The Farm is a speculative proposal for a self sustainable city block where as much food is produces as is consumed by it’s inhabitants. It is utilising the potential that arise when the greenery of farming is brought in to the cities in creating a new hybrid that blends with the city fabric with the aim of contributing to the areas multiplicity and vibrant life.

The aim of the project has been that through architecture design; study the possibility to go from a throughput society, where everything we consume is produced outside of the community, to a society that produces what it consumes within the community in a cyclical integrated sustainable way. Can we produce what we consume with in a city and what happens when the production, which in this case is the cultivation of crops and plants, merge with the existing city fabric? What happens if the cultivation is combined with a traditional apartment program and what does it become? Can the programs thrive together in symbiosis or will one of the programs become a parasite of the other? How does the vast open spaces required for farming relate to the small intimate spaces suitable for living spaces? What is the interrelationship, how do they effect each other?

Thesis question

How do you combine vastly different programs in a city block and what does it become?
Feeding the world in 2050

Why Urban Farming?

Today there is a food shortage in the world and we are using almost all arable land in the world to meet the demands. In 2050 the world population is predicted to increase from today’s 7 billion people to around 9 billion. The consequence of this is that we continue to farm in a traditional way we would need another 10% of arable land to feed all new mouths. A problem here is that the much new arable land simply doesn’t exist.

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Today is the world food needs are met almost entirely by arable land. To meet the needs for 2050 the world population of 9 billion people an agricultural footprint is about the size of Brazil will be required. Since almost all land suitable for farming is already being used the food demand simply doesn’t exist.

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To meet the needs for a predicted world population of 9 billion people an agricultural footprint equal to the size of Brazil will be required. Since almost all land suitable for farming is already being used the food demand simply doesn’t exist.

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Food waste will be refined into biogas

Support a sustainable lifestyle which minimizes transportations

No weather-related crop failures

Environmentally effective transportations

More control of food safety and security

No use of pesticides, herbicides or fertilizers

Tomorrow

Tomorrow

Tomorrow

Tomorrow

Tomorrow

Tomorrow

Tomorrow

Advantages of the Vertical Farm:

- Year-round crop production
- No weather-related crop failures
- No agricultural runoff
- Allowance for ecosystem restoration (when farmland is freed)
- No use of pesticides, herbicides or fertilizers
- Use of 70-95 percent less water
- Greatly reduced food miles
- More control of food safety and security
- New employment opportunities
- Animal feed from post harvested plant material

Some other possible side-effects with the Vertical Farm concept is that it has the potential of: binding the solutions to some of the mean concerns the world faces today such as deforestation, lack of food due to population increase, climate change, pollution, depleting resources, declining ecology, over-fertilization etc., etc.

Typology and Structure

The overall scheme, the farm, will be a self sustainable city block. The program has been dimensioned to consist of as many apartment as if this block would have been developed as a standard extruded city block. This apartments are suspended between cultivation towers which contains the amount of cultivation area equal to it’s inhabitants ecological footprint in regards to food consumption. In addition to this it also contains an food market and elevated park on top of the podium as well as an aquaculture in the towers ground imprint. The overall composition build on the idéa of a skyscraper complex by OMA to create a urban condition that blends with the city fabric and offers functional programmatic continuity between them. The bundles are connected themselves by the infill structure between them to allow for an internal separation of the different functions of the complex.

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From Solitaire to Clustered Bundle Towers

William Le Baron Jenny

An evolution driven by breakthroughs in technology, urbanism and program

Rolling Steel Frame: Solitaire / Extruded Block

Emphasises on the vertical to a new style which caught on throughout the world.

Buildings such as the Equitable Building that prevents setbacks.

Setbacks filled space within.

Communicate an open, transparent and light Glass skyscraper, Friedrichstrasse, 1921 (project)

Emphasis on the ground interface Podium and tower

Emphasis on the vertical

Trussed Tube Structure, not as diagram projects finally realised: the start of the superflat

The consistent monolithic look first envi

I.M Pei

Eff ect: “Superflat”

Lake Shore Drive, Chicago 1951

“Fordism” in architecture

First Sky lobby - elevator exchange floors

Structural Expressionist Style

Interconnected skyscraper complex / cluster

Podium and tower

AS A BUNDLE OF INTERCONNECTED TOWERS THAT PROVIDE A FLEXIBLE FLOOR SIZE AND THAT BUTTRESS EACH OTHER

PHYSICAL CONTINUITY OF THE WHOLE MASS, AND TO USE IT AS A STRUCTURAL ADVANTAGE, FORMING THE COMPLEX BUILDING MASS, RATHER THAN WITH JUST THE DISTRIBUTION OF THE STRUCTURE. OUR PROPOSAL IS TO MAINTAIN THE TENDENCY OF THE ORGANIZATION TO CONCENTRATE THE STRUCTURAL SECTION IN THE PERIPHERY OF THE PLAN, AS THE SKYSCRAPER TYPE, WE CAN SEE A PROCESS IN WHICH THE INCREASE IN HEIGHT OF THE STRUCTURE RESULT IN A TEN-

THE WORLDS TALLEST BUILDING REQUIRES A NEW HIGH-RISE TYPOLOGY. IF WE LOOK AT THE EVOLUTION OF THE

DOW

large plate-glass windows the Chicago Win-

Steel frame with brick cladding, allowed for

Hugh Ferris

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From Solitaire to Clustered Bundle Towers

Steel frame with brick cladding, allowed for Home Insurance Building, Chicago 1885

An evolution driven by breakthroughs in technology, urbanism and program

Emphasises on the vertical buildings such as the Equitable Building that prevents

Communicate an open, transparent and light Glass skyscraper, Fredrichstrasse, 1921 (project)

Raymond Hood

City within a City

The building as a decorated object

The decorated object

"Fordism" in architecture: standardization, Mies van Der Rohe

"Fordism" in architecture

Framed Tube Structure ; "a three dimen-

Framed Tube Structure -

SOM

Fatlur Kahn

First Sky lobby - elevator exchange fl  oors

Sky Lobby

Trussed Tube Structure (Exoskeleton)

John Portman

Super Tall Atrium

View from the North

CONVENTIONAL FLOOR TO FLOOR HEIGHT OF 4.5M. THE TOTAL FLOOR PLATE WAS AIMED TO MATCH THE SIZE OF STRUCTURALLY. AS OUR TARGET WAS TO REACH APPROXIMATELY 500M IN HEIGHT, WE NEEDED 100 FLOORS OF

PHYSICAL CONTINUITY OF THE WHOLE MASS, AND TO USE IT AS A STRUCTURAL ADVANTAGE, FORMING THE COMPLEX EXTREMELY DEEP, AND THEREFORE HEAVILY DEPENDENT ON ARTIFICIAL LIGHT AND MECHANICALLY CONTROLLED

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COMPLEX – a new urban condition for the 21st Century. The breakthrough this project represents, is the integration of several buildings into a larger whole.

No longer soloists, the diff  erent elements support each other in every sense: architecturally, they form an integrated complex; technically, issues of stability,

At the end of the 20th century and the beginning of the 21st we are at the brink of a great transition: real space and cyberspace coexist . Usually they are seen

Transition from horizontal to vertical extension

Diff  usion of mass.Fluid and transition or horizontal extension

Aedas - Andrew Broomberg

Diff  usion off   mass.Fluid and transition or horizontal extension

Renzo Piano


Zaha Hadid

City Life Milano, Milano, 2004

DESIGN WILL BE ABOUT THE TRANSPARENT ARTICULATION OF LIFE-PROCESSES INTERSECT. THESE LIFE-PROCESSES NEED TO

BUILD UP WILL BE A MIXED-USE BUILD UP, WHERE MULTIPLE

QUANTITY) DRIVES URBAN DENSITY. IN THE FUTURE, EVEN

WHERE THE DESIRE FOR CONNECTIVITY (RATHER THAN PURE

DESIGN OF COMPLEX TOWERS IN URBAN CONTEXTS. ON

Tour de Verre, New York, 2007

Sunrise tower, Kuala Lumpur, 2009,
From Solitaire to Clustered Bundle Towers

Solitaire / Extruded Block
Wainright Building, Chicago 1891
to a new style which caught on throughout the world.

usually interpreted as a series of setbacks and gave rise
to massive buildings such as the Equitable Building that prevents
heights in the Zoning Law resolution to stop massive
buildings.

In 1916 New York regulates building massing at certain

Hugh Ferris
Mies van der Rohe
The "City within a City"
Rockefeller Center, New York, 1930'
Chrystler Building, New York, 1928-30

The decorated object
"Fordism" in architecture: standardization,
Mies van der Rohe
Framed tube Structure
Fazlur Kahn
Framed Tube Structure
First Sky lobby - elevator exchange flour
gravity and diagonals for lateral forces, it

John Portman
XX & Marriot Marquies
Super Tall Atrium

Bundled Tube Structure
The consistent monolithic look first envi-

Jean Nouvell
Tour Sans Fins, Paris, 1987 (project)

hai, SOM and other supertall structures.

The Miglin-Beitler Sky Needle, Chicago, 1990

The "ecological" skyscraper.
Not an vertical dead end but allows for con-

OMA

The breakthrough this project represents, is the integration of several buildings into a larger whole.

At the end of the 20th century and the beginning of the 21st we are at the brink of a great transition: real space and cyberspace coexist. Usually they are seen

programmatic richness instead of repetition. For the city this arrangement means that the Skyscraper is not merely the imposition of a huge parasite, but that
access, circulation and servicing are organized collectively; urbanistically, the entire building becomes an urban quarter of a new kind.

No longer soloists, the different elements support each other in every sense: architecturally, they form an integrated complex; technically, issues of stability,

COMPLEX – a new urban condition for the 21st Century. The breakthrough this project represents, is the integration of several buildings into a larger whole.

place the tower on a plaza, but all over the world the emptiness of such spaces makes them an impoverished caricature of urban life.

tower-like structures. Over the past 150 years all these technologies have improved, but nothing has essentially changed.

the principal cause of high-wind building

problems on its own. the contemporary city has be-

Skidmore, Owing & Merrill

Cavities for Vortex suppression

Buttress each other structurally

FOA

AEDAS – Andrew Broomberg

Diffusion of mass

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MANHATTAN. “ – ALEJANDRO ZAERA-POLO

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IS TO KEEP INCREASING THE DEPTH OF THE PLAN PROPORTIONALLY. THIS LEADS INTO BUILDING TYPES THAT BECOME
THE STRENGTH OF THE MATERIALS INSUFFICIENT TO PROVIDE STABILITY TO LATERAL FORCES, SO THE ONLY SOLUTION
LATERAL FORCES BECOME STRONGER THEN THE GRAVITATIONAL ONES… THIS PROCESS HAS EVOLVED THE POST AND

Articulated in all its forms and contexts.
Sophisticated, versatile language of architecture to be
Life-processes intersect. These life-processes need to
Lease of life in the central metropolitan societies,

formation combine to articulate a new paradigm for the

The agendas of differentiation, interface and naviga-

"THE CITY WITHIN A CITY"

Herzog & de Meuron

Tour de Verre, New York, 2007

Zaha Hadid Architects

OMA/REX

Museum Plaza, Louisville, Kentucky 2006

"Articulated in all its forms and contexts.
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tion"
Photographs of 3D printed model