United Nations Environmental Council
TO PRESERVE OUR ENVIRONMENT, THE ONLY SOLUTION IS TO GUIDE IT TOWARDS SUSTAINABILITY. THUS, THE WORLD IS IN NEED OF A NEW AND INDEPENDENT ENVIRONMENTAL AUTHORITY

THIS NEW AUTHORITY WILL FOREMOST HAVE TO:

• **CREATE AWARENESS** AMONG EVERYONE ON THE PLANET
• **EXCHANGE KNOWLEDGE** FOR SUSTAINABLE SOLUTIONS
• **MAKE RULES & LAWS** TO UNITE ENVIRONMENTAL ACTIONS
THE WORLD NEEDS **LEADERSHIP ON ENVIRONMENTAL SUSTAINABILITY**

- **1968**: CLUB OF ROME: BORDERS OF GROWTH RAPPORT
- **1972**: UNITED NATIONS ENVIRONMENT PROGRAMME
- **1983**: WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT “BRUNDTLAND COMMISSION”
- **1992**: United Nations Framework Convention on Climate Change (UNCFF)
- **1997**: KYOTO-PROTOCOL BY UNCFF
- **2011**: UNCFF 17TH COP MEETING IN DURBAN
- **2050**: ...?
"TODAY OUR WORLD IS FACING UNPRECEDENTED ENVIRONMENTAL CHALLENGES ...BUT ALSO EXTRAORDINARY OPPORTUNITIES"
“TODAY OUR WORLD IS FACING UNPRECEDENTED ENVIRONMENTAL CHALLENGES...BUT ALSO EXTRAORDINARY OPPORTUNITIES”
UNITED NATIONS HEADQUARTERS
NEW UNEC AUTHORITY

NEW YORK, MANHATTAN
UNITED NATIONS HEADQUARTERS
MANHATTAN MIDTOWN EAST, NEW YORK CITY
UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY
UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY

GRANDEUR & PEACEFUL LOCATION
UN PLAZA

DESIGNED BY THE OLD MASTERS:
LE CORBUSIER
W.K. HARRISON
OSCAR NIEMEYER
UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY

>2001  POST 9/11

SECURITY / ACCESSIBILITY MEASURES ON THIS INTERNATIONAL TERRITORY
DISTURBED & UNCLEAR ENTRANCE

>2001   STRICT BOUNDARY AROUND PLOT
UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY

FRANKLIN DELANO ROOSEVELT HIGHWAY UNDERNEATH!
FDR HIGHWAY ANALYSIS
FOUR POSSIBILITIES TO ALTER HIGHWAY

> DEFINE SCALE
+ MAKE PROFITABLE FOR WATERFRONT

1. CHANGE NOTHING
   - UN problem stays

2. STOP HIGHWAY
   - UN problem solves
   - move UN highway problem

3. DIVERT THROUGH NYC CITY GRID

4. MAKE TUNNEL IN EAST RIVER
EAST RIVER WATERFRONT ANALYSIS
FDR BLOCKS CITY FROM BREATHING TO WATER
VISION PLAN EAST RIVER WATERFRONT
MANHATTAN, NEW YORK CITY

ADAPT OTHER MASTERPLAN CONDITIONS

+ PARK IN 10 MINUTES
+ CONNECT FRAGMENTED EXISTING PARKS
+ BICYCLE ROADS
+ WATERTAXI
+ INCREASE FACILITIES
+ INCREASE RECREATIONAL ZONES
EAST RIVER WATERFRONT ANALYSIS
NEW TUNNEL WITH PARK ON TOP
VISION PLAN EAST RIVER WATERFRONT
MANHATTAN, NEW YORK CITY

- BICYCLE PATHS
- WATERTAXI
- NYC PARKS ZONE INCREASED BY 20%
- HIGHWAY PROBLEM SOLVED
NEW PARKZONE + PEDESTRIAN ROUTE
WATERBUFFER FOR SAFETY ON WATERFRONT
CLEAR ENTRANCES TO INTERNATIONAL TERRITORY

MASTERPLAN EAST RIVER WATERFRONT
NEW PRECONDITIONS
VISION
WHAT SHOULD THE UNITED NATIONS ENVIRONMENTAL COUNCIL ACHIEVE?

SUSTAINABILITY (FINALLY)
AWARENESS
BUILDING SHOULD CONTAIN A FUNCTION THAT MAKE EVERYONE ON THE PLANET AWARE OF

1. THEIR ENVIRONMENT
2. SUSTAINABILITY

1,200,000 VISITORS PER YEAR FROM ALL OVER THE WORLD
LIMIT HARM TO OUR PLANET

USE RENEWABLE SOURCES

PRODUCE ENERGY

BENEFIT NEW YORK

PROFIT UNITED NATIONS

FLEXIBLE BUILDING

PEOPLE

PLANET

SUSTAINABILITY

PROFIT

SUCCESS

FIND FAIRNESS

BENEFIT

NEW YORK

PEOPLE | PLANET | PROFIT + IN BETWEENS

INDOOR BUILDING CLIMATE

LIMIT HARM TO OUR PLANET

USE RENEWABLE SOURCES

PRODUCE ENERGY
WATERFRONT ENTRANCE
BOULEVARD ON BUILDING ENTRANCE

EXTRA ENTRANCE ON WATERFRONT = MORE ACCESSIBLE

DESIGN SKETCH IN 1945
EMPHASIZE BUILDING ON FREE FDR SPACE
RE-USE 5,000 M² FORMER HIGHWAY SPACE
WATERBUFFER
EXTRA WATERBUFFER ON WATERSIDE
FOR SAFETY DEMAND BY DEMOLISHING CAISSON

EXTRA WATERBUFFER FOR SAFETY DEMAND
SUBORDINATE & DOMINANT FACADE
WATER AND CITY ENTRANCE

WATERFRONT: DOMINANT NEW FACADE

CITY SIDE: GENERAL ASSEMBLY & SECRETARIAT DOMINANT
RESTORE UN PLAZA
KEEP EXISTING PODIUM EDGES FREE
MAKE PUBLIC SQUARE (as designed in 1945)
THE ULTIMATE RE-USE

1. WEAVE BUILDING INTO EXISTING STRUCTURES
2. USE GRID DIMENSIONS OF UN COMPLEX
3. REUSE EXISTING EXPEDITION ROAD
UN ENVIRONMENTAL COUNCIL
PROGRAM BRIEF

COLLECT
PRODUCE
PROPAGATE
EXCHANGE
COLLECT
LIBRARY

PRODUCE
OFFICES

PROPAGATE
AUDITORIA

EXCHANGE
COUNCIL ROOM

UN ENVIRONMENTAL COUNCIL
REPRESENTATIVE FUNCTIONS

COLLECT
LIBRARY

PRODUCE
OFFICES

PROPAGATE
AUDITORIA

EXCHANGE
COUNCIL ROOM

UN ENVIRONMENTAL COUNCIL
REPRESENTATIVE FUNCTIONS
PROGRAM BRIEF TOTAL

15.500 M² NETTO

= A VERY BIG BUILDING
UNEC PROGRAM BRIEF
SORTED BY USERS
BUILDING PATHS PER USER

WHAT DOES A USER TYPE DO IN THIS BUILDING

PEOPLE COULD MISS EACH OTHER!

• FOR A SUCCESSFUL UNEC BUILDING, USERS NEED TO BE VISIBLE
PUBLIC
1,476m²
9.3%

PUBLIC DOMAIN IS ONLY 9.3%
HOW TO MAKE PEOPLE AWARE OF THE UNEC?

TO HELP THE UNEC MISSION,
EVERY PERSON NEEDS TO KNOW
WHAT IS GOING ON HERE.

AWARENESS!
STREETS
OVERVIEW IN COMPLEXITY
MAKE BUILDING ‘MORE PUBLIC’

BLOCKS
IMPLICITY & FLEXIBILITY IN BUILDING FUNCTIONS

LEVELS
DOMAIN FOR EACH TYPE OF USER
VISIBLE CONNECTION IN BUILDING
UN plaza

VISITORS STREET
ZONE FOR VISITORS
CONNECTING MAIN ENTRANCES

UNEC
water entrance
BUSINESS STREET
ZONE FOR PRESS AND BUSINESS RELATED PURPOSES

> ACCESS FOR VISITORS VIA TOUR GUIDE
DELEGATE STREET
ZONE ONLY FOR DELEGATES & EMPLOYEES CONNECTING UN & UNEC
HEART OF THE BUILDING
INTERSECTIONS SPAN FRAMEWORK
FOR MOST IMPORTANT FUNCTIONS
UNEC Council Room
MISSION 7 Knowledge Center
BUILDING HEART
VISITORS STREET
ZONE OF THE VISITORS
OFFICES RING
FLEXIBILITY
ZONE OF THE EMPLOYEES
PUBLIC FUNCTIONS ON WATERSIDE
DISPLAY FUNCTION FOR THE UNEC
SUPPORTING FUNCTIONS
CLIMATE

- BOXES
- CONNECTING PART
AUDITORIA
ALL AIR SYSTEMS + ‘UNDERGROUND’

CLOSEBY AIR INLET

HEAT EXCHANGER
FOR CORRIDOR USE

AIR SUPPLY BY PLENUM FLOOR

CLOSEBY AIR INLET

INSTALLATION ROOMS
FOR AUDITORIA CLIMATE
WATER STORAGE TANKS (ARTIFICIAL AQUIFERS)

GREY WATER STORAGE

THERMAL MASS OF EARTH

CROWN FOR SOLAR HEAT & VENTILATION

PV FOILS ON ROOF

PV FOILS

RENEWABLE SOURCES
HEATING
COLD SEASON

LOW TEMP. HEATING BY CONCRETE CORE ACTIVATION

SOLAR COLLECTORS ON CROWN (SUMMER USE)

HEAT FROM SOLAR FACADE

STORE COLD WATER/USE WARM WATER IN TANKS + USE SOLAR COLLECTORS FOR TAP WATER & CONCRETE CORE ACTIVATION

WARM WATER
THERMAL SHELF
COOLING
WARM SEASON

LOW TEMP. COOLING BY
CONCRETE CORE ACTIVATION

COLD WATER  WARM WATER
THERMAL SHELF

STORE WARM WATER/ USE COLD WATER IN TANKS (ARTIFICIAL AQUIFERS)

ALL AIR SYSTEM FOR COUNCIL
VENTILATION

- EARTH TUBES
- WIND CROWN
- SOLAR FACADE

NATURAL VENTILATION BY SUN & WIND
(with mechanical backup)

FRESH AIR  USED AIR
FACADE
• BOXES
FACADE REQUIREMENTS

- Cantilevers for transparency
- Loadbearing envelope
- Permeable shell
- Recyclable facade
- Avoid sun on workspace
- Block sun heat & UV

- Grandeur window views
- Ventilate
- Openable windows
- Keep rain & wind out
- Smart positioning
- Use sun energy

- Reduce heat loss
- Thromotropic glass
- Insulation
- Programmatic openness
- Visual openness

- Loadbearing envelope
- Permeable shell
- Recyclable facade
- Avoid sun on workspace
- Block sun heat & UV
Floors will provide room for building functions.

Daylight requirements by program: ascending upwards.

Facade

5 floors

Program requires different daylight.
STRUCTURE IN FACADE ON EXISTING UN GRID
20% CLOSED

FACADE CONCEPT:
OPEN TREE STRUCTURE CREATES A TRANSPARENT PUBLIC BUILDING

FACADE
STRUCTURE IN FACADE
TREE TRUNKS AS COLUMNS + LEAVES AS PATTERNS
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FACADE
STRUCTURE IN FACADE
TREE TRUNKS AS COLUMNS + LEAVES AS PATTERNS:
METAPHOR FOR THE MISSION
STRUCTURE OF THE BUILDING BLENDS IN WITH AN ABSTRACTING PATTERN

FACADE
- FLOORS
- STRUCTURE
- PATTERN

OVERLAPPING LAYERED FACADE
FACADE

PATTERN WILL CLOTH THE ENVELOPE
FACADE

PATTERN WILL CLOTH THE ENVELOPE
OFFICE FLOOR on waterside
NATURAL VENTILATION
INLET BETWEEN GLAZING PANES

WARM SEASON
NATURAL VENTILATION
INLET BETWEEN GLAZING PANES

COLD SEASON:
AIR IS NATURALLY PRECONDITIONED
NATURAL VENTILATION
INLET BETWEEN GLAZING PANES

COLD SEASON:
AIR RETURNS NATURALLY TO GRATE
BY UNDERPRESSURE
**SOLAR CHIMNEY**

**EXHAUST FROM BOX WINDOWS**

+ CAUSES UNDERPRESSURE = VENTILATION FLOW
+ WARM (TAP) WATER FOR FREE!
VERTICAL DETAIL ON WINDOW BOX
VERTICAL DETAIL ON WINDOW BOX
Kozijn met rooster, in afbouwfase bevestigd aan stalen boxframe

Ventilatierooster in box, gemonteerd in afbouw
Regelbaar rooster voor ventilatie i.m.b. betonkern Activering LTV (koelte/hitte)

Ventilatie-element met leidingwerk verbonden met zonnesch Schoorsteen t.b.v. warm wafel (Korte Termijnverbruik)

Rooster voor retourlucht naar zonnesch Schoorsteen (natuurlijke afzuigung)

Aluminium afdekplaat voor ‘verjonging vloer’; te openen voor onderhoud
VERTICAL DETAIL ON WINDOW BOX

FACADE BOXES

- Stalen boxframe met aangelaste plaat t.b.v. versteviging element
- Bovenzijde box afgedicht met EPDM rubber
- Aluminium afdekplaat voor ‘verjonging vloer’; te openen voor onderhoud
- Zonwering bevestigd aan boxframe in ‘omgekeerde richting’ t.b.v. daglichttoename
- Aluminium afdekplaat 3 MM; geperforeerd t.m. ventilatie in spouw, te openen voor onderhoud
VERTICAL DETAIL ON WINDOW BOX
• NEW PARK FOR NYC
• NEW UN ENTRANCE ON 1ST AVE
• NEW WATER ENTRANCE ON PARK
• RE-USE OF FDR
• KEEPING INTACT EXPEDITION
• EXTEND EXISTING STRUCTURE
• CONNECT TO EXISTING UN BUILDINGS
• EXTEND UN PROGRAM PROPERLY
• KNOWLEDGE CENTER FOR AWARENESS
• 10,000 M² FLEXIBLE OFFICE SPACE
• ENERGY PRODUCTION BY PV CELLS
• SMART VENTILATION I
• FAST CONSTRUCTION METHOD
• RECYCLABLE MATERIALS
• ADAPTIVE TO NEW YORK CITY CLIMATE

CONCLUSION
AN ADEQUATE UNEC BUILDING!
SUMMARY OF CLIMATE ADAPTIVENESS IN DESIGN

- Crown Ventilation
- Solar Chimney
- Sun Absorbing PV Cells in Glass
- Benefit from Cantilever
- Water Reflection
- Use Water Basin COLD
- Storage & Reuse of Rain Water
- Store Heat & Cold in 'AQUIFER' (Season Dependent)
- Energy (Re)Generation
- Thermal Mass
- Earth Tubes
CONCLUSION

AN ADEQUATE UNEC BUILDING!

- NEW PARK FOR NYC
- NEW UN ENTRANCE ON 1ST AVE
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- COUNCIL TO HOST SUSTAINABLE AUTHORITY