

North American Legacy Foundation

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Presents:

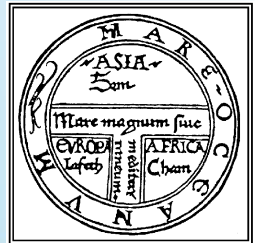
The Farmbox

Environmental Sustainability

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Project's Vision and Mission

The vision: Contribute and participate with individuals and communities in the incorporation of urban and rural productivity in sustainable ways.

The mission: Engage people in environmental stewardship through an action that contributes to increase home productivity, is fun, and preserves knowledge of ecology and traditions for sustainable living.

From education to social activism, The Farmbox places sustainable thinking as the first step in human enterprises, one cycle after the other.

The Farmbox



- Low cost and low maintenance
- Easy to build or implement
- Promotes the use of recycled seeds from home
- In tune with the vision of Ecotecture / Living Building
- Rewards good ideas and work in sustainability yearly
- Connects to city programs and eco-actions
- It's fun and could be for many a hobby
- Enables owners to participate in Farmer's Markets

Understanding “The Farmbox”

One of the oldest methods to design and construct buildings is architecture.

Term is composed from the Greek words:

Archi: Foreman, Chief

Tektos: builder, constructor

Architektos: To build according to a foreman or chief carpenter or mason.



Hey, what about the Ecology?



The trend in green living

Homes:
They
consume
energy

We find
ways to
achieve
**Zero
Energy**
or even
generate
some
energy



But we could
also
produce food

Can you
find ways to
produce
home-grown
groceries?

The future of homes...

The edible energy: calories!



**This home produces nearly
1,000,000 Calories per Year**

“The Farmbox”

A method of soil bed design or construction that uses a soil mix, the energy of the sun, water, and other recyclable materials in order to create suitable spaces for the production of plants for human or animal consumption.

The Farmbox allows an integral use of spaces like the balcony, garden or alleys of homes. Urban agriculture, gardening, trades skills that help produce energy in the form of calories or proteins. It is a first step to **Ecotecture!**

Öikos: The Environment

Tektos: build, construct

Architecture



Nice, but, is it
green
Enough?

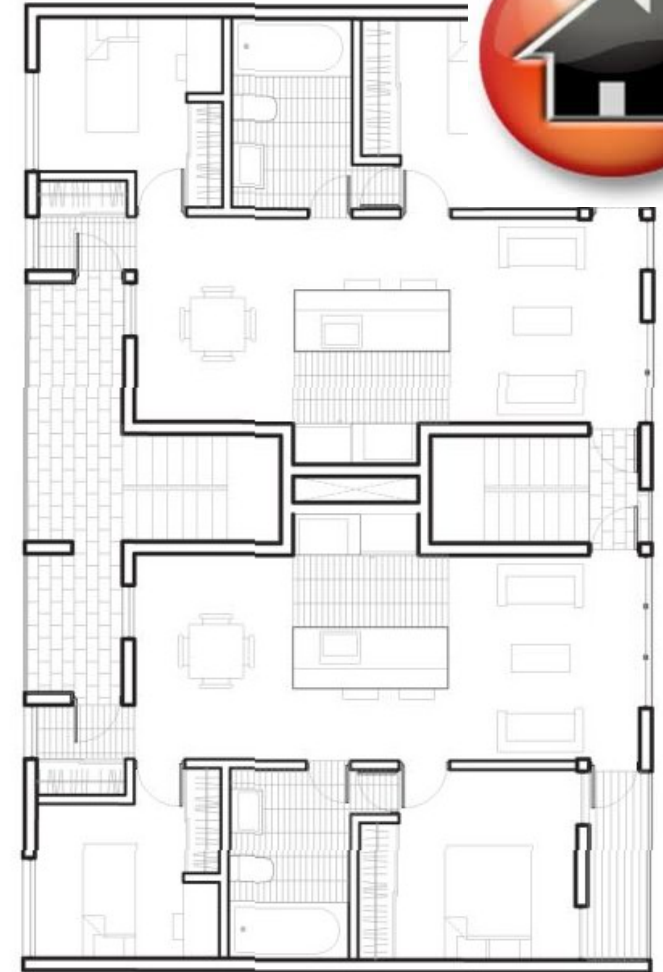
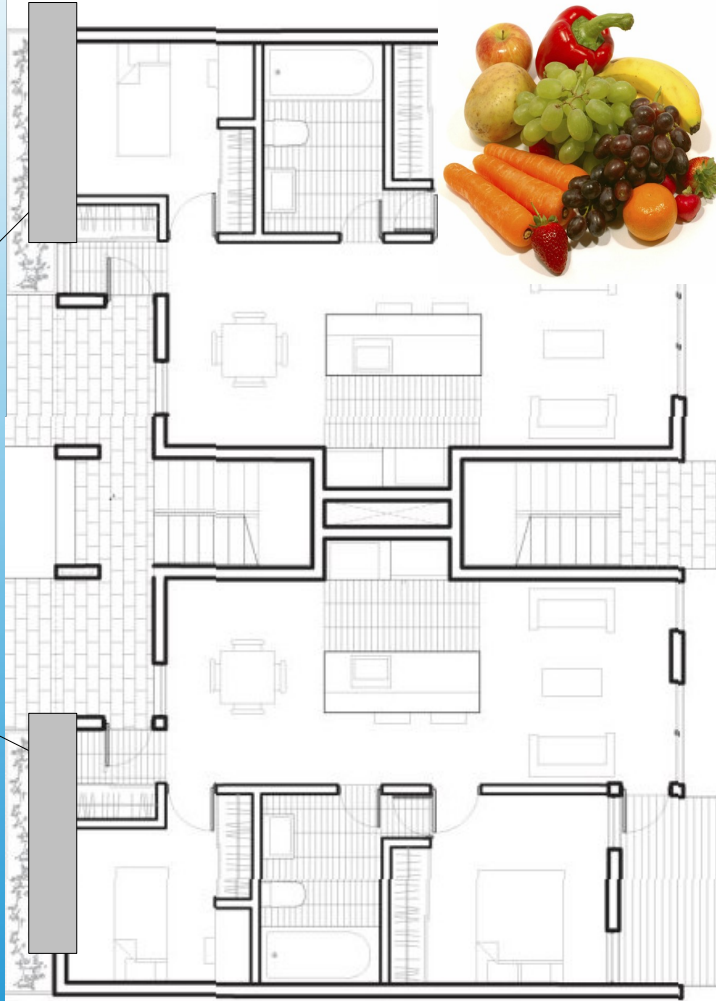
Or

Sustainable

How much soil is available to grow edible
vegetables to mimic a mini farm?

We could use the roof, the balconies, the alleys or windows...

Even the
smallest
areas are
good to
plant
The
Farmbox



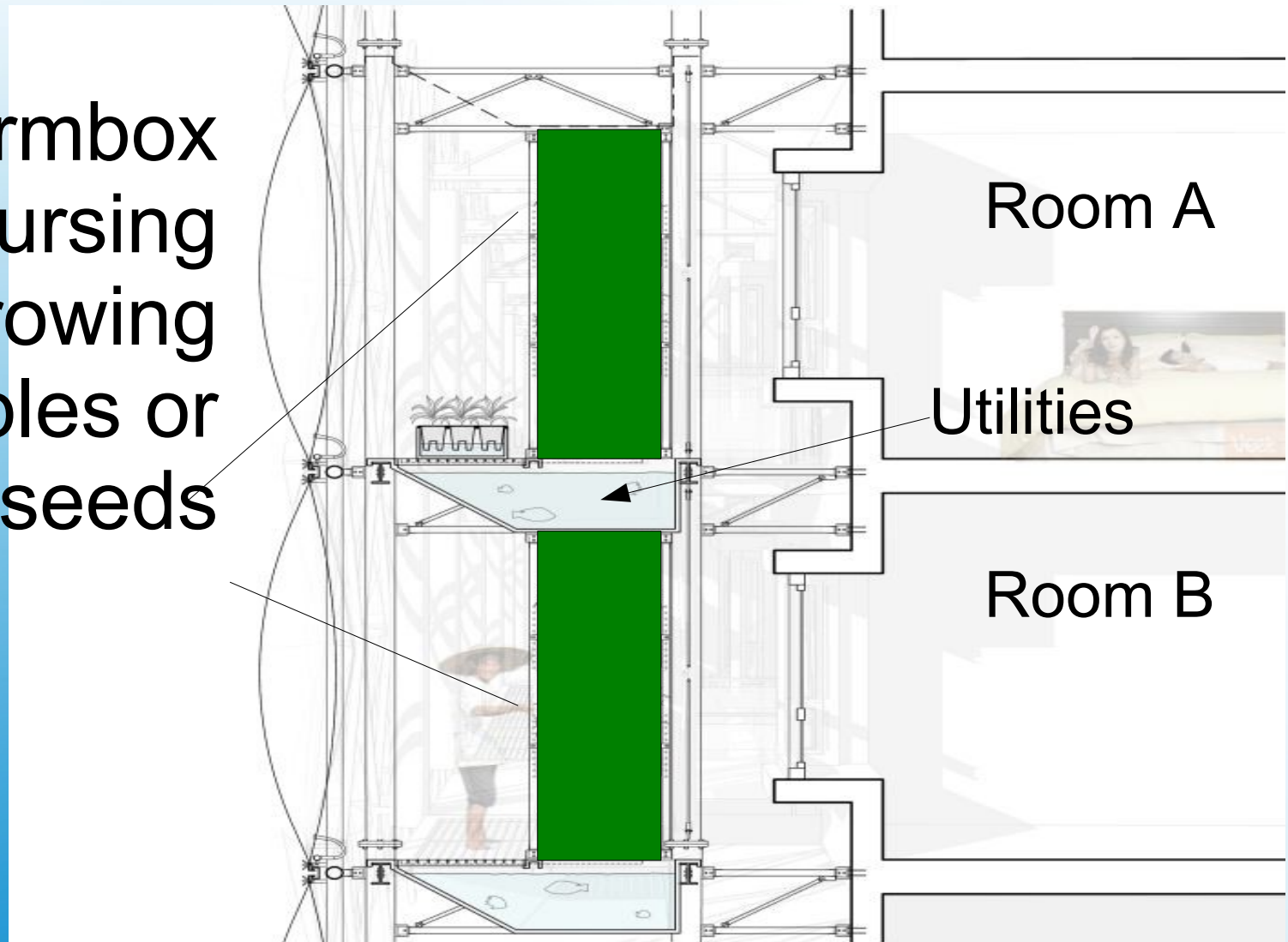
We need more areas for plants!

Compare



Plants can grow in balcony or roofs, both spaces
Can be used for urban farming if we think of it

Farmbox
for nursing
or growing
Vegetables or
seeds



Balconies with racks for home farming, believe
It or not, is it possible to grow food in balconies.



New jobs

Recycled heat and moisture

Greenhouse

Vegetables

Fruit trees

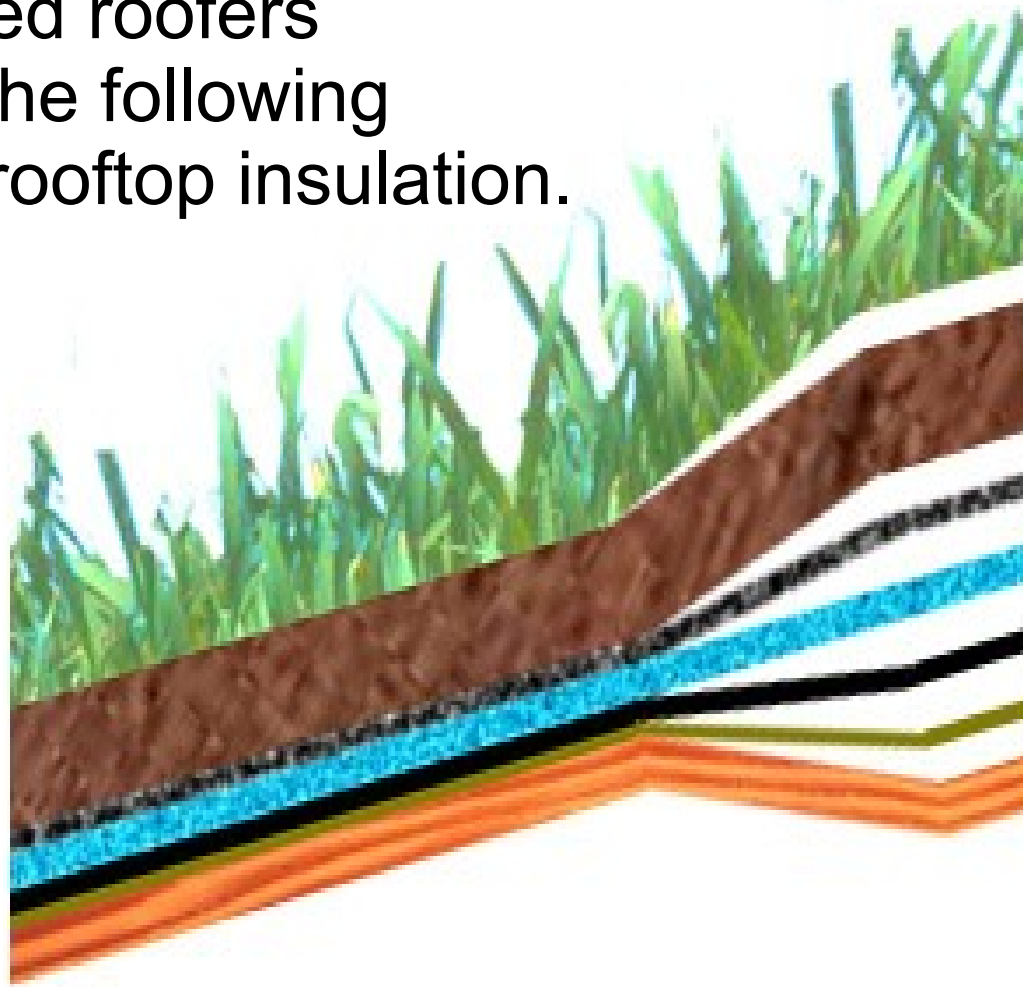
Cereals

Seeds

FRESH!

A farmbox balcony or a green roof creates sustainable opportunities for many!

Experienced roofers
postulate the following
model for rooftop insulation.



PLANT LAYER

SOIL MIX LAYER

SOIL FILTER FABRIC

DRAIN MAT

WATERPROOF MEMBRANE

SUB MEMBRANE LAYER

ROOF DECK





Vegetation

Growing Medium

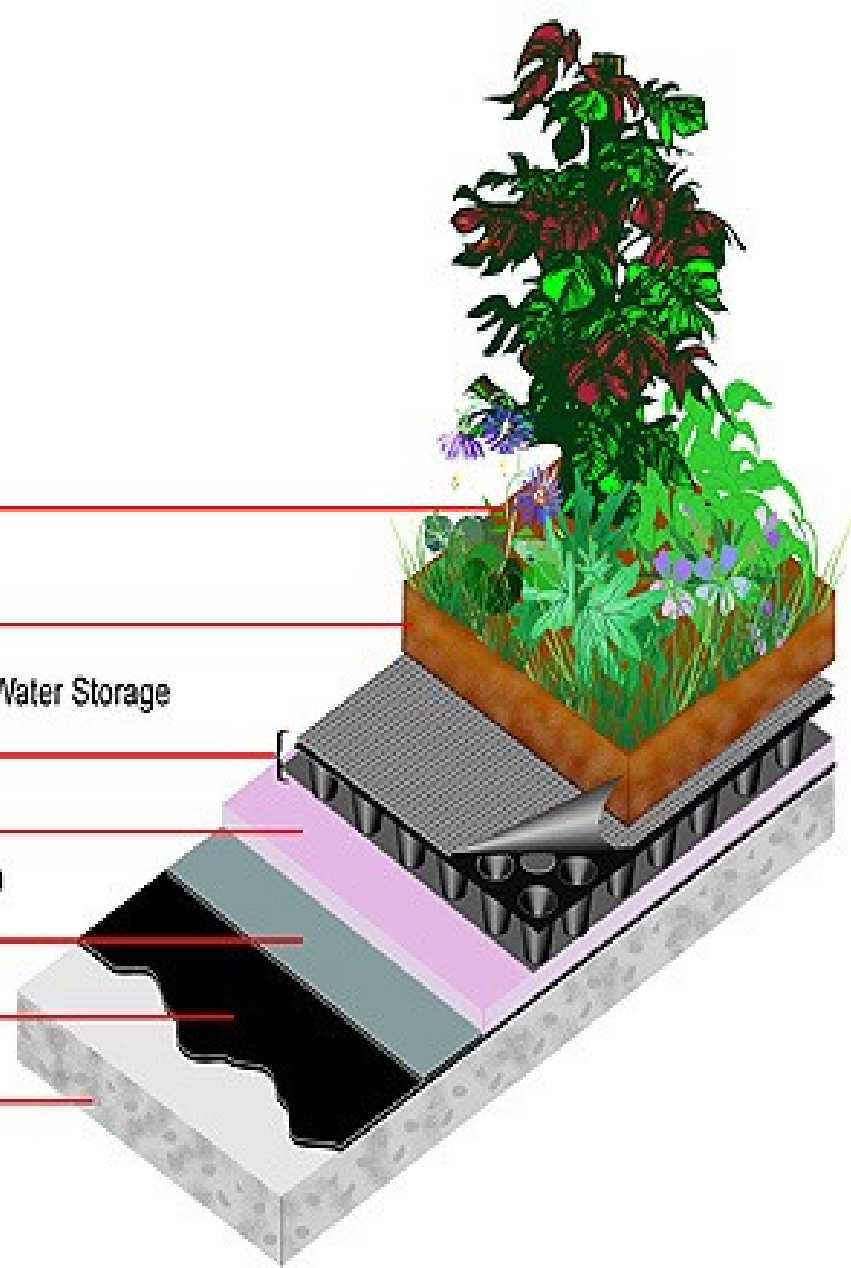
Drainage, Aeration, Water Storage
and Root Barrier

Insulation

Membrane Protection
and Root Barrier

Roofing Membrane

Structural Support



Ideally, the bigger, the better!



The future of urban farming

The number of viable farmboxes will increase at a rate commiserate with dweller's interest for fun, safer, reasonably cheap, locally grown food.

It now appears likely that urban farms of a wide variety will become a common feature of the global urban landscape over the next decade.

But given the price of land in cities, how can developers integrate urban farming easily?

Solution: The Farmbox!

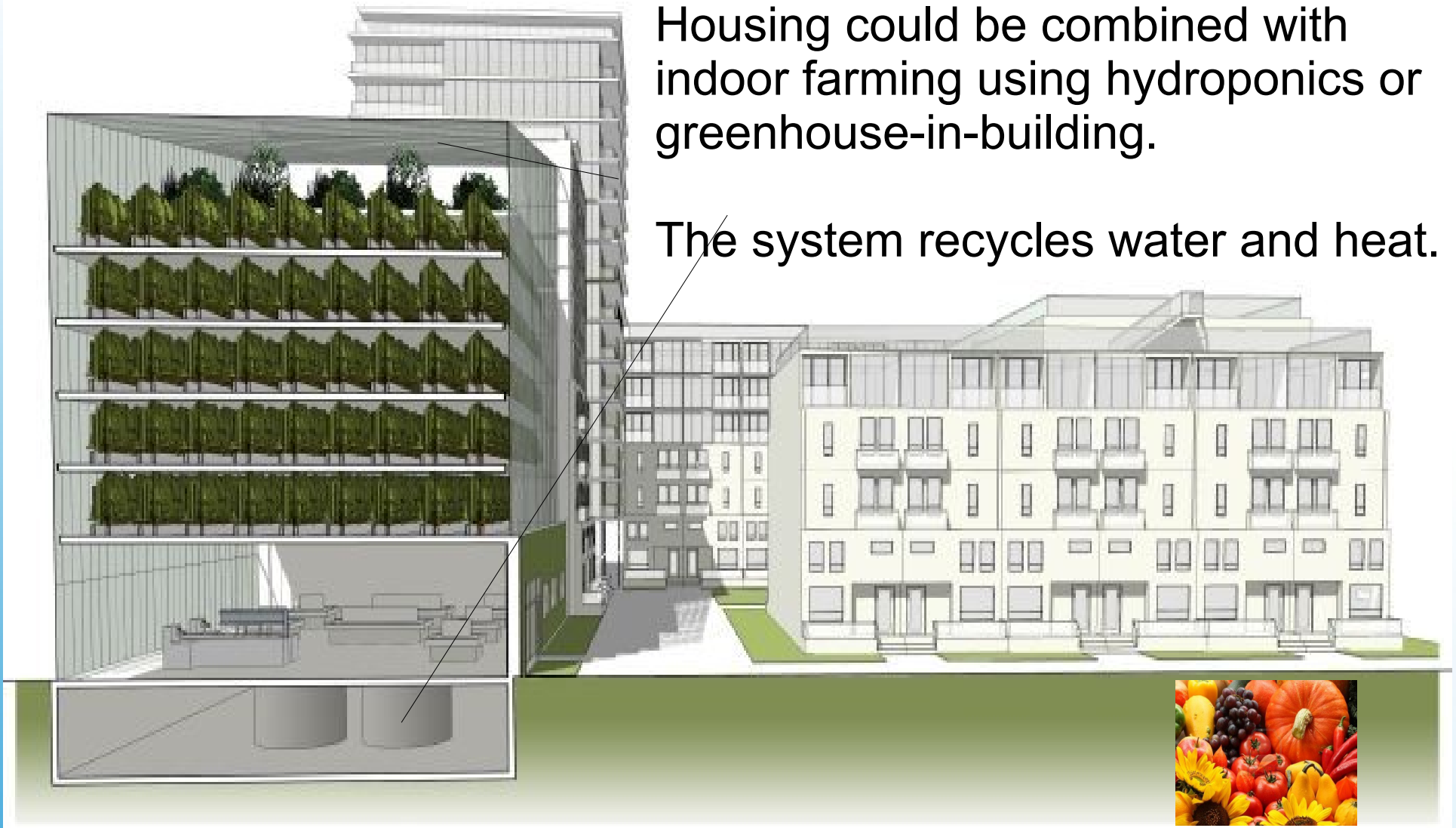


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Farmboxes for all the city!

Housing could be combined with indoor farming using hydroponics or greenhouse-in-building.

The system recycles water and heat.



Specially in cold climate or alpine urban areas excess of heat can transfer to create calories

Heat from HVAC can be used to keep the greenhouse or plant nursery warm in the Canadian winters, ideal for the north!



Green roofs create space for urban farming, it is possible to grow food there, just ask for it!



Private Farmboxes in BC



Odd spaces work too!



**Some go BIG like
“The Farmlawn”**

Farming grows up

Growing food in vertical urban environments could be a solution to the world's exploding population and diminishing resources.

How a vertical farm could work

Vertical farms would use existing greenhouse technology to grow crops in city buildings while operating off the power grid. Dickson Despommier, a professor at Columbia University, suggests starting with a five-story prototype at an advanced agricultural school.

Solar panels also provide power.

Wind turbines generate electricity to help power equipment.

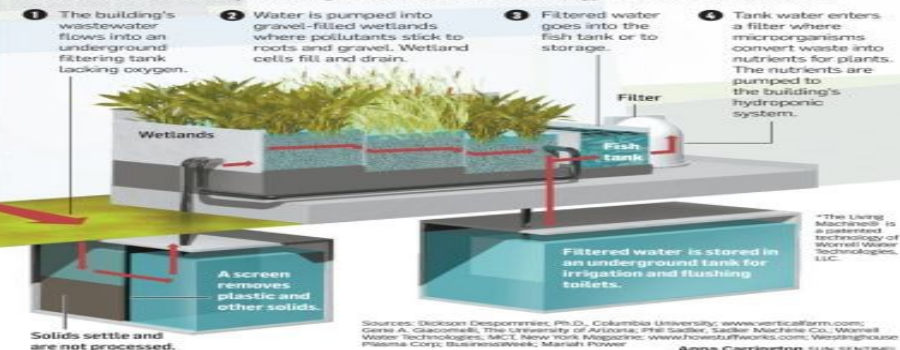
Plants would grow along the building's south-facing sides to get maximum sunlight exposure.

Interior lighting: Light-emitting diodes, LEDs, will supplement natural light and generate little heat.

No herbicides or pesticides are used, eliminating contamination from agricultural runoff.

Wastewater is treated onsite

Wastewater could be recycled using less than one-third the energy of conventional treatment.



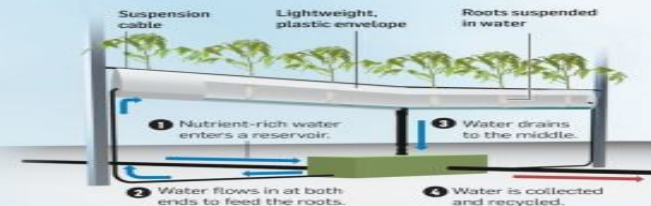
Garbage provides power

The building's waste could be converted into electricity.



Advanced hydroponics

Cable-culture hydroponics can produce 10 times the yield of traditional outdoor farming.



Transparent plastic replaces glass



The structure could use the same surface material as the Beijing National Aquatics Center.

The building could have Ethylene tetrafluoroethylene (ETFE) panels instead of glass. They are as transparent as water and do not yellow from the sun. They weigh 1 percent of the weight of glass, transmit more light, cost less to install, and are recyclable. ETFE is related to Teflon®, so it is nonstick, which allows it to be self-cleaning.



PEPPERS



CHIVES



LETTUCE



CHERRIES



APPLES



CABBAGE



STRAWBERRIES



THYME



TOMATOES



PEAS



MINT



SPINACH



PEACHES



BRUSSEL
SPROUTS

GRAY WATER COLLECTION & SAND FILTRATION SYSTEM
-USED TO IRRIGATE SOIL CROPS AND FLUSH TOILETS

BLACK WATER COLLECTION
-FROM BUILDING SEWAGE

BLACKWATER LIQUID AND SOLID SEPARATION TANKS
-SOLID WASTE DRIED IN KILN FOR FERTILIZER
-LIQUID SEPARATE SENT TO HYDROPONIC FILTRATION LOOP

BLACK WATER GRAVITY FED FILTRATION SYSTEM THROUGH PERIMETER HYDROPONICS

-NUTRIENTS REMOVED BY PLANTS AS SOURCE OF FERTILIZER

-BY-PRODUCT OF FRESH WATER USED IN GRAY WATER COLLECTION OR SAFELY RETURNED TO LAKE MICHIGAN

GRAY WATER DISTRIBUTION

BUILDING SEWAGE

FRESH WATER MAKEUP FROM LAKE MICHIGAN

FILTERED WATER RETURN TO LAKE MICHIGAN

METHANE SUPPLY

BUILDING SEWAGE

BIOGAS DIGESTER
-METHANE AND CARBON DIOXIDE BY-PRODUCTS

METHANE & CO2 TANKS
-METHANE USED FOR HEATING BIOGAS DIGESTER, APARTMENT COOKING AND HEATING.

BLACK WATER GRAVITY FILTRATION SYSTEM THROUGH PERIMETER HYDROPONICS

In a nutshell: **Ecotecture** is a flag and philosophy born in Canada for the world.

We think that the sooner we can incorporate **The Farmbox** in every balcony, the fastest we can move forward into sustainable living, and living homes

There are metropolis, cities, towns, and nations experiencing a demand for activities that make people feel productive. The Farmbox is planned urban development.

Help families realize that a “Traditional Productive Home” is the a model for active, sustainable, modern homes.

Support “The Farmbox” ask for one!