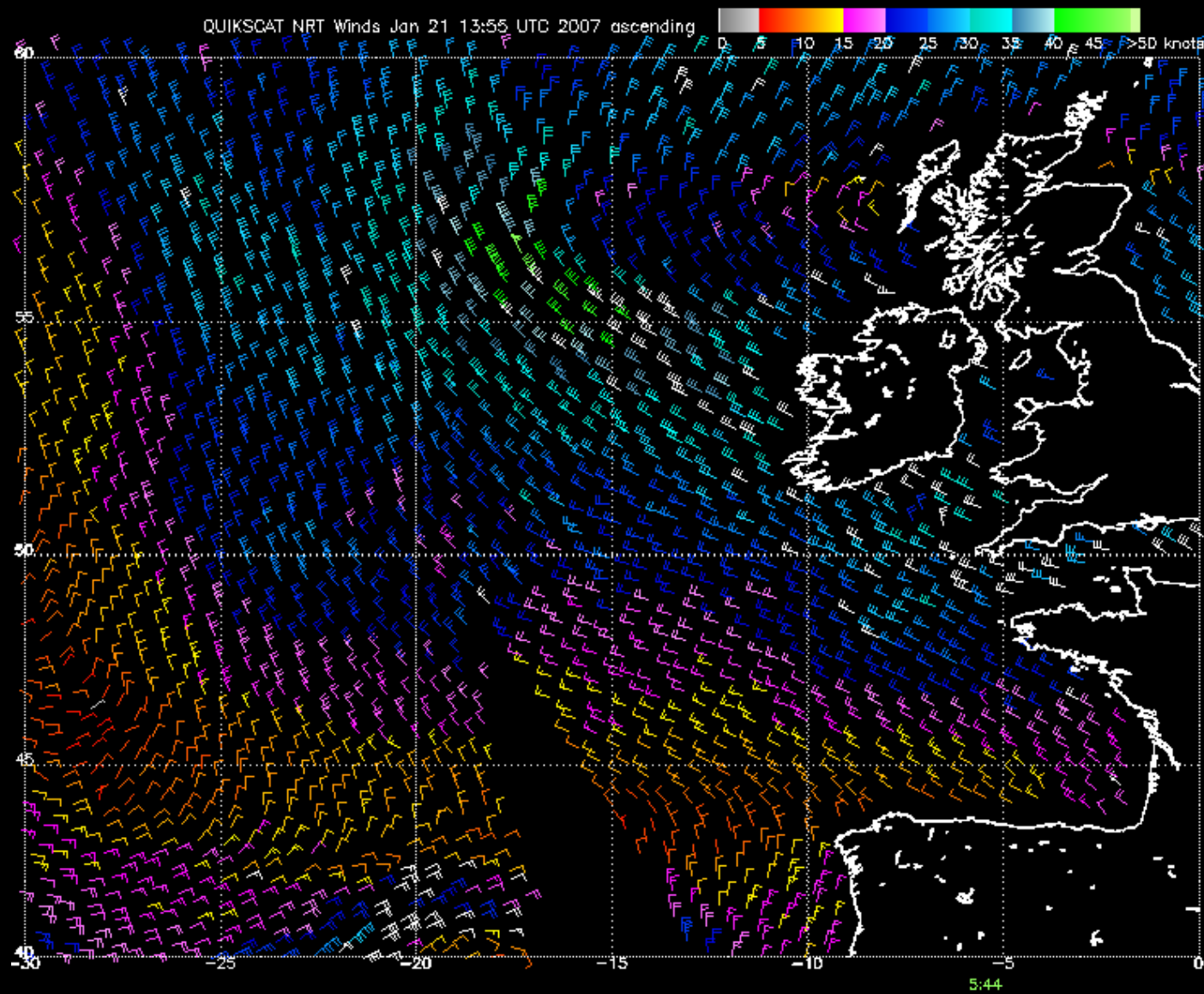


ROEWUarchitecture

between ground & sky





Note: 1) Times are GMT 2) Times correspond to 50N at right swath edge - time is right swath for overlapping swaths at 50N
 3) Data buffer is Jan 21 13:55 UTC 2007-22 hrs 4) Black barbs indicate possible rain contamination
 NOAA/NESDIS/Office of Research and Applications



ROEWUarchitecture

weather systems: sun

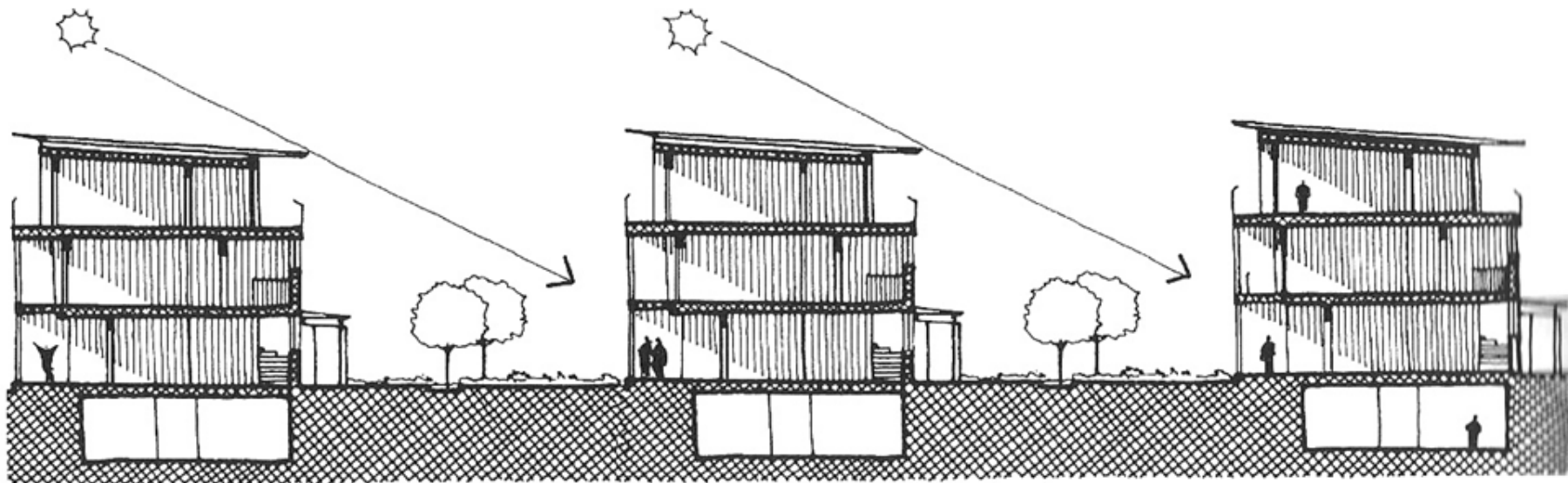


ROEWUarchitecture

weather systems: sun

vernacular examples





Housing Development Brunnerstrasse-Empergasse, Typical North-South Section

ROEWUarchitecture

weather systems: sun

the verandah







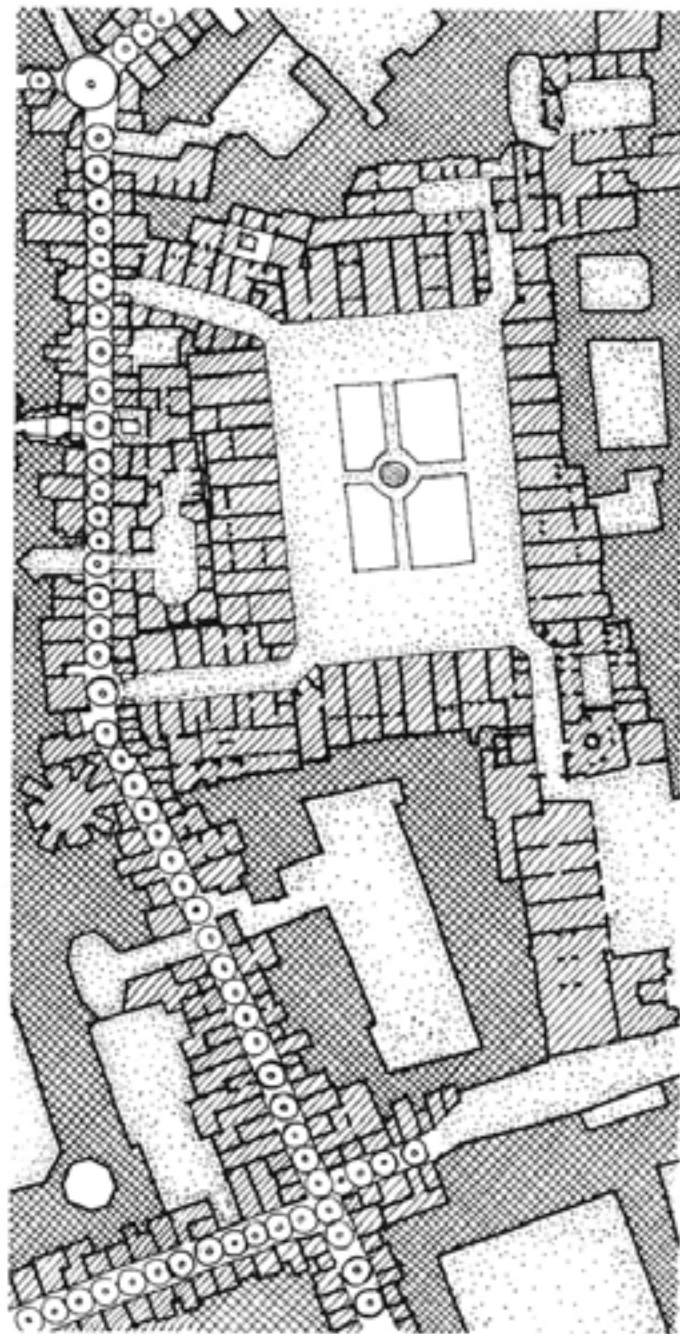
ROEWUarchitecture

weather systems: sun

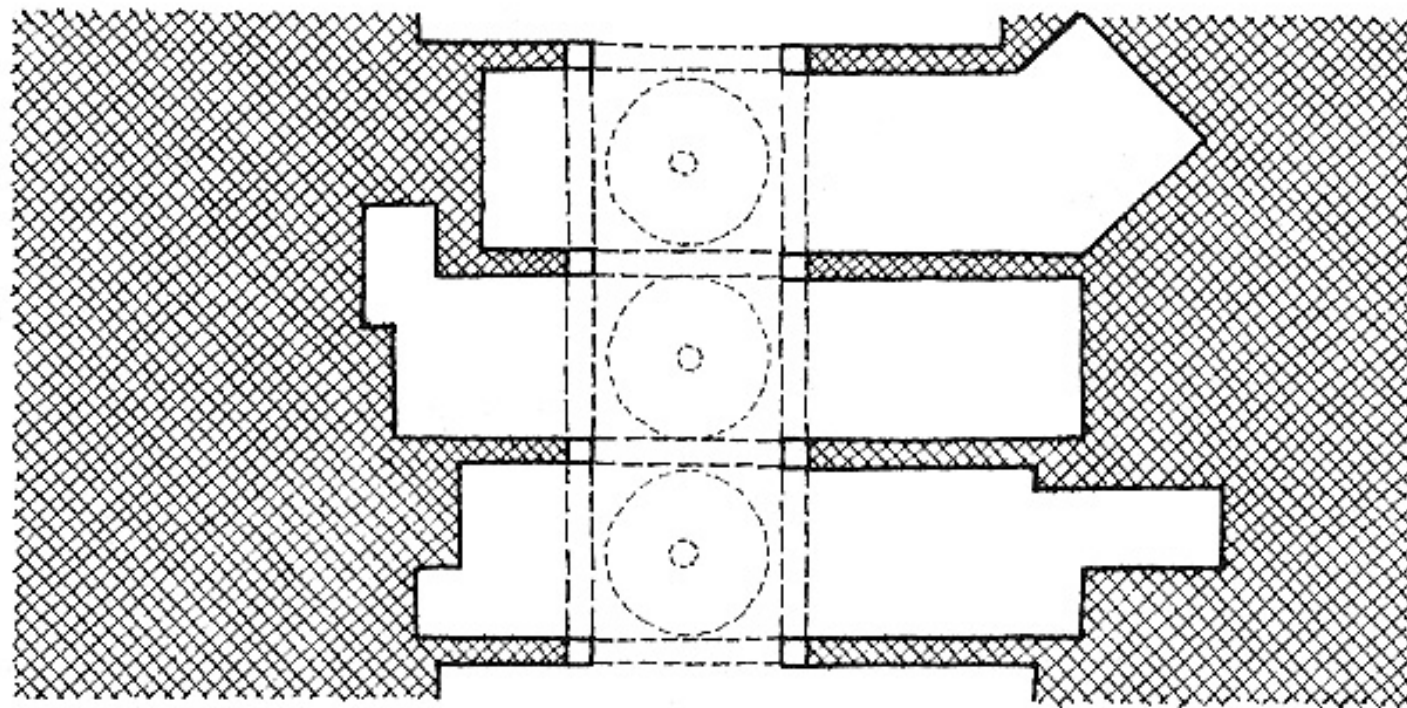
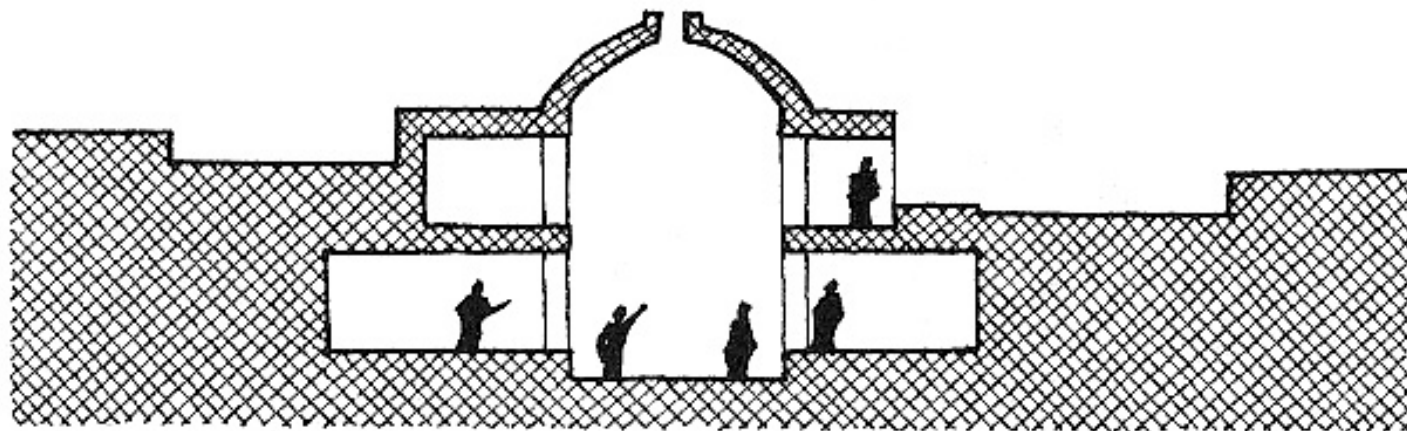
shadowscape







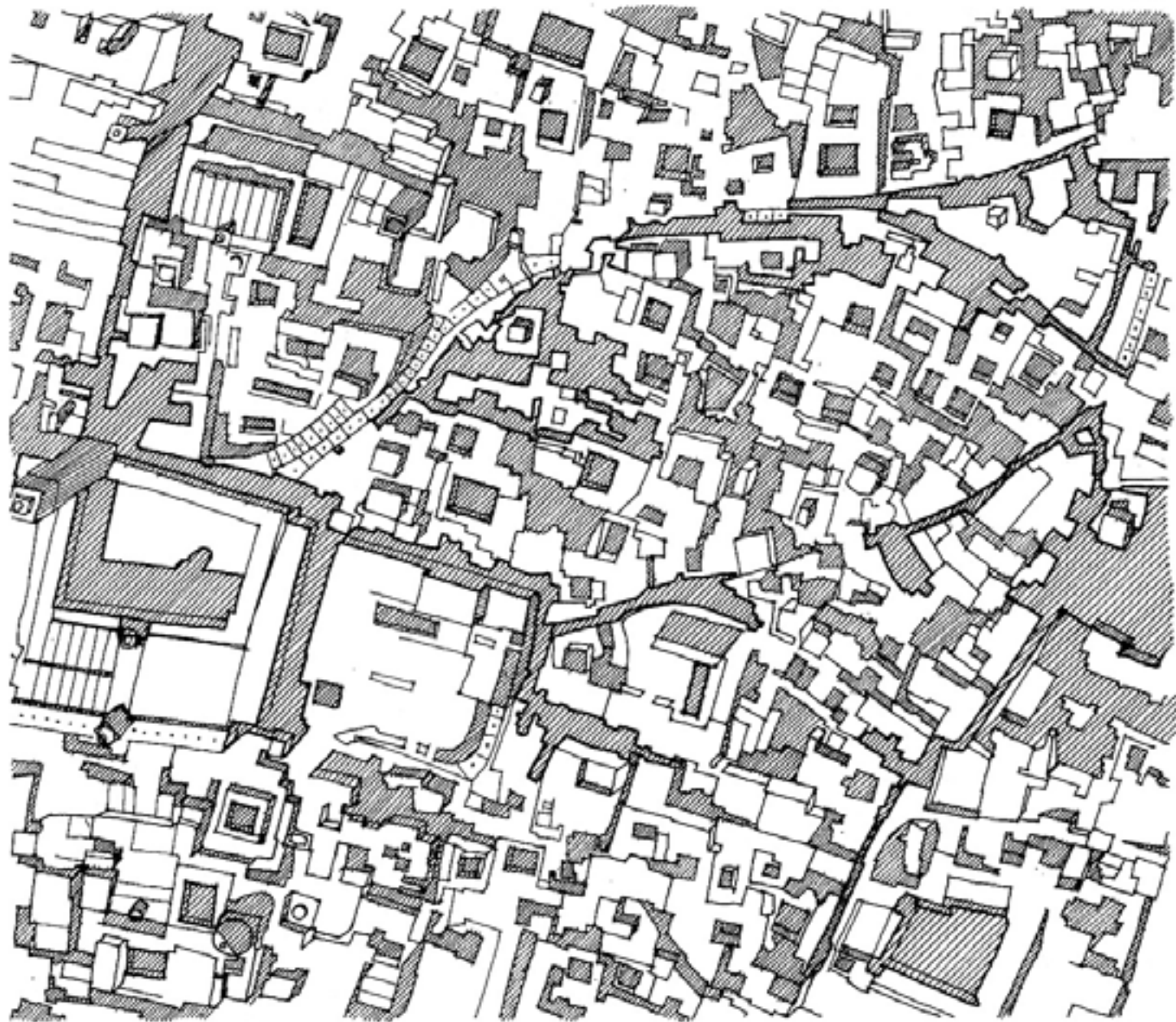
Partial Plan of Bazaar, Isfahan, Iran



Typical Plan and Section of Bazaar







Aerial View of Tunis, Tunisia

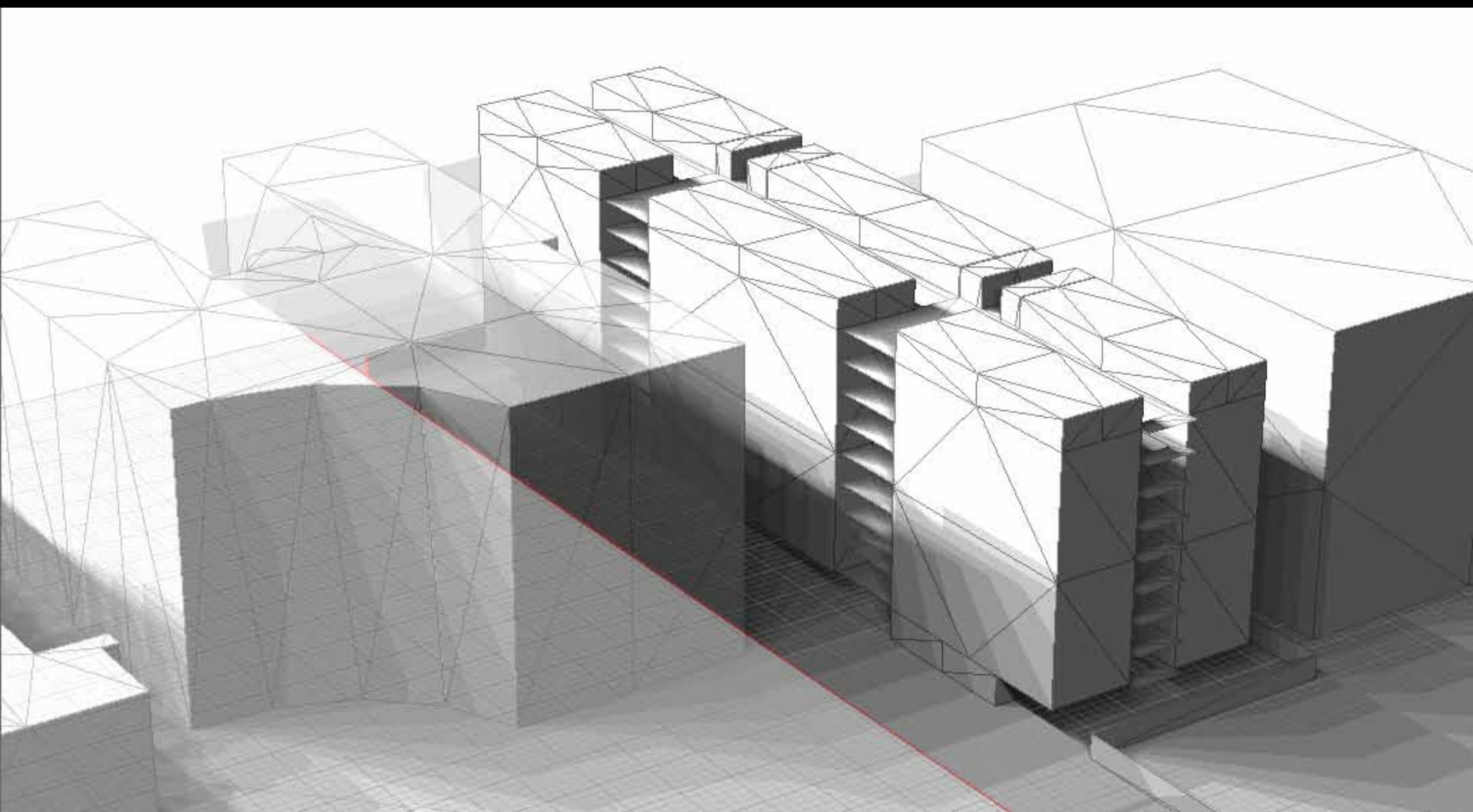


ROEWUarchitecture

weather systems: sun

new analysis tools



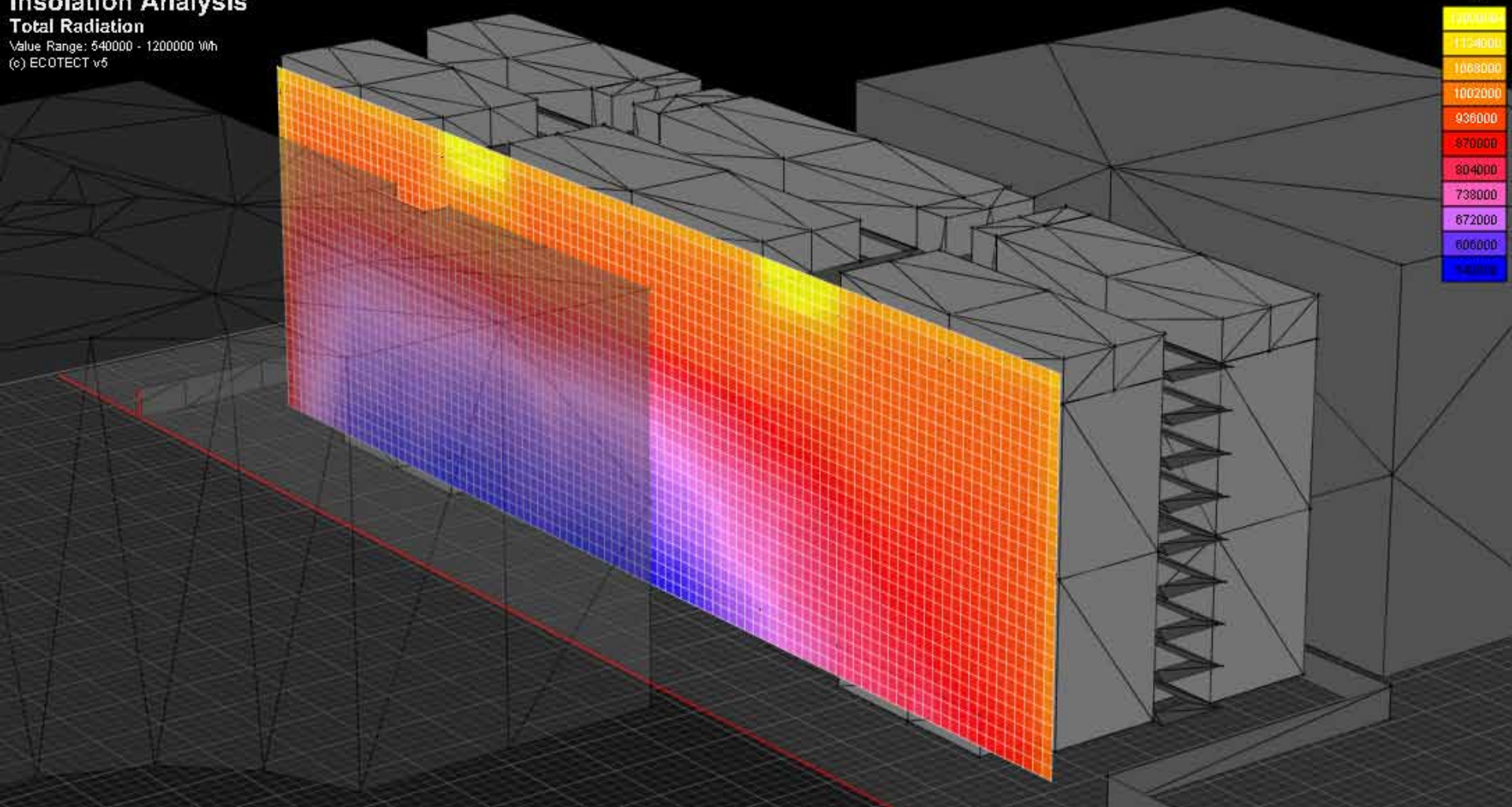


Insolation Analysis

Total Radiation

Value Range: 540000 - 1200000 Wh

(c) ECOTECT v5



kWhm-2

1406.25

1218.75

1031.25

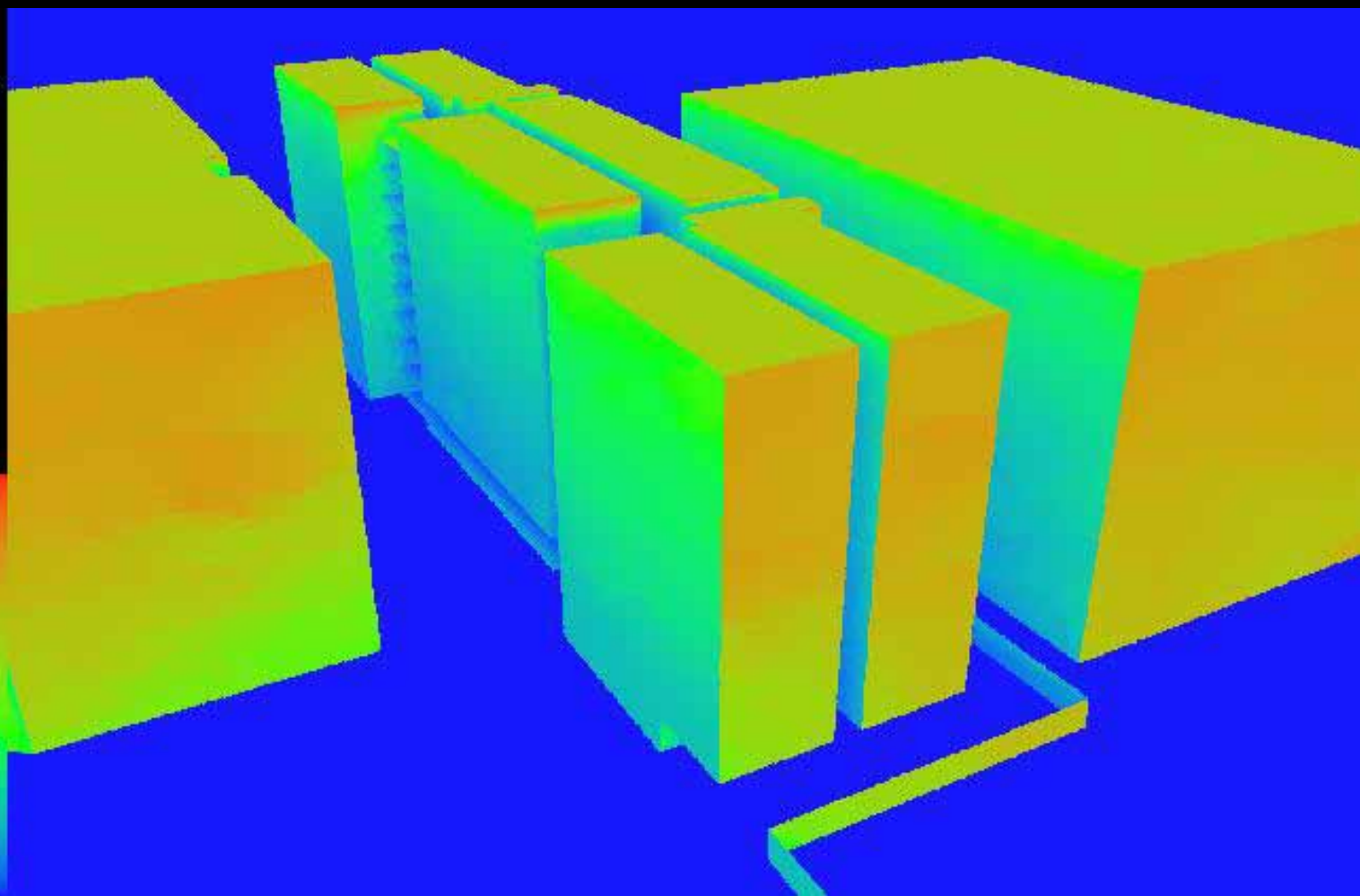
843.75

656.25

468.75

281.25

93.75



ROEWUarchitecture

weather systems: wind



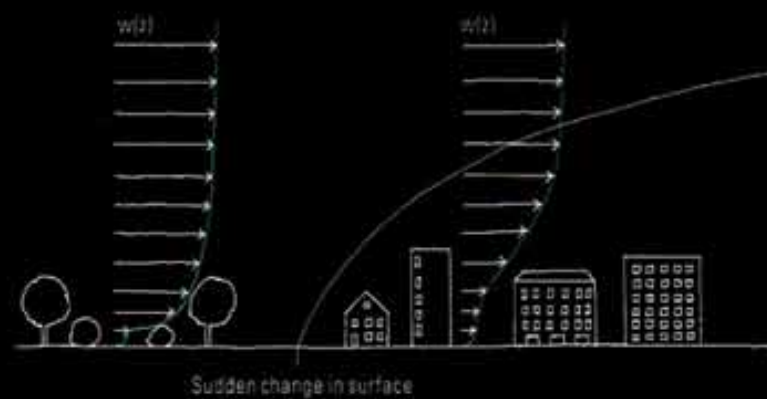


Figure 4B
Influence of change in ground
roughness on wind profile

Stable layered atmosphere



Upper limit of inversion

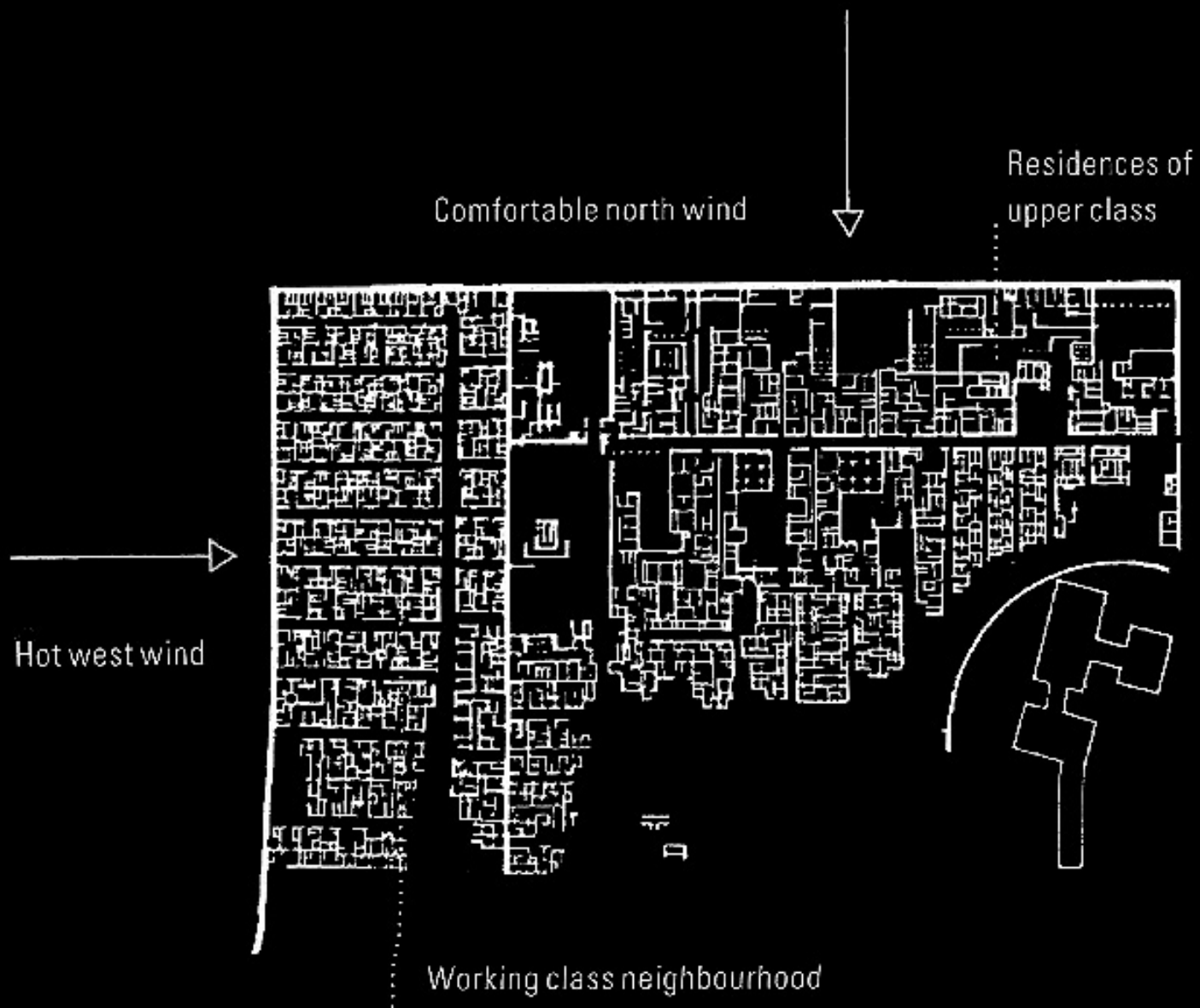


Upper limit of inversion



Upper limit of inversion





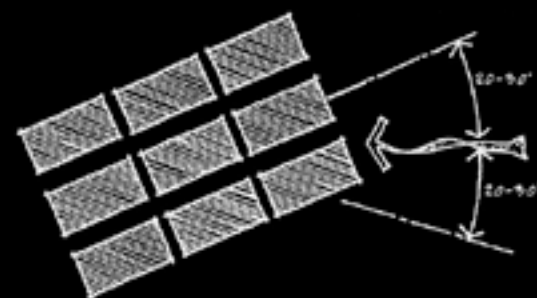
Kahun, Egypt 2000 BC



1950 City Plan, Charleston, South Carolina



"Single" House, Charleston, South Carolina



Orientation of Primary Streets for Ventilation



Schematic Section Diagram of City



Proposed Height Zoning for Downtown San Francisco

Figure 99.1
Flow characteristics in wind
shield belt
H: height of wind shield

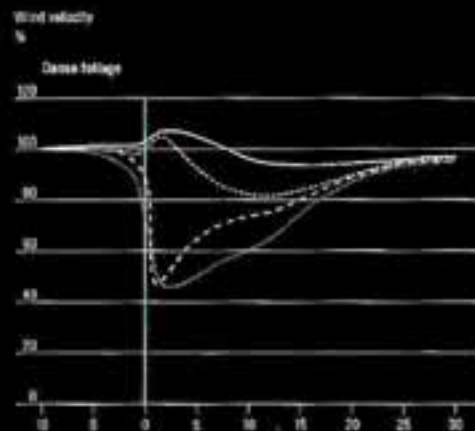
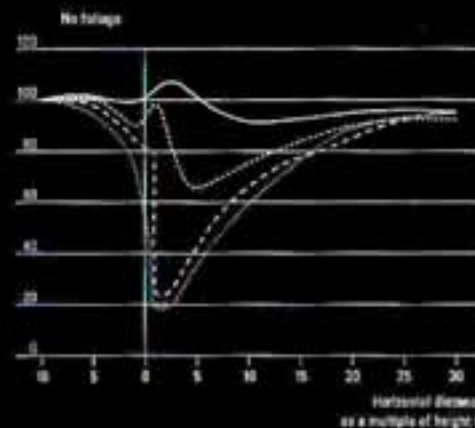


Figure 99.2
Effect of wind shield at
different heights

— 1/2 H
- - 1H
... 1 1/2 H
- · - 2 1/2 H



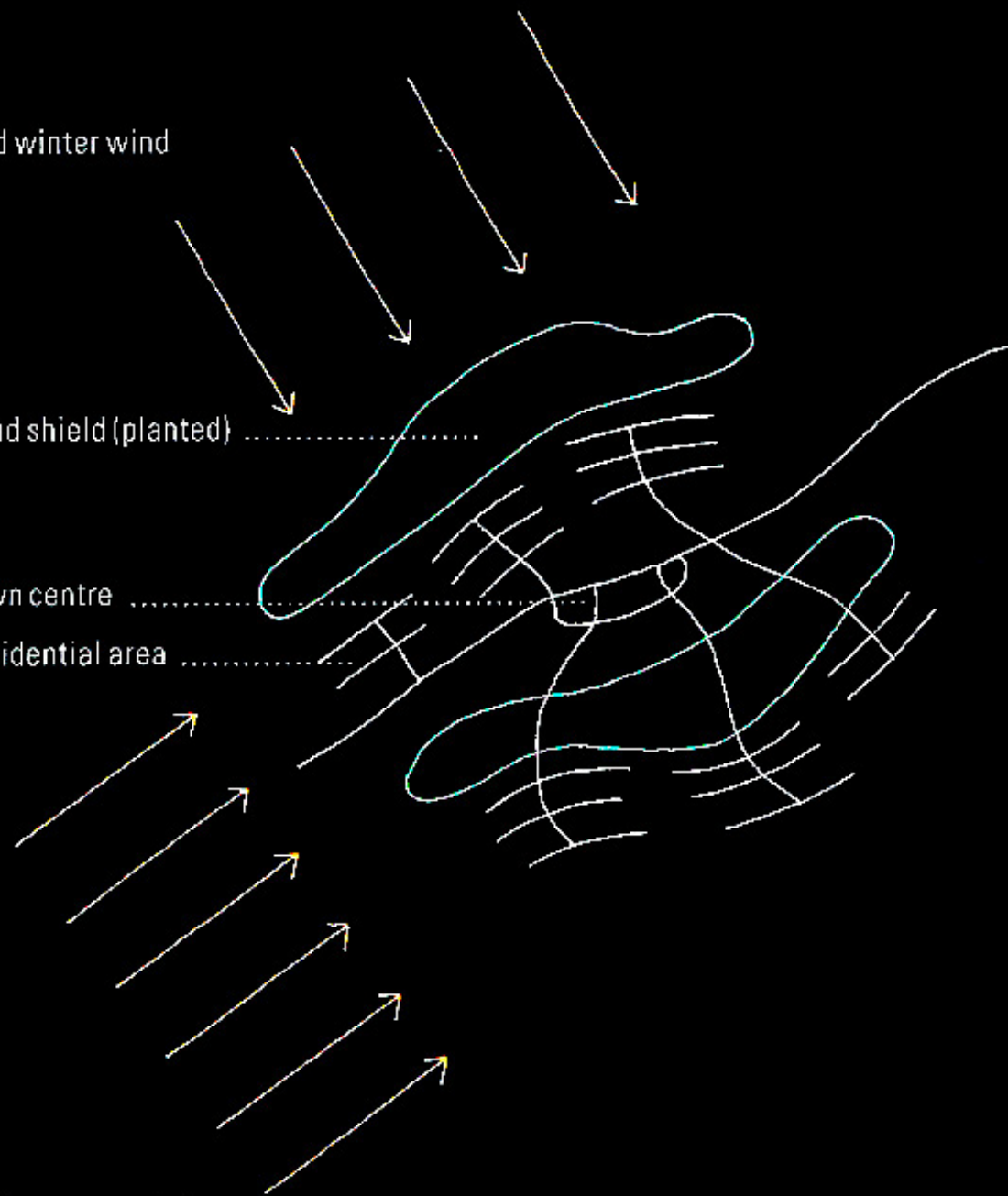
Cold winter wind

Wind shield (planted)

Town centre

Residential area

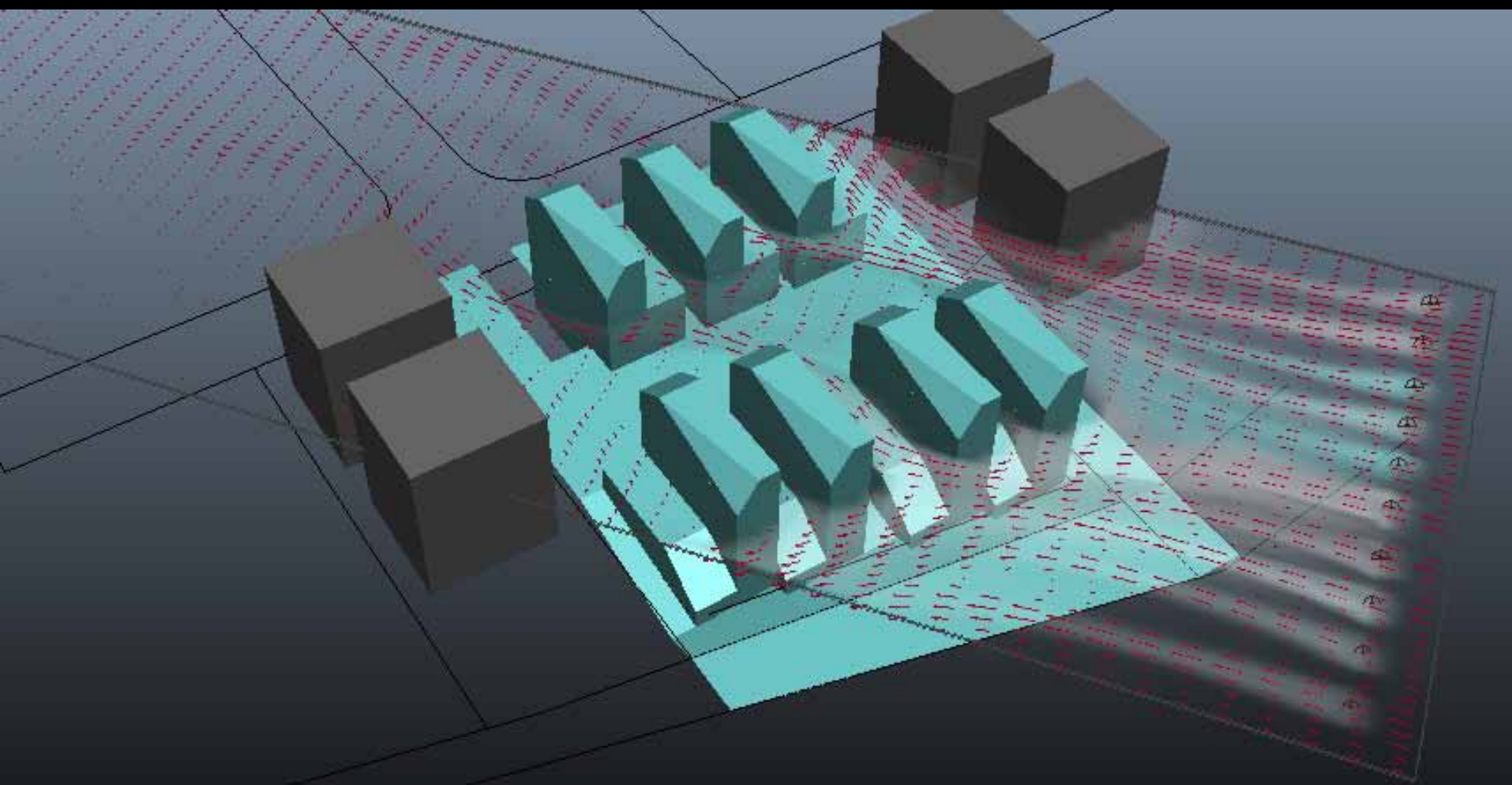
Cool summer wind

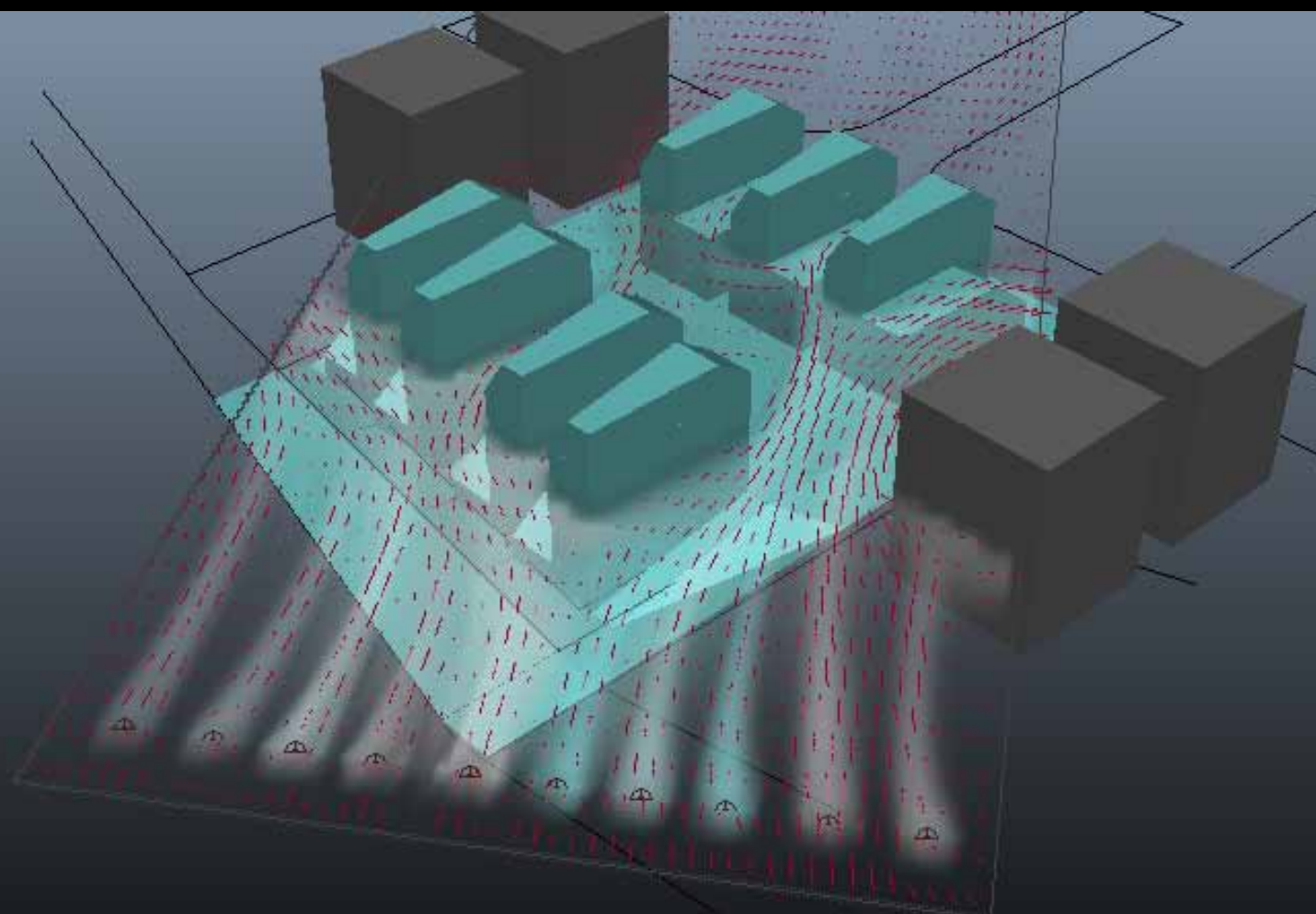


ROEWUarchitecture

weather systems: wind

new analysis tools



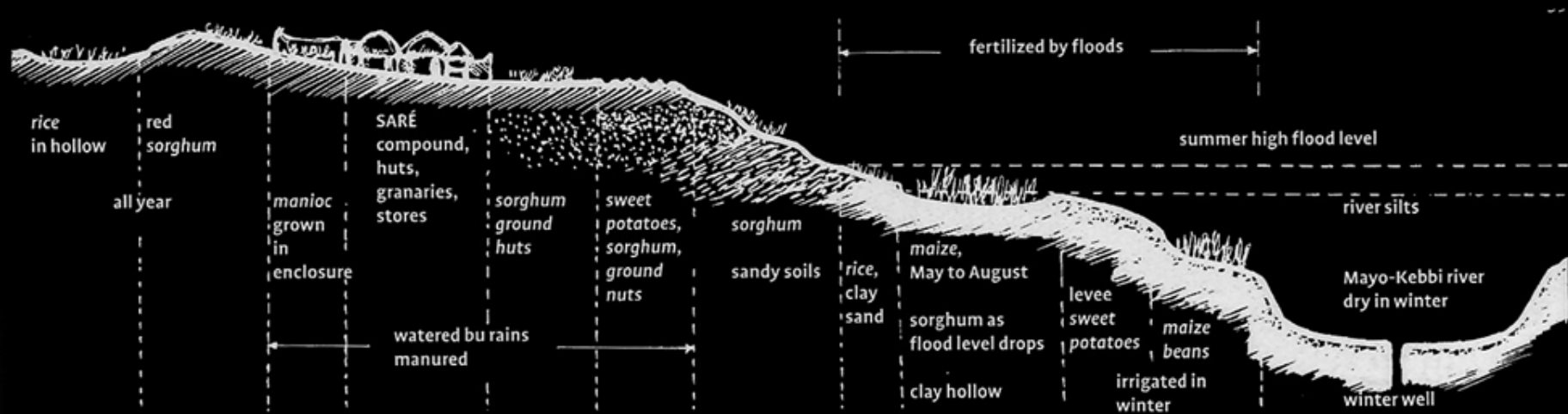


ROEWUarchitecture

weather systems: rain







ROEWUarchitecture

weather systems: rain

taiwan: orchard island

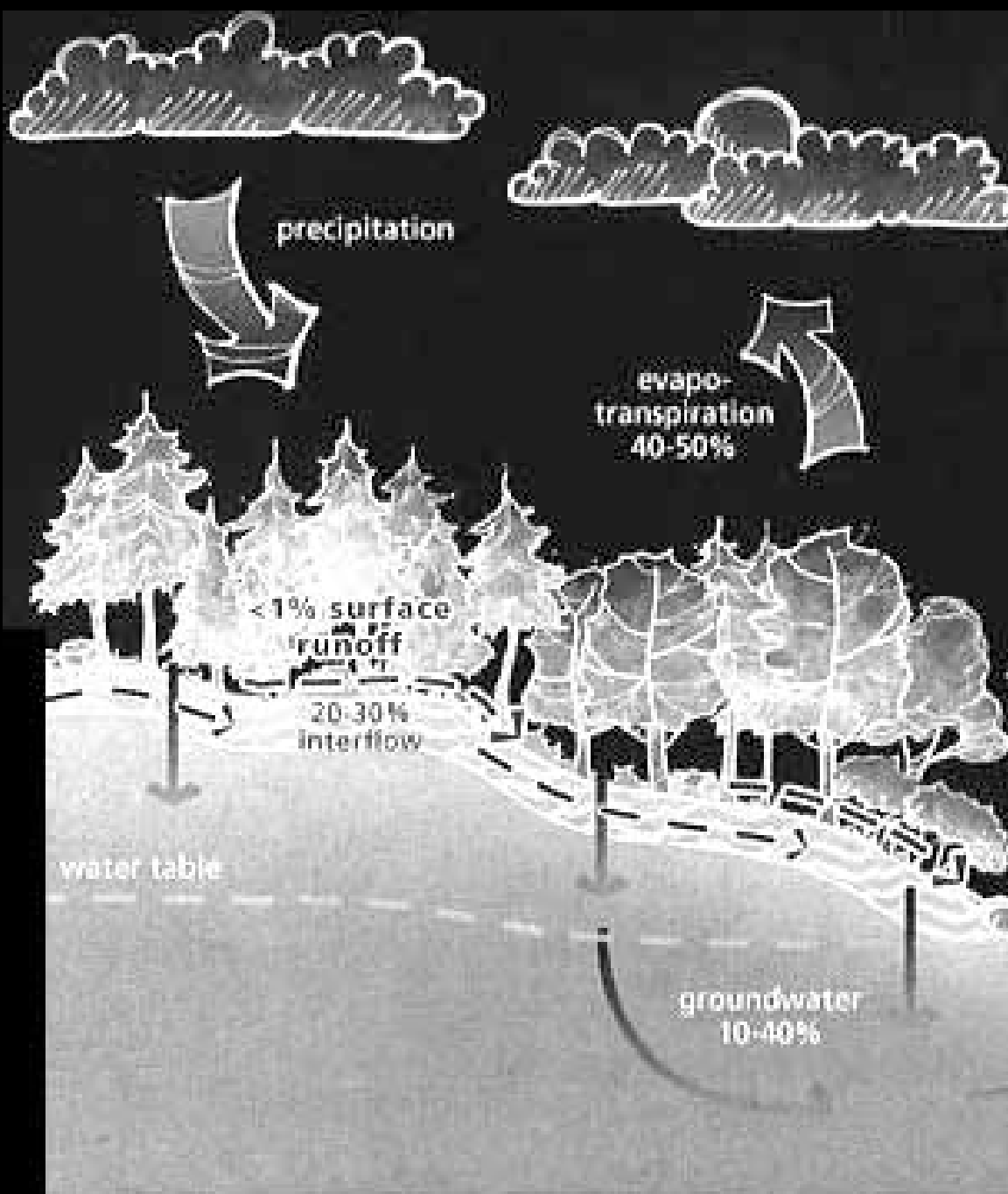




ROEWUarchitecture

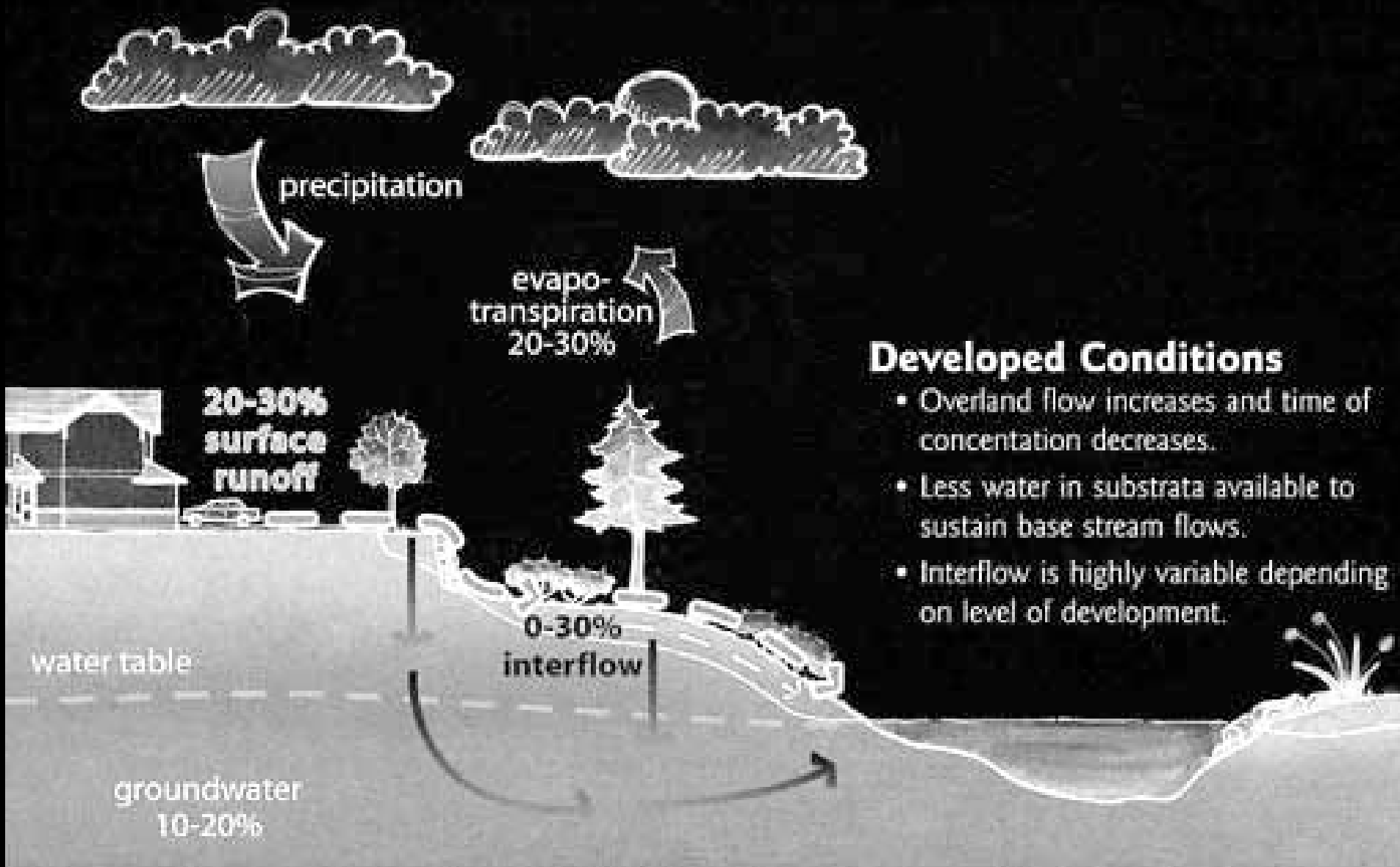
weather systems: rain

flooding



Pre-development forest

- During winter months, evaporation continues to be active while the transpiration component is minimal.
- Storm events are moderated by infiltration, evaporation, and transpiration.
- Water is available in substrata to sustain stream base flows during summer months.
- As winter progresses, the interflow component of stream flow increases.
- During the summer and fall, streams are maintained primarily by glacial melt water and/or groundwater flow.





ROEWUarchitecture

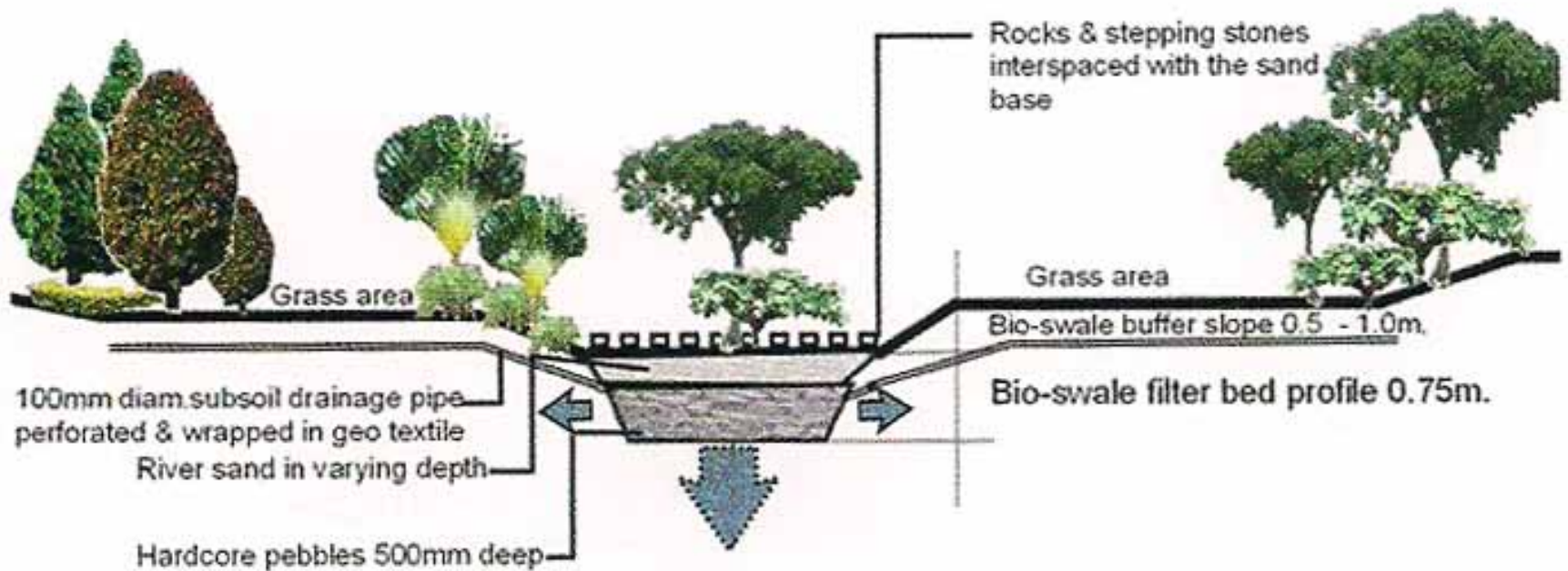
weather systems: rain

preventing flooding

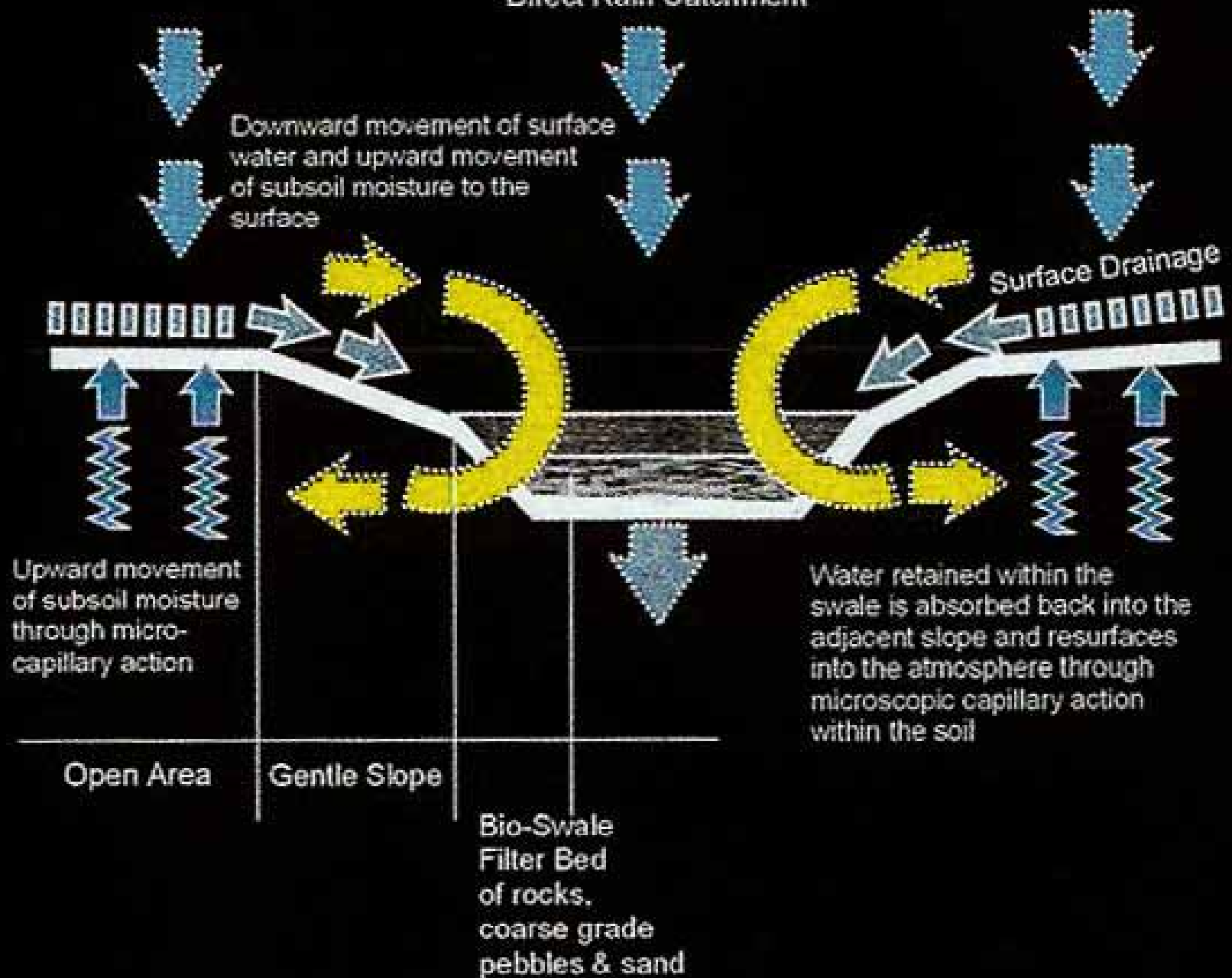




Bioswale Drainage Diagram



Direct Rain Catchment

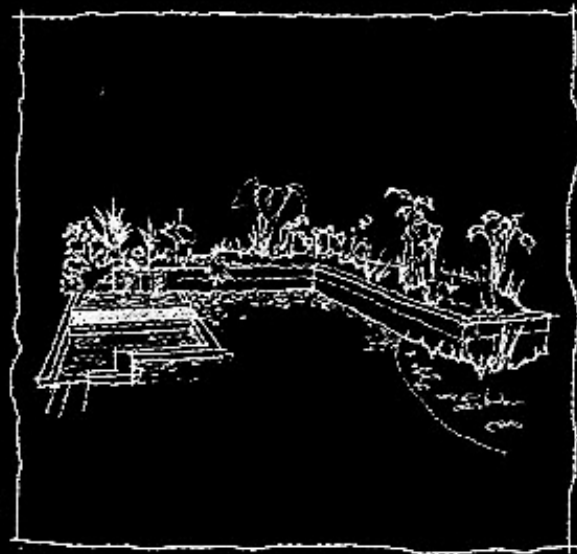
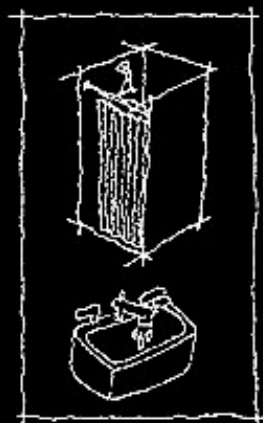


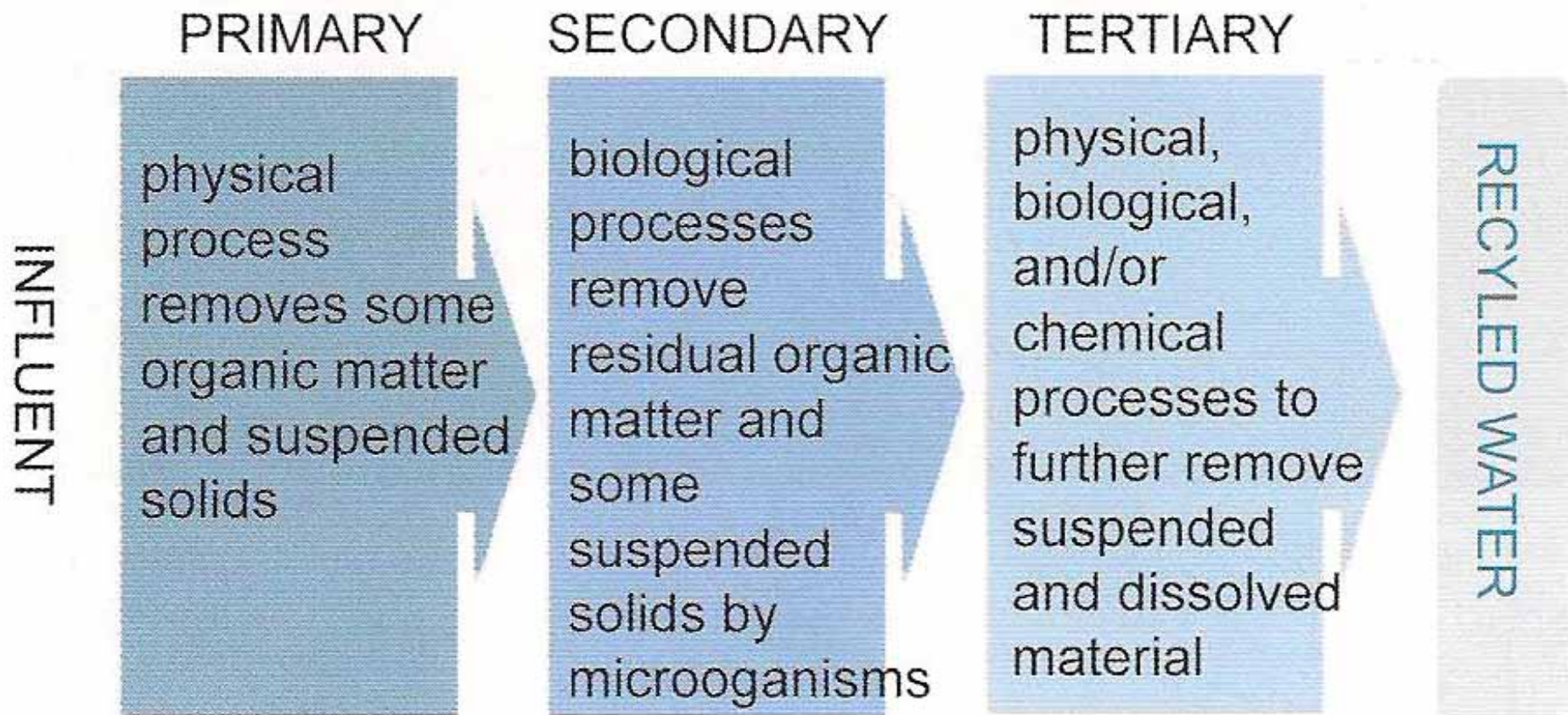


ROEWUarchitecture

weather systems: rain

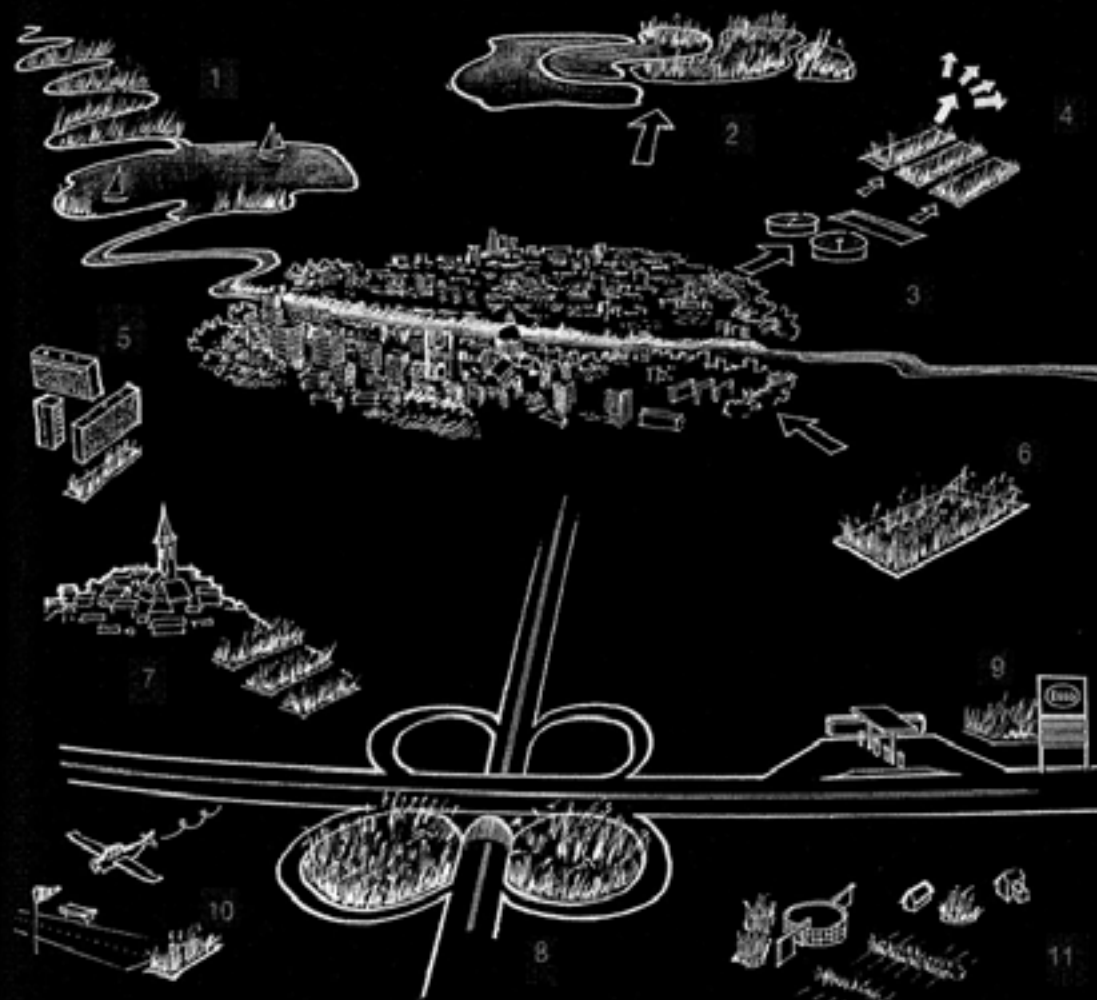
re-using/ recycling water





4.260 Treatment levels for recycled water. Disinfection to kill pathogens after secondary and tertiary treatment allows controlled uses of effluent. ADAPTED FROM *GRAYWATER GUIDE: USING GRAYWATER IN YOUR HOME LANDSCAPE*, STATE OF CALIFORNIA, OFFICE OF WATER USE RESOURCES

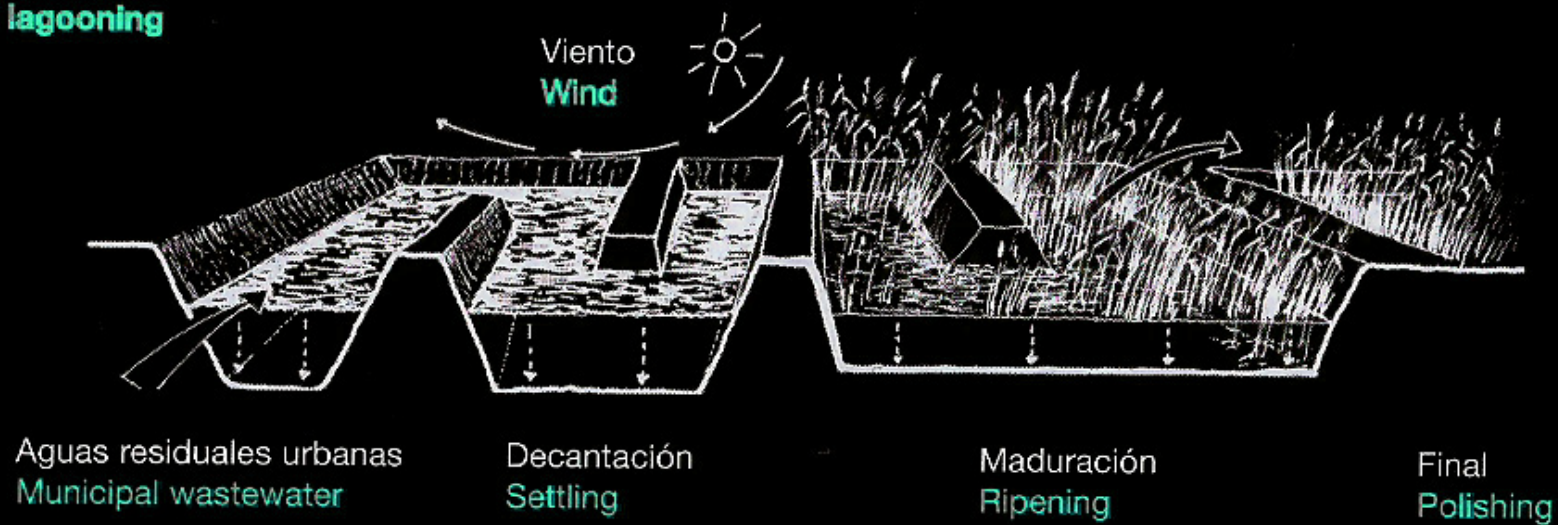




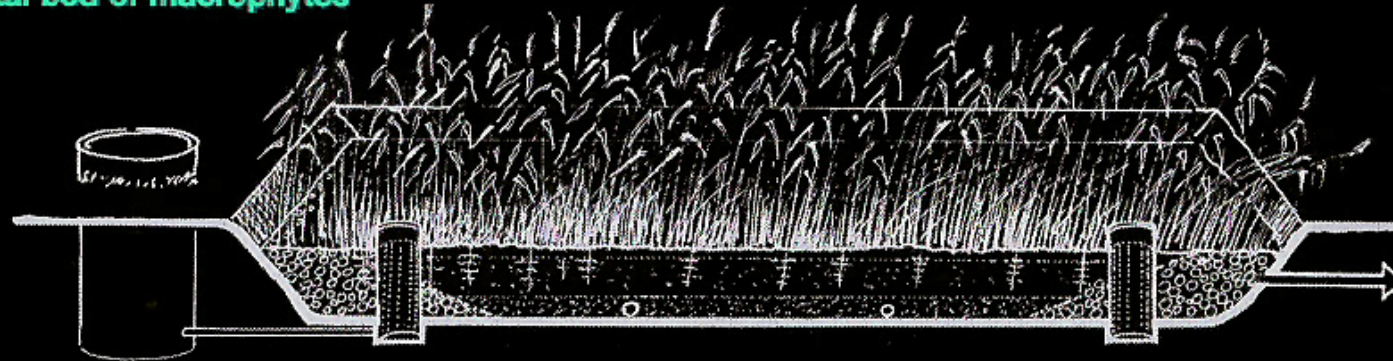
1. Oxygenation of a bathing lake / 2. Water treatment through lagooning (<15,000 inhabitants) / 3. Post-treatment of effluent and sludge from treatment plants / 4. Recycled effluent (timber production, nurseries, fish farming, oyster farming) / 5. Rehabilitation of council housing / 6. De-nitrification for drinking water / 7. Village or town (less than 3,000 inhabitants) / 8. Recycling of wash water from petrol stations / 9. Runoff from airports / 10. Runoff from motorway interchanges / 11. Isolated dwellings or enterprises



Lagunaje natural
Natural lagooning



Lecho de macrofitas horizontal
Horizontal bed of macrophytes



Cribado
Screening

Gravilla
Gravel

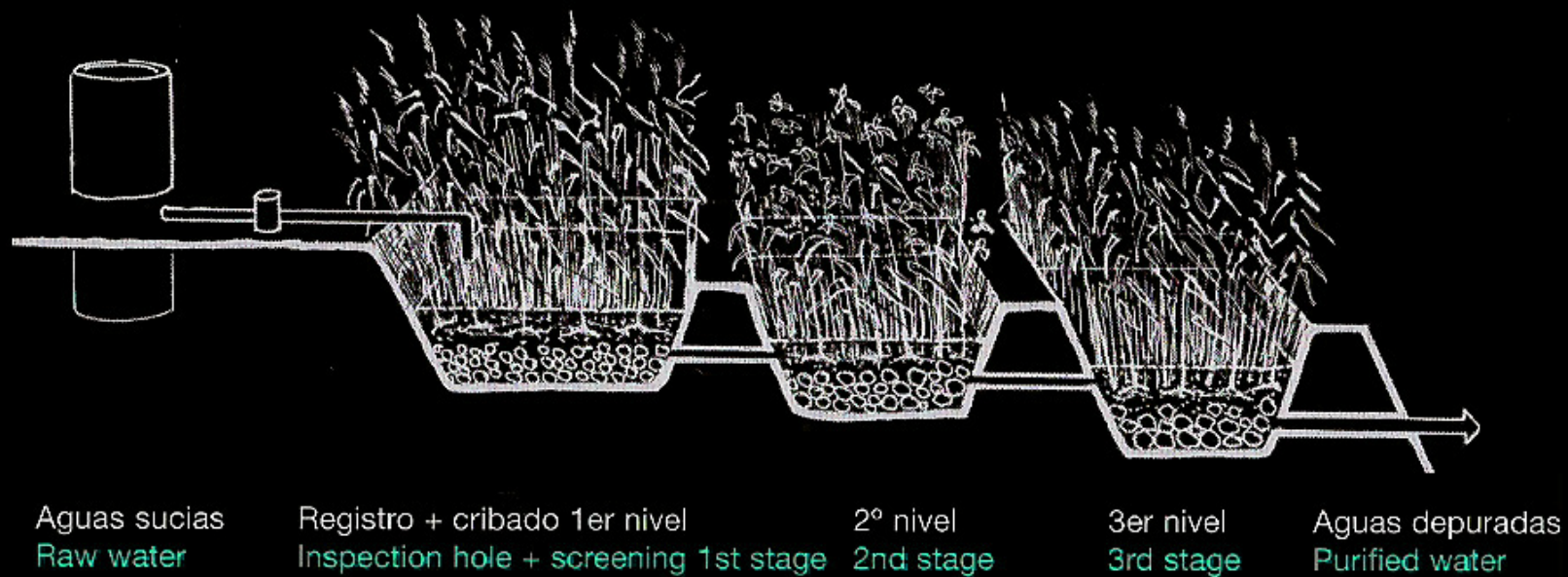
Carrizo: sustrato + drenaje
Reeds: substrate and drainage

Gravilla
Gravel

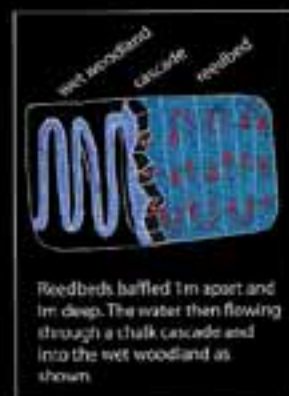
Extracción de lodos: 10 años
Extraction of sludge: 10 years

Lecho de
macrofitas
vertical

Vertical
bed of
macrophytes

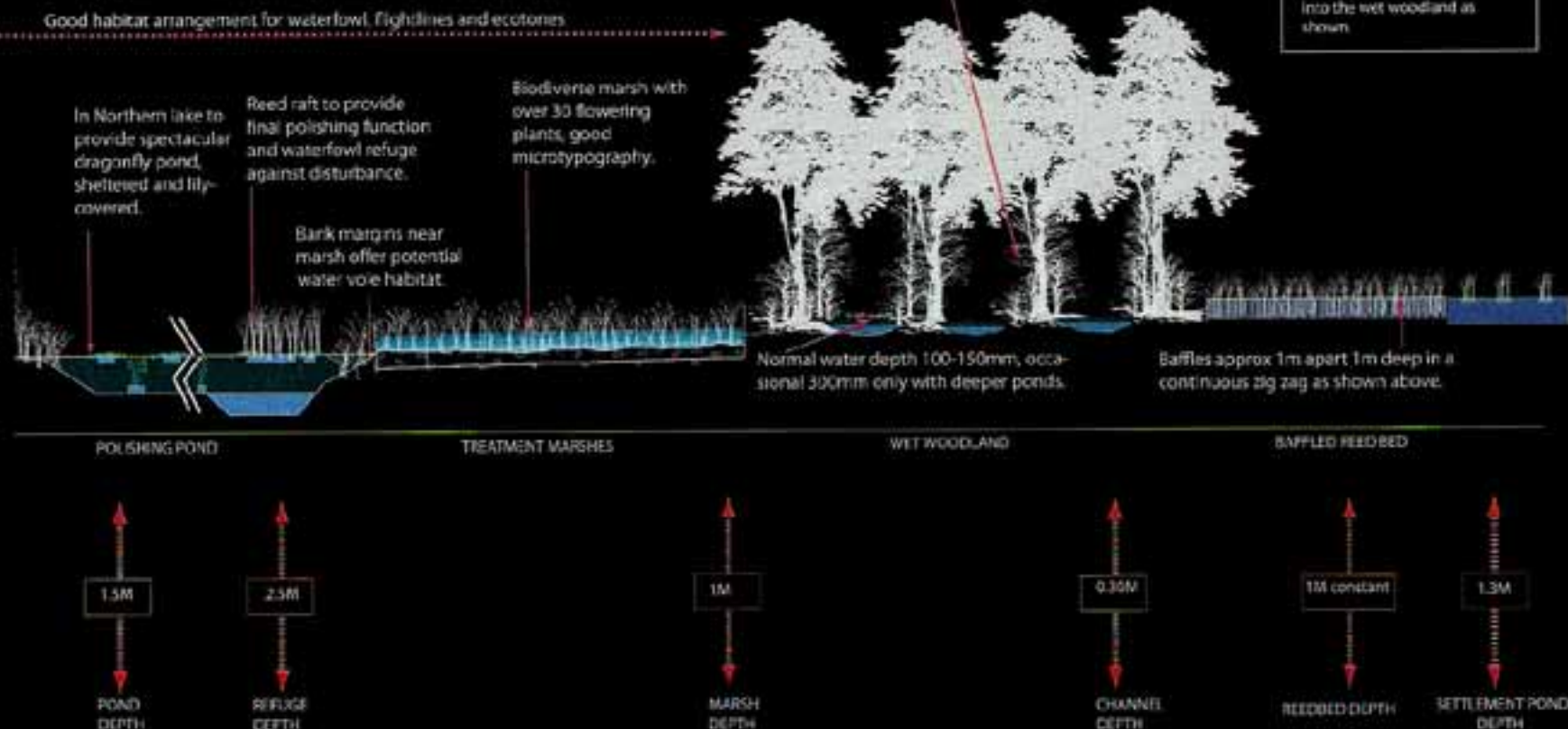


CONSTRUCTED WETLAND FOR WATER PURIFICATION



Good habitat arrangement for waterfowl, flightlines and ecotones

Wet woodland channels to be no less than 150cm wide no wider than 400cm. Wet woodland with creek developed three-tier structure. Phased introduction of groundflora. From marsh to shade tolerant species of damp soils.

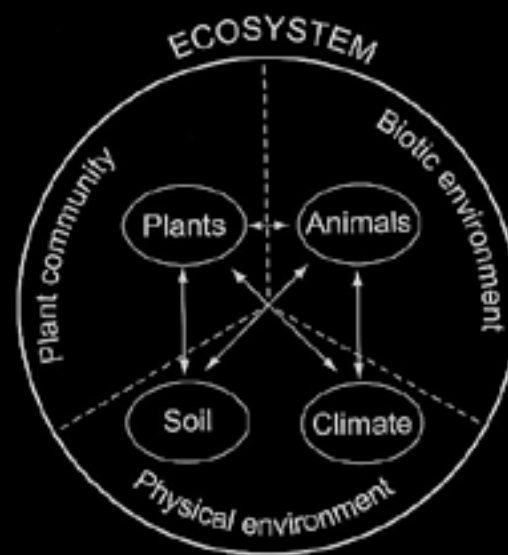
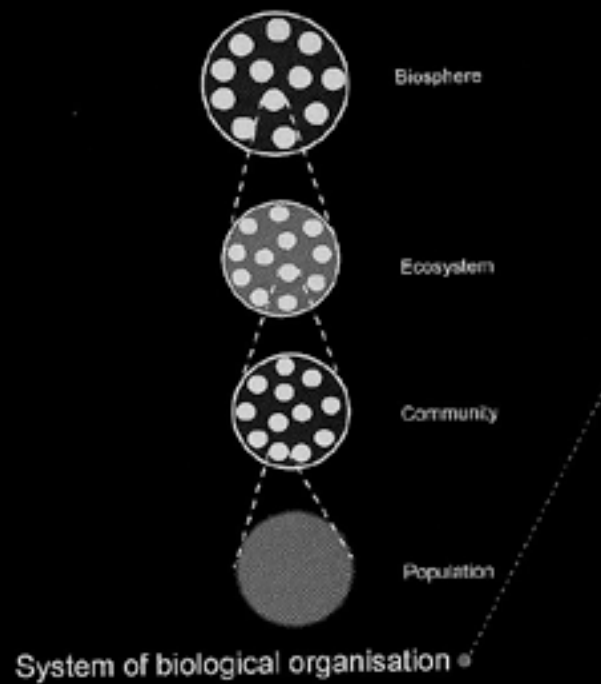




ROEWUarchitecture

weather systems: ecosystems

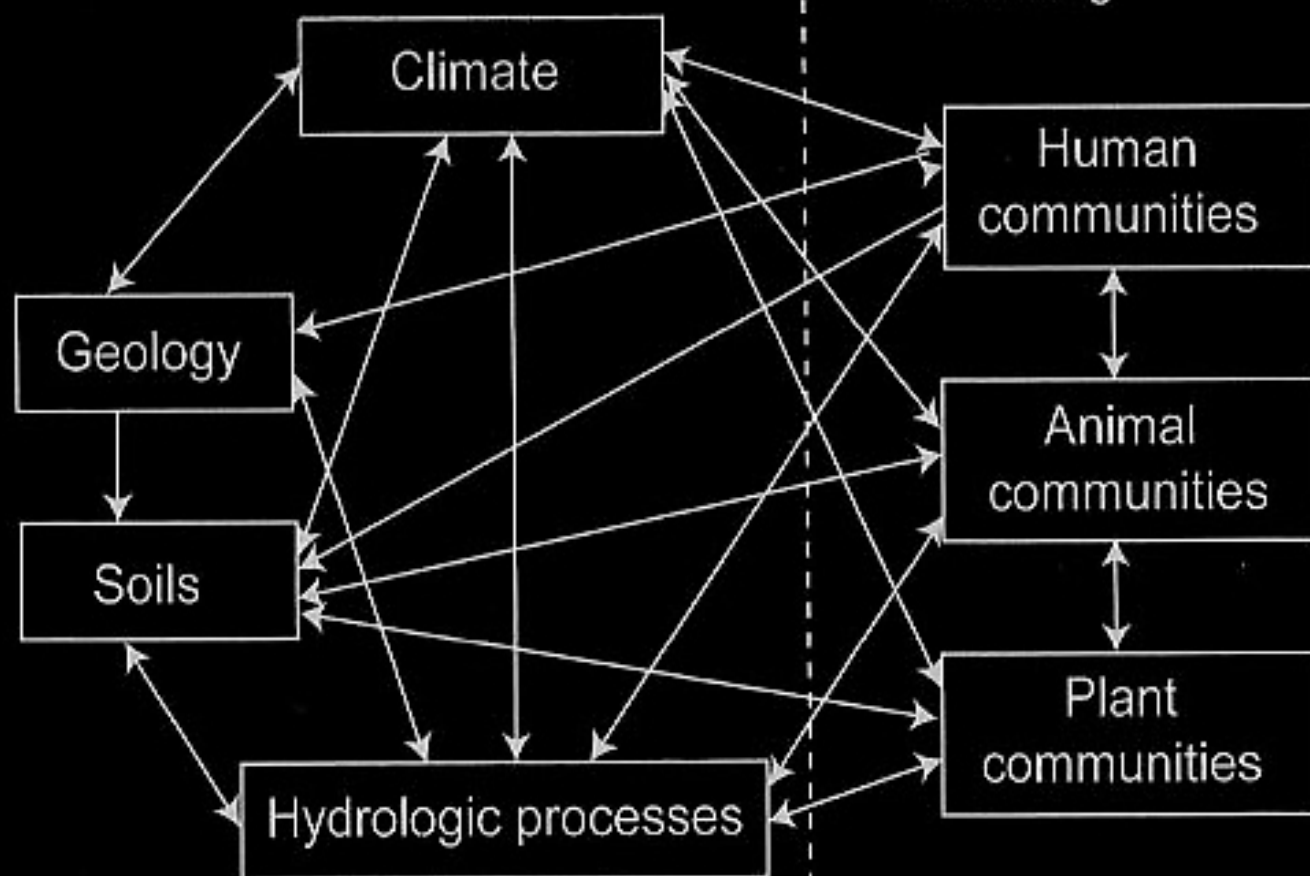


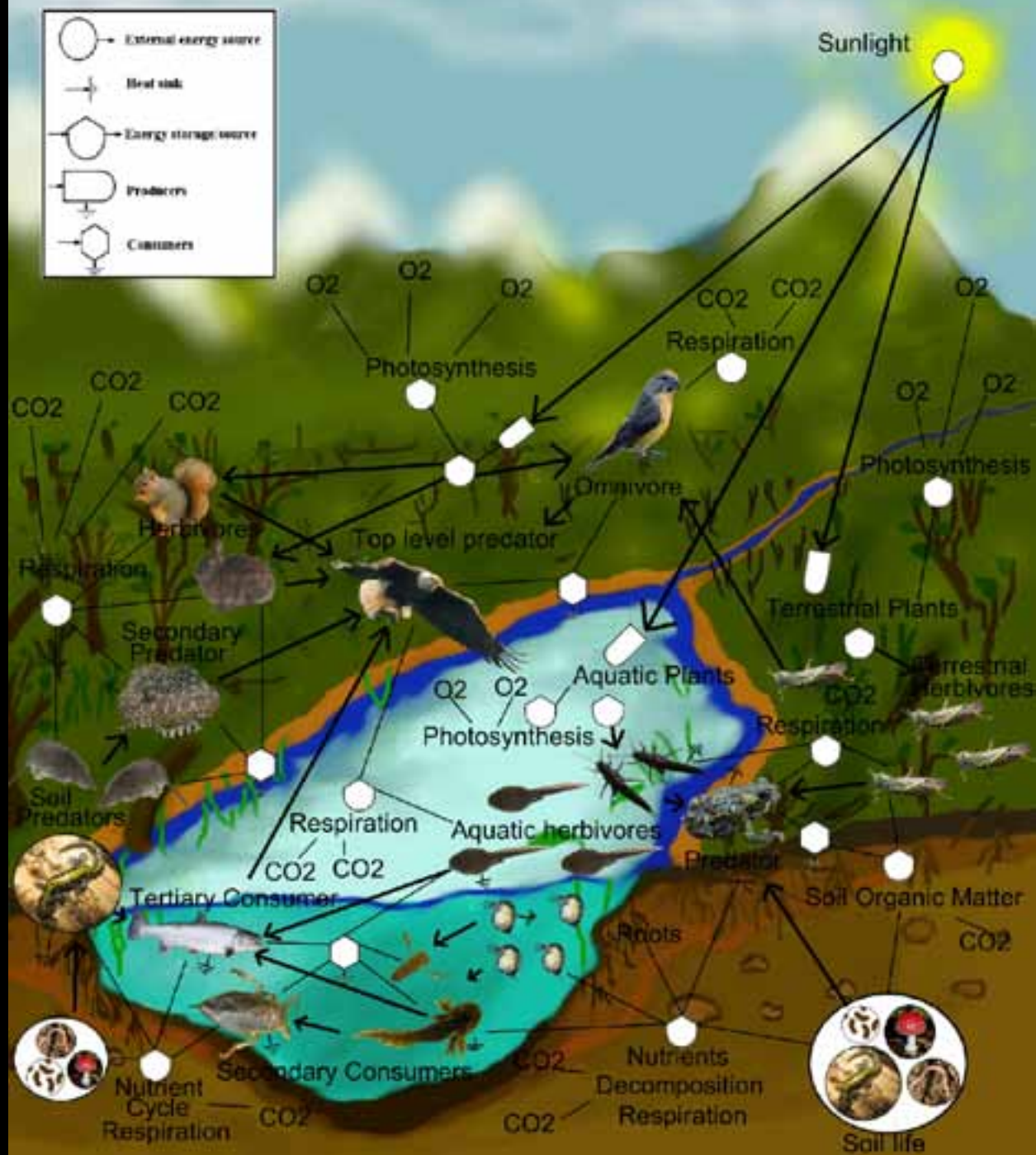
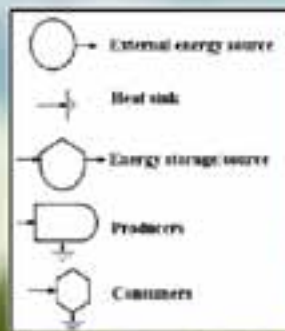


Physical
constituents

Biological
constituents

Structures and
building



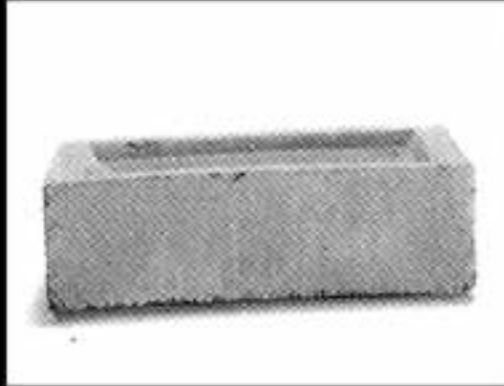


ROEWUarchitecture

weather systems: urban planting



Inorganic



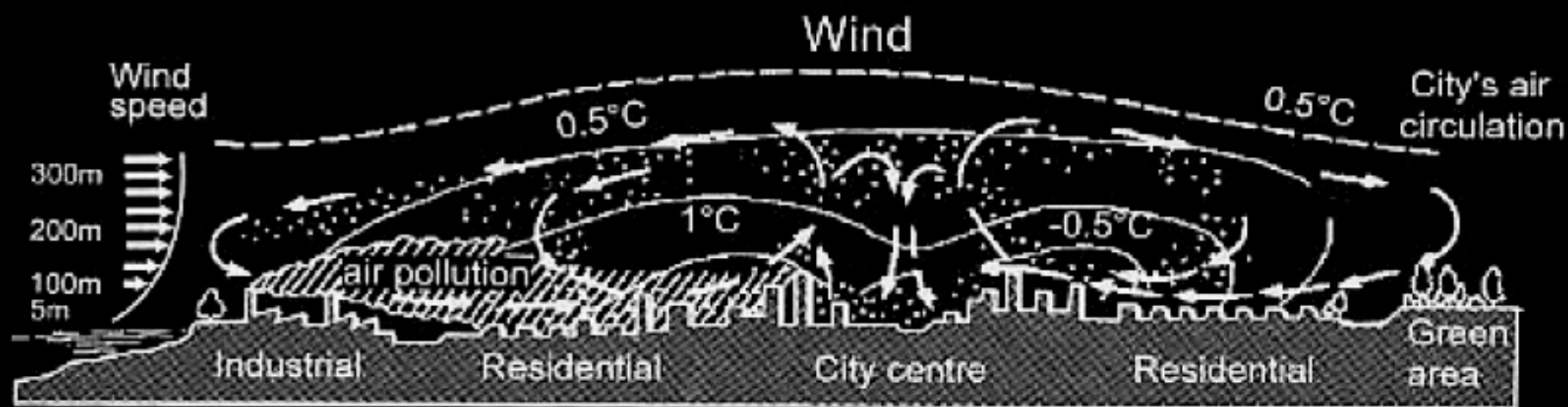
Organic



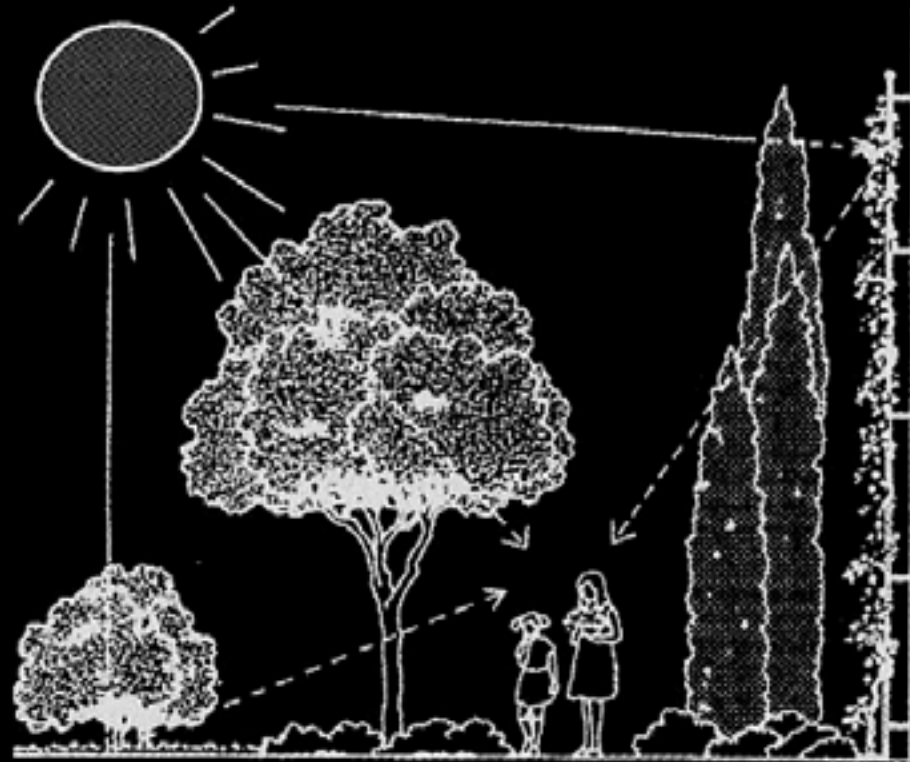
Existing built environment
mostly physical (abiotic)
constituents

... where are the biological
(biotic) constituents?

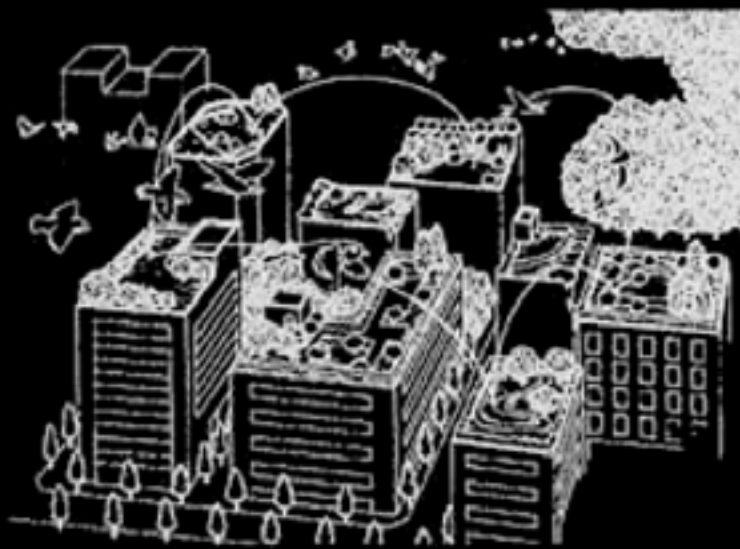
Design must balance the inorganic with the
organic content



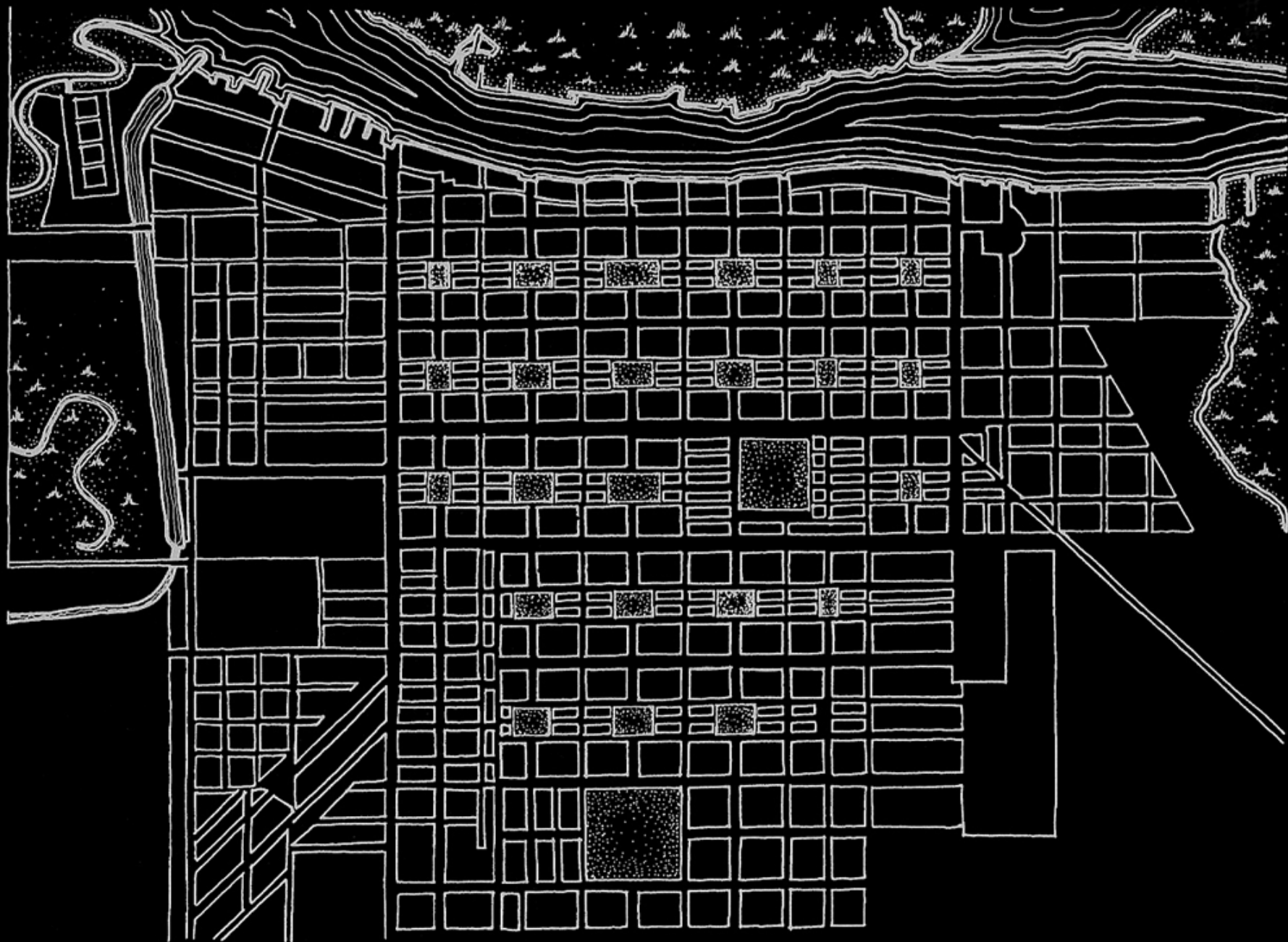
Heat-island effect in cities



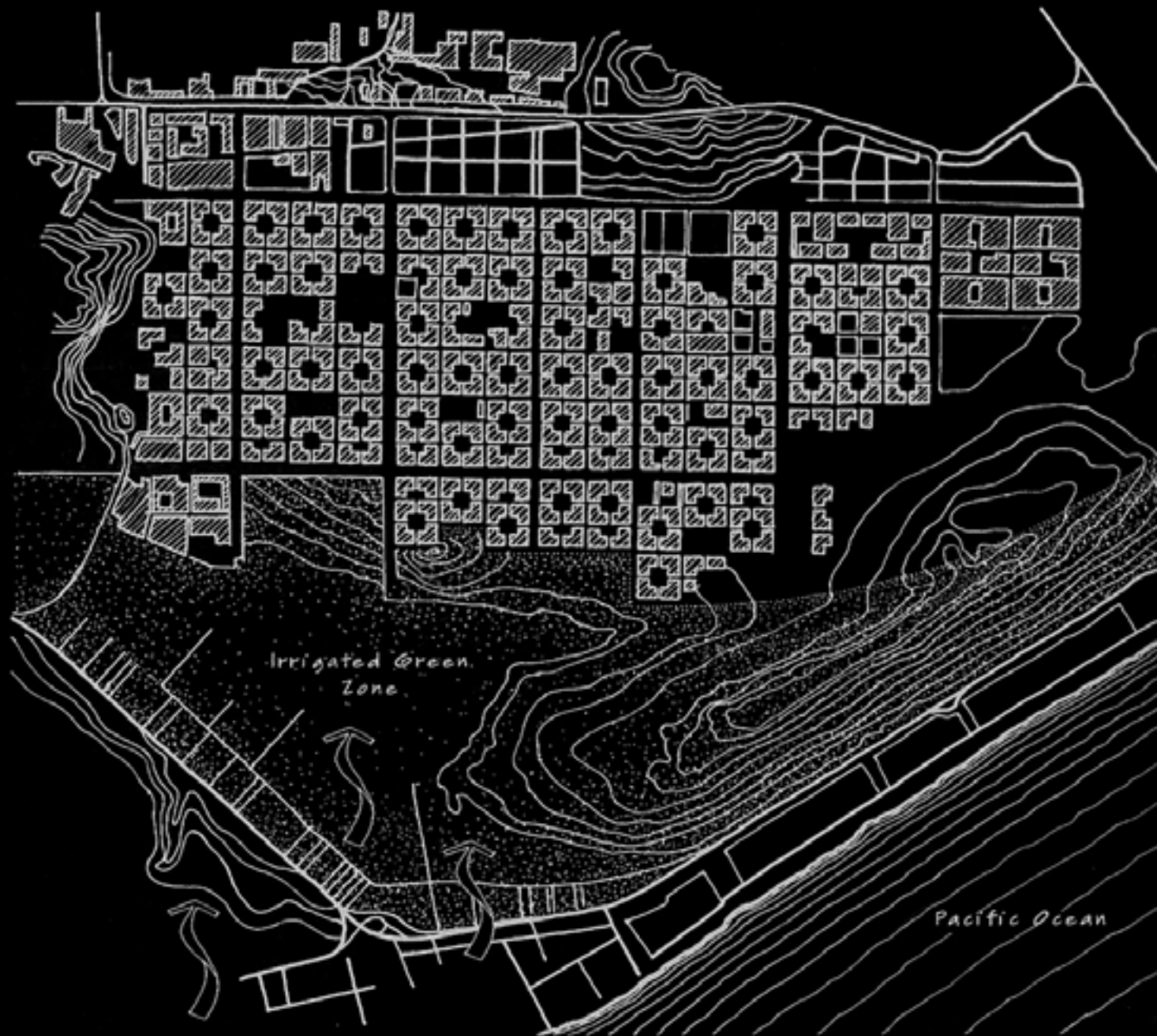
Use of vegetation for shading surfaces



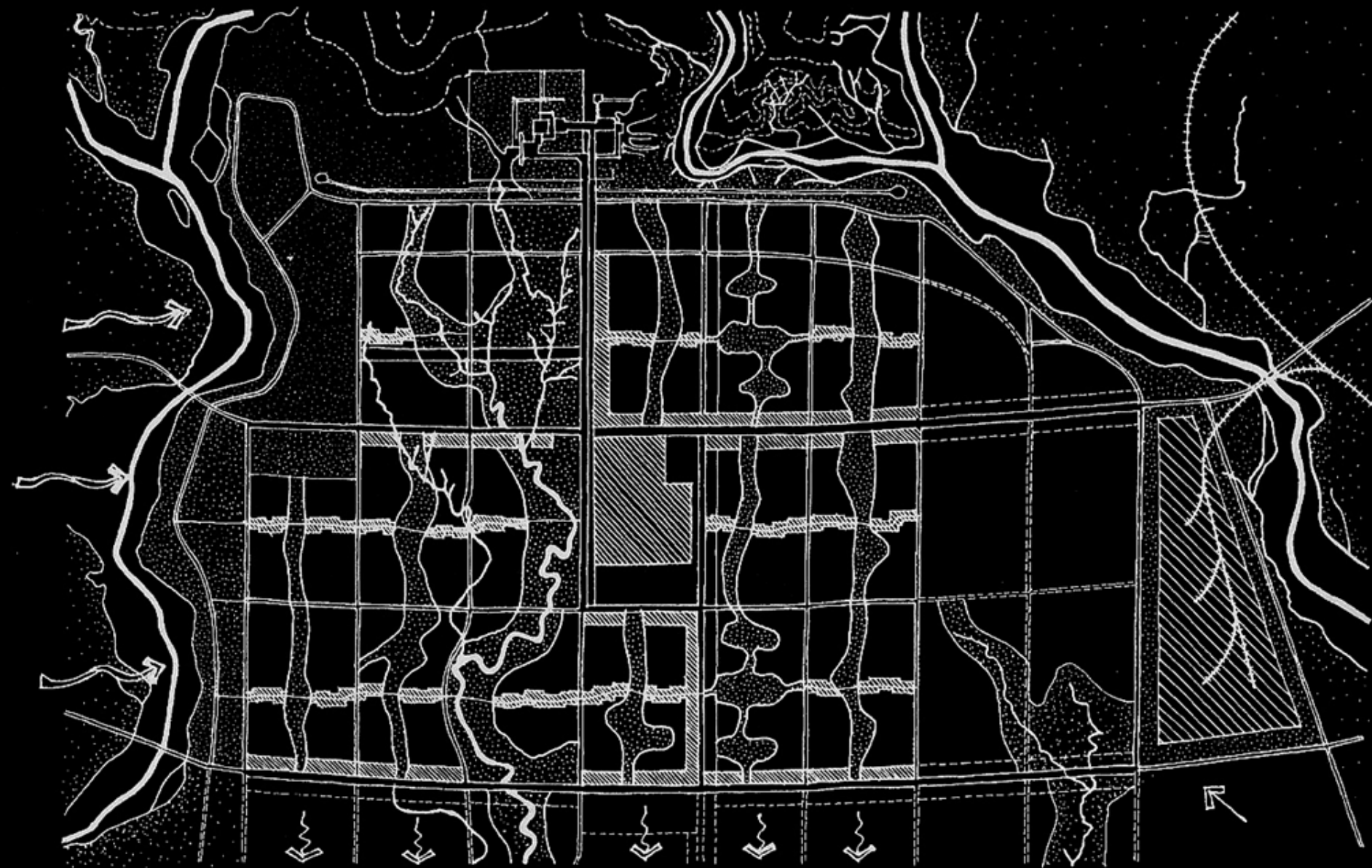
- Roof gardens and sky courts create new urban habitats



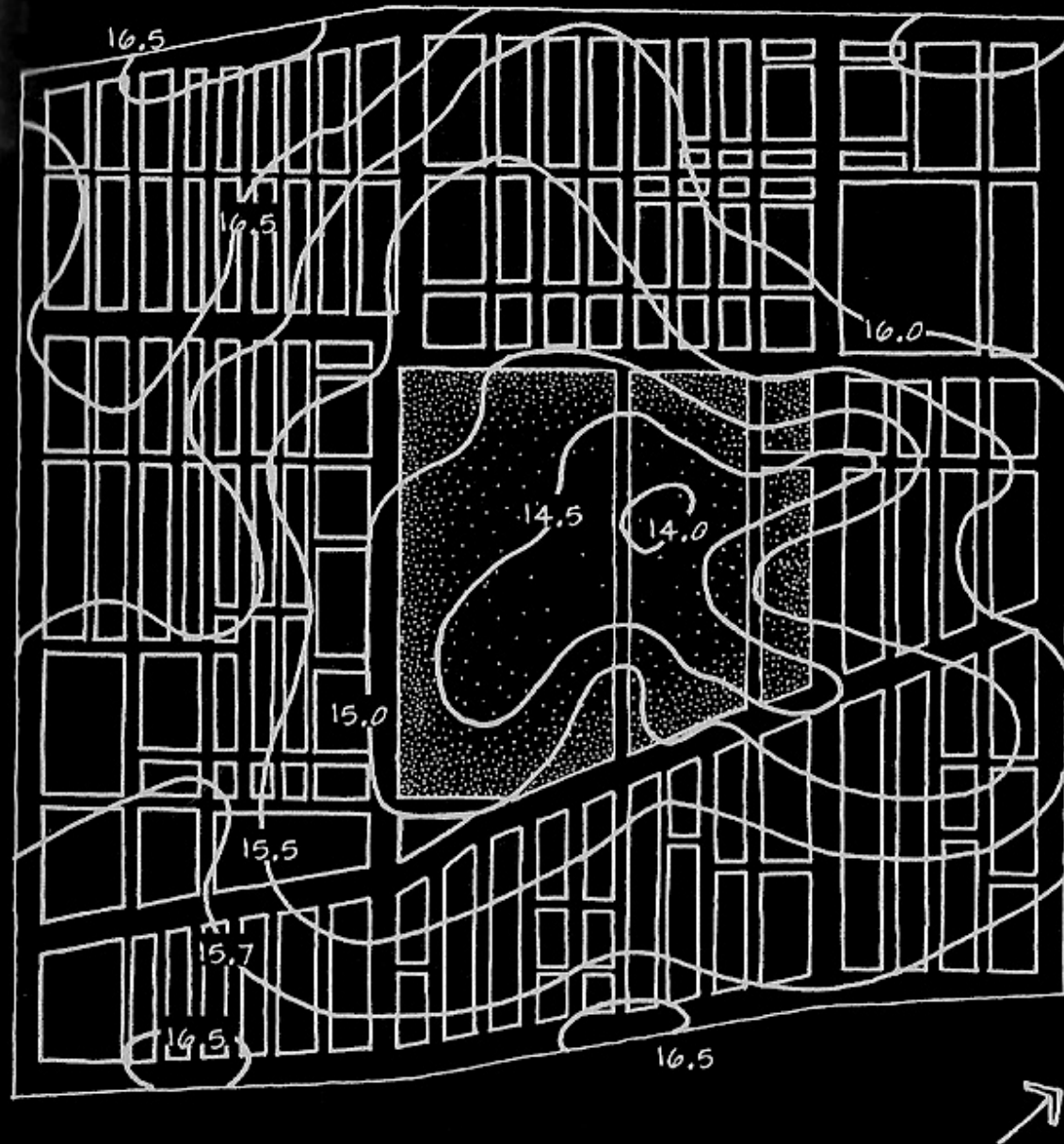
Plan of Savannah, Georgia, 1856, James Oglethorpe



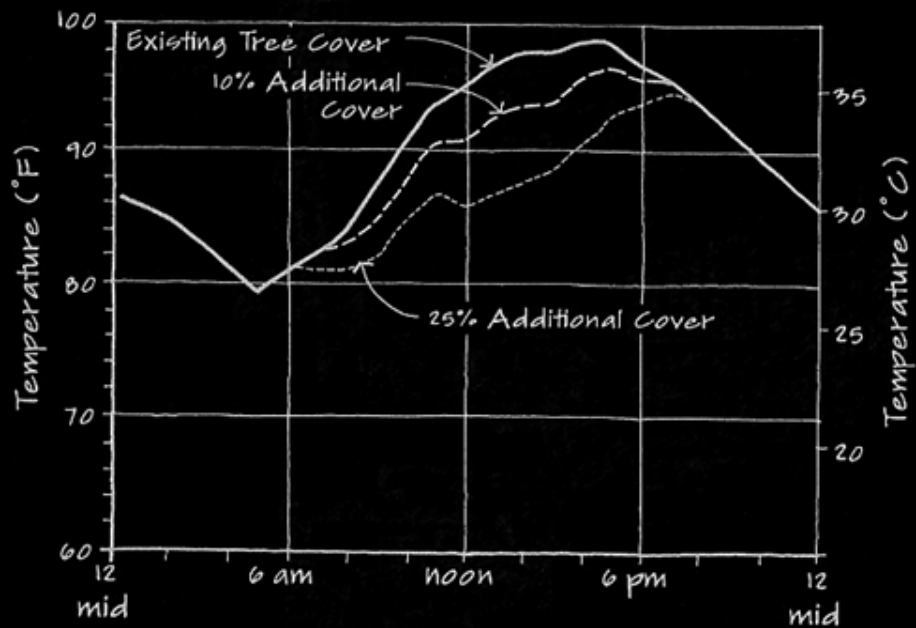
Plan of Villa El Salvador District, Lima, Peru, Miguel Romero Sotelo



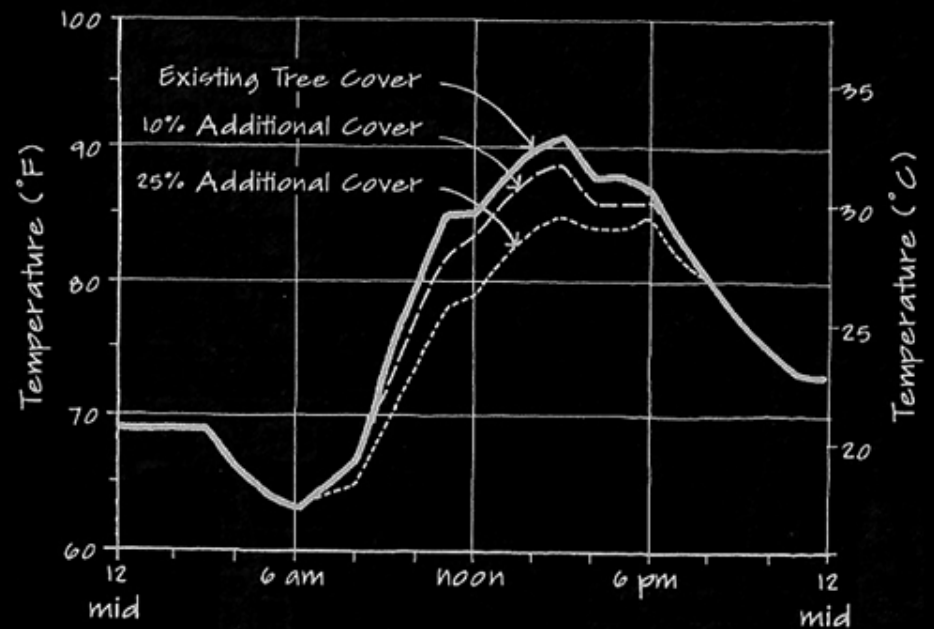
Plan of Chandigarh, Punjab, India, Le Corbusier, 1951



Cooling Effect From La Fontaine Park,
Montreal, Canada (degrees C)



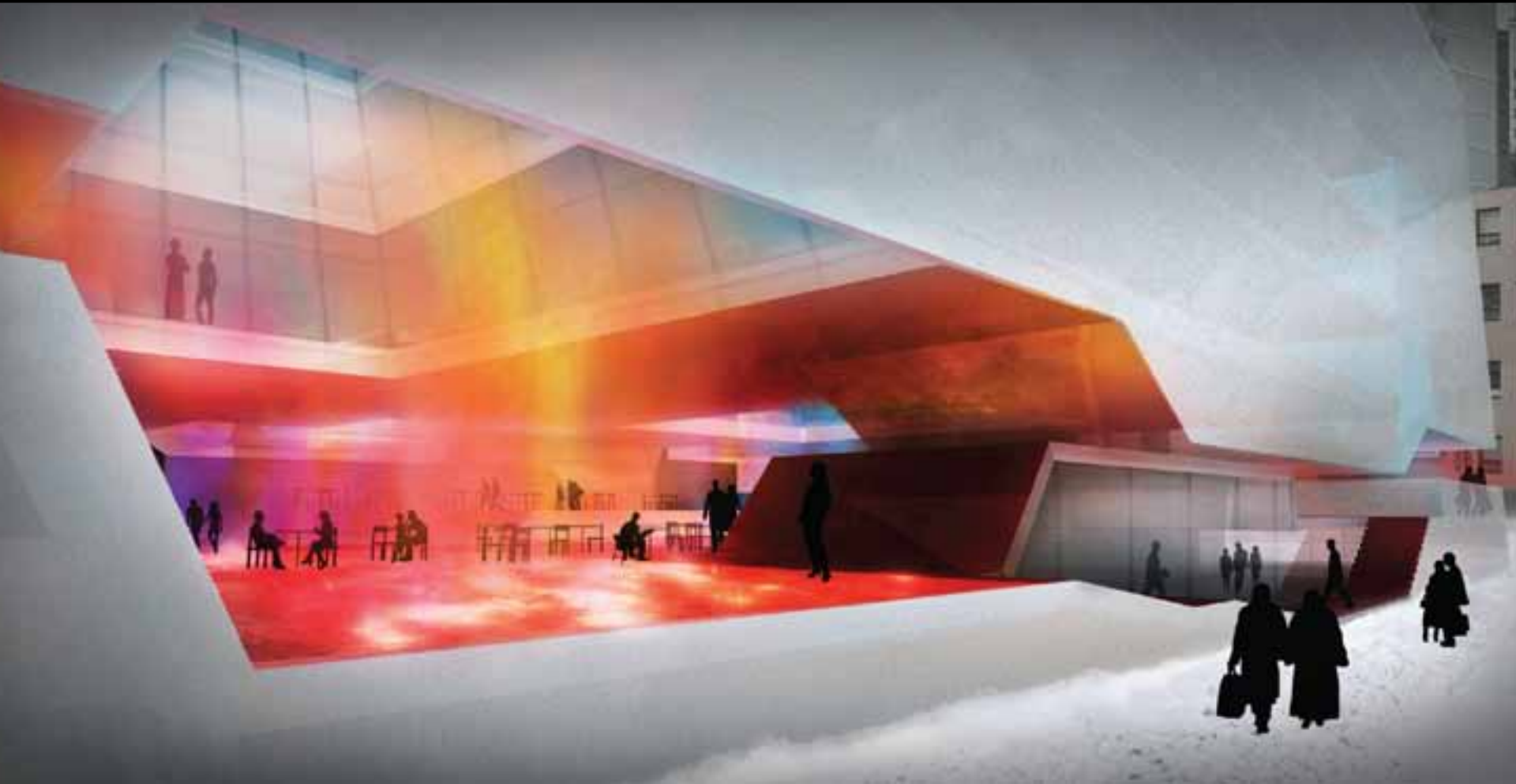
Cooling Due to Tree Cover, Sacramento
Redrawn from Akbari et al. (1992).



Cooling Due to Tree Cover, Phoenix
Redrawn from Akbari et al. (1992).

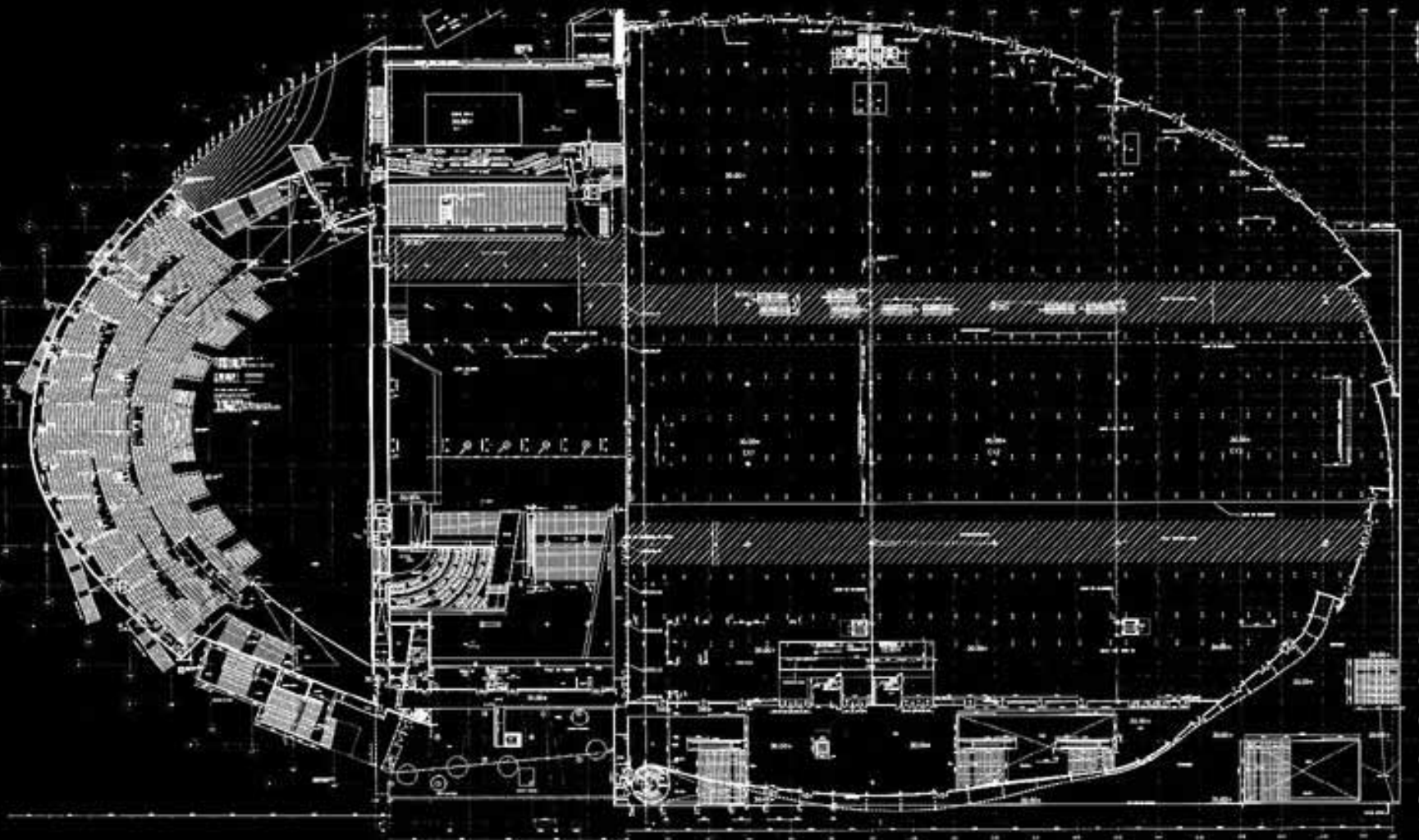
ROEWUarchitecture

weather systems: air



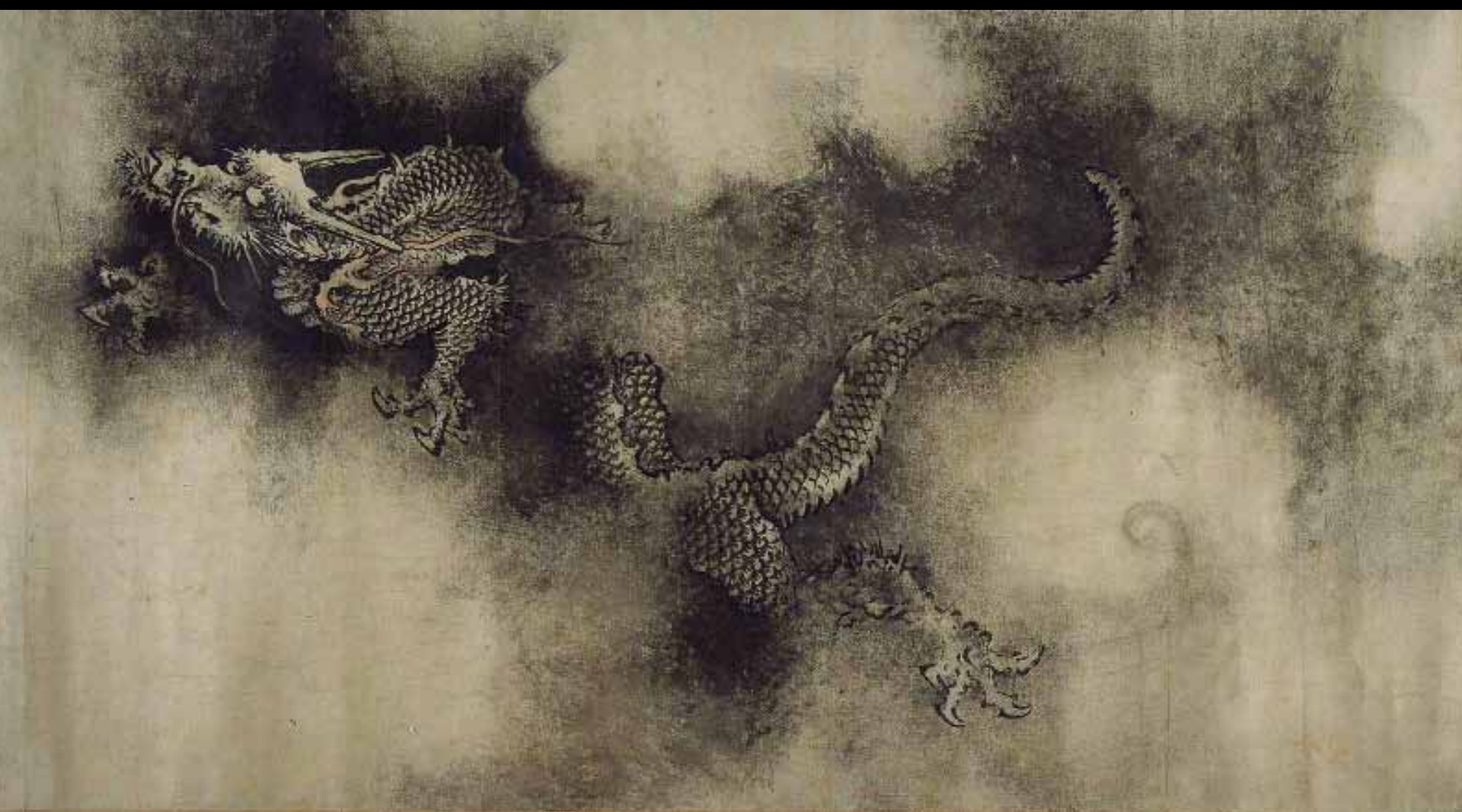
Gravity has remained constant ... but **air-conditioning** --invisible medium, therefore unnoticed-- **has truly revolutionized architecture**. Air - conditioning has launched the endless building. If architecture separates buildings, air-conditioning unites them. Air-conditioning has dictated mutant regimes of organization and coexistence that leave architecture behind.

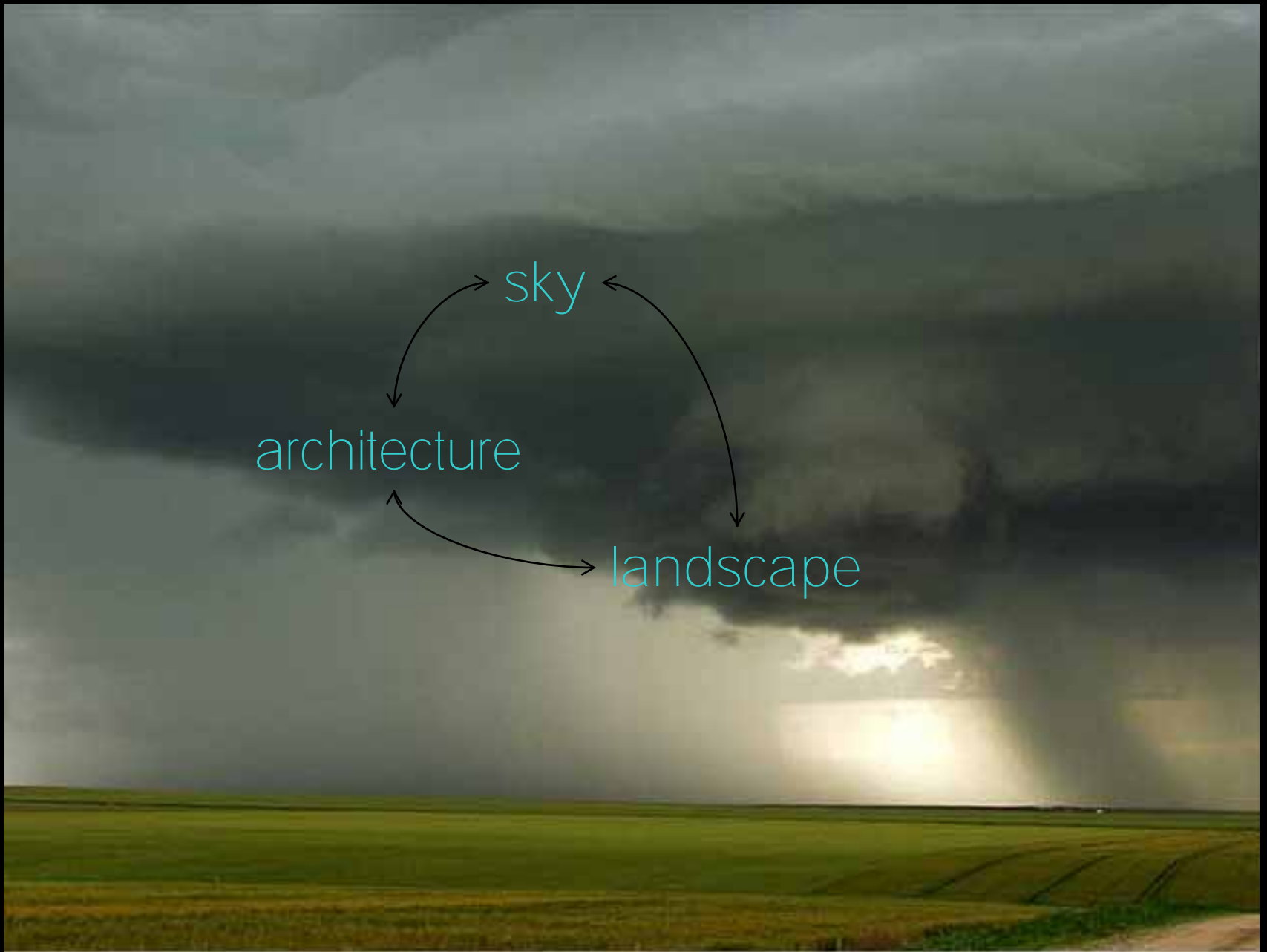
-From *Junkspace* by Rem Koolhaas

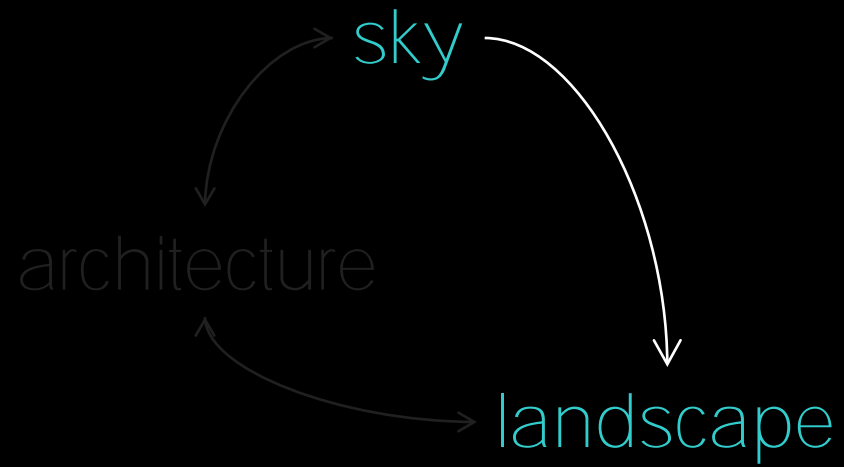


ROEWUarchitecture

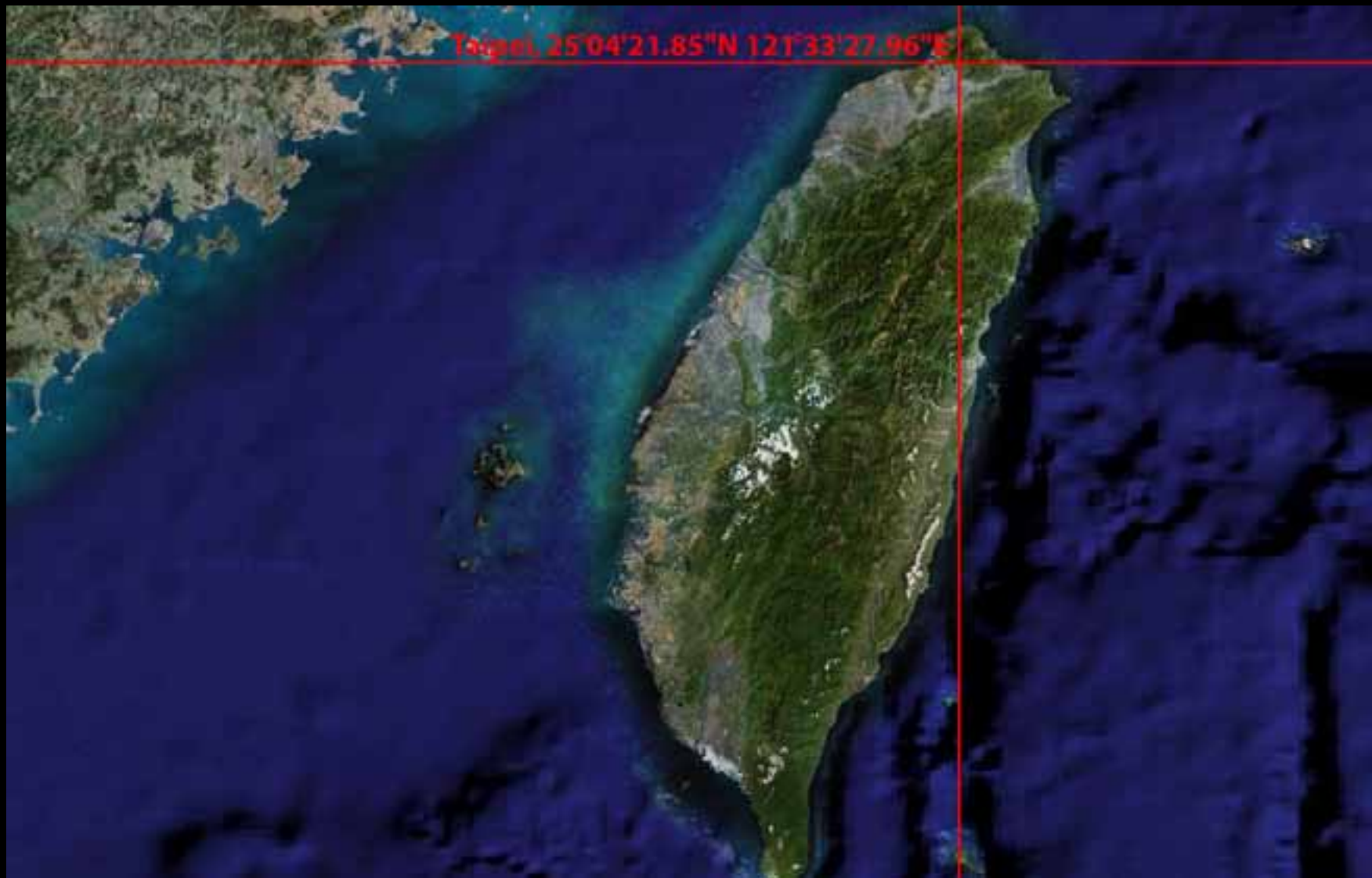
between ground & sky







Taipei, 25°04'21.85"N 121°33'27.96"E





public spaces



pedestrian movement



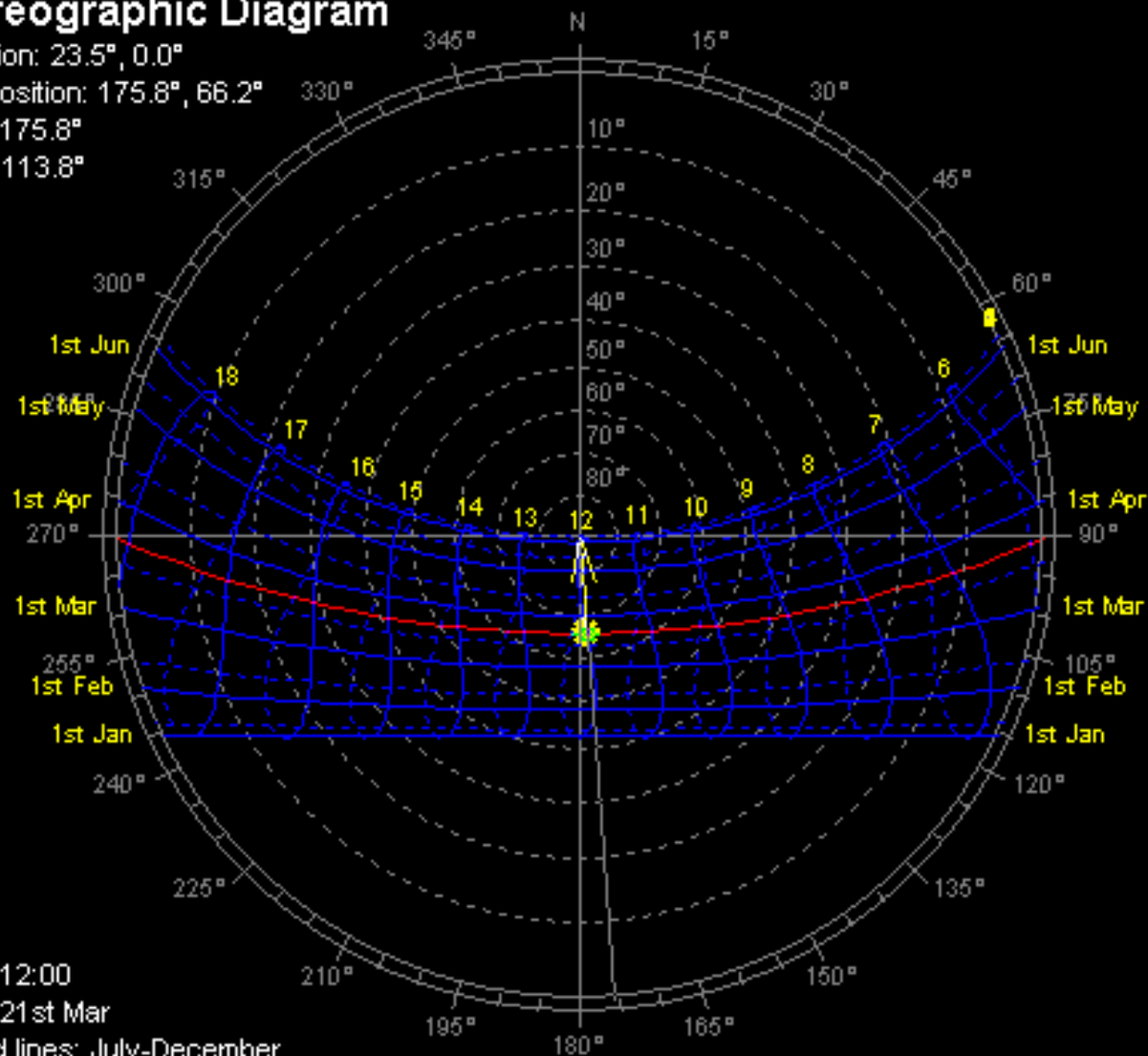
Stereographic Diagram

Location: $23.5^\circ, 0.0^\circ$

Sun Position: $175.8^\circ, 66.2^\circ$

HSA: 175.8°

VSA: 113.8°



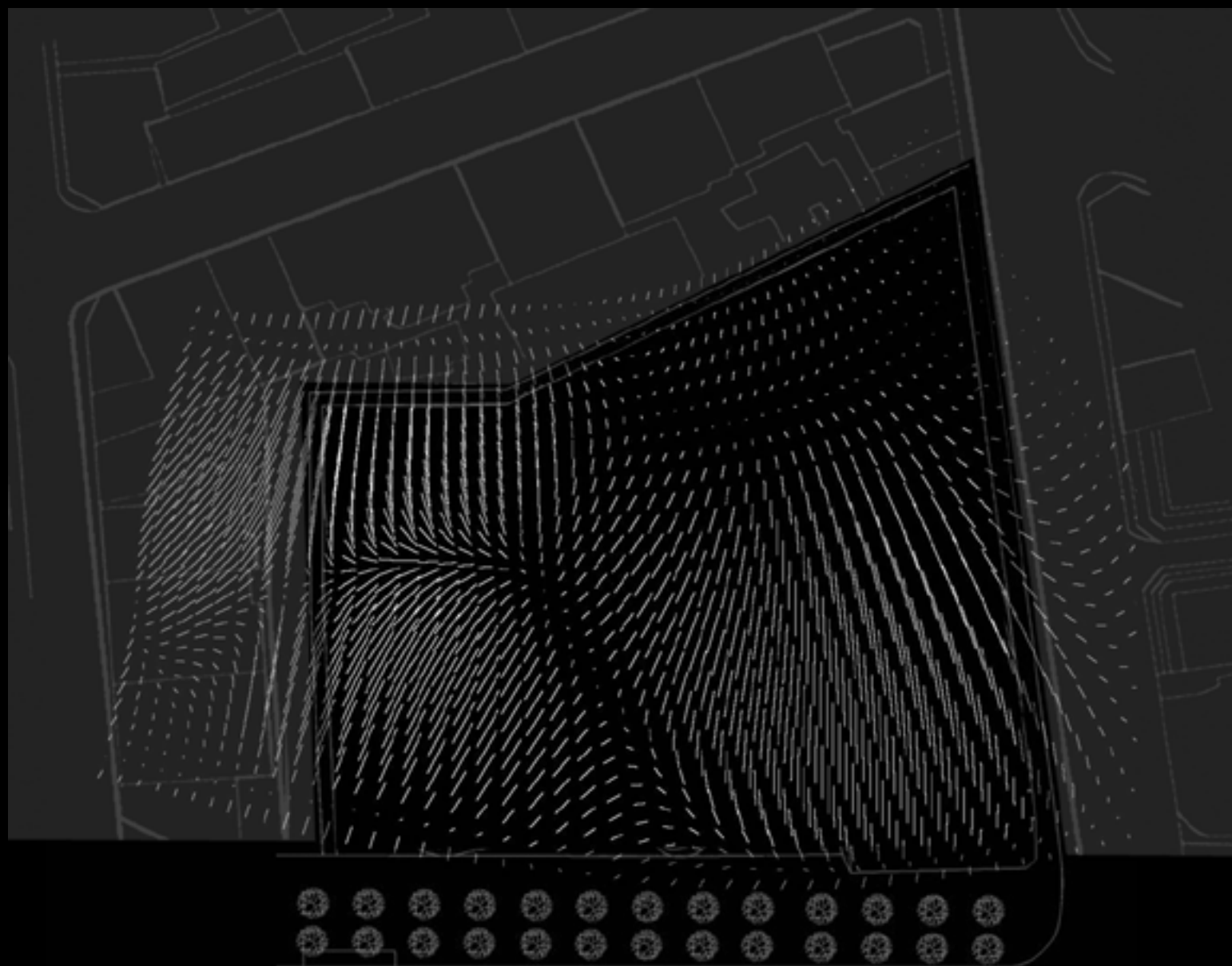
Time: 12:00

Date: 21st Mar

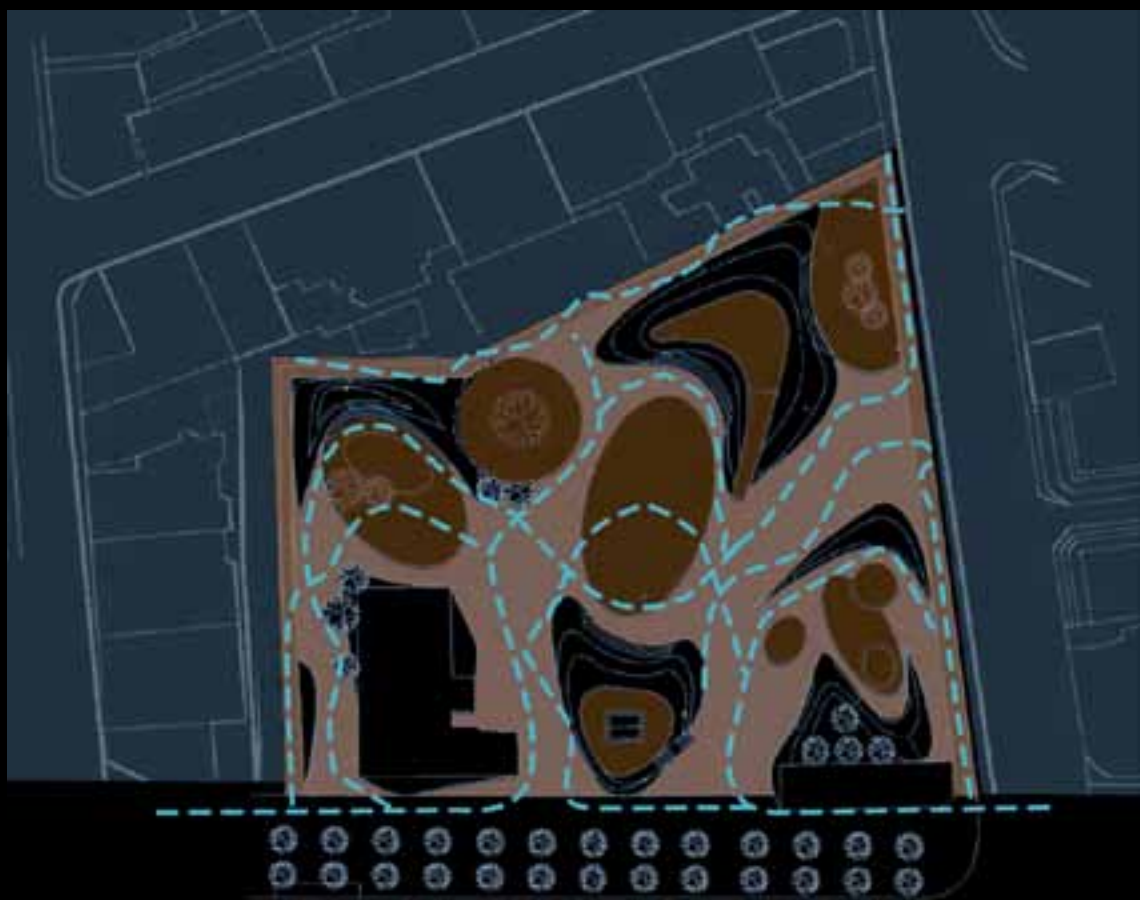
Dotted lines: July-December.



study of light and shadow performance







長沙街

街角公共空間

噴泉親水小公園

活動表演高台階綠地

活動表演平地

鐘塔

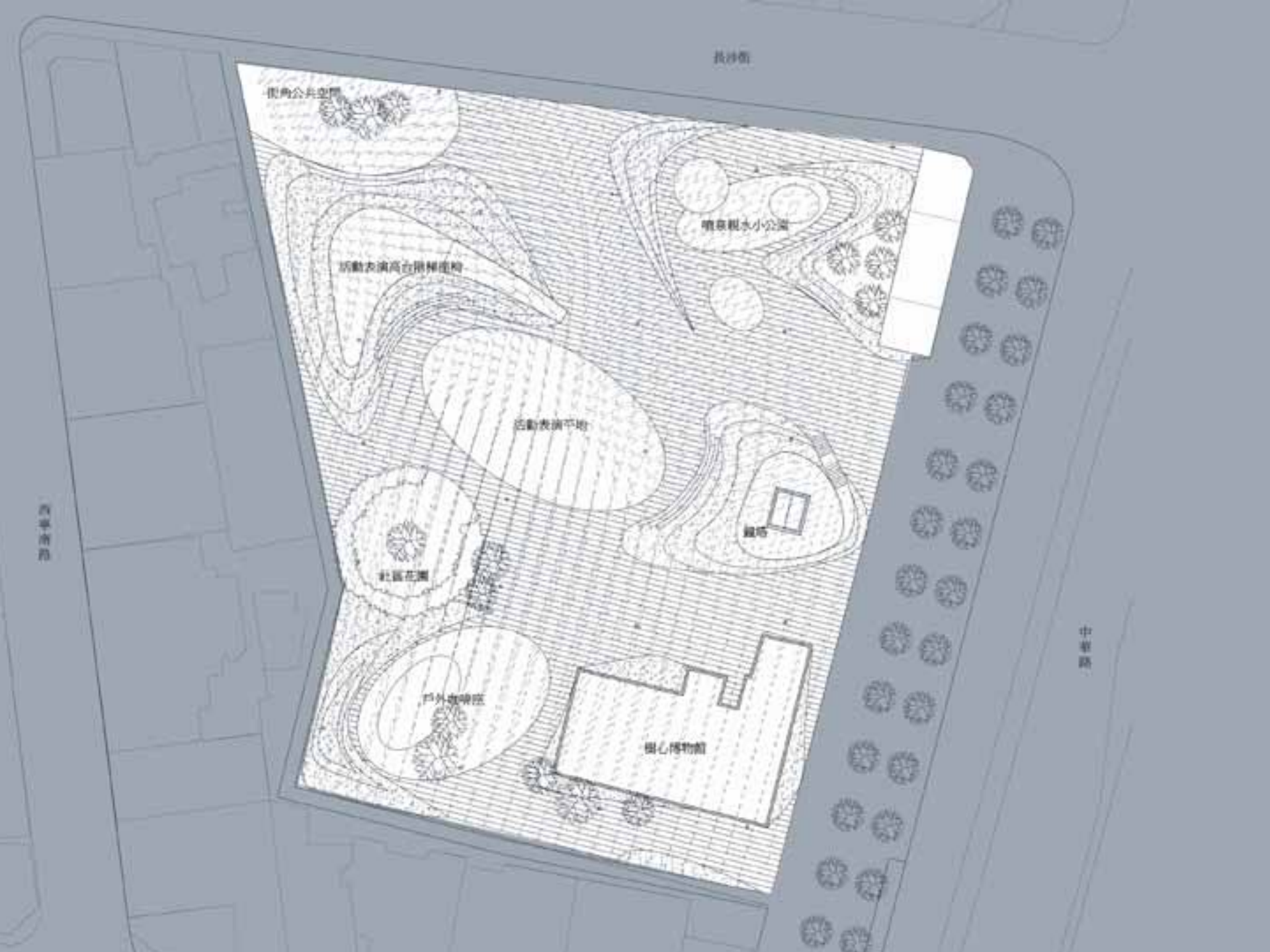
社區花園

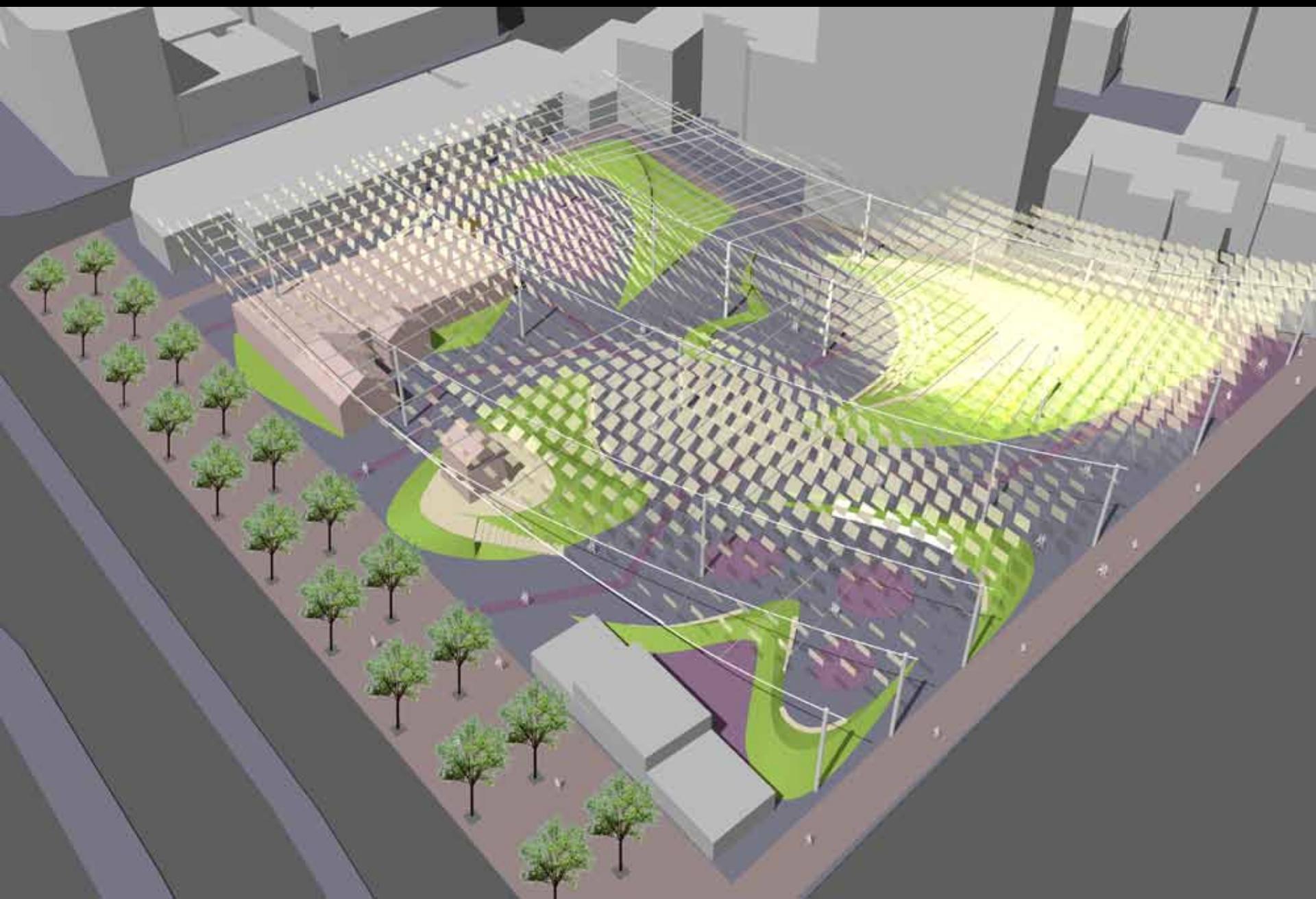
戶外戲水池

樹心博物館

中華路

西華南路

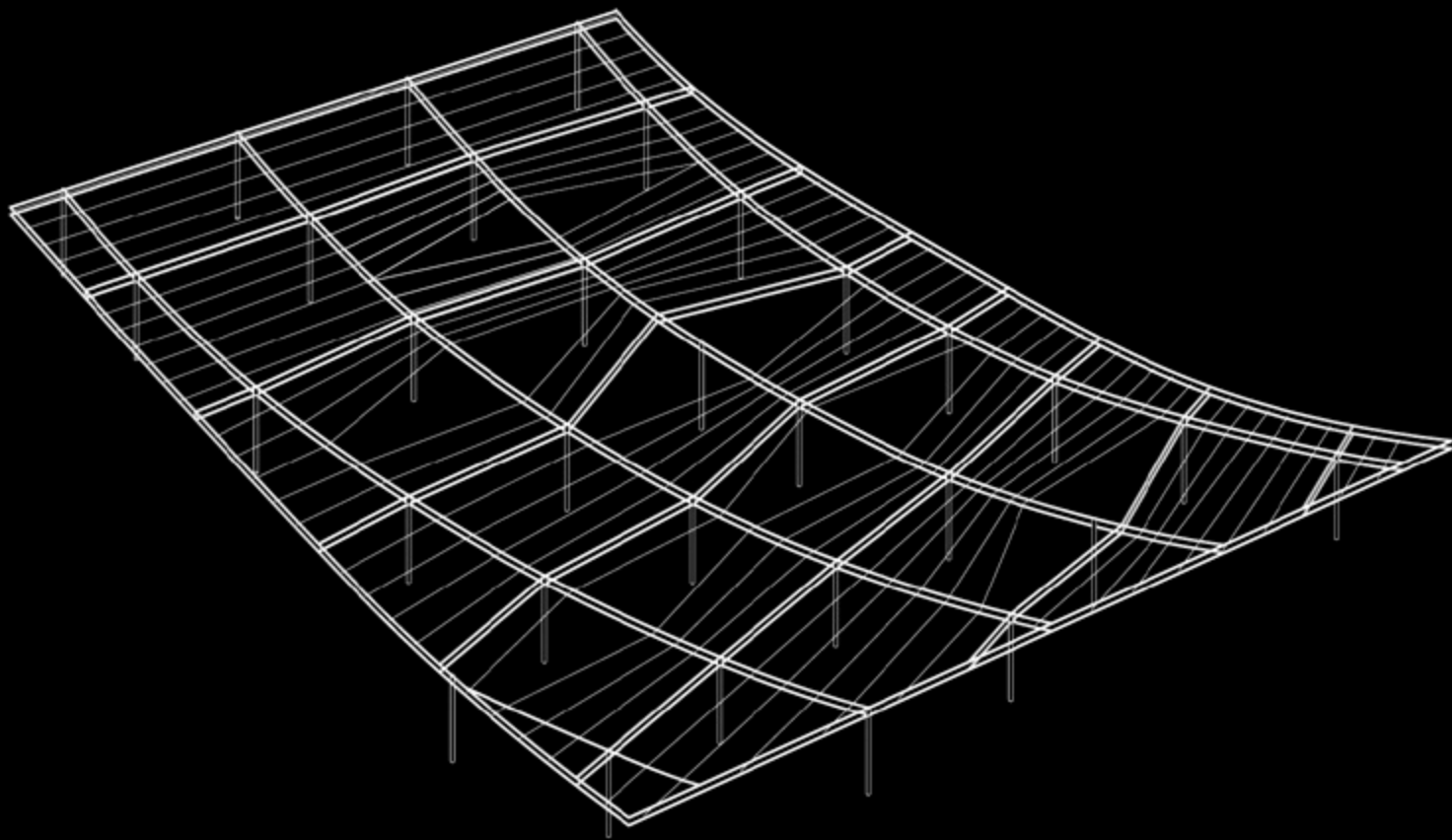












預拉鋼索

Post-tensioned Steel
cable connected to
structural grid at
each end

可調整角度的接樺頭

Aluminum Split-pipe
connector and
Adjustable connector
socket with grub-
bolt to fix position
of blades in differ-
ent rotations.

鋁製公接樺頭焊接於鋼
架上

Adjustable Cast-Alu-
minum male connector
threaded onto Louver
frame.

膠狀成型格離片

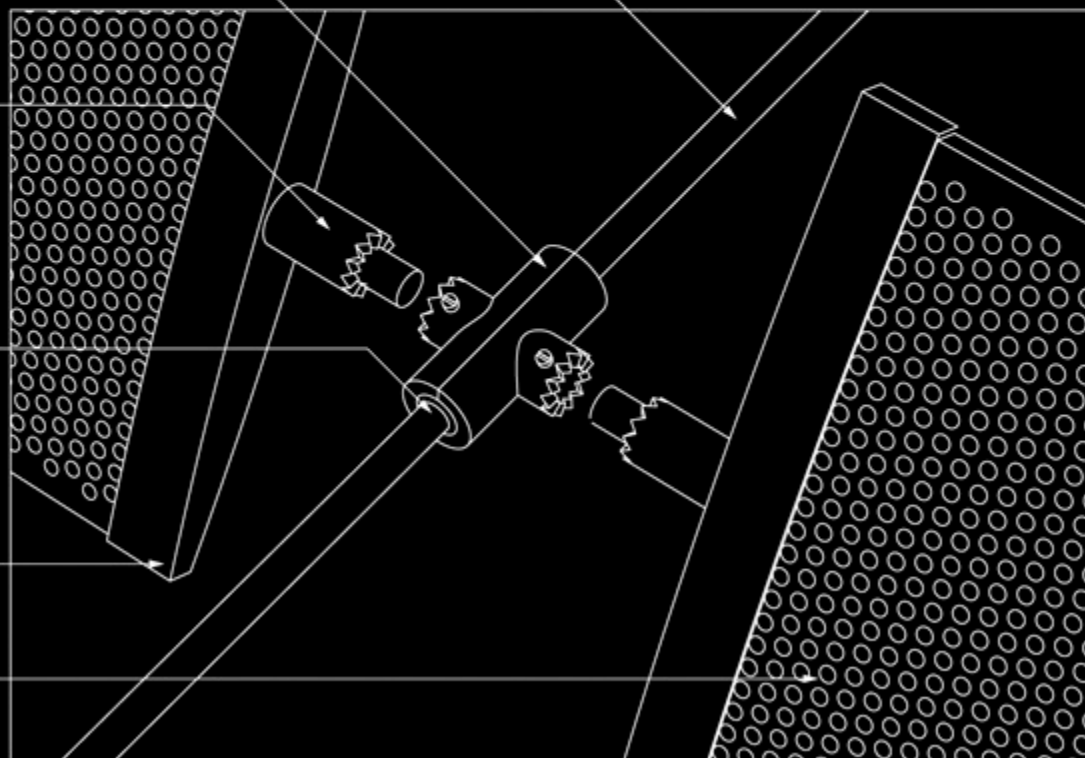
Neoprene isolation
ring between
Split-Pipe and
Steel Cable

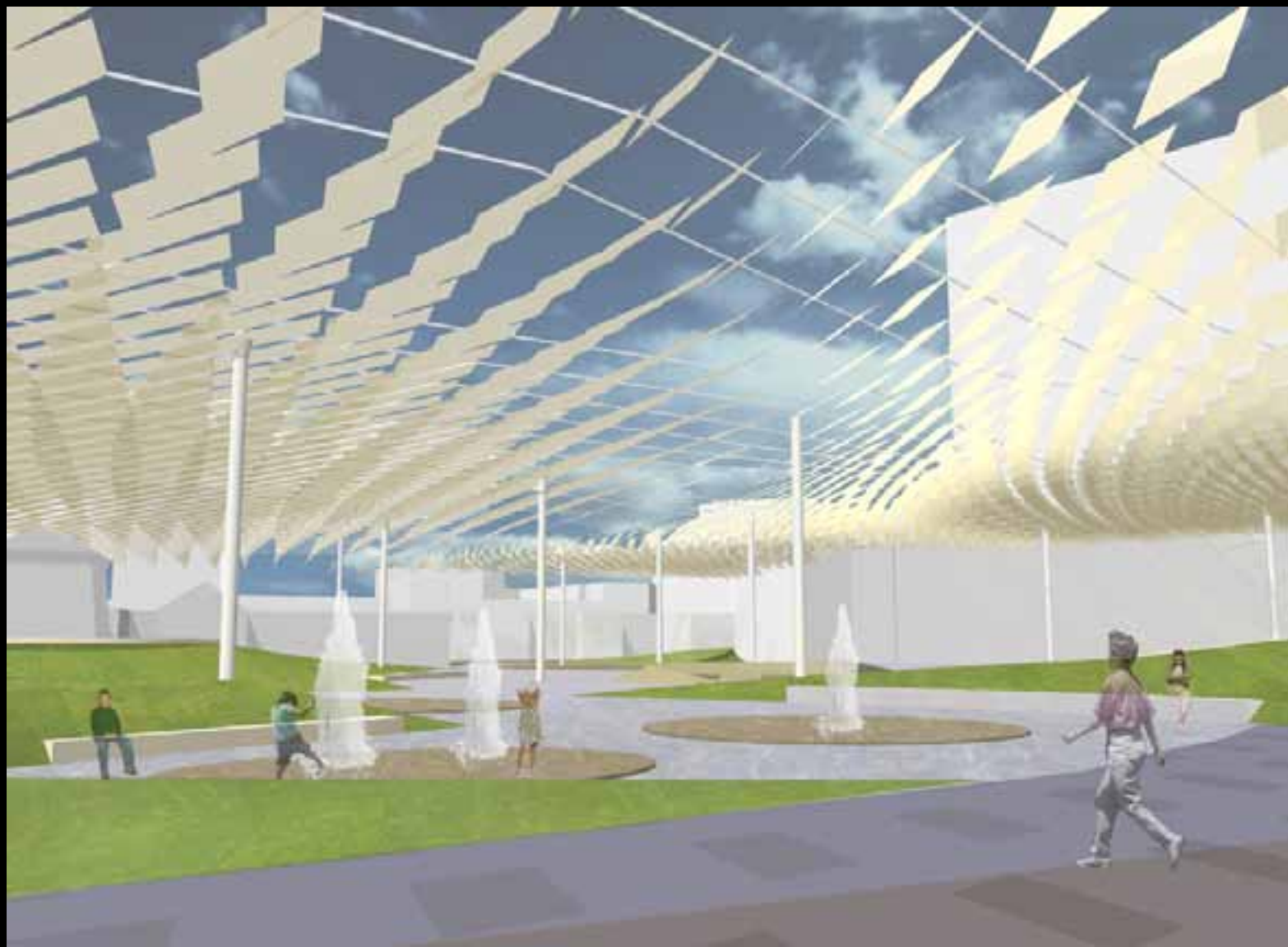
邊緣鋁架

Aluminum Louver frame

預先打洞鋁製遮陽板單元

Perforated Aluminum
Louver Blade

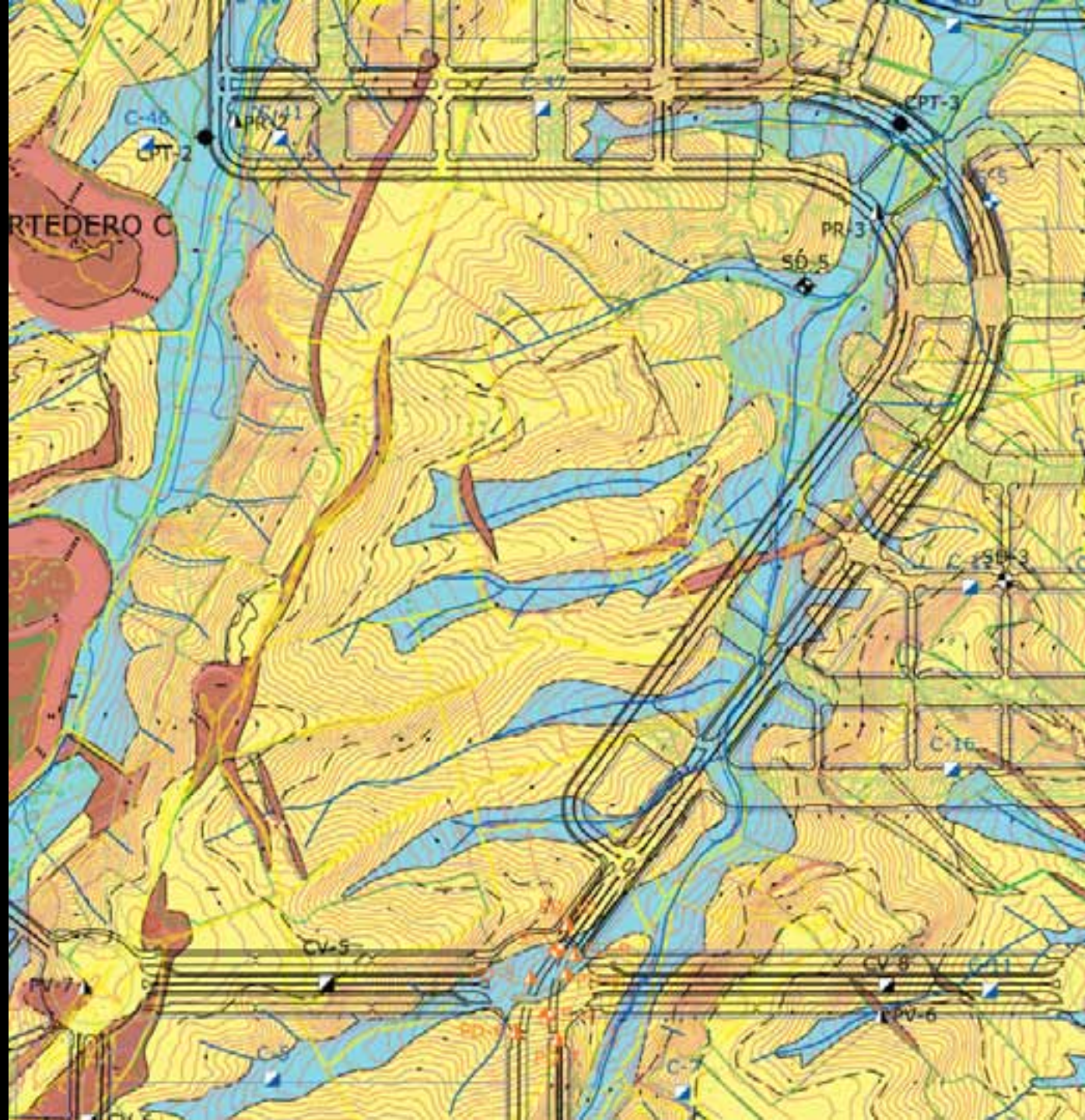














espacios ajardinados conducirán la recogida pluvial a través de embudos de agua hasta los lagos de retención.

Hard-Landscaped spaces funnel water into retention- ponds

redes de tuberías para regar áreas planas de césped.

networks of pipes to irrigate flat lawn.



Un amplio lago situado en la esquina nordeste utilizará la topografía natural y la estructura hidrológica del terreno para recoger el resto del agua.

A large pond in the North-east corner of the site would use the natural topography and hydrological structure of the site to collect the rest of the runoff water.

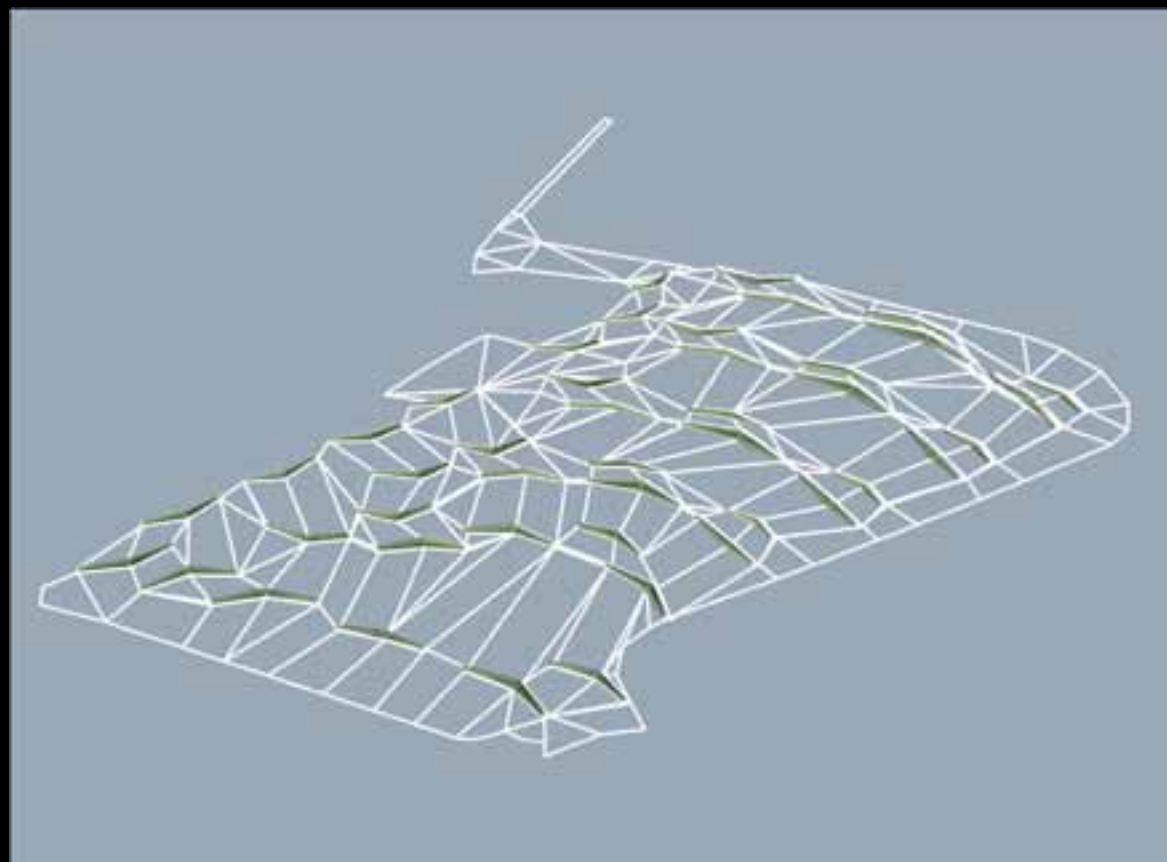
las zanjas drenarán el agua sobrante en los lagos de retención adyacentes a cada entrada.

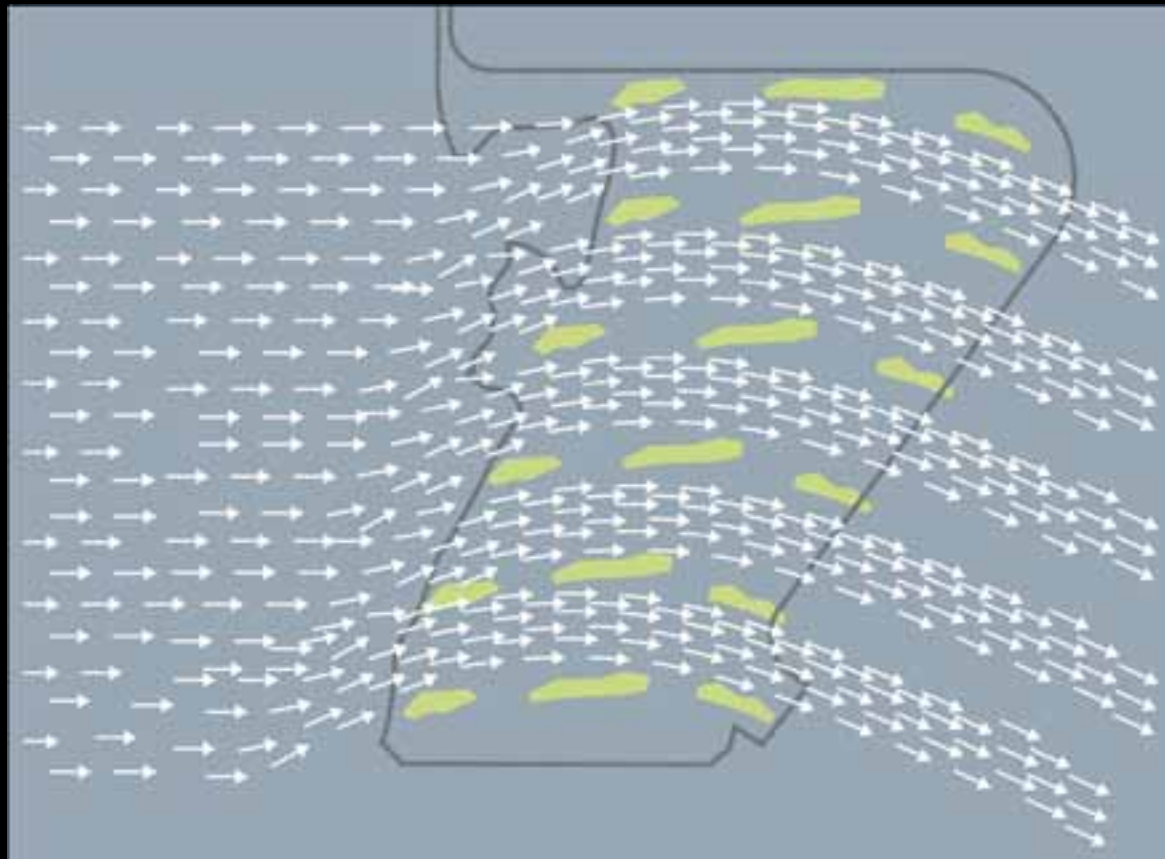
the swales would drain into retention ponds adjacent to each entrance.

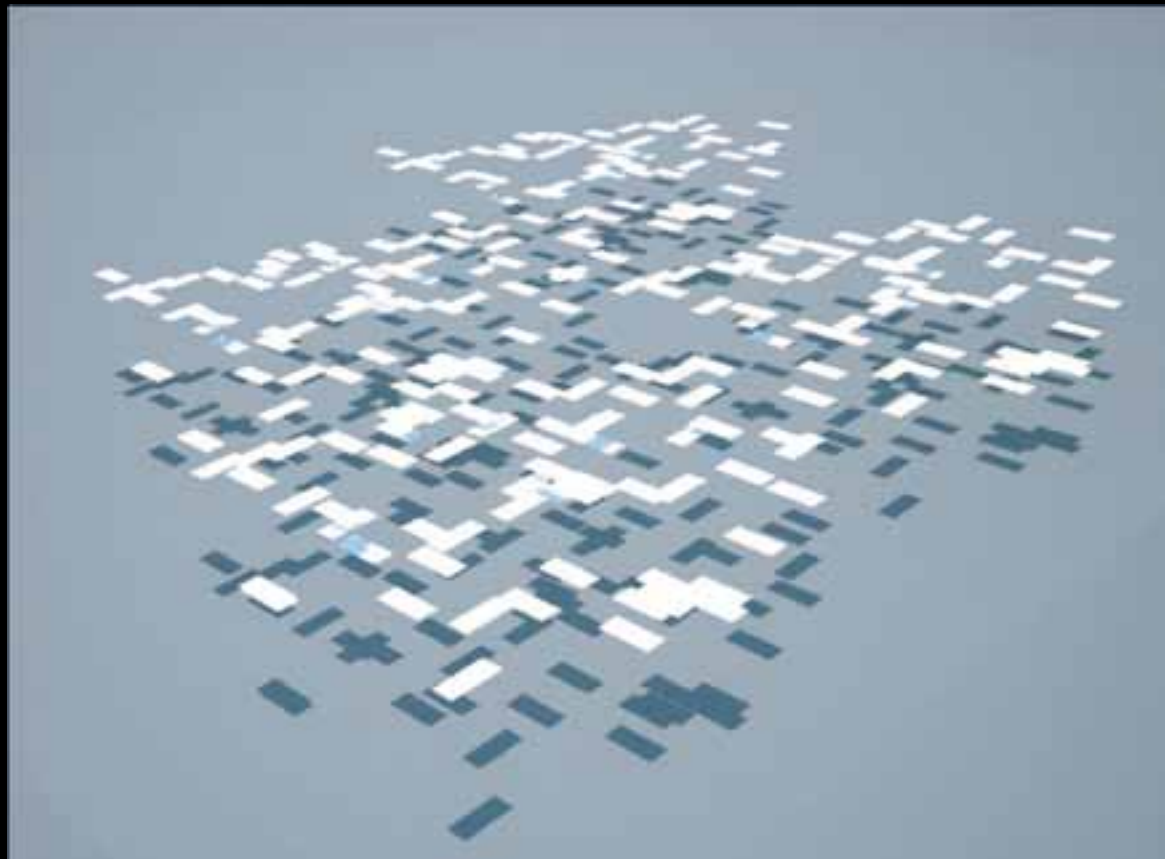
La salida de agua a través de zanjas a lo largo de la base de cada valle.

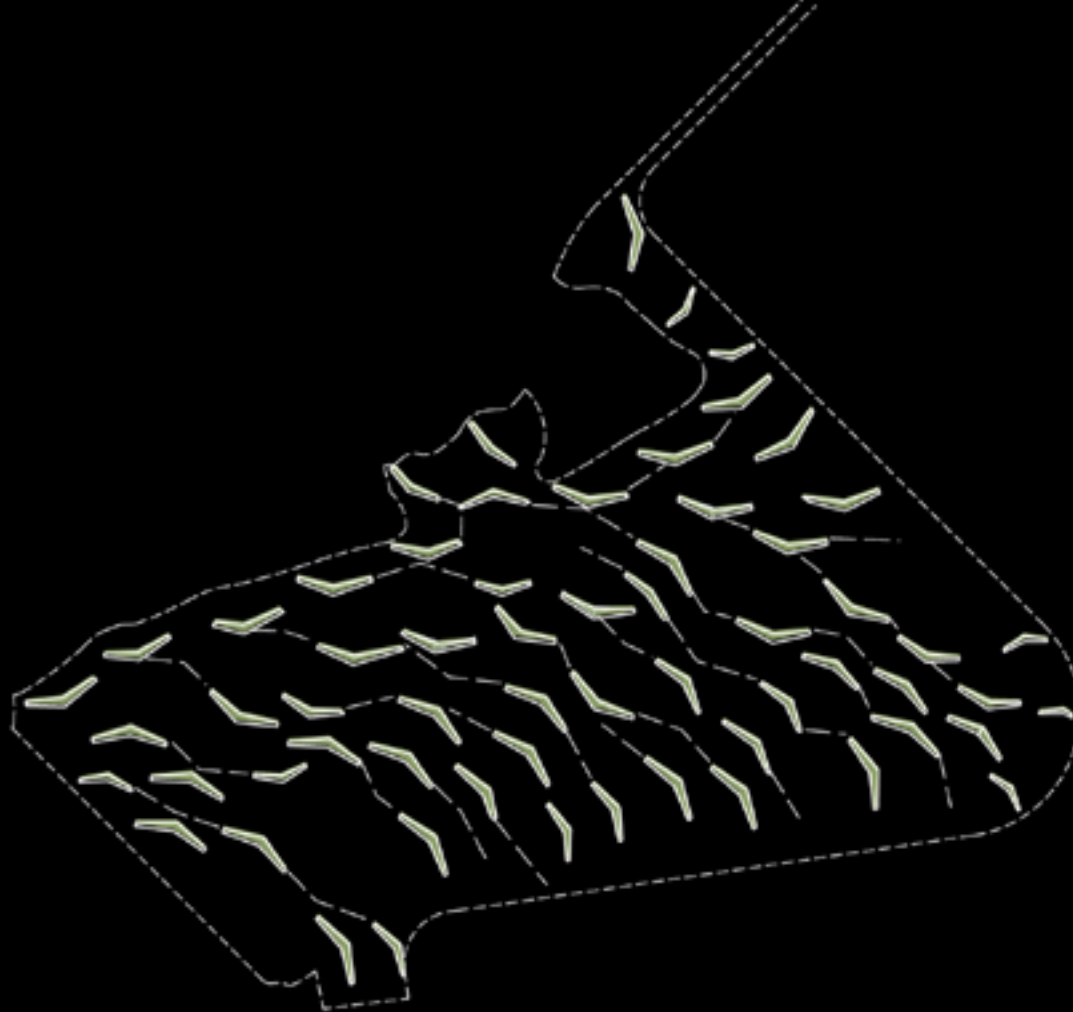
Water runoff would collect in swales along the base of each valley











B E R M S

Berms of varying materials and design which generate diversity in consistency.



TREES

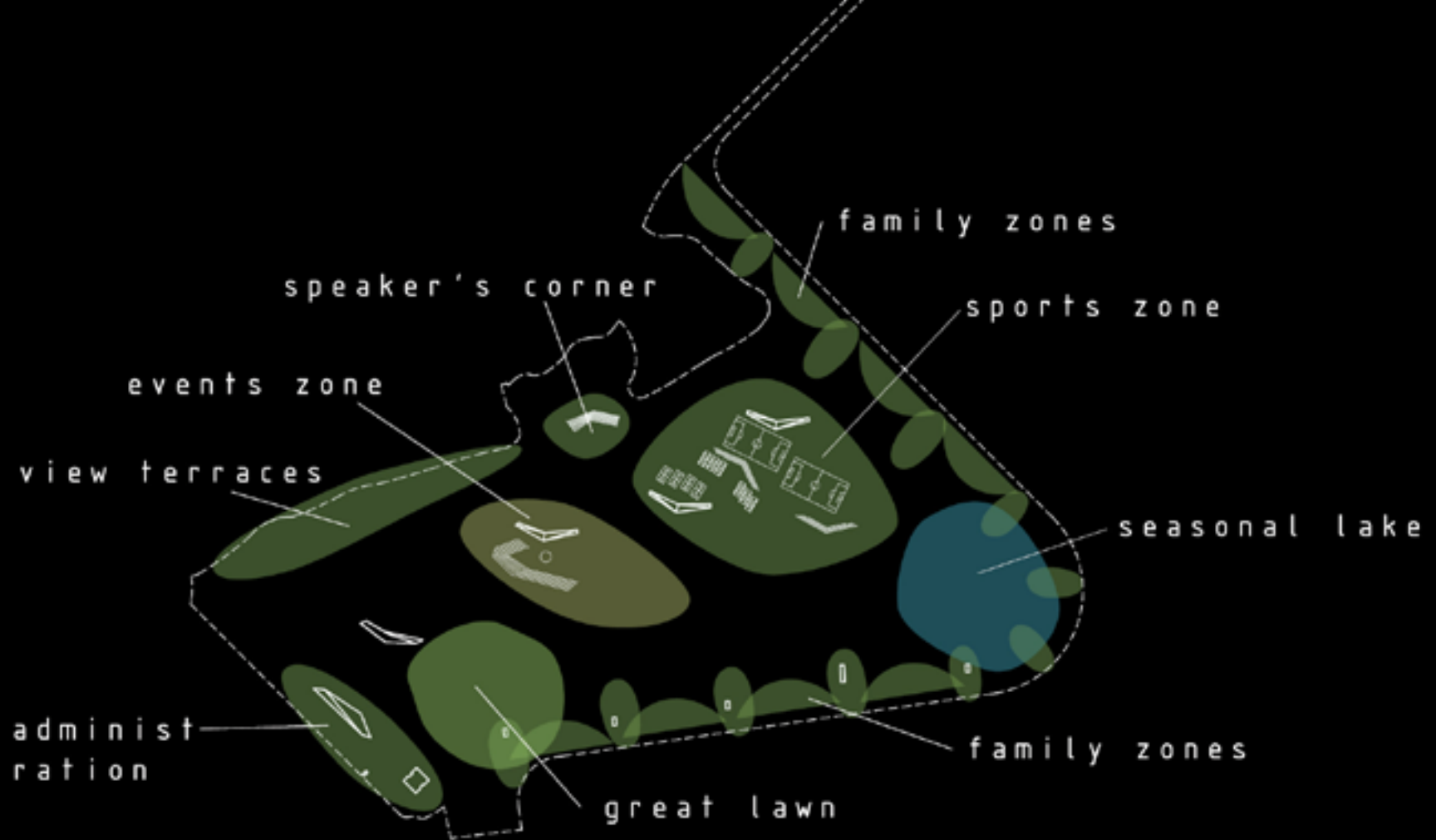
Tall deciduous trees are arranged in lines to encourage the prevailing wind to flow through the park during the summer, while dissipating the wind in the winter months.



CLOUDS

The canopies provide shade from the hot sun like clouds floating above the ridge.

Entering under them provides a transition from urban to natural



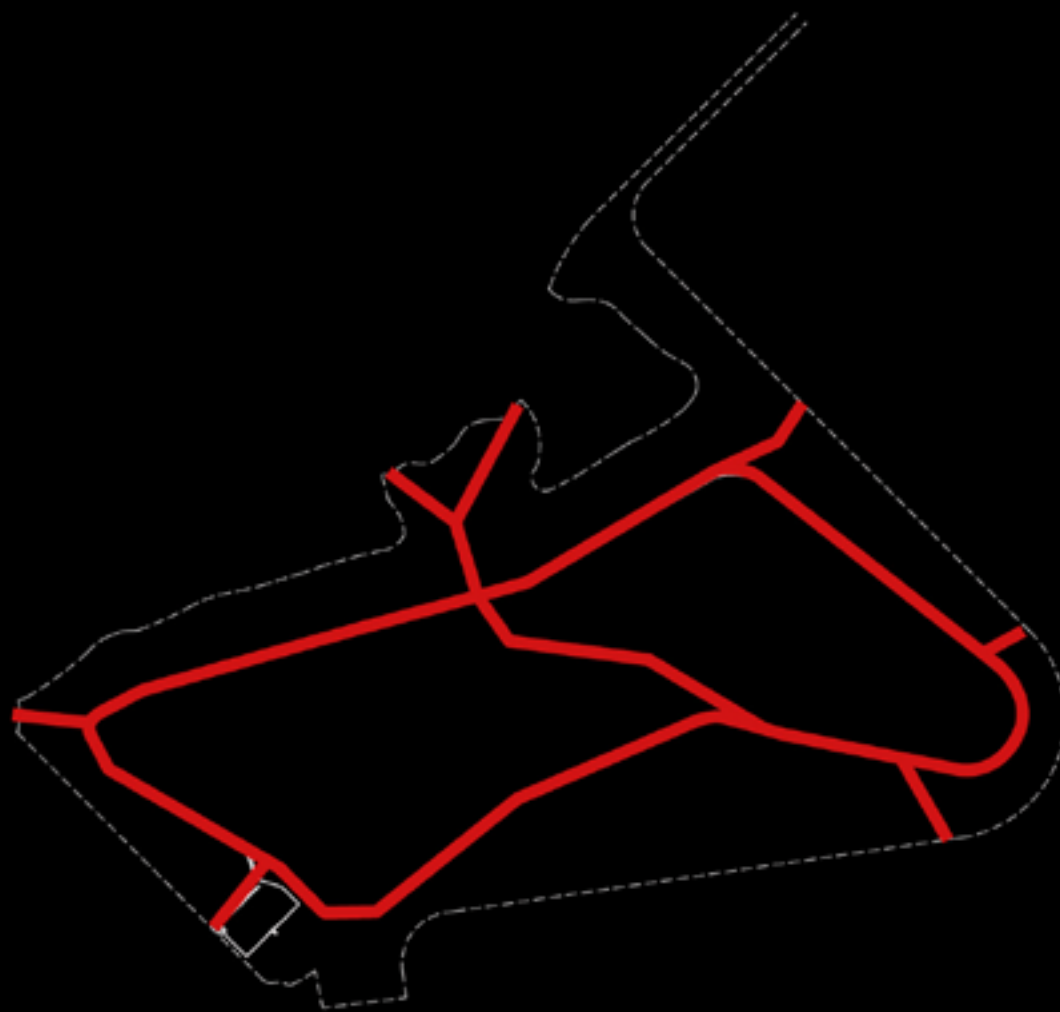
ACTIVITIES

Providing a multiplicity of different spatial qualities arrayed across the site in a field that means every resident can access them equally



HARDSCAPE

Hard Landscape defines the highest points and stitches the park into the urban fabric by extending into the new park along its edges



CYCLE & VEHICLE PATH

An extensive cycle path leads around the whole parka and links in to the existing cycle network. It could also be used for emergency/ maintenance access



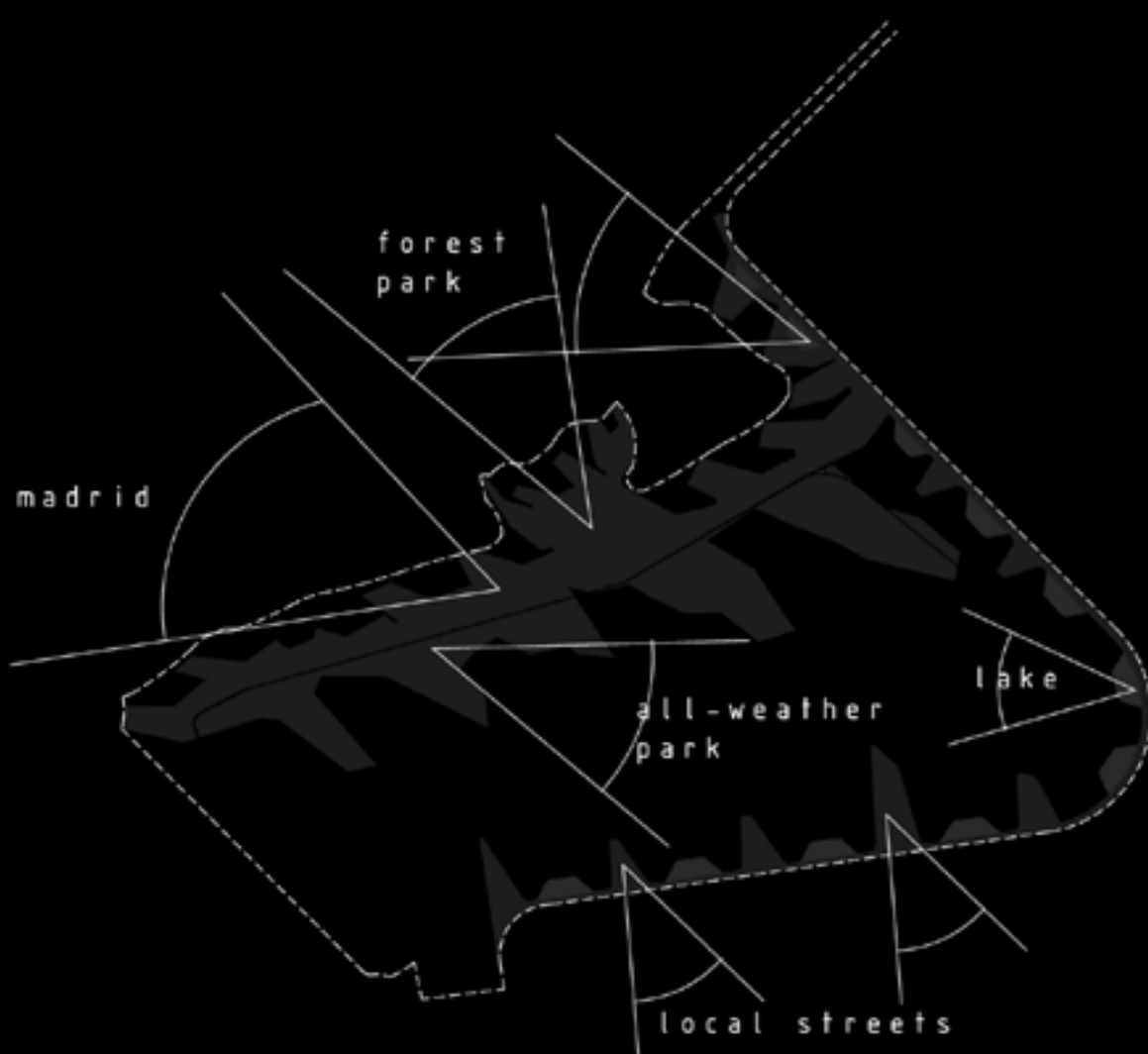
WALKING PATHS

A network of walking paths extends throughout the site aligned with the berms and connecting to the larger circuit. All areas would be accessible.



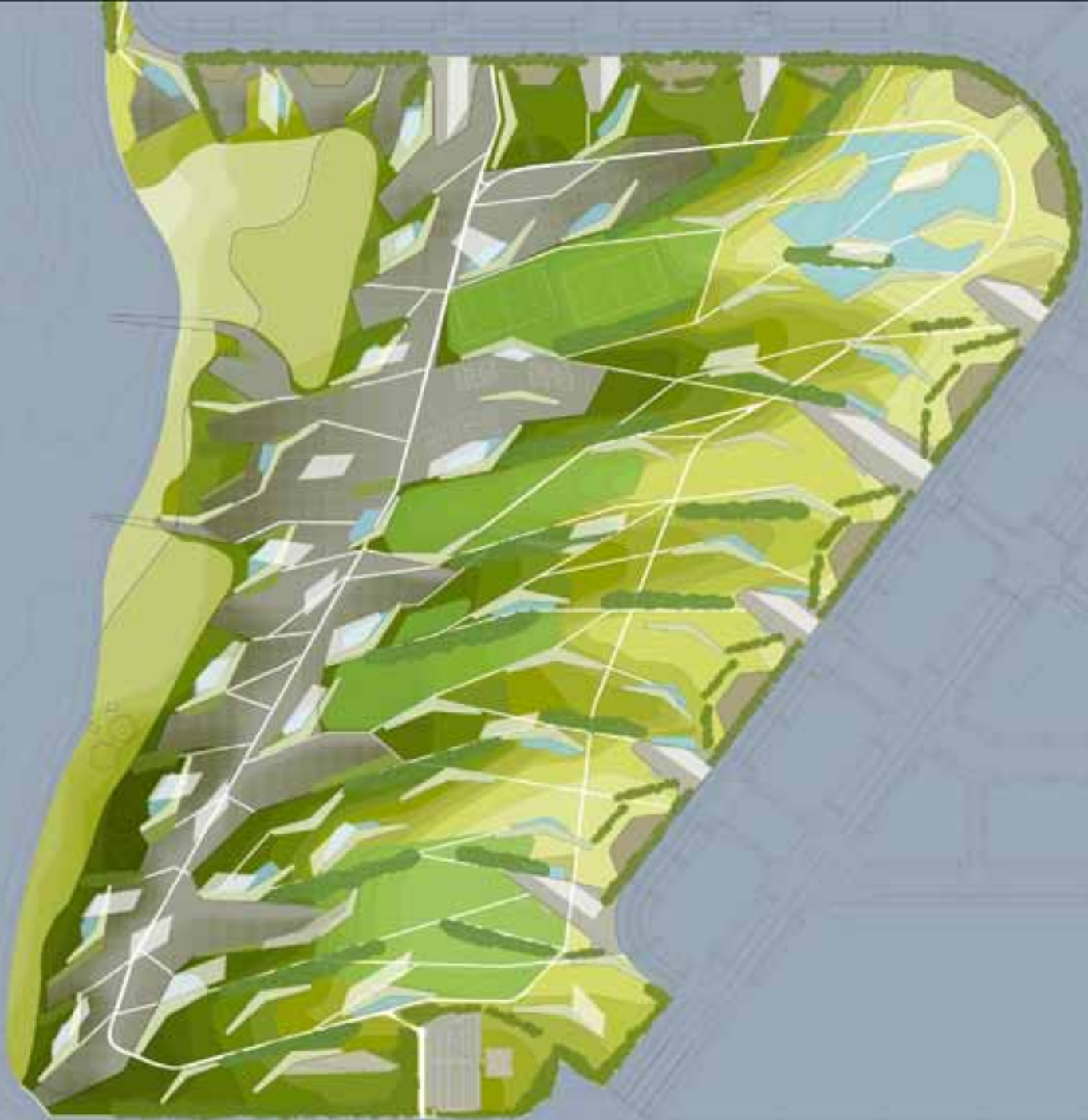
GRASSES

Different grasses are used throughout the site -small green zones along the ridge, large site-water irrigated lawns and reeds around the swales



VIEWS

From the ridge are views in 3 directions -to the city of Madrid down into the All-Weather Park and over to the Forest Park. Small Urban Plazas look to adjacent streets





March 1, 2007

The hard ground surfaces are located at higher grounds to act as water channels. The surface minimizes water absorption and are sloped to funnel water into the desired locations, for storage and irrigating the plants.



Paving variation: permeable stone paving
permeable black paving gravel, wooden
decks



Female: *Marus (coppa) (Lycena virgata)*,
European (Vireo) (Lycena (coppa))
Male: *Marus (coppa) (Lycena virgata)*



Stemlands and water-wings

Workouts and that lake are positioned at the lower grounds to reduce water runoff and encourage a diverse wild-life. Vegetations around the lake are chosen to suit the lake-side conditions and create a green wilderness. In addition, the feed beds in the model provide water treatment and purification.



Wetland and waterways planting: Paperbark (*Melaleuca alternifolia*), common reed (*Phragmites australis*), Ash (Fraxinus), Black Alder (*Alnus glutinosa*), Coast Willow (*Salix caprea*)

Pauline Neumeyer & Ingrid Garbowski,
Community Information Specialist

Weight Integration: 3 times

high nitrogen plants such as featured plant beds, meadows and levers are strategically arranged at the valley in nearly a pair to maximize natural nitrogen for the park.



Forest types: Lowland Portulakia (Miconia minor), Salt-forest (Pisonia), Carpet Grass (Amorpha fruticulosa), Needle grass (Nasella)



Paucis: Acridid grasshoppers, Endemic rhinoceros beetles, Common moths, Blue-browned liliids



Value Proposition Canvas

Plants which require low volume irrigation, including shrubs and trees, are strategically planted for where water is scarce to best take advantage of the available water.



FIGURE 1. Adult butterfly, Harbor Rock Island, Laysan Is., narrow-bordered Red Hawk moth.

[illegible]

World Operations

Tall deciduous trees are arranged in lines to form corridors for which the prevailing wind will be encouraged to flow through the park during summer months, when the foliage are dense, while dissipating the wind in the winter months.



Fayna Lourdes, Indulgencia Wülfel, Turquoise
and Silvered Mother-of-Pearl Carved

Ferns: Christmas Tree Fern, *Polka dot Plant* (Fittonia
algida), White Cedar-chimney (Melia
azedarach), Black Locust (Robinia
pseudoacacia), Norway Maple (Acer
platanoides), Judas Tree (Cercis
siliquastrum), Honey Locust (Gleditsia
inacoma).



Peristaltic Pumping

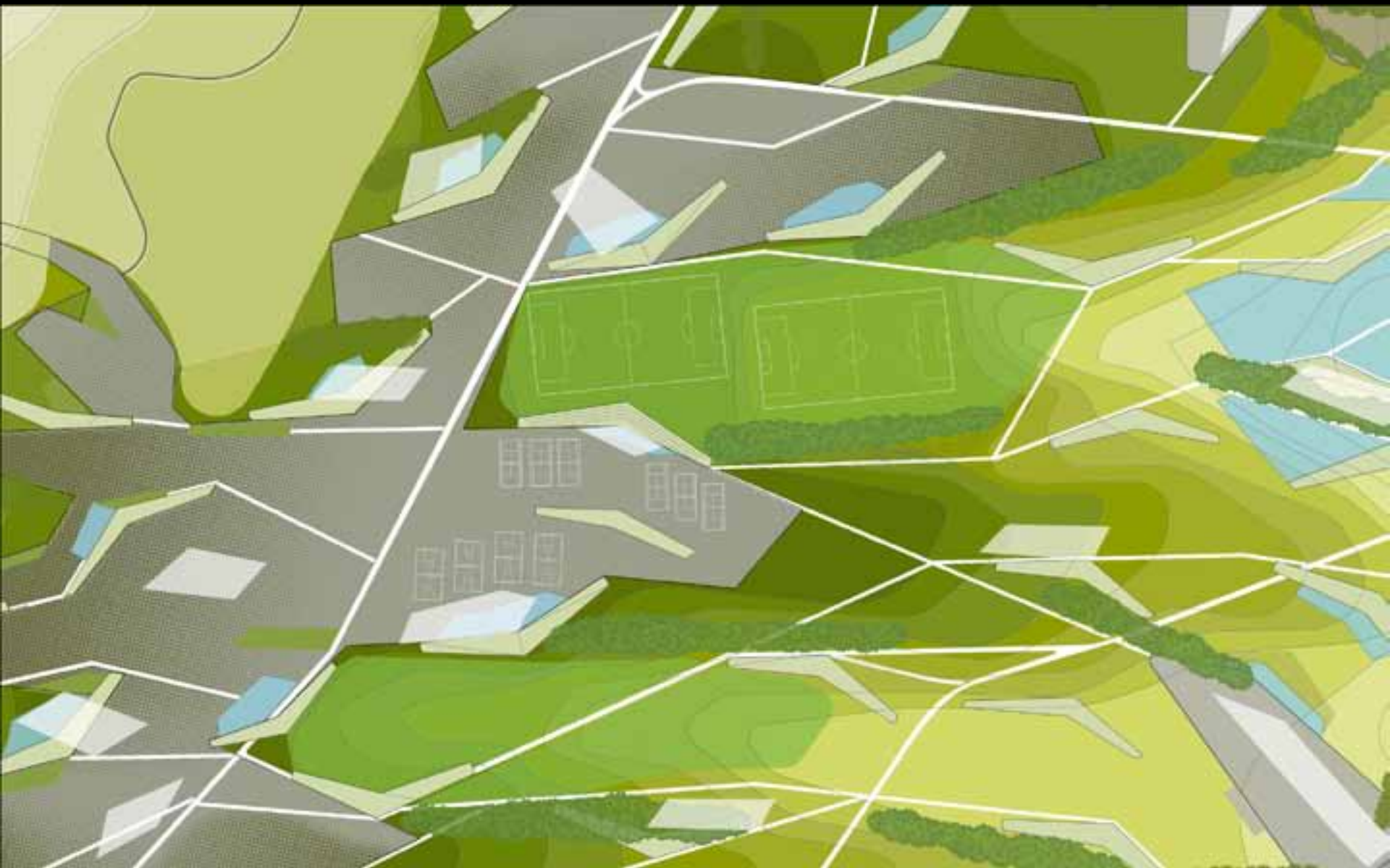
Low-lying vegetation is planted around the perimeter of the park to provide a natural boundary to the busy streets. Also arranged around the perimeter are a series of small gardens that function as relaxing and gathering spaces, enclosed by the dense evergreen trees.



Evergreen (None pine genus present, slash pine *Pinus sylvestris*, Olive *Olea europaea*, Cork oak (*Q. suber*), Salsuak (*S. sp.*), Native Maple (*Acer granatensis*)).
Evergreen Shrubs: Butcher's broom (*Ruscus aculeatus*), Hawthorn (*Crataegus monogyna*).

Source: Mads, Gertsen, Mulwong, Chad, Mike, Puchu, Eustace, Sandy, King, comments added.





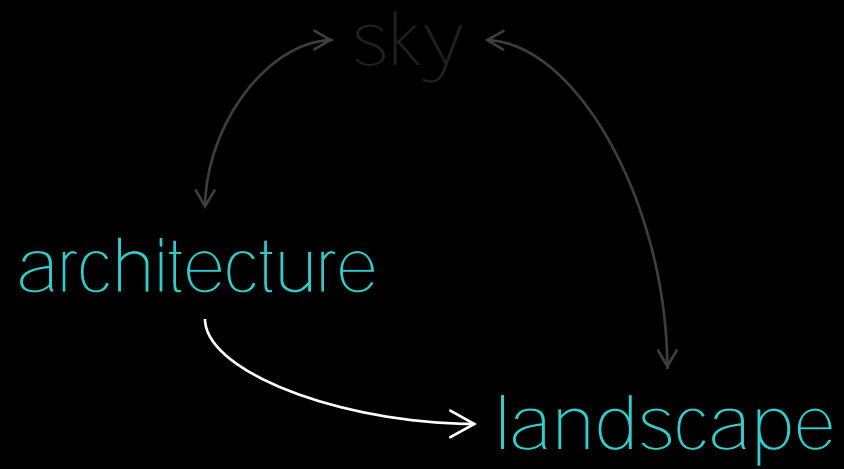














A New Urban Grain

新型的都市规划



Manhattan



纽约曼哈顿



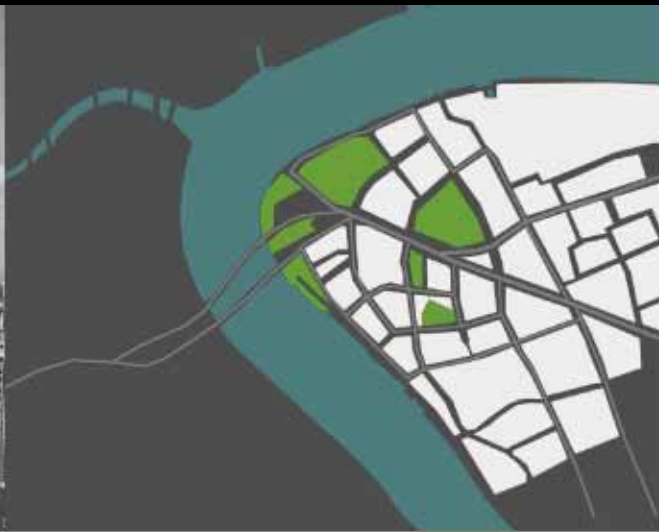
Tokyo



东京涉谷



Pu-Dong



上海浦东



London Canary Wharf



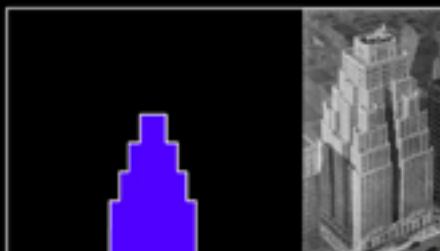
伦敦金丝雀码头



Cloud Garden City

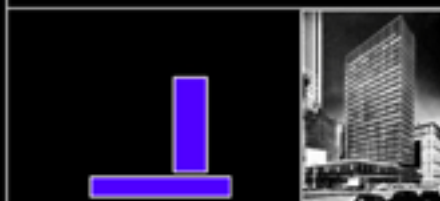
浮云花园水都

The next step in Urban Typology:
建筑类型的演变



1930: Ziggurat

1930年：金字塔形



1950: Tower & Podium

1950年：量体+基座



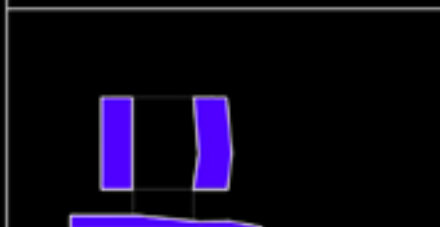
1960: Tower & Pavillion

1960年：量体+亭座

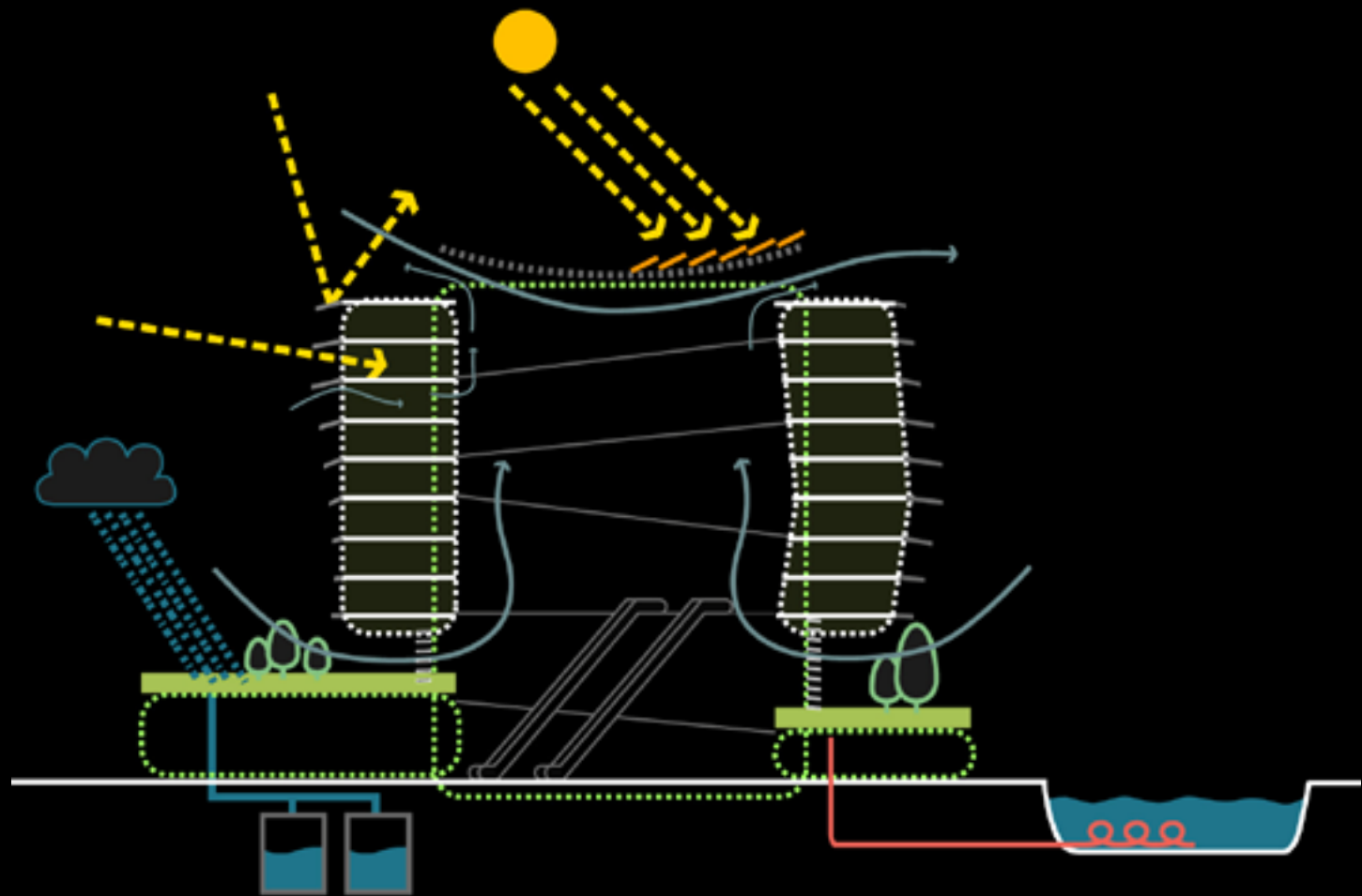


1980: Atrium Block

1980年：中庭类



2010: Cloud & Landscape 2010年平台层+云层



主要大道：地景及平台层

此计划将创建一个连续不断的平台层，从地面到平台层（+5-10m）和远山湖大道两端。街接起竞赛用地西边的新城车站和东边的西大湖港桥。平台下层面对着大道的将是沿着舒展在整条大街的商店。游客能轻松地沿着台阶或坡道漫步到平台上层。

公共空间网络

在文化用地（剧院、图书馆和博物馆）前面的一个长形公园将提供不定期的户外表演场地以及座位，并且与提出的中央公园构成良好的联系。商业性建筑前规划的公共绿地设计提供消费者和居民穿行于其中；住宅区和学校区相对规划着安静和隔离的社区公园。

珍珠项链之水池水景的设计将一系列的地塘带状的分布于基地。它将结合串联建筑物和绿地，形成一串珍珠项链。这些水池有潜力成为再生能源的来源，并且变成居民的休闲聚会重点。



The main thoroughfare: Landscape and Podium:

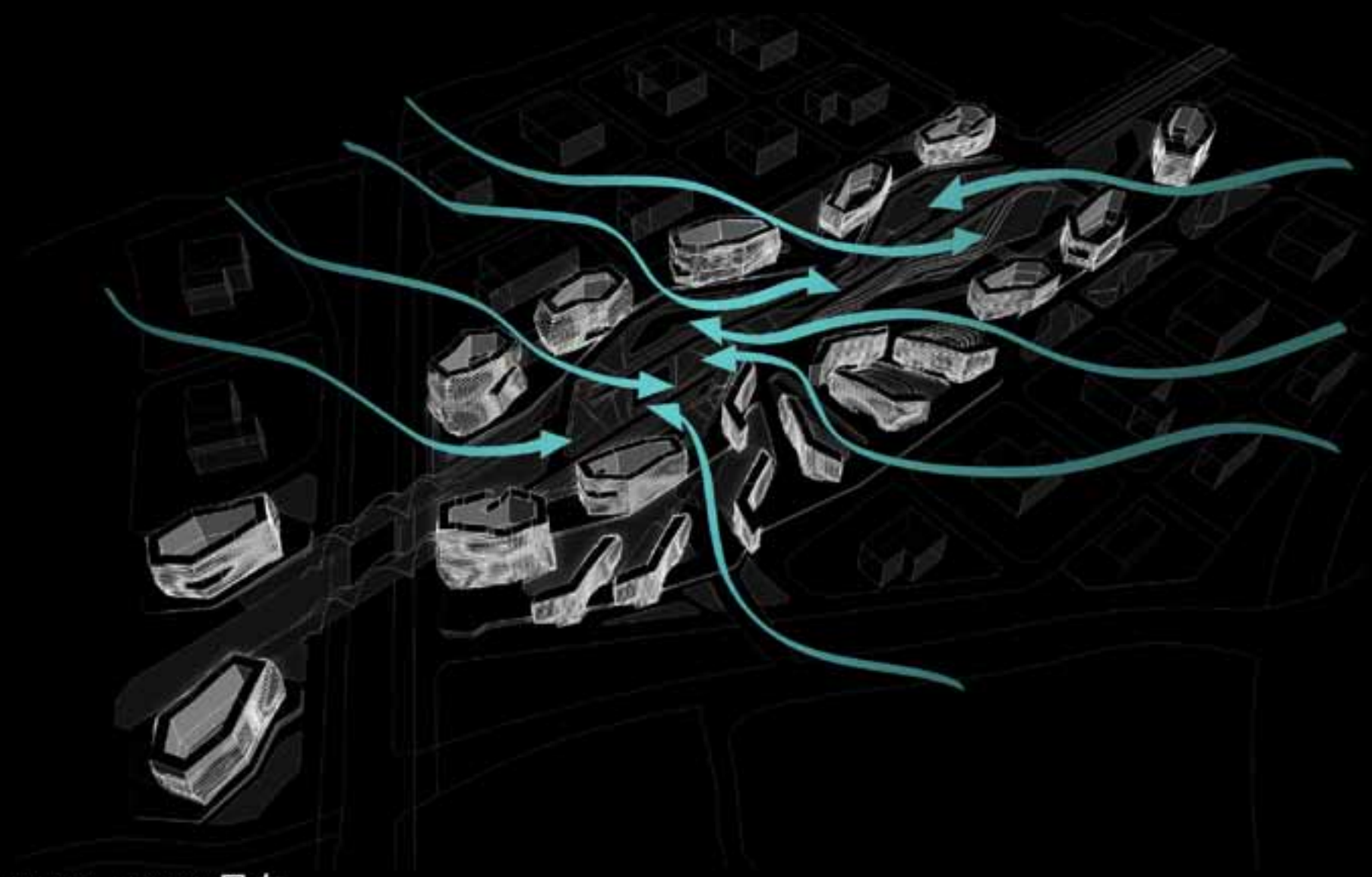
The scheme creates a continuous open landscape that goes from ground level to podium level (+5 to +10 meters) and from one side of DianShanHu Ave. to the other side, linking the future station area to the new bridge area. The podium at the main street side will be occupied mainly by retail shops which stretch over almost the entire length of the street. Visitors can easily stroll up to the podium terrace through open ramps or steps.

Network of Public Spaces

A linear park in front of the cultural structures (a theatre, a library and a museum) will provide occasional performance spaces with outdoor seating, and generate a good relation with the proposed Central Park. Open spaces in the large courtyard at the housing area and school area are configured as relatively quieter and more private while the public spaces in front of the commercial building are designed to invite shoppers and citizens to slow down and use the green spaces.

Pearl Necklace of water ponds

Water features are designed as a Pearl Necklace of water ponds which weaves through the site and links the buildings with the landscape.



WIND-FLOW 风向

Retail 及商店 Educational 与教育 Community Space 社区空间 Commercial 办公楼 Cultural 文化用地 Car Park 及停车场





