





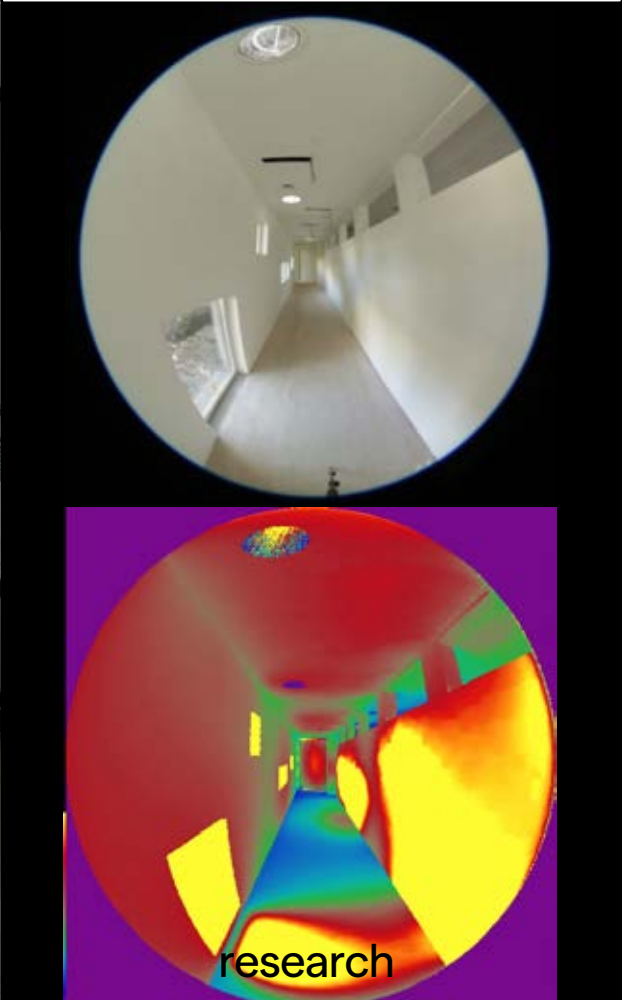
architecture



urbanism

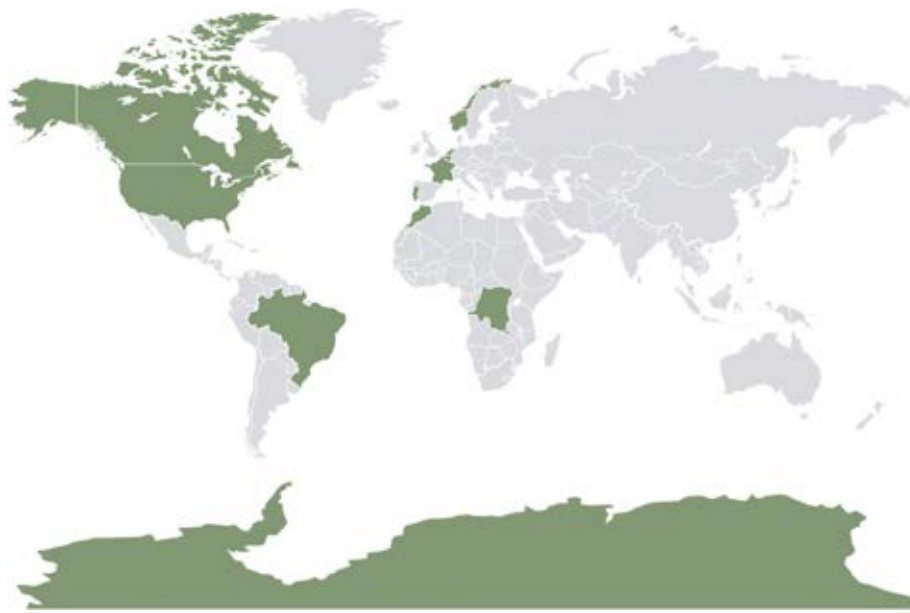


interior
architecture



research

we build



A2M BXL
BEL

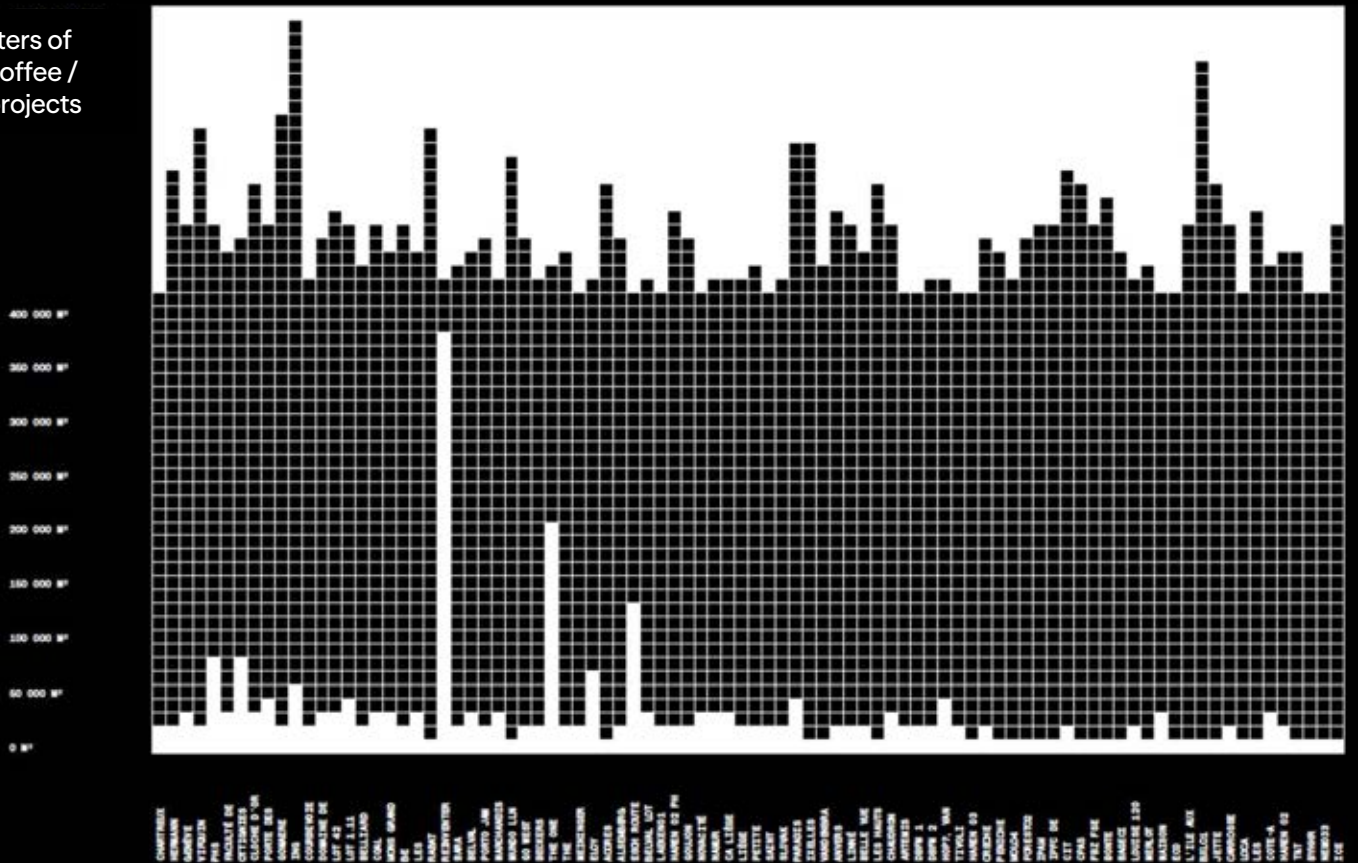
A2M NYC
USA

A2M LUX
LUX

we share



liters of
coffee /
projects





A2M acts, thinks and shares

A2M has developed:

100% Passive House projects

8 714 dwellings

46 offices

18 schools

21 nurserys

11 hotels

A2M realized:

> **40** publications

> **200** conferences

> **7 300** people trained

which translates into:

2 317 672 m² Passive House

1 446 517 m² regenerative Architecture

1 119 421 m² zero energy

A2M means:

architects, interior architects, engineers,

designers, publishers, university professors and

has its own Think Tank [EARTH].

A2M designed

1 228 061 m² offices

979 509 m² dwellings

2 143 133 new build

484 429 retrofit

21 BREEAM (15 Outstanding)

17 WELL (14 platinum)

97/100

This measure has been calculated via the French government website (egapro.travail.gouv.fr).

More details :

- Pay gap indicator = 2.3% (score of **37/40**)

- Indicator difference in rate of increase between men and women = 0%. (**35/35**)

- Indicator percentage of employees receiving a raise in the year following return from maternity leave = 100%. (**15/15**)

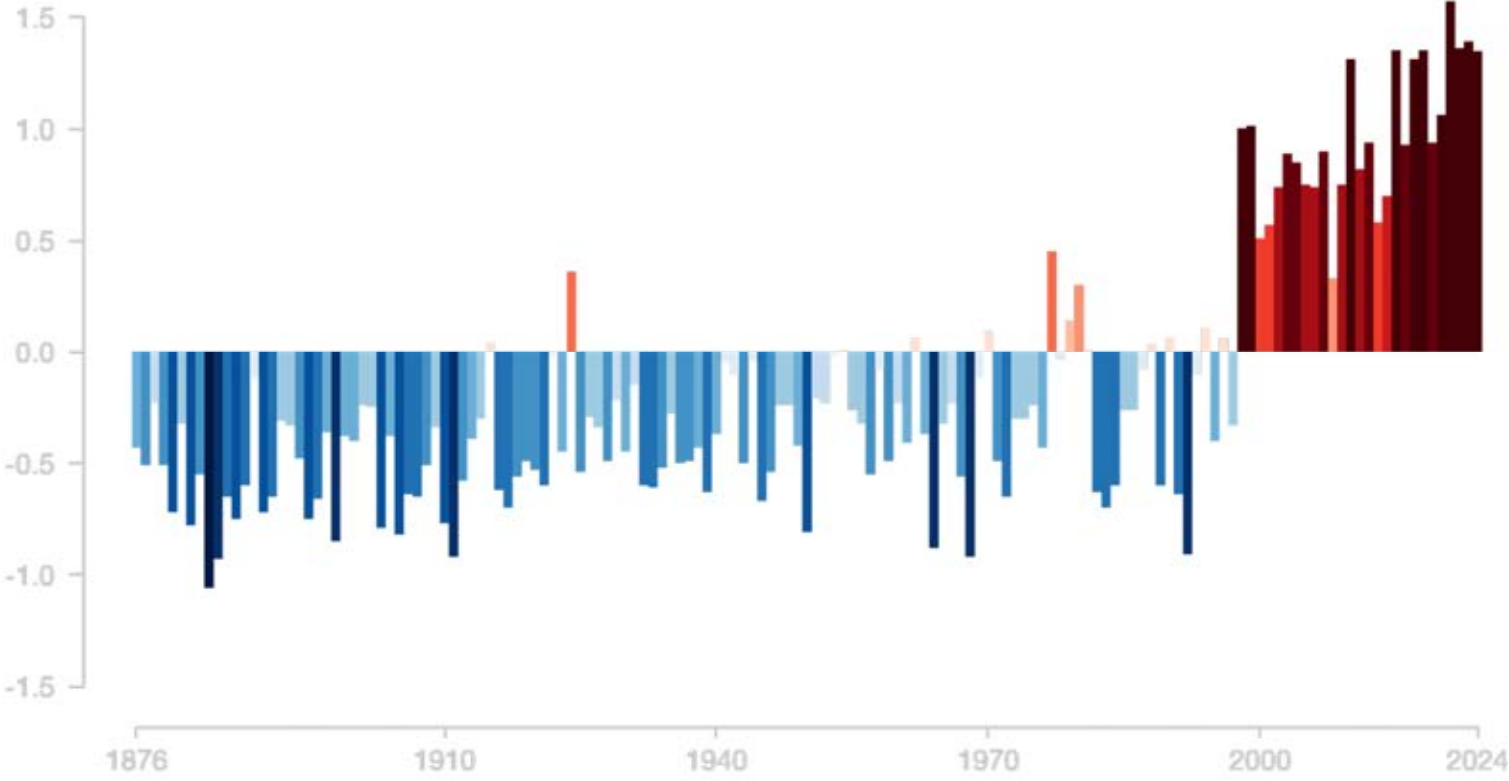
- Indicator number of employees of the under-sex represented among the 10 highest earners = 4 (**10/10**)

Can we regenerate the environment?



PWC HQ, CLOCHE D'OR (LUX)
CAMPUS DE OFFICES PASSIF, BREEAM OUTSTANDING, WELL PLATINUM
CO2 NEUTRE ET CIRCULAIRE, RÉGÉNÉRATIVE DESIGN
A2M, MORENO ARCHITECTURE & ASSOCIÉS

Temperature change in Dubai



Source: <https://showyourstripes.info/c/europe/italy/milan>

Is it too soon to know it is too late?

What do we mean by climate challenges?

1. The Brundtland design for sustainability primarily aimed to limit damage to ecosystems and human health. See the Brundtland Report, 1992

2. The 9 planetary boundaries – 2009-2023. Prof. Johan Rockström, director of the Potsdam Institute for Climate Impact Research.

Sustainable development as defined since 1992¹ is no longer sufficient. It has even imperceptibly turned into an oxymoron. Our generation has witnessed the crossing of seven of the nine critical boundaries² required to maintain the stability and resilience of the Earth's system.

The latest scientific report on the planet³ shows that we are powerlessly exiting what is called the "living corridor," in which we have existed since the Holocene (10,000 years). Earth is no longer a safe operating space for humanity.

2024 is the first year to have exceeded the symbolic threshold of 1.5 degrees Celsius of global warming compared to the pre-industrial era,⁴ a threshold that was to be avoided, according to the 2015 Paris Agreement. The goal of staying below 1.5°C is dead, and we are heading towards a planet 3°C, or even 4°C, warmer.⁵ The water cycle no longer exists.⁶ The energy transition is a sham: energy sources accumulate instead of replacing each other.⁷

Therefore, we can no longer afford to merely reduce our impact on the environment; we must go further and aim to regenerate it.⁸

3. Presented by Prof. Johan Rockström for the Stockholm Resilience Centre on August 19, 2024.

4. See the article published on January 10, 2025 by the EU observatory, Copernicus de l'EU, Copernicus: <https://climate.copernicus.eu/copernicus-2024-first-year-exceed-15degc-above-pre-industrial-level>.

5. See the UN Gap Report published on October 24, 2024, which describes how current climate policies will lead to global warming of more than 3 degrees Celsius by the end of the century: <https://www.unep.org/resources/emissions-gap-report-2024>. On this occasion, UN Secretary-General Antonio Guterres stated that "Humanity is 'paying a terrible price' for inaction on global warming, with time running out to correct the course and avoid climate disaster."

6. See the book "Water: Fake or Not" by Charlène Descollonges and Isabelle Brokman, published in 2023 by Tana éditions.

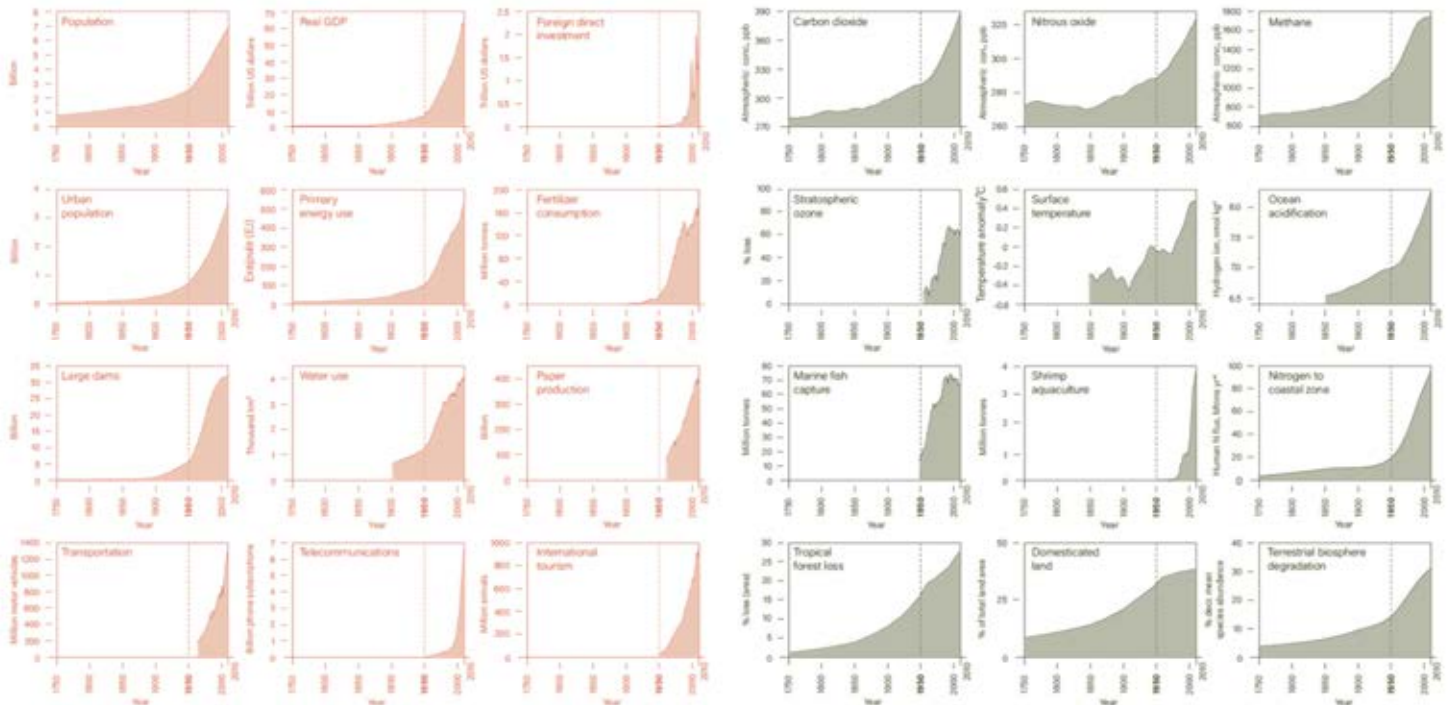
7. See the book "Sans transition" by Jean-Baptiste Fressoz, published in 2024 by Ecocène Seul editions as well as the forecasts of the IEA (International Energy Agency, editor's note) and the EIA (US Energy Information Administration and the publication "Climate: let's decarbonize the autonomy sector" from September 2023 by the Shift Project and Jean-Marc Jancovici).

8. "Transforming our world: the 2030 Agenda for Sustainable Development," United Nations, General Assembly, A/RES/70/1, 2015.

The question is: how can we, as architects, achieve this? How can we design built environments that "create a positive impact" on both local ecosystems and human health and well-being?

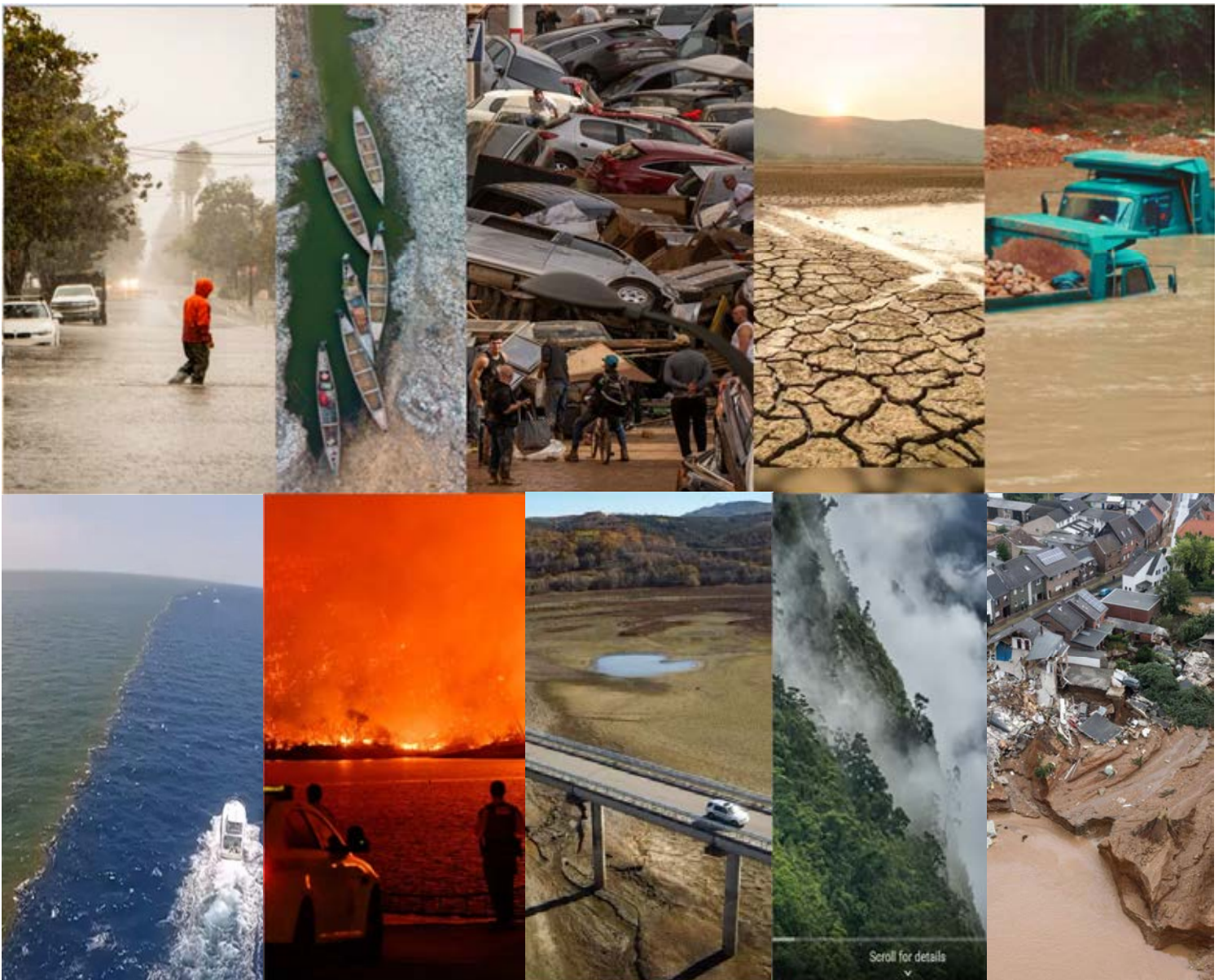
↓ MAY 2024'S FRONT COVER OF THE GUARDIAN MAGAZINE.





↑ THE INTERNATIONAL GEOSPHERE-BIOSPHERE PROGRAMME AND THE STOCKHOLM RESILIENCE CENTRE HAVE PUBLISHED A DASHBOARD OF 24 INDICATORS ILLUSTRATING THE DRAMATIC AND ABRUPT ACCELERATION OF HUMAN ACTIVITY AND ITS IMPACTS ON THE EARTH SYSTEM. THE EXTREME, CONTINUOUS, AND NEAR-SIMULTANEOUS INCREASE IN A WIDE RANGE OF HUMAN ACTIVITY MEASURES IS IMPACTING NOT ONLY CO2 EMISSIONS, BUT ALSO ALL ASPECTS OF HUMAN LIFE, INCLUDING OVERCONSUMPTION, THE SIXTH MASS EXTINCTION, AND MORE.

↓ AND AS IF THAT WEREN'T ENOUGH... THE CONSEQUENCES ARE NOW BRUTAL FOR THE ENTIRE ECONOMY. IN THE PAST, SCIENTISTS ESTIMATED THE COST OF THESE CATASTROPHES AT A FEW PERCENT OF GDP. THE LATEST SCIENTIFIC FIGURE IS THIS: A LOSS OF 18% OF GDP BY 2050... THAT'S STARTING TO HURT!



How are we going to build tomorrow?

Creating a new narrative in architecture.

A2M is an agency operating in the fields of architecture and research. We design regenerative architecture for people and the planet, at the intersection of science, art, and technology. With several years of experience, we demonstrate that it is possible not only to limit our environmental impact but also to regenerate it.

Over the years, after more than 100 projects, A2M has built a reputation as a pioneer in sustainable architecture by exclusively developing Passivhaus, sustainable, circular, zero-energy, CO2-neutral, or self-sufficient buildings. We are currently paving the way for regenerative architecture.

This mindset drives us to explore the realities of a decarbonized world, addressing the challenges of tomorrow. Some of our projects go even further: they not only limit their environmental impact but actively regenerate it.

We firmly believe that architecture must be both a cultural and social act, as well as a means to rethink and adapt our approaches to the new performance requirements of a changing world. We integrate a holistic approach that connects theoretical reflection with concrete practice, fostering enriching dialogue between different disciplines to address contemporary issues.

↓ HEAL CAMPUS, ESCH-SUR-ALZETTE (LUX)
PASSIVEHOUSE, BREEAM OUTSTANDING, WELL PLATINUM
CO2 NEUTRAL , CIRCULAR, REGENERATIVE DESIGN
A2M, EFFEKT



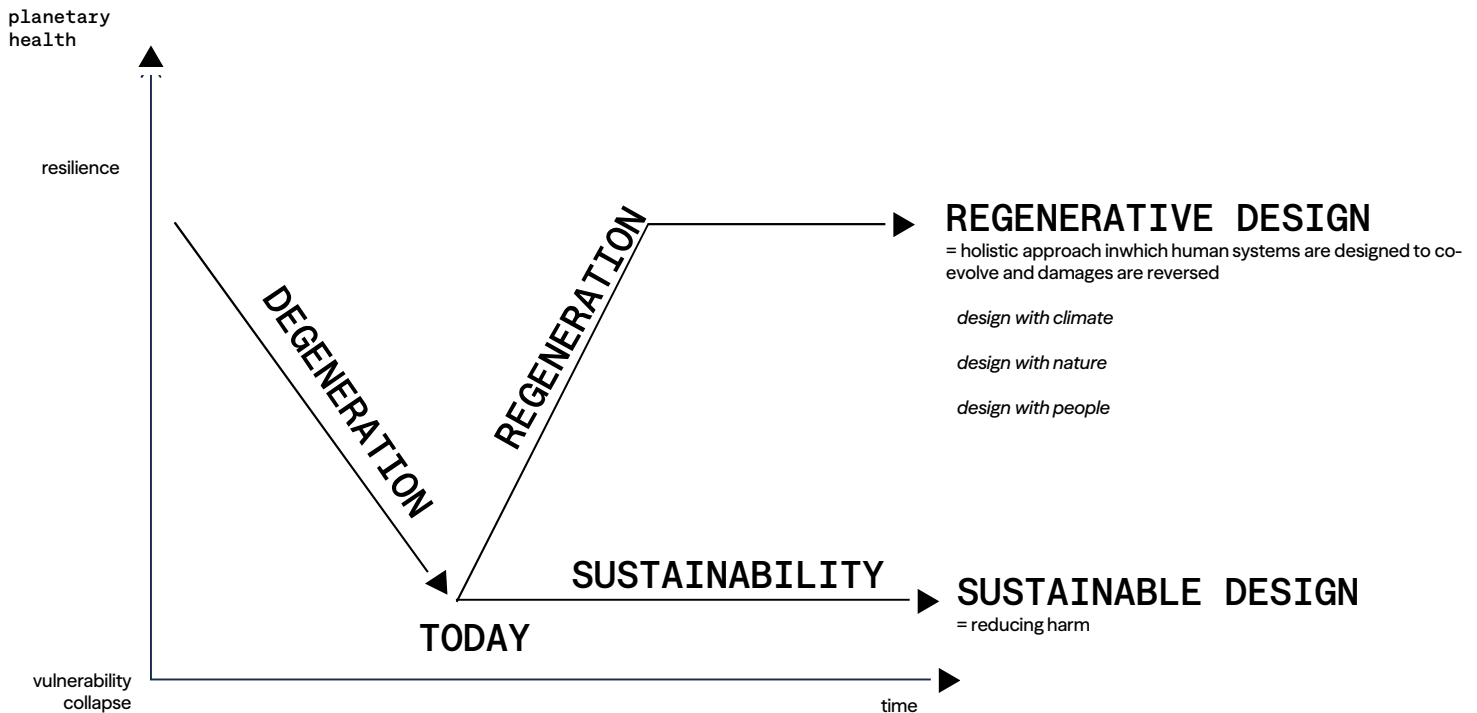
What is regenerative architecture ?

The speed of industrialization and population growth, along with the availability of resources in the 20th century, contributed to the development of buildings and cities that interact little with their environment or users. Recently, the emergence of "green" buildings and development projects aims to reduce negative impacts. However, it has become necessary to reformulate these characteristics according to a net-positive and holistic approach.

We must shift from sustainable design, which seeks to reduce negative impacts, to regenerative design, which aims to restore and enhance ecosystems, thus creating buildings that contribute to environmental regeneration. This commitment is based on three pillars⁷ :

design with climate
design with nature
design with people

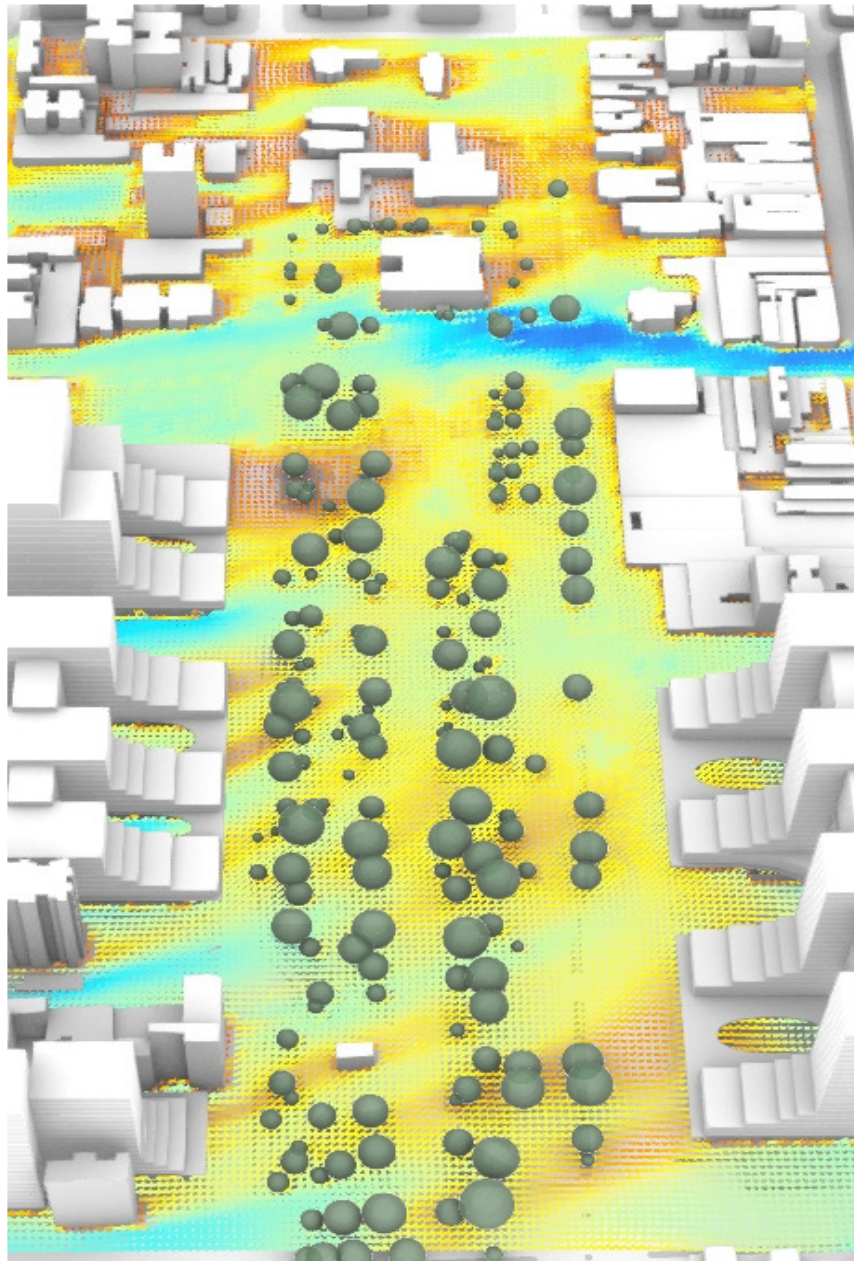
7. « Regenerative Design in in digital practice », Emanuele Naboni, Lisane Havinga, COST action RESTORE WG2 editions, 2019.



Design with climate

Designing with climate means integrating climatic phenomena and their surrounding fluctuations as essential tools of the conception process. This also takes into account both operational and renewable carbon. The Marnix project embodies this ambition by applying these principles to create a resilient, robust, and responsible architecture that is also in harmony with its current climatic context and its future one.

BIOCLIMATIC
MICROCLIMATE
RESILIENCE
EFFICIENCY
RENEWABLES



Design with nature

Designing with nature means integrating architecture within the dynamics of living systems, the logics of environments, and the long-term timescales of ecosystems. The ING Marnix project embodies this stance by initiating a reversal: it is no longer solely about minimizing damage but rather about actively contributing to repairing environments. This ambition, implemented through several axes, makes the project a driver of urban regeneration, rooted in the existing fabric, open to change, and fully aligned with contemporary ecological dynamics.

REUSE
CIRCULARITY
MATERIALS
WATER
BIODIVERSITY



Design with people

Designing with people means placing human uses, relationships, and experiences at the heart of the architectural project. Beyond technical or environmental performance, architecture becomes a vehicle for inclusion, well-being, and social connection. The Marnix project embodies this approach by creating open, adaptable, and participatory spaces suited for diverse uses. Every spatial choice — both within the building and in its surroundings — contributes to establishing the conditions for a sustainable community life.

RELEVANCE
CO-CREATION
INCLUSIVITY
COMMUNITY
WELL-BEING

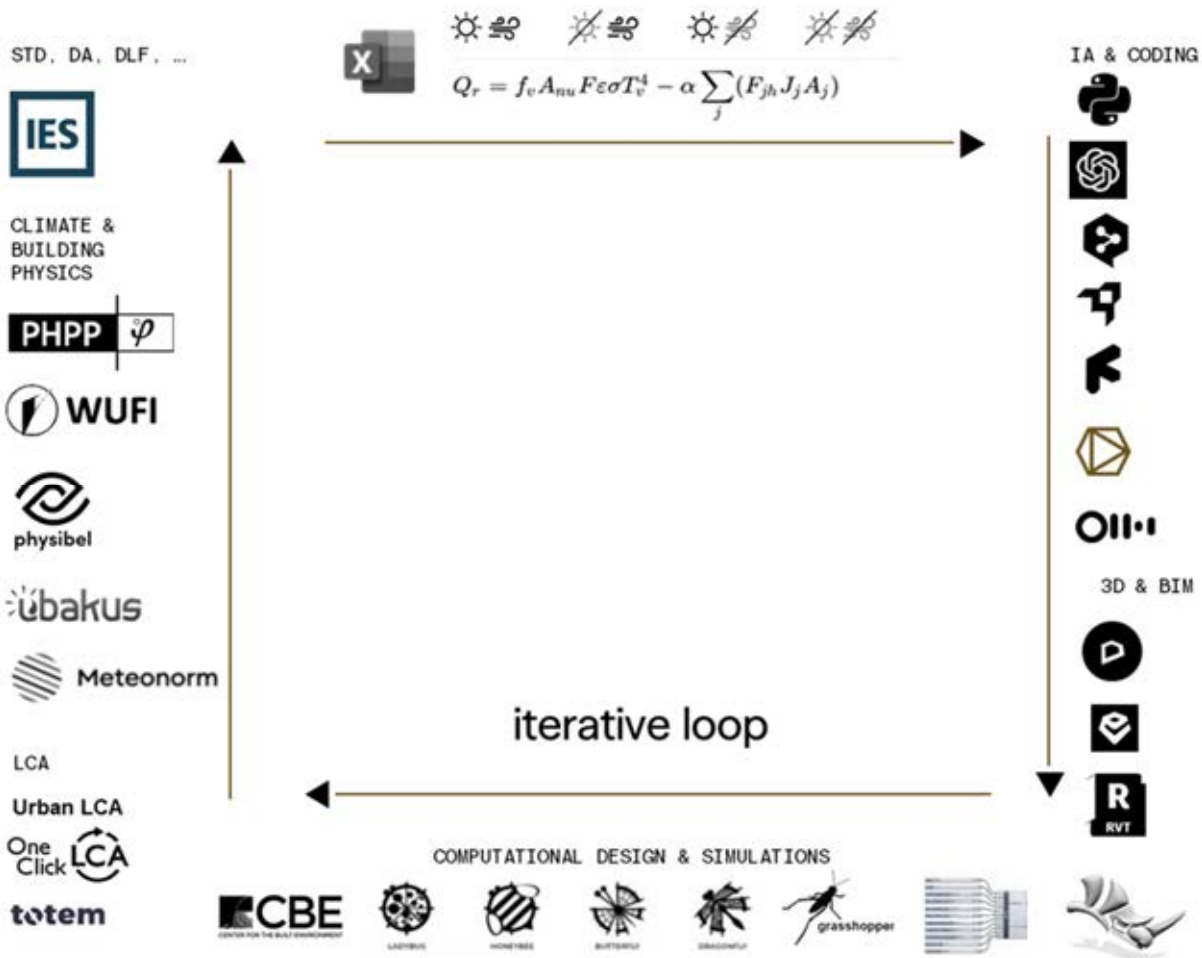


How can we simulate a regenerative future?

The data driven architecture or the parametric design

The holistic creation process at A2M goes beyond design prescriptions and basic rules to propose climate-responsive solutions that enhance well-being and promote biodiversity, while also testing the resilience of future conditions. This requires the use of informed multidisciplinary algorithms and measured contextual data, rather than relying on theoretical or similar examples.

As architects, in addition to using codes related to climatic phenomena such as wind speed, ambient temperature, solar radiation, etc., or complex assessments such as UTCI (Universal Thermal Climate Index), ICU (Indoor Climate Index), etc., A2M explores new architectural narratives such as 'direct access to light,' 'optimal views,' 'connectivity to the surrounding natural environment,' and 'optimization of distances and clear views,' which become coded terms in computational models specifically designed to support and develop our design process.



THE ITERATIVE LOOP DEVELOPED BY A2M INTEGRATES PARAMETRIC DESIGN, STATIC AND DYNAMIC SIMULATION, AI, NATURAL LIGHT ANALYSIS, LCA, COMFORT ANALYSIS, CO2 INDEX, UTCI, ICU SCORE, OT, AND OTHER TOOLS.

This is also known as 'data-driven architecture,' which involves the use of parametric design with Grasshopper and Rhino software, as well as AI tools like ChatGPT and Python. These technologies allow for the coupling of equations that capture the essence of relationships between different scientific domains with our design intuitions.

A2M is thus experimenting with a new realm of architectural narrative—the regenerative design fueled by one of the most valuable materials of the 21st century: data.

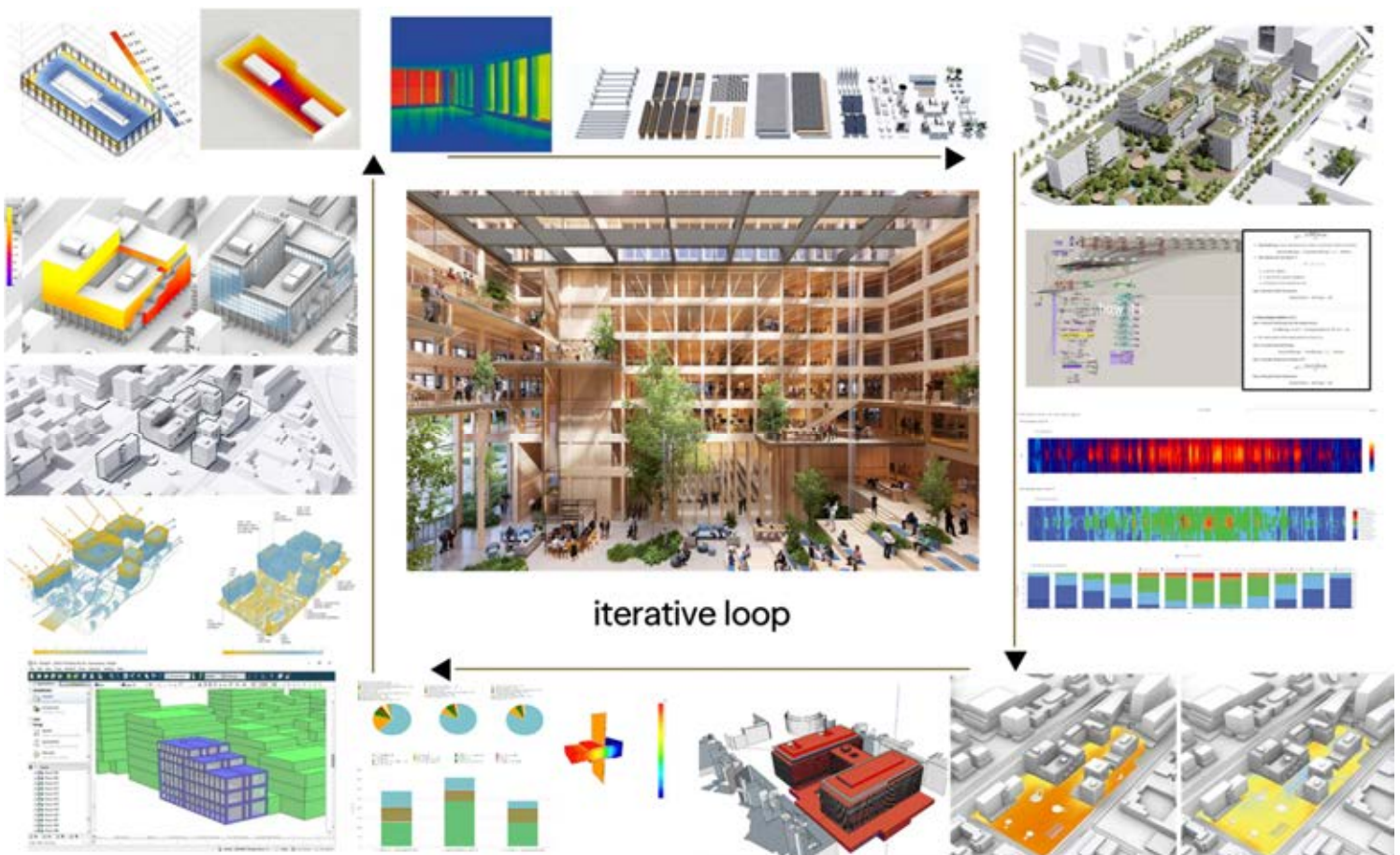
The process of 'data-driven architecture' is structured around the following principles⁸:

8. « Regenerative Design in digital practice », Emanuele Naboni, Lisane Havinga, COST action RESTORE WG2 editions, 2019.

- Data is not information,
- Information is not knowledge,
- Knowledge is not wisdom.

These data are transformed into information by A2M, which then convert them into relevant design knowledge.

This is accomplished through an 'iterative loop' process that supports regenerative design through digital models. The use of parametric design, assisted by AI (ChatGPT) and Python programming—not only for rendering but also for algorithm programming assistance, whether in Grasshopper or Revit—opens up a new world of design resources and more responsible and informed planning decisions. A2M uses these modeling techniques to assess the impacts of a design on the natural world and how the natural world can, in turn, inspire design



THE ITERATIVE LOOP DEVELOPED BY A2M INTEGRATES PARAMETRIC DESIGN, STATIC AND DYNAMIC SIMULATION, AI, NATURAL LIGHT ANALYSIS, LCA, COMFORT ANALYSIS, CO2 INDEX, UTCI, ICU SCORE, OT, AND OTHER TOOLS.

Concrete application of parametric design as a design aid.

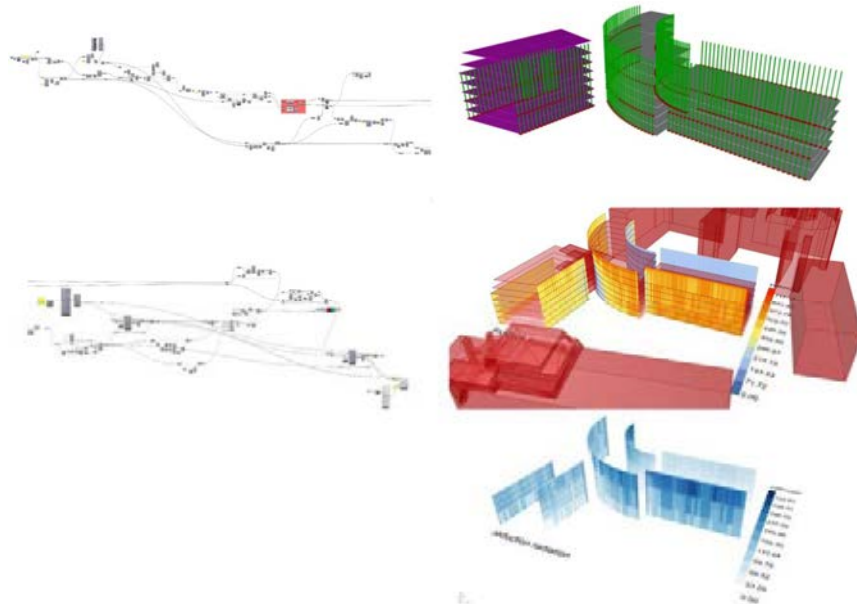
The Rhinoceros tool and its plugin Grasshopper allow us to customize algorithms to construct an architectural style based on the building's composition grid, at intervals of 1.35 m.

It is evident that the "smooth" facade receives a very high level of solar radiation. This will lead to significant cooling needs with technical consequences (opaque solar glazing, over-installation of machines and cooling systems, etc.).

The graphs above show that sunshades reduce annual heat gains by nearly half.

What if the architectural narrative of the project were derived from programming, in contemporary expression, the behavior of facades in response to solar radiation, thus addressing today's challenges... similar to how Impressionists did in the early last century, who "worked" with light?⁹

9. Claude Monet (1840-1926) elevated light to a central element of his art, marking a significant breakthrough in how art could represent nature and the world around us. He said: 'I have always worked on light. I create light where I paint,' excerpted from letters written in 1880.



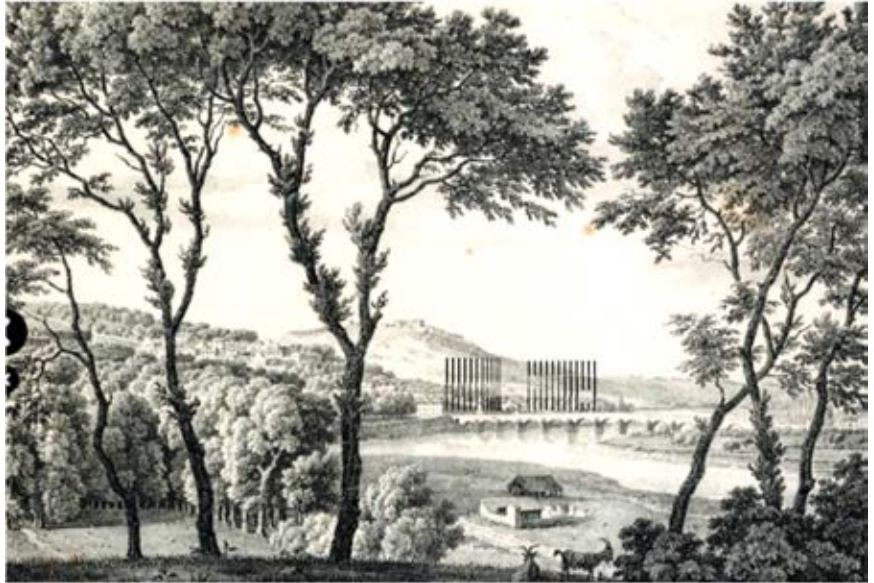
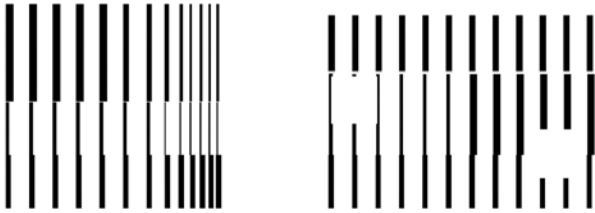
EXAMPLE OF THE BOULOGNE (FRA) PROJECT
RETROFIT OF A FORMER OFFICE BUILDING INTO OFFICES AND RESIDENTIAL
PASSIVE HOUSE, CO2 NEUTRAL, ZERO ENERGY ET REGENERATIVE ARCHITECTURE



PAUL SIGNAC (1863-1935)
LA SEINE AT SAINT-CLOUD 1900

The design of the facade becomes its identity

The drawing exists here and nowhere else. Indeed, a different context, other orientations, and surrounding volumes lead to different graphic responses.



EUGÈNE BOURGEOIS (1855-1909)
VIEW OF SAINT-CLOUD BRIDGE FROM SÈVRES 1819



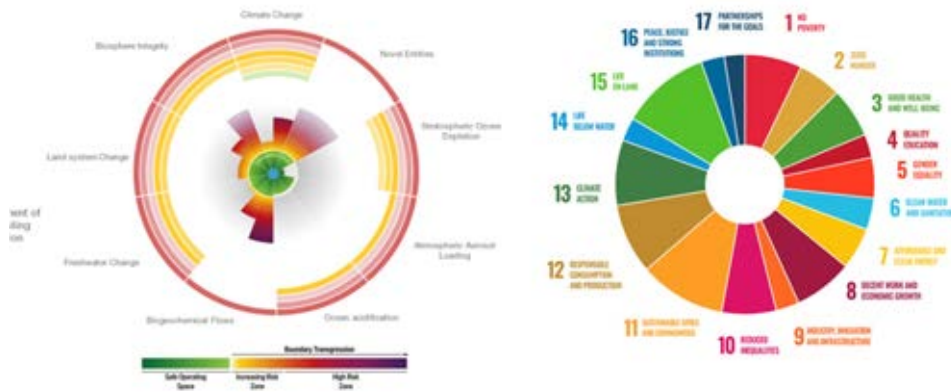
THE FINAL RESULT OF THE APPLICATION, DURING THE PRELIMINARY DESIGN PHASE, OF PARAMETRIC DESIGN TOOLS TO GENERATE AN ARCHITECTURAL NARRATIVE AIMED AT 'SHAPING THE PROJECT WITH NATURAL LIGHT'

ESG, Doughnut for Urban Development, the 9 Planetary Boundaries and the A2M compass

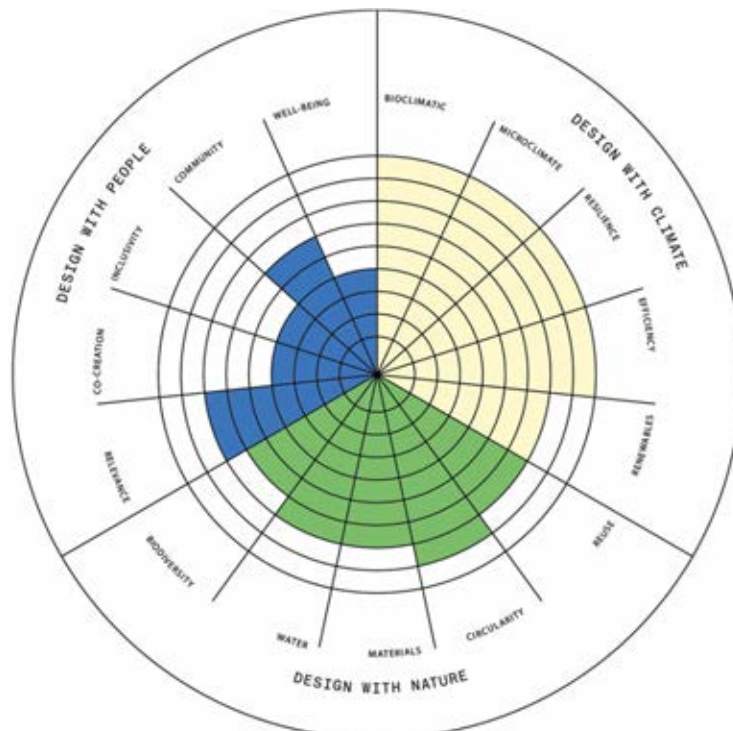
The 17 colorful SDG icons, including 169 targets with 232 indicators are established, designed as an action plan for people, planet and prosperity, aiming to strengthen universal peace by 2030. Adopted by all UN member states in 2015, the SDGs establish a framework and a challenge for humanity to decouple economic growth from climate change, poverty and inequality.

In addition to these 17 targets, we have developed a compass for assessing our projects. It includes the impact on the 9 planetary limits of the Stockholm Resilience Centre and the classification of the Doughnut for Urban Development¹⁰, which integrates the social and economic dimensions with the 9 planetary limits. The graph combines social, planetary and economic sustainability in a single model. The model's emphasis is on balance, aiming to work towards a regenerative and equitable future where our planet and society thrive. Finally, the results are also correlated to the 9 BREEAM Community targets and the European Taxonomy. Finally, we advocate architecture as a cultural act, but one that must be responsible and informed.

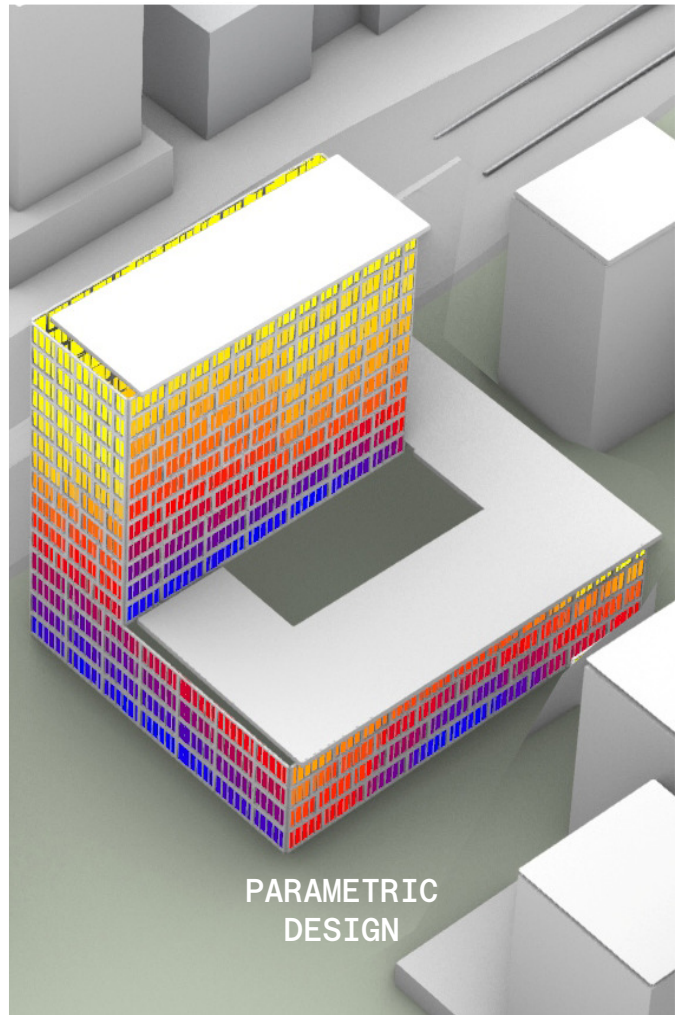
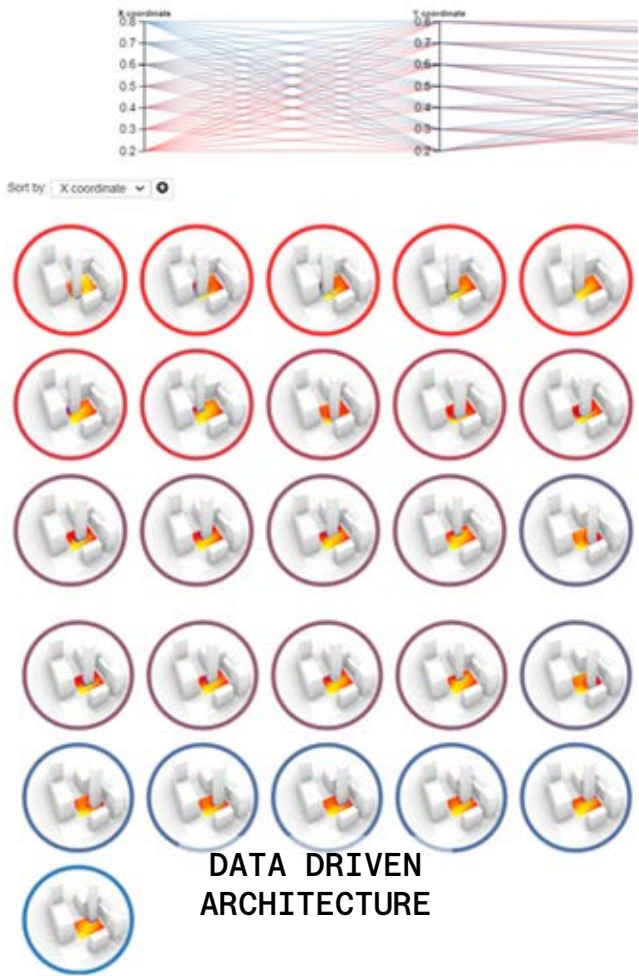
10. "Doughnut for Urban Development, A Manual". Hill-Hansen, D. et Guldager Jensen, K. (eds.), Copenhagen, The Danish Architectural Press, 2023.



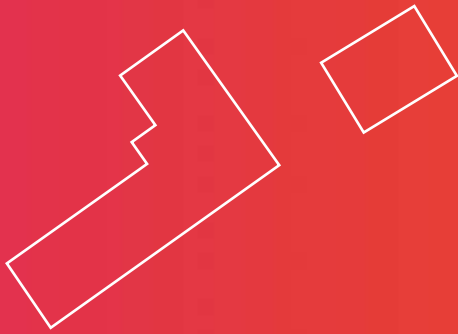
PROJECT ASSESSMENT ACCORDING THE 9 PLANET BOUNDARIES AND THE UN GOALS



PROJECT ASSESSMENT ACCORDING OUR OWN COMPASS



In practice



References for climate and regenerative districts

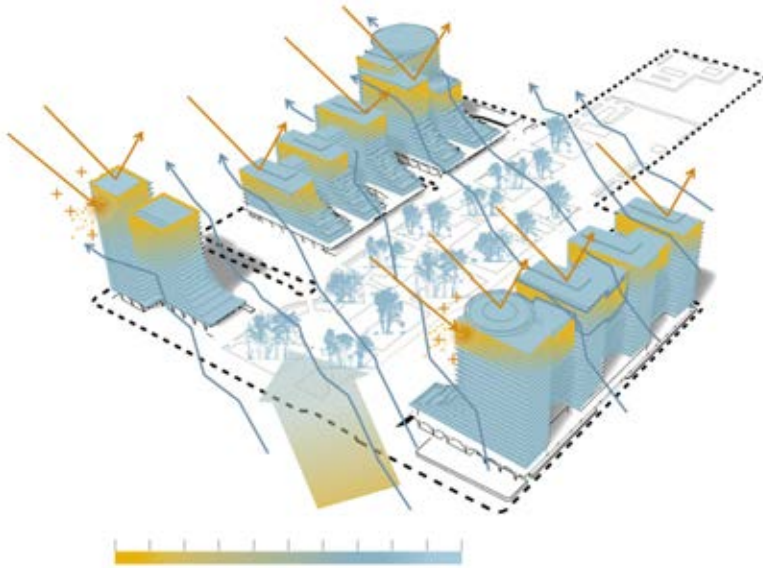


HEAL CAMPUS (LUX)
PASSIVEHOUSE, BREEAM OUTSTANDING, WELL PLATINUM
CO2 NEUTRAL, CIRCULAR, REGENERATIVE DESIGN
A2M, EFFEKT

Urban planning as climate planning



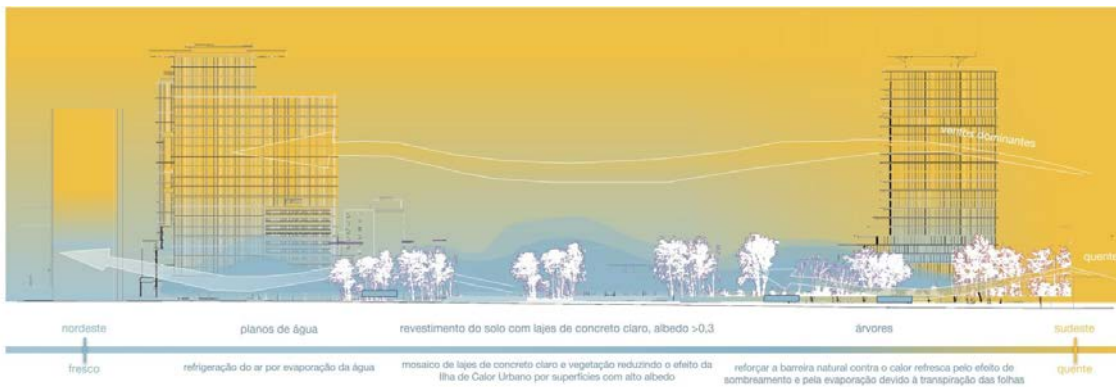
Building with nature instead of separately from nature



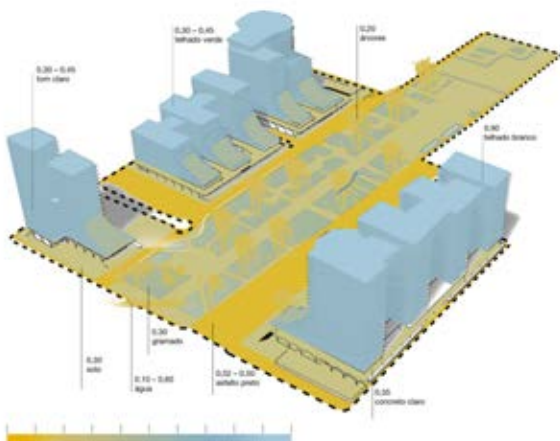
We use parametric design to support the design process in order to:

- Reduce the Urban Heat Island effect
- Manage the water cycle and prevent flooding
- Reduce PM2.4 pollution
- Preserve biodiversity
- Rebuild social connections
- Regenerate the environment

Urban cooling climate tools



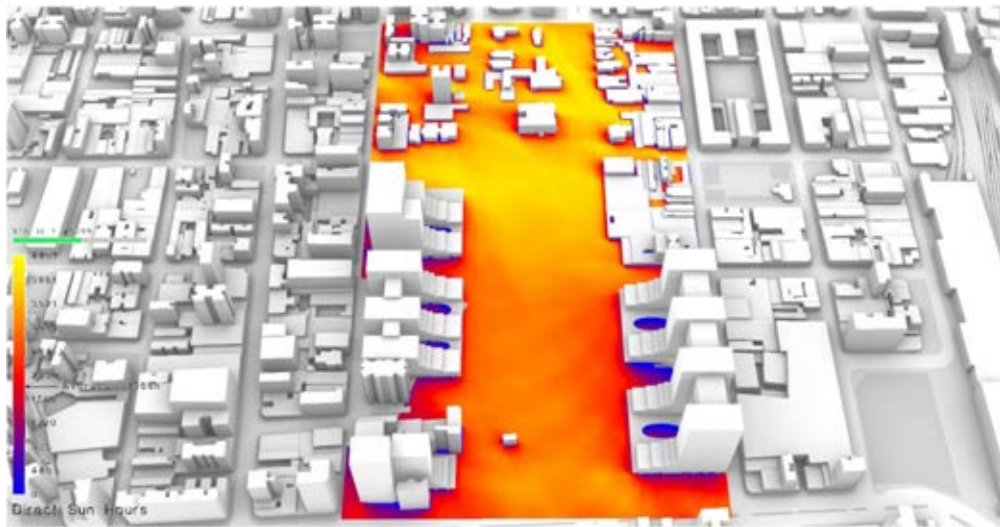
Using breezes and evapotranspiration to manage urban cooling



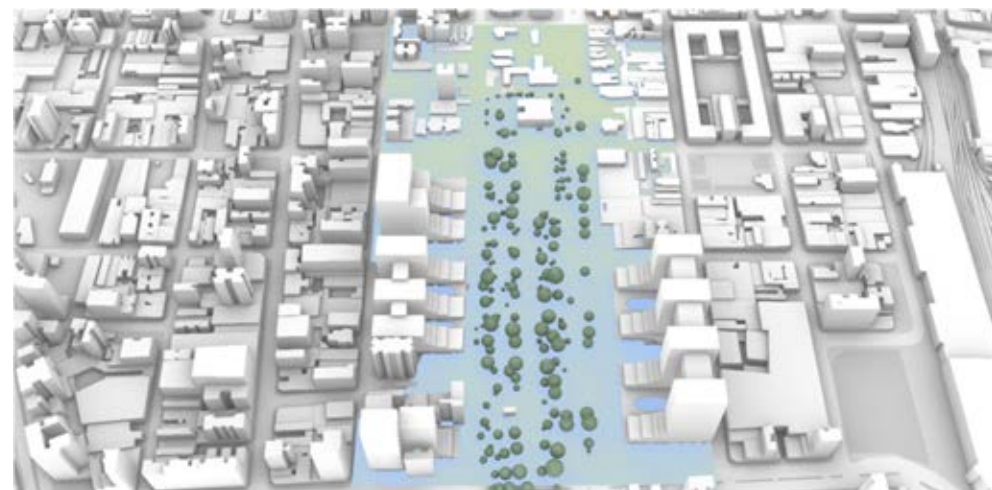
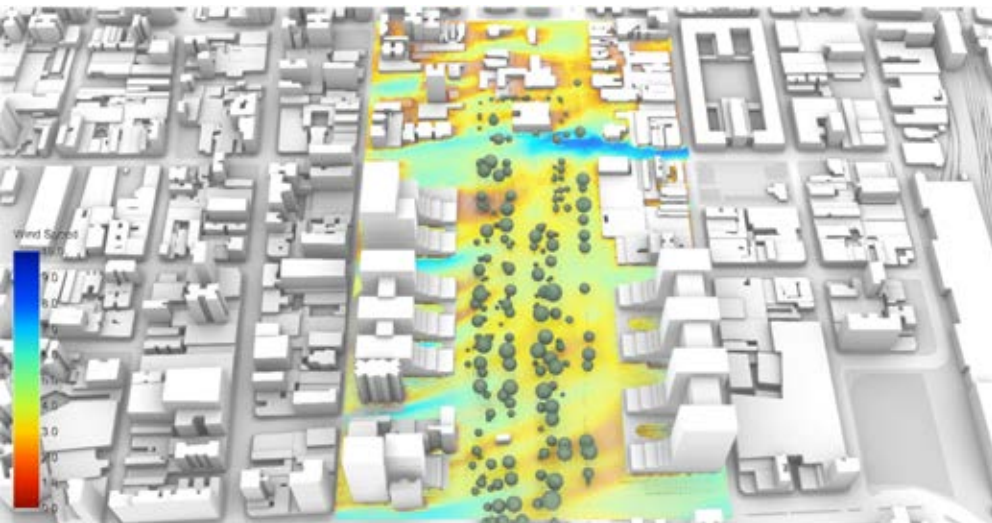
Albedo management to help reduce the UHI effect

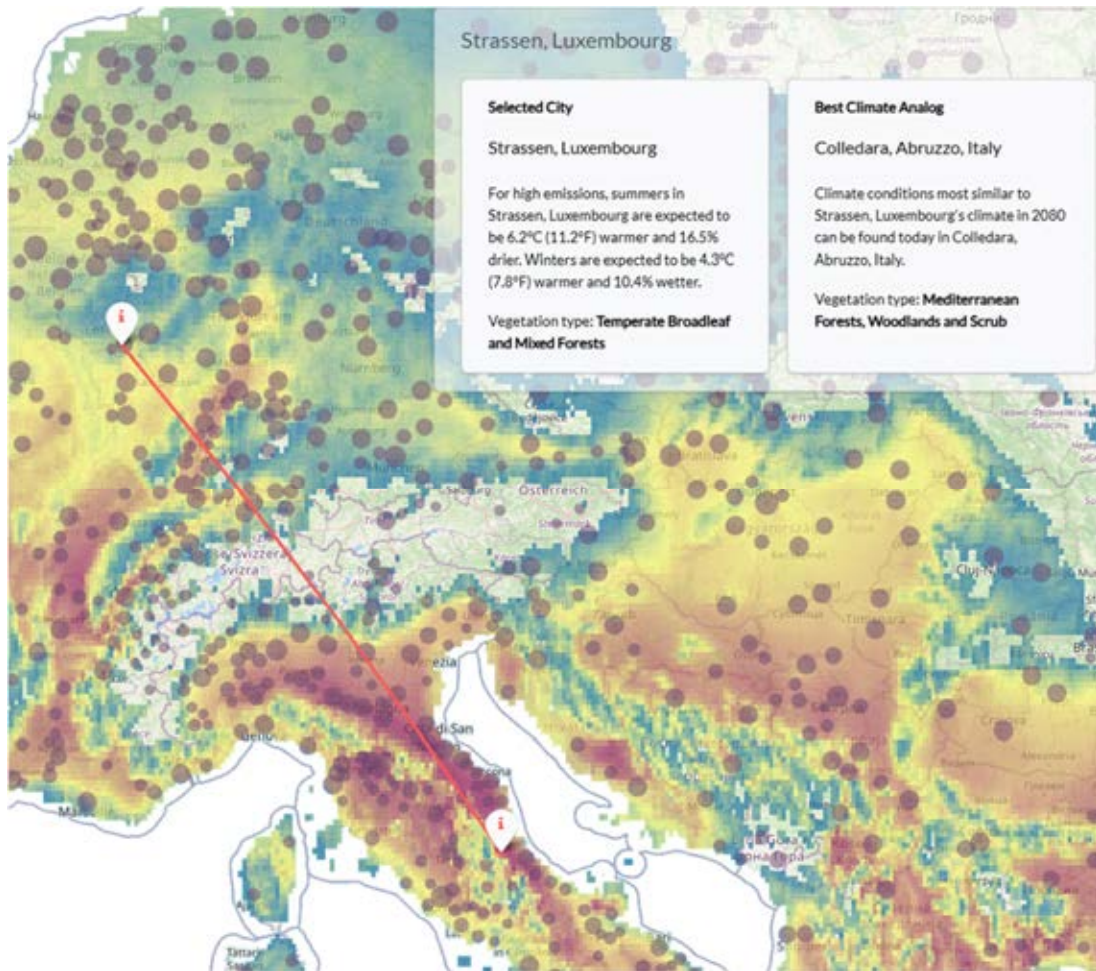


Integration of regenerative hydrology, the Keyline design



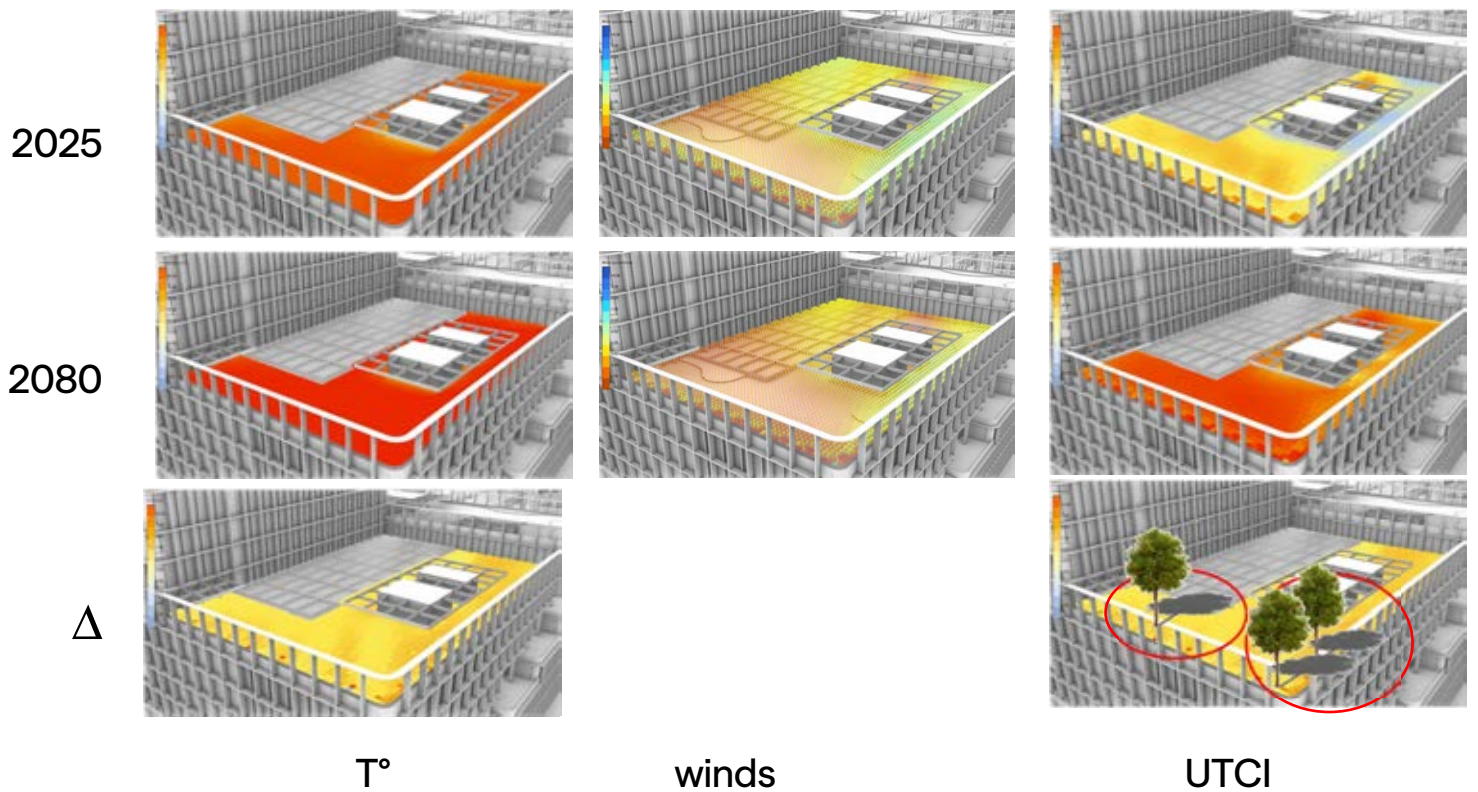
Climate design tools such as wind, temperature, and relative humidity allow for the generation of an urban comfort balance: the UTCI



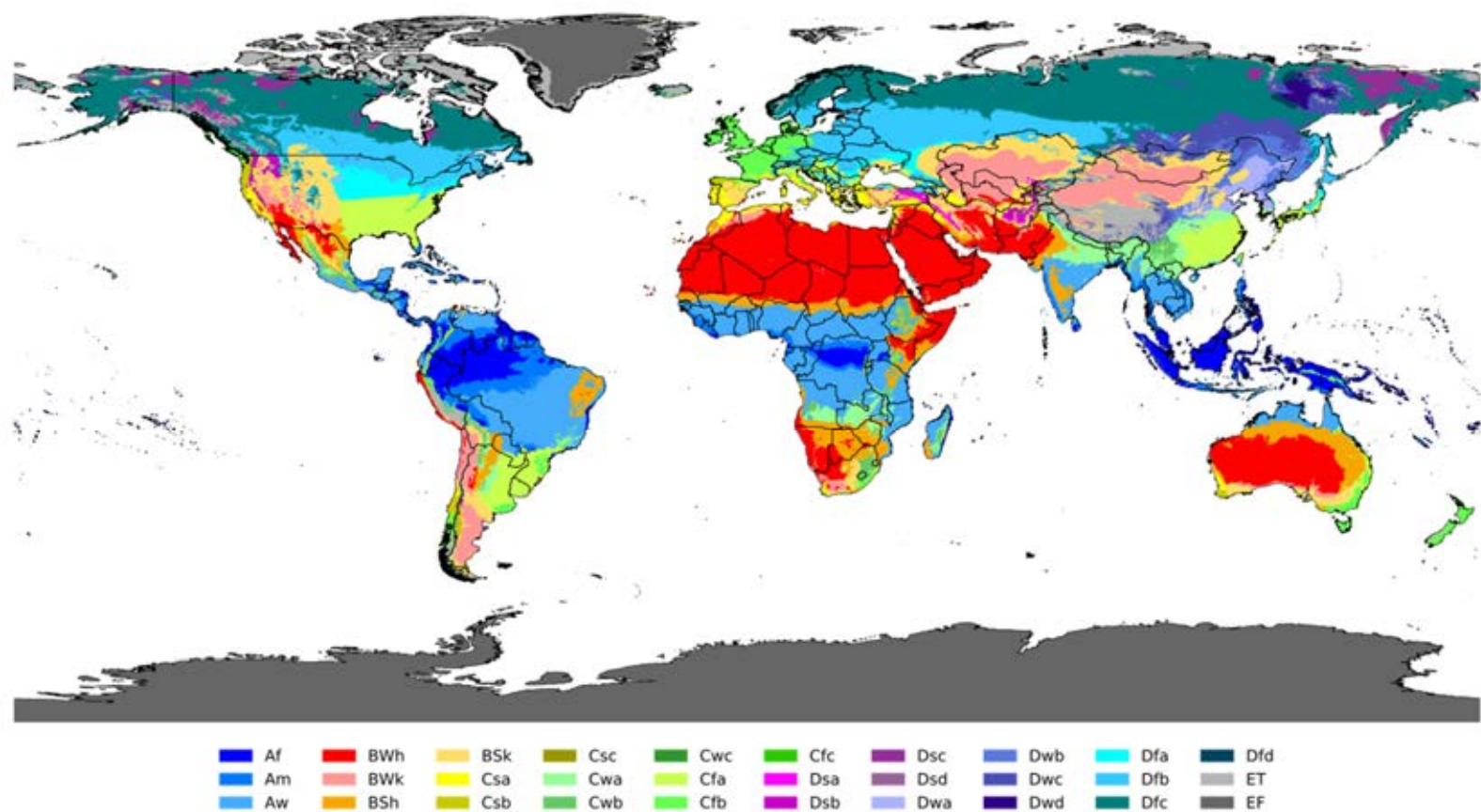


<https://fitzlab.shinyapps.io/cityapp/>

what will happen in 2050? | 2080?



Climate classification of our projects



Source: Beck et al. (2023): High-resolution (1 km) Köppen-Geiger maps for 1901-2099 based on constrained CMIP6 projections, Scientific Data 10:724, doi:10.1038/s41597-023-02549-6.

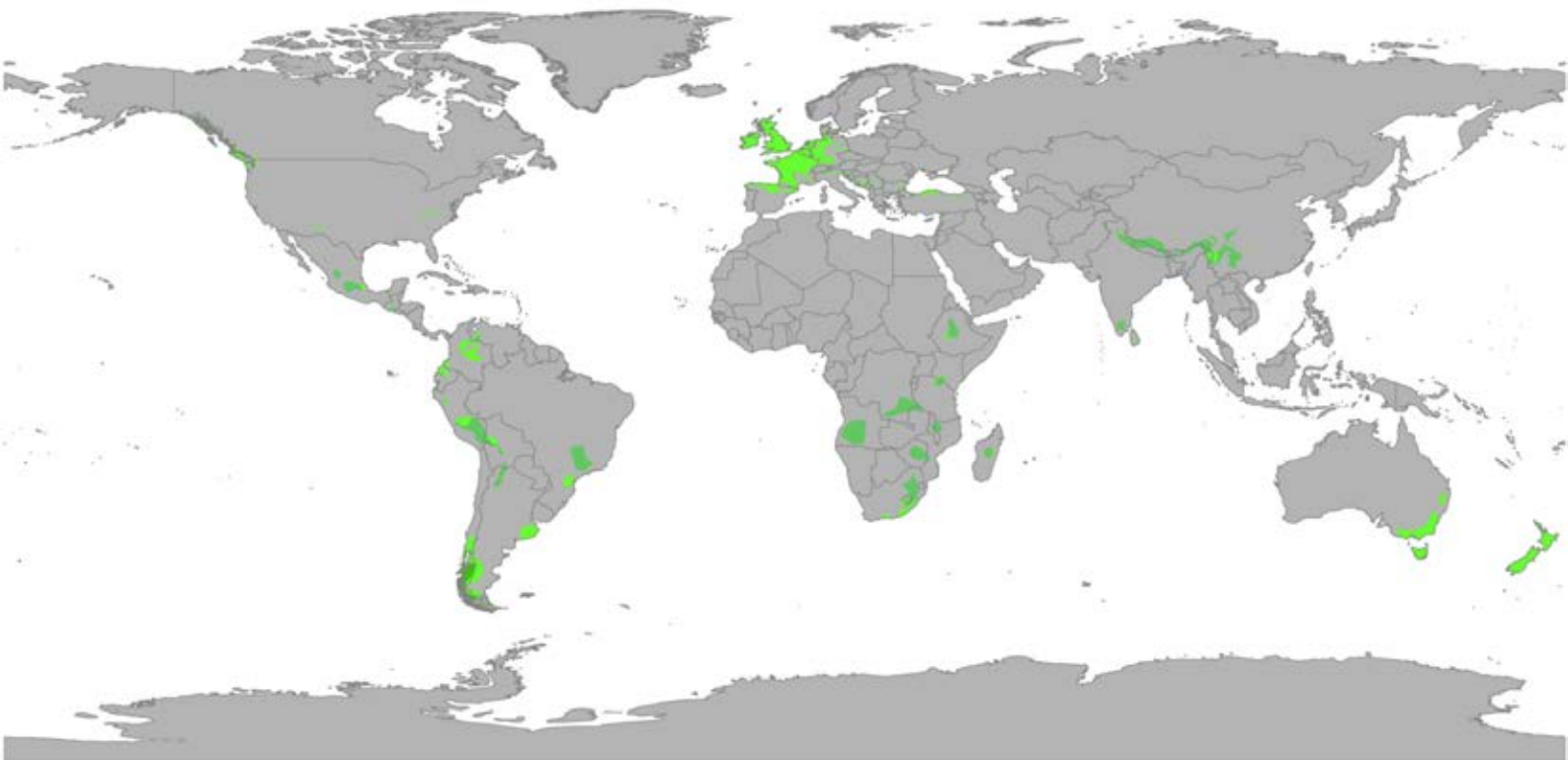
The Köppen–Geiger climate classification map

The Köppen climate classification (1884-) is the most widely used climate classification scheme.

The Köppen climate classification divides Earth's climates into five main climate groups, with each group being divided based on patterns of seasonal precipitation and temperature. The five main groups are A (tropical), B (arid), C (temperate), D (continental), and E (polar). Each group and subgroup is represented by a letter. All climates are assigned a main group (the first letter). All climates except for those in the E group are assigned a seasonal precipitation subgroup (the second letter).

Cfb

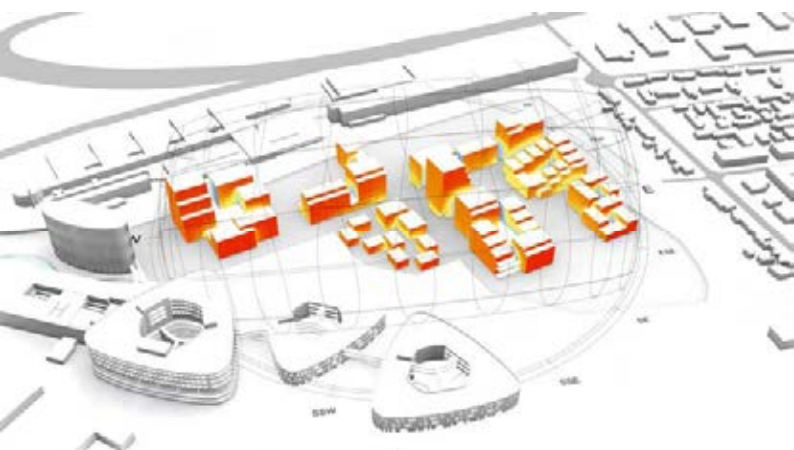
Oceanic climate, marine climate



Af	BWh	Csa	Cwa	Cfa	Dsa	Dwa	Dfa	ET
Am	BWk	Csb	Cwb	Cfb	Dsb	Dwb	Dfb	EF
Aw	BSh		Cwc	Cfc	Dsc	Dwc	Dfc	
	BSk				Dsd	Dwd	Dfd	

Projects in Belgium, Luxembourg, France

Heal Campus (LUX)

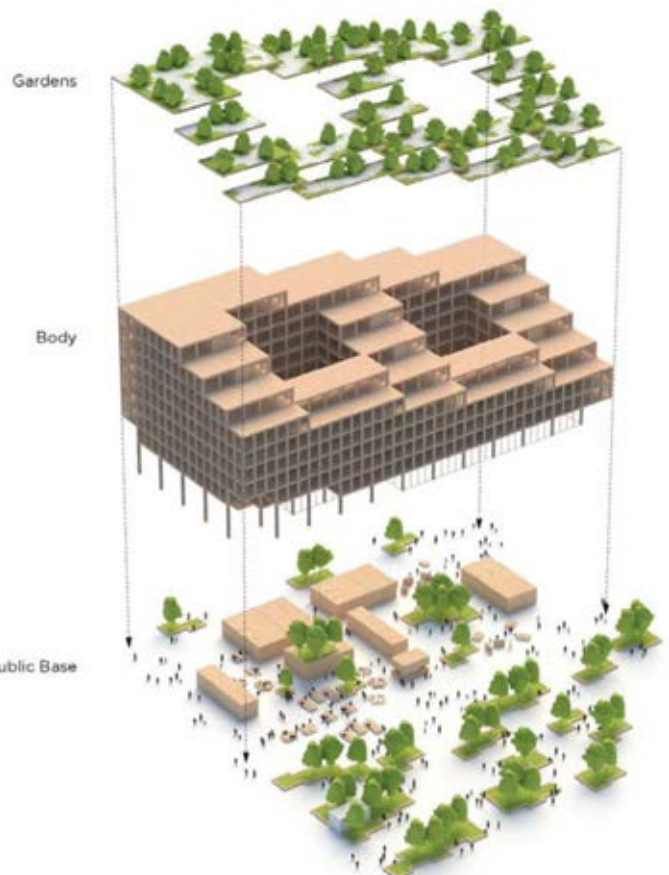


169 000 M²

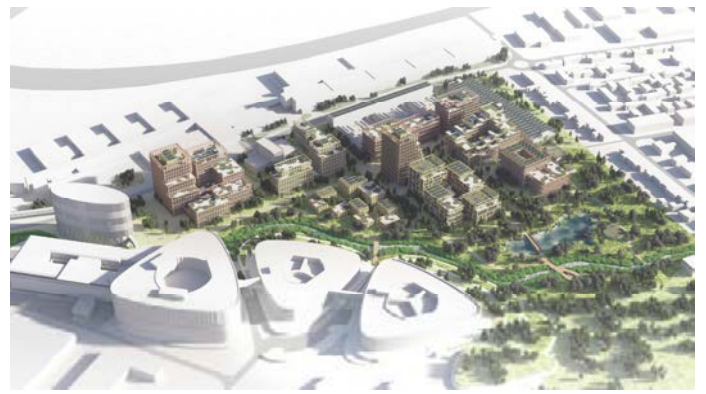
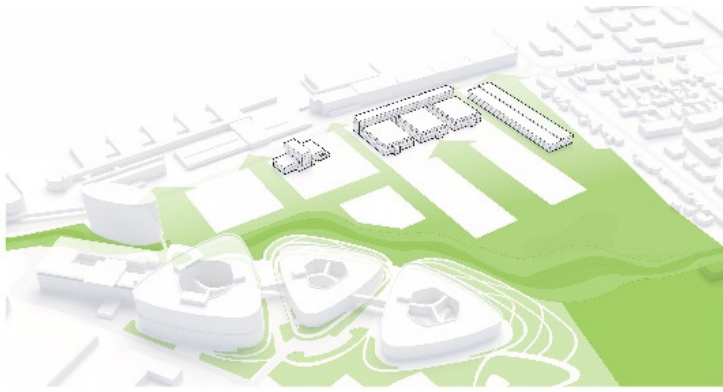
SITE: 7,08 HA

CLIENT:
HEALCAMPUS

ESCH SUR ALZETTE (LUX)



CO2 NEUTRAL, BREEAM OUTSTANDING,
WELL PLATINUM, PASSIVE HOUSE,
CIRCULAR, REGENERATIVE DESIGN

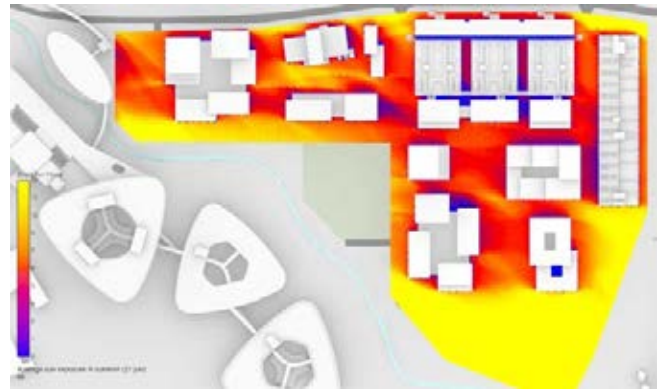


biophilia experience

+



social integration





Concept de séquence urbaine



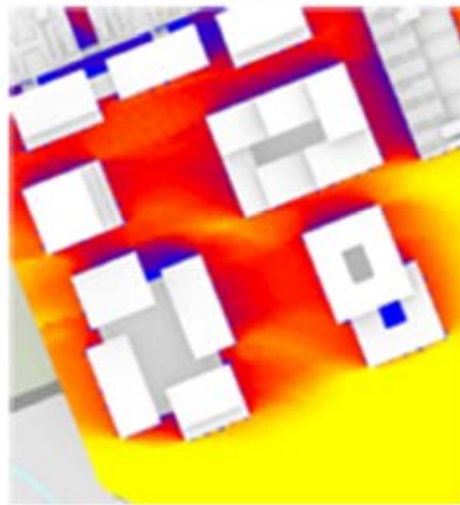
Le paysage avant le bâti comme axe générateur



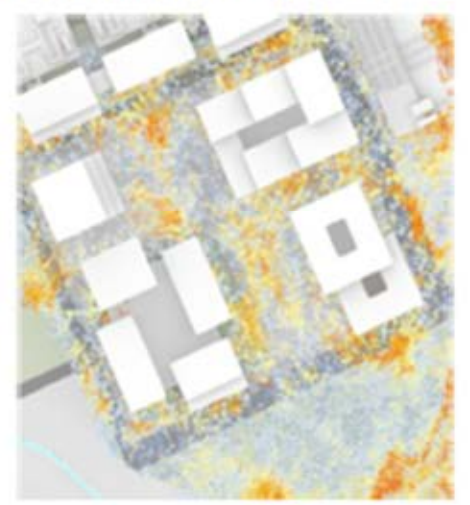
Le Koyfno Design, ou hydrologie régénérative



UTCI 2025 - 2080



Rayonnement solaire 2025



Vents



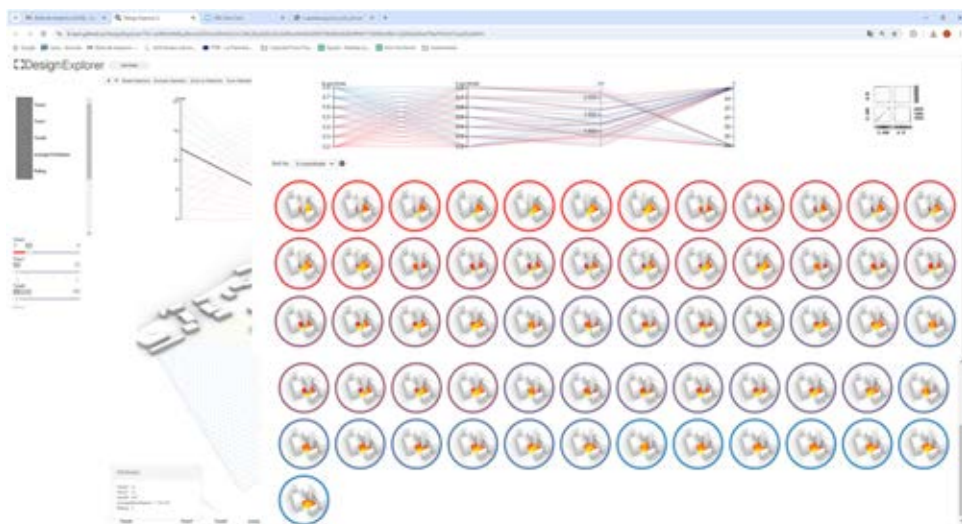
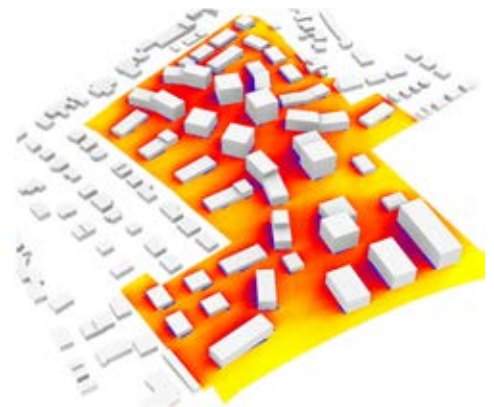
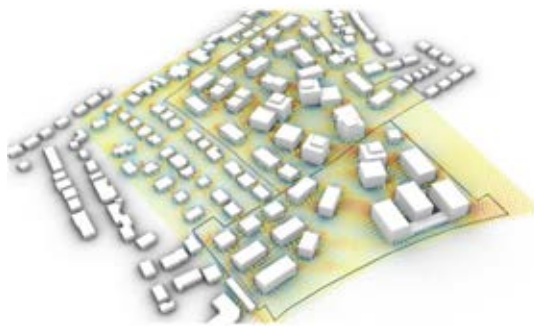
Strassen (LUX)



RESIDENTIAL,
RETAIL
62 000M²

SITE: 6 HA

WITH MORENO ARCHITECTURE &
ASSOCIES
CLIENT:
BESIXRED, BOURG, LIONSTONE
STRASSEN (LUX)

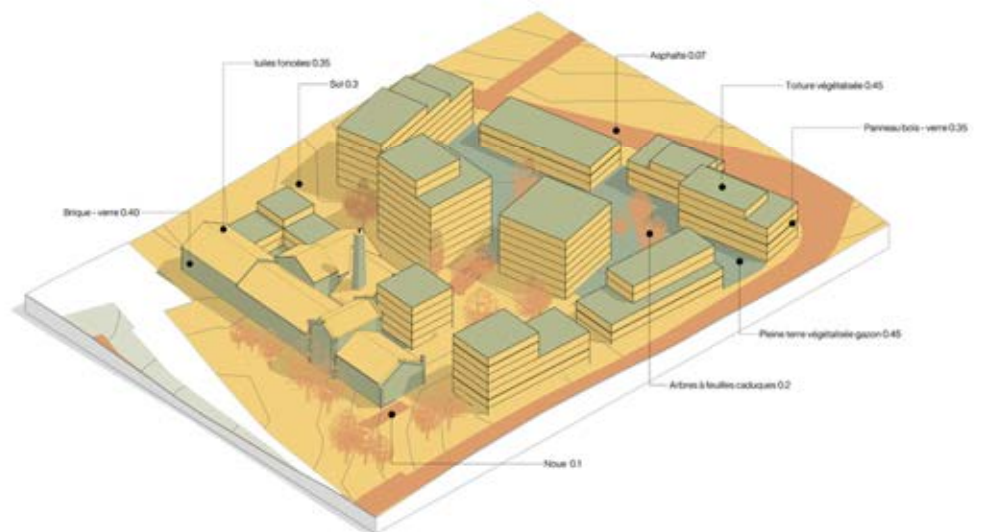


Diekirch (LUX)



RESIDENTIAL ,
RETAIL
38 000 M²
SITE: 2 HA

WITH MORENO ARCHITECTURE &
ASSOCIES
CLIENT:
MATEXI-COGEE
DIEKIRCH (LUX)



Eupen (BEL)



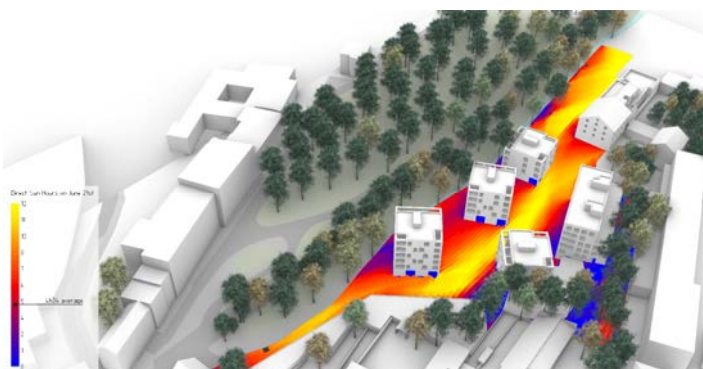
CO2 neutral, Passive House and OFF Grid
circular, modular, regenerative design

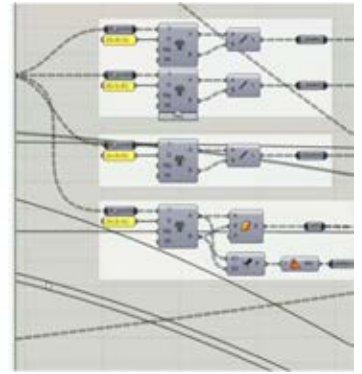
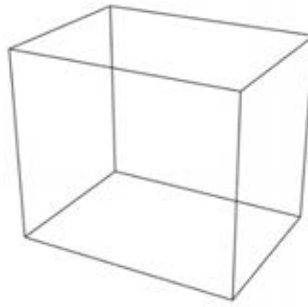
12 074 M²

SITE: 1,20 HA

CLIENT:
NISPATG GMBH

EUPEN (BEL)





Block 1



Block 2



Block 3



Block 4



Block 5



Block 6



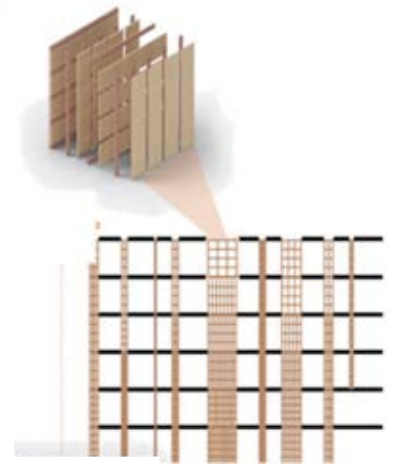
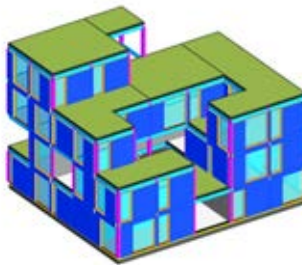
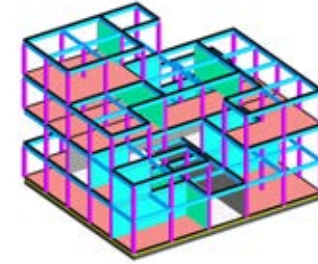
Block 7

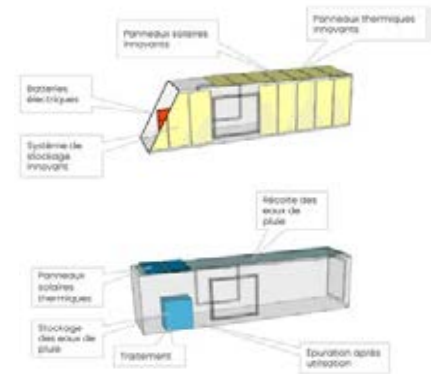
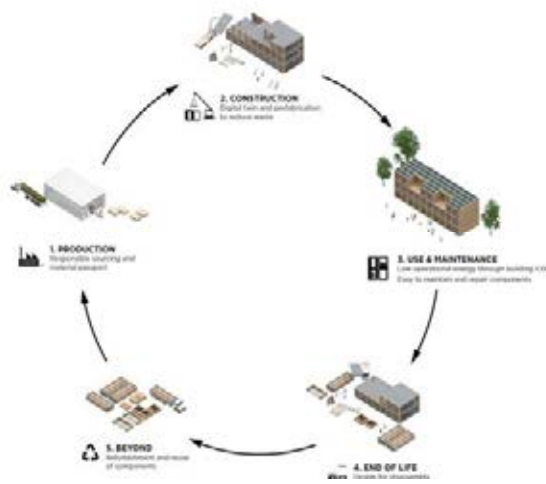
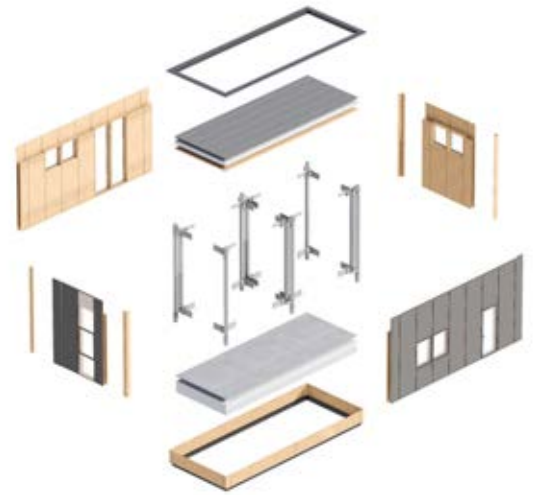


Block 8



Block 9





New PwC HQ (LUX)



CO2 NEUTRAL, BREEAM OUTSTANDING,
WELL PLATINUM, PASSIVE HOUSE,
CIRCULAR, REGENERATIVE DESIGN

38 868 M²

SITE: 2,11 HA

CLIENT:
ATENOR, PWC

CLOCHE DOR (LUX)



New climate district (LUX)



DESTINATION OFFICE BUILDING,
RETAIL, RESIDENTIAL

SURFACE: 101 465 M²

SITE: 3,5 Ha

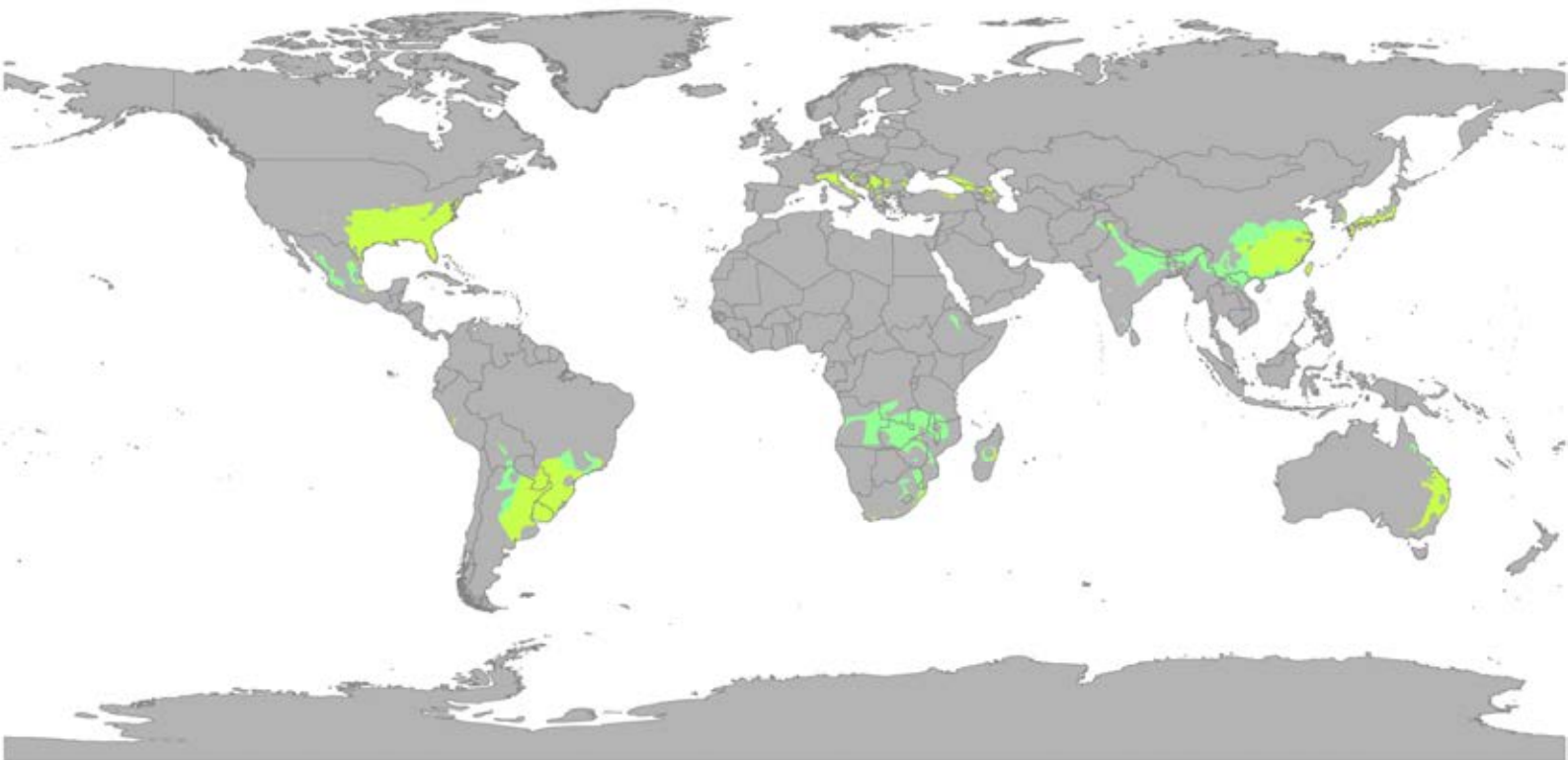
PERFORMANCE: BREEAM OUTSTANDING,
WELL PLATINUM, PASSIVHAUS,
REGENERATIVE DESIGN

IN ASSOCIATION WITH MORENO
ARCHITECTURE & ASSOCIÉS



Cwa

Humid subtropical climate



Af	BWh	Csa	Cwa	Cfa	Dsa	Dwa	Dfa	ET
Am	BWk	Csb	Cwb	Cfb	Dsb	Dwb	Dfb	EF
Aw	BSh		Cwc	Cfc	Dsc	Dwc	Dfc	
	BSk				Dsd	Dwd	Dfd	

Projects in Brasil

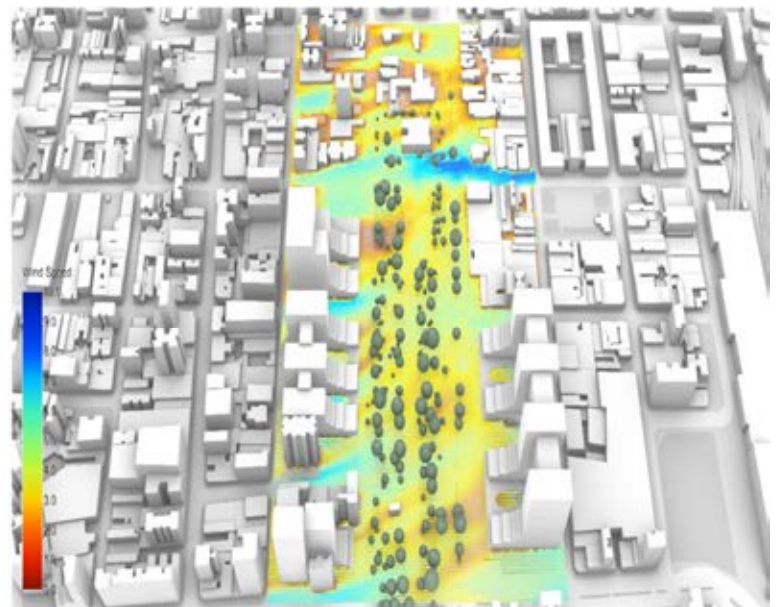
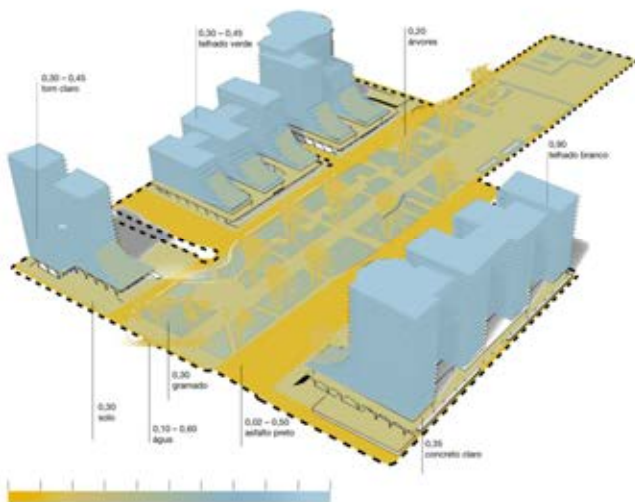
São Paulo State Government HQ (BRA)

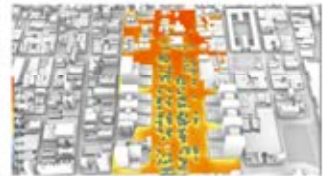
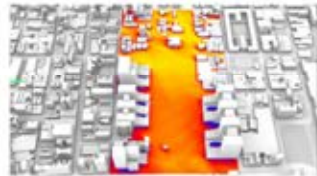


210 817 M²
SITE: 3,76 HA
CLIENT: COMPANHIA PAULISTA DE PARCERIAS

CO2 NEUTRAL, BREEAM OUTSTANDING,
WELL PLATINUM, PASSIVE HOUSE,
CIRCULAR, REGENERATIVE DESIGN

SÃO PAULO (BRA)

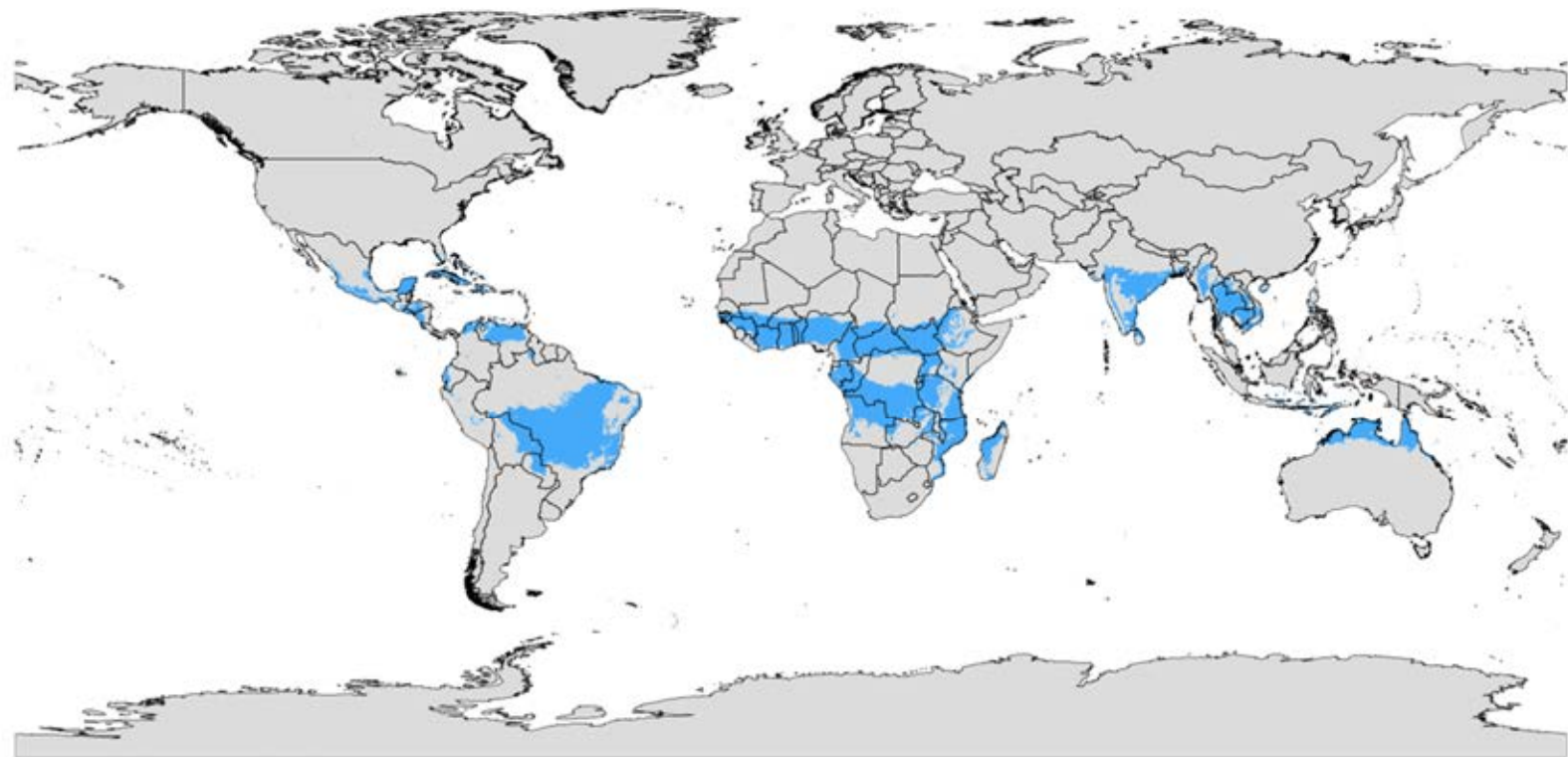






Aw

Tropical, Savannah



Aw

Projects in Democratic Republic of Congo

Belgian Embassy in Kinshasa (DRC)



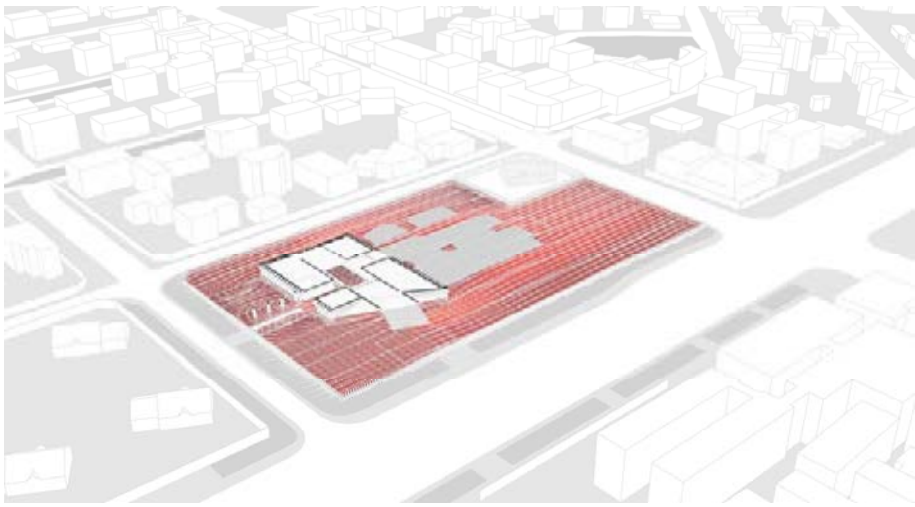
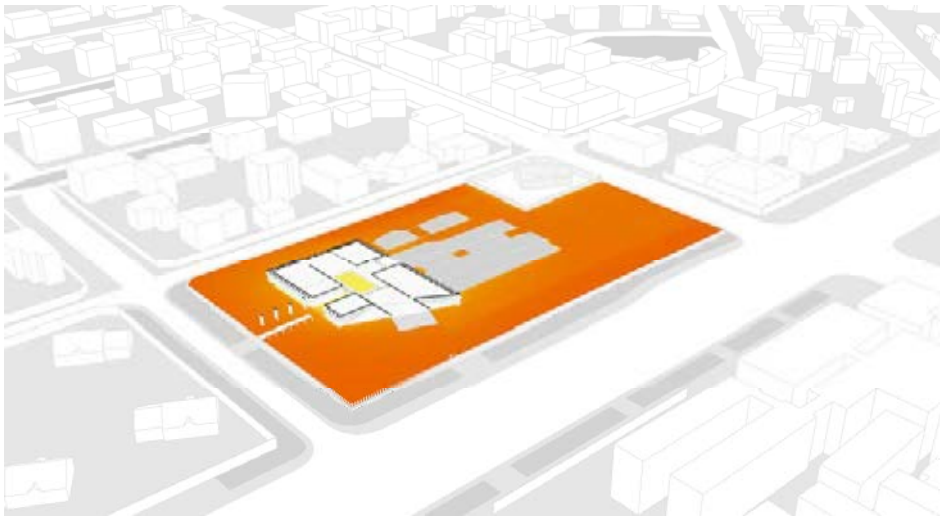
5 769 M²

CLIENT: BELGIAN MINISTRY OF FOREIGN AFFAIRS

KINSHASA (DRC)

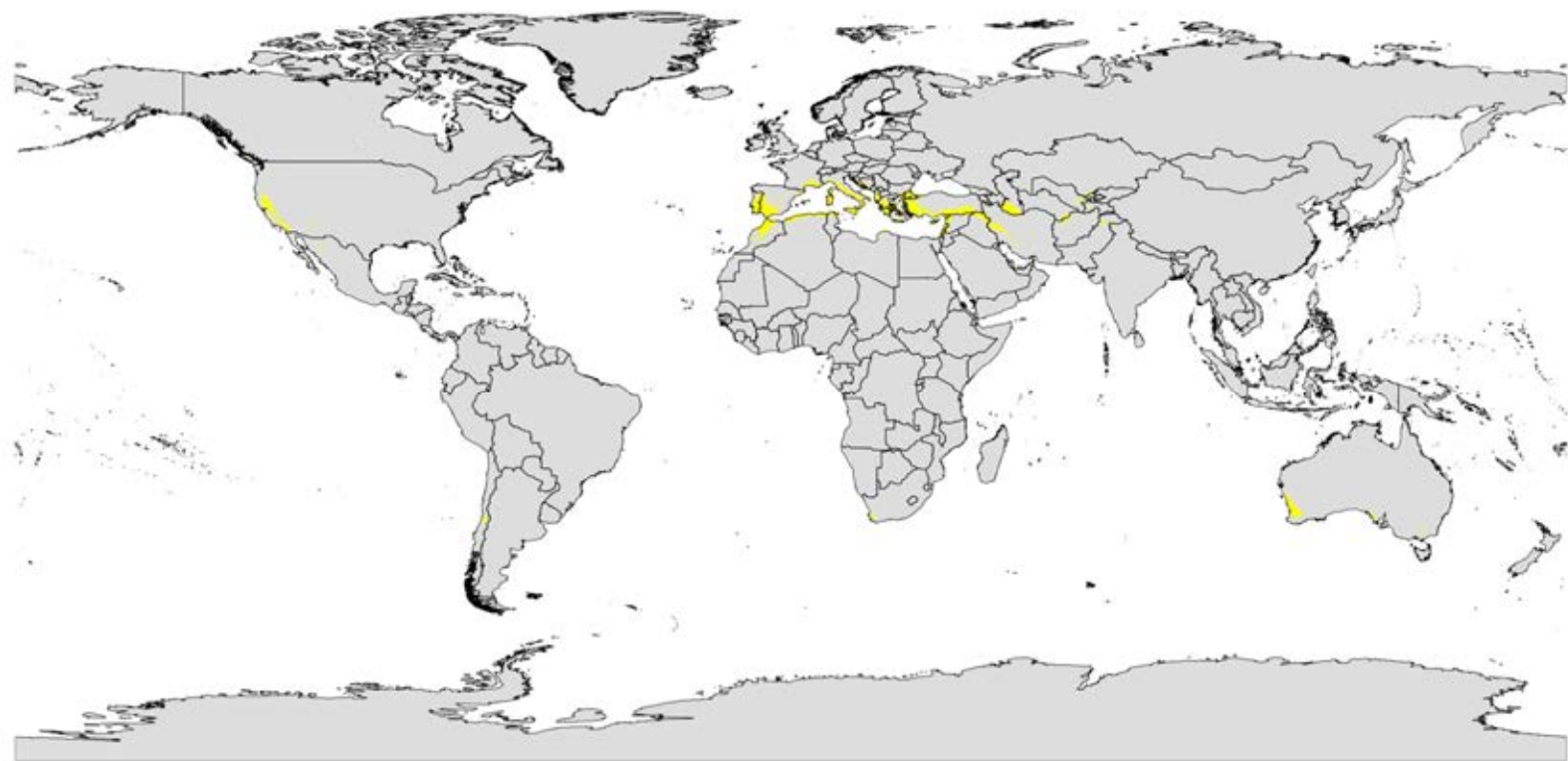
PASSIVE HOUSE, CIRCULAR,
REGENERATIVE DESIGN





Csa

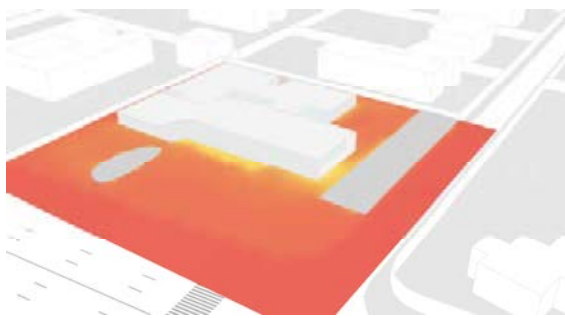
Temperate, dry summer, hot summer



■ Csa

Projects in Portugal, Marocco

Belgian Embassy in Rabat (MAR)



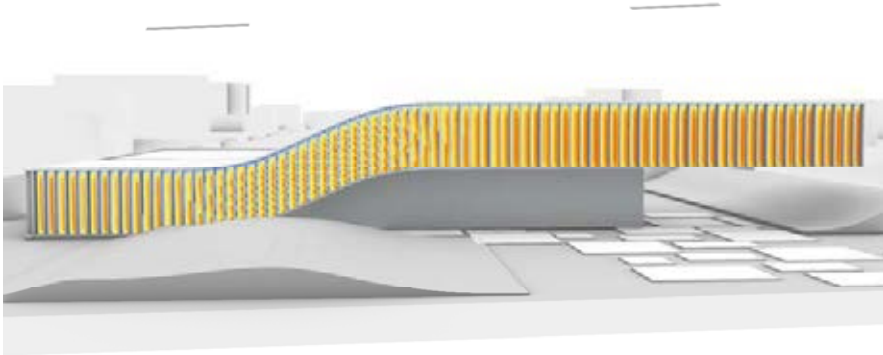
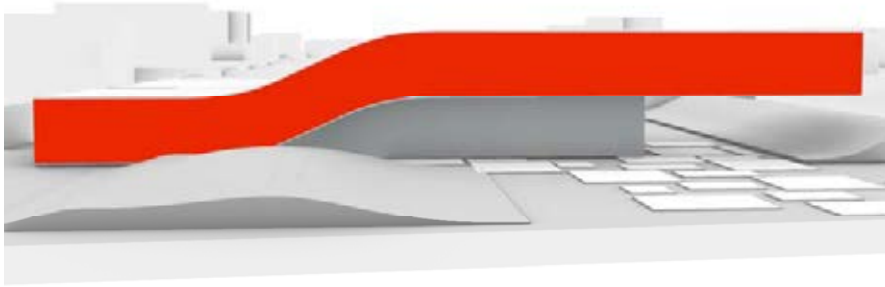
1 554 M²

CLIENT: BELGIAN MINISTRY OF FOREIGN AFFAIRS

PASSIVE HOUSE, CIRCULAR,
REGENERATIVE DESIGN

RABAT (MAR)

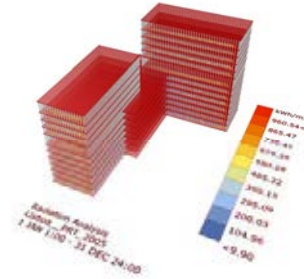




Bank Caixa Geral de Deposito HQ in Lisbon (PT)



emontenegro
architectural
photography



26 900 M²

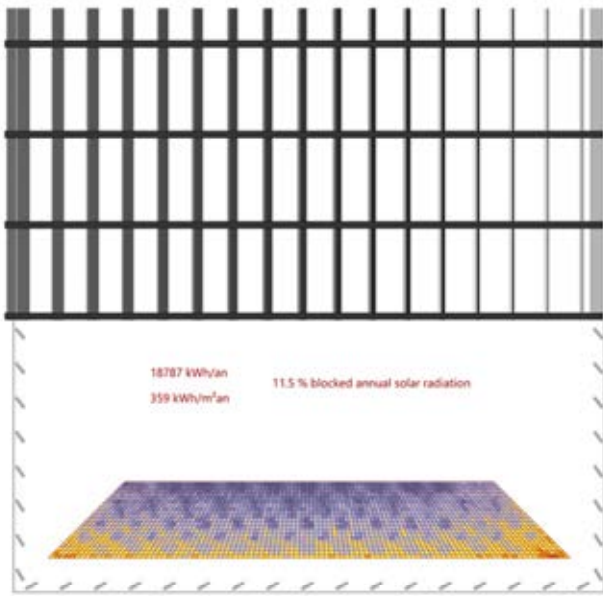
CLIENT: ATENOR , BESIX RED

LISBON (PT)

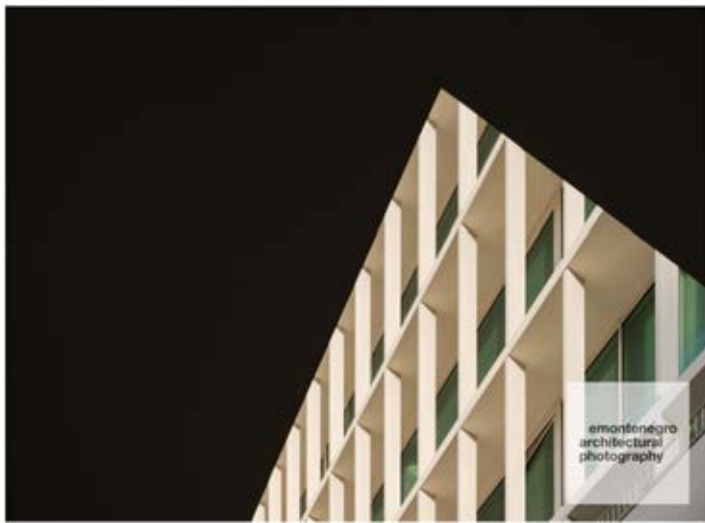
BREEAM EXCELLENT, WELL GOLD,
PASSIVE HOUSE, REGENERATIVE
DESIGN

COLLABORATION SARAIVA +
ASSOCIADOS



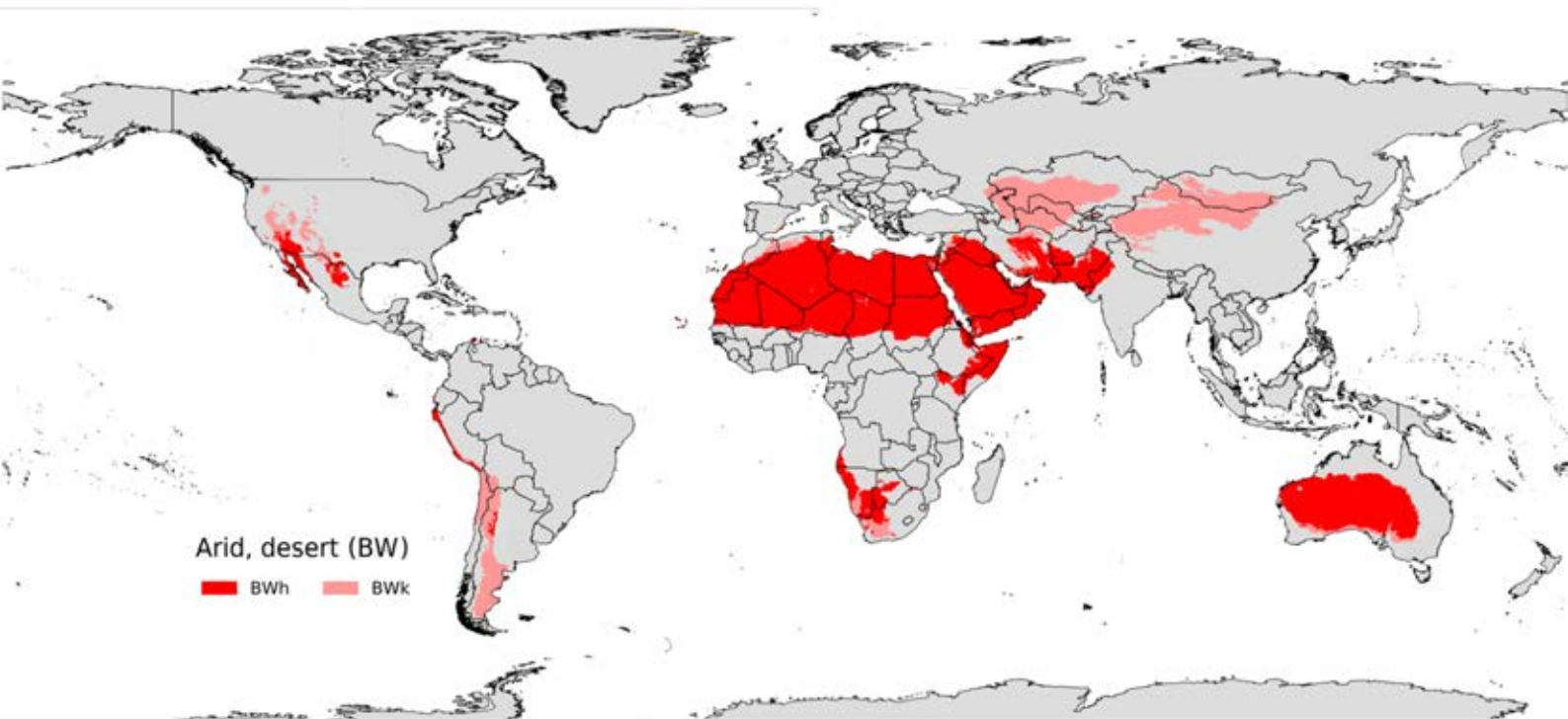


shading elements rotation : -60 °



Bwh

Arid, Desert



Projects in USA, Arizona

New Climate District in Eloy, Arizona (USA)



CONGRESS
CENTER, RETAIL,
HOTEL,
RESIDENTIAL

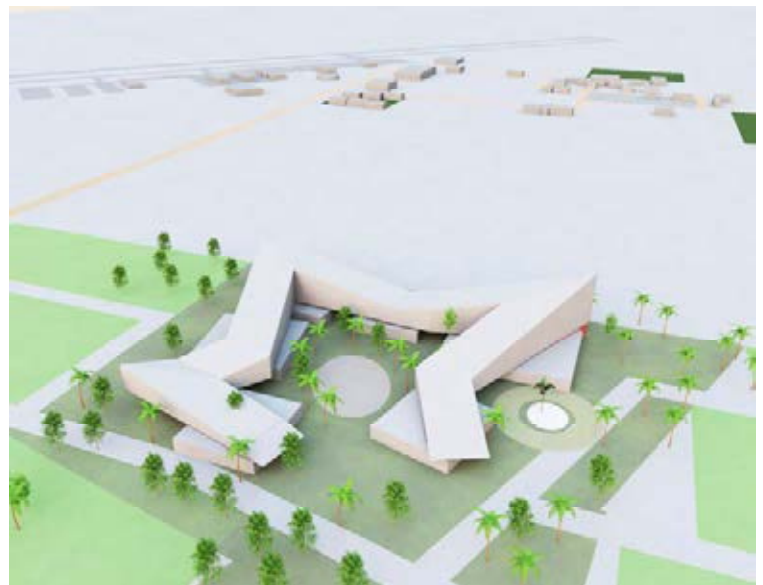
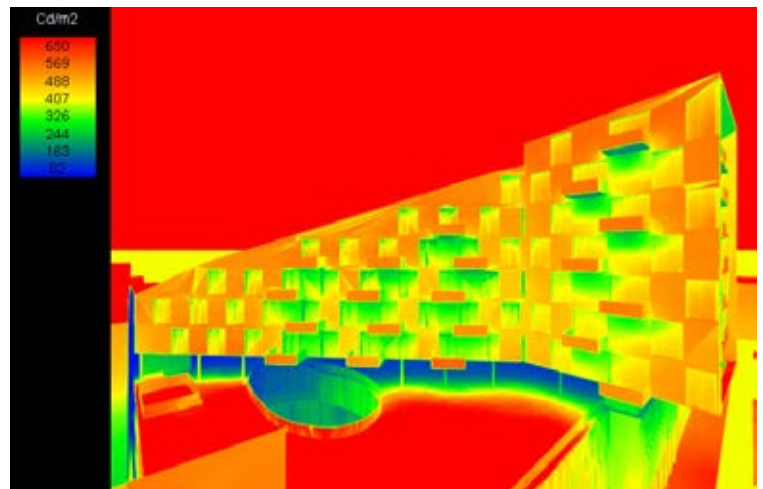
67 765 M²

SITE: 6,49 HA

CLIENT: FINCH INVEST

ELOY, ARIZONA (USA)

CO2 NEUTRAL, PASSIVE
HOUSE AND OFF GRID,
CIRCULAR, MODULAR,
REGENERATIVE DESIGN





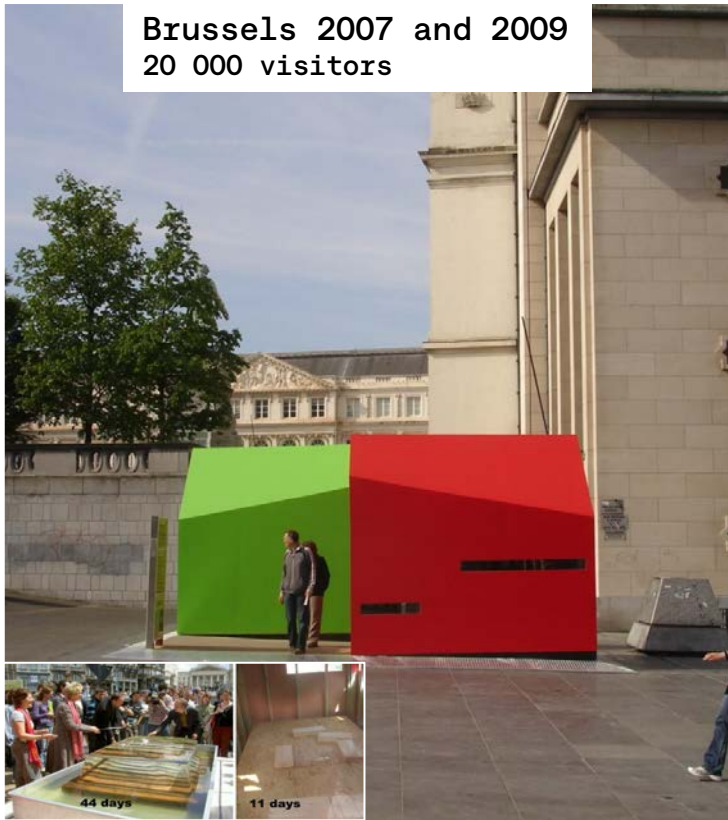
**REGE
NERATE**

ICEBox Challenge

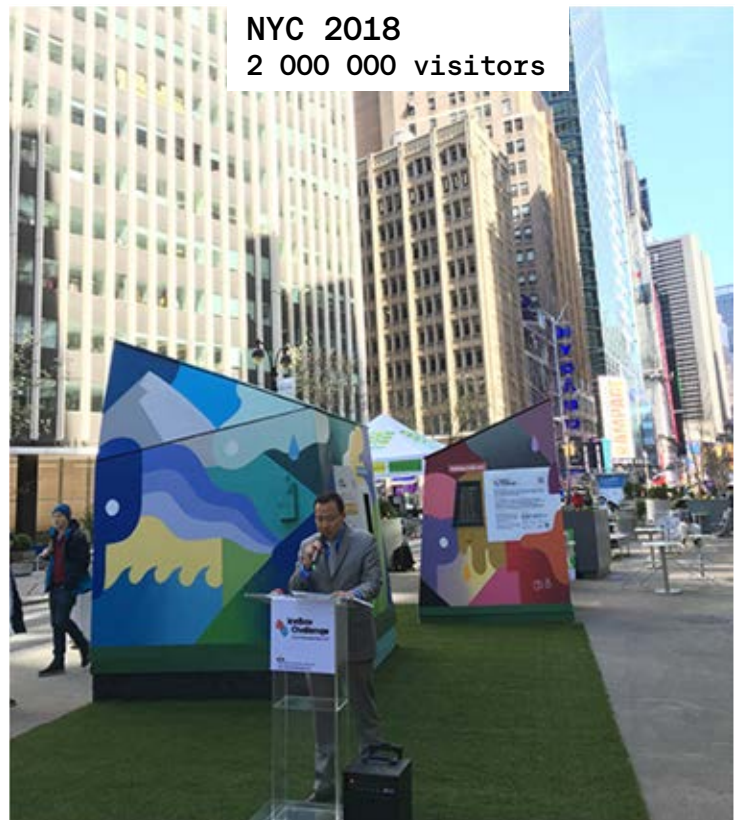


Oslo 2024

Brussels 2007 and 2009
20 000 visitors



NYC 2018
2 000 000 visitors



The window of opportunities is tied
As change comes from the margins,
what if

in analogy with the flock of birds
the margin positively
contaminates the heart

"It is the margin that holds the book together",
said Jean-Luc Godard



Rethink Redesign Regenerate Resonate

A2M.BE
INFO@A2M.BE
CHAUSSÉE DE BOONDAEL, 6 (BTE 13)
1050 BRUSSELS – BEL
+32 2 640 51 81

A2M - M2A
BEL | USA | LUX