ONE Lab participants were part of a group of talented students, recent graduates and accomplished professionals coming from the fields of architecture, landscape architecture, urban design and planning, art, media, and engineering. In selecting these people, we especially favored the ones which, besides their high quality, also exhibited a variety and heterogeneity of points of view and experience in urbaneering.

"A good reason to be in NYC in a couple of weeks: ONE Lab: Future Cities Summer 2012: Socio-Ecological Exploration of the Next Metropolis (an impressive line-up!)

ArchNewsNow

30 students from all over the world (Australia, China, Israel, Kuwait, India, Europe) with various backgrounds and from some of the most renowned international schools and departments of design participated in the program 2012.

"Since ONE Lab, I have continued to deepen my understanding of architecture and design through academics while additionally bringing this knowledge to bear on my work outside of school. The non-profit I co-founded in Ghana is utilizing passive house techniques and recycled materials in the construction of our Buduburam Kitchen Project, a holistic space for single mothers and their children who have been forced into commercial sex work as a result of the conditions on the Buduburam refugee camp. [...] After ONE Lab, the possibilities are endless."

Camilla Herman, a former ONE Lab student
01 GOVERNORS ISLAND NATIONAL MONUMENT
02 SERPENTINE CHANNEL + SEDIMENT CATCHMENT
03 BROOKLYN BATTERY TUNNEL ENTRANCE + BIKE
04 PARTY TOWER
05 ATLANTIC STADIUM
06 CORAL COAST SOFT INFRASTRUCTURE
07 GREENBELT FINGERS
08 TRANSPORTATION HUB BUILDING
WORKSHOPS

The studio has participated in several skill-building workshops learning the processes of biotechnology (including technologies such as genetic engineering, tissue culture, and cloning), growing materials, grafting trees and plants, scripting and computational modeling for controlled growth.

As the lab continues to engage in intensive research and an interactive educational environment, a series of lectures have introduced questions around the intersection of design and science. The first two weeks of lectures were specially curated by the full-time four-member faculty to inspire limitless possibilities for the design of the future city.

One workshop for example is about Mycoform. The main objective of Mycoform is to establish a smart, self-sufficient, perpetual-motion construction technology. By combining fungal mycelia with varying types of organic substrates and carefully controlling their expansion within prefabricated molds, we will create the literal growth of structural materials. The Mycoform is grown from biological materials. The process is pollution free, and has the potential to contain a low embodied energy as part of a local ecosystem. The polypore fungal species Ganoderma lucidum (Reishi), possesses enzymes that readily digest a wide variety of cellulose based organic byproducts. The rapid growth of branching mycelia results in a dense matrix capable of structural support. This workshop was developed in collaboration with Ecovative.
CO-CHAIRS
Maria Airola, LEED AP
Terreform ONE
Mitchell Joachim, PhD
Terreform ONE

FACULTY
Vito Acconci Acconci Studio
David Benjamin Living Architecture Lab
Martina Decker Decker Yeadon
Alexander Felson, PhD Yale University, SOA
Melanie Fessel Terreform ONE
Graham Hill Treehugger
Christian Hubert Christian Hubert Studio
Ellen Jorgensen, PhD Genspace
Kaja Kuehl Youarethecity
Janna Levin, PhD Columbia University
Mary Mattingly Waterpod

Marni Majorelle Alive Structures
Oliver Medvedik, PhD Genspace
Walter Meyer Local Office Landscape
Paul D. Miller, a.k.a. DJ Spooky DJ Spooky
Amanda Parkes, PhD Bodega Algae
James Patten, PhD Patten Studio
Peter Raymond Human Condition
Nina Tandon, PhD Columbia University
Skylar Tibbits MIT, SJet
Jason Vollen CASE RPI
Bill Washabaugh Hypersonic Engineering
LECTURES

Twenty TED style talks given by world renown architects, engineers, biologists, ecologists, industrial designers, physicists and artists offering radically new responses to the real needs and aspirations of future cities.

The speakers, including eight TED Fellows, opened up new realms of inquiry with their emerging practices. The 2012 ONE Lab Future Cities Program lecture series opened with a talk by DJ Spooky. The following days, the discussions continued with Graham Hill of Treehugger, David Benjamin of The Living, Janna Levin of Columbia University, Skylar Tibbits of MIT and Vito Acconci. After a week of intensive design studio meetings and actively engaging the topics presented, we closed the week with a deserved celebration at the closing of Terreform ONE’s Design for the Real World Redux at the White Box Gallery in NYC.

Amidst this intensively packed curriculum, ONE Lab shapes “urbaneers” – individuals with a different set of versatile abilities that merge previously disparate occupations. They range from combined ecological architects and engineers to action based urban planners and developers. The ONE Lab urbaneers will continue to critically question the future of the city in order to meet the constantly changing needs of urbanization, all while working towards the final presentation of the proposal for the future Governors Hook.
THE FIELD OF URBANEERING

- Science
- Environment
- Planning
- Design
- Transportation
- Habitat
- Finance
- Economy
- Community
- Travel
- Food
- Manufacture
- Mixed Use
- Open Space
WHAT IF?

Jane Jacobs + Robert Moses

ECOLOGIST | ECONOMIST | PLEBIAN

PLANNER | VISIONARY | PARTISAN

Frederick Law Olmsted
URBANEER
URBANNEERING

CONTEXT

 PATTERNS OF EXISTING URBAN SPACE

473 BC
Beijing

1960 AD
Brasilia

1833 AD
Dubai

1793 AD
Toronto

27 BC
Rome

1776 AD
San Francisco

15 BC
Barcelona

43 AD
Copenhagen

1167 AD
Copenhagen

1624 AD
New York
EQUITY
No Inputs, No Outputs

FOOD
Market
Community Supported Agriculture
Natural Food Network

BEAUTY

FARMSCAPE MODEL

AQUASCAPE MODEL
LIVING INFRASTRUCTURE: REVERSING FIGURE GROUND

FOOD, WATER, AIR, ENERGY, WASTE, MOBILITY, AND SHELTER ARE RADICALLY RSTRUCTURED TO SUPPORT LIFE IN EVERY FORM
0% RECYCLED WATER
Fresh water is pumped from up to 10 miles away.

6% RENEWABLE ENERGY

WATER SOURCE +
CSO's direct excess runoff including untreated sewage from the surrounding area which drains into harbor.

ENERGY SOURCE
Area: 16,000,000 sq. ft.
Scale: 1" = 1200'

ALL NECESSITIES FOR THE POPULATION ARE PROVIDED WITHIN THE ACCESSIBLE PHYSICAL BORDERS
CREATUREAMA: TECTONIC FOLLIES FOR AMBIENT INFORMATION DISPLAY IN PUBLIC SPACES
EVERY HOUR
City of New York produces enough waste to fill the Statue of Liberty.

53 LEVELS OF BUILDING PER DAY OUT OF WASTE

ONE DAY TOWER: 24 HOURS OF COMPACTED WASTE

NYC IS DISPOSING OF 36,200 TONS OF WASTE PER DAY

01 WASTE LOCAL LANDFILL
02 ORGANIC SCAFFOLDS DECAY AFTER USE
03 MODIFIED CRUSHERS BUILD COMPREHENSIVE BASED STRUCTURES
04 THE NEW PERPETUAL ECO-URBANISM: WASTE IS A RESOURCE
MYCOFORM, MYCELIA AMALGAMATION METHODS FOR URBAN GROWTH

[Diagram showing the components: Mycelia, Substrate, Temperature, Water, Aluminum Refuse, Form, Hydraulic Press]

MYCELIAL PROPAGATION

THE NEW MUSEUM OF CONTEMPORARY ART

MYCOFORM
2110 BROOKLYN POPULATION: 5,000,000

100 % RECYCLED WATER

Main tank collects from all surrounding secondary tanks.

Secondary water collection tank for 1,000,000 sq. ft. area.

Area: 15,500,000 sq. ft.
Scale: 1"=500'

ENERGY AND WASTE WATER PROCESSING PLANT
MASTERPLAN AND INDUSTRIAL PROGRAM

CURRENT SITE

ALL NECESSITIES FOR THE POPULATION ARE PROVIDED WITHIN THE ACCESSIBLE PHYSICAL BORDERS.

2010  

2110  

1776
FUTURE NORTH, ECOTARIUMS IN THE NORTH POLE

WORLD CITIES DRIFT TO THE POLES

DESIRED REAL ESTATE WILL BE IN THE NORTH

WORLD CITIES CONVERGE TO FORM A NEW PANGEA

NEW YORK POPULATION: 8,900,000
CAGANLAPA POPULATION: 3,100,000
MUNICH POPULATION: 5,600,000
PARIS POPULATION: 7,900,000
STRAIGHTCOMPOPULATION: 400,000

TOYOPOPULATION: 8,600,000
MANNHATTAN NEW YORK

SAN FRANCISCO CALIFORNIA
GREEN BRAIN, MICRO BIOCLIMATIC CONTROL FOR THE SEASONS

01: BIOPURIFICATION FROM LOCAL VEGETATIVE MATERIALS
02: SUMMER COOLING MIST OUTLETS
03: WINTER RADIANT HEATERS
04: WATER HOTHOT + SEEDERS
05: STEWARD WITH ORGANIC FERTILIZERS
2110 BROOKLYN
ENERGY
POPULATION: 5,000,000

100%
RENEWABLE ENERGY

AREA: 15,500,000 sq. ft.
SCALE: 1"=600'

COMPARISON OF ENERGY USE FOR THE UNITED STATES AND NEW YORK CITY 2010

USA 63.8 Mwh per person per year
NYC 42.2 Mwh per person per year

Data for the US is obtained from the EIA. Data for NYC is estimated from EIA data for New York State and the inventory of greenhouse gas emissions done by PLAN/NYC.
Values below 0.05 are not displayed.
Stackable Cars: Urban Solar Recharge Port in the City

01. Car ports dynamically load city power
02. Frame articulated spindles
03. Standing cars interlock upright
04. Hinging for maintenance

From congested streets to open streets for smart omni-flocks

Vertical transportation on rail for freight and passenger
THE PHYSICAL HOME WILL REMAIN PERMANENT AND ITS LOCATION WILL BE TRANSIENT.

NETWORKED HOUSING FLOCKS CONNECTED TO SMART RENEWABLE INFRASTRUCTURE SYSTEM

CHART OF ENERGY, WASTE WATER, FOOD AND MOBILITY SYSTEMS INSIDE THE HOMEWAY PROJECT
HABITAT
75% PRODUCTIVE GREEN SPACE
POPULATION: 5,000,000
5,500,000 sq. ft.
energy production farm
5,000,000 sq. ft.
water filtering sponge & wetlands
0 sq. ft.
recreation park
OPEN SPACE

0% PRODUCTIVE GREEN SPACE
0 sq. ft.
productive/ farm/ energy
0 sq. ft.
sponge/wetlands/water filtration
4,000,000 sq. ft.
recreation/ park
OPEN SPACE
WATER IS PULMONARY SYSTEM OF THE HOMES' LIFE CYCLE

ARBOREAL FARMING OF LIVING HULL STRUCTURE

SECTIONS AT LOCAL NURSERIES
POWER
NYC POPULATION INCOME BY LOCATION

99%
City of Equity

$50K PER PERSON

$1.2 MILLION PER WALL STREET EXECUTIVE

1%
City of Wealth
NYC PRODUCES 11.5% OF US GDP