


Comune di Milano

IED

# Living Layers *(1st winning prize)*

Portugal

**André Trindade** is cofounder of BY THE END OF MAY, a research and design studio, exploring how to make cities locally productive and self-sufficient.

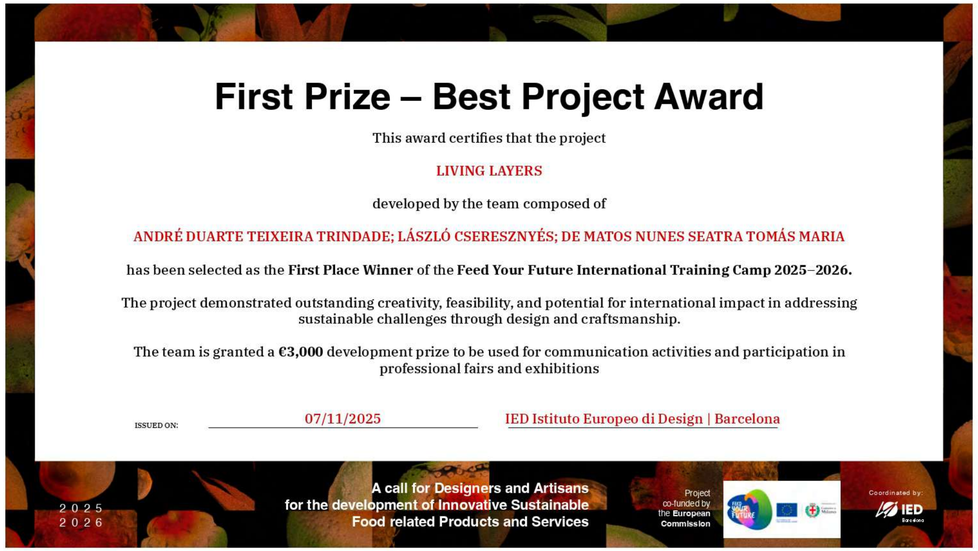
Hungary

**László Cseresznyés** is an architect, computational designer, researching biological intelligence, transforming his findings into an interspecies design practice.

Portugal

**Tomás Seatra** is a biologist, specialised in ecosystem science, currently working at Upfarming, implementing and maintaining vertical community gardens.

**Tutor and mentors:** Sebastian Alberdi, Marce de Medeiros



First Prize – Best Project Award

This award certifies that the project

LIVING LAYERS

developed by the team composed of

ANDRÉ DUARTE TEIXEIRA TRINDADE; LÁSZLÓ CSERESZNYÉS; DE MATOS NUNES SEATRA TOMÁS MARIA

has been selected as the **First Place Winner** of the **Feed Your Future International Training Camp 2025–2026.**

The project demonstrated outstanding creativity, feasibility, and potential for international impact in addressing sustainable challenges through design and craftsmanship.

The team is granted a **€3,000** development prize to be used for communication activities and participation in professional fairs and exhibitions

ISSUED ON: 07/11/2025 IED Istituto Europeo di Design | Barcelona

2025
2026

A call for Designers and Artisans
for the development of Innovative Sustainable
Food related Products and Services

Project co-funded by the European Commission

Coordinated by: IED Barcelona



# 3.1 Living Layers *(1st winning prize)*

***Project overview***

Living Layers is a **research-driven design project that explores new possibilities for urban agriculture within dense city environments**. The project proposes a **modular, vertically oriented structure designed to host plant growth while supporting biodiversity and improving environmental conditions in urban spaces**.

Inspired by ecological systems and vernacular irrigation techniques, **Living Layers investigates how computational design and digital fabrication can be used to create bioreceptive structures capable of supporting food production and microhabitats within compact urban contexts**.

The project reimagines underutilised urban spaces—such as courtyards, rooftops, and public squares—as productive ecological layers that contribute to more resilient and self-sufficient cities.



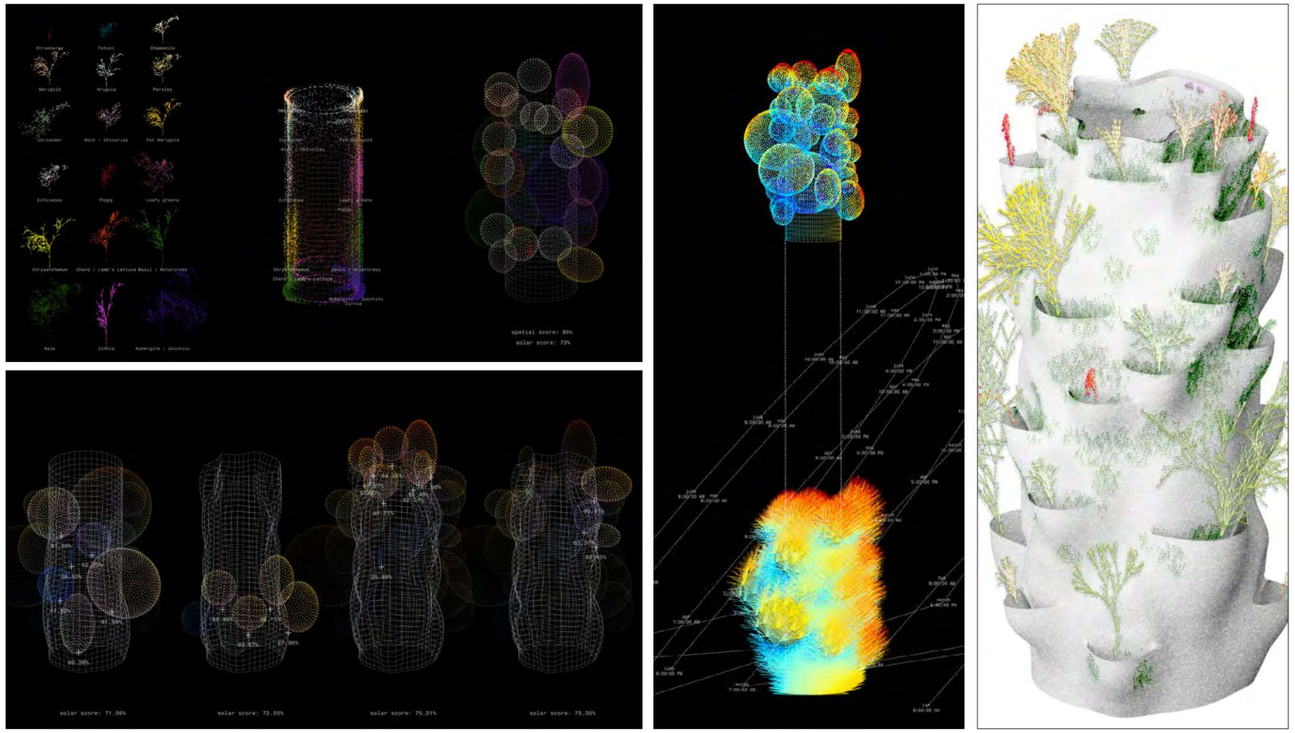
# 3.1.1 Description of prototype

***Design Concept and Development***

The design development of Living Layers is based on a **computational workflow that integrates environmental analysis with form-generation strategies** inspired by natural growth patterns.

The project began with the **study of different plant species and their spatial growth requirements**. This information was translated into a parametric model that simulates plant distribution within a vertical structure. **Solar exposure analysis** was then used to understand how sunlight conditions change throughout the year and how plants could be positioned to maximise their access to light.

Using **particle-based simulations and volumetric modelling techniques**, the team generated a series of cavities and growth pockets within a cylindrical base geometry. These simulations informed the final morphology of the structure, resulting in an **organic form characterised by multiple planting niches that support plant diversity while maintaining spatial efficiency**.

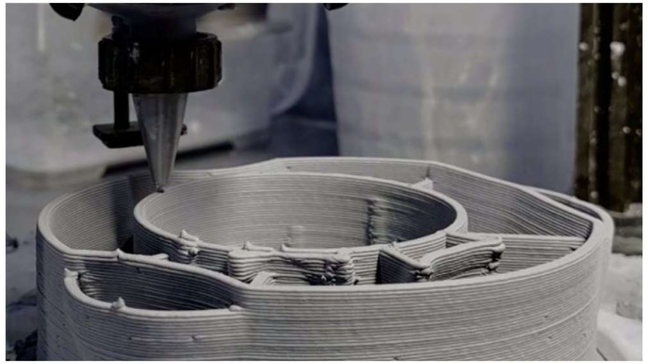


### *Prototype and Materials*

The project proposes a structure produced through **liquid deposition modelling (LDM) 3D printing**, using **locally sourced clay-based material composites**. This fabrication method allows the creation of **complex organic geometries that would be difficult to achieve with traditional manufacturing techniques**.

The material was selected for its potential **bioreceptive properties**, **enabling plants and microorganisms to interact naturally with the surface**. The porous geometry of the structure is designed to passively absorb and distribute water, supporting plant growth without relying on complex mechanical irrigation systems.

**The resulting prototype functions as a modular vertical planter that integrates planting cavities and water-retention features within a single continuous form**.







***Impact and Future Potential***

Living Layers addresses several contemporary environmental challenges, including **biodiversity loss, urban heat island effects, and the disconnection between urban populations and food production systems**.

By combining digital design tools with ecological thinking, the project proposes a **system that can transform underutilised urban spaces into productive ecological infrastructures**. Beyond food production, these structures have the potential to **improve urban biodiversity, enhance air quality, and foster new forms of interaction between people and nature**.

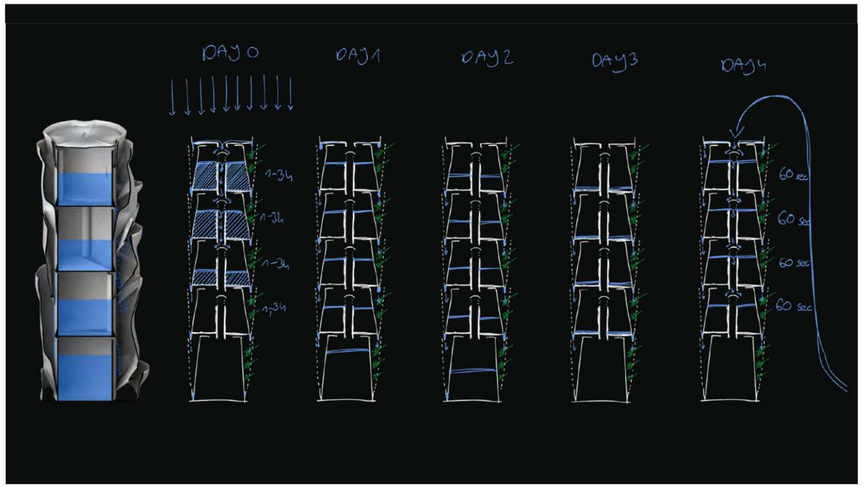
The project also embraces an **open-source approach**, envisioning the possibility of sharing design files and fabrication methods so that communities can locally reproduce and adapt the system.

In this way, Living Layers positions urban farming not only as a technological solution but also as **a collective and accessible practice that contributes to more resilient and regenerative cities**.



## 3.1.2 Visual documentation














[9] Living Layers_Final presentation.pdf
[10] Living Layers_Press-kit (content media folder)