

The Paradigm of *Urban Naturation* as a Building Material



DESIGNING
WITH NATURE

20 – 22 JUNE 2017

World Green
Infrastructure
Congress

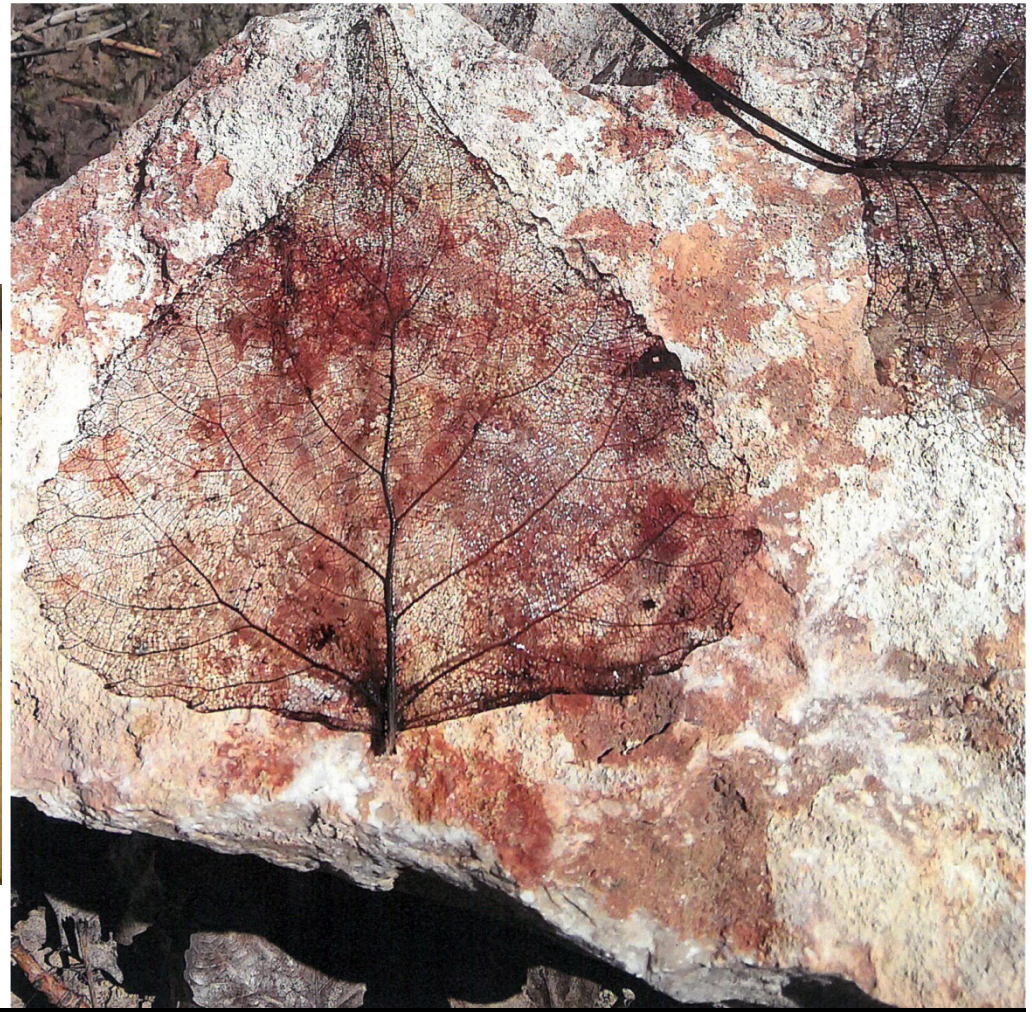
Joaquín Sicilia
siciliayasociados.com





My **first approach** as an architect to the world of urban *naturation* was in the 90s as a result of the **discovery of vegetal elements in different** roofs and **particular spaces** found in old buildings, many of them in the rural environment. What at first was a suggestion or the discovery of elements that could be incorporated into buildings, became an understanding of a **building material**, as valid and current, as any other.

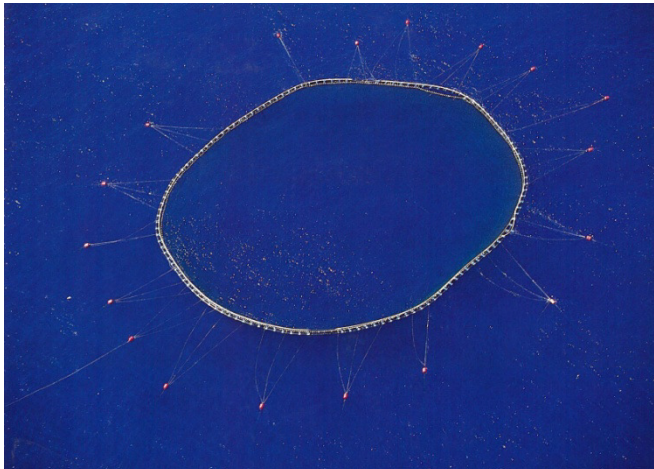




The term "**urban *naturation***" defines perfectly the **incorporation of vegetal species into the city**, for it includes conceptually every **value of the preexisting landscape** of the territory and, therefore, the **presences of the territory itself** that can be found, even though these have been moved to the city. That is, their **symbolic character**. It is a term -in short- that interprets and defines a wider concept than the mere incorporation or inclusion of vegetation into cities.



This symbolic connotation, apart from incorporating the biodiversity of nature, also brings the **world of perceptions and senses that each individual experiences** in his/her everyday life. We stand before *The Invisible Cities* described by Italo Calvino. The gains, then, are multiple and with multiplier effects because of their capacity of activating an **authentic human ecology**.

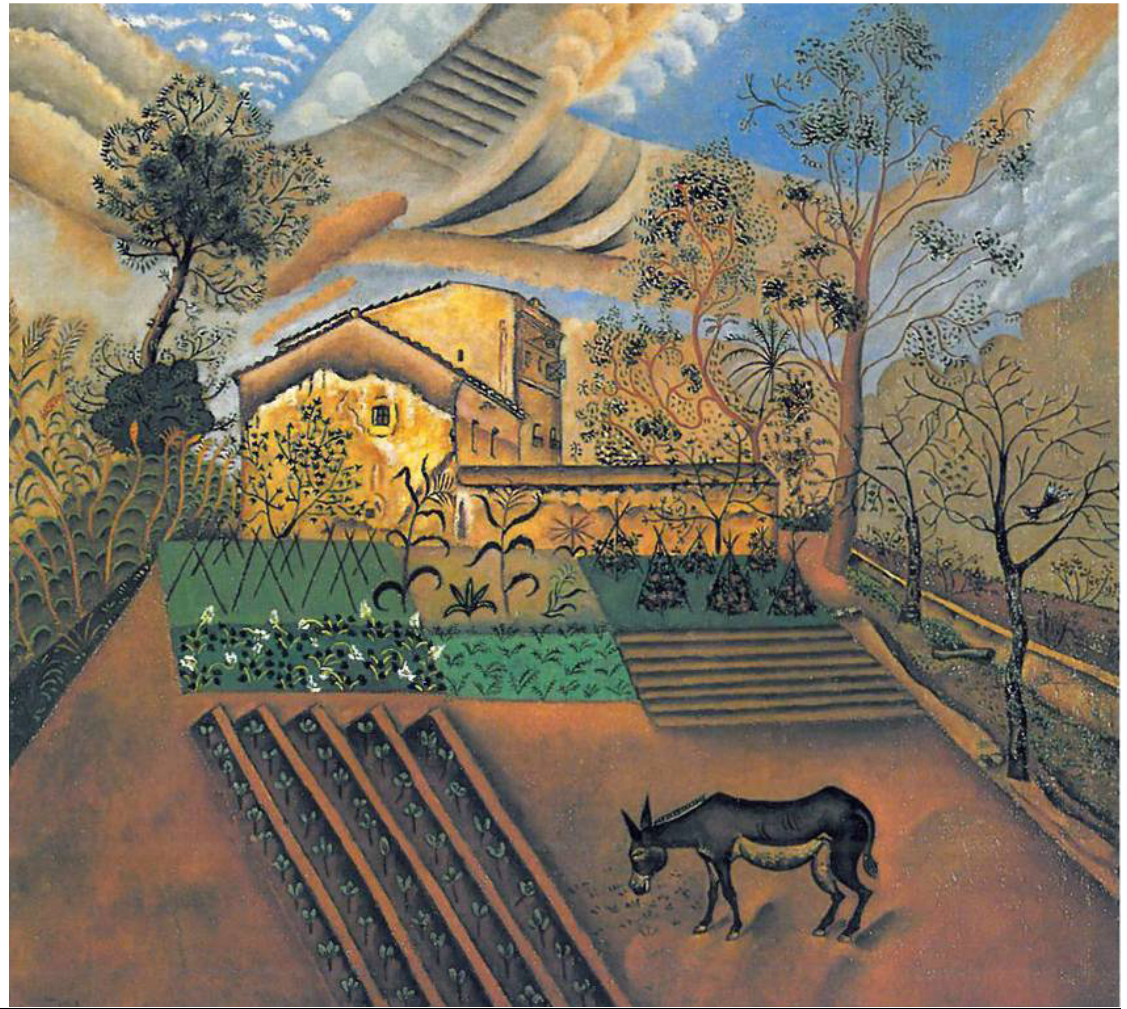


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Every human action, expression and emotional state, which will stay alongside his or her life, has consciously or unconsciously a direct influence with the surrounding space, the territory and the different treatments: shapes, textures and the color of fixed and mobile elements.



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Architecture is the relationship with life in itself.

Agriculture has been of great interest for each civilization since the beginnings to understand the territory in which it seats.

Through a basic and intuitive approach, we can establish a clear **link** between **agriculture** and **architecture**, from the consideration in both cases as **a territory measurement**; the same way that any living being measures its own territory for functional or symbolic reasons.



This **awareness** of spaces and their voids, non obvious presences and unexpected discoveries, are key concepts to understand the **territory values and its meaning**.

Therefore, we must understand the incorporation of *naturation* to architecture as another building material; that one closest to the **essence of human being**, connected always to **territory**, capable of generating **emotions**, related to the world of **feelings** and very closed -if not touching- the **world of art**.









MBANDZA-CONGO BRAZZAVILLE, OCTOBER 2016



JARABA, ZARAGOZA –SPAIN, OCTOBER 2016

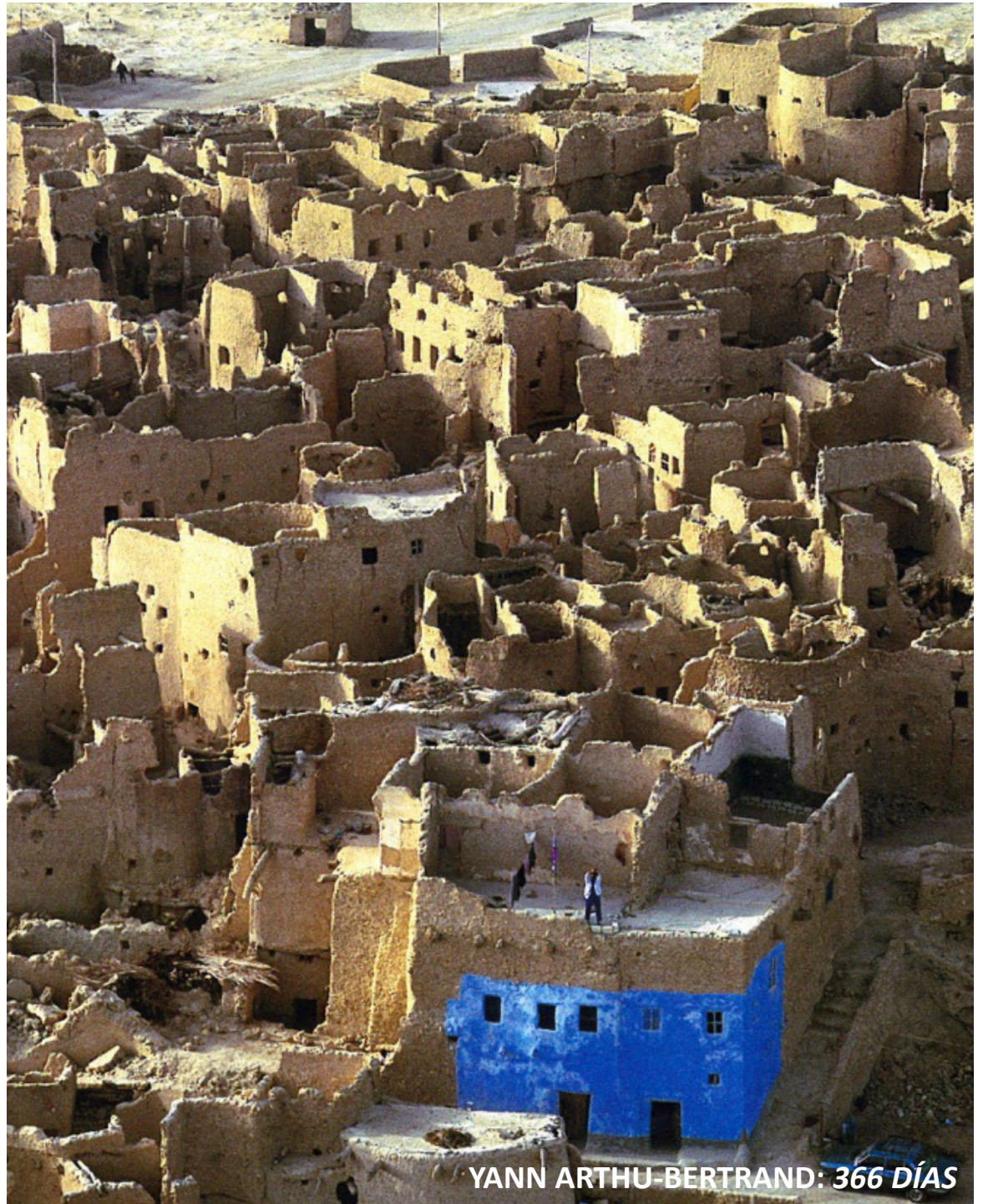
At the end of the 18th century, **Alexander von Humboldt** described this particular perception in his Journey Chronicles: "**Nature, everywhere, addresses man with a voice that is familiar to his spirit**".



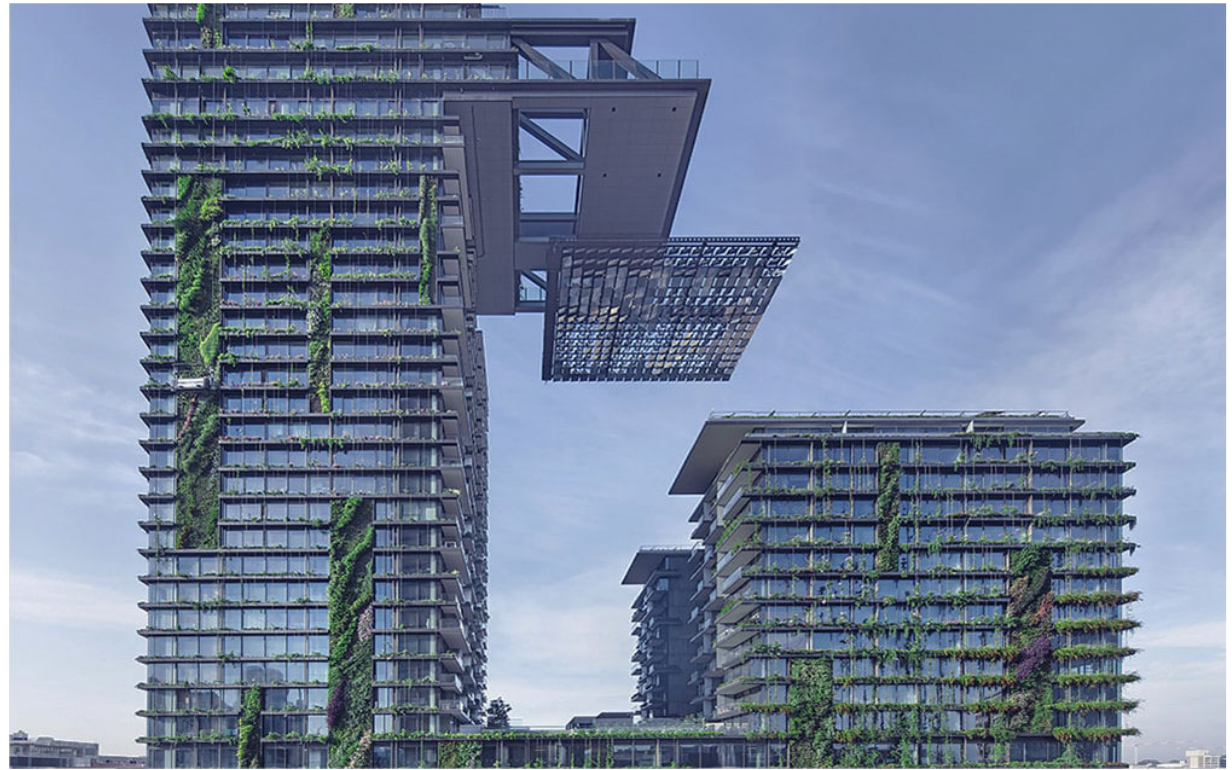
Architecture and urbanism cannot be understood as elements integrated in the territory. They must be **born from territory and be part of it.**



This idea, along with the countless technical, environmental and agricultural values, shows agriculture and **urban *naturation*** as a material, a cornerstone of **an specific architecture and urbanism that doesn't emerge as an invader but in a holistic way**, through landscape itself as an inside force that fosters life and the relationship between **people and their environment**.



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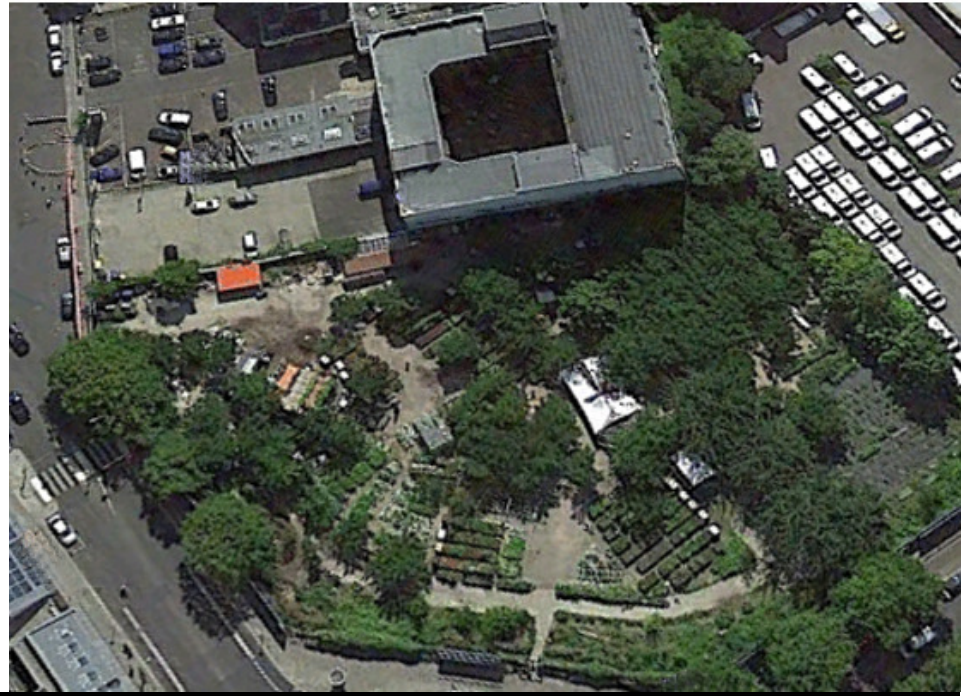


JEAN NOUVELL / PATRICK BLANC: *Vertical Gardens at Sydney*

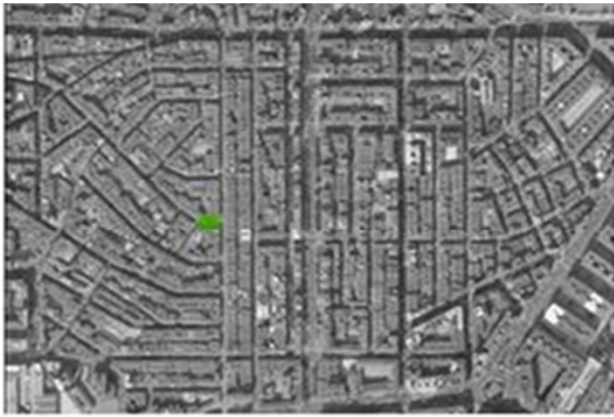
In this sense, the incorporation of urban agriculture opens a new dimension: it helps and favors the **creation and presence of public vertical spaces**.

Because of its presence, individual sensations related to health, leisure, culture and biodiversity become evident.

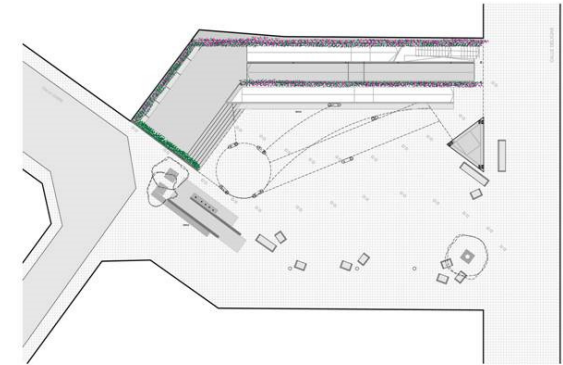
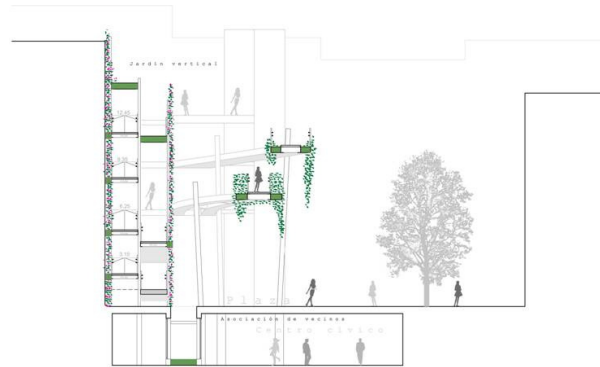
The recognition of these values, eases on the other hand their incorporation as a building material for the proposal of **hybrid programs** in buildings and "**vertical scapes**". They are but the recovery of those present concepts in nature that **biodiversity brings together**.



The *Jardín Vertical* in *Plaza Delicias* (Zaragoza, Spain) and the *Prinzessinnengärten* in *Moritzplatz* (Berlin, Germany) are two different European examples that confirm the achievement of the aims described above.



ESTADO ANTERIOR



Delicias is a crowded neighborhood in Zaragoza, deprived of green areas and symbolic elements to be recognized by the neighbors.

The people of Delicias come from rural nuclei that migrated in the 60s and 70s of the past century. Today, it takes in a great number of neighbors from new migrations.

One of the keys for the **proposal of its *naturation*** was the necessity of finding **identity points** and elements to help the **rehabilitation of the neighborhood**.



The conceptual idea of this high-rise garden finished in 2008, comes as the formalization of the metaphor and memory of that "childhood tree" we all carry with us and which we've shaped in some way as part of our dreams or life experiences.

This symbolic "tree", has constituted the general rehabilitation of the neighborhood and, in some way, it has settled the lack of natural spaces that should have been offered from the beginning.

It has become an authentic urban centrality and nucleus of activities in the neighborhood.





There is no doubt that the **environmental comfort values** provided by its presence have contributed to its popularity and use: the **noisy urban atmosphere** of the neighborhood has been considerably **reduced**, and in the hottest months of summer, the incorporated *naturation* of the space, decreases the **ambient temperature** in 3 to 5 degrees. This open and diverse public space is a didactic one, for **citizens activities** in constant transformation and revitalized by the Neighborhood Association.





In 2009, and through the "Nomad Garden" Association, a fantastic project appears. It is placed in a 6.000 m² abandoned plot beside *Moritzplatz* Square, in the heart of *Kreuzberg* Neighborhood in Berlin. The **Princesses Garden** (*Prinzessinnengärten*) is an **open space** also in **constant transformation** (its tree-house is been finished recently) where people interact and gather around **knowledge** and **encounter with nature**, sharing **experiences** of different places and, therefore, it is the expression of an authentic **biodiversity**.





It allows the opportunity of applying **agricultural practices from different countries** which, in the big city, many citizens haven't been able to implement.

It is an **strategic place** for urban agriculture, where people can unite concepts and understand the relationship between production and consumption; a place in which learning one from another through **nature and food as common elements of integration**.

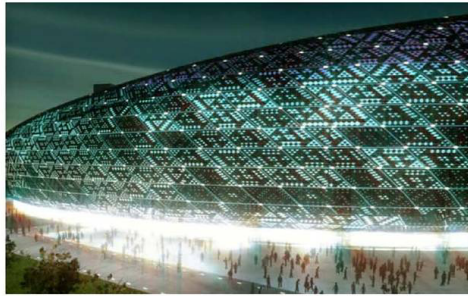




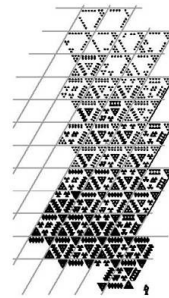
Every element of this garden has a nomad character. It is a clear formalization of **Gilles Clement's "Garden in Movement"** metaphor.

The two given examples, in their different scales, provide fundamental symbolic values when incorporating the undeniable recognition of **urban *naturation*** in order to **guarantee life quality in the cities** and bringing them closer to the citizens.

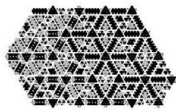
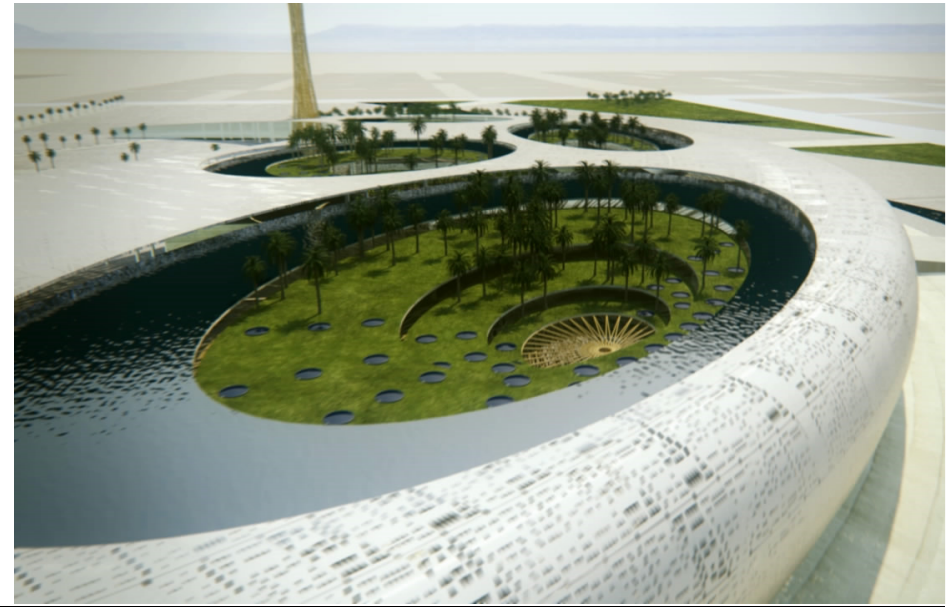
There is no doubt these values will help to avoid the feared risks of "green gentrification" that otherwise could appear in some particular urban neighborhoods.



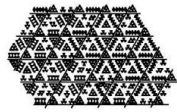
Tratamiento de la piel de fachada



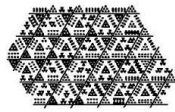
ejemplo franja fachada



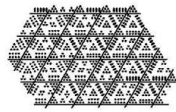
patron



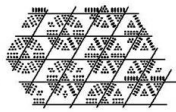
densidad 1



densidad 2



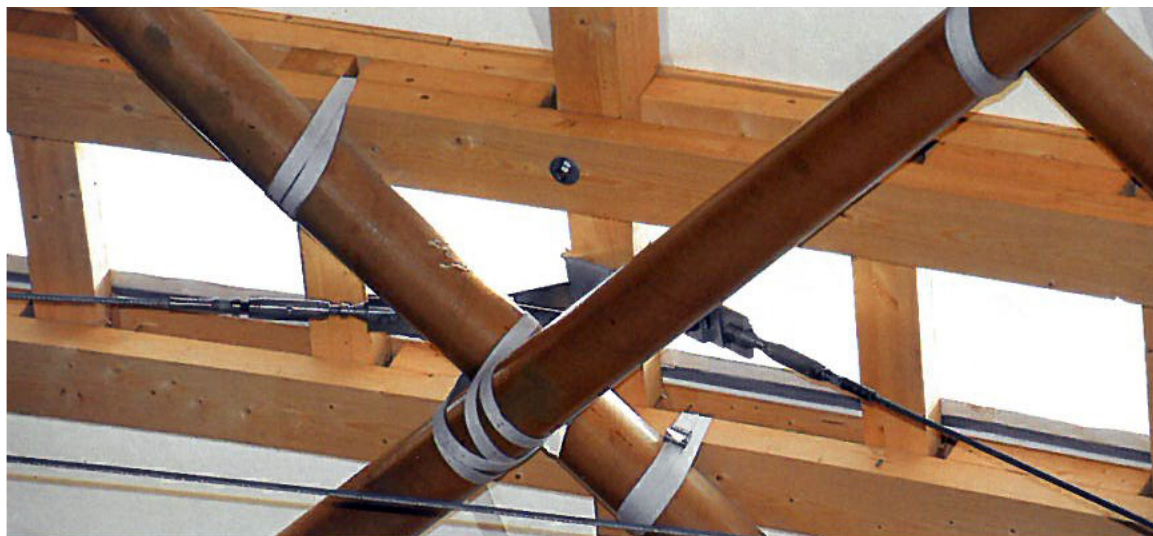
densidad 3



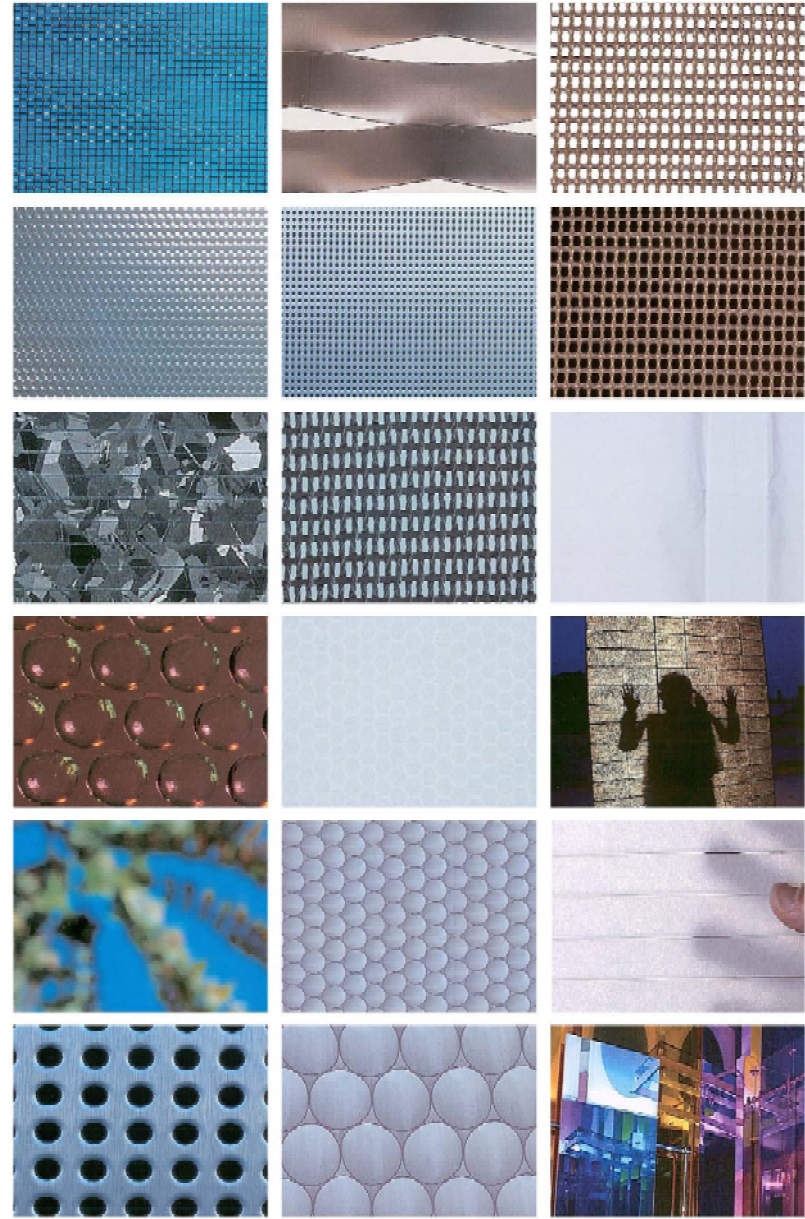
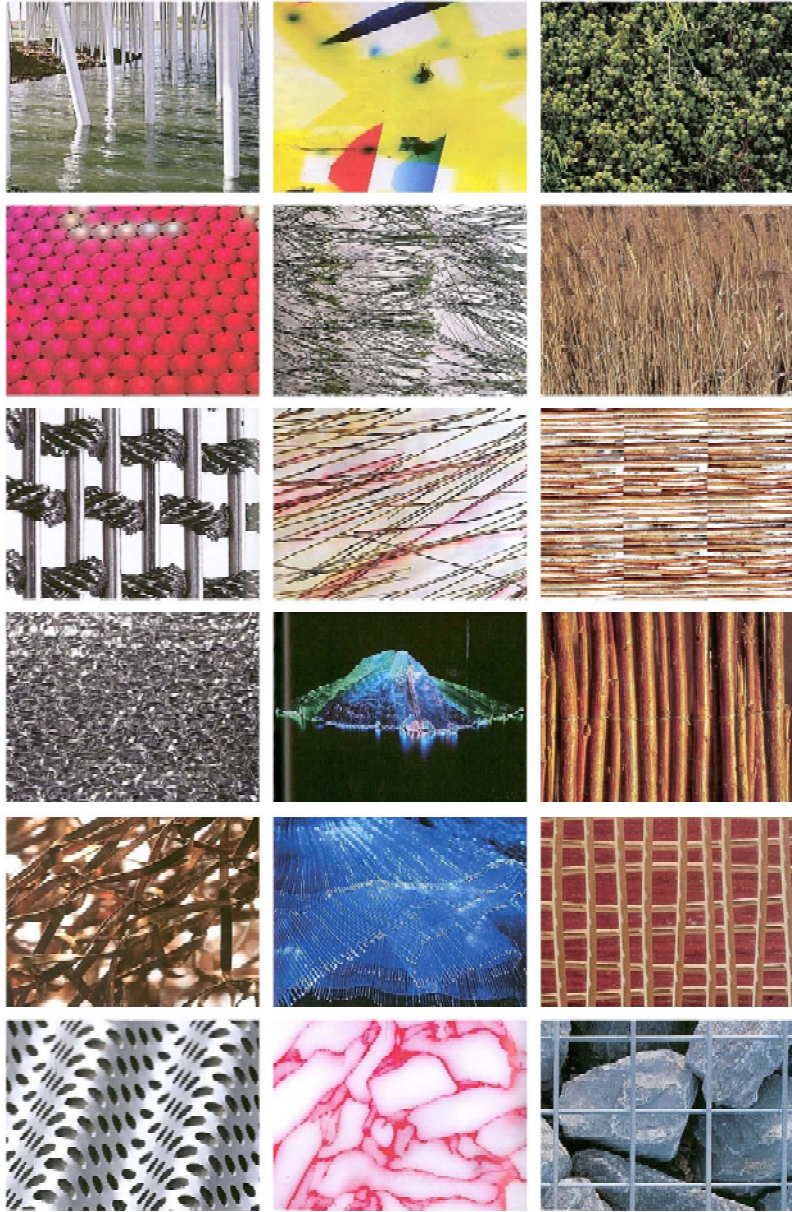
densidad 4

A coherent biodiversity is achieved perforce by an interdisciplinary nature. The connection between **urban naturation** and the different disciplines and technologies draws the basis for the necessary research and development of new products, which will place *naturation* as a **building material of next generation**, essential for architecture and urbanism today and in the future.

MBANZA-CONGO BRAZZABILLE



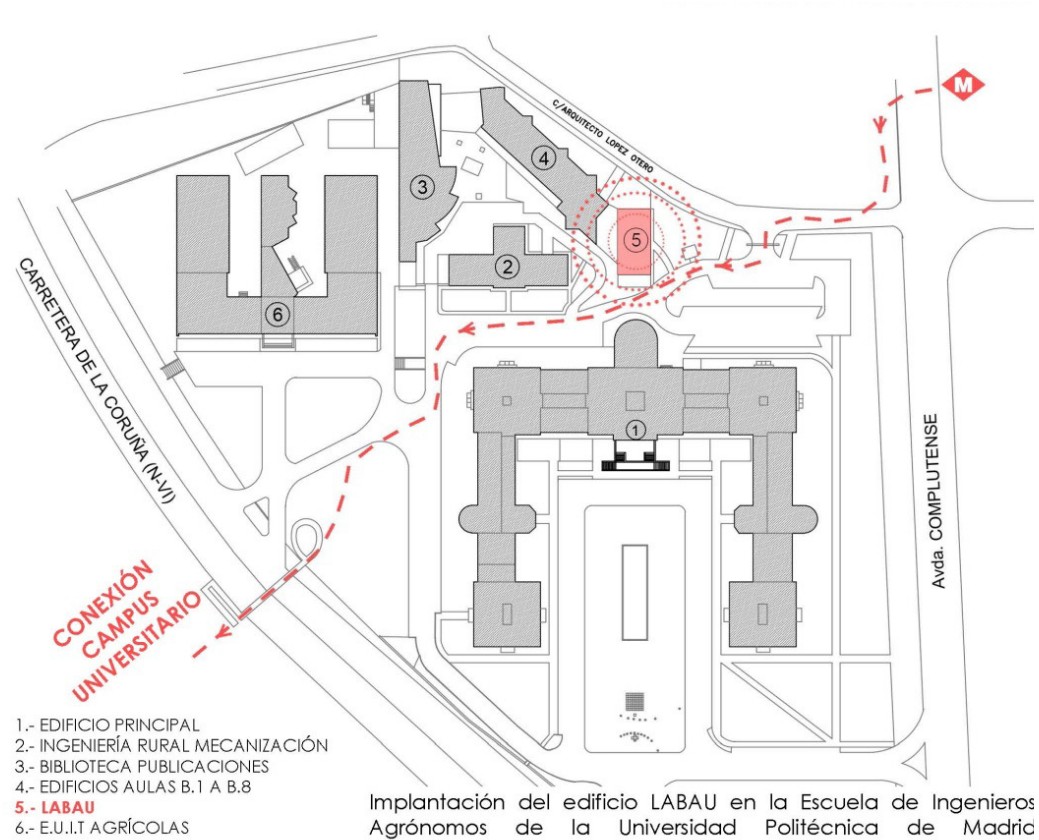
EXPO 2000 JAPAN PAVILION



It becomes essential to work with an interdisciplinary scope in order to place *naturalization* and urban agriculture where they belong, inside urbanism and our cities; linked to the newest research processes and the technological development.

As any other building material, they must be therefore officially certified and included in regulations.

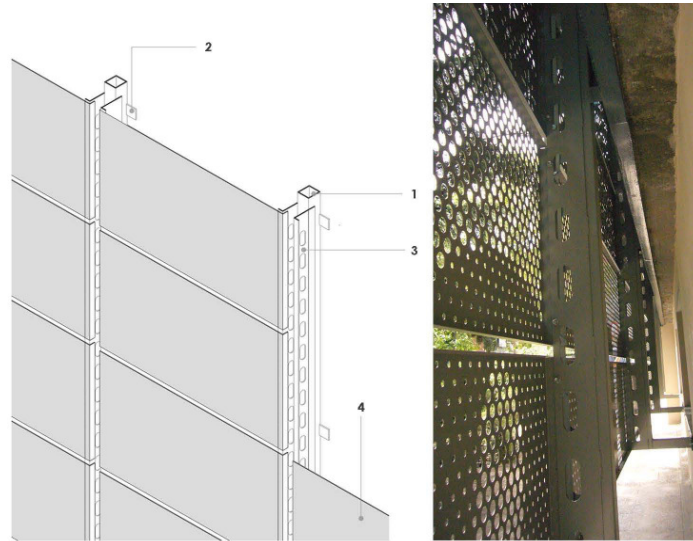
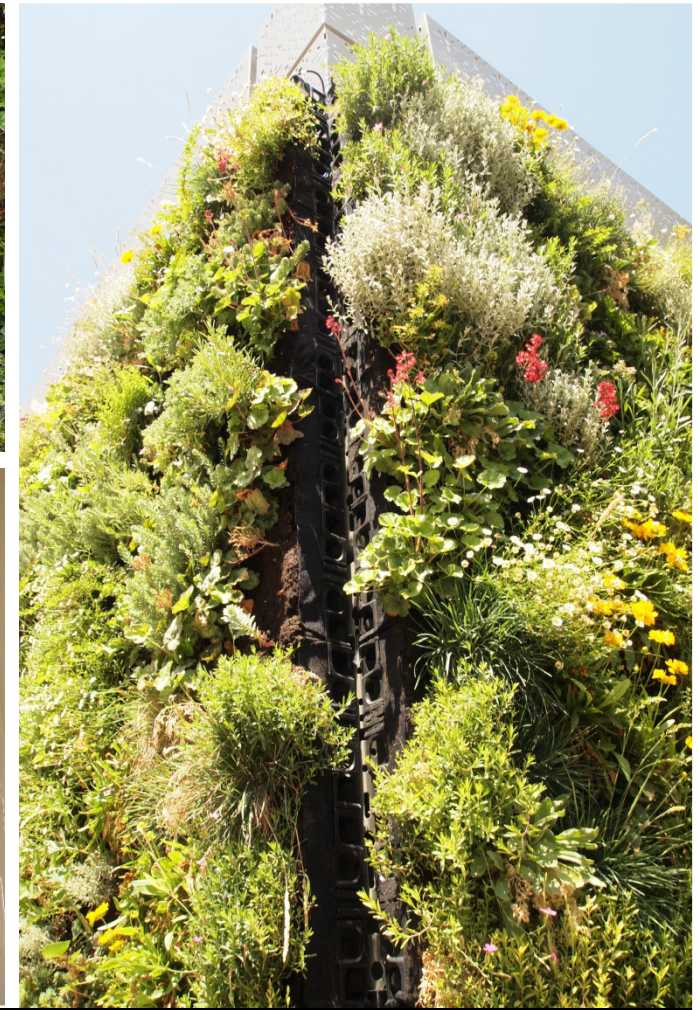
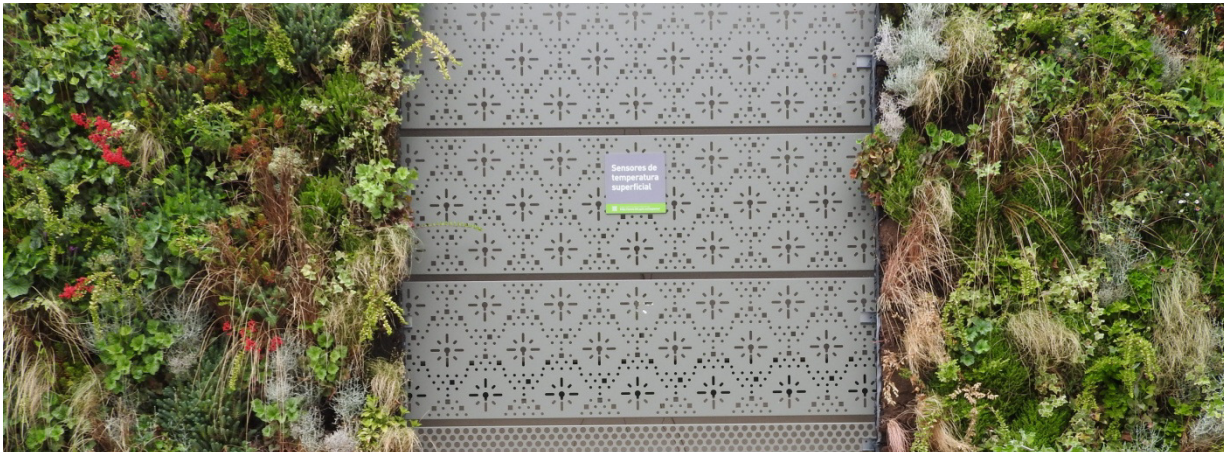
It becomes essential to guarantee its proper incorporation on roofs, facades and any structural construction element in order to defend the values that *naturalization* provides the city and its citizens with.



From these initial aims and linked to different Research Departments at the Technical University of Madrid, the ***Innovation and Technology for Development Centre*** (Laboratory of Bioclimatic and Urban Architecture) is been recently inaugurated. **ItDUPM** is a space that, due to its interdisciplinary character and the commitment to research, excellence and quality, will provide urban *naturation* and biodiversity with the necessary input for them to become a usual practice in urban and architectonic proposals.



The main **research lines** focus on the **analysis of air contamination programs**. **Heat sources for experimental crops** are used, along with **waste water recycling**, **rain water use**, **photovoltaic panels**, the incorporation of research on **green walls and vegetal elements on roofs**; and all this towards a concept of biodiversity that covers vegetal and animal kingdoms. The project also experiments on the possibilities of recycling organic products and new uses such as sheep's wool in the substrate bed.

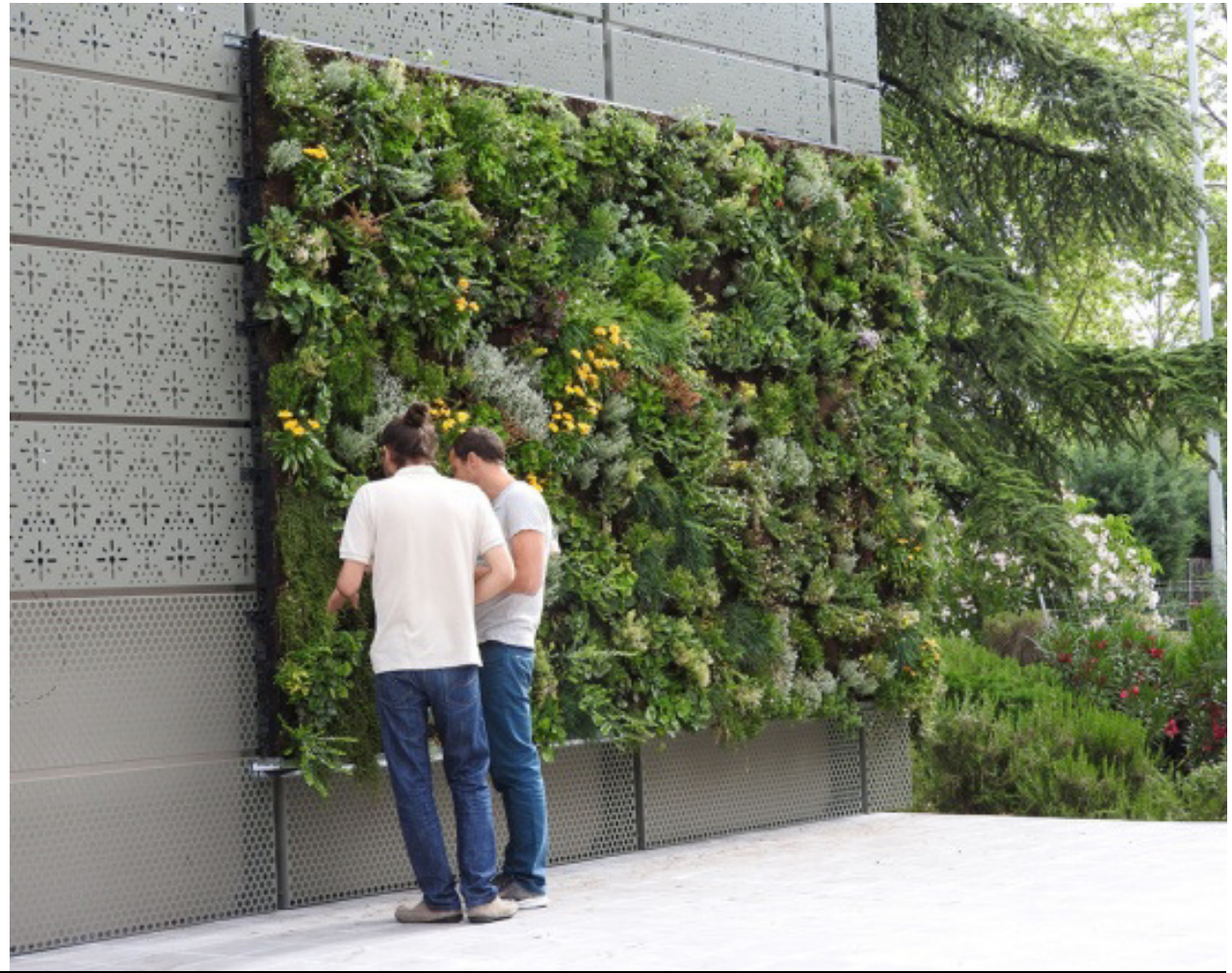


- 1 Perfil metálico de sección cuadrada 60x60x3mm
- 2 Pletinas metálicas para fijación de montantes a fachada 50x50x5mm
- 3 Perfil metálico en L, 110x30x3mm con perforaciones para paso de instalaciones
- 4 Bandejas de chapa perforada galvanizada y lacada al fuego

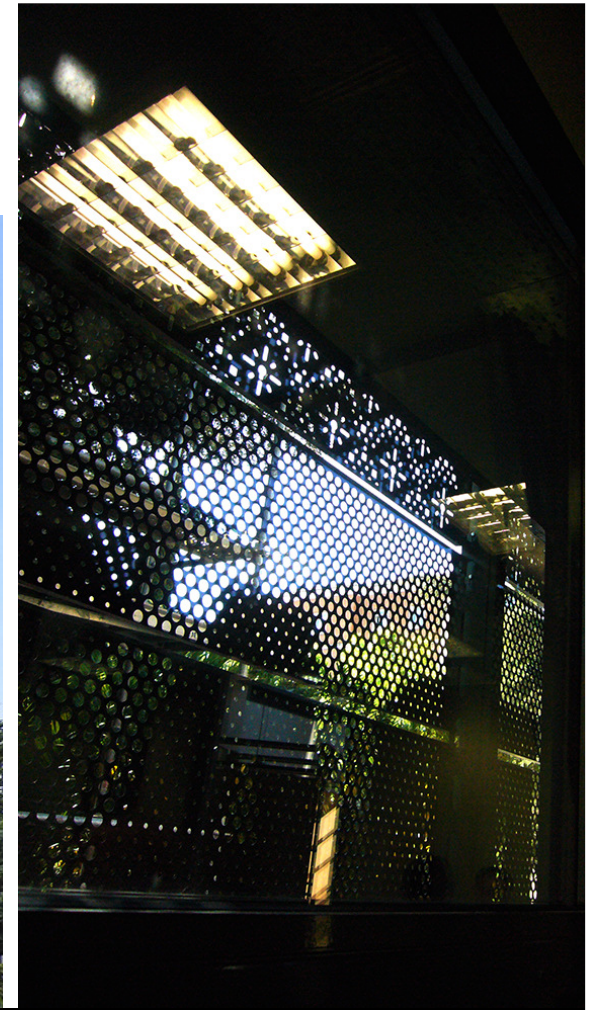
The building is the result of a refurbishment of an old and deteriorated construction in the University Campus which incorporates a green **technological coat, capable of adding different equipments and bioclimatic systems for the data collection and analysis of the green facade.**



Thus, the **building envelope** is in itself a **laboratory** conceived as an active system open to multiple configurations and adaptations to the advances that the technology related to green economy may offer. The coat is developed from an overlapped structure to the old building, conformed by a reticular and modulated substructure to make most flexible the introduction of the different elements, systems and materials needed, achieving a **perfect integration between natural and artificial components**.



This envelope constitutes in itself a new skin for the building providing it with an **open technological image** and **in constant process of evolving**; according to the pretended concept for the **bioclimatic laboratory of urban agriculture**, that happened to be an innovator approach in designing the place.



The presence of **ItDUPM** places value on the public spaces of the current School and signifies itself as a referent for the Campus circulations and an **icon for technological innovation**. But it is also a piece that subtly integrates the elements of nature, with textures and light variations on the facade; that is, ***naturation* in the purest expression**, which **interrelates nature and the world of symbols and senses through materials themselves**.



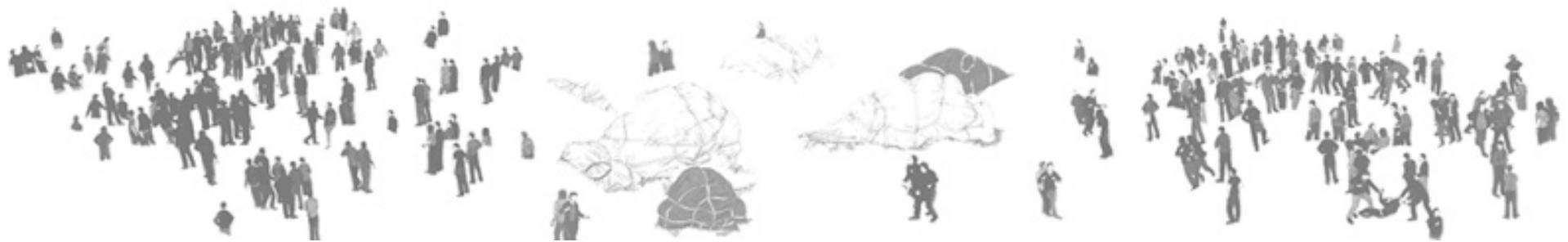


Once again, these parameters have transformed a place, through its presence, into a **public and gathering space**, and recognized for its users; this time inside a university campus in Madrid.



Thank you!

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