

DAN HRVATSKE KOMORE ARHITEKATA

REVITALIZACIJA STAMBENOG NASELJA

princip socijane održivosti i energetske učinkovitosti

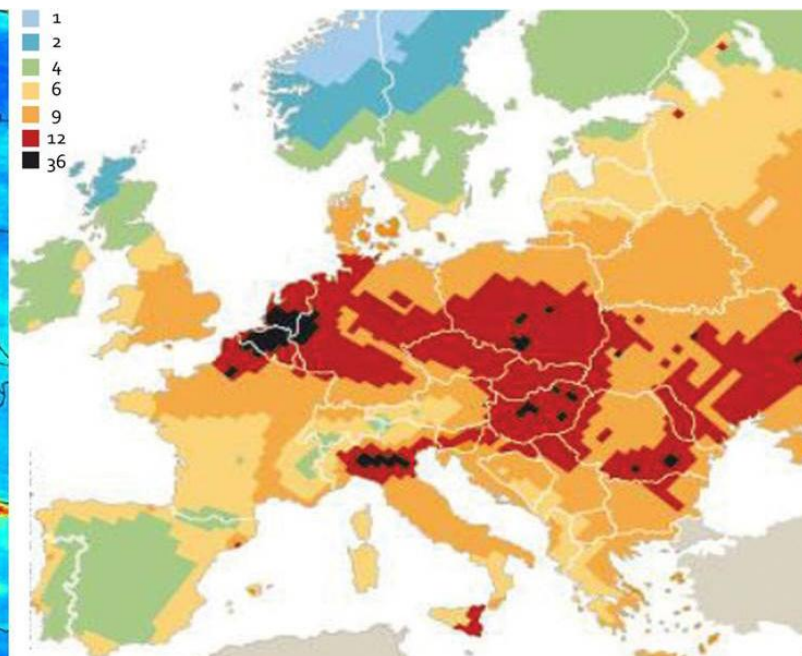
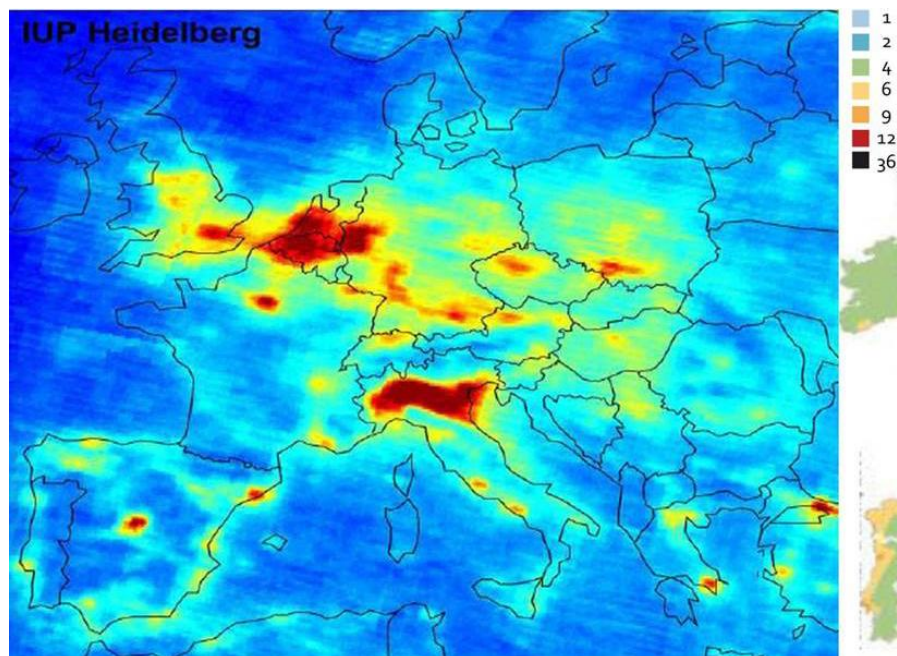


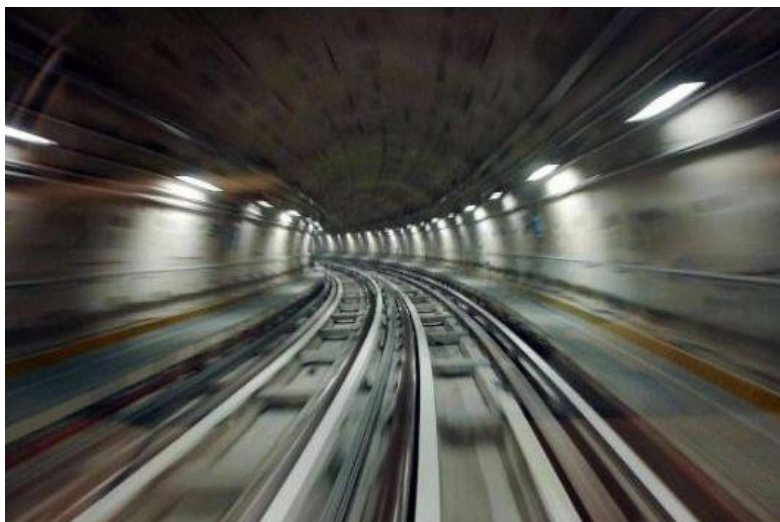
Ana Bilan, mag. ing. arh.

Irena Vojnović, mag. ing. arh.









6 NUOVE STAZIONI PER LA METRO DI TORINO

DA PORTA NUOVA AL LINGOTTO

MARCONI NIZZA BIANCA CRISCUCCI SPEDIZIONE LINGOTTO

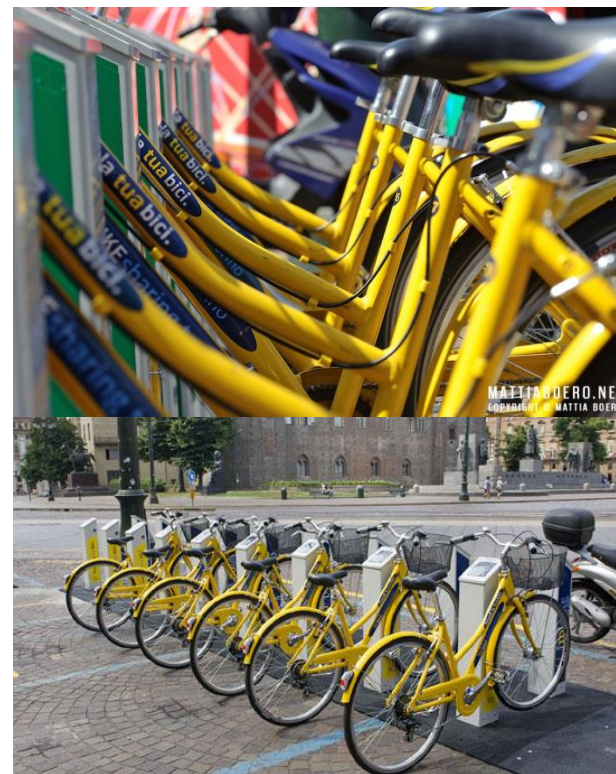
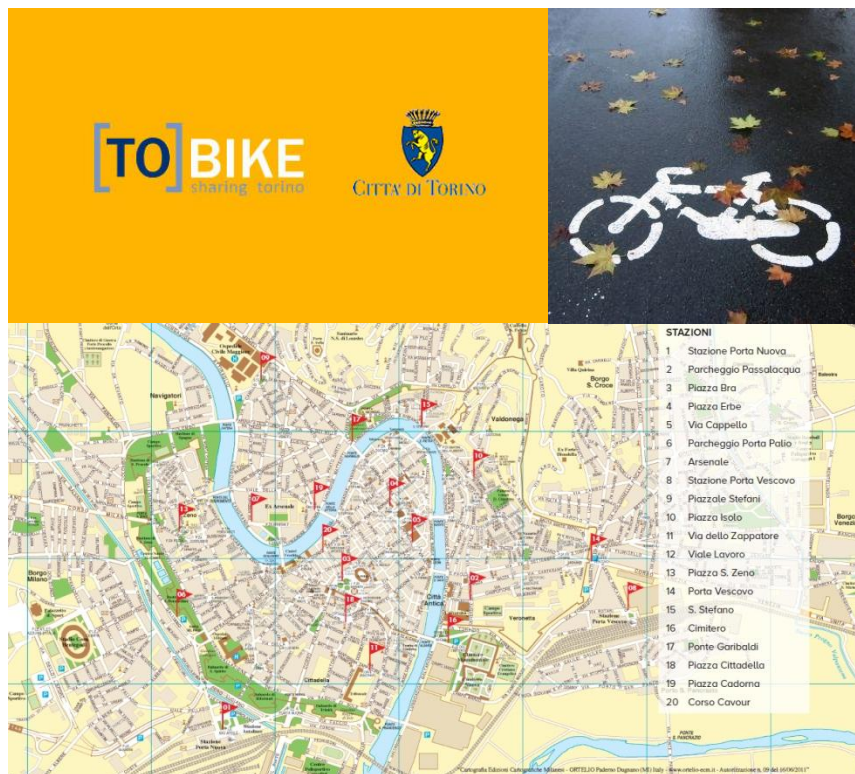
6 MARZO 2011

Inaugurazione metropolitana automatica

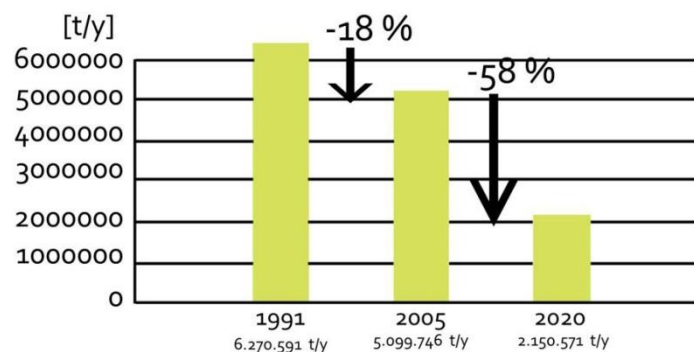
Dalle ore 13,00 la metropolitana è in funzione anche nel tratto da Porta Nuova a Lingotto ed è GRATUITA sull'intero percorso da Fermi - Lingotto fino a fine servizio.

Per l'occasione la Città, in collaborazione con le Circoscrizioni 8 e 9 e le Associazioni Commerciali di via, ha organizzato dalle ore 14,00, in prossimità delle nuove stazioni Metro, degli intrattenimenti con musica e giochi per bambini. Alle stazioni *Marconi* e *Lingotto* suoneranno rispettivamente la Banda musicale CRAL di GTT e la Banda musicale del Corpo di Polizia Municipale.

Lungo via Nizza i negozi resteranno aperti per tutta la giornata.



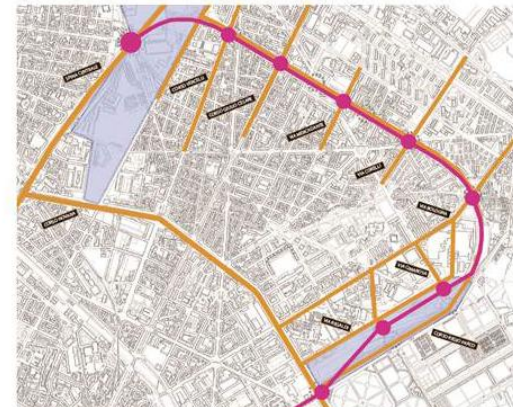
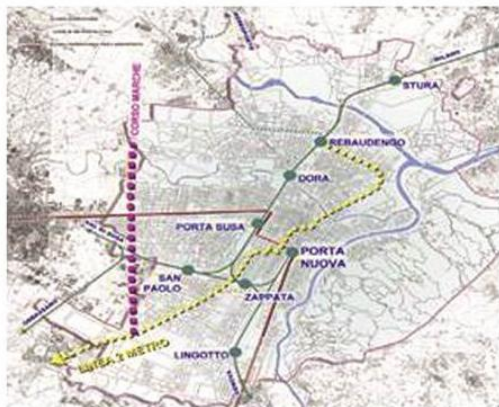




2020 2.150.571 t/y

OF THIS

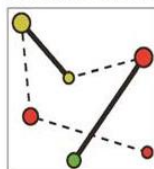
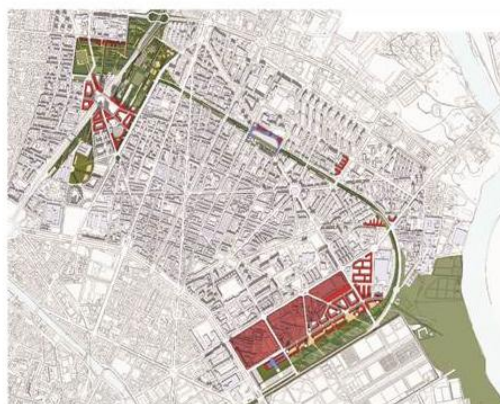
40% BUILDINGS 22% TRANSPORT

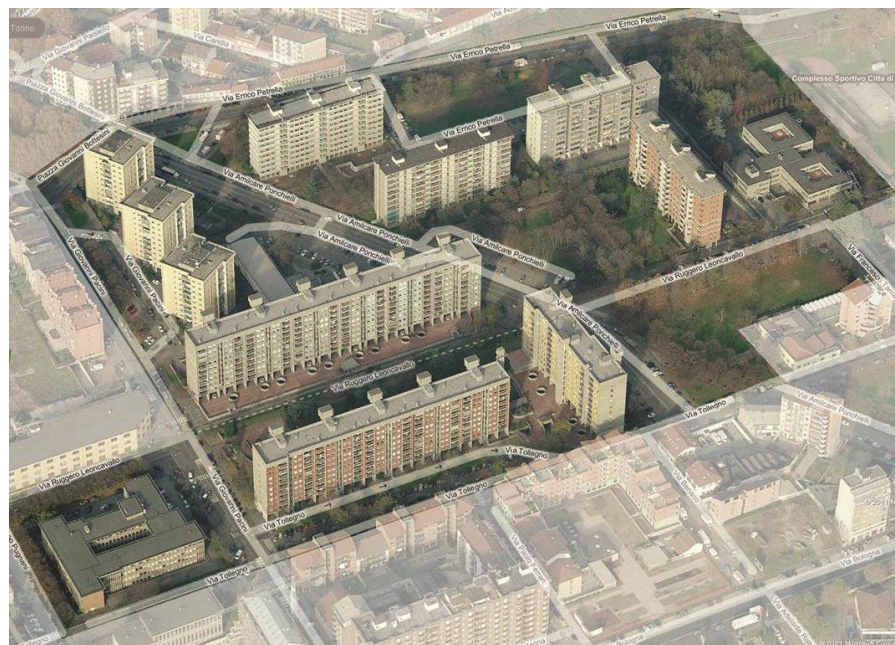
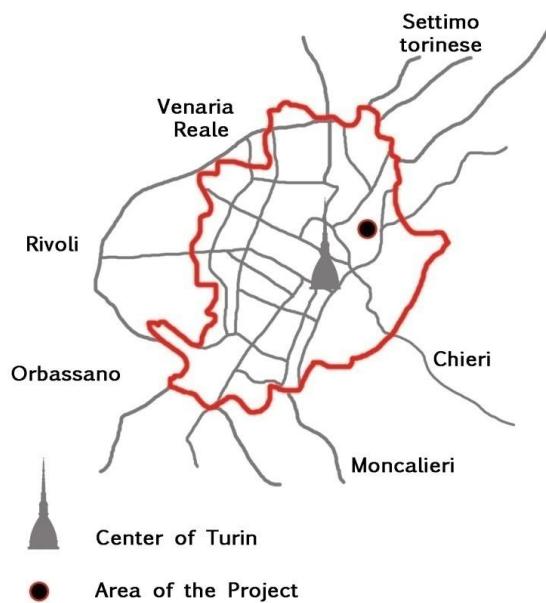


STRUCTURAL STRATEGIES

OPEN SPACES
CONNECTIONLANDSCAPE
ENHANCEMENT

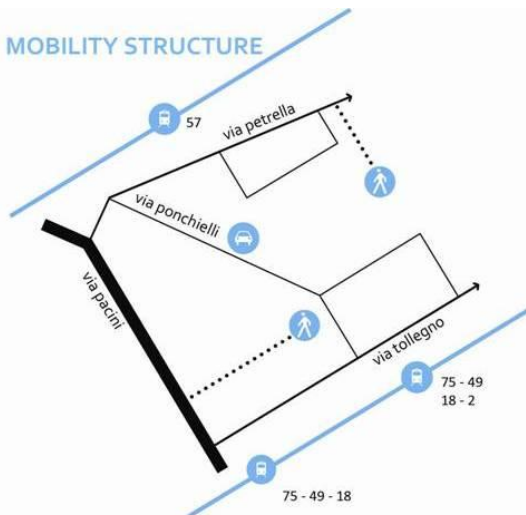
SYSTEM OPEN SPACES

NEW CENTRALITIES
SYSTEM

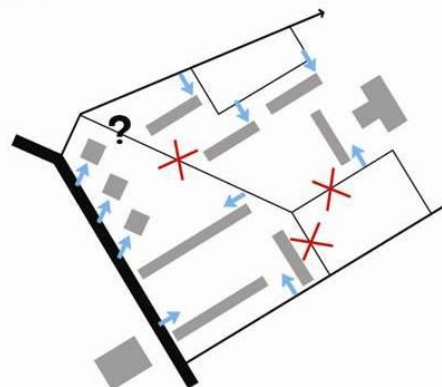




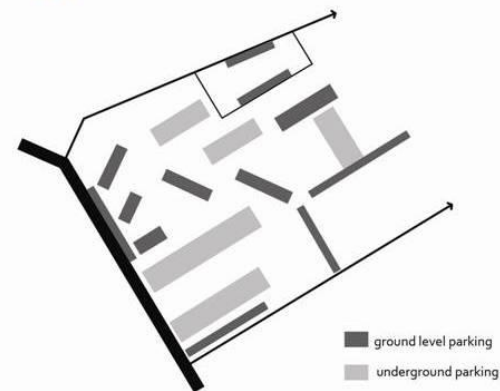
MOBILITY STRUCTURE



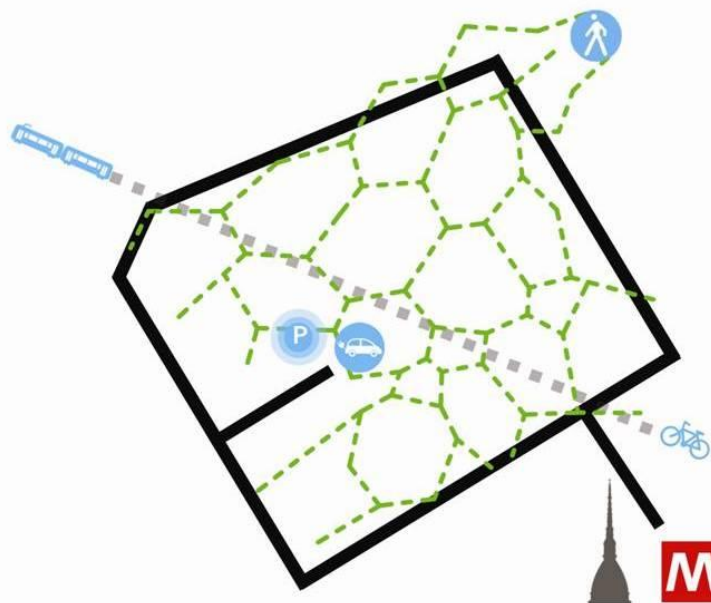
CAR ACCESSSES



P PARKING

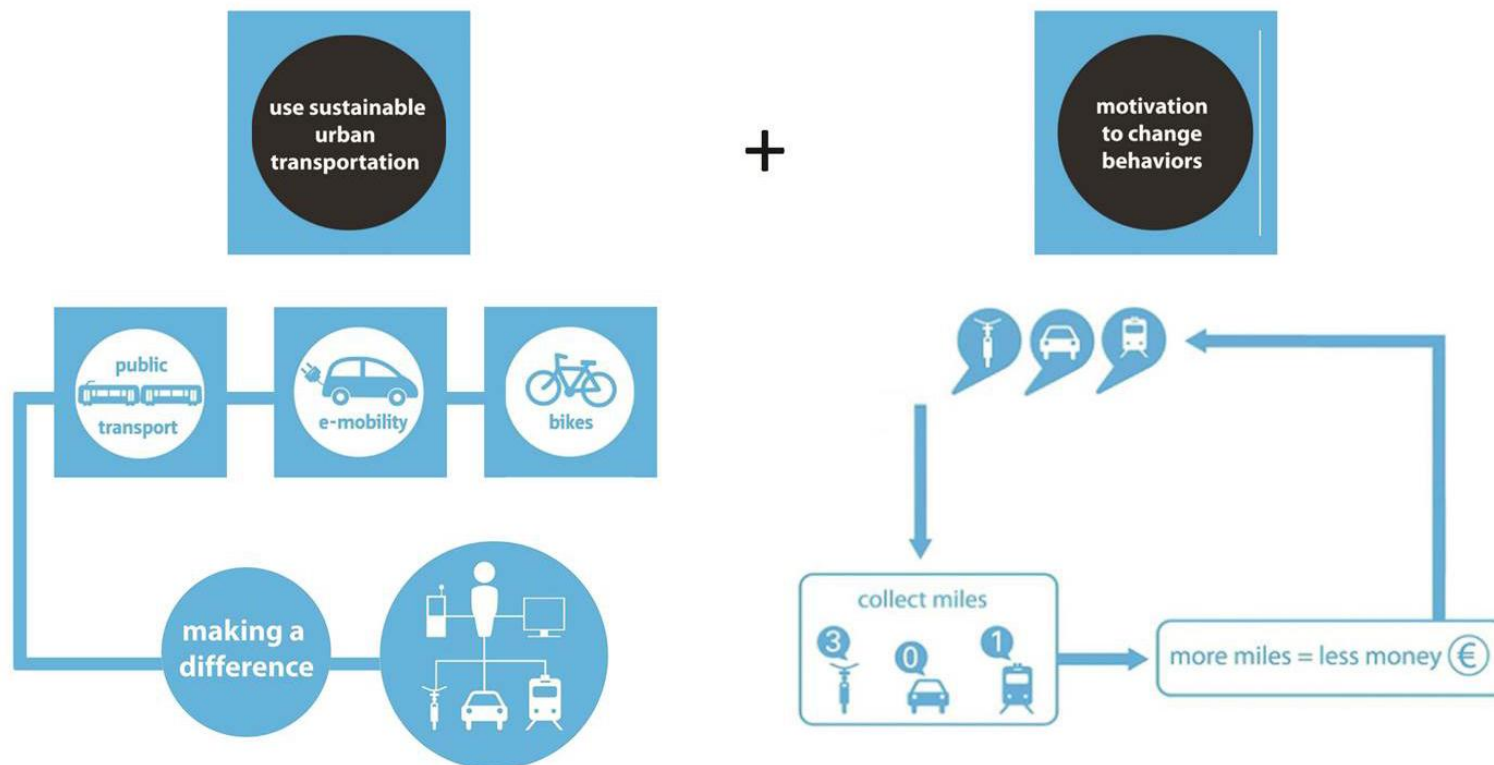


STRATEGIES

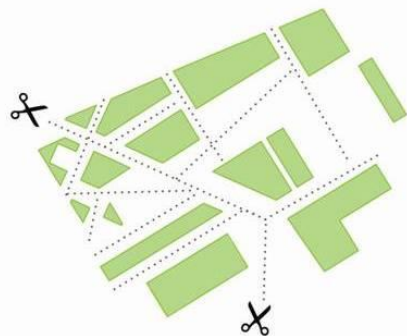




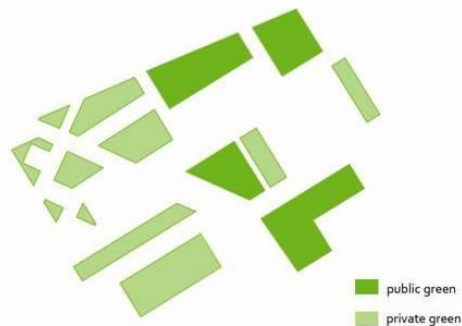
POPULATION ANALYSIS



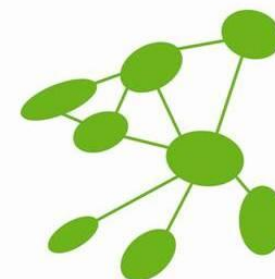
DISCONNECTED GREEN SPACE



TYPES OF GREEN

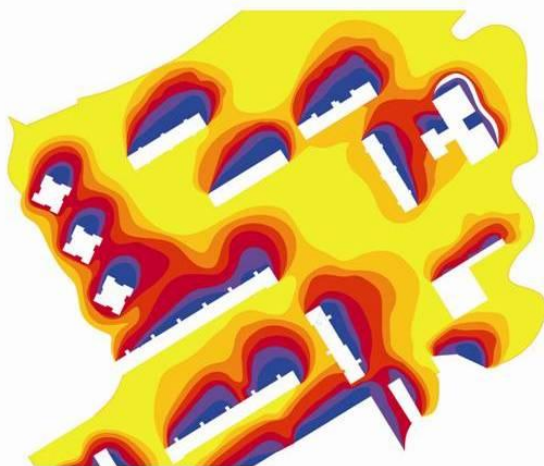


OBJECTIVES

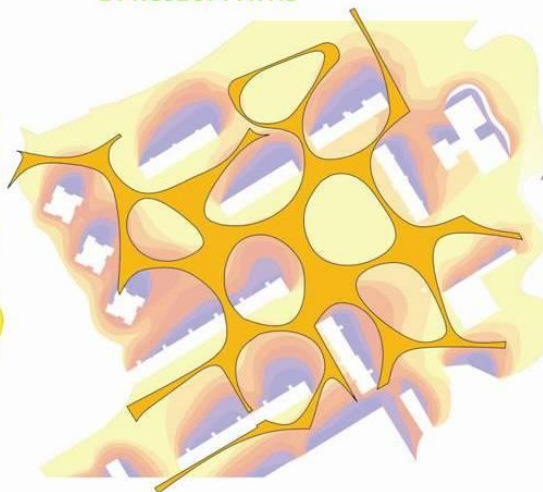


OUR STRATEGIES

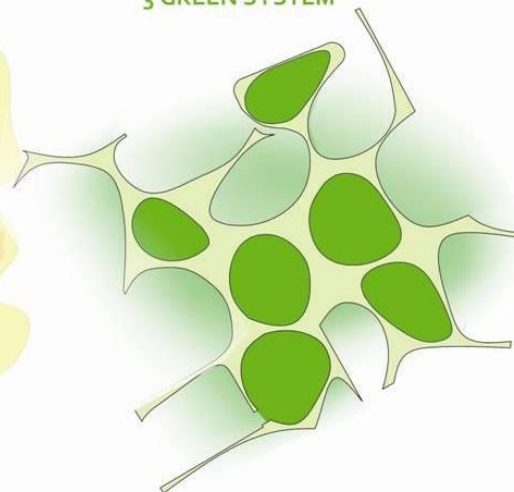
1 ECOTECH AS GUIDELINE



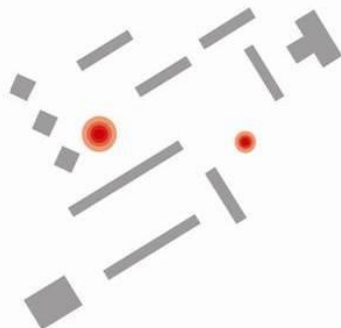
2 PROJECT PATHS



3 GREEN SYSTEM

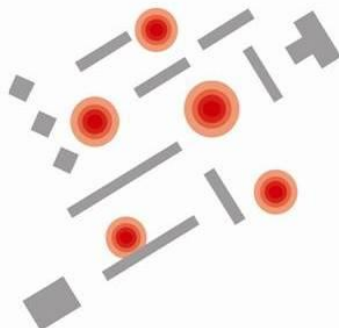


CURRENT SITUATION



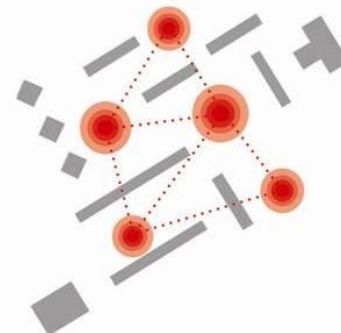
lack of social spaces

NEED OF NEW INTEREST AREAS



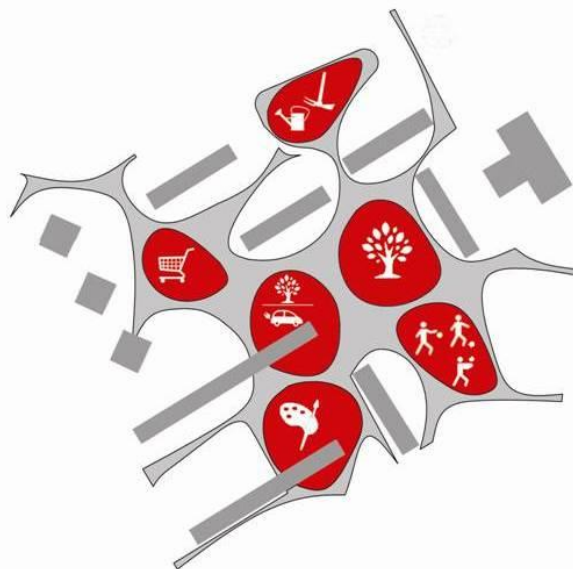
increase of social attraction spaces

OBJECTIVES

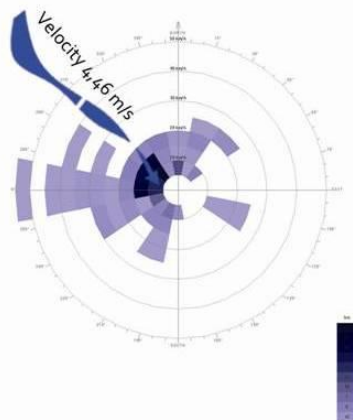


relation of focal points

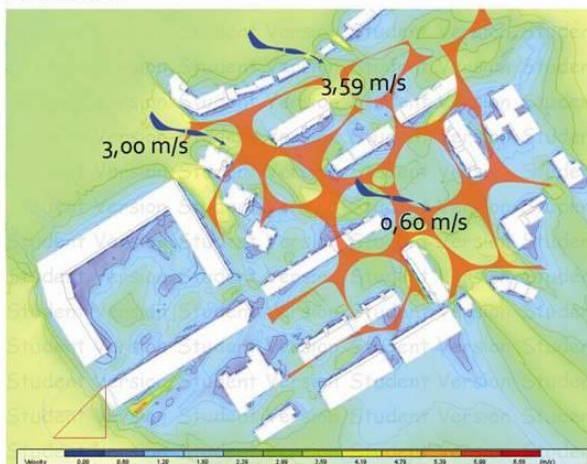
OUR STRATEGIES



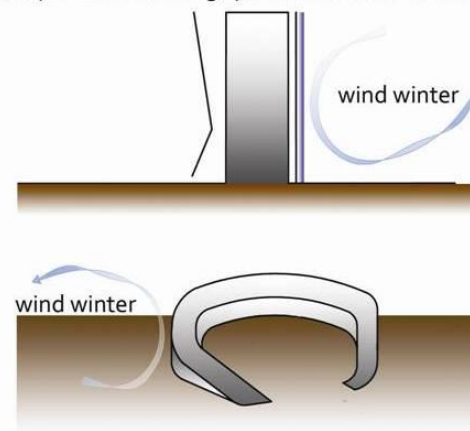
PREVAILING WIND WINTER



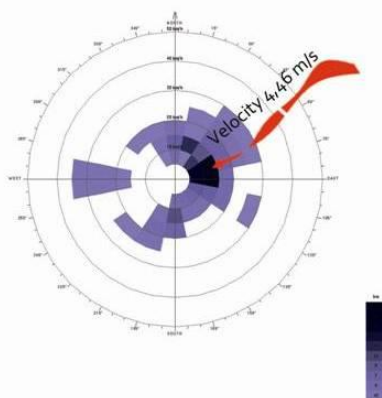
ANALYSIS



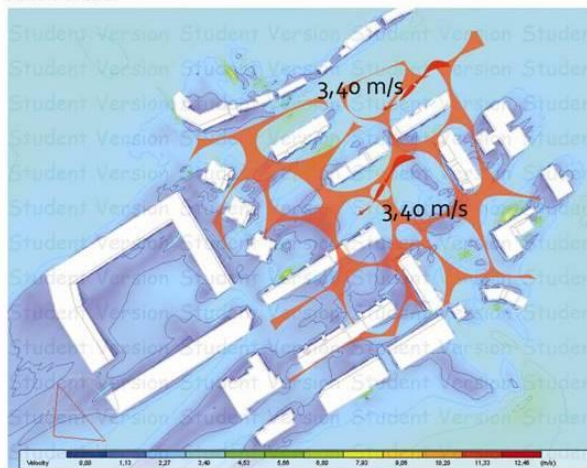
Social space and buildings protect with winter wind



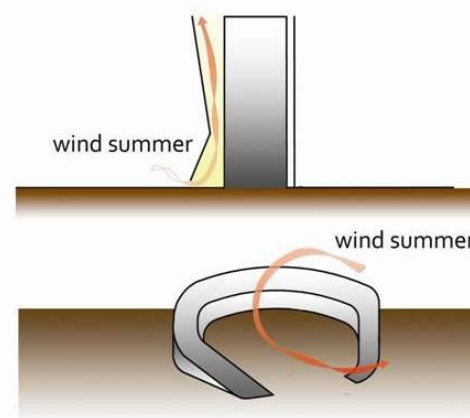
PREVAILING WIND SUMMER



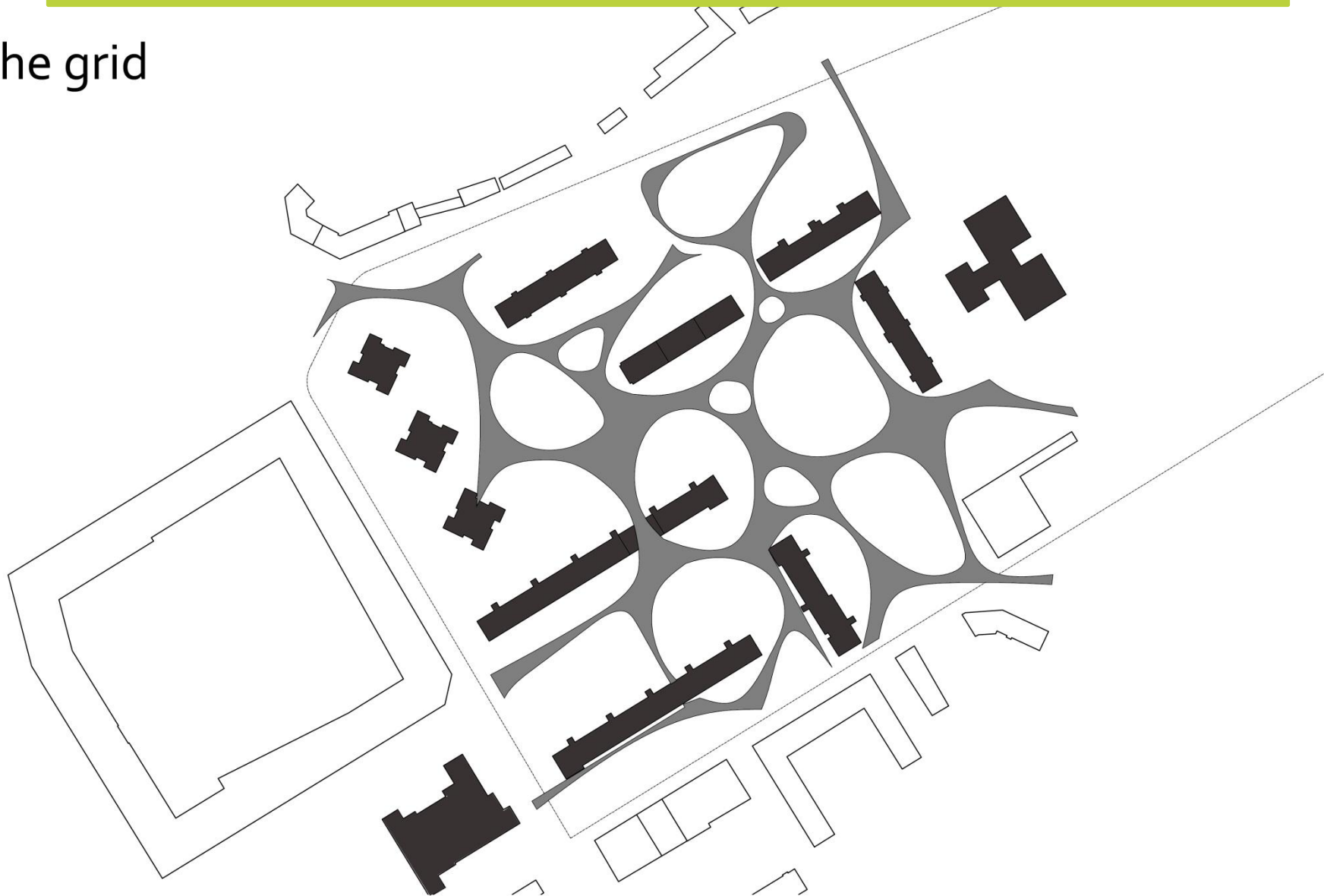
ANALYSIS

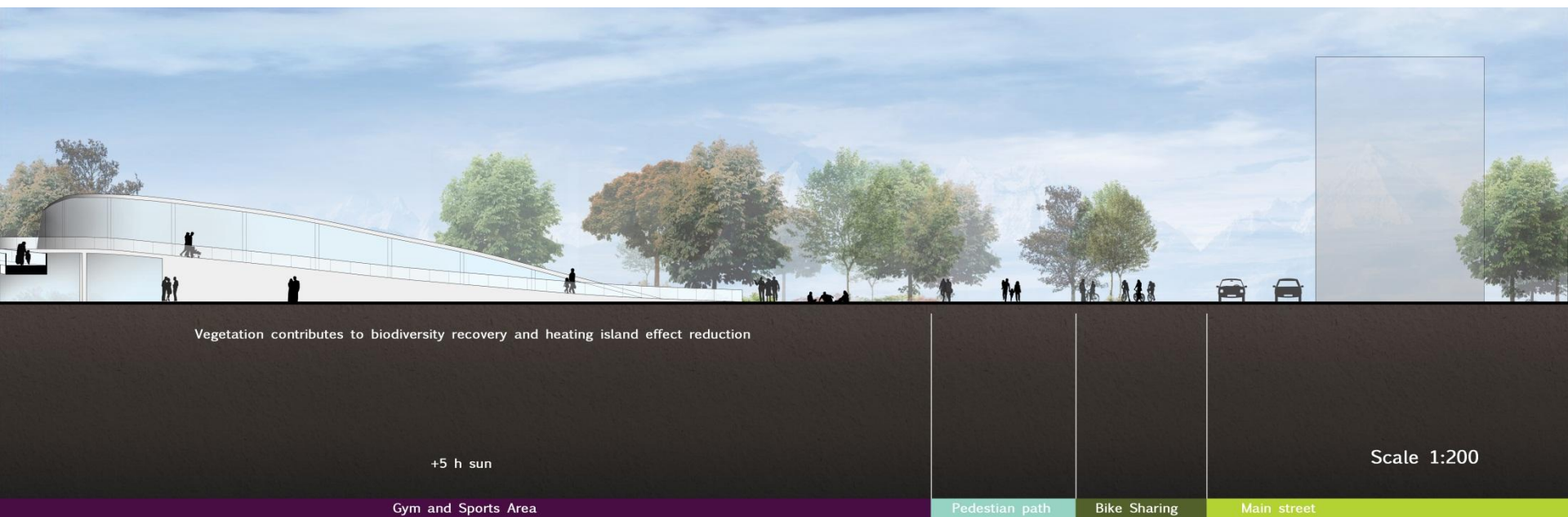


Usage of summer wind to create microclimate

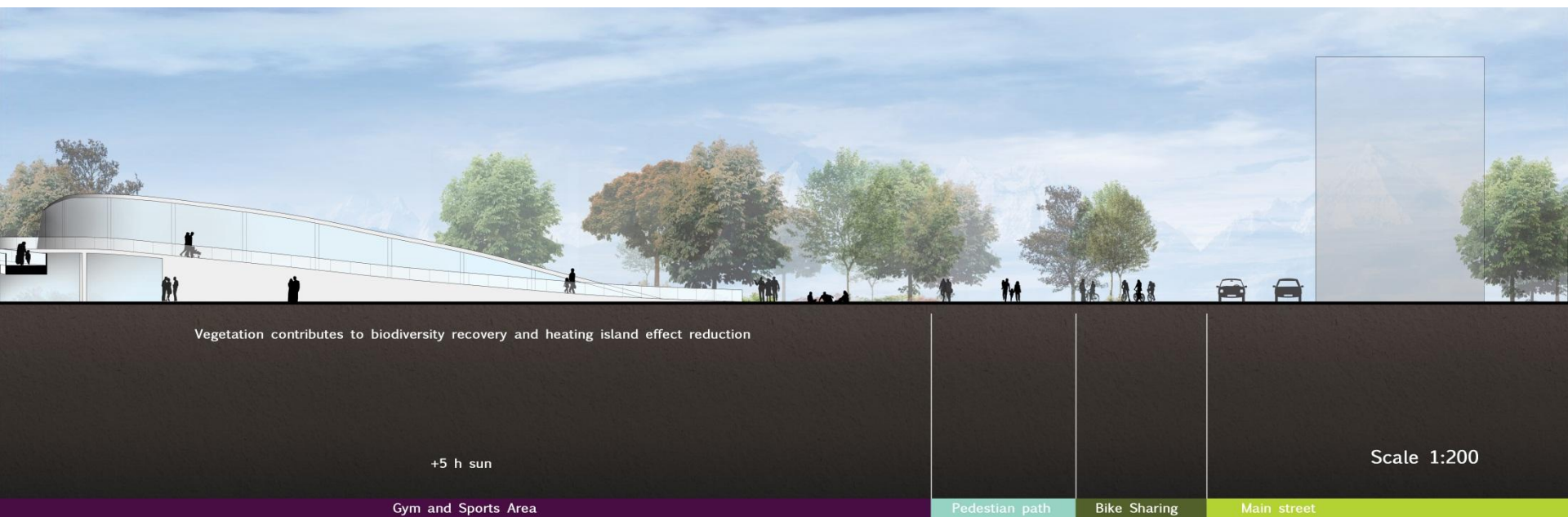


The grid

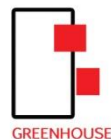
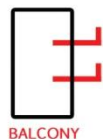




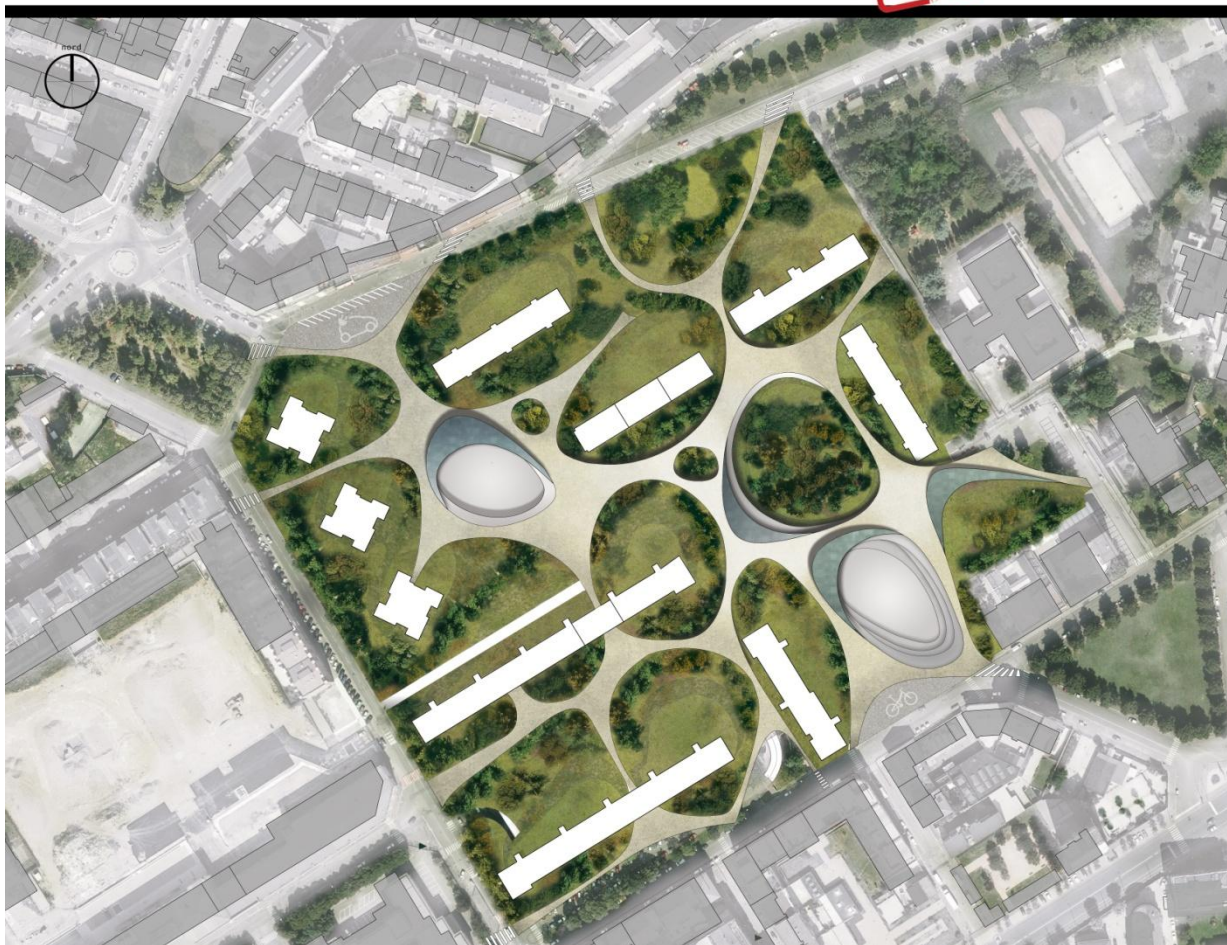


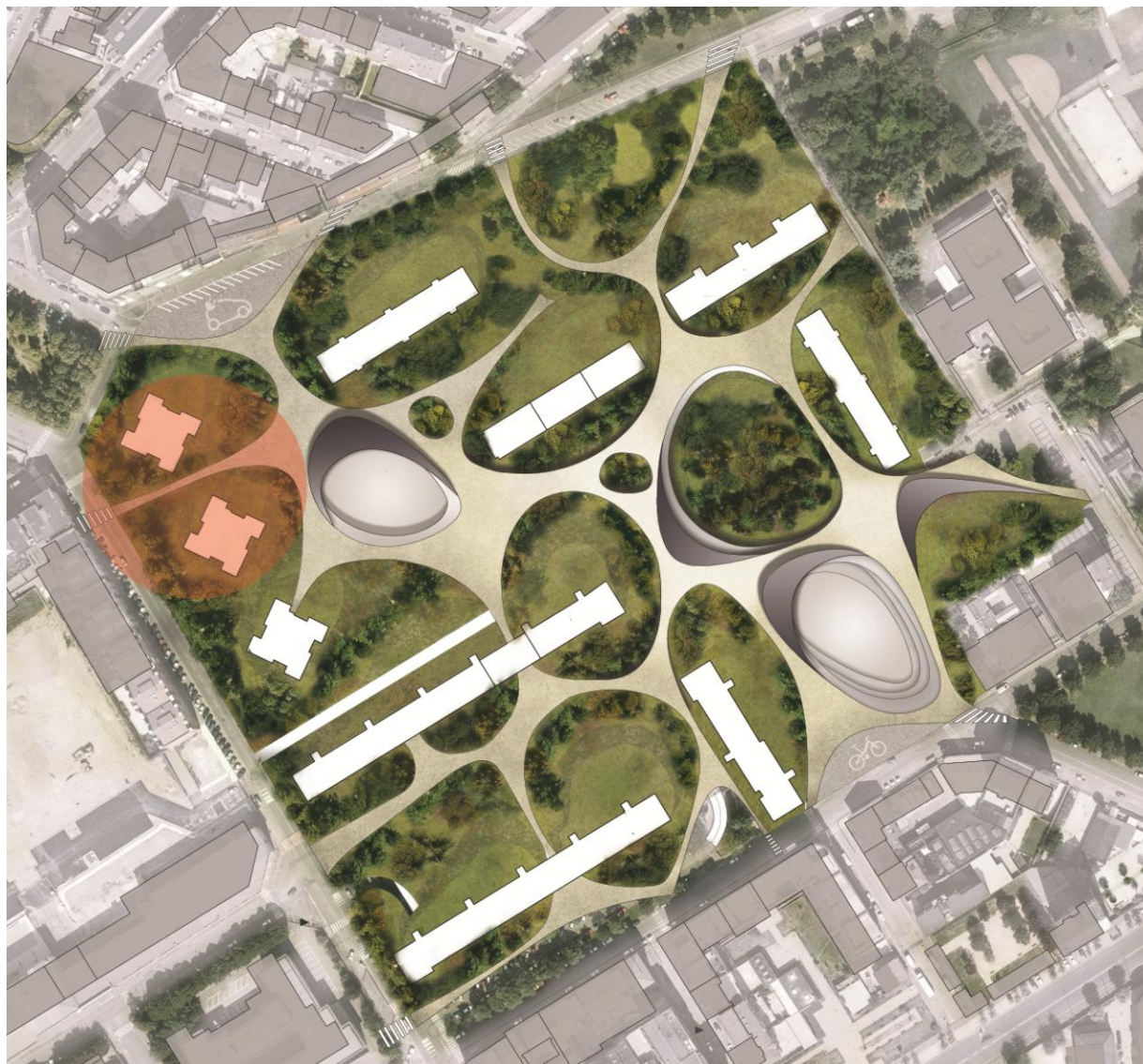


BUILDINGS RETROFIT



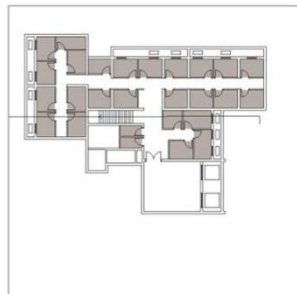
-54%
of consumption
saving about
1 million €/y



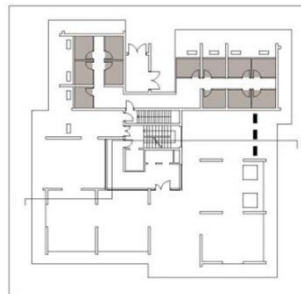




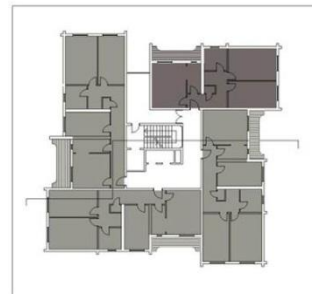




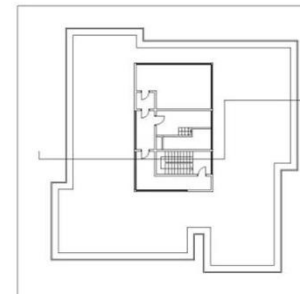
basement plan



ground floor plan



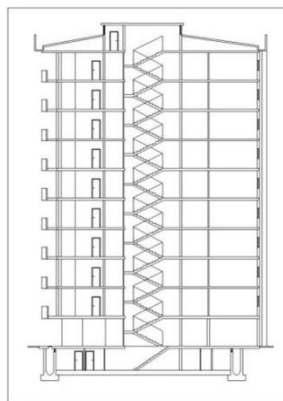
floor plan



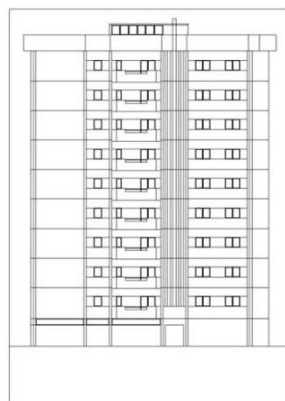
roof plan

9 FLOORS	9 APARTMENTS 85m2	36 APARTMENTS	TOTAL 3330m2
	27 APARTMENTS 95m2	144 INHABITANTS	

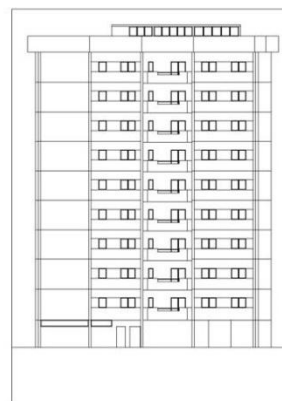
section



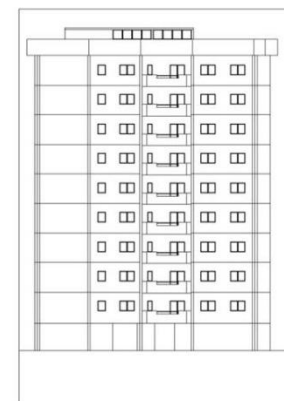
nw facade



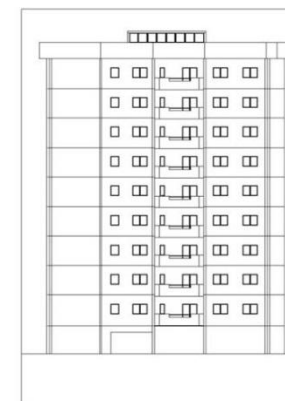
ne facade

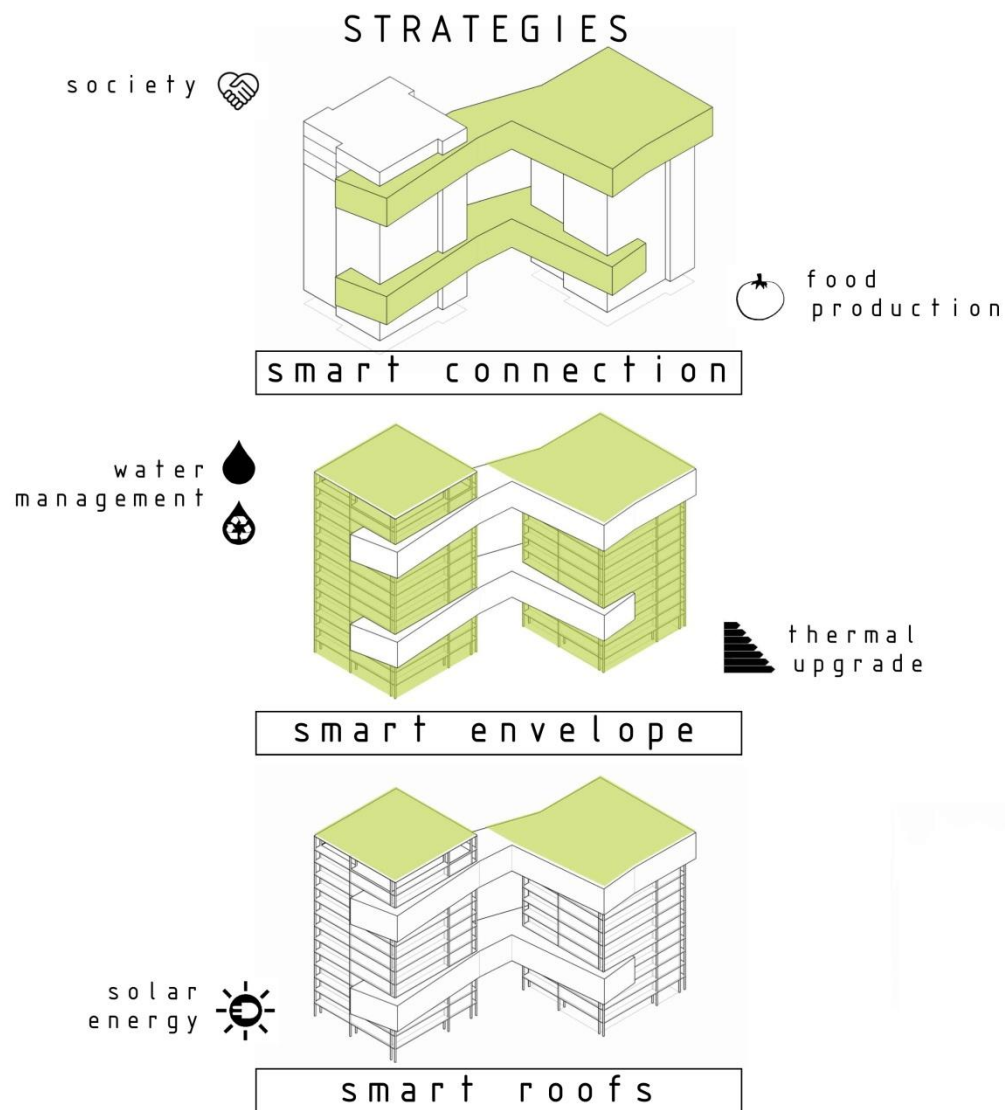


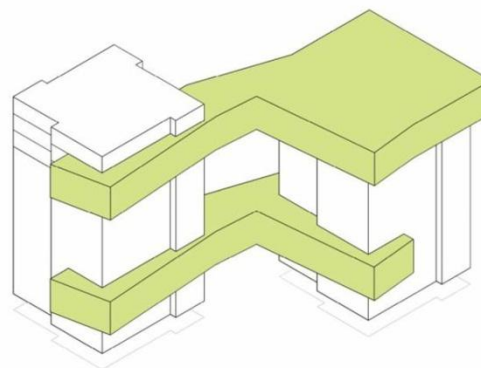
se facade



sw facade

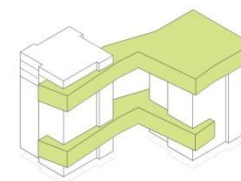






smart connection





BUYING ORGANIC FOOD



one family



584 kg / year
recommended consumption



organic vegetables and fruits
from the market
average price: 0.88€/kg**



513.9€/year

-

PRODUCING ORGANIC FOOD



one family



60 m²
standard garden space



584 kg / year
average production

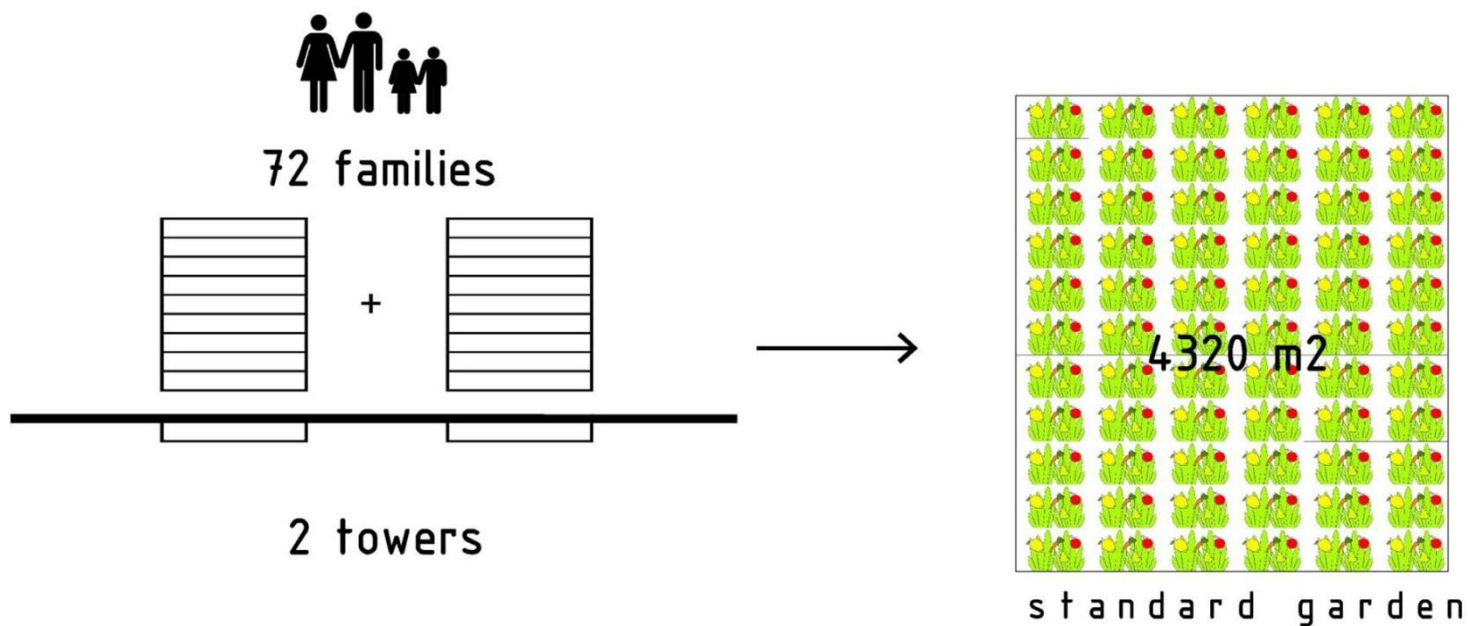
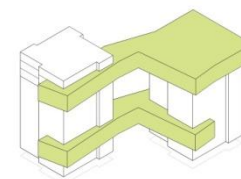


61.67€/year

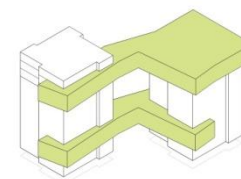
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TOTAL SAVING 88%

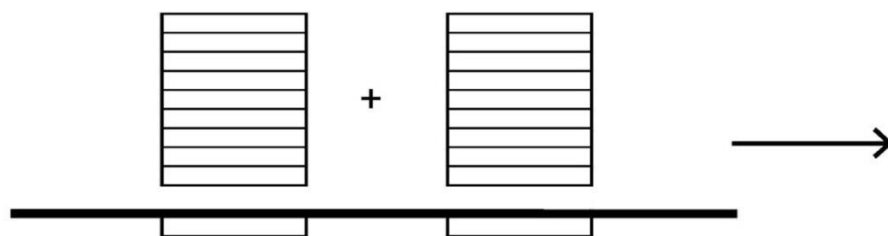
452.23€/year



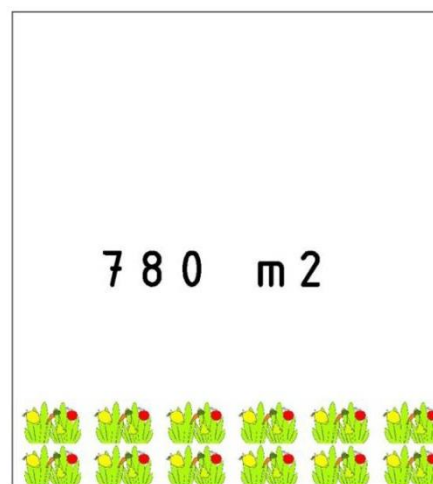
GARDEN SPACE DEMAND FOR TWO TOWERS



13 families

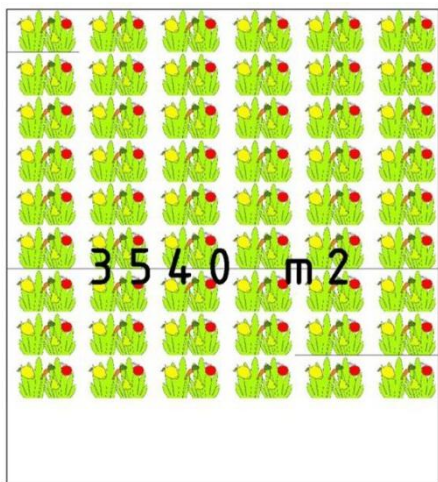
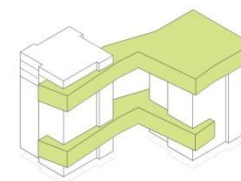


2 towers

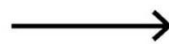


standard garden

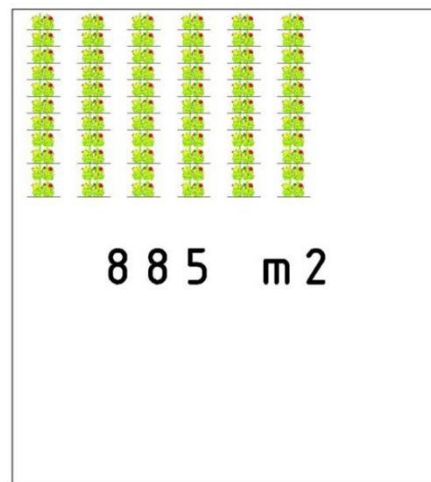
AVAILABLE BUILDING SITE AREA FOR GARDENING



standard garden

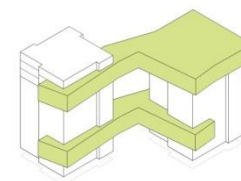


-75%

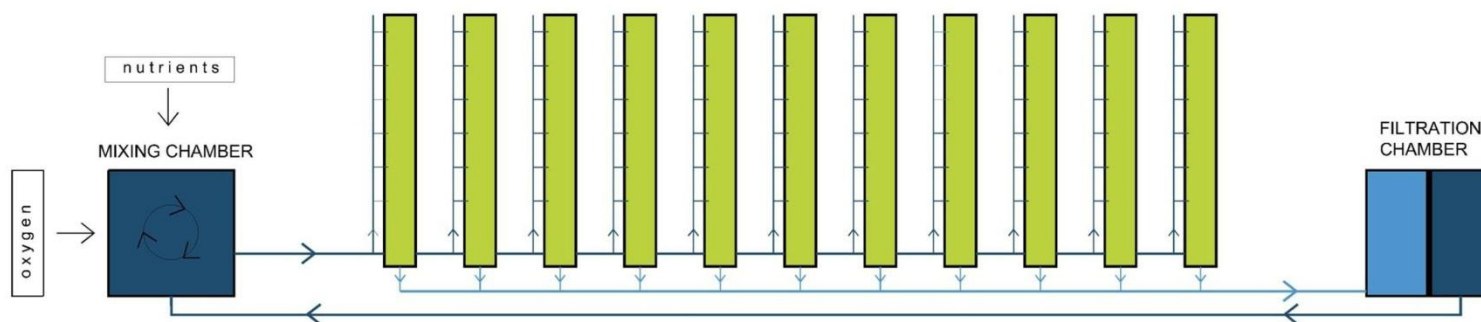
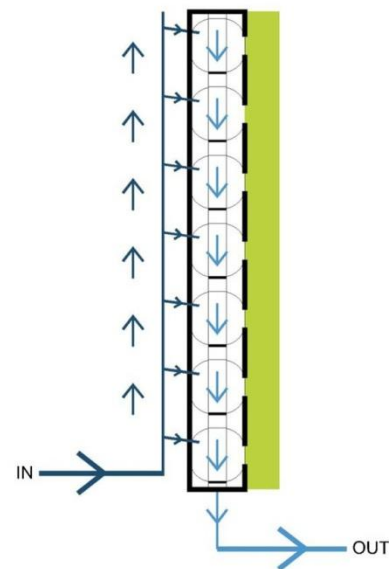


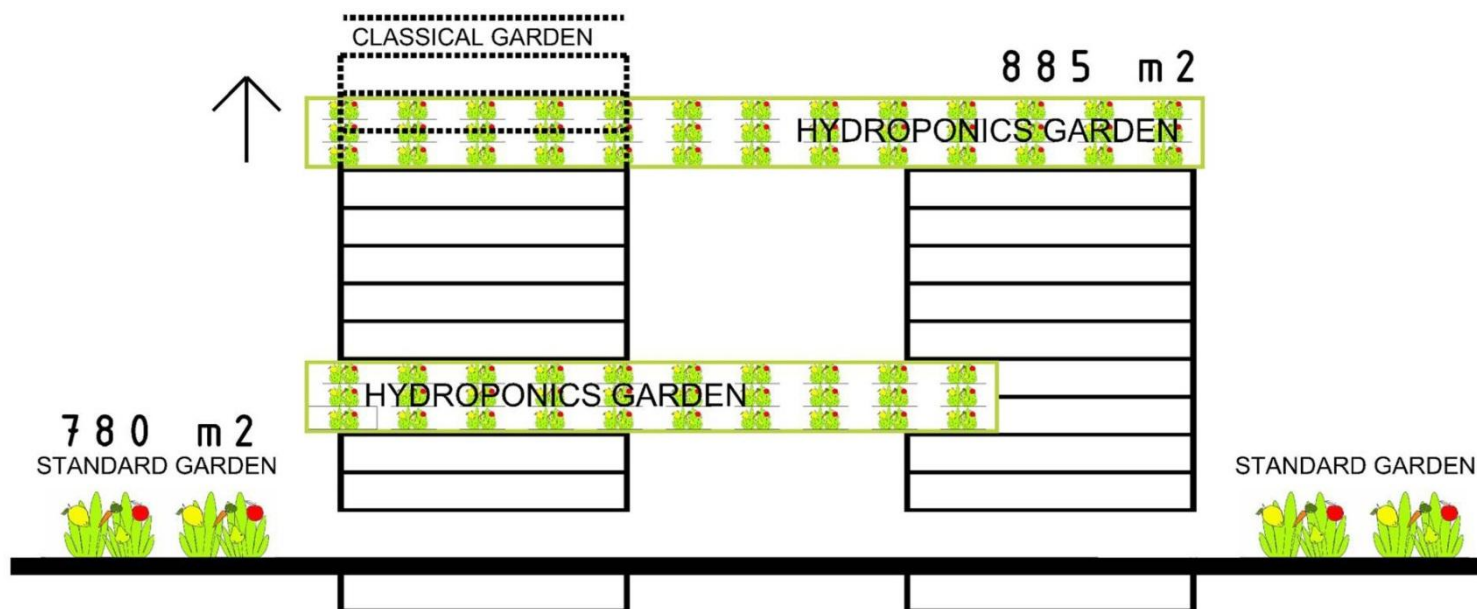
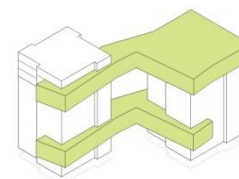
hydroponics garden

GARDEN SPACE SAVING WITH THE NEW TECHNOLOGIES

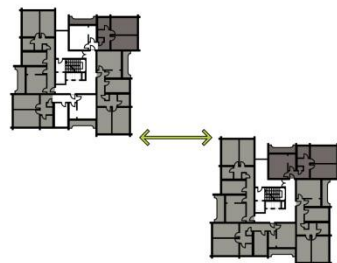
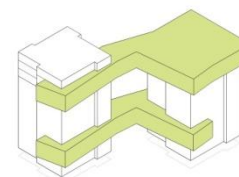


VERTICAL HYDROPONICS SYSTEM

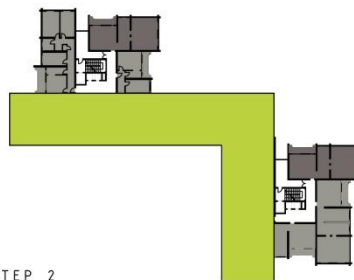




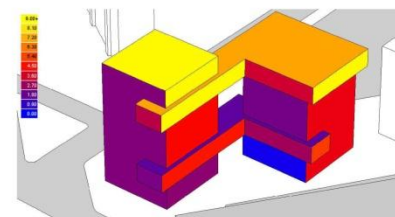
100% LOCAL PRODUCTION



STEP 1
CONNECT THE TOWERS

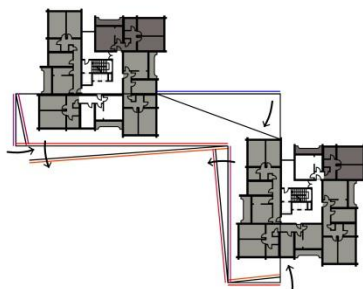


STEP 2
CONNECTION AS A RESULT OF THE TOWERS POSITION

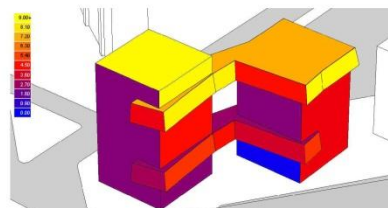


SOLAR ACCESS ANALYSIS - TOTAL SUNLIGHT HOURS - WINTER (8-17H)

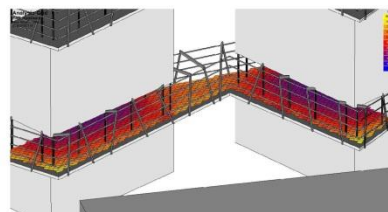
STEP 3
ECOTECT ANALYSIS OF THE SHAPE



STEP 4
ROTATING THE CURTAIN WALLS TOWARDS THE SOUTH OR WEST

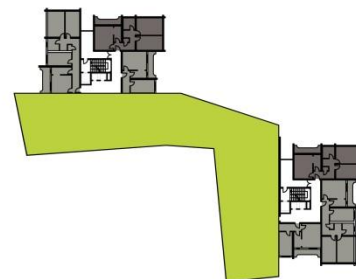


SOLAR ACCESS ANALYSIS - TOTAL SUNLIGHT HOURS - WINTER (8-17H)



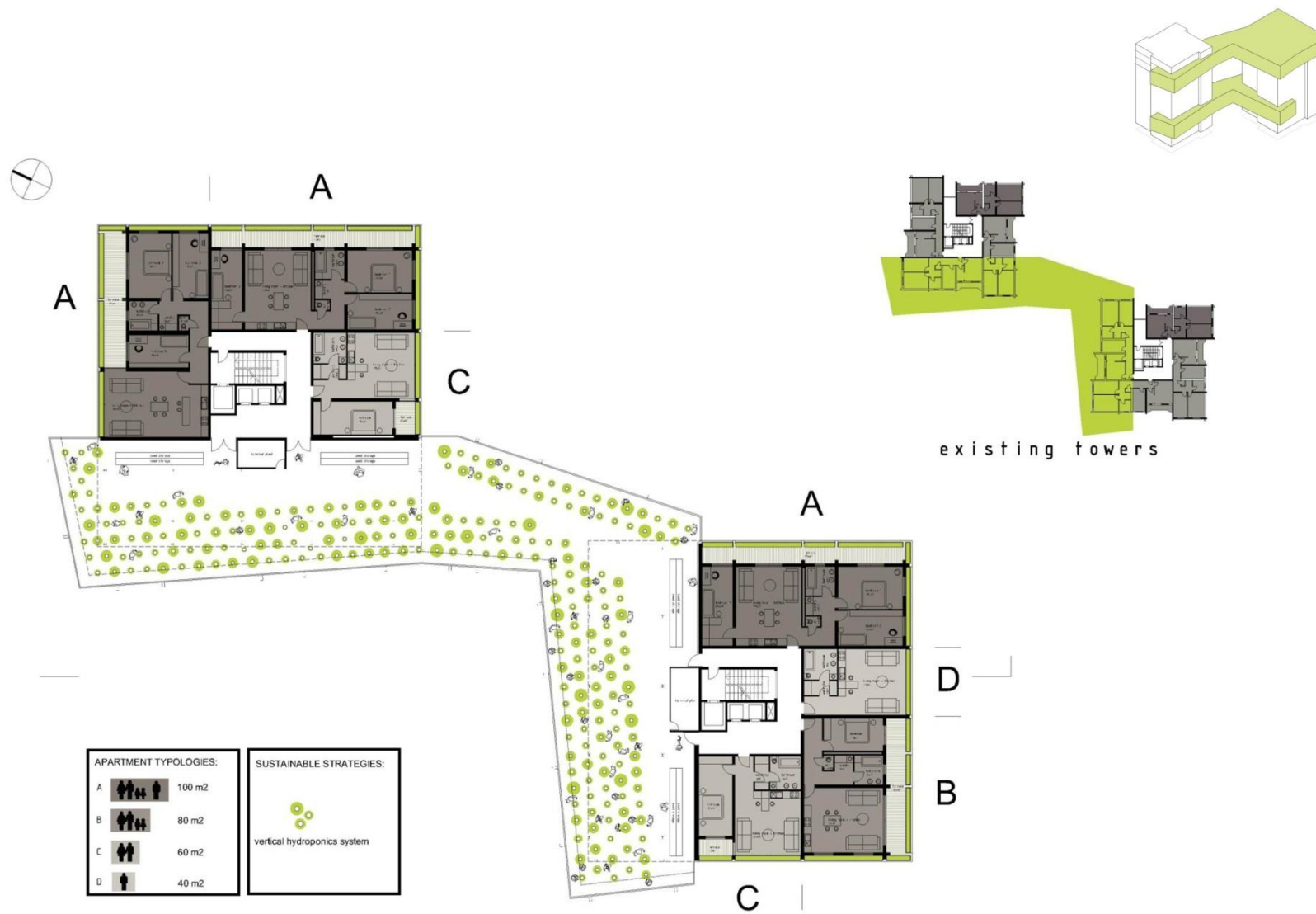
LIGHTING ANALYSIS - 21ST DECEMBER - 12:00 H

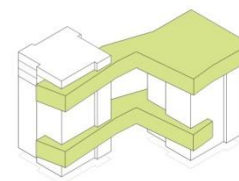
STEP 5
ECOTECT ANALYSIS OF THE NEW SHAPE

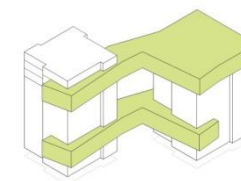
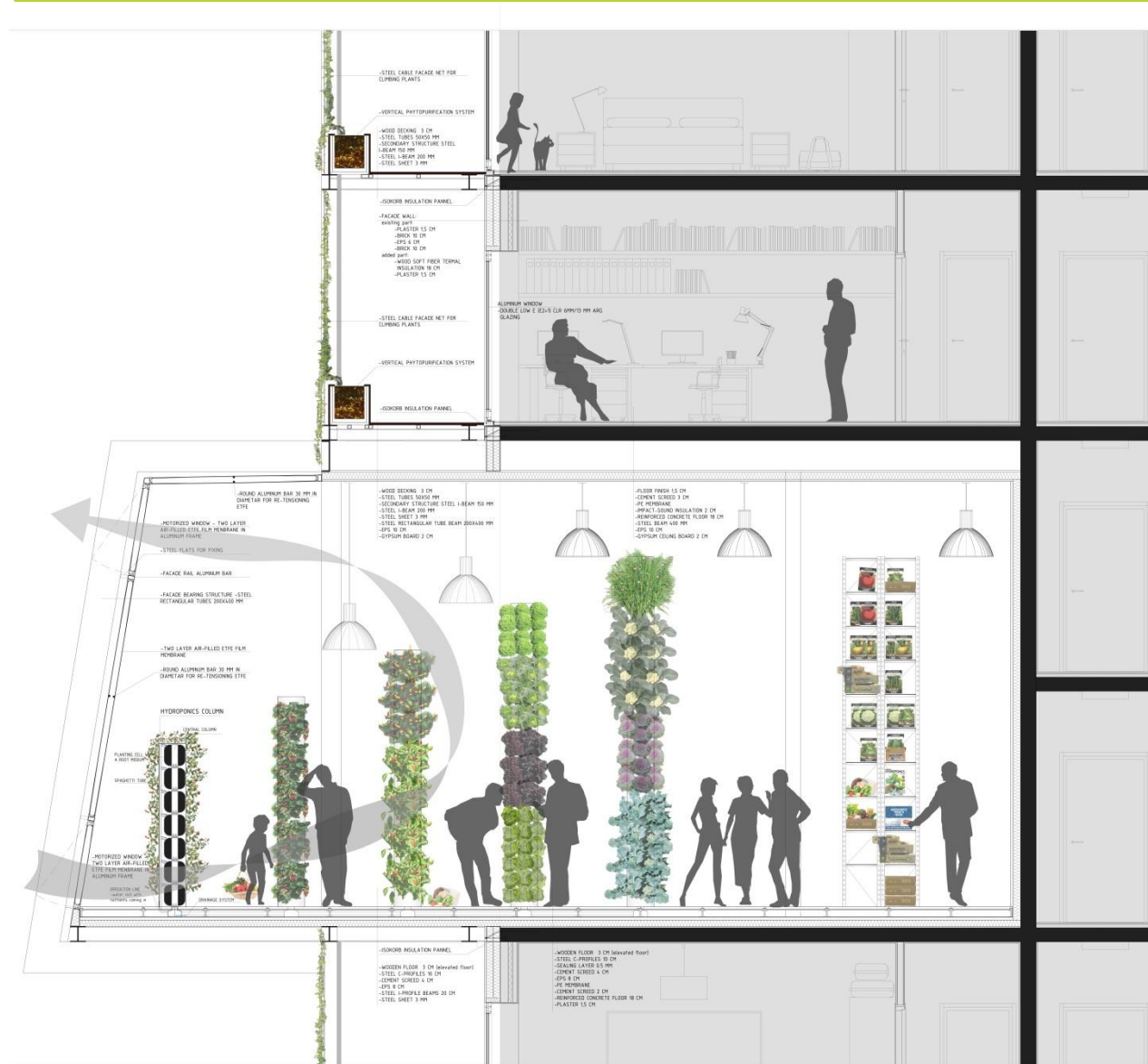


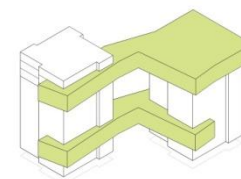
The shape of the connection is the result of the position of the towers with respect to one another. Then we rotated the curtain walls of the connection and fitted them inwards as much as possible in order to get bigger amount of total sunlight hours on the facades and thus more light for the plant growing. Most plants need at least 1000 lux for normal growth. Analysis show that in the lower connection (which is the one with less light) we have a range of 1800 - 9000 lux of daylight in the darkest day of the year, December 21st.

STEP 6
FINAL SHAPE









family production
fruits and vegetables



584kg/year

100% local fruits and vegetables



reducing family bills
fruits and vegetables

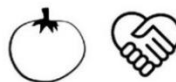
520 €/year

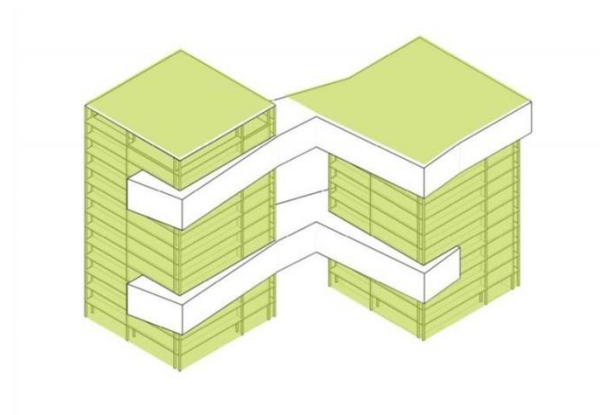


- 88%

62 €/year

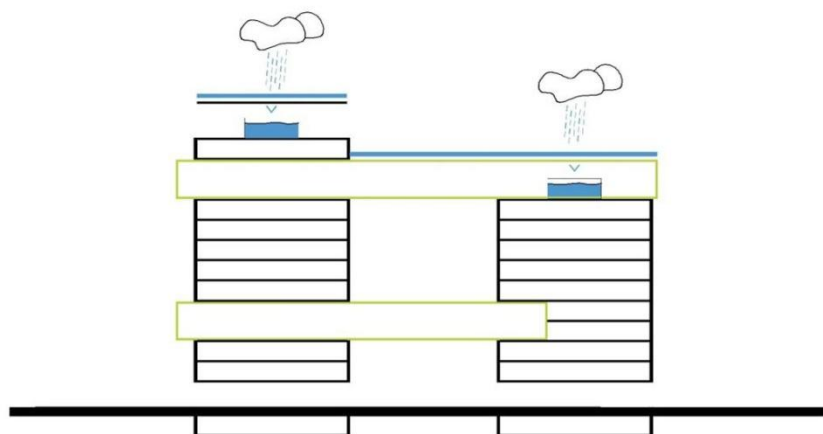
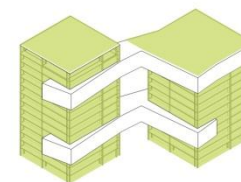
AGRO TOWERS BENEFITS





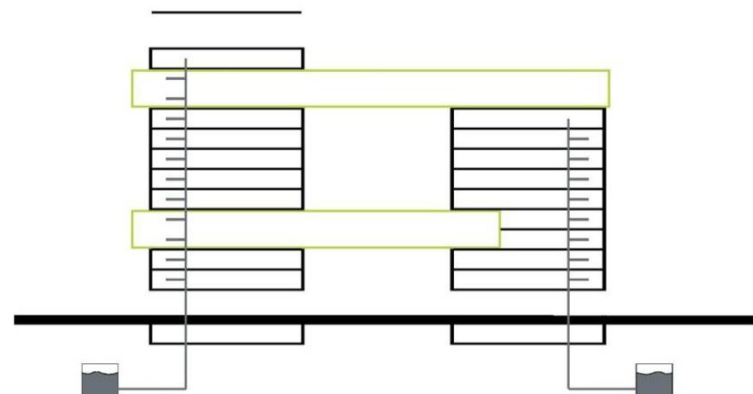
smart envelope





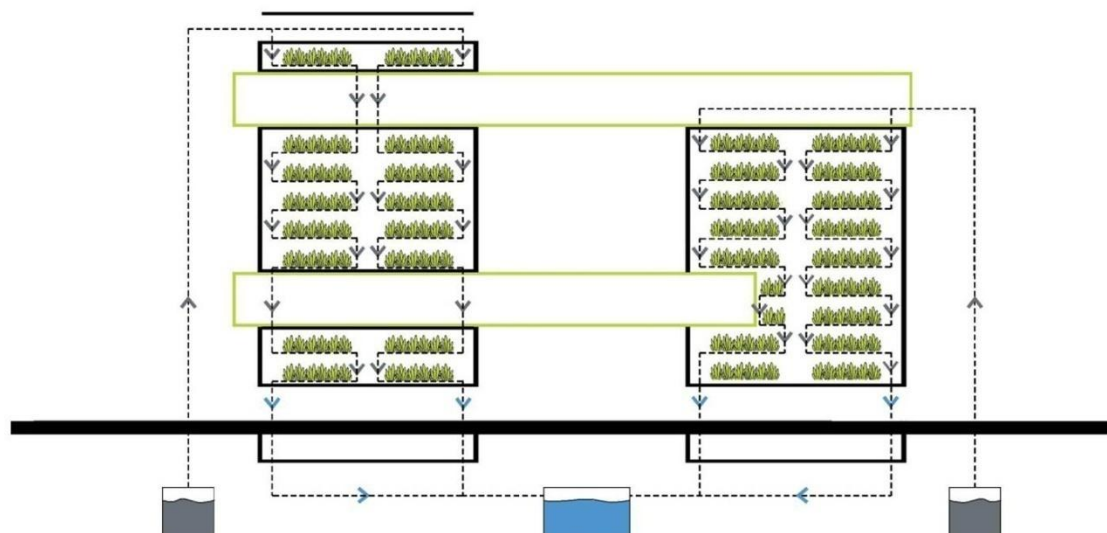
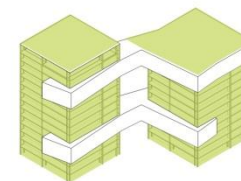
8 107 l / per family/ year

RAIN WATER



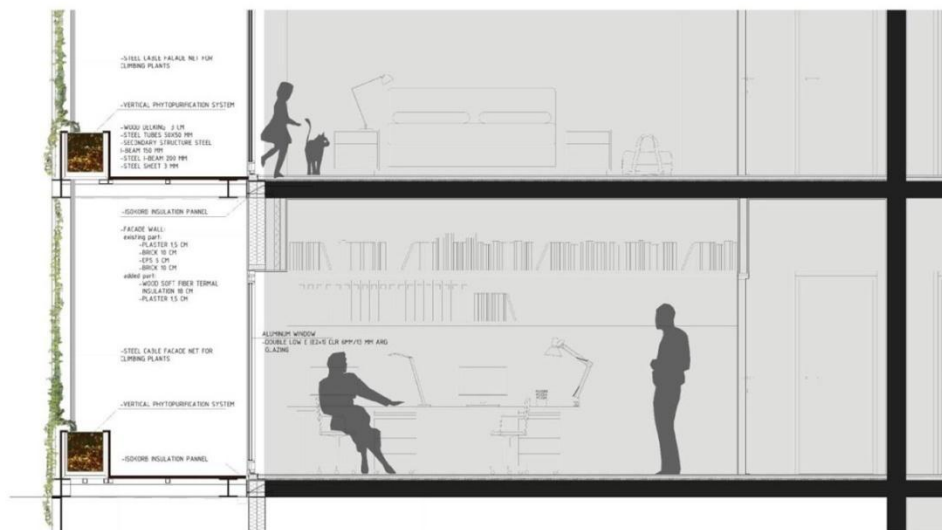
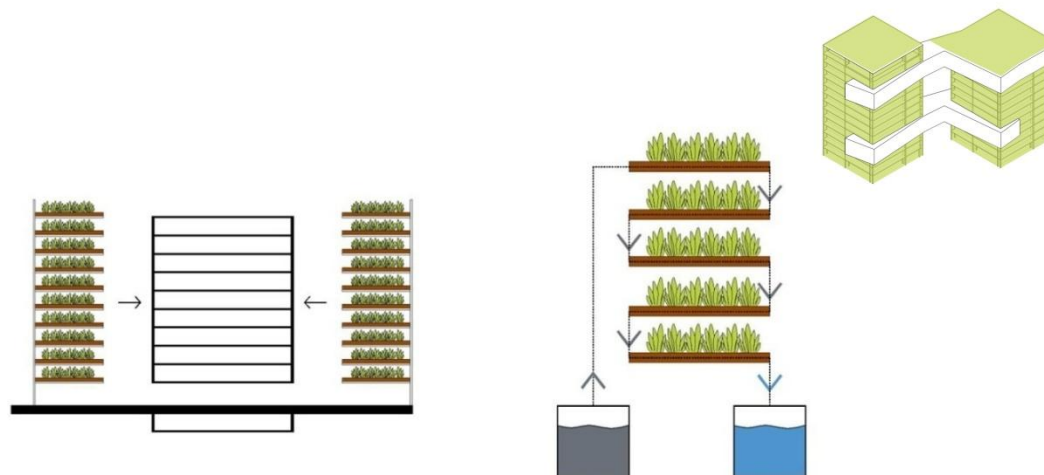
93 440 l / per family/ year

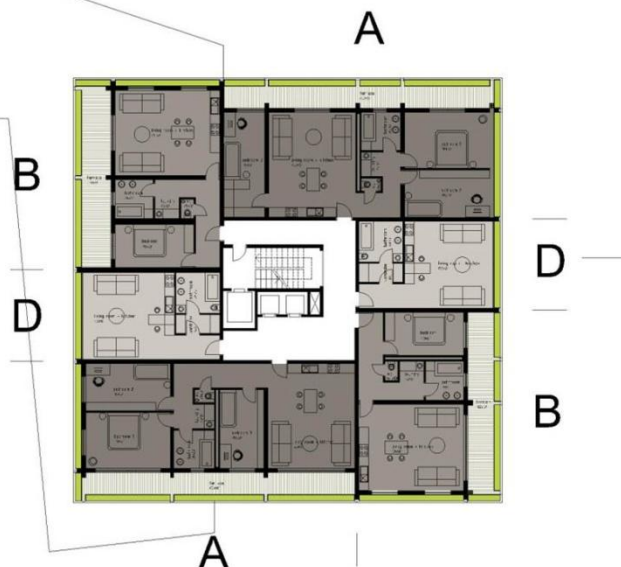
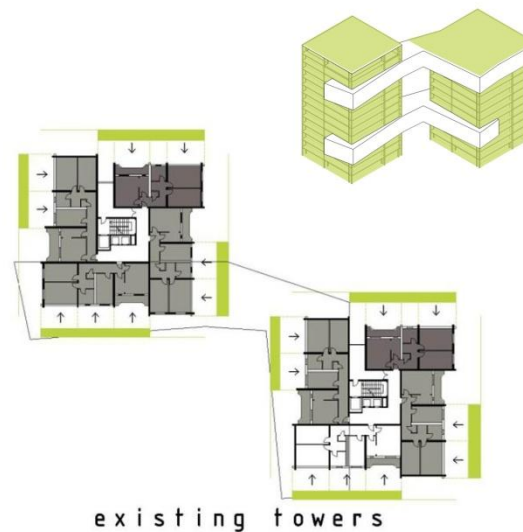
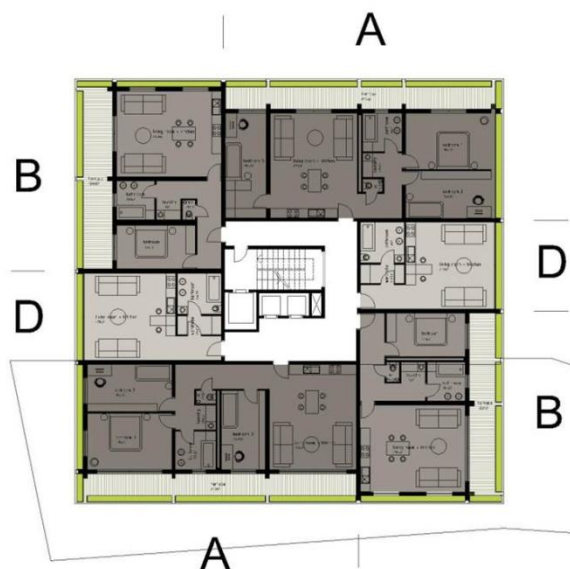
GRAY WATER



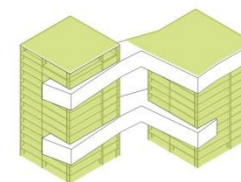
101 547 l / per family/ year

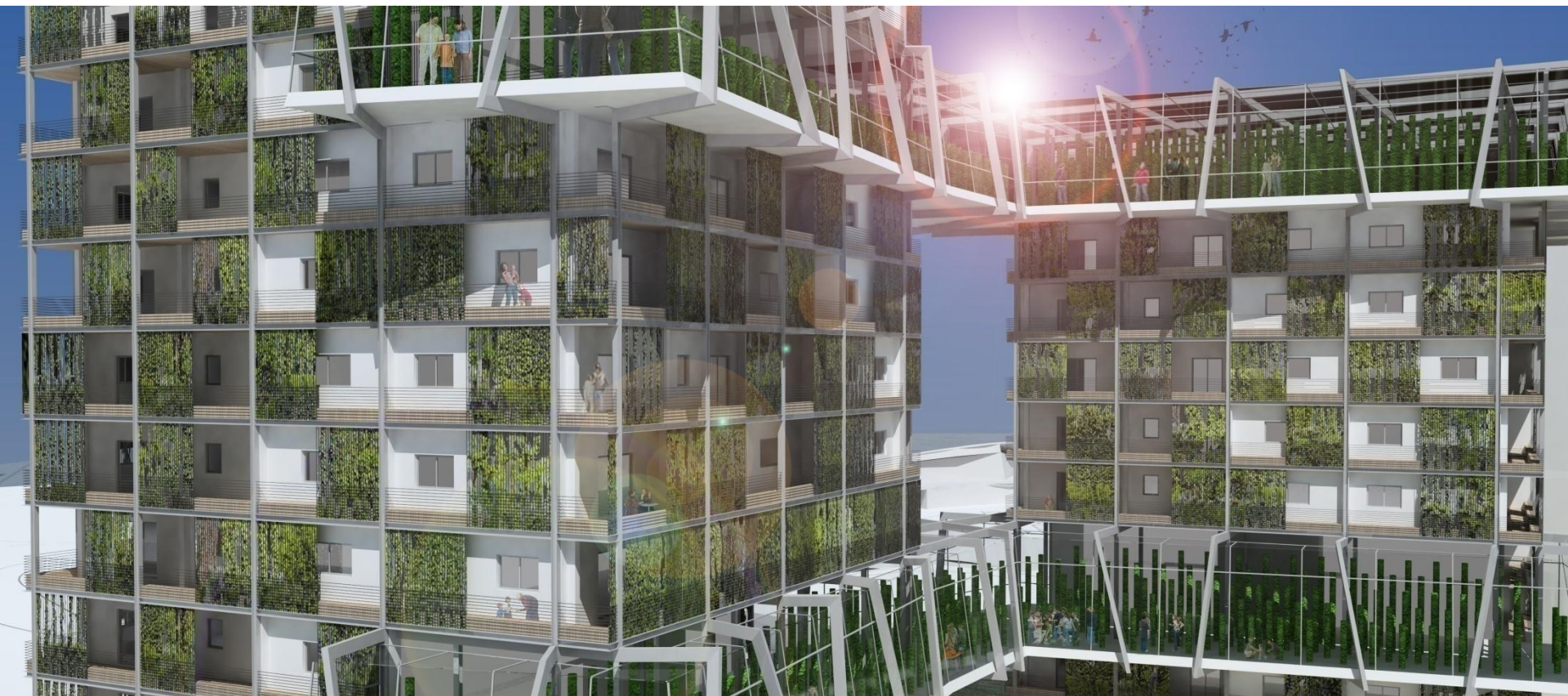
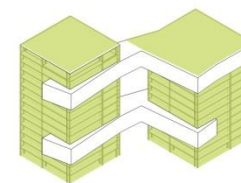
WATER RECYCLING

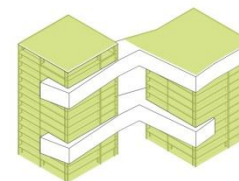




APARTMENT TYPOLOGIES:		SUSTAINABLE STRATEGIES:	
A	100 m2	vertical phyto purification	
B	80 m2		
D	40 m2		







-86%



1 family + mix garden



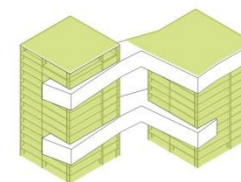
44 213 l/year



59 €/year

(waterworks)

WATER RECYCLING BENEFITS



EXTERNAL WALLS
THERMAL INSULATION 6 CM → 24 CM

SINGLE GLAZING → DOUBLE LOW E GLAZING WITH ARGAN

BLINDERS → GREENERY

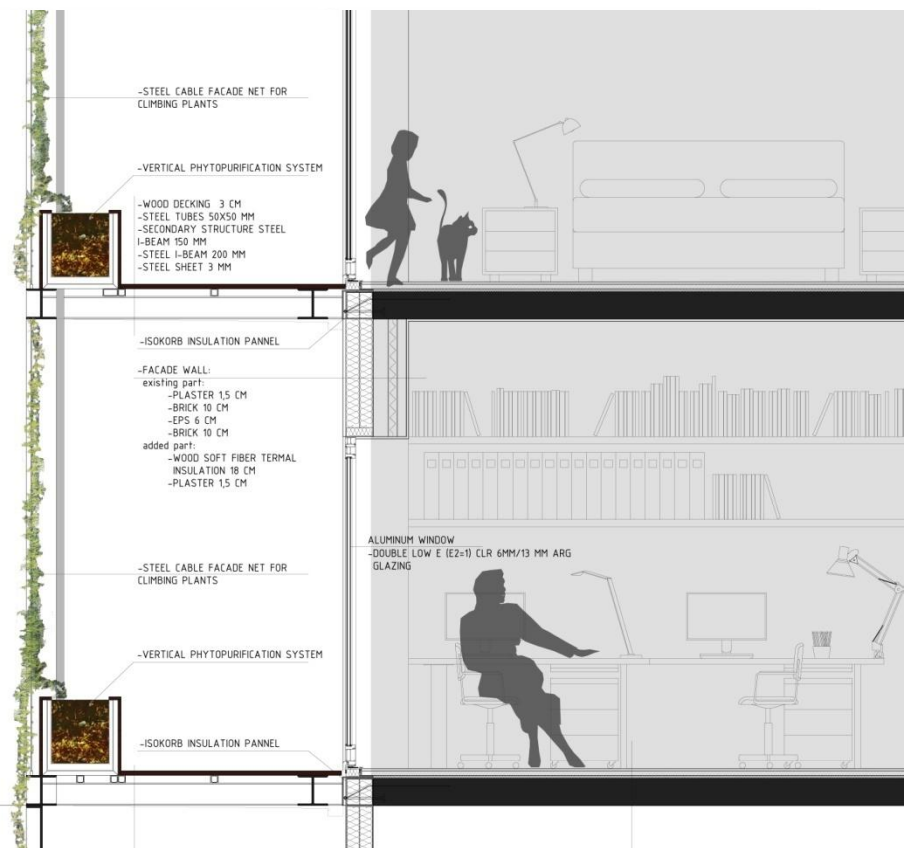
OVERALL BUILDING
ENERGY DEMAND **-48%**

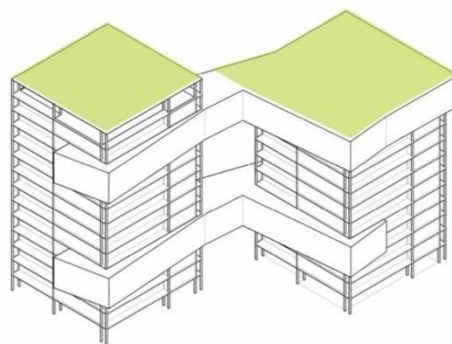
HEATING 38.89 kwh/m² → 6.48 kwh/m²

COOLING 4.5 kwh/m² → 0.72 kwh/m²

-83%

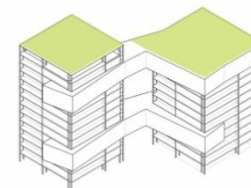
 reducing family bills 278€/year → 45€/year
cooling/heating





smart roofs





ROOF AREA FOR PV

1390m²



SATISFY 54% ENERGY DEMAND

STRATEGIES

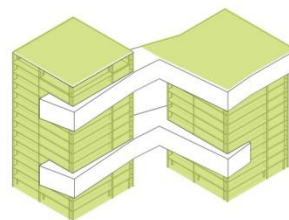
society 



smart connection

 food production

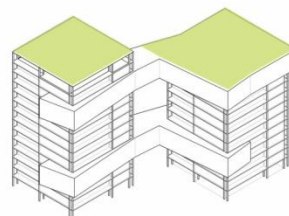
water management 



smart envelope

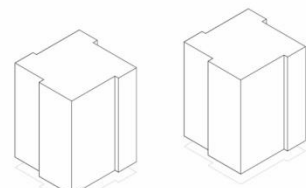
 thermal upgrade

solar energy 



smart roofs

 family bills/year	
fruits vegetables	520 €/year
water	431 €/year
energy	1529 €/year

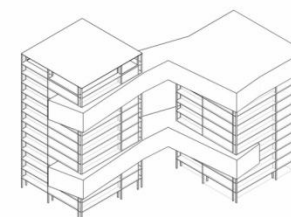


EXISTING

3165 €/year

TOTAL

 family bills/year	
-88% fruits vegetables	62 €/year
-86% water	59 €/year
-65% energy	520 €/year



AGRO TOWERS

- 80% 641 €/year

TOTAL

AGRO TOWERS PROJEKT



Hvala na pažnji!

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