

Exhibition Street-Urban Retrofit and Redesign

Bioclimatic Intervention

THE CITY IS CONSTRUCTED OF DYNAMIC, OFTEN UNSEEN, PROCESSES.

THESE PROCESSES CAN BE CONCEIVED AS SYSTEMS, WHICH MAY BE DEFINED INDIVIDUALLY BUT FUNCTION INTERDEPENDENTLY. ANY POSITIVE INTERVENTION WILL HAVE AN IMPACT ON MULTIPLE SYSTEMS ALLOWING OPPORTUNITIES FOR ENVIRONMENTAL, SOCIAL AND ECONOMIC SUSTAIN.

URBAN DIAGNOSIS

SYSTEM OF CONCERN — RESPIRATORY

FINDING
DETERIORATION OF THE BIOCLIMATE OF THE CBD AS A RESULT OF AIR POLLUTION, URBAN HEAT ISLAND EFFECT & NOISE.

SOLUTION
BIOCLIMATIC INTERVENTION BY INCREASING URBAN GREEN

SITE ANALYSIS

VEGETATION ANALYSIS



Aerial view showing the surrounding green and potential green infrastructure.

ZONE OF INTERVENTION

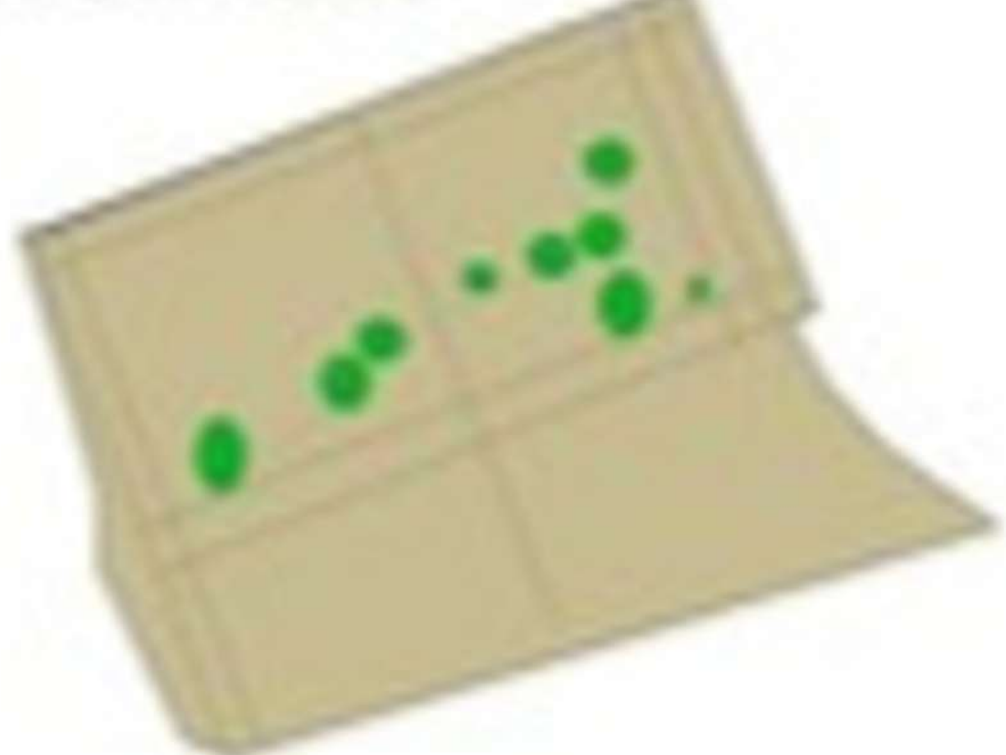


LEVEL OF INTERVENTION BUILDINGS



HORIZONTAL STRATEGY

Urban Green Pockets



These translate as landscaped urban squares within the site that form bioclimatic spaces allowing the buildings to open up to them and breathe. They also regulate the microclimate reducing building energy loads.

Urban Green Corridors



Biomass is brought in from the surrounding parks along the urban corridors, spiral up buildings, penetrates the urban breathing pockets and continues into the city grid.



RESPIRATION

Air Quality and Building Permeability

Urban green benefits

- serves a respiratory function also providing space for public recreation, relaxation and health.
- mitigates heat island effect by shading heat absorbing surfaces through evapotranspiration cooling
- reduce local temperatures by 1-5C
- aesthetic benefits of softening the hard urban form
- numerous ecological, social and aesthetic benefits
- fusion of rural and urban, nature and industry (Hong 2005)
- 100 trees
- remove 53 tonnes of CO2 per yr
- remove 430 lbs of pollutants per yr
- catch 539,000 gallons of rain water per yr
- saves 56% of annual air conditioning costs



MUSCULAR

Development of Physical Building Form



CIRCULATION

Transport, Vehicle and Pedestrian Circulation



DIGESTION

Ingestion/Excretion of Energy, Water, Food and other Materials



COGNITION

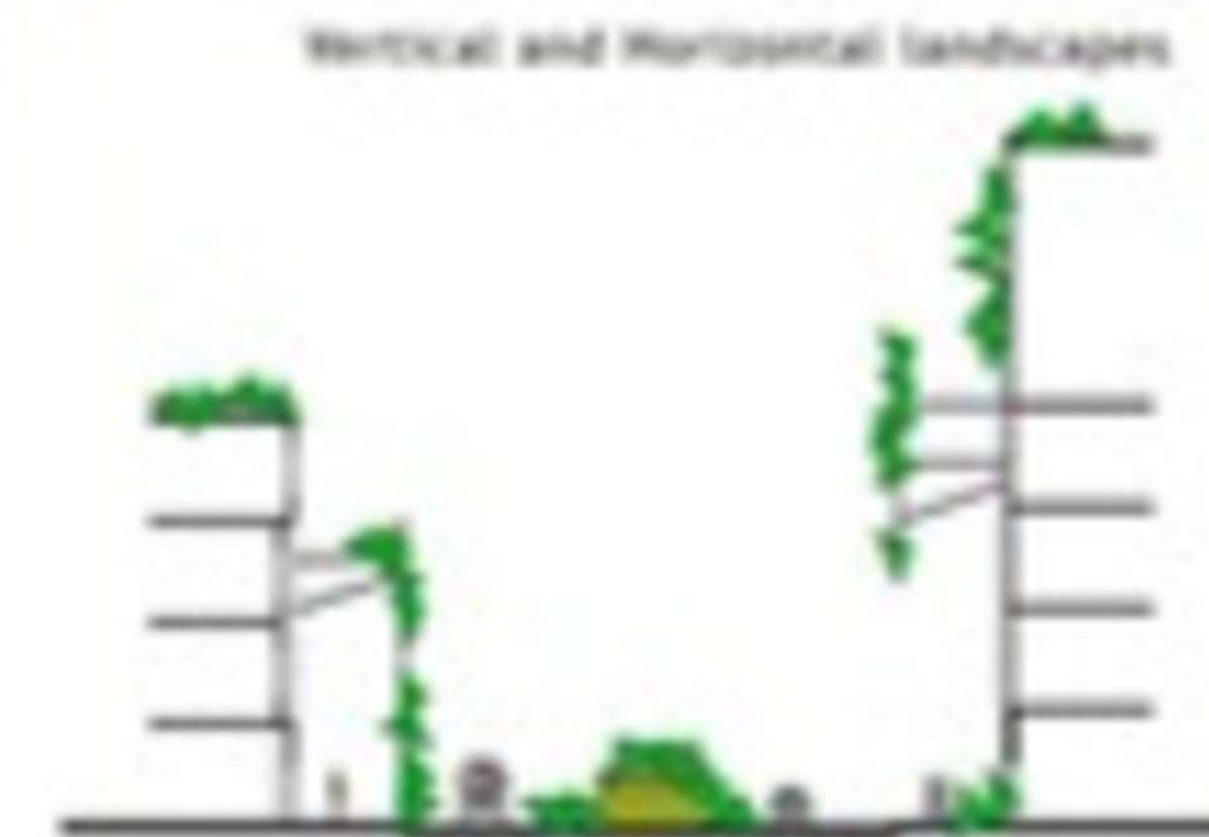
People's Abstract Understanding of the City



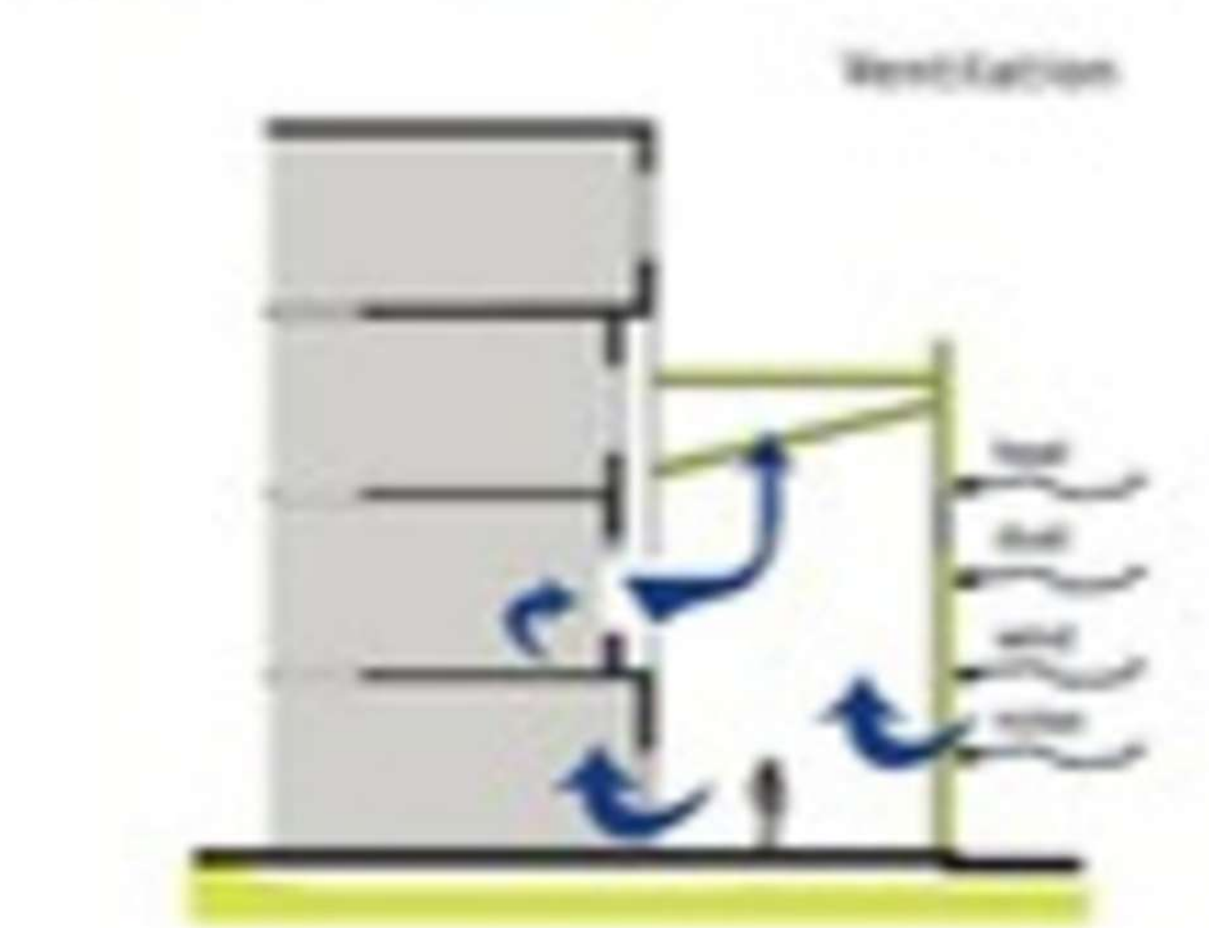
DESIGN PROPOSAL
SCALE 1:1000



VERTICAL

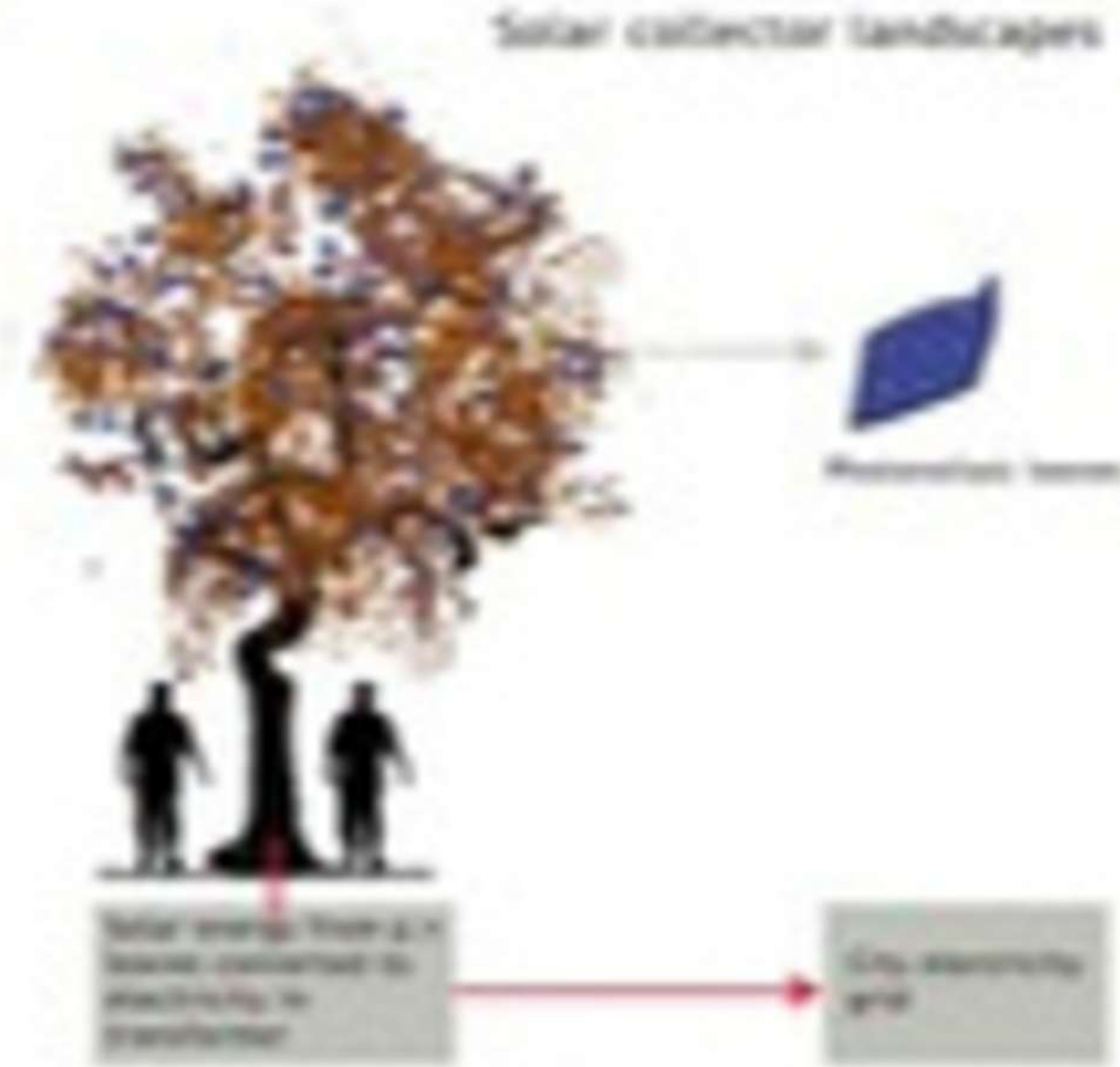


Vertical landscapes not only enhance pedestrian experience but also act as a double skin for the buildings purifying air and improving the building atmosphere. The horizontal landscapes create social spaces that enhance user experience throughout the promenade.



Enhanced site ambience by improving air quality within buildings and along major pedestrian promenades.

SOLAR



Metallux photovoltaic trees are proposed as an alternative to street planting in areas devoid of soil. The function as real trees but their fruit is light. The light captured by the p.v. leaves descends to the tree's roots via the cabled branches and trunk, where a transformer converts it and send it to the grid.

LEGEND

- BLUE STONE PAVING
- PLANTING
- TRAIN WAY
- PEDESTRIAN CROSSING
- PROPOSED ECODROPS
- PROPOSED GREEN POCKETS
- EXISTING BUILDINGS
- EXISTING GREEN
- PROPOSED TREES
- EXISTING TREES
- PHOTOVOLTAIC TREES

Bioclimatic intervention through urban breathing spaces and vertical and horizontal landscapes...>>>