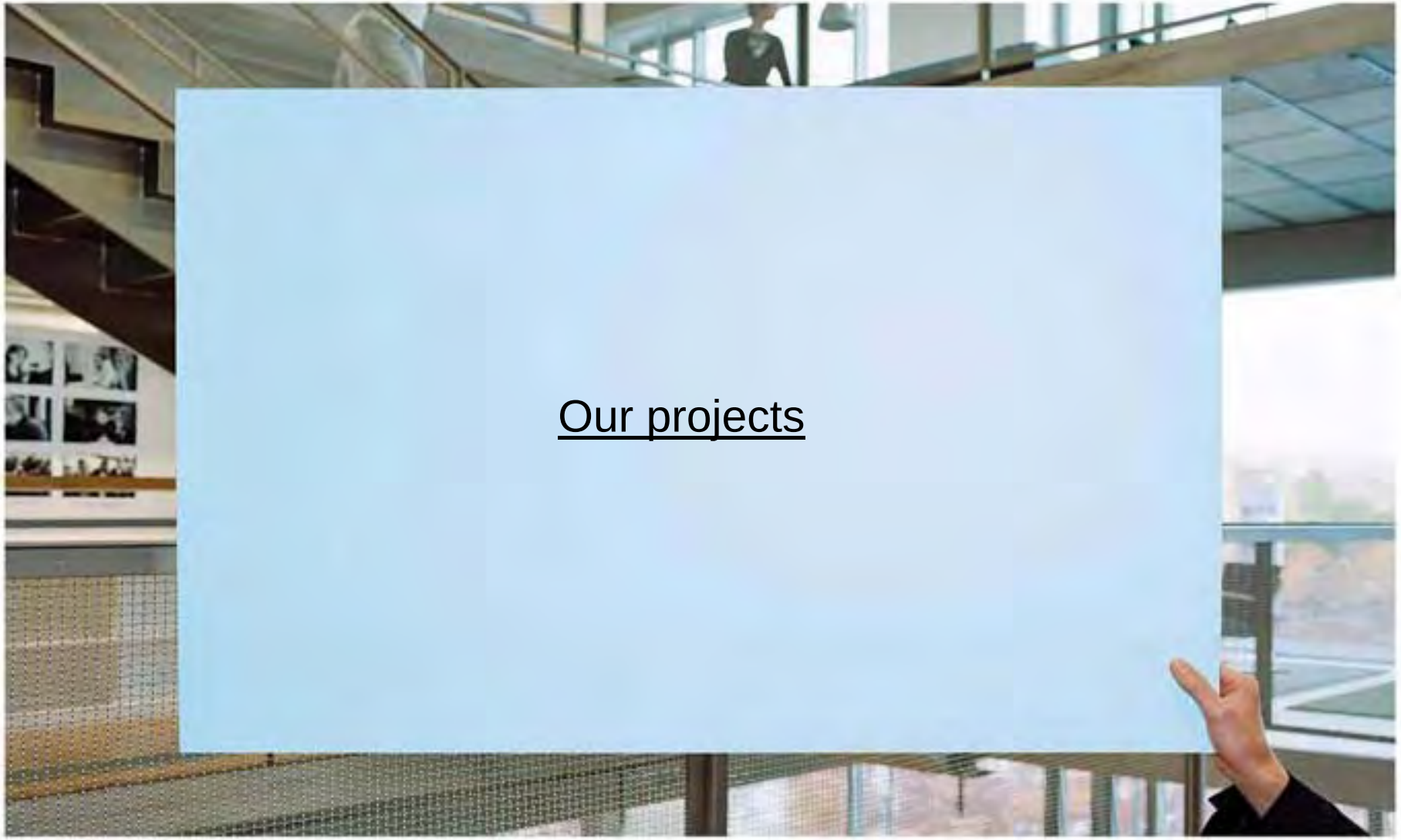
Residential
Education
Healthcare
Culture & Leisure
Civic & Community
Commercial
Infrastructure
Masterplanning

white

SUSTAINABILITY

In-house department for environmental consultancy since 1997
Founding member and chair of Sweden Green Building Council
Certified BREEAM and LEED assessors on staff
Running a database for construction materials
Research and development in several areas of sustainability

white

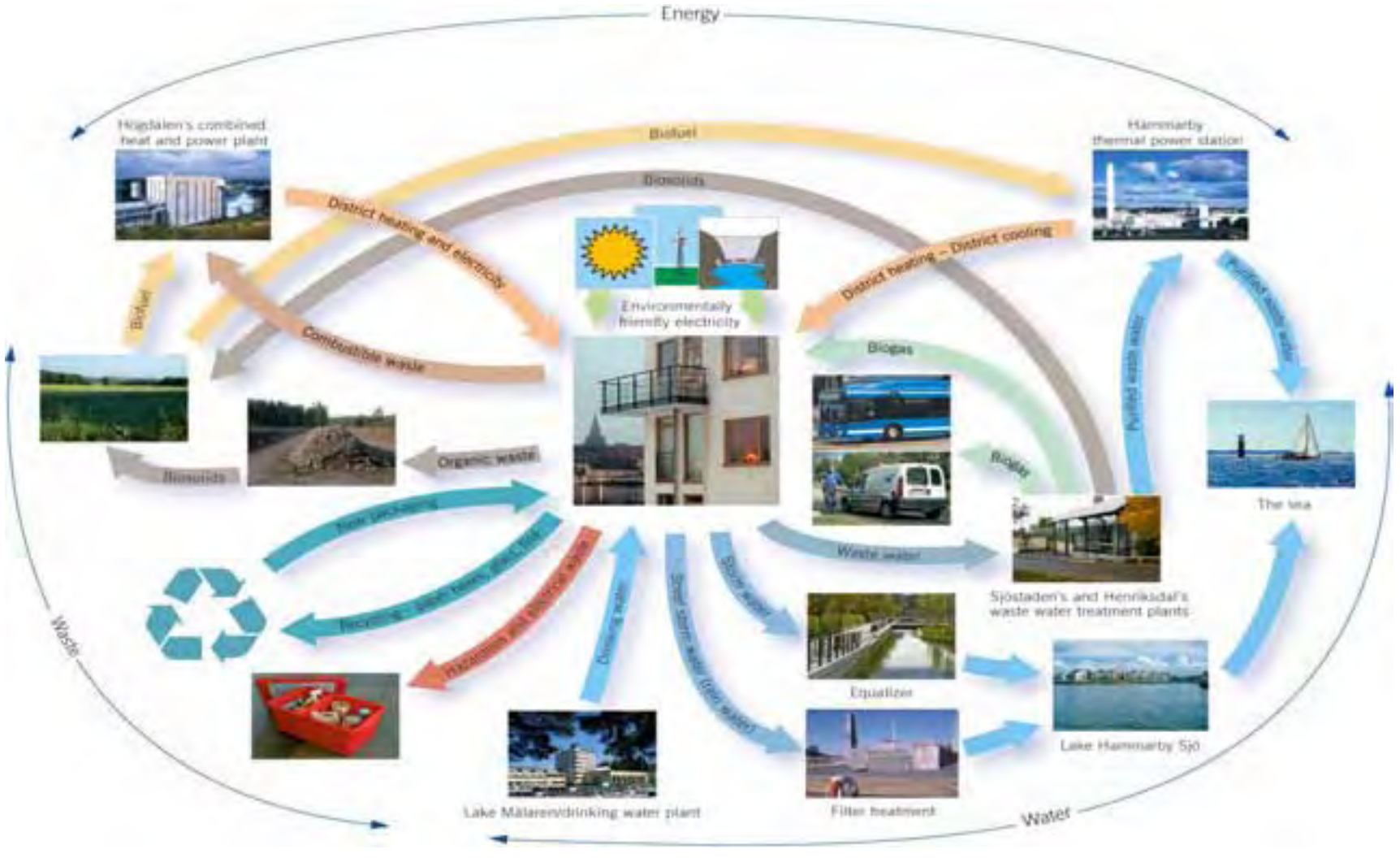

Our projects


HAMMARBY SJÖSTAD
URBAN PLANNING
HAMMARBY SJÖSTAD
STOCKHOLM, SWEDEN
Size: 11,000 apartments / 25,000 inhabitants
Dates: 1989, due 2017
Competencies: Urban Planning, Environmental Management, Landscape
Exemplar sustainable city development. A former brownfield site transformed into one of Stockholm's most popular residential areas. Projects designed by White marked in red.
white

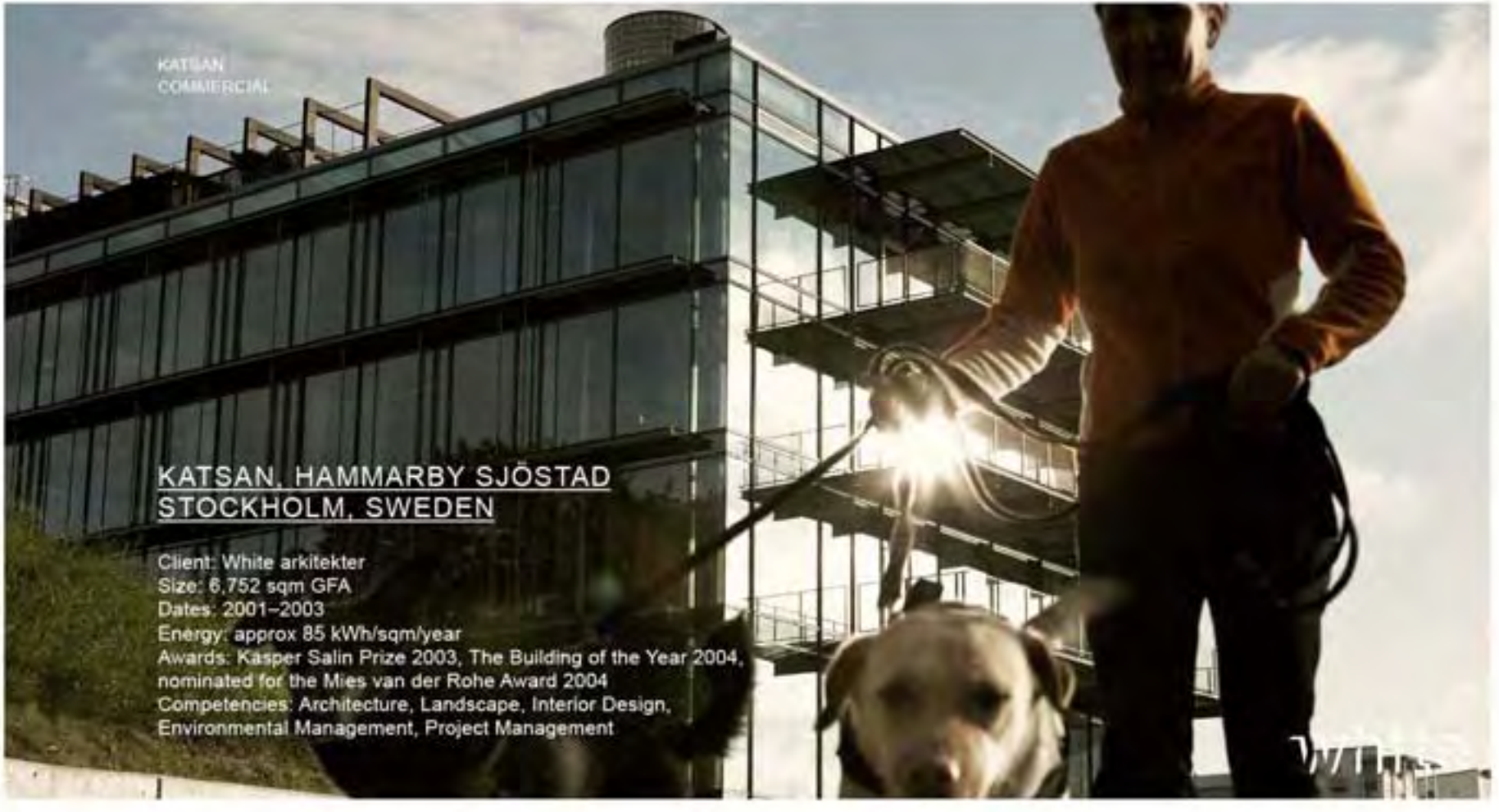

AEG
Husqvarna


HAMMARBY SJÖSTAD
URBAN PLANNING


white


Energy
Högdalen's combined heat and power plant
Biofuel
Biosolids
Hammarby thermal power station
District heating and electricity
District heating – District cooling
Biofuel
Combustible waste
Environmentally friendly electricity
Biogas
Biosolids
Organic waste
Biofuel
Purified waste water
Purified waste water
The sea
Waste water
Sjöstaden's and Henriksdal's waste water treatment plants
Storm water
Cooling water
Storm water (clean water)
Equalizer
Lake Hammarby Sjö
Lake Mälaren/drinking water plant
Filter treatment
Waste
Water


408
SL

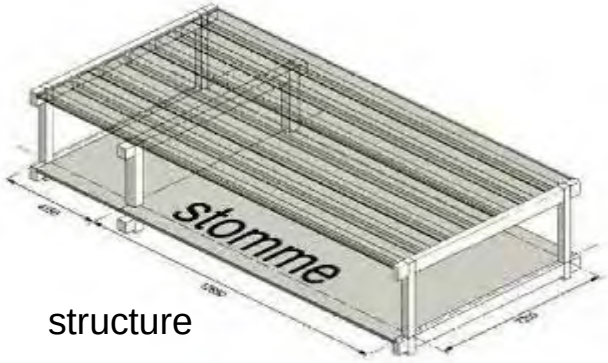


KATSAN, HAMMARBY SJÖSTAD
STOCKHOLM, SWEDEN

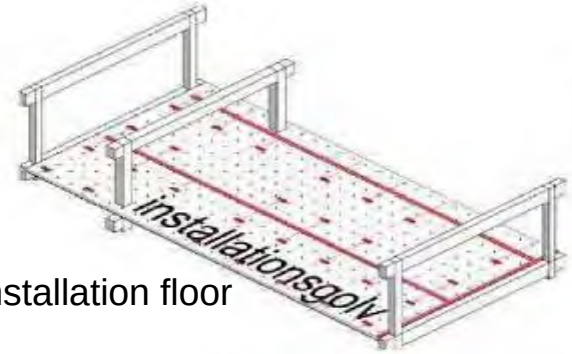
Client: White arkitekter
Size: 6,752 sqm GFA
Dates: 2001–2003
Energy: approx 85 kWh/sqm/year
Awards: Kasper Salin Prize 2003, The Building of the Year 2004, nominated for the Mies van der Rohe Award 2004
Competencies: Architecture, Landscape, Interior Design, Environmental Management, Project Management

White arkitekter's Stockholm office. Award winning energy efficient office building. Developed and designed by White.

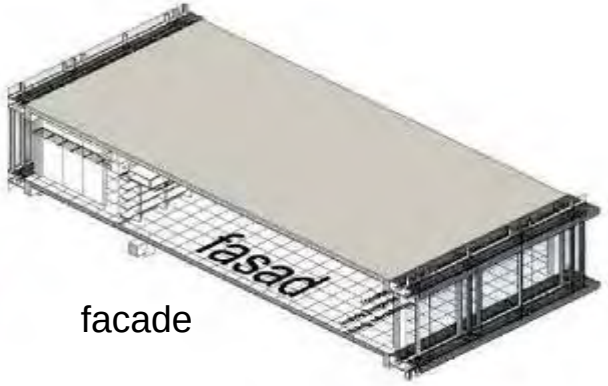
white



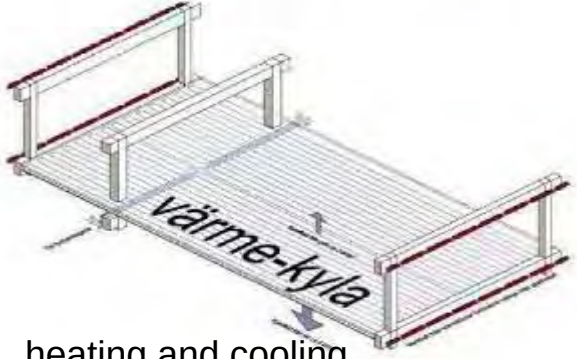
structure



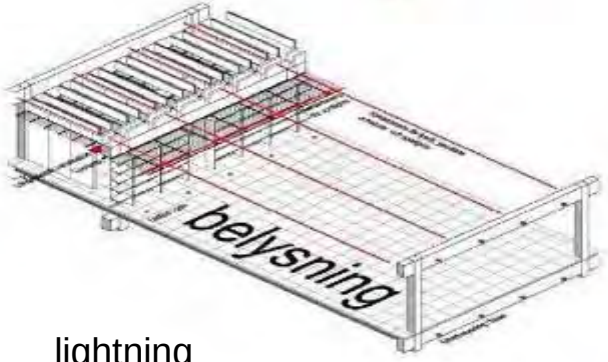
Installation floor



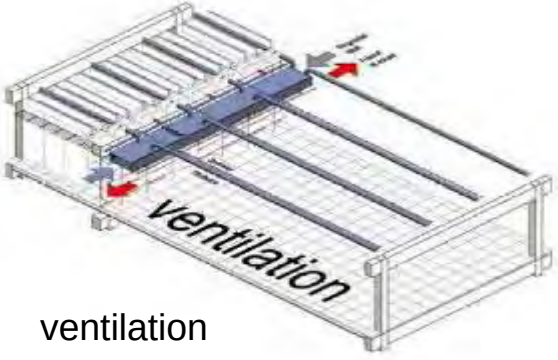
facade



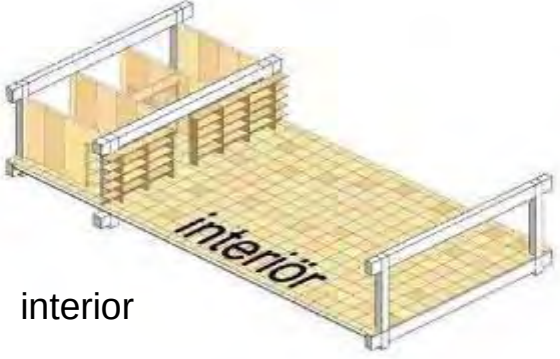
heating and cooling



lightning



ventilation



interior

Katsan

Uppmätt energianvändning i Katsan åren 2006 och 2007 i kWh/kvm (A_{temp}) normalårskorrigerat

Energy for:	**2006**	**2007**
Heating	28	25
Heating of fresh air	29	24
Heating of water	7	9
Ground heat	1	1
Total sum heating energy	**65**	**59**
Property energy (fans and pumps)	**12**	**12**
Total sum energy use, BBR:s definition	**77**	**71**

The first part of the Western Harbour development was built for the 2001 European Home Exhibition, and marked the first stage in the transformation from run-down shipyard and industrial area into a new sustainable city district with local renewable energy. White has designed several buildings within the area.

white


WESTERN HARBOUR
URBAN PLANNING
WESTERN HARBOUR
MALMÖ, SWEDEN
Size: 1,750,000 sqm, 10,000 inhabitants
Dates: 1999, due 2016
white

KOGGENS GRÄND
WESTERN HARBOUR
MALMÖ, SWEDEN

Client: White arkitekter
Size: 3,240 sqm / 28 apartments
Value: € 8.5 M
Dates: 2009, due 2011
Energy: less than 60 kWh/sqm/year
Competencies: Architecture, Landscape, Environmental Management


THE NORTHERN QUAY
URBAN PLANNING
THE NORTHERN QUAY
SUNDSVALL, SWEDEN
Client: Norra Kajen Exploaterings AB
Size: 360,000 sqm GFA
Value: approx € 620 M
Dates: 2008, due 2020
Competencies: Planning, Architecure, Landscape, Environmental Management, Conservation
Competition winning design for a new sustainable exemplar development.
white


THE NORTHERN QUAY
White

NEW KAROLINSKA UNIVERSITY HOSPITAL
HEALTHCARE

NEW KAROLINSKA UNIVERSITY HOSPITAL
STOCKHOLM, SWEDEN

Client: Stockholm County Council
Size: approx 308,000 sqm GFA
Value: approx € 1.4 Bn
Dates: 2005, due 2016
Energy: 80kWh/sqm/year + operational usage
Competencies: Architecture, Landscape, Environmental Management, Project Management

white

White won the international design competition for the New Karolinska Hospital. It is one of the largest hospital projects ever to be undertaken in Scandinavia. The new hospital is part of the vision to make Stockholm the world's foremost medical research centre. Meanwhile a new district is developing around the hospital.


SOLNA
EXP
EXP
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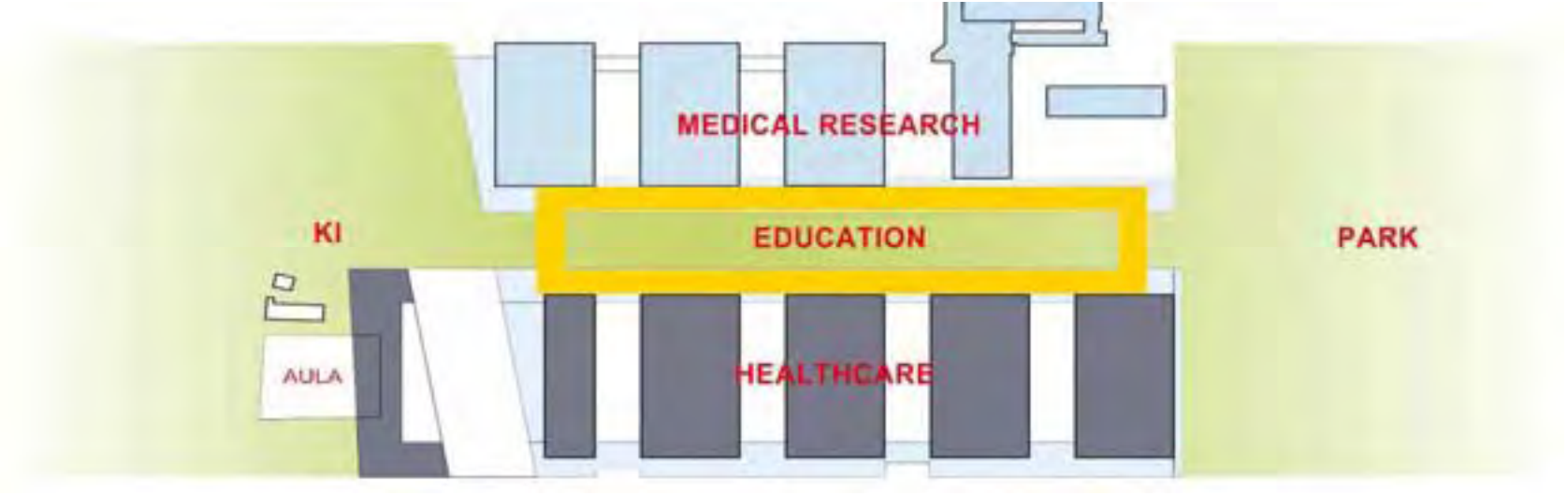
STADSFÖRNYELSEOMRÅDE
NORRA STATION
VASASTAN

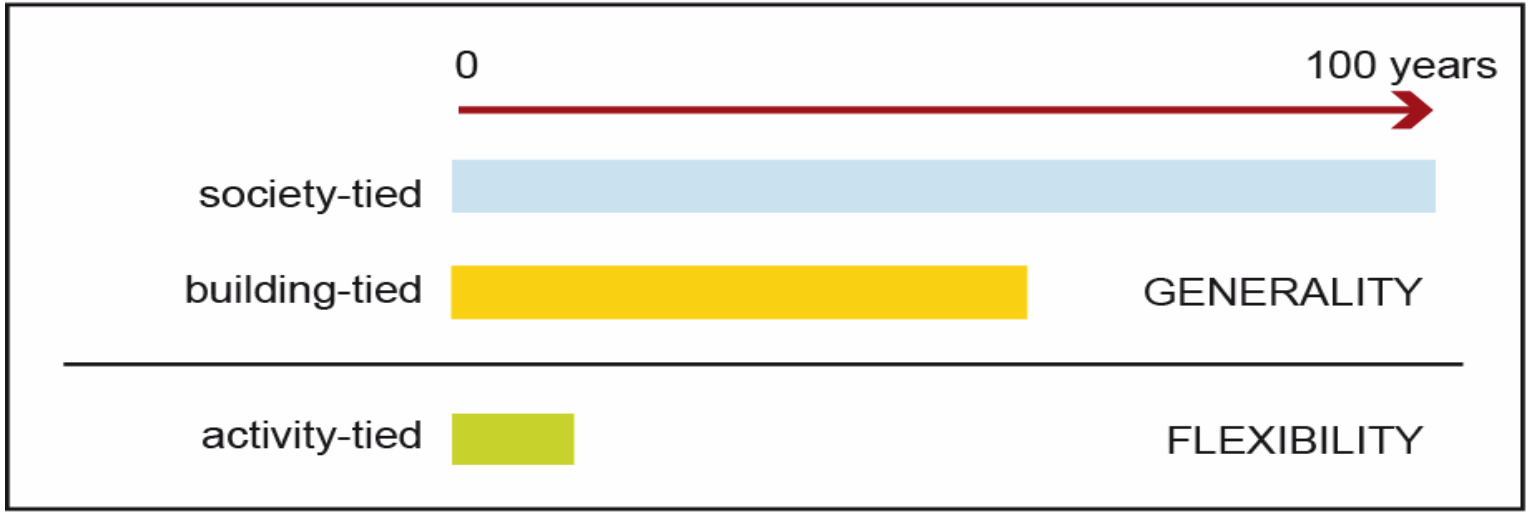

RESEARCH
EDUCATION
THERAPY


MEDICAL RESEARCH
KI
EDUCATION
PARK
AULA
HEALTHCARE

NEW KAROLINSKA SOLNA (NKS)

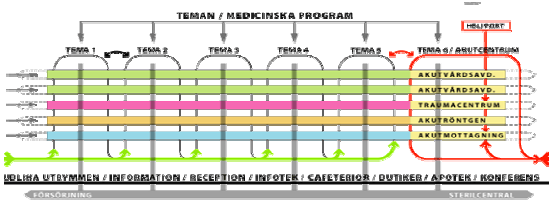
NEW KAROLINSKA SOLNA (NKS)

NEW KAROLINSKA SOLNA (NKS)



Building adjusted to functions

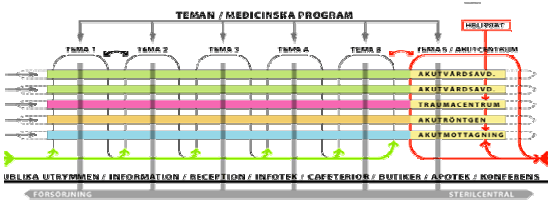
”The built program”

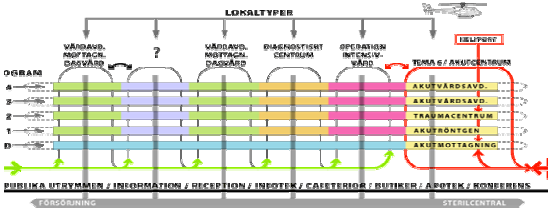


1. Different floorhights
2. Different loadbearing capacity
3. Dimensions of installations adjusted to the activities

General building

” Programatic parameters for generality”





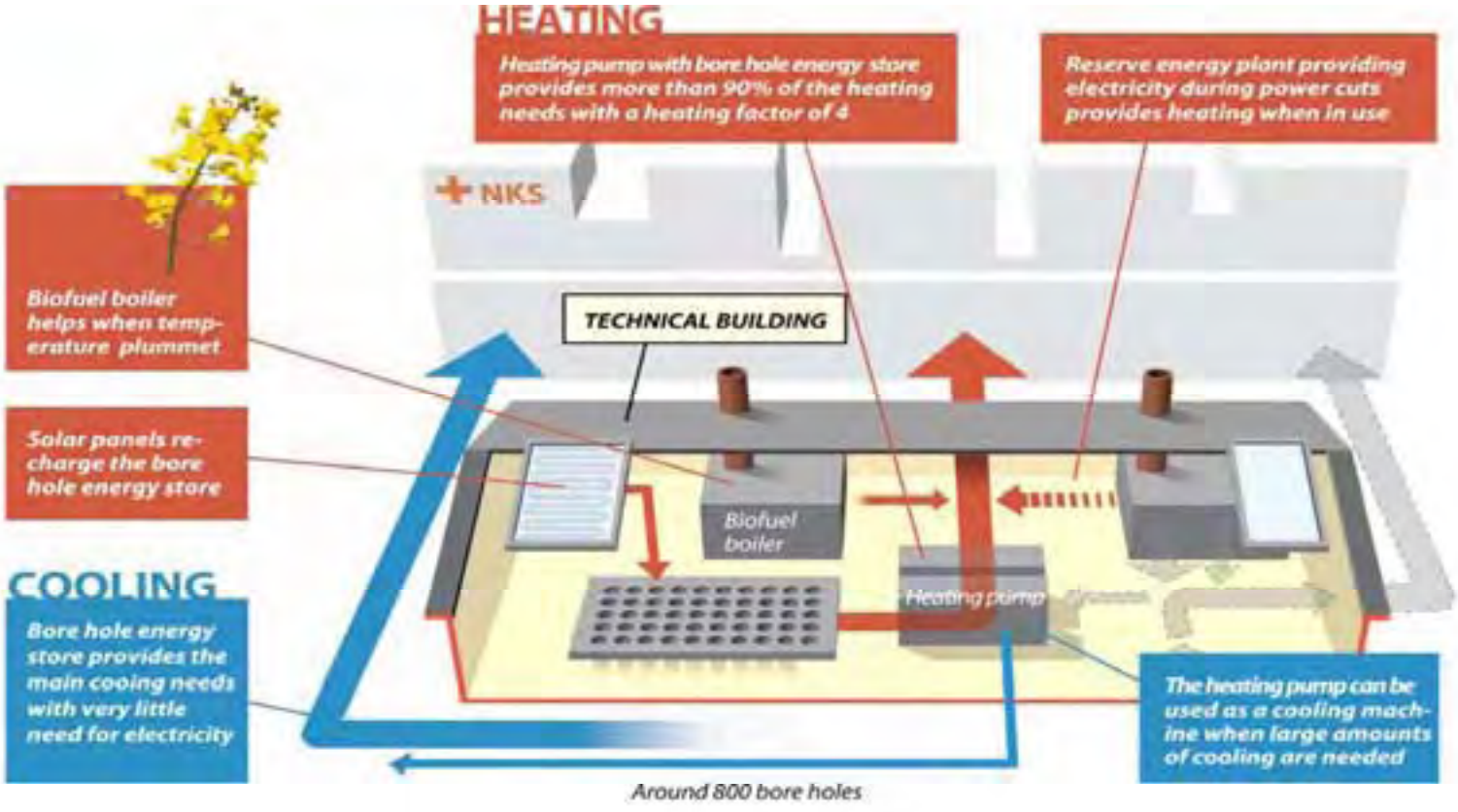
	Costs % Of total bulding costs
1. General floorhights	ca 1%
2. General loadbearing capacity	ca 0,3%
3. General dimensions of installations	ca 1-3%

Costs for generality / less interruption:
ca 2-2,5% of building costs

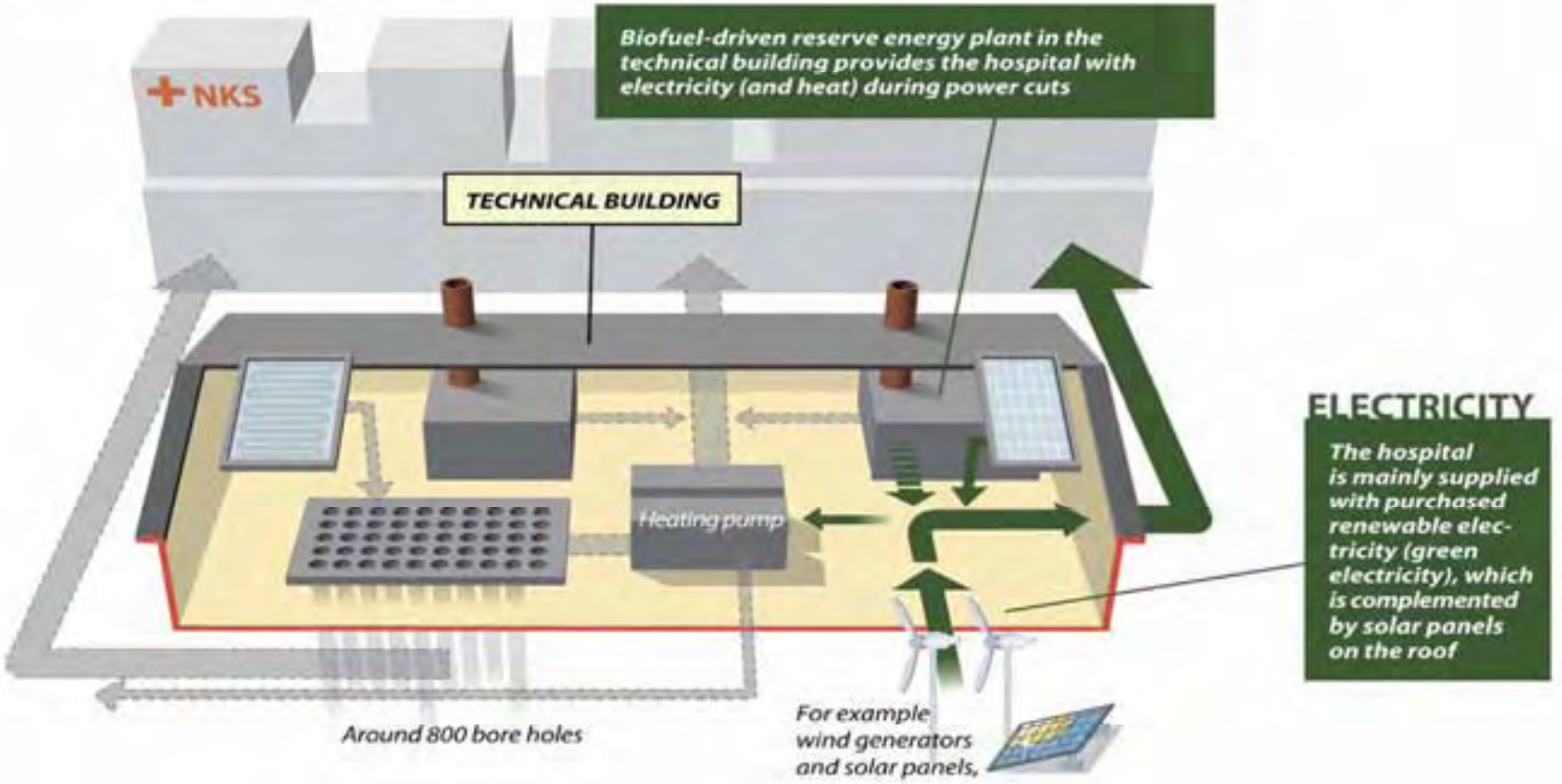
NEW KAROLINSKA SOLNA (NKS)

NEW KAROLINSKA SOLNA (NKS)

Heating and cooling system set-up



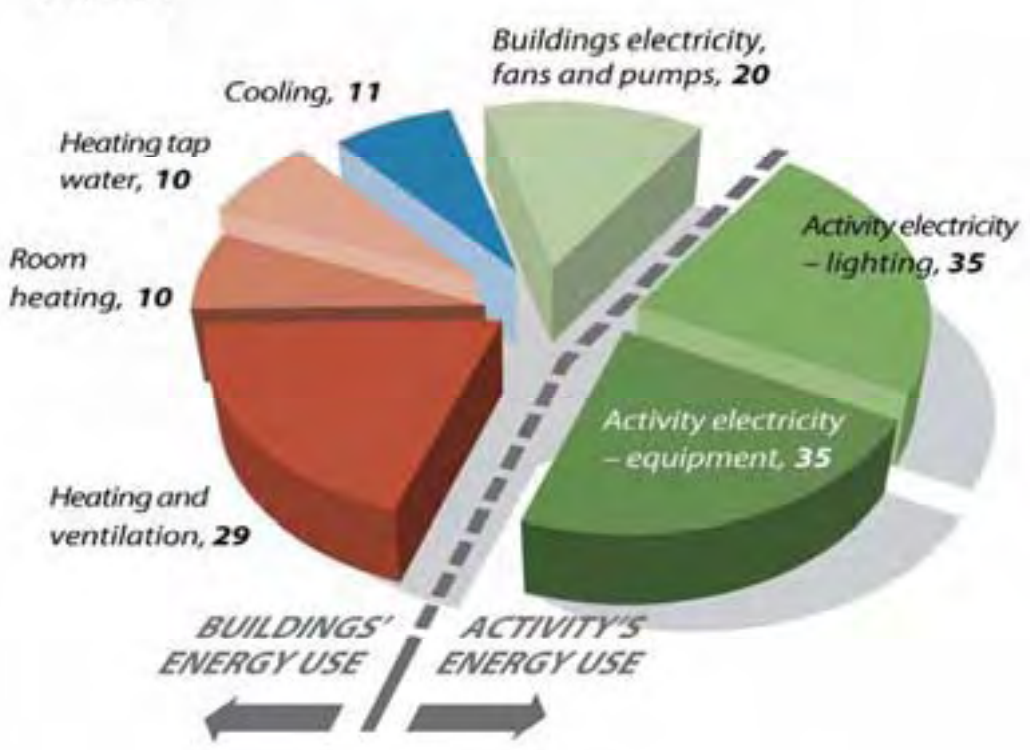
Electrical system set-up



NEW KAROLINSKA SOLNA (NKS)

Total energy use

NKS total energy use 150 kWh/m²
Buildings' energy use (total excluding activity electricity) 80 kWh/m²

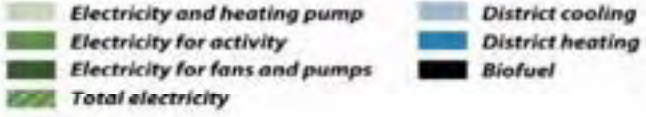


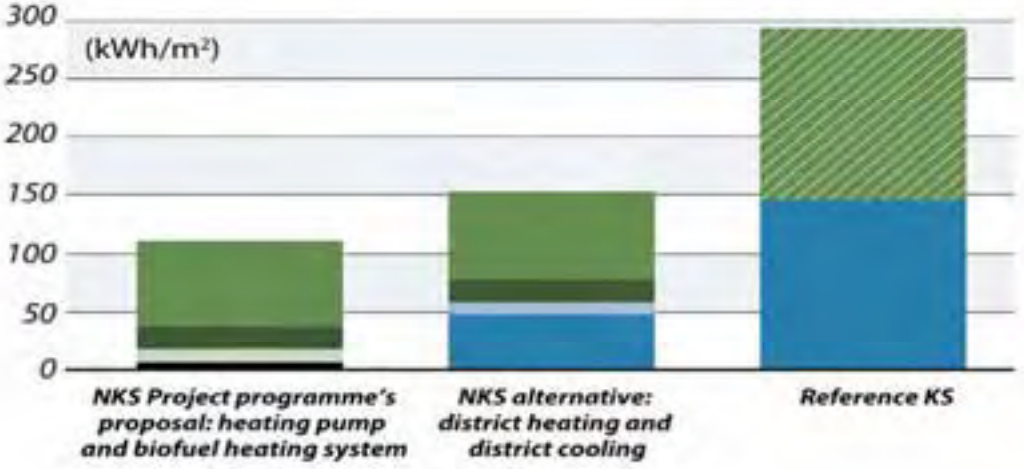
BOUGHT ENERGY

Project programme's proposal

Need of bought energy total 110 kWh/m²

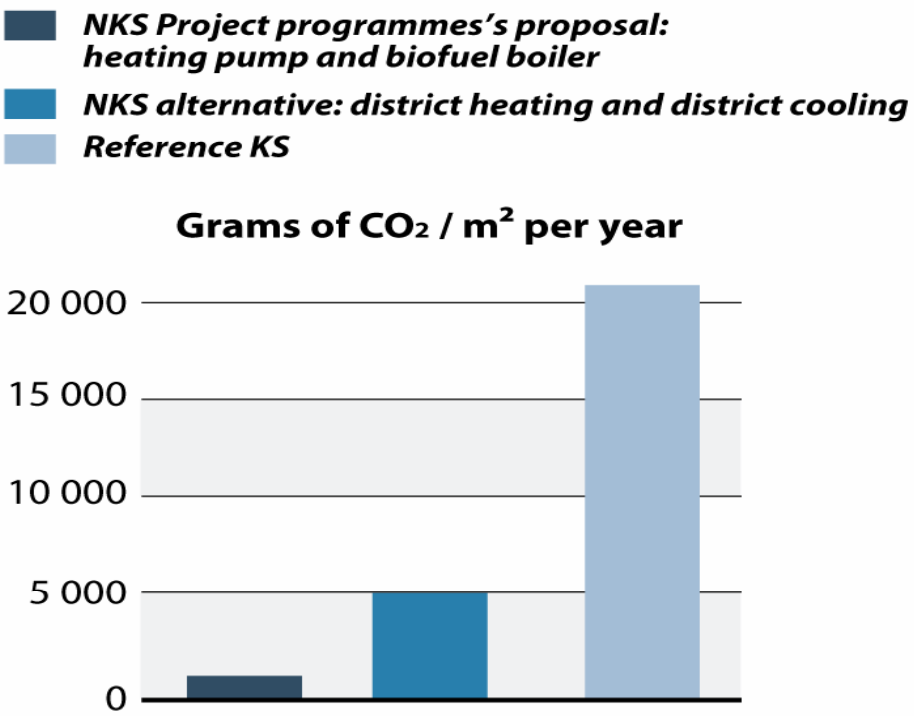
Bought energy total excluding activity electricity 40 kWh/m²





GLOBAL ENVIRONMENTAL IMPACT

- Greenhouse effect



NEW KAROLINSKA SOLNA (NKS)

Inflow

Economising with natural resources

Use of
- Energy
- Materials
- Land
- Water

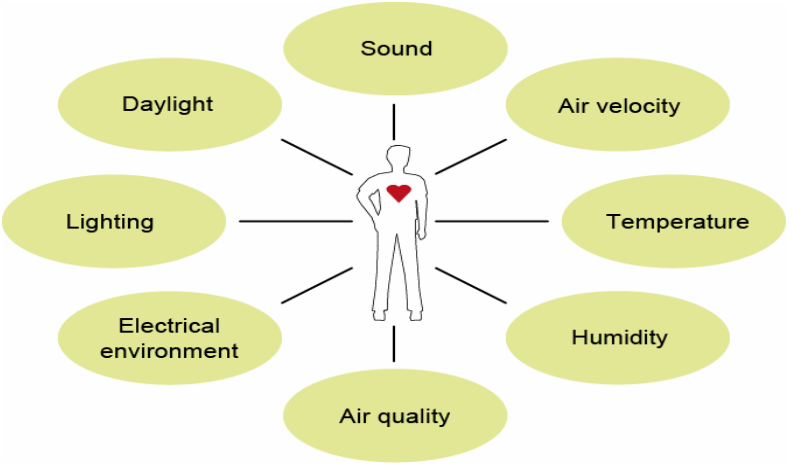
Indoor / outdoor environment

- Thermal climate
- Air quality
- Sound
- Light
- Electrical environment

Outflow

Adapting to the cycle of nature

Emission to:
- Land
- Water
- Air



NEW KAROLINSKA SOLNA (NKS)

The hospital as a part of a long-term sustainable society

- city location (public transport, walking-bicycling friendly)
- a general and flexible structure (organisation/dimensions)
- materials (renewable, recyclable)

Resource usage

- compact design (low transmission, little facadearea)
- renewable energy solutions (solar panels, green electricity)
- low energy use (150 kW/m2)

Patient and staff environment

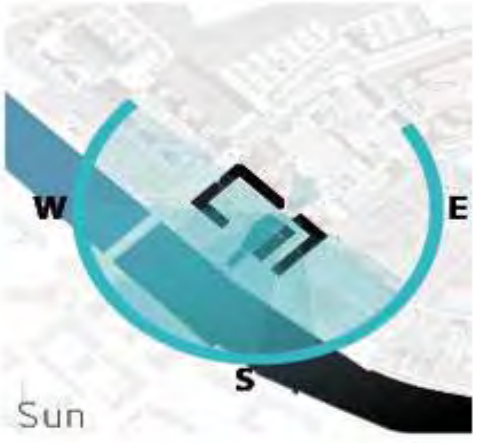
- health and comfort (light, air quality etc)
- maintainance (materials, logistics etc)

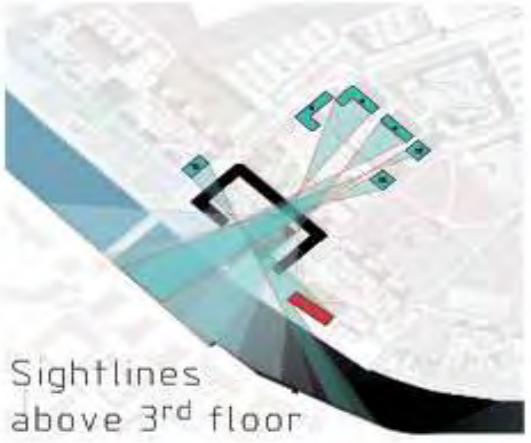
NEW KAROLINSKA SOLNA (NKS)

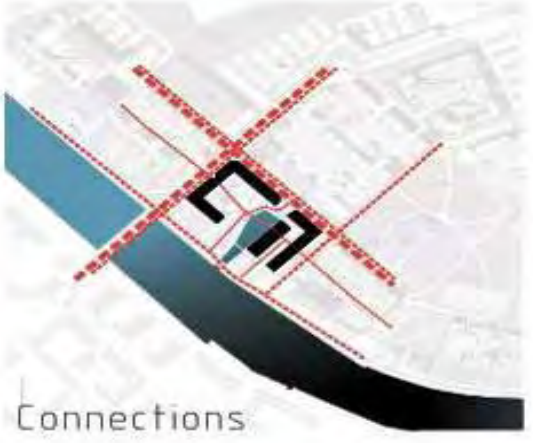

TOPPILA SHORE
RESIDENTIAL
TOPPILA SHORE, OULO, FINLAND
Client: The City of Oulo and SRV Yhtiöt Oyj
Size: 25,070 GFA
Dates: 2009–
Competencies: Architecture, Landscape, Environmental Management
white

First prize in design competition. The 'protecting hand' design is based on climate, wind and solar studies.

New housing block in Oulu, northern Finland, 1:st prize in competition





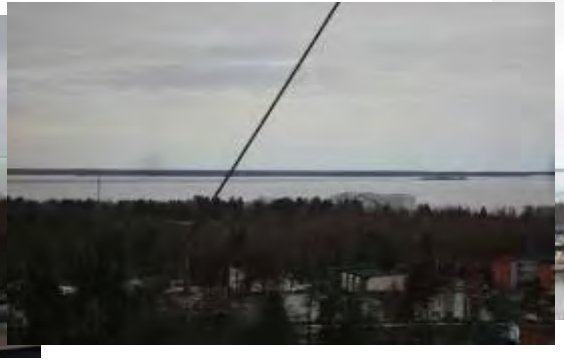


Analysis, climate and urban pre-requisites

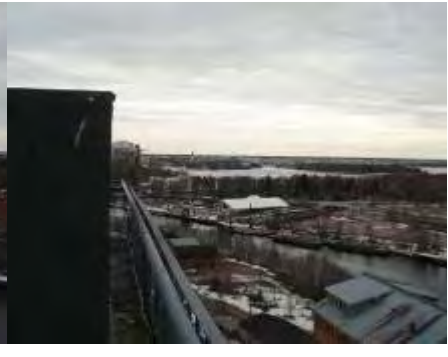
Housing by Toppila Shore, Uleåborg, Finland
1st price in invited competition, White

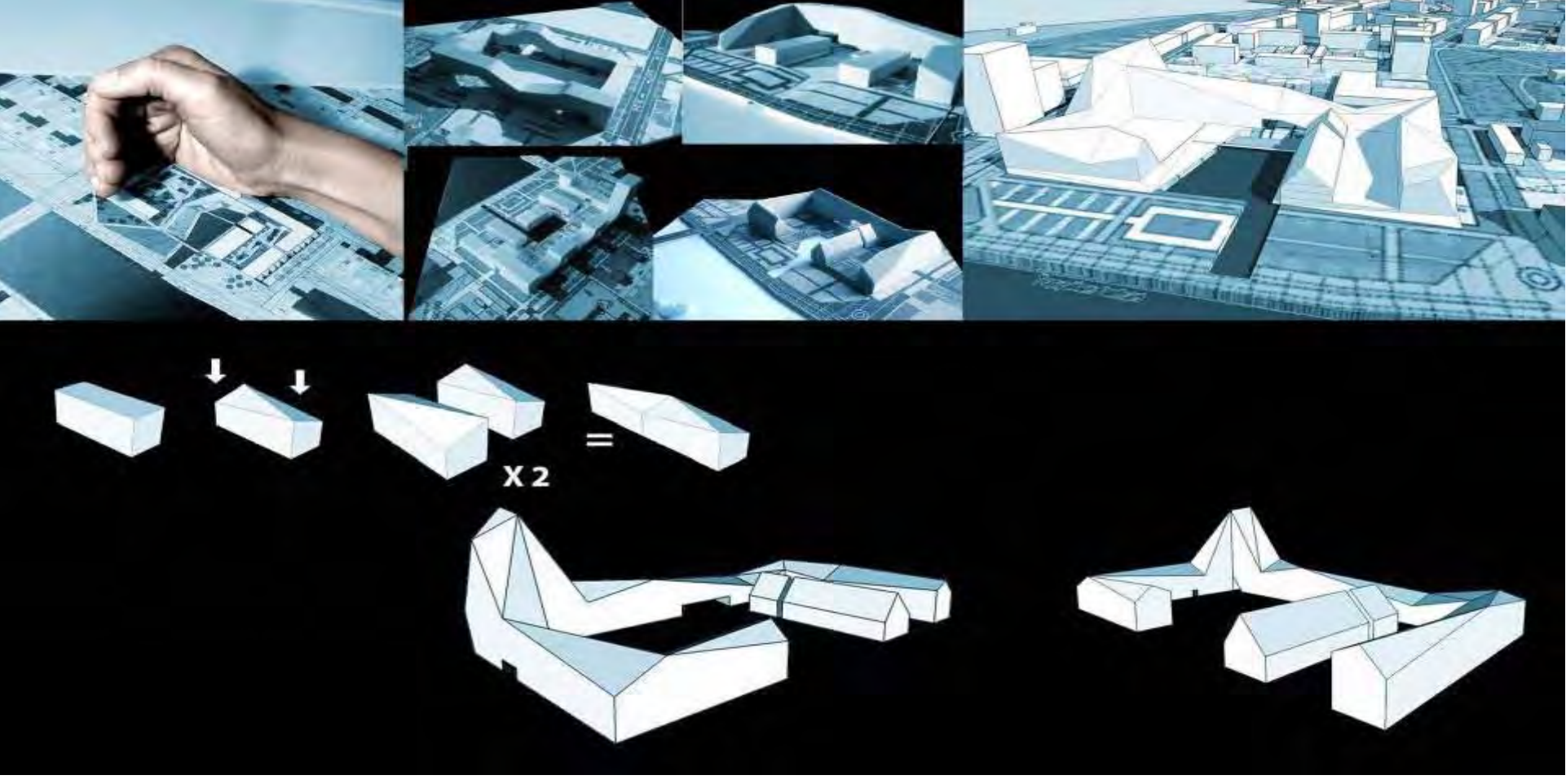
New housing block in Oulu, northern Finland, the site



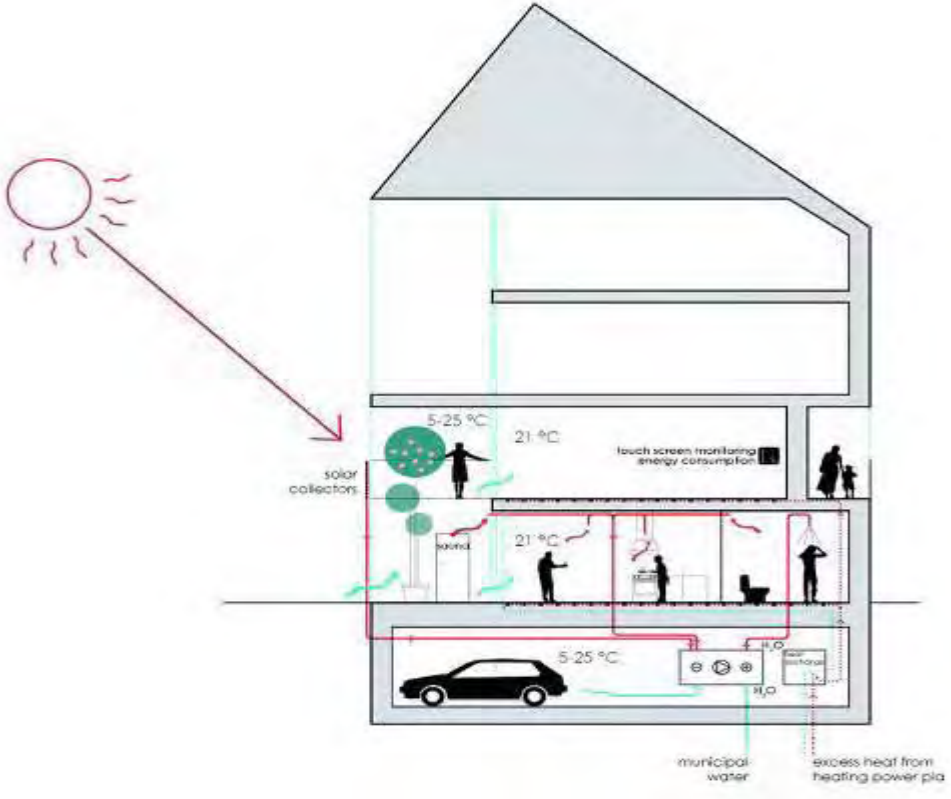






Analysis – pre-requisites- design



Sustainable energy system

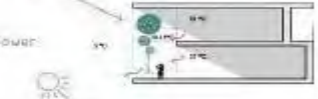
- Passive house with high thermal mass
- A heat pump uses exhaust air and solar collectors to produce hot water
- Unused excess heat from the local combined heat and power plant is used for comfort and peak loads
- Winter garden acts as a thermal buffer zone
- Heat generated by sauna is recycled
- Individual tenant metering of energy consumption

Winter day

- At peak heating loads, unused excess heat from the local combined heat and power plant maintains indoor climate
- At off-peak hours it is used for higher comfort
- Low altitude solar radiation can enter the building
- Sauna is directly connected to the winter garden to harvest the heat generated

Spring/autumn day

- The winter garden acts as a buffer zone to lower heat loss
- The warm season is extended

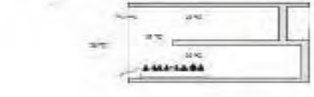


Summer day

- High thermal mass in foundation (concrete) keeps indoor climate cool
- Garden prevents high altitude solar radiation from affecting the indoor climate

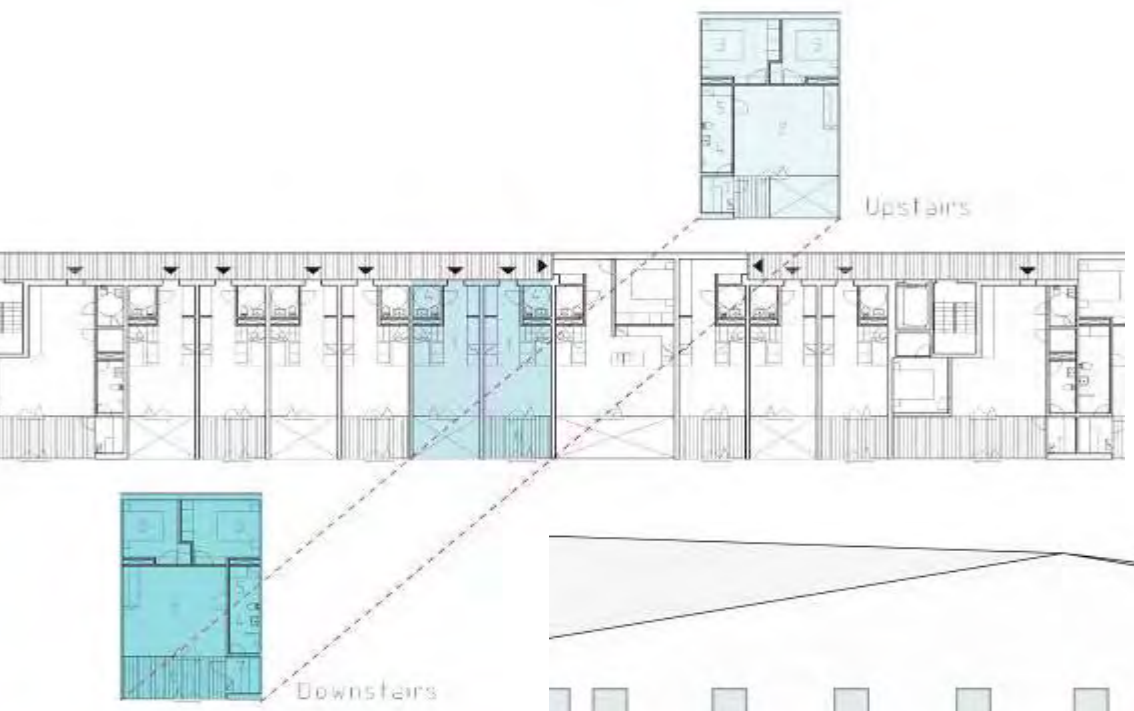
Summer night

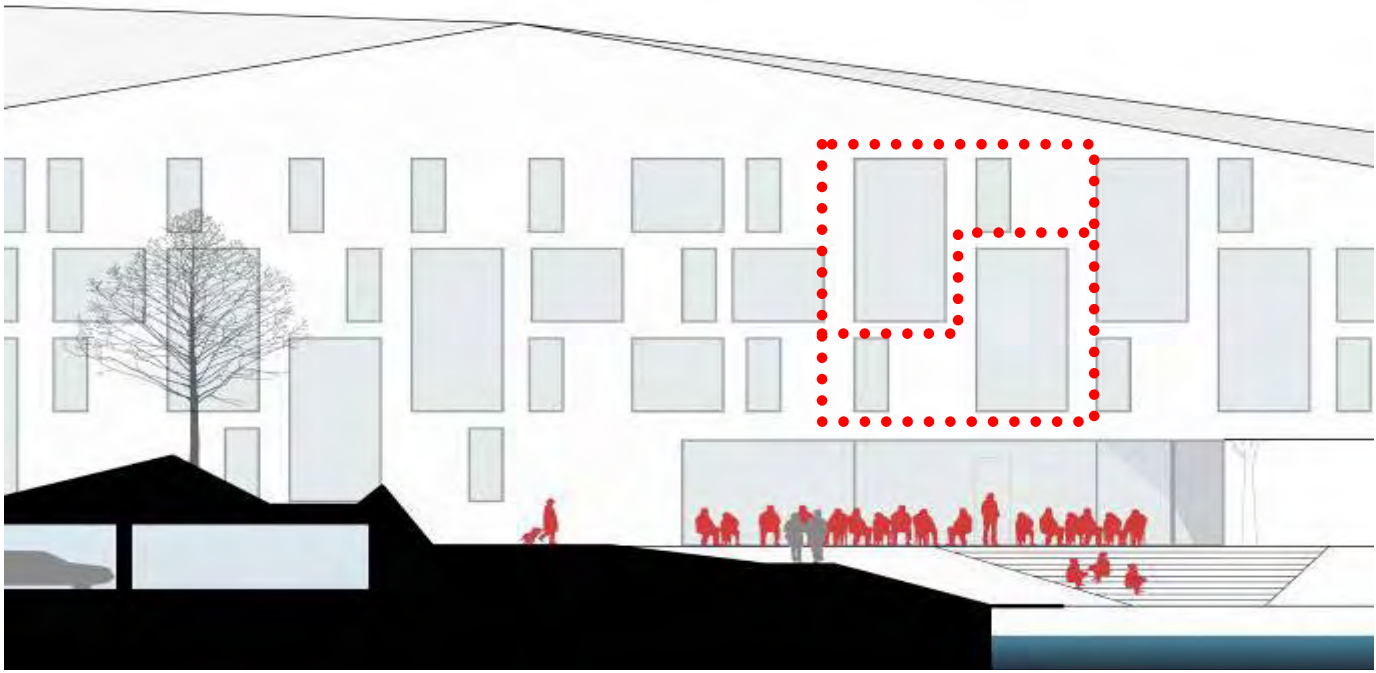
- Cool air chills the foundation

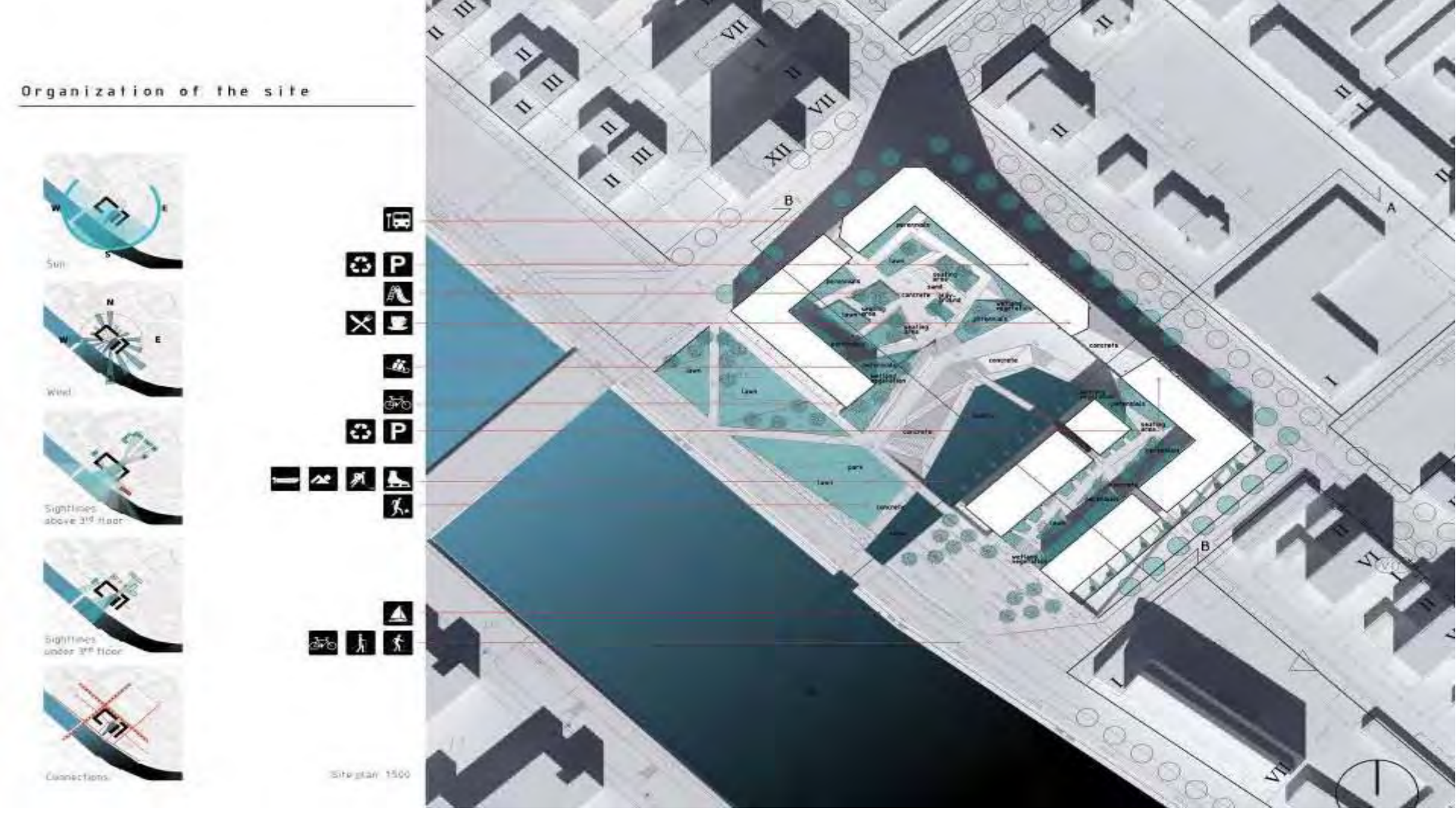


white

Typical apartments
2 x 3,5 spaces á 85 sqm duplex
Sauna + 5,6 m double high winter garden







Organization of the site


KORSHOLM, FINLAND
URBAN PLANNING
KORSHOLM, FINLAND
Client: Korsholm City Council
Dates: completion in approx 2013
Competencies: Architectural design, Landscape design, Sustainability, Environmental assessment

KORSHOLM
URBAN PLANNING

Our idea is to create a strong and distinct centre, with a condensed city centre which encourages street life and social life. It is a centre for walking or the use of public transportation.

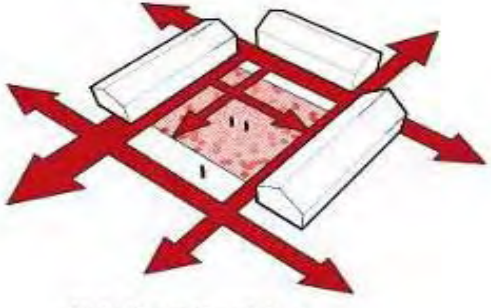
white

Build urban spaces – not objects

Start with the centre – not the periphery

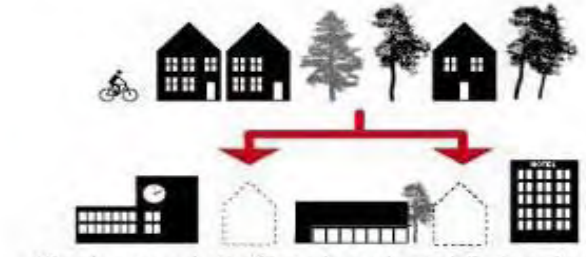
Integrate the city – do not sped it out

Create flexible public spaces for different uses during the day and the season

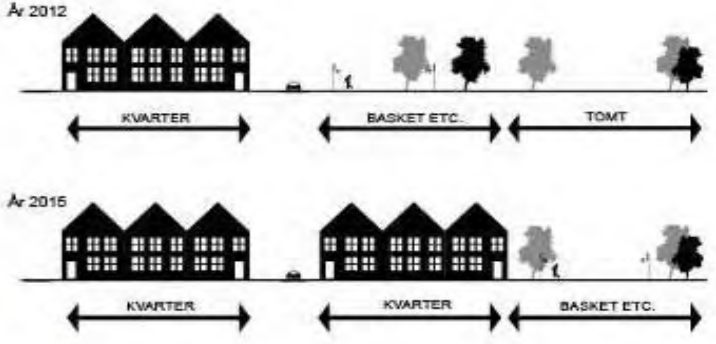


Create space for meetings between people

Build for mixed uses – to create diversity



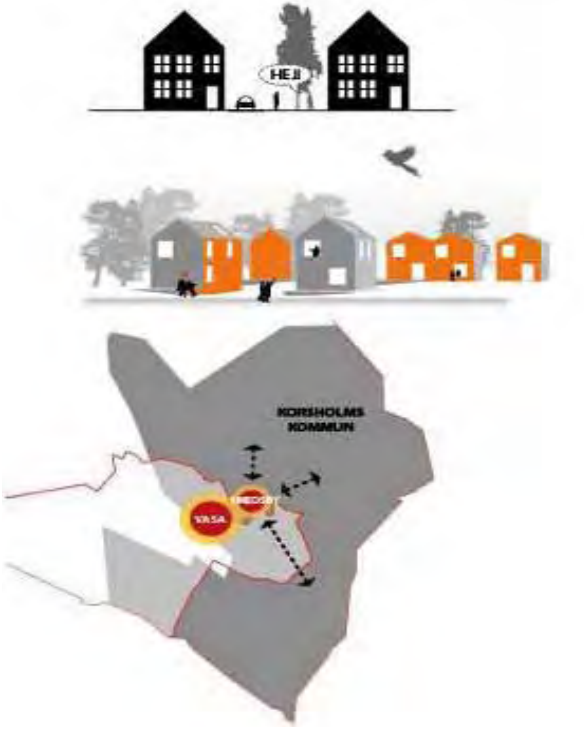
Mix different programs, to create lively city life during day and night



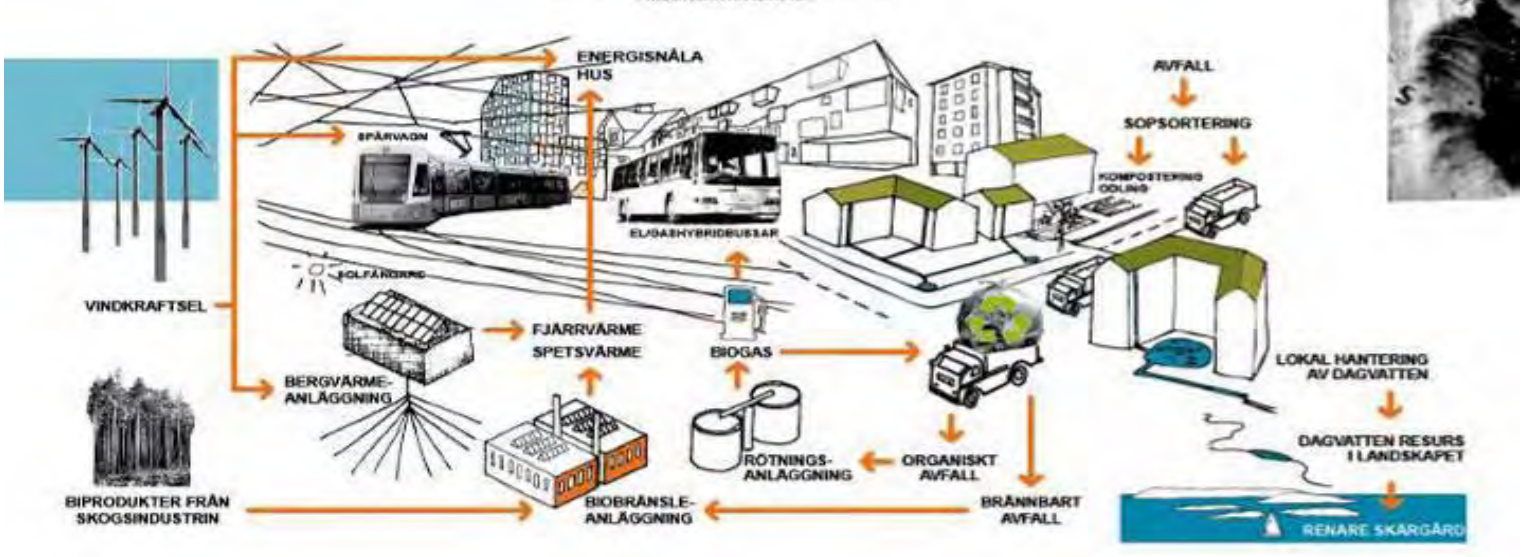
Plan for temporary functions that can vary during the seasons

Flexibility for future development and extension

Develop the small scale of Korsholm



Co2 neutral city

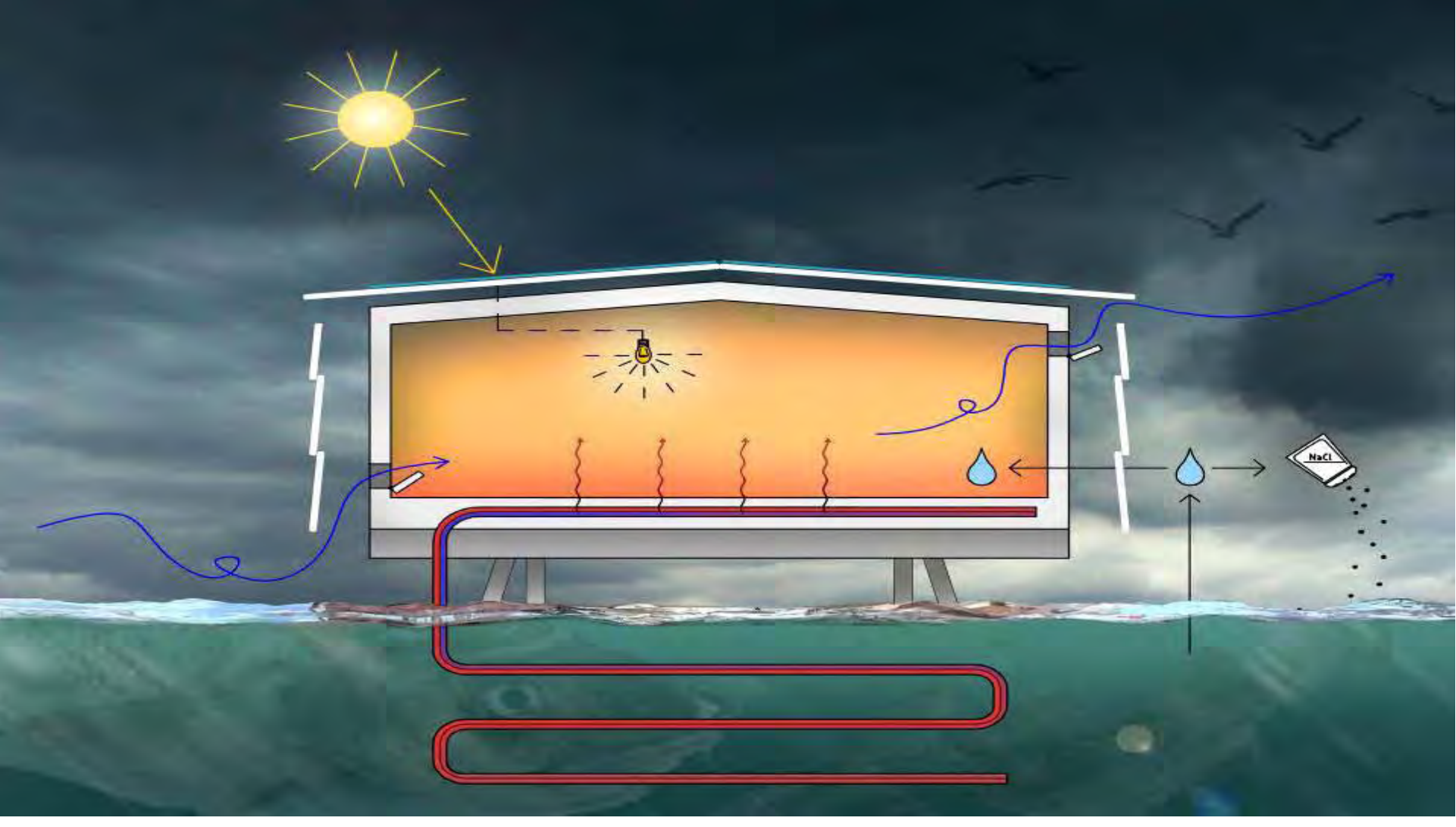



KOSTERHAVET VISITOR CENTRE
LEISURE
KOSTERHAVET VISITOR CENTRE
COPENHAGEN, SWEDEN
Client: National Environment Protection Board
Size: about 800 m² sqm GFA
Dates: completion about 2008
Competencies: Architectural design, Urban planning, Landscape design, Lighting design, Environmental assessment
white

KOSTERHAVET VISITOR CENTRE
LEISURE

Magical destination with high eco-profile. Kosterhavet will be Sweden's first marine national park. The heart of the site is a self-sufficient new building from an energy perspective that exists in symbiosis with the sea.

white

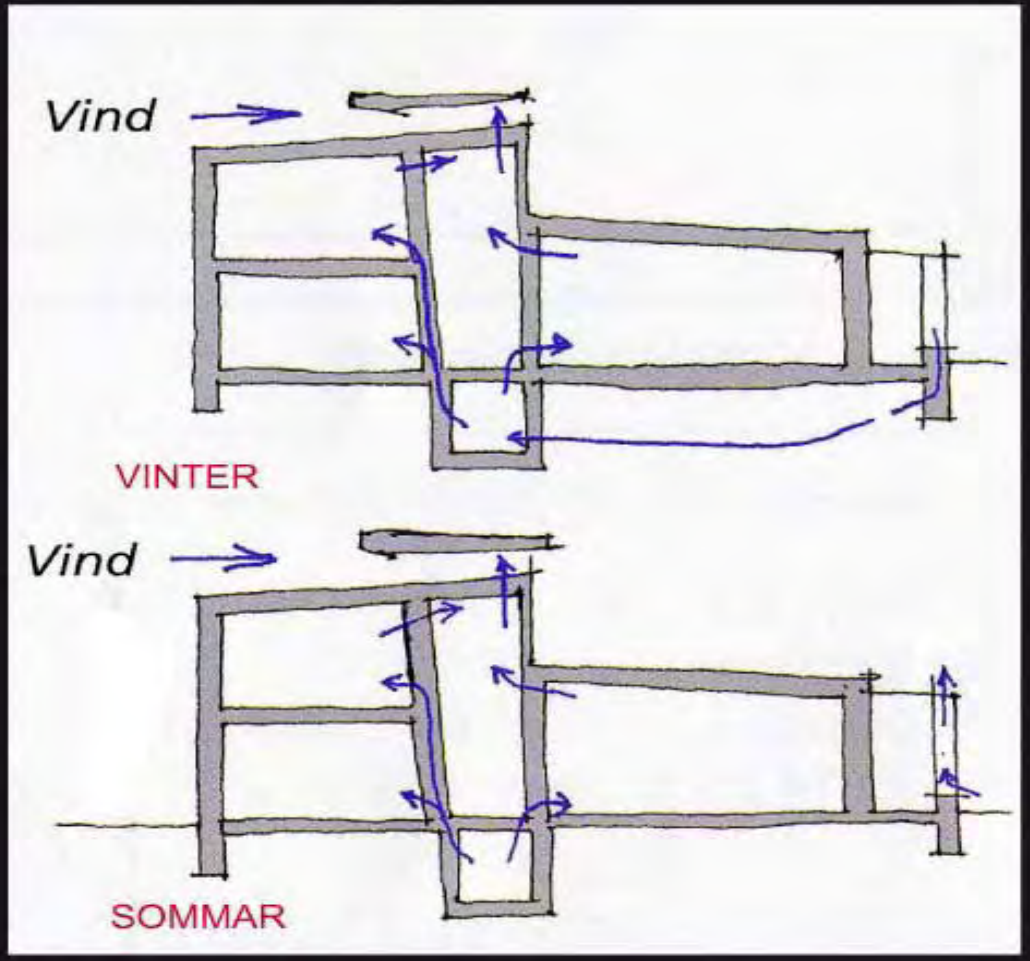

NaCl


KOLDING KVARTERHUS
PUBLIC BUILDING
KOLDING KVARTERHUS
KOLDING, DENMARK
Client: Kolding Municipality
Size: about 1050 m² sqm GFA
Dates: completed 2003
Competence: Architectural design & landscape design
white

KOLDING KVARTERHUS
PUBLIC BUILDING

Intergrated design process with environmental specialists and people living in the area.

white


Vind
VINTER
Vind
SOMMAR





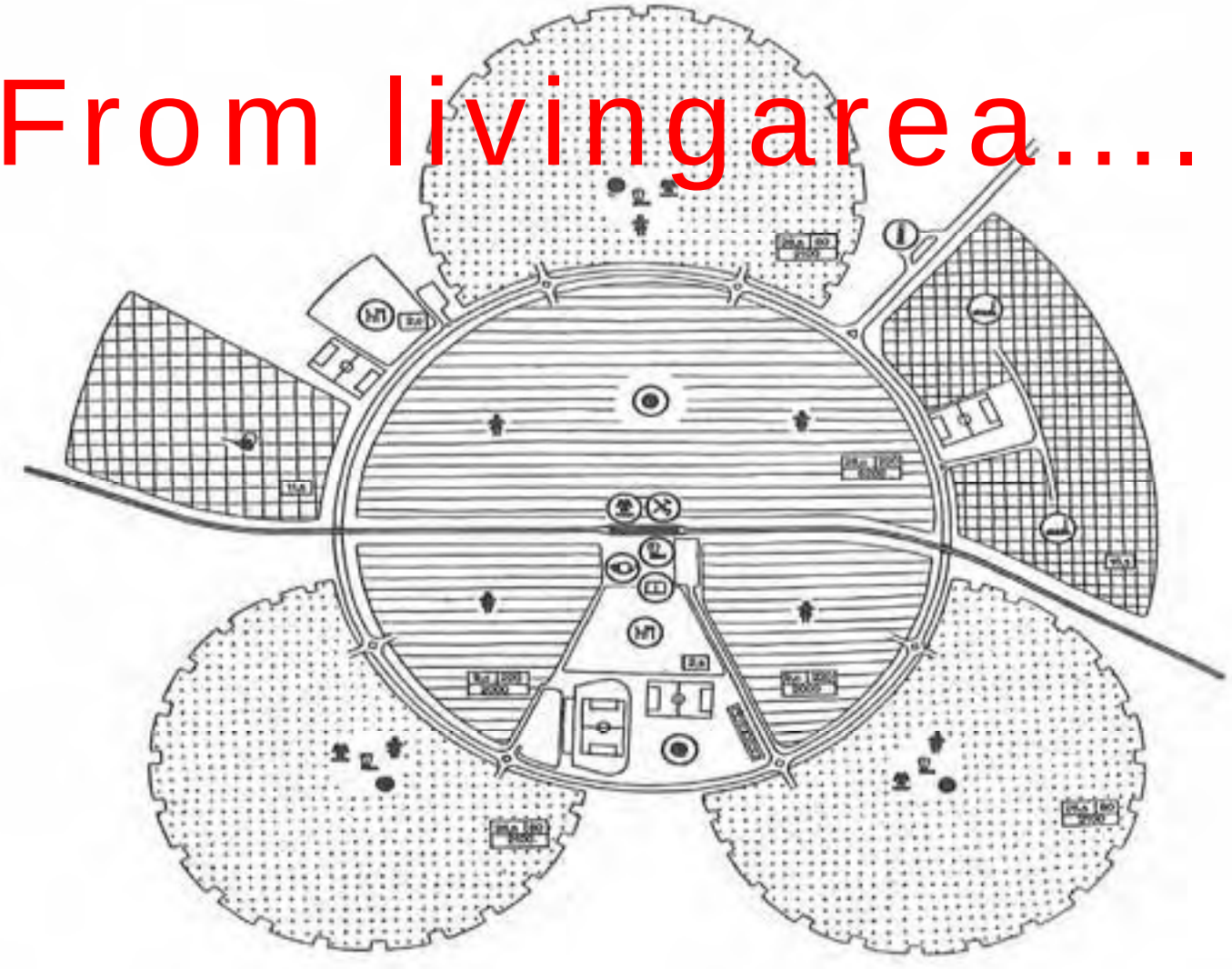


Social studies and suburban renewal concept for 70s suburb Husby, Stockholm

white


Life in between the buildings

From livingarea....




..and monoculture ..


..to urban space
for people..
55

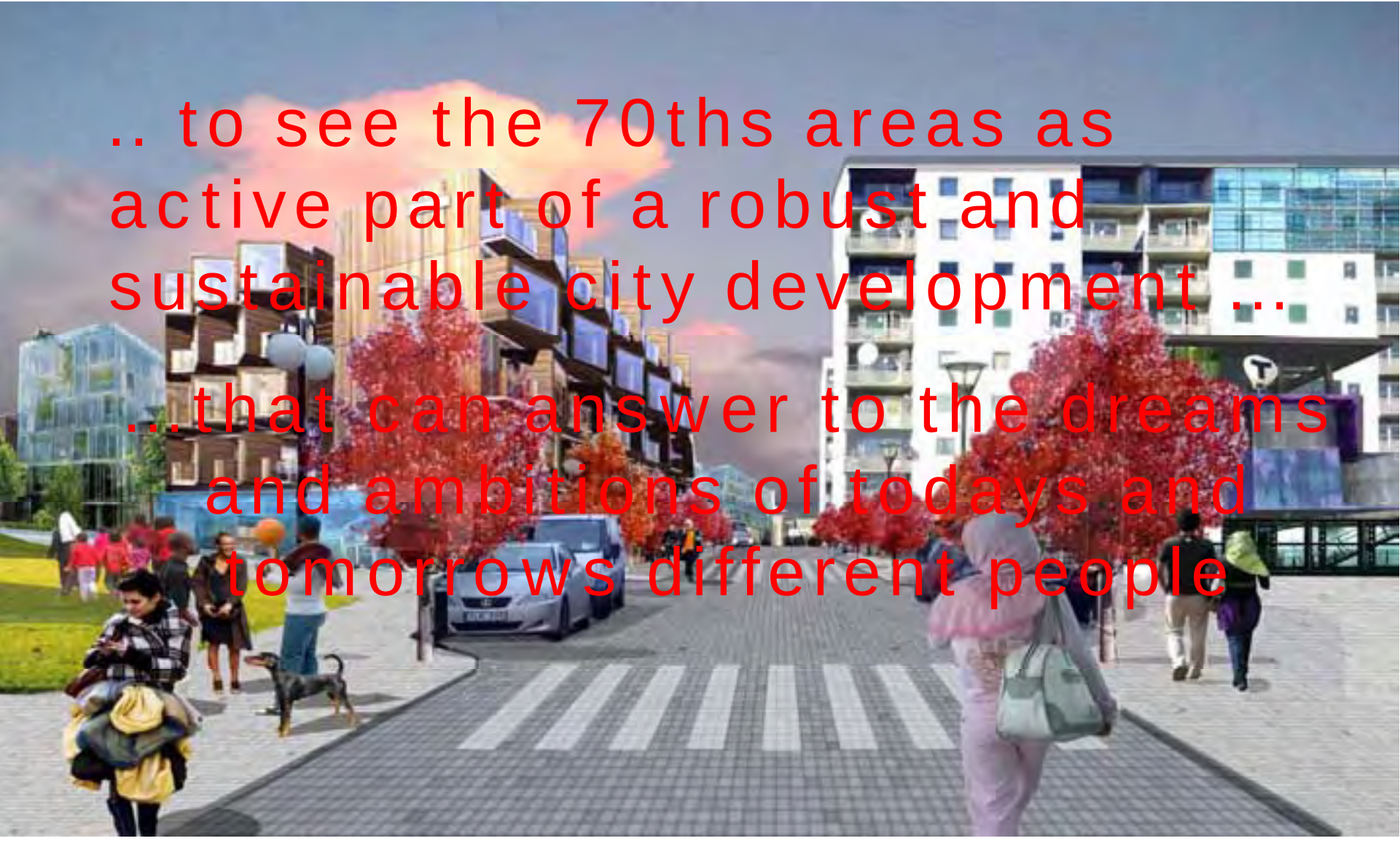

.. a richer and safer
urban life

Theme physical environment

Connectivity with square/ neighbourgh areas / public transport/ green areas

Theme social environment

Safety/ Local buisness/ Young peoples possibilities/ Attractivity/ Identity


.. to see the 70ths areas as active part of a robust and sustainable city development ...
...that can answer to the dreams and ambitions of todays and tomorrows different people

SID

Sustainable Integrated Design

white

sustainability

ecological

– resources, health, lifecyclethinking

economical

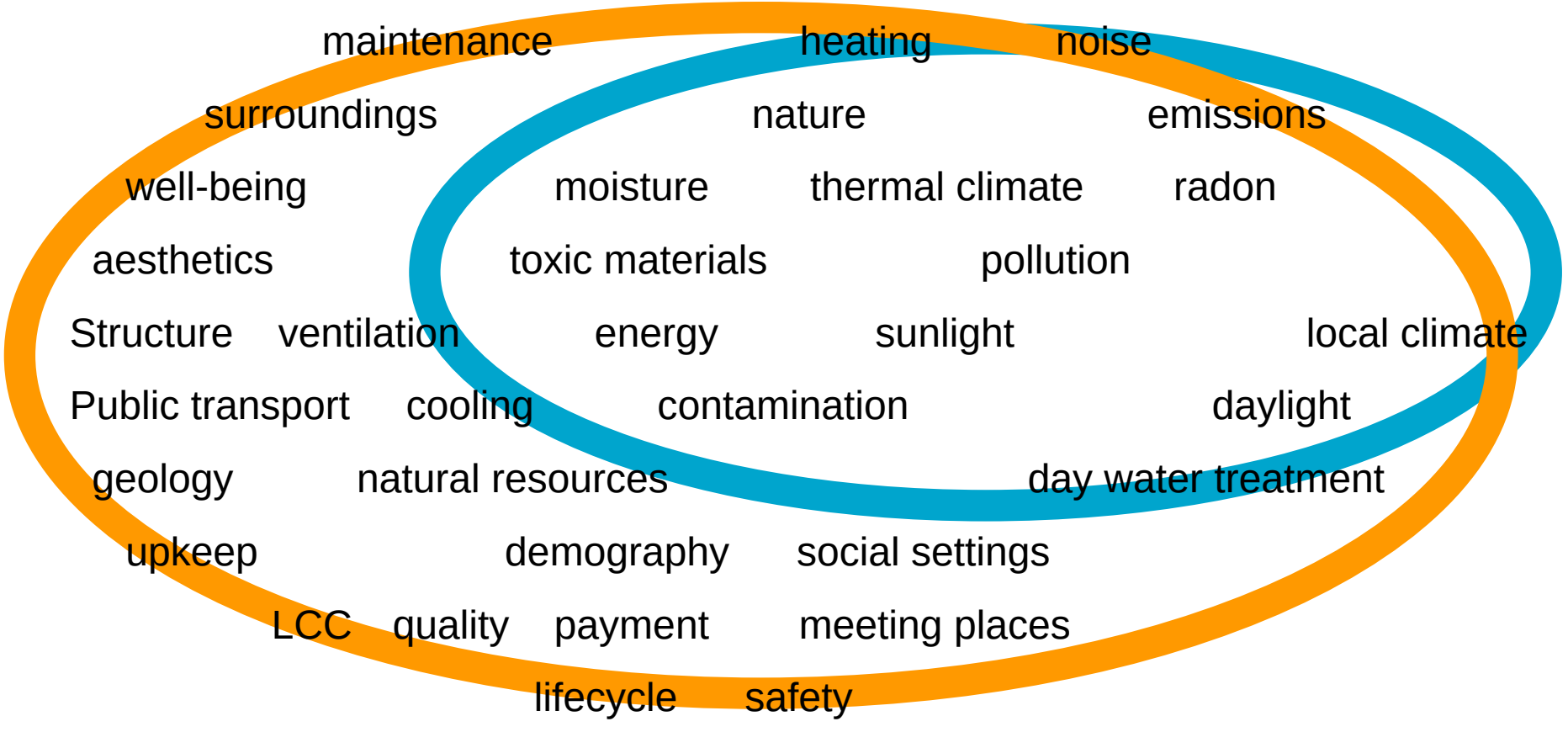
– lifecyclecosts, longterm use

social

– local; start with the contextual situation and the local prerequisites
– global; fair trade in Architecture and Real estate buisness

white

Sustainability – more than ecology



How to bring all questions up on the table?

sid- a way of working

sustainable

– Holistic view, Life cycle cost, Life cycle analysis

integrated

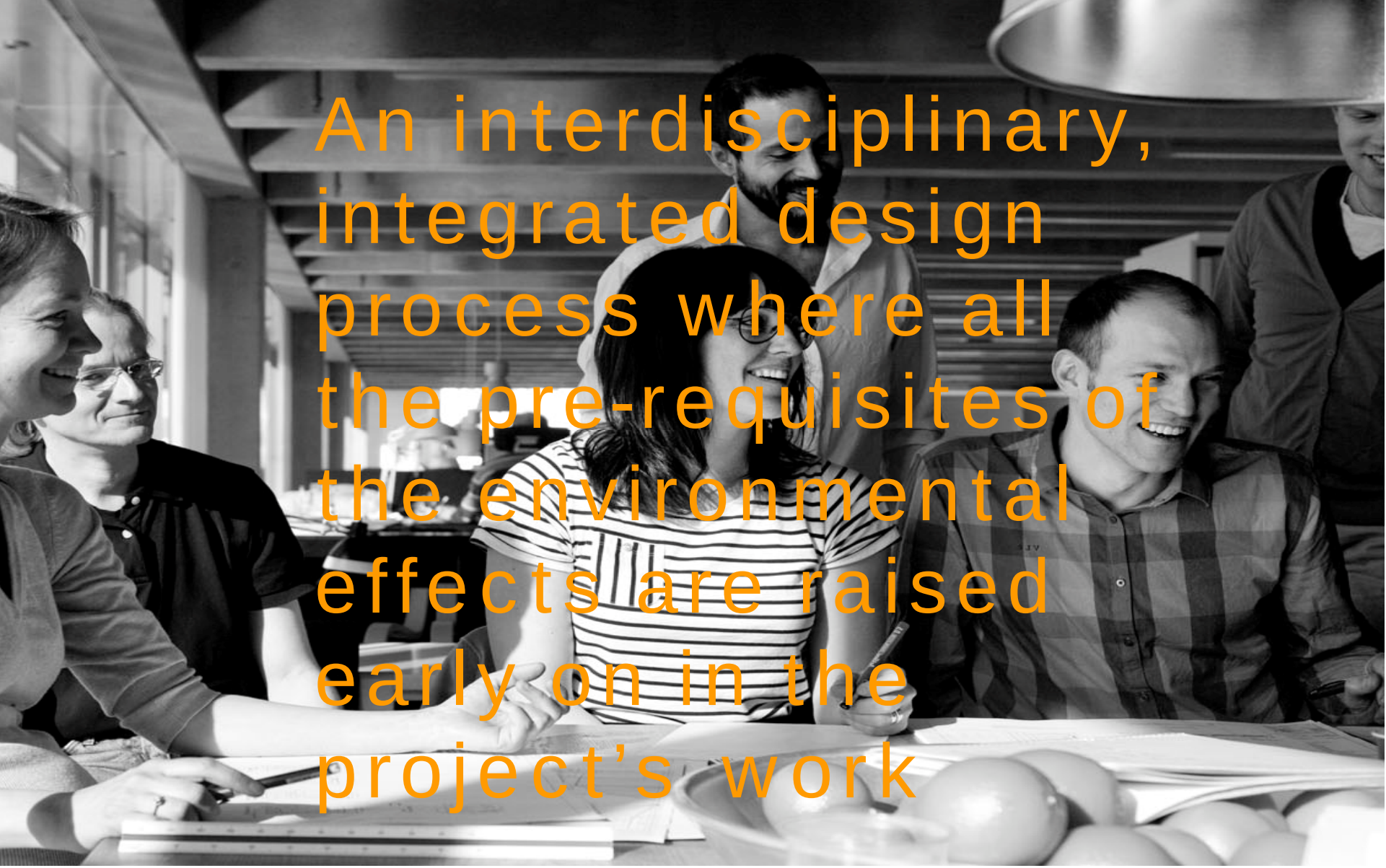
– Early interdisciplinary teamwork to understand the complexity of the project from start

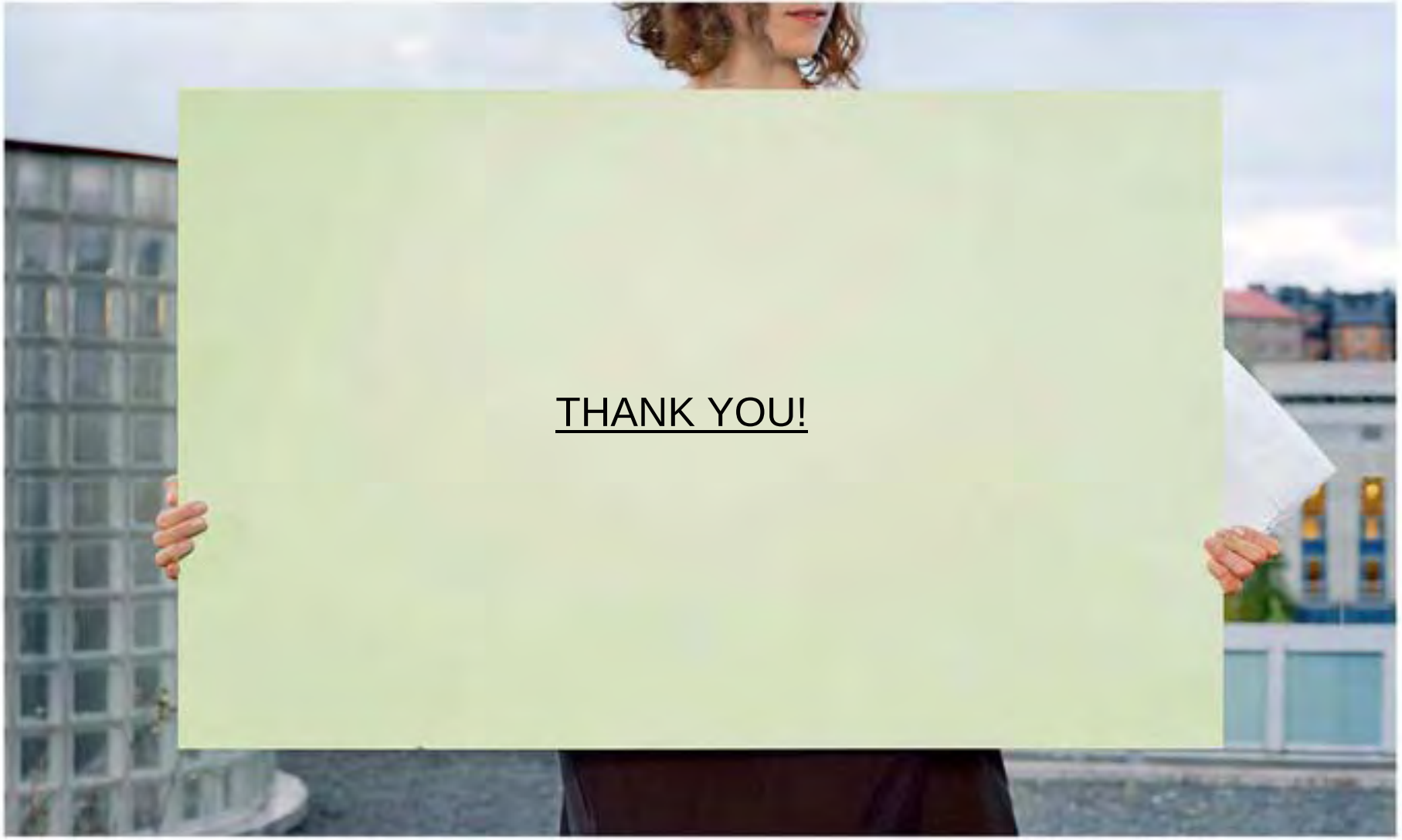
design

– Integration between different innovative solutions becomes well designed architecture

white


Project manager
architect
Environmental engineer
anthropologist
biologist
white


An interdisciplinary, integrated design process where all the pre-requisites of the environmental effects are raised early on in the project’s work


THANK YOU!