



# ROOFSCAPES

we make green spaces  
on the roof of cities



## WHO WE ARE

Roofscapes is a startup founded in 2020 at the **Massachusetts Institute of Technology (MIT)** School of Architecture and Urban Planning in Boston and based in Paris. Roofscapes' mission is to transform untapped rooftops into green roofs as a way to **mitigate climate change** and provide new outdoor spaces in European cities. Thanks to prefabricated timber modules and without destroying existing buildings, Roofscapes contributes to improving urban resilience in the face of the 21<sup>st</sup> century's social and environmental challenges.

A winner of the **MIT DesignX** incubator in 2020, Roofscapes is currently supported by the **Urban Lab** of Paris&Co, the economic development and innovation agency of the City of Paris, to build a pilot green roof project in Paris. In 2021, Roofscapes presented its vision of the future of European rooftops at the **Seoul Biennale of Architecture and Urbanism** through a pavilion now on display at the **Paris Climate Academy**.

## WHAT WE DO

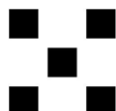
Roofscapes partners with owners, builders and operators to implement the **tactical renovation of untapped pitched roofs** in dense European urban centers. We enhance cities through three avenues: positive environmental impact, improved livelihood, and increased real estate value. While carefully **preserving the integrity of historical roofs**, our system allows each building to fully participate in **urban resilience** by reducing direct solar exposure and overheating, cooling and purifying air, as well as **fostering local biodiversity**. The green and communal spaces we create on the roof address the rising demand for **direct outdoor access from apartments and offices**, which lacked critically during the pandemic. Roofscapes thus enables the emergence of new forms of social interactions through spaces that previously didn't exist. Roofscapes is currently developing **several pilot projects in Paris** with public and private owners. We would be thrilled to get in touch with you and discuss how our work can best suit your city's needs and climate commitments.



MASSACHUSETTS  
INSTITUTE OF  
TECHNOLOGY



CITY  
OF  
PARIS



MIT  
DESIGNX  
ACCELERATOR



PARIS URBAN  
INNOVATION  
LABORATORY



MIT J-WAFS  
WATER AND FOOD  
SYSTEMS LAB



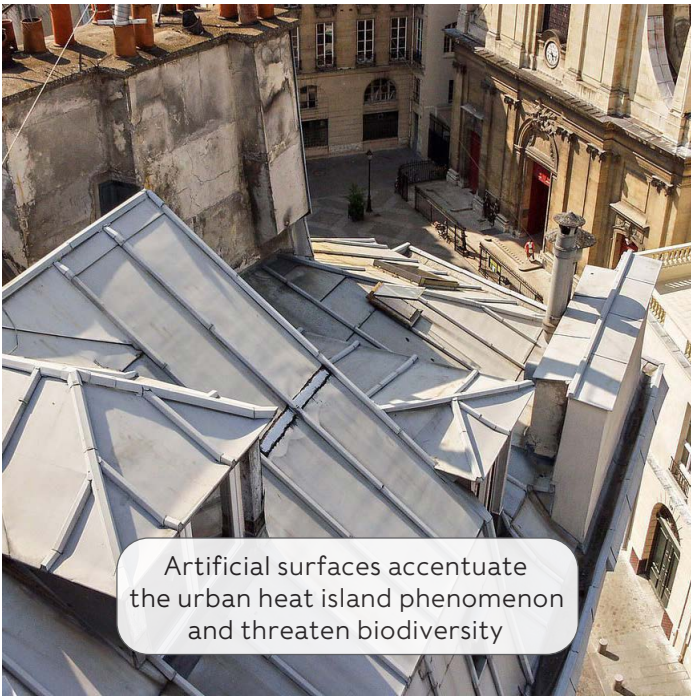
SEOUL BIENNALE  
OF ARCHITECTURE  
AND URBANISM



FRENCH  
MINISTRY OF  
ECOLOGICAL  
TRANSITION



FRENCH NATIONAL  
INSTITUTE OF  
GEOGRAPHIC  
INFORMATION



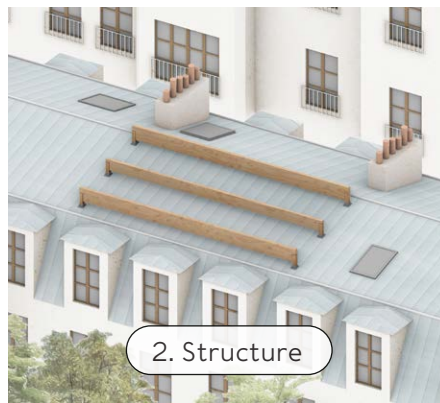
Artificial surfaces accentuate the urban heat island phenomenon and threaten biodiversity

## BACKGROUND

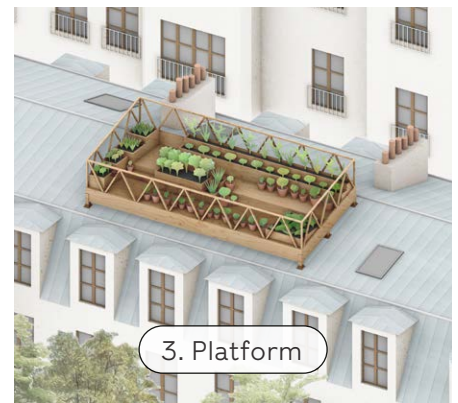
European cities are more than ever subject to densification, artificialization, and diminishing vegetation. These trends accelerate the effects of **urban heat islands, the collapse of biodiversity, and thermal discomfort**. Every summer, heatwaves highlight the unpreparedness of existing buildings to adapt to changing climate and needs, the **lack of accessible green spaces for inhabitants**, and more generally a **lag of climate resilience responses** at the urban scale. While flat roofs cover only one third of buildings in a city like Paris, heritage buildings with a pitched roof call for **climate-driven interventions that are tactical and respectful**. Roofscapes was launched to offer a scalable solution that **unlocks the full ecological and social potential of urban roofs** by enabling passive cooling for existing buildings while providing valuable outdoor spaces in city centers.



1. Support



2. Structure

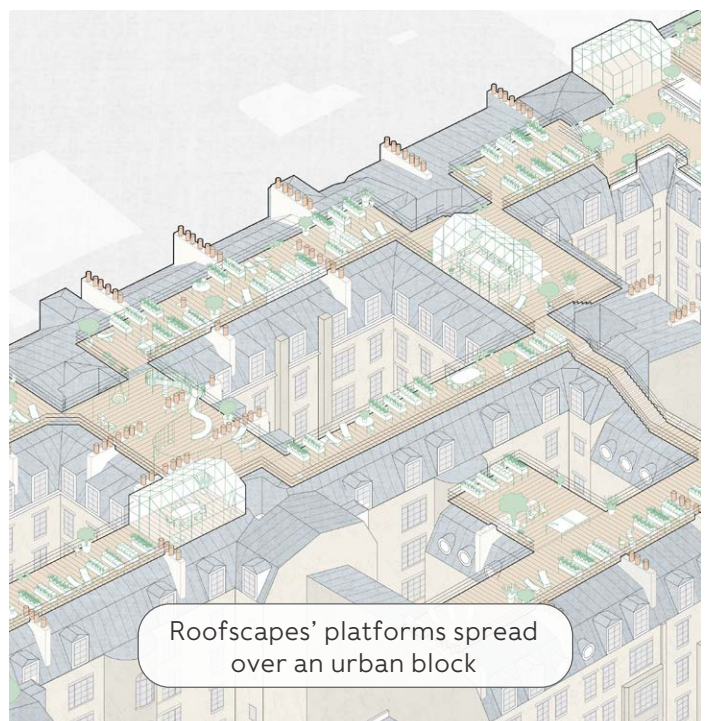


3. Platform

## SOLUTION

Roofscapes designs **accessible green roofs over unused pitched roofs, using a modular wood system** that can be deployed by tactically intervening on any type of building **without replacing the existing roof**. Our platforms are supported by a few poles anchored directly to the load-bearing walls of the building. This approach reduces the transformation of the existing roof while allowing access for inhabitants and thorough plant cover growth.

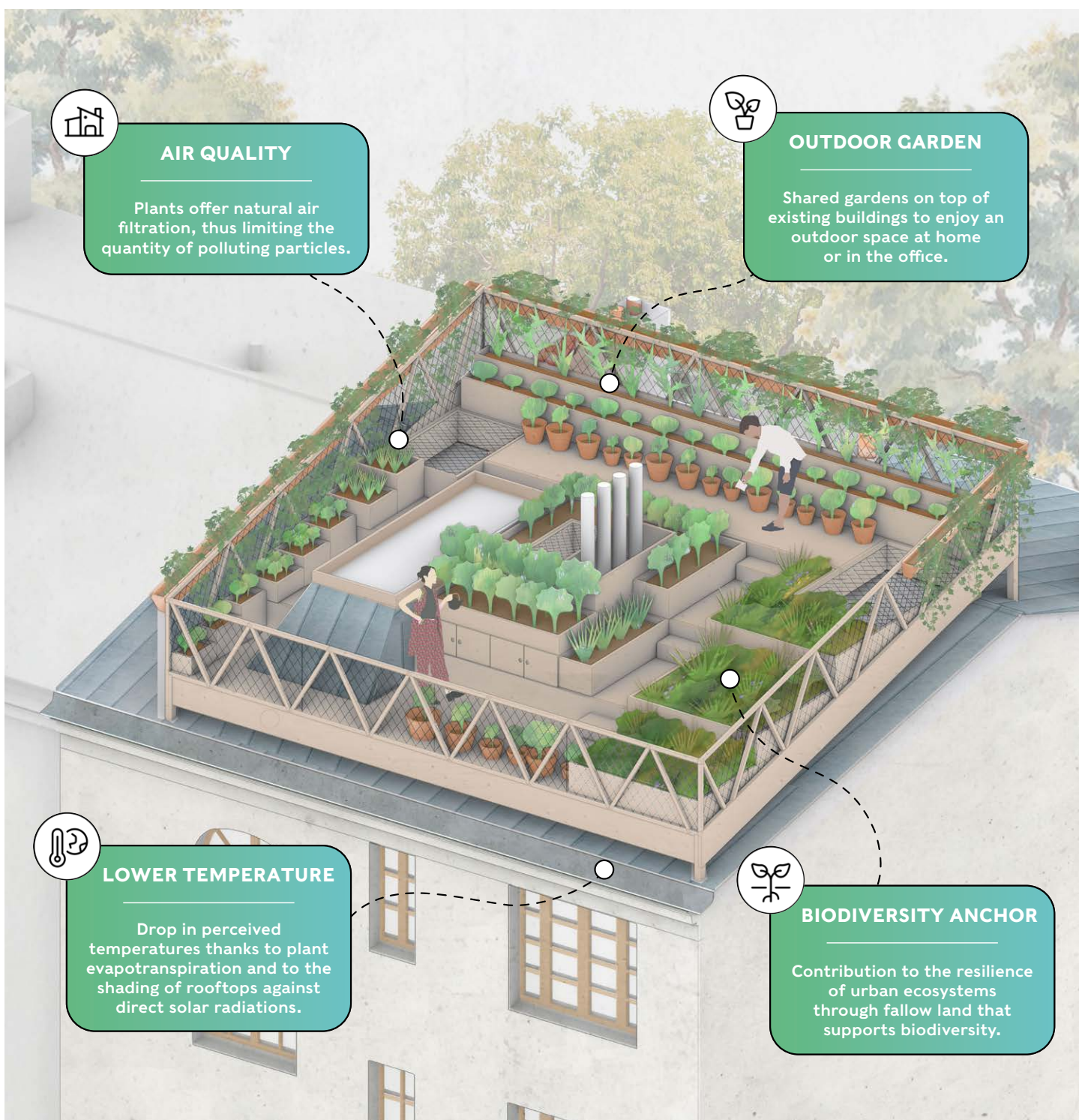
Roofscapes works with builders and operators to ensure the **installation and maintenance** of projects and the resilience of newly-formed ecosystems. We act as project managers for private, corporate, and institutional owners who wish to renovate their buildings, and we also operate as design consultants in larger real estate development projects.



Roofscapes' platforms spread over an urban block

# BENEFITS

Thanks to a tactical intervention method, Roofscapes fights the harmful effects of global warming on several levels. First, we **passively cool down cities**. At the building level, we **reduce temperatures** by covering high-albedo roofing materials with organic layers of timber and biomass. At the neighborhood scale, we harness plant evapotranspiration to **reduce air temperature and capture particle pollution**. As heat waves worsen, this groundwork is crucial to curb the large-scale deployment of air conditioners, which could in turn further increase urban temperatures by 3°C. In addition, Roofscapes provides **ecosystemic services through restoring urban biodiversity** by hosting insect pollinators and birds. The de-artificialization of roofs generated by Roofscapes also makes it possible to **store rainwater** and thus reduce the saturation of sewer systems during storms. Finally, Roofscapes offers **shared, elevated outdoor spaces** where residents and employees benefit from new opportunities to meet and exchange ideas - common spaces that are sorely lacking in today's buildings.



# WANT TO BRING THE FUTURE OF CLIMATE RESILIENCE TO YOUR CITY? LET'S MAKE IT HAPPEN TOGETHER!

## WHY WE DO ALL THIS

As climate-driven designers, we avoid approaches that involve demolishing existing buildings or developing new ones from scratch. Instead, **we pledge to reuse and improve** what is already built through innovative tactical interventions, always acting with an **economy of means**. We therefore consider the built heritage as our most valuable resource and are convinced that its improvement is the best way to prevent further urban sprawl and unnecessary waste of resources. To reduce the degradation of urban ecosystems, we aim to **create anchor fallow lands for biodiversity** by covering roof surfaces with a generous organic layer that reduces surface temperatures, improves air quality, increases stormwater retention, and provides new spaces for human and non-human species in cities. We champion the concept of a **renewed locality and support local building techniques** by partnering with craftsmen and **sourcing regionally-produced building materials**. To minimize the environmental footprint of our practice, we employ **low-carbon materials such as wood and bio-based composites** and incorporate **recycled elements** that empower the **circular economy**. In order to positively impact as many inhabitants as possible, we wish to address the lack of systemic approaches that results in the difficulty of carrying out renovation projects in urban settings by developing a flexible and easily-replicable method. We hope that you will join us in this mission to **adapt our cities to the ecological and societal challenges of the 21<sup>st</sup> century!**



Roofscapes' pavilion at the 2021 Seoul Biennale of Architecture and Urbanism titled "Building the Resilient City."

## OUR TEAM

Tim Cousin, Olivier Faber, and Eytan Levi met in 2014 while beginning their architecture studies at the **Ecole Polytechnique Fédérale de Lausanne (EPFL)** in Switzerland. After deepening their education at ETH Zürich and the University of Tokyo, they worked at several architectural firms, including **Junya Ishigami** in Tokyo, **Herzog & de Meuron** in Basel, **Cobe** in Copenhagen and **Rahul Mehrotra** in Mumbai. Tim, Olivier and Eytan then decided to finish their studies together at the **Massachusetts Institute of Technology (MIT)** between the Department of Architecture and the Center for Real Estate.

